

# Permit

**Environmental Protection Act 1994**

**Environmental authority EPPG03219115**

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

**Environmental authority number: EPPG03219115**

**Environmental authority takes effect on 17 July 2020**

**Environmental authority holder(s)**

| Name(s)                     | Registered address                                         |
|-----------------------------|------------------------------------------------------------|
| ARROW CSG (ATP 364) PTY LTD | Level 39 111 Eagle Street BRISBANE CITY QLD 4000 Australia |
| CH4 PTY LTD                 | Level 39 111 Eagle Street 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 | PL486       |

**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](http://www.qld.gov.au), using the search term 'duty to notify'.

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.

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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.

Clancy Mackaway  
Department of Environment and Science  
Delegate of the administering authority  
*Environmental Protection Act 1994*

**Enquiries:**  
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**Obligations under the *Environmental Protection Act 1994***

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

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

**SCHEDULE A — GENERAL ENVIRONMENTAL PROTECTION****Authorised activities**

- (A1) This environmental authority authorises the carrying out of the following resource activities:
- the petroleum activities and specified relevant activities listed in **Schedule A, Table 1 – Authorised Resource Activities** to the extent they are carried out in accordance with the activity's corresponding scale or intensity or both (where applicable); and
  - incidental activities that are not otherwise specified relevant activities.

**Schedule A, Table 1 – Authorised Resource Activities**

| Authorised Resource Activity                                                                                                                                         | Scale               |                            | Intensity     |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|----------------------------|---------------|
|                                                                                                                                                                      | Maximum size        | Location                   |               |
| Petroleum activities                                                                                                                                                 |                     |                            |               |
| Coal seam gas wells                                                                                                                                                  | 263ha               | Within <u>project area</u> | 157 well pads |
| Specified relevant activities                                                                                                                                        |                     |                            |               |
| Sewage treatment works – other than no release works, where treated effluent is discharged from the works to an infiltration trench or through an irrigation scheme. | >21 to 100EP        | Multiple                   | 9 Mobile      |
|                                                                                                                                                                      | >100 to 1,500EP     | Lot 3 on Plan SP199176.    | 1 Fixed       |
| Low consequence dams                                                                                                                                                 | Within project area |                            | 16            |

- (A2) The authorised resource activities are authorised subject to the conditions of this environmental authority.
- (A3) This environmental authority authorises a relevant act<sup>1</sup> to occur only to the extent that:
- the relevant act is an ordinary consequence of carrying out the resource activities authorised by this environmental authority in accordance with its conditions; or
  - the relevant act is specifically authorised by the conditions of this environmental authority and carrying out an activity which results in the relevant act does not contravene the conditions of this authority.

<sup>1</sup> See section 493A of the *Environmental Protection Act 1994*

**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*, 3<sup>rd</sup> edition (*National Committee on Soil and Terrain*, 2009); and
  - (f) for dust, *Australian Standard 3580*.
- (A9) Monitoring and sampling must be undertaken at the frequencies required by the environmental authority unless the monitoring and sampling cannot be safely undertaken due to exceptional circumstances.

**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/contaminant storage tank
  - (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:

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- i. 200L of hydrocarbons; or
  - ii. 200L of stimulation additives; or
  - iii. 500L of stimulation fluids; or
  - iv. 1,000L of brine; or
  - v. 5,000L of produced water; or
  - vi. 5,000L of raw sewage; or
  - vii. 10,000L 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 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; and
- (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, development and CSG wells
  - (c) sewage treatment facilities
  - (d) any chemical storage facility associated with the environmentally relevant activity of chemical storage
  - (e) field compressor stations
  - (f) central compressor stations
  - (g) gas processing facilities; and
  - (h) pipeline compressor stations.
- (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).

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**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 (including any current published guidelines) 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 —WASTE MANAGEMENT****General waste management**

- (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 reuse, remediation, recycling or disposal, unless the waste is specifically authorised by conditions (B4), (B5), (B6), (B7), (B8), (B9), (B11), (B13) or (B16) 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 waste water**

- (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 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; and
    - 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.

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

**Sewage treatment**

- (B11) 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 150EP and 1,500EP; or
  - (b) meets or exceeds secondary treated class C standards for a treatment system with a daily peak design capacity of less than 150EP.
- (B12) The release of treated sewage effluent or greywater authorised in condition (B11) must:
- (a) be to a fenced and signed contaminant release area(s)
  - (b) not result in pooling or run-off 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.
- (B13) Notwithstanding condition (B11), treated sewage effluent that meets or exceeds secondary treated class A standards may be used for dust suppression or construction activities, provided the use meets the criteria in condition (B8) or (B9), as relevant to the use.
- (B14) Sewage pump stations must be fitted with a:
- (a) stand-by pump; and
  - (b) high level alarm to warn of imminent pump station overflow, that operates without mains power or with a back-up power source that starts automatically in the event of a power failure.

**Residual drilling material**

- (B15) If sumps are used to store residual drilling material or drilling fluids, they must only be used for the duration of drilling activities.
- (B16) Residual drilling material can only be disposed 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.
- (B17) Records must be kept to demonstrate compliance with condition (B15) and (B16).

**Onsite waste disposal**

- (B18) Dedicated landfill facilities for the disposal of general and regulated waste are not authorised under this Authority.

**SCHEDULE C—PROTECTING ACOUSTIC VALUES**

- (C1) Notwithstanding condition (A18), 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                            | <u>Short term noise event</u> | <u>Medium term noise event</u> | <u>Long term noise event</u> |
|----------------|-----------------------------------|-------------------------------|--------------------------------|------------------------------|
| 7:00am—6:00pm  | <u>L<sub>Aeq,adj,15min</sub></u>  | 45dBA                         | 43dBA                          | 40dBA                        |
| 6:00pm—10:00pm | <u>L<sub>Aeq,adj,15min</sub></u>  | 40dBA                         | 38dBA                          | 35dBA                        |
| 10:00pm—6:00am | <u>L<sub>Aeq,adj,15min</sub></u>  | 30dBA                         | 30dBA                          | 30dBA <sup>1</sup>           |
|                | <u>Max L<sub>pA, 15mins</sub></u> | 55dBA                         | 55dBA                          | 55dBA                        |
| 6:00am—7:00am  | <u>L<sub>Aeq,adj,15min</sub></u>  | 40dBA                         | 38dBA                          | 35dBA                        |

<sup>1</sup>The noise limits in **Schedule C, Table 1 – Noise nuisance limits** have been set based on the following deemed background noise levels (L<sub>ABG</sub>)

7:00am — 6:00pm: 35dBA  
 6:00pm — 10:00pm: 30dBA  
 10:00pm — 6:00am: 26dBA  
 6:00am — 7:00am: 30dBA

- (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<sub>Aeq, adj, 15min</sub>.

