

Permit

Environmental Protection Act 1994

Environmental Authority P-EA-100847922

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

Environmental authority number: P-EA-100847922

Environmental authority takes effect on the date that your related tenure is granted. This is the take effect date.

The first annual fee is payable within 20 business days of the take effect date.

The anniversary date of this environmental authority is the same day each year as the take effect date. The payment of the annual fee will be due each year on this day.

An annual return will be due each year on 1 April.

Environmental authority holder(s)

Name(s)	Registered address
VINTAGE ENERGY LTD BRIDGEPORT (COOPER BASIN) PTY LTD METGASCO LTD	58 King William Rd GOODWOOD SA 5034

Environmentally relevant activity and location details

Environmentally relevant activity/activities	Location(s)
Non-Scheduled - Petroleum Activity - Petroleum Lease (PL)	PL1125

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).

Mobile and temporary activities

If you operate a mobile and temporary ERA, other than regulated waste transport, you are required to maintain a work diary. You must:

- use the approved form for a work diary (ESR/2015/1696);
- keep the work diary records for 2 years after the last entry;
- inform the administering authority within 7 days of the work diary being lost or stolen;
- record the information required in the work diary for each location within 1 day of leaving the location.

Contaminated land

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

- the presence of, or happening of an event involving, a hazardous contaminant on the land that is causing, or is reasonably likely to cause, serious or material environmental harm (notice must be given within 24 hours); or
- if the land is contaminated land – a change in the condition of the land that is causing, or is reasonably likely to cause, serious or material environmental harm (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 land (notice must be given within 20 business days).

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

Take effect

Please note that, in accordance with section 200(1) 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, in accordance with section 200(2) of the EP Act, the day that the EA takes effect may not be before:

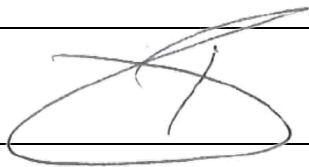
- (a) if the authority is for a resource activity—the day the relevant tenure is granted to the applicant; or
- (b) if a development permit for a material change of use of premises under the *Planning Act 2016* is necessary for carrying out an activity that related to the authority—the day the development permit takes effect; or
- (c) if an SDA Approval under the *State Development and Public Works Organisation Act 1971* is necessary for carrying out an activity that relates to the authority—the day the approval takes effect.

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

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

Permit

Environmental Authority P-EA-100847922



Signature

Tristan Roberts

Department of the Environment, Tourism, Science and Innovation

Delegate of the administering authority

Environmental Protection Act 1994

24 July 2026

Date

Enquiries:

Energy and Extractive Resources Business
Centre

GPO Box 2454, Brisbane QLD 4001

Phone: 07 3330 5715

Email: EnergyandExtractive@detsi.qld.gov.au

Obligations under the *Environmental Protection Act 1994*

In addition to the requirements found in the conditions of this EA, 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 restore the environment (section 319C)
- 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).

Other permits required

This permit only provides an approval under the EP Act. In order to lawfully operate you may also require permits / approvals from your local government authority, other business units within the department, and other State and Federal Government agencies prior to commencing any activity at the site. For example, this may include permits or approvals with your local Council (for planning approval), the Department of Transport and Main Roads (to access State controlled roads), the Department of Natural Resources and Mines, Manufacturing, and Regional and Rural Development (to clear vegetation), and the Department of Primary Industries (to clear marine plants or to obtain a quarry material allocation).

Obligations under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act)

Matters of national environmental significance (MNES) are regulated under the Commonwealth EPBC Act rather than under state legislation. You may need to submit a referral if your project potentially impacts any matters protected under the EPBC Act. For more information on self-assessments, and referral and assessment processes, please visit the Australian Government Department of Climate Change, Energy, the Environment and Water's website at www.dcceew.gov.au/environment/epbc/advice.

Obligations under the *Mining and Quarrying Safety and Health Act 1999*

If you are operating a quarry, other than a sand and gravel quarry where there is no crushing capability, you will be required to comply with the *Mining and Quarrying Safety and Health Act 1999*. For more information on your obligations under this legislation, visit Resources Safety and Health Queensland's website at www.rshq.qld.gov.au, or call 13 QGOV (13 74 68) or your local Mines Inspectorate Office.

Development approval

This permit is not a development approval under the *Planning Act 2016*. The conditions of this EA are separate, and in addition to, any conditions that may be on the development approval. If a copy of this EA is attached to a development approval, it is for information only and may not be current. Please contact the Department of the Environment, Tourism, Science and Innovation to ensure that you have the most current version of the EA relating to this site.

Obligations under the *Aboriginal Cultural Heritage Act 2003* and *Torres Strait Islander Cultural Heritage Act 2003* (the Cultural Heritage Acts)

The Cultural Heritage Acts require anyone who carries out a land-use activity to exercise a duty of care. This 'duty of care' means land users must take all reasonable and practicable measures to ensure their activity does not harm Aboriginal or Torres Strait Islander cultural heritage, and applies to any activity where Aboriginal or Torres