Permit

Environmental Protection Act 1994

Environmental authority EA0001207

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

Environmental authority number: EA0001207

Environmental authority takes effect on a date to be decided later.

Environmental authority holder(s)

Name(s)	Registered address
SENEX ASSETS PTY LTD	144 Edward St BRISBANE CITY QLD 4000 Australia

Environmentally relevant activity and location details

Environmentally relevant activity/activities	Location(s)
Resource Activity, Schedule 2A, 08: A petroleum or GHG storage activity, other than items 1 to 7, that includes an activity from Schedule 2 with an AES	PL1037

Additional information for applicants

Environmentally relevant activities

The description of any environmentally relevant activity (ERA) for which an environmental authority (EA) is issued is a restatement of the ERA as defined by legislation at the time the EA is issued. Where there is any inconsistency between that description of an ERA and the conditions stated by an EA as to the scale, intensity or manner of carrying out an ERA, the conditions prevail to the extent of the inconsistency.

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

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

Contaminated land

It is a requirement of the EP Act that an owner or occupier of contaminated land give written notice to the administering authority if they become aware of the following:

- the happening of an event involving a hazardous contaminant on the contaminated land (notice must be given within 24 hours); or
- a change in the condition of the contaminated land (notice must be given within 24 hours); or
- a notifiable activity (as defined in Schedule 3) having been carried out, or is being carried out, on the contaminated land (notice must be given within 20 business days);

that is causing, or is reasonably likely to cause, serious or material environmental harm.

For further information, including the form for giving written notice, refer to the Queensland Government website www.qld.gov.au, using the search term ‘duty to notify’.

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Take effect

Please note that, in accordance with section 200 of the EP Act, an EA has effect:

a) if the authority is for a prescribed ERA and it states that it takes effect on the day nominated by the holder of the authority in a written notice given to the administering authority-on the nominated day; or
b) if the authority states a day or an event for it to take effect-on the stated day or when the stated event happens; or
c) otherwise-on the day the authority is issued.

However, if the EA is authorising an activity that requires an additional authorisation (a relevant tenure for a resource activity, a development permit under the Sustainable Planning Act 2009 or an SDA Approval under the State Development and Public Works Organisation Act 1971), this EA will not take effect until the additional authorisation has taken effect.

If this EA takes effect when the additional authorisation takes effect, you must provide the administering authority written notice within 5 business days of receiving notification of the related additional authorisation taking effect.

If you have incorrectly claimed that an additional authorisation is not required, carrying out the ERA without the additional authorisation is not legal and could result in your prosecution for providing false or misleading information or operating without a valid environmental authority.

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

Date issued: 22 March 2018

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Legislative Requirements and Conditions of Environmental Authority

SCHEDULE A – GENERAL

Authorised 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) The following specified relevant activities:

(i) Operating sewage treatment works at a site that has a **daily peak design capacity** of at least 21 **equivalent persons (EP)** to 100 EP, other than no-release works, where treated effluent is discharged from the works to an infiltration trench or through an irrigation scheme; or otherwise discharged on PLA 1037;

(c) **Incidental activities** that are not otherwise specified relevant activities.

Schedule A, Table 1 – Authorised Petroleum Activities

Petroleum Activities and Infrastructure	Scale	
	Maximum number of activities	**Intensity (maximum size or area)**
Wells	15	15 ha
Gas water gathering lines Water gathering lines Access track right of way	18m (width)	27 ha
Temporary camp	2	3 ha
Temporary sewage treatment facility	2	>21EP ≤ 100 EP per facility
Dams (low consequence)	2	8 ha
Borrow pit	1	2 ha
Laydown area	2	2 ha

(A2) The activities are authorised subject to the conditions of this environmental authority.

(A3) This environmental authority does not authorise **environmental harm** unless a condition contained in this environmental authority explicitly authorises that harm. Where there is no condition, the lack of a condition shall not be construed as authorising harm.