**Schedule C, Table 2—Adjustments to be added to noise levels at sensitive receptors**

| Noise characteristic                    | Adjustment to noise |
|-----------------------------------------|---------------------|
| Tonal characteristic is just audible    | + 2dBA              |
| Tonal characteristic is clearly audible | + 5dBA              |
| Impulsive characteristic is detectable  | + 2dBA + 5dBA       |

- (C3) Notwithstanding condition (C1), emission of any low frequency noise must not exceed either condition (C3)(a) and condition (C3)(b), or condition (C3)(c) and condition (C3)(d) in the event of a valid complaint about low frequency noise being made to the administering authority:
- (a) 60dB(C) measured outside the sensitive receptor; and
  - (b) the difference between the external A-weighted and C-weighted noise levels is no greater than 20dB; or
  - (c) 50dB(Z) measured inside the sensitive receptor; and

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- (d) the difference between the internal A-weighted and Z-weighted (Max  $L_{pZ, 15min}$ ) noise levels is no greater than 15dB.
- (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 120dB (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—PROTECTING AIR VALUES****Venting and flaring**

- (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 that complies with all of condition (D1)(a) and condition (D1)(b) and condition (D1)(c), or with condition (D1)(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.
- (D2) A fuel burning or combustion facility is not permitted under this Authority.

**SCHEDULE E—PROTECTING LAND VALUES****General**

- (E1) Contaminants must not be directly or indirectly released to land except for those releases authorised by conditions (B4), (B5), (B6), (B7), (B8), (B9), (B11), (B13) or (B16).

**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 six 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 either:
    - i. vegetated with groundcover consistent with the surrounding area which includes suitable native species of vegetation for the location of the authorised activity and is not a declared pest species, and which is established and growing, or
    - ii. effectively stabilised with an alternative soil stabilisation methodology.

**SCHEDULE F—PROTECTING BIODIVERSITY VALUES****Confirming biodiversity values**

- (F1) Prior to undertaking activities that will 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 condition (F1) and condition (F2), petroleum activities may proceed in accordance with the conditions of the environmental authority based on the confirmed on-the-ground biodiversity value, subject to compliance with conditions (F6), and (F7).

**Planning for land disturbance**

- (F4) 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.

**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.

**Authorised disturbance to Environmentally Sensitive Areas**

- (F6) Where petroleum activities are to be carried out in environmentally sensitive areas or their protection zones, the petroleum activities must be carried out in accordance with **Schedule F, Table 1 – Authorised petroleum activities in environmentally sensitive areas and their protection zones.**

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Schedule F, Table 1 – Authorised petroleum activities in environmentally sensitive areas and their protection zones

| Environmentally sensitive area                                                                                                            | Within the environmentally sensitive area       | Primary protection zone of the environmentally sensitive area | Secondary protection zone of the environmentally sensitive area |
|-------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|---------------------------------------------------------------|-----------------------------------------------------------------|
| <u>Category A environmentally sensitive areas</u>                                                                                         | No petroleum activities permitted.              | Only <u>low impact petroleum activities</u> permitted.        | Only essential petroleum activities permitted.                  |
| <u>Category B environmentally sensitive areas</u> that are other than 'endangered' regional ecosystems                                    | Only low impact petroleum activities permitted. | Only low impact petroleum activities permitted.               | Only essential petroleum activities permitted.                  |
| Category B environmentally sensitive areas that are 'endangered' regional ecosystems                                                      | Only low impact petroleum activities permitted. | Only essential petroleum activities permitted.                | Only essential petroleum activities permitted.                  |
| <u>Category C environmentally sensitive areas</u> that are 'nature refuges' or 'koala habitat'                                            | Only low impact petroleum activities permitted. | Only low impact petroleum activities permitted.               |                                                                 |
| Category C environmentally sensitive areas that are 'essential habitat', 'essential regrowth habitat' or 'of concern' regional ecosystems | Only low impact petroleum activities permitted. | Only essential petroleum activities permitted.                |                                                                 |
| Category C environmentally sensitive areas that are 'resources reserves' (previously known as 'resource reserves') and conservation parks | Only essential petroleum activities permitted.  | Only essential petroleum activities permitted.                |                                                                 |
| Category C environmentally sensitive areas that are 'state forests' or 'timber reserves'                                                  | Only essential petroleum activities permitted.  | Petroleum activities permitted.                               |                                                                 |

## Impacts to prescribed environmental matters

(F7) Despite condition (F6), the following infrastructure can be undertaken within the primary and secondary protection zones of category B and C ESAs:

- (a) well pads
- (b) main construction village
- (c) construction water pipeline; and
- (d) incidental activities.

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- (F8) Despite condition (F6), impacts to prescribed environmental matters, other than by low impact activities or if the impacts were authorised by an existing authority prior to 3 August 2015 are not authorised under this environmental authority, unless the impact(s) is specified in **Schedule F, Table 2 – Authorised impacts to prescribed environmental matters**.

Schedule F, Table 2 – Authorised impacts to prescribed environmental matters

| Prescribed environmental matter                                                                                             | Location of impact  | Maximum impact (ha) | Environmental offset required <sup>2</sup> |
|-----------------------------------------------------------------------------------------------------------------------------|---------------------|---------------------|--------------------------------------------|
| REGULATED VEGETATION                                                                                                        |                     |                     |                                            |
| Endangered regional ecosystems:                                                                                             |                     |                     |                                            |
| RE 11.3.1                                                                                                                   | Within project area | 2                   | No (MNES)                                  |
| RE 11.4.8                                                                                                                   |                     | 1.5                 | No (MNES)                                  |
| RE 11.4.9                                                                                                                   |                     | 5                   | No (MNES)                                  |
| RE 11.5.16                                                                                                                  |                     | 1                   | No (MNES)                                  |
| RE 11.8.13                                                                                                                  |                     | 0.7                 | No (MNES)                                  |
| RE 11.9.5                                                                                                                   |                     | 2                   | No (MNES)                                  |
| Of concern regional ecosystems (not within an urban area):                                                                  |                     |                     |                                            |
| RE 11.3.2                                                                                                                   | Within project area | 5.5                 | Yes                                        |
| RE 11.8.11                                                                                                                  |                     | 183                 | No (MNES)                                  |
| RE 11.9.7                                                                                                                   |                     | 2.6                 | Yes                                        |
| RE 11.9.7a                                                                                                                  |                     | 0.07                | No                                         |
| Essential habitat (not in an urban area) for vulnerable wildlife:                                                           |                     |                     |                                            |
| Dichanthium queenslandicum (King blue-grass)                                                                                | Within project area | 10.81               | No (MNES)                                  |
| Geophaps scripta scripta (Squatter pigeon (southern subspecies))                                                            |                     | 19                  | No (MNES)                                  |
| Denisonia maculata (Ornamental snake)                                                                                       |                     | 13                  | No (MNES)                                  |
| Regional ecosystems (not within an urban area) within a defined distance from the defining banks of a relevant watercourse: |                     |                     |                                            |
| RE11.8.5 (BVG 11a)                                                                                                          | Within project area | 0.21                | Yes                                        |
| RE11.7.4 (BVG12d)                                                                                                           |                     | 0.4                 | Yes                                        |
| RE11.3.25 (BVG16a)                                                                                                          |                     | 2.5                 | Yes                                        |
| RE11.3.2/11.5.3/11.9.7 (BVG17a)                                                                                             |                     | 0.5                 | Yes                                        |
| RE11.5.9 (BVG18b)                                                                                                           |                     | 0.1                 | Yes                                        |