(A4) The following types of petroleum activities are not authorised:
- (a) processing or storing petroleum or petroleum by-products that are not necessarily associated with well operations
- (b) extracting earthen materials (other than drilling waste rock) of more than 100,000t/year
- (c) extracting by dredging of more than 1000t/year of material from the **bed** of naturally occurring surface waters
- (d) drilling wells with fluids that are **oil-based** or **synthetic oil-based**
- (e) carrying out **stimulation** activities.

Monitoring standards

(A5) All monitoring must be undertaken by a **suitably qualified person.**

(A6) If requested by the **administering authority** in relation to investigating a complaint, monitoring must be commenced within 10 business days.

(A7) All laboratory analyses and tests must be undertaken by a laboratory that has **NATA accreditation** for such analyses and tests.

(A8) Notwithstanding Condition (A7), 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.

(A9) 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* and/or Australian Standard AS3580, whichever is 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

(A10) 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) when the level of the contents of any **regulated dam** reaches the mandatory reporting level
- (d) when a regulated dam will not have available storage to meet the **design storage allowance** on 1 November of any year

(e) potential or actual loss of **well integrity**
(f) unauthorised releases of any volume of **prescribed contaminants** to waters
(g) unauthorised releases of volumes of contaminants, in any mixture, to land greater than:
    (i) i. 200 L of hydrocarbons; or
    (ii) i. 200 L of stimulation additives; or
    (iii) iv. 1 000 L of brine; or
    (iv) v. 5 000 L of untreated coal seam gas water; or
    (v) vi. 5 000 L of raw sewage; or
    (vi) vii. 10 000 L of treated sewage effluent.

(h) monitoring results where two out of any five consecutive samples do not comply with the relevant limits in the environmental authority.

Financial assurance

(A11) Petroleum activities that cause significant disturbance to land must not be carried out until financial assurance has been given to the administering authority as security for compliance with the environmental authority and any costs or expenses, or likely costs or expenses, mentioned in section 298 of the *Environmental Protection Act 1994*.

(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) regulated dams and **low consequence dams**;
(b) **exploration**, **appraisal** and **development wells**;
(c) water treatment facilities;
(d) brine encapsulation facilities;
(e) landfill cells;
(f) sewage treatment facilities;
(g) specifically authorised discharge points to air and waters;
(h) any chemical storage facility associated with the environmentally relevant activity of chemical storage; and
(i) compression and processing facilities.

(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.

Reporting

(A25) The annual return must include an Update Report detailing activities during the annual return period, demonstrating:
(a) significant disturbance during the period
(b) rehabilitation undertaken
(c) a list of all valid complaints relating to environmental issues made including the date, source, reason for the complaint and a description of investigations undertaken in resolving the complaint
(d) the results of all monitoring undertaken.

SCHEDULE B – WASTE

(B1) 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**.

(B2) 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 conditions of the environmental authority to be disposed of or used on site.

(B3) **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.

(B4) **Green waste** may be used on-site for either rehabilitation or sediment and erosion control, or both.

(B5) Vegetation waste may be burned if it relates to a state forest, timber reserve or forest entitlement area administered by the *Forestry Act 1959* and a permit has been obtained under the *Fire and Rescue Service Act 1990*.

Pipeline wastewater

(B6) **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

(B7) **Produced water** may be re-used in drilling and well hole activities.

(B8) 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
(iv) does not cause visible salting

(B9) 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.

(B10) If there is any indication that any of the circumstances in condition (B8(b)(i)) to (B8(b)(iv)) or (B9(a)) to (B9(d)) is occurring the use must cease immediately and the affected area must be remediated without delay.

Use of produced water for irrigation activities

(B11) Produced water used by an owner or occupier for domestic purposes or stock purposes in accordance with section 186 of the *Petroleum and Gas (Production and Safety) Act 2004* or section 86 of the *Petroleum Act 1923* must meet the irrigation or livestock watering criteria as relevant to those purposes in the *Australian and New Zealand Guidelines for Fresh and Marine Water Quality (2000)*.

Managing sewage effluent from mobile or temporary facilities

(B12) Treated sewage effluent or **greywater** can be released to land provided it:
- (a) meets or exceeds **secondary treated class B standards** for a treatment system with a **daily peak design capacity** of between 150 EP and 1500 EP; or
- (b) meets or exceeds **secondary treated class C standards** for a treatment system with a daily peak design capacity of less than 150 EP.