<sup>2</sup> A 'No (MNES)' response in the 'environmental offset required' column of **Schedule F, Table 3 – Authorised impacts to prescribed environmental matters** indicates that the prescribed environmental matter is also a matter of national environmental significance. Section 15 of the *Environmental Offsets Act 2014* prohibits the administering authority from imposing an environmental offset condition if: (a) the same, or substantially the same, impact; and (b) the same, or substantially the same prescribed environmental matter have been assessed under the *Environment Protection and Biodiversity Conservation Act 1999* (Cwlth).

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|                                                                     |                     |                     |                                            |
|---------------------------------------------------------------------|---------------------|---------------------|--------------------------------------------|
| RE11.7.2 (BVG 24a)                                                  |                     | 0.5                 | Yes                                        |
| RE11.3.1/11.4.8/11.4.9 (BVG25a)                                     |                     | 0.5                 | Yes                                        |
| RE11.8.11 (BVG30b)                                                  |                     | 0.1                 | Yes                                        |
| CONNECTIVITY                                                        |                     |                     |                                            |
| Connectivity areas that are regional ecosystems (not in urban area) | Within project area | 205                 | Yes                                        |
| Habitat for an animal that is endangered wildlife:                  |                     |                     |                                            |
| Erythrotriorchis radiatus (Red goshawk)                             | Within project area | 12.59               | No (MNES)                                  |
| Prescribed environmental matter                                     | Location of impact  | Maximum impact (ha) | Environmental offset required <sup>2</sup> |
| Habitat for an animal that is vulnerable wildlife:                  |                     |                     |                                            |
| Chalinolobus dwyeri (Large-eared pied bat)                          | Within project area | 227.55              | No (MNES)                                  |
| Nyctophilus corbeni (South-eastern Long-eared bat)                  |                     | 291.77              | No (MNES)                                  |
| Habitat for an animal that is special least concern wildlife:       |                     |                     |                                            |
| Phascolarctos cinereus (Koala)                                      | Within project area | 28.56               | No (MNES)                                  |
| Tachyglossus aculeatus (Short-beaked echidna)                       |                     | 300                 | No                                         |
| WATERWAY PROVIDING FOR FISH PASSAGE                                 |                     |                     |                                            |
| Category 1 (Low)                                                    | Within project area | 0.1                 | No                                         |
| Category 2                                                          |                     | 0.05                | No                                         |
| Category 3                                                          |                     | 0.03                | No                                         |
| Category 4                                                          |                     | 0.01                | No                                         |

- (F9) An environmental offset made in accordance with the *Environmental Offsets Act 2014* and Queensland Environmental Offsets Policy (Version 1.6), as it is amended from time to time, must be undertaken for each impact specified in **Schedule F, Table 1 – Authorised impacts to prescribed environmental matters** as requiring an environmental offset, unless a lesser extent for each impact has been approved in accordance with condition (F14).

**Staged impacts**

- (F10) The impacts to prescribed environmental matters authorised in condition (F8) for which an environmental offset is required by condition (F9) may be carried out in stages. An environmental offset can be delivered for each stage of the impacts to prescribed environmental matters.
- (F11) Prior to the commencement of each stage, a report that includes an analysis of the following must be provided to the administering authority:
- for the forthcoming stage—the estimated maximum impact to each prescribed environmental matter; and
  - for the previous stage, if applicable—the actual impact to each prescribed environmental matter.

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- (F12) The report required by condition (F11) must be approved by the administering authority before a notice of election for the forthcoming stage, if applicable, is given to the administering authority.
- (F13) A notice of election referred to in condition (F12), if applicable, must be provided to the administering authority no less than three months before the proposed commencement of that stage, unless a lesser timeframe has been agreed to by the administering authority.
- (F14) Within six months from the completion of the final stage of the project, a report that includes the following matters must be provided to the administering authority:
- (a) an analysis of the actual impacts on prescribed environmental matters resulting from the final stage; and
  - (b) if applicable, a notice of election to address any outstanding offset debits for the authorised activities.

**SCHEDULE G—PROTECTING WATER VALUES****Authorised impacts to waters**

- (G1) 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**

- (G2) The extraction of groundwater as part of the petroleum activities from underground aquifers must not directly or indirectly cause environmental harm to a wetland.

**Authorised activities in waters**

- (G3) Petroleum activities must not occur in or within 200m of a:
- (a) wetland of high ecological significance
  - (b) Great Artesian Basin Spring; or
  - (c) subterranean cave GDE.
- (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 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.
- (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 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.

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- (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                               | Water quality limits                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|--------------------------|-------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Turbidity                | Nephelometric Turbidity Units (NTU) | For a wetland of other environmental value, if background water turbidity is above 45NTU, no greater than 25% above background water turbidity measured within a 50m radius of the construction or maintenance activity.<br><br>For a watercourse, if background water turbidity is above 45NTU, 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 45NTU, a turbidity limit of no greater than 55NTU applies, measured within a 50m radius of the construction or maintenance activity.<br><br>For a watercourse, if background water turbidity is equal to, or below 45 NTU, a turbidity limit of no greater than 55NTU 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:
- 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 (G9).

**Activities in Floodplains**

- (G11) Petroleum activities 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.

**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 (H8), 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; and
    - 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 predisturbed 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**

- (H4) 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 condition (F1) and condition (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**

- (H5) Conditions (H2), (H3) and (H4) continue to apply after this environmental authority has ended or ceased to have effect.

**Remaining dams**

- (H6) 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 use(s) by the landholder or overlapping tenure holder.

**SCHEDULE I — WELL CONSTRUCTION, MAINTENANCE AND STIMULATION ACTIVITIES****Drilling activities**

- (I1) Oil based or synthetic based drilling muds must not be used in the carrying out of the petroleum activities.
- (I2) Drilling activities must not result in the connection of the target formation and another aquifer.
- (I3) 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 Risk Assessment**

- (I4) Prior to undertaking stimulation activities, a risk assessment must be developed to ensure that stimulation activities are managed to prevent environmental harm.
- (I5) 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 gas 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 gas 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 gas 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 gas 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 gas 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 gas 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**

- (l6) Prior to undertaking any stimulation activity, an assessment must be undertaken of the water quality of:

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- (a) all landholder's active groundwater bores (subject to access being permitted by the landholder) that are spatially located within a 2km horizontal radius from the location of the stimulation initiation point within the target gas 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 gas producing formation and is spatially located with a two 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 (I4) and (I5).
- (I7) 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 (I8).
- (I8) Water quality assessments required by conditions (I6) and (I7) 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  $\text{CaCO}_3$ ) [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 [mg/L] and total [mg/L] 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
  - (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) formaldehyde [mg/L]
  - (q) ethanol [mg/L]; and

- (r) gross alpha + gross beta or radionuclides by gamma spectroscopy [Bq/L].

### Stimulation Impact Monitoring Program

- (I9) 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 (I4) and (I5) 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 (I6).
- (I10) 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 (I8); 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.
- (I11) The Stimulation Impact Monitoring Program must provide for monitoring of the bores in condition (I9)(d) 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 (I8)(a) to (I8)(t) inclusive, are not detected in concentrations above baseline bore monitoring data on two consecutive monitoring occasions.
- (I12) The results of the Stimulation Impact Monitoring Program must be made available to any potentially affected landholder upon request by that landholder.

### Stimulation Activities

- (I13) No stimulation activities are permitted under this Authority. .

**SCHEDULE J—REGULATED STRUCTURES****Assessment of consequence category**

- (J1) 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/2016/199), as amended from time to time, at the following times:
- (a) prior to the design and construction of the structure, if it is not an existing structure; or
  - (b) if it is an existing structure, prior to the adoption of this schedule; or
  - (c) prior to any change in its purpose or the nature of its stored contents.
- (J2) 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.
- (J3) 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/2016/199) as amended from time to time).
- (J4) Regulated structures are not permitted under this Authority.

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## APPENDIX K – DEFINITIONS

Key terms and/or phrases used in this document are defined in this section and underlined throughout this document where they first appear in the conditions. Applicants should note that where a term is not defined, the definition in the *Environmental Protection Act 1994*, its regulations or environmental protection policies must be used.

|                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| acceptable standards for release to land | means wastewater of the following quality as determined by monitoring results or by characterisation:<br>(a) electrical conductivity (EC) not exceeding 3,000µS/cm<br>(b) sodium adsorption ratio (SAR) not exceeding 8<br>(c) pH between 6.0 and 9.0<br>(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<br>(e) does not contain biocides. |
| acid sulfate soil(s)                     | means a soil or soil horizon which contains sulfides or an acid soil horizon affected by oxidation of sulfides.                                                                                                                                                                                                                                                                                                                                                                                                      |
| adjacent land use(s)                     | means the <u>ecosystem function</u> 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:<br>(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<br>(b) for all other matters—the Chief Executive of the Department of Environment and Heritage Protection; or<br>(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.                                                       |

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| analogue site(s)          | means an area of land which contains values and characteristics representative of an area to be rehabilitated prior to disturbance. Such values must encompass land use, topographic, soil, vegetation, vegetation community attributes and other ecological characteristics. Analogue sites can be the pre-disturbed site of interest where significant surveying effort has been undertaken to establish benchmark parameters.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |           |                       |    |                |                         |                       |           |           |           |                               |         |    |          |   |       |     |         |   |                  |     |        |     |      |     |     |                               |        |     |         |     |         |       |         |       |
|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|-----------------------|----|----------------|-------------------------|-----------------------|-----------|-----------|-----------|-------------------------------|---------|----|----------|---|-------|-----|---------|---|------------------|-----|--------|-----|------|-----|-----|-------------------------------|--------|-----|---------|-----|---------|-------|---------|-------|
| approved quality criteria | <p>for the purposes of residual drilling materials, means the residual drilling material meet the following quality standards:</p> <p>Part A In all cases:</p> <table border="1"> <tr> <th>Parameter</th><th>Maximum concentration</th></tr> <tr> <td>pH</td><td>6-10.5 (range)</td></tr> <tr> <td>Electrical Conductivity</td><td>20dS/cm (20,000µs/cm)</td></tr> <tr> <td>Chloride*</td><td>8,000mg/L</td></tr> </table> <p>*Chloride analysis is only required if an additive containing chloride was used in the drilling process</p> <p>The limits in Part A must be measured in the clarified filtrate of oversaturated solids prior to mixing.</p> <p>Part B If any of the following metals are a component of the drilling fluids, then for that metal:</p> <table border="1"> <tr> <th>Parameter</th><th>Maximum Concentration (mg/kg)</th></tr> <tr> <td>Arsenic</td><td>20</td></tr> <tr> <td>Selenium</td><td>5</td></tr> <tr> <td>Boron</td><td>100</td></tr> <tr> <td>Cadmium</td><td>3</td></tr> <tr> <td>Chromium (total)</td><td>400</td></tr> <tr> <td>Copper</td><td>100</td></tr> <tr> <td>Lead</td><td>600</td></tr> </table> <p>The limits in Part B and Part C refer to the post soil/by-product mix.</p> <p>Part C If a hydrocarbon sheen is visible, the following hydrocarbon fractions:</p> <table border="1"> <tr> <th>TPH</th><th>Maximum concentration (mg/kg)</th></tr> <tr> <td>C6-C10</td><td>170</td></tr> <tr> <td>C10-C16</td><td>150</td></tr> <tr> <td>C16-C34</td><td>1,300</td></tr> <tr> <td>C34-C40</td><td>5,600</td></tr> </table> | Parameter | Maximum concentration | pH | 6-10.5 (range) | Electrical Conductivity | 20dS/cm (20,000µs/cm) | Chloride* | 8,000mg/L | Parameter | Maximum Concentration (mg/kg) | Arsenic | 20 | Selenium | 5 | Boron | 100 | Cadmium | 3 | Chromium (total) | 400 | Copper | 100 | Lead | 600 | TPH | Maximum concentration (mg/kg) | C6-C10 | 170 | C10-C16 | 150 | C16-C34 | 1,300 | C34-C40 | 5,600 |
| Parameter                 | Maximum concentration                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |           |                       |    |                |                         |                       |           |           |           |                               |         |    |          |   |       |     |         |   |                  |     |        |     |      |     |     |                               |        |     |         |     |         |       |         |       |
| pH                        | 6-10.5 (range)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |           |                       |    |                |                         |                       |           |           |           |                               |         |    |          |   |       |     |         |   |                  |     |        |     |      |     |     |                               |        |     |         |     |         |       |         |       |
| Electrical Conductivity   | 20dS/cm (20,000µs/cm)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |           |                       |    |                |                         |                       |           |           |           |                               |         |    |          |   |       |     |         |   |                  |     |        |     |      |     |     |                               |        |     |         |     |         |       |         |       |
| Chloride*                 | 8,000mg/L                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |           |                       |    |                |                         |                       |           |           |           |                               |         |    |          |   |       |     |         |   |                  |     |        |     |      |     |     |                               |        |     |         |     |         |       |         |       |
| Parameter                 | Maximum Concentration (mg/kg)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |           |                       |    |                |                         |                       |           |           |           |                               |         |    |          |   |       |     |         |   |                  |     |        |     |      |     |     |                               |        |     |         |     |         |       |         |       |
| Arsenic                   | 20                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |           |                       |    |                |                         |                       |           |           |           |                               |         |    |          |   |       |     |         |   |                  |     |        |     |      |     |     |                               |        |     |         |     |         |       |         |       |
| Selenium                  | 5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |           |                       |    |                |                         |                       |           |           |           |                               |         |    |          |   |       |     |         |   |                  |     |        |     |      |     |     |                               |        |     |         |     |         |       |         |       |
| Boron                     | 100                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |           |                       |    |                |                         |                       |           |           |           |                               |         |    |          |   |       |     |         |   |                  |     |        |     |      |     |     |                               |        |     |         |     |         |       |         |       |
| Cadmium                   | 3                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |           |                       |    |                |                         |                       |           |           |           |                               |         |    |          |   |       |     |         |   |                  |     |        |     |      |     |     |                               |        |     |         |     |         |       |         |       |
| Chromium (total)          | 400                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |           |                       |    |                |                         |                       |           |           |           |                               |         |    |          |   |       |     |         |   |                  |     |        |     |      |     |     |                               |        |     |         |     |         |       |         |       |
| Copper                    | 100                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |           |                       |    |                |                         |                       |           |           |           |                               |         |    |          |   |       |     |         |   |                  |     |        |     |      |     |     |                               |        |     |         |     |         |       |         |       |
| Lead                      | 600                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |           |                       |    |                |                         |                       |           |           |           |                               |         |    |          |   |       |     |         |   |                  |     |        |     |      |     |     |                               |        |     |         |     |         |       |         |       |
| TPH                       | Maximum concentration (mg/kg)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |           |                       |    |                |                         |                       |           |           |           |                               |         |    |          |   |       |     |         |   |                  |     |        |     |      |     |     |                               |        |     |         |     |         |       |         |       |
| C6-C10                    | 170                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |           |                       |    |                |                         |                       |           |           |           |                               |         |    |          |   |       |     |         |   |                  |     |        |     |      |     |     |                               |        |     |         |     |         |       |         |       |
| C10-C16                   | 150                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |           |                       |    |                |                         |                       |           |           |           |                               |         |    |          |   |       |     |         |   |                  |     |        |     |      |     |     |                               |        |     |         |     |         |       |         |       |
| C16-C34                   | 1,300                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |           |                       |    |                |                         |                       |           |           |           |                               |         |    |          |   |       |     |         |   |                  |     |        |     |      |     |     |                               |        |     |         |     |         |       |         |       |
| C34-C40                   | 5,600                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |           |                       |    |                |                         |                       |           |           |           |                               |         |    |          |   |       |     |         |   |                  |     |        |     |      |     |     |                               |        |     |         |     |         |       |         |       |