(B13) The release of treated sewage effluent or greywater authorised in condition (B12) must:
- (a) be to a fenced and signed contaminant release area(s)
- (b) not result in pooling or run-off or aerosols or spray drift or vegetation die-off
- (c) be to a contaminant release area(s) that is kept vegetated with groundcover, that is:
  - (i) not a declared pest species
  - (ii) kept in a viable state for transpiration and nutrient uptake; and
  - (iii) grazed or harvested and removed from the contaminant release area as needed, but not less than every three months.

Residual drilling material

(B14) If sumps are used to store **residual drilling material** or drilling fluids, they must only be used for the duration of drilling activities.

(B15) Residual drilling material can only be disposed of on-site:

- (a) by **mix-bury-cover method** if the residual drilling material meets the approved quality criteria; or
- (b) if it is certified by a suitably qualified third party as being of acceptable quality for disposal to land by the proposed method and that environmental harm will not result from the proposed disposal.

(B16) Records must be kept to demonstrate compliance with conditions (B14) and (B15).

SCHEDULE C – NOISE

(C1) Notwithstanding condition (A20), emission of noise from the petroleum activity(ies) at levels less than those specified in *Schedule C, Table 1—Noise nuisance limits* are not considered to be environmental nuisance.

Schedule C, Table 1 – Noise nuisance limits

Time period	Metric	Short term noise event	Medium term noise event	Long term noise event
7:00am—6:00pm	$L_{Aeq,adj,15\ min}$	45 dBA	43 dBA	40 dBA
6:00pm—10:00pm	$L_{Aeq,adj,15\ min}$	40 dBA	38 dBA	35 dBA
10:00pm—6:00am	$L_{Aeq,adj,15\ min}$	28 dBA	28 dBA	28 dBA
	Max $L_{pA,\ 15\ mins}$	55 dBA	55 dBA	55 dBA
6:00am—7:00am	$L_{Aeq,adj,15\ min}$	40 dBA	38 dBA	35 dBA

1. The noise limits in Schedule C, 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

(C2) If the noise subject to a **valid complaint** is tonal or **impulsive**, the adjustments detailed in *Schedule C, 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 C, 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

(C3) Notwithstanding condition (C1), emission of any low frequency noise must not exceed either (C3(a)) and (C3(b)), or (C3(c)) and (C3(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.

(C4) A Blast Management Plan must be developed for each blasting activity in accordance with Australian Standard 2187.

(C5) Blasting operations must be designed to not exceed an airblast overpressure level of 120 dB (linear peak) at any time, when measured at or extrapolated to any sensitive place.

(C6) Blasting operations must be designed to not exceed a ground-borne vibration peak particle velocity of 10mm/s at any time, when measured at or extrapolated to any sensitive place.

SCHEDULE D – AIR

(D1) 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 such that:
(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**.

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SCHEDULE E – LAND

General

(E1) Contaminants must not be directly or indirectly released to land except for those releases authorised by conditions (B6), (B8), (B9), (B11) and (B15).

Top soil management

(E2) **Top soil** must be managed in a manner that preserves its biological and chemical properties.

Land management

(E3) 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.

Acid sulfate soils

(E4) **Acid sulfate soils** must be treated and managed in accordance with the latest edition of the Queensland Acid Sulfate Soil Technical Manual.

Chemical storage

(E5) Chemicals and fuels stored, must be effectively contained and where relevant, meet Australian Standards, where such a standard is applicable.

Pipeline operation and maintenance

(E6) 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

(E7) Pipeline trenches must be backfilled and topsoils **reinstated** within three **months** after pipe laying.

(E8) **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.

(E9) 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 F – BIODIVERSITY

Confirming biodiversity values

(F1) 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.

(F2) A suitably qualified person must develop and certify a methodology so that condition (F1) can be complied with and which is appropriate to confirm on-the-ground biodiversity values.

(F3) Where mapped biodiversity values differ from those confirmed under conditions (F1) and (F2), 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

(F4) The location of the petroleum activity(ies) 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

Planning for land disturbance—linear infrastructure

(F5) 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.