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|-----------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|----|-----------------------|---|---------------------------|----|-----------------------------------------------------------------------------------------------------------------------------------------------|---|---------|---|
|                                                                                                                                               | <table> <tr> <td>Total Polycyclic Aromatic Hydrocarbons (PAHs)</td><td>20</td></tr> <tr> <td>Phenols (halogenated)</td><td>1</td></tr> <tr> <td>Phenols (non-halogenated)</td><td>60</td></tr> <tr> <td>Monocyclic aromatic hydrocarbons<br/>(Total sum of benzene, toluene, ethyl benzene, xylenes includes ortho, para and meta xylenes) and styrene</td><td>7</td></tr> <tr> <td>Benzene</td><td>1</td></tr> </table>                                                                                                                                                                                                                                                                                                | Total Polycyclic Aromatic Hydrocarbons (PAHs) | 20 | Phenols (halogenated) | 1 | Phenols (non-halogenated) | 60 | Monocyclic aromatic hydrocarbons<br>(Total sum of benzene, toluene, ethyl benzene, xylenes includes ortho, para and meta xylenes) and styrene | 7 | Benzene | 1 |
| Total Polycyclic Aromatic Hydrocarbons (PAHs)                                                                                                 | 20                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                               |    |                       |   |                           |    |                                                                                                                                               |   |         |   |
| Phenols (halogenated)                                                                                                                         | 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                               |    |                       |   |                           |    |                                                                                                                                               |   |         |   |
| Phenols (non-halogenated)                                                                                                                     | 60                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                               |    |                       |   |                           |    |                                                                                                                                               |   |         |   |
| Monocyclic aromatic hydrocarbons<br>(Total sum of benzene, toluene, ethyl benzene, xylenes includes ortho, para and meta xylenes) and styrene | 7                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                               |    |                       |   |                           |    |                                                                                                                                               |   |         |   |
| Benzene                                                                                                                                       | 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                               |    |                       |   |                           |    |                                                                                                                                               |   |         |   |
| 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. |                                               |    |                       |   |                           |    |                                                                                                                                               |   |         |   |
| 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.                                                                                                                                                                                                                                                                                                                                           |                                               |    |                       |   |                           |    |                                                                                                                                               |   |         |   |
| Australian Standard 3580                                                                                                                      | <p>means any of the following publications:</p> <ul style="list-style-type: none"> <li>AS3580.10.1 Methods for sampling and analysis of ambient air—Determination of particulate matter—Deposited matter—Gravimetric method.</li> <li>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</li> <li>AS3580.9.9 Methods for sampling and analysis of ambient air—Determination of suspended particulate matter— PM10 low volume sampler—Gravimetric sampler.</li> </ul>                                                                                                                       |                                               |    |                       |   |                           |    |                                                                                                                                               |   |         |   |
| authorised resource activities                                                                                                                | for this environmental authority means the resource activities authorised to be carried out under condition General 1.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                               |    |                       |   |                           |    |                                                                                                                                               |   |         |   |
| 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 $L_{A 90, adj, 15 mins}$ ), using Fast response.                                                                                                                                                                                                                                                                                                                                                                                                                               |                                               |    |                       |   |                           |    |                                                                                                                                               |   |         |   |

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| 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).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| being or intended to be utilised by the landholder or overlapping tenure holder | <p>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.</p> <p>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.</p>                                                                                                |
| biodiversity values                                                             | for the purposes of this environmental authority, means environmentally sensitive areas, Matters of State Environmental significant, 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                                       | <p>means any of the following areas:</p> <ul style="list-style-type: none"> <li>• nature refuges as defined in the conservation agreement for that refuge under the <i>Nature Conservation Act 1992</i></li> <li>• koala habitat areas as defined under the Nature Conservation (Koala) Conservation Plan 2006</li> <li>• state forests or timber reserves as defined under the Forestry Act 1959</li> <li>• regional parks (previously known as resource reserves) under the Nature Conservation Act 1992</li> <li>• an area validated as 'essential 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</li> <li>• 'of concern regional ecosystems' that are remnant vegetation and identified in the database called 'RE description database' containing regional ecosystem numbers and descriptions.</li> </ul> |

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| certified or certification            | <p>in relation to any matter other than a design plan, 'as constructed' drawings or an annual report regarding <u>dams</u> means, a Statutory Declaration by a suitably qualified person or suitably qualified third party accompanying the written document stating:</p> <ul style="list-style-type: none"> <li>• the person's qualifications and experience relevant to the function</li> <li>• that the person has not knowingly included false, misleading or incomplete information in the document</li> <li>• that the person has not knowingly failed to reveal any relevant information or document to the administering authority</li> <li>• that the document addresses the relevant matters for the function and is factually correct; and</li> <li>• that the opinions expressed in the document are honestly and reasonably held.</li> </ul> |
| certification                         | in relation to a design plan means assessment and approval must be undertaken by a suitably qualified and experienced person in relation to any assessment or documentation required by this Manual, including design plans, 'as constructed' drawings and specifications, construction, operation or an annual report regarding regulated structures, undertaken in accordance with the Board of Professional Engineers of Queensland Policy Certification by RPEQs (ID: 1.4 (2A)).                                                                                                                                                                                                                                                                                                                                                                      |
| certifying, certify or certified      | have a corresponding meaning as 'certification'.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| clearing                              | <p>has the meaning in the dictionary of the <i>Vegetation Management Act 2000</i> and for vegetation—</p> <p>(a) means remove, cut down, ringbark, push over, poison or destroy in any way including by burning, flooding or draining; but</p> <p>(b) does not include destroying standing vegetation by stock, or lopping a tree.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| 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 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.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| critically limited regional ecosystem | means the regional ecosystems defined and listed in Appendix 5 of the Queensland Biodiversity Offset Policy.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| 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.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

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| dam(s)                      | means a land-based structure or a <u>void</u> that contains, diverts or controls <u>flowable substances</u> , and includes any substances that are thereby contained, diverted or controlled by that land-based structure or void and <u>associated works</u> .                                                                                                                                                                                                                                                                                                                                                         |
| declared pest species       | has the meaning in the Land Protection (Pest and Stock Route Management) Regulation 2003 and is a live animal or plant declared to be a declared pest under section 36 (Declaring Pests by Regulation) or section 37(2) (Declaring Pest under Emergency Pest Notice) of that Act and includes reproductive material of the animal or plant.                                                                                                                                                                                                                                                                             |
| declared plant pest species | has the meaning in the Land Protection (Pest and Stock Route Management) Regulation 2003 and is a plant declared to be a declared pest under section 36 (Declaring Pests by Regulation) or section 37(2) (Declaring Pest under Emergency Pest Notice) of that Act and includes reproductive material of the plant.                                                                                                                                                                                                                                                                                                      |
| document                    | has the meaning in the <i>Acts Interpretation Act 1954</i> and means: <ul style="list-style-type: none"> <li>• any paper or other material on which there is writing; and</li> <li>• any paper or other material on which there are marks; and</li> <li>• figures, symbols or perforations having a meaning for a person qualified to interpret them; and</li> <li>• 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).</li> </ul>                                     |
| 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), as amended from time to time, 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.<br><br>Environmental harm may be caused by an activity— <ul style="list-style-type: none"> <li>(a) whether the harm is a direct or indirect result of the activity; or</li> <li>(b) whether the harm results from the activity alone or from the combined effects of the activity and other activities or factors.</li> </ul> |

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| 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—<br><br>(a) aerosols, fumes, light, noise, odour, particles or smoke; or<br><br>(b) an unhealthy, offensive or unsightly condition because of contamination; or<br><br>(c) another way prescribed by regulation. |
| environmental offset           | is an activity undertaken to counterbalance a significant residual impact of a prescribed activity on a prescribed environmental matter.                                                                                                                                                                                                                                                        |
| environmentally sensitive area | means Category A, B or C environmentally sensitive areas (ESAs)                                                                                                                                                                                                                                                                                                                                 |

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| essential petroleum activities | <p>means activities that are essential to bringing the resource to the surface and are only the following:</p> <ul style="list-style-type: none"> <li>• <u>low impact</u> petroleum activities</li> <li>• geophysical, geotechnical, geological, topographic and cadastral surveys (including seismic, sample / test / geotechnical pits, core holes)</li> <li>• single well sites not exceeding 1 hectare disturbance and multi-well sites not exceeding 1.5 hectare disturbance</li> <li>• well sites with monitoring equipment (including monitoring bores): <ul style="list-style-type: none"> <li>- for single well sites, not exceeding 1.25 hectares disturbance</li> <li>- for multi-well sites, not exceeding 1.75 hectares disturbance</li> </ul> </li> <li>• well sites with monitoring equipment (including monitoring bores) and tanks (minimum 1ML) for above ground fluid storage: <ul style="list-style-type: none"> <li>- for single well sites, not exceeding 1.5 hectares disturbance</li> <li>- for multi-well sites, not exceeding 2.0 hectares disturbance</li> </ul> </li> <li>• associated infrastructure located on a well site necessary for the construction and operations of wells: <ul style="list-style-type: none"> <li>- water pumps and generators</li> <li>- flare pits</li> <li>- chemical/fuel storages</li> <li>- sumps for residual drilling material and drilling fluids</li> <li>- tanks, or dams which are not significant or high consequence dams to contain wastewater (e.g. stimulation flow back waters, produced water)</li> <li>- pipe laydown areas</li> <li>- soil and vegetation stockpile areas</li> <li>- a temporary camp associated with a drilling rig that may involve sewage</li> <li>- treatment works that are no release works</li> <li>- temporary administration sites and warehouses</li> <li>- dust suppression activities using water that meets the quality and operational standards approved under the environmental authority</li> </ul> </li> <li>• 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</li> <li>• supporting access tracks</li> </ul> |
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|                                     | <ul style="list-style-type: none"> <li>gathering/flow pipelines from a well head to the initial compression facility</li> <li>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).</li> <li>disposal of residual drilling material on-site.</li> </ul>                                                                                                         |
| existing authority                  | means an authority granted under an existing Act, as the authority is in force immediately before the commencement.                                                                                                                                                                                                                                                                                                                                                                                                       |
| 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                         | <p>has the meaning in the <i>Water Act 2000</i> and means an area of reasonably flat land adjacent to a watercourse that—</p> <ul style="list-style-type: none"> <li>is covered from time to time by floodwater overflowing from the watercourse; and</li> <li>does not, other than in an upper valley reach, confine floodwater to generally follow the path of the watercourse; and</li> <li>has finer sediment deposits than the sediment deposits of any bench, bar or instream island of the watercourse.</li> </ul> |
| flowable substance                  | means matter or a mixture of materials which can flow under any conditions potentially affecting that substance. Constituents of a flowable substance can include water, other liquids fluids or solids, or a mixture that includes water and any other liquids fluids or solids either in solution or suspension.                                                                                                                                                                                                        |
| 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 500kg of fuel in an hour.                                                                                                                                                                                                                                                                                                                       |
| GDA                                 | means Geocentric Datum of Australia.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Great Artesian Basin (GAB) spring   | <p>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:</p> <ul style="list-style-type: none"> <li>community of native species dependent on natural discharge of groundwater from the Great Artesian Basin; or</li> <li>Great Artesian Basin spring; or</li> <li>Great Artesian Basin discharge spring wetland.</li> </ul>                                          |