(F6) Petroleum activities are not permitted in **Category A**, B or C environmentally sensitive areas (ESAs).

(F7) 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.

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SCHEDULE G – WATER

General

(G1) Contaminants must not be directly or indirectly released to waters.

Activities in wetlands, lakes, springs and watercourses

(G2) 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**.

(G3) Petroleum activities that require earthworks, vegetation clearing and/or placing fill, other than that associated with the construction of linear infrastructure, are not permitted in or within:
- (1) 200 metres of any **wetland**, **lake** or **spring**; or
- (2) 100 metres of the **outer bank** of any other **watercourse**

(G4) Only construction or maintenance of **linear infrastructure** is permitted in or within any **wetland of other environmental value** or in a watercourse.

(G5) The construction or maintenance or 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.

(G6) 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.

(G7) The construction and/or maintenance of linear infrastructure that will result in significant disturbance to a wetland, lake, spring or watercourse must be conducted in accordance with the following order of preference. Conducting works:
- (1) firstly, in times where there is no water present
- (2) secondly, in times of no flow
- (3) thirdly, in times of flow, but in a way that does not impede low flow.

(G8) The construction or maintenance of linear infrastructure authorised under condition (G4) must comply with the water quality limits as specified in *Schedule G, Table 1—Release limits for construction or maintenance of linear infrastructure*.

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

Water quality parameters	Units	Assessment procedure
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.

(G9) Monitoring must be undertaken at a frequency that is appropriate to demonstrate compliance with condition (G8).

Register of activities in wetlands and watercourses

(G10) 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:
- (a) location of the activity (e.g. GPS coordinates (**GDA**94) and watercourse name)
- (b) estimated flow rate of surface water at the time of the activity
- (c) duration of works, and
- (d) results of impact monitoring carried out under condition (G9).

Activities in Floodplains

(G11) Petroleum activity(ies) on **floodplains** must be carried out in a way that does not:
- (a) concentrate flood flows in a way that will or may cause or threaten a negative environmental impact; or
- (b) divert flood flows from natural drainage paths and alter flow distribution; or
- (c) increase the local duration of floods; or
- (d) increase the risk of detaining flood flows.

SCHEDULE H – WELL CONSTRUCTION, MAINTENANCE AND STIMULATION

Drilling activities

(H1) Oil based or **synthetic based drilling muds** must not be used in the carrying out of the petroleum activity(ies).

(H2) Drilling activities must not result in the connection of the target gas producing formation and another aquifer.

(H3) 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.

Stimulation activities

(H4) **Stimulation** activities are not permitted.

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SCHEDULE I – STRUCTURES

(I1) Other than for **flare pits** and sumps used to store **residual drilling material** and drilling fluids, the consequence **category** of any **dam** or **levee** to be used in carrying out petroleum activities must be assessed in accordance with the Queensland Government *Manual for assessing consequence categories and hydraulic performance of structures (2016).*

(I2) **Low consequence dams** must be:

(a) constructed, operated and maintained in accordance with **accepted engineering standards** currently appropriate for the purpose for which the dam is intended to be used; and

(b) designed with a floor and sides made of material that will contain the wetting front and any entrained contaminants within the bounds of the containment system during both its operational life and including any period of decommissioning and **rehabilitation**.

(I3) All low consequence dams must be monitored for early signs of loss of structural or hydraulic integrity as specified in the initial consequence assessment.

(I4) When no longer required all low consequence dams must be decommissioned to no longer accept inflow from the petroleum activities and be either:

(a) **rehabilitated**; or

(b) agreed to in writing by the administering authority and the landholder to remain in situ following the cessation of the petroleum activity(ies) associated with the dam, with the contained water of a quality suitable for the intended ongoing uses(s) by that landholder.

SCHEDULE J – REHABILITATION

Rehabilitation planning

(J1) 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 (J2) to (J6), inclusive; and
  - (ii) provide for appropriate monitoring and maintenance.

Transitional rehabilitation

(J2) **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

(J3) 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.