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|                       | <p>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.</p> <p><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></p> <p><i>Note: The GAB springs dataset can be requested from the Queensland Government Herbarium</i></p> |
| 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 laundries 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.                                                                                                                                                                                                                                                                                                                                                 |
| holder                | means any person who is the holder of, or is acting under, that environmental authority.                                                                                                                                                                                                                                                                                                                                                                                                      |
| 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 authorised resource activity that is reasonably necessary for carrying out a petroleum activity.                                                                                                                                                                                                                                                                                                                                                    |
| 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 minute 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      | <p>has the meaning in the <i>Vegetation Management Act 1999</i> and means the following:</p> <ul style="list-style-type: none"> <li>• soil erosion</li> <li>• rising water tables</li> <li>• the expression of salinity</li> <li>• mass movement by gravity of soil or rock</li> <li>• stream bank instability</li> <li>• a process that results in declining water quality.</li> </ul>                                                                                                       |
| land-based offset     | means direct offsets, indirect offsets, or offset transfers.                                                                                                                                                                                                                                                                                                                                                                                                                                  |

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| legally secured                             | in relation to land-based offsets means any of the following legally binding mechanisms: <ul style="list-style-type: none"> <li>• gazettal as a protected area (e.g., a nature refuge) under the <i>Nature Conservation Act 1992</i></li> <li>• declaration of an area of high nature conservation values under the <i>Vegetation Management Act 1999</i></li> <li>• use of a covenant under the <i>Land Title Act 1994</i> or <i>Land Act 1994</i></li> <li>• other mechanism administered and approved by the State.</li> </ul>                                                                                                                                                                                                 |
| levee                                       | means an embankment that only provides for the containment and diversion of stormwater or flood flows from a contributing catchment, or containment and diversion of flowable materials resulting from releases from other works, during the progress of those stormwater or flood flows or those releases; and does not store any significant volume of <u>water</u> or flowable substances at any other times.                                                                                                                                                                                                                                                                                                                  |
| 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 days, even when there are respite periods when the noise is inaudible within those five days.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| 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 Environmental Protection Regulation 2008 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.                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Matters of State Environmental Significance | are those matters listed in Schedule 2 of the Environmental Offsets Regulation 2014.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Max L <sub>pA</sub> , 15 min                | means the absolute maximum instantaneous A-weighted sound pressure level, measured over 15 minutes.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Max L <sub>pZ</sub> , 15 min                | means the maximum value of the Z-weighted sound pressure level measured over 15 minutes.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

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| medium term noise event   | is a noise exposure, when perceived at a sensitive receptor, persists for an aggregate period not greater than five days and does not re-occur for a period of at least four 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: <ul style="list-style-type: none"> <li>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</li> <li>the residual solids is mixed with subsoil in the sump and cover; and</li> <li>the subsoil and residual solids is mixed at least three parts subsoil to one part waste (v/v); and</li> <li>a minimum of one metre of clean subsoil must be placed over the subsoil and residual solids mixture; and</li> <li>topsoil is replaced.</li> </ul> |
| modification or modifying | (see definition of 'construction')                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| 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 of the 12 named months and ending— <ul style="list-style-type: none"> <li>immediately before the beginning of the corresponding day of the next named month; or</li> <li>if there is no such corresponding day—at the end of the next named month.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                |
| NATA accreditation        | means accreditation by the National Association of Testing Authorities Australia.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| notice of election        | means a notice mentioned in section 18(2) of the <i>Environmental Offsets Act 2014</i> by which an authority holder elects to deliver an environmental offset.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| petroleum activity        | for this environmental authority 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.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

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| 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) as amended from time to time 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: <ul style="list-style-type: none"> <li>(a) earth; or</li> <li>(b) a contaminant prescribed under section 440ZF.</li> </ul>                                                                                                                                                                                                                                                                                                                                                      |
| 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 <u>associated water</u> for a petroleum tenure.                                                                                                                                                                                                                                                                                                                                                                                                      |
| project area                    | for this environmental authority means the following tenure: Petroleum Lease (PL) 486.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 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. |
| 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.                                                                                                                                                                                                                                                                                                                    |
| regulated structure             | includes land-based containment structures, <u>levees</u> , bunds and voids, but not a tank or container designed and constructed to an Australian Standard that deals with strength and structural integrity.                                                                                                                                                                                                                                                                                                                                                              |
| 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.                                                                                                                                                                                                                                                        |

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| 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 topography, 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).                                                                                                                                                                                                                           |
| 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 <u>analogue site</u> . 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—<br><br>(a) petroleum hydrocarbons containing benzene, ethylbenzene, toluene or xylene<br>(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                  | (a) in relation to a Category A or Category B ESA means an area within 100m from the boundary of the primary protection zone.                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Secondary treated class A standards        | means treated sewage effluent or greywater which meets the following standards: <ul style="list-style-type: none"> <li>• total phosphorous as P, maximum 20mg/L</li> <li>• total nitrogen as N, maximum 30mg/L</li> <li>• 5-day biochemical oxygen demand (inhibited) (e.g. release pipe from sewage treatment plant), maximum 20mg/L</li> <li>• suspended solids, maximum 30mg/L</li> <li>• pH, range 6.0 to 8.5</li> <li>• e-coli, 80th percentile based on at least 5 samples with not less than 30 minutes between samples, 100cfu per 100mL, maximum 1,000cfu per 100mL.</li> </ul> |