Final rehabilitation acceptance criteria in environmentally sensitive areas

(J4) Where significant disturbance to land has occurred in an environmentally sensitive area, the following final rehabilitation criteria as measured against the pre-disturbance biodiversity values assessment (required by conditions (F1) and (F2)) must be met:
(a) greater than or equal to 70% of native ground cover species richness;
(b) greater than or equal to the total per cent ground cover;
(c) less than or equal to the per cent species richness of declared plant pest species;
(d) greater than or equal to 50% of organic litter cover;
(e) greater than or equal to 50% of **total density of coarse woody material**; and
(f) all **predominant species** in the **ecologically dominant layer**, that define the pre-disturbance regional ecosystem(s) are present.

Continuing conditions

(J5) Conditions (J2), (J3) and (J4) continue to apply after this environmental authority has ended or ceased to have effect.

Remaining dams

(J6) 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.

DEFINITIONS

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.

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

acid sulfate soil(s) means a soil or soil horizon which contains sulfides or an acid soil horizon affected by oxidation of sulfides.

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

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.

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.

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.

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.

bed of any waters, has the meaning in Schedule 12 of the Environmental Protection Regulation 2008 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.

Category A Environmentally Sensitive Area means any area listed in Schedule 12, Section 1 of the Environmental Protection Regulation 2008.

Category B Environmentally Sensitive Area means any area listed in Schedule 12, Section 2 of the Environmental Protection Regulation 2008.

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

- nature refuges as defined in the conservation agreement for that refuge under *the Nature Conservation Act 1992*
- koala habitat areas as defined under the Nature Conservation (Koala) Conservation Plan 2006
- state forests or timber reserves as defined under the *Forestry Act 1959*
- regional parks (previously known as resource reserves) under the *Nature Conservation Act 1992*
- an area validated as 'essential habitat' or 'essential regrowth habitat' from ground-truthing surveys in accordance with the *Vegetation Management Act 1999* for a species of wildlife listed as endangered or vulnerable under the *Nature Conservation Act 1992*
- *'*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:
(i) the person's qualifications and experience relevant to the function
(ii) that the person has not knowingly included false, misleading or incomplete information in the document
(iii) that the person has not knowingly failed to reveal any relevant information or document to the administering authority
(iv) that the document addresses the relevant matters for the function and is factually correct; and
(v) that the opinions expressed in the document are honestly and reasonably held.

clearing has the meaning in the dictionary of the *Vegetation Management Act 2000* 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.

consequence category means a category, either low, significant or high, into which a dam is assessed as a result of the application of tables and other criteria in *Manual for assessing consequence categories and hydraulic performance of structures*, published by the Queensland Government, as amended from time to time.

control measure has the meaning in section 47 of the Environmental Protection Regulation 2008 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 Environmental Protection Regulation 2008 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.

design storage allowance or DSA means an available volume, estimated in accordance with the Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635), published by the administering authority, as amended from time to time, that must be provided in a dam to an annual exceedance probability specified in that Manual.

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 *Acts Interpretation Act 1954* and means:
- any paper or other material on which there is writing; and

- any paper or other material on which there are marks; and
- figures, symbols or perforations having a meaning for a person qualified to interpret them; and
- any disc, tape or other article or any material from which sounds, images, writings or messages are capable of being produced or reproduced (with or without the aid of another article or device).

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 Environmental Protection Act 1994 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.

environmentally sensitive area means Category A, B or C environmentally sensitive areas (ESAs).

environmental nuisance has the meaning in section 15 of the *Environmental Protection Act 1994* 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.

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 Environmental Protection Regulation 2008 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:
(i) explore for the presence of petroleum or natural underground reservoirs suitable for storing petroleum; or
(ii) obtain stratigraphic information for the purpose of exploring for petroleum.
For clarity, an exploration well does not include an appraisal or development well.

flare pit has the meaning in the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures* (EM635), and means containment area where any hydrocarbon that is discovered in an over-pressured reservoir during a drilling operation is diverted to, and combusted, The flare pit is only used during the drilling and work over process on a petroleum well.

flare precipitant means waste fluids which result from the operation of a flare.

floodplains has the meaning in the *Water Act 2000* and means an area of reasonably flat land adjacent to a watercourse that—
- is covered from time to time by floodwater overflowing from the watercourse; and
- does not, other than in an upper valley reach, confine floodwater to generally follow the path of the watercourse; and

- has finer sediment deposits than the sediment deposits of any bench, bar or in-stream island of the watercourse.

GDA means Geocentric Datum of Australia.

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.

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.

incidental activity for this environmental authority means an activity that is not a specified relevant activity and is necessary to carry out the activities listed in *Schedule A, Table 1 – Authorised Petroleum Activities.*

lake means:
(i) a lagoon, swamp or other natural collection of water, whether permanent or intermittent; and
(ii) the bed and banks and any other element confining or containing the water.

land degradation has the meaning in the *Vegetation Management Act 1999* 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 *Water Act 2000*.

linear infrastructure means powerlines, pipelines, flowlines, roads and access tracks.

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.

Max LpA, 15 min means the absolute maximum instantaneous A-weighted sound pressure level, measured over 15 minutes.

Max LpZ, 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.

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

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

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

oil-based in relation to a fluid, means where the base fluid is a petroleum product such as diesel fuel.

outer bank has the meaning in section 5A of the *Water Act 2000*.

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 *Environmental Protection Act 1994* and means:
(a) earth; or
(b) a contaminant prescribed under section 440ZF.

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 *Petroleum and Gas (Production and Safety) Act 2004* 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.

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).

regulated dam means any dam in the significant or high consequence category as assessed using the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures* (EM635), published by the administering authority, as amended from time to time.

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.

restricted stimulation fluids has the meaning in section 206 of the *Environmental Protection Act 1994* 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 treated class B standards means treated sewage effluent or greywater which meets the following standards:
- total phosphorous as P, maximum 20mg/L
- total nitrogen as N, maximum 30mg/L

- 5-day biochemical oxygen demand (inhibited) (e.g. release pipe from sewage treatment plant), maximum 20mg/L
- suspended solids, maximum 30mg/L
- pH, range 6.0 to 8.5
- e-coli, 80th percentile based on at least 5 samples with not less than 30 minutes between samples, 1000cfu per 100mL, maximum 10 000cfu per 100mL.

secondary treated class C standards means treated sewage effluent or greywater which meets the following standards:

- total phosphorous as P, maximum 20mg/L
- total nitrogen as N, maximum 30mg/L
- 5-day biochemical oxygen demand (inhibited) (e.g. Release pipe from sewage treatment plant), maximum 20mg/L
- suspended solids, maximum 30mg/L
- pH, range 6.0 to 8.5
- e-Coli, 80th percentile based on at least 5 samples with not less than 30 minutes between samples, 10 000cfu per 100mL, maximum 100 000cfu per 100mL.

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 Environmental Protection (Noise) Policy 2008.

sensitive receptor is defined in Schedule 2 of the Environmental Protection (Noise) Policy 2008, 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 Environmental Protection Regulation 2008. Land is significantly disturbed if—
(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.

spring(s) has the meaning in Schedule 4 of the *Water Act 2000*

stable has the meaning in Schedule 5 of the Environmental Protection Regulation 2008 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 a natural underground reservoir that is undertaken above the formation pressure and involves the addition of chemicals. It includes hydraulic fracturing/hydrofraccing, fracture acidizing and the use of proppant treatments.

Explanatory note: This definition is restricted from that in the *Petroleum and Gas (Production and Safety) Act 2004* in order to only capture the types of stimulation activities that pose a risk to the 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.

structure means a dam or levee.

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.

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.

synthetic oil-based means for a mud or drilling fluid, the base fluid being 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.

valid complaint means all complaints unless considered by the administering authority to be frivolous, vexatious or based on mistaken belief.

waste and resource management hierarchy has the meaning provided in section 9 of the *Waste Reduction and Recycling Act 2011 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 *Waste Reduction and Recycling Act 2011* 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 Environmental Protection Act 1994 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 *Environmental Protection Act 1994* and means:
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.

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 Environmental Protection Regulation 2008; 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.

Department of Environment and Heritage Protection
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