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| secondary treated class B standards | <p>means treated sewage effluent or greywater which meets the following standards:</p> <ul style="list-style-type: none"> <li>• total phosphorous as P, maximum 20mg/L</li> <li>• total nitrogen as N, maximum 30mg/L</li> <li>• 5-day biochemical oxygen demand (inhibited) (e.g. release pipe from sewage treatment plant), maximum 20mg/L</li> <li>• suspended solids, maximum 30mg/L</li> <li>• pH, range 6.0 to 8.5</li> <li>• e-coli, 80th percentile based on at least five samples with not less than 30 minutes between samples, 1,000cfu per 100mL, maximum 10,000cfu per 100mL.</li> </ul>                                                                                                                                                                                                                                                                                                       |
| secondary treated class C standards | <p>means treated sewage effluent or greywater which meets the following standards:</p> <ul style="list-style-type: none"> <li>• total phosphorous as P, maximum 20mg/L</li> <li>• total nitrogen as N, maximum 30mg/L</li> <li>• 5-day biochemical oxygen demand (inhibited) (e.g. Release pipe from sewage treatment plant), maximum 20mg/L</li> <li>• suspended solids, maximum 30mg/L</li> <li>• pH, range 6.0 to 8.5</li> <li>• 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.</li> </ul>                                                                                                                                                                                                                                                                                                        |
| sensitive place                     | <p>means:</p> <ul style="list-style-type: none"> <li>• a dwelling (including residential allotment, mobile home or caravan park, residential marina or other residential premises, motel, hotel or hostel)</li> <li>• a library, childcare centre, kindergarten, school, university or other educational institution</li> <li>• a medical centre, surgery or hospital</li> <li>• a protected area</li> <li>• 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</li> <li>• 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</li> <li>• for noise, a place defined as a sensitive receptor for the purposes of the Environmental Protection (Noise) Policy 2008.</li> </ul> |
| sensitive receptor                  | <p>is defined in Schedule 2 of the Environmental Protection (Noise) Policy 2008, and means an area or place where noise is measured.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |

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| 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 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— <ul style="list-style-type: none"> <li>(a) it is contaminated land; or</li> <li>(b) it has been disturbed and human intervention is needed to rehabilitate it—             <ul style="list-style-type: none"> <li>i. to a condition required under the relevant environmental authority; or</li> <li>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.</li> </ul> </li> </ul>                        |
| significant residual impacts                                                                   | (a) has the meaning defined in section 8 of the <i>Environmental Offsets Act 2014</i> .                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| species richness                                                                               | means the number of different species in a given area.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| specified relevant activity                                                                    | for this environmental authority means an activity that: <ul style="list-style-type: none"> <li>(a) but for being carried out as a resource activity, would otherwise be a prescribed ERA;</li> <li>(b) stimulation activities;</li> <li>(c) point source discharge of treated produced water to surface waters;</li> <li>(d) storing waste that is not regulated waste (including coal seam gas water) in a regulated dam;</li> <li>(e) storing coal seam gas water that is not regulated waste in a low hazard / consequence dam; or</li> <li>(f) borrow pits or quarries that extract more than 5,000 tonnes of material in the project area.</li> </ul> |
| 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.                                                                                                                                                                                                                                                                                                                                                                                                                    |
| statement of compliance                                                                        | for a condition in an environmental authority has the meaning in section 208 of the <i>Environmental Protection Act 1994</i> and is a condition that requires the holder to give the administering authority a statement of compliance about a document or work relating to a relevant activity. The condition must also state— <ul style="list-style-type: none"> <li>(a) the criteria (the compliance criteria) the document or work must comply with; and</li> </ul>                                                                                                                                                                                     |

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|                       | <p>(b) that the statement of compliance must state whether the document or work complies with the compliance criteria; and</p> <p>(c) the information (the supporting information) that must be provided to the administering authority to demonstrate compliance with the compliance criteria; and</p> <p>(d) when the statement of compliance and supporting information must be given to the administering authority.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| stimulation           | <ul style="list-style-type: none"> <li>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/hydrofracking, fracture acidizing and the use of proppant treatments. 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.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| structure             | <ul style="list-style-type: none"> <li>means a dam or levee.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| subterranean cave GDE | <ul style="list-style-type: none"> <li>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</li> <li>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.</li> </ul> <p><i>Note: the Subterranean GDE (caves) dataset can be displayed through the Queensland Government WetlandInfo mapping program.</i></p> <p><i>Note: the Subterranean GDE (caves) dataset can be obtained from the Queensland Government Information System.</i></p> |

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| suitably qualified and experienced person | <p>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:</p> <ul style="list-style-type: none"> <li>• for regulated dams, an RPEQ who is a civil engineer with the required qualifications in dam safety and dam design.</li> <li>• for regulated levees, an RPEQ who is a civil engineer with the required qualifications in the design of flood protection embankments.</li> </ul> <p>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.</p> |
| 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 third party            | <p>means a person who:</p> <p>(a) has qualifications and experience relevant to performing the function including but not limited to:</p> <ul style="list-style-type: none"> <li>i. a bachelor's degree in science or engineering; and</li> <li>ii. 3 years' experience in undertaking soil contamination assessments; and</li> </ul> <p>(b) is a member of at least one organisation prescribed in Schedule 8 of the Environmental Protection Regulation 2008; and</p> <p>(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.</p>                                                                                                                                                                              |
| 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.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| valid complaint                           | means all complaints unless considered by the administering authority to be frivolous, vexatious or based on mistaken belief.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

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| void                                     | means any constructed, open excavation in the ground.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| waste and resource management hierarchy  | <p>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—</p> <ul style="list-style-type: none"> <li>(a) AVOID unnecessary resource consumption</li> <li>(b) REDUCE waste generation and disposal</li> <li>(c) RE-USE waste resources without further manufacturing</li> <li>(d) RECYCLE waste resources to make the same or different products</li> <li>(e) RECOVER waste resources, including the recovery of energy</li> <li>(f) TREAT waste before disposal, including reducing the hazardous nature of waste</li> <li>(g) DISPOSE of waste only if there is no viable alternative.</li> </ul> |
| waste and resource management principles | <p>has the meaning provided in section 4(2)(b) of the <i>Waste Reduction and Recycling Act 2011</i> and means the:</p> <ul style="list-style-type: none"> <li>(a) polluter pays principle</li> <li>(b) user pays principle</li> <li>(c) proximity principle</li> <li>(d) product stewardship principle</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 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                              | <p>has the meaning in Schedule 4 of the <i>Environmental Protection Act 1994</i> and means:</p> <ol style="list-style-type: none"> <li>1) a river, creek or stream in which water flows permanently or intermittently— <ul style="list-style-type: none"> <li>(a) in a natural channel, whether artificially improved or not; or</li> <li>(b) in an artificial channel that has changed the course of the watercourse.</li> </ul> </li> <li>2) watercourse includes the bed and banks and any other element of a river, creek or stream confining or containing water.</li> </ol>                                                                                                                                                                                        |
| 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.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

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| wetland                                 | <p>for the purpose of this environmental authority, wetland means:</p> <ul style="list-style-type: none"> <li>• areas shown on the <u>Map of referable wetlands</u> 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</li> <li>• 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 metres, and possess one or more of the following attributes: <ul style="list-style-type: none"> <li>○ 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</li> <li>○ the substratum is predominantly undrained soils that are saturated, flooded or ponded long enough to develop anaerobic conditions in the upper layers, or</li> <li>○ the substratum is not soil and is saturated with water, or covered by water at some time.</li> </ul> </li> </ul> <p>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.</p> |
| 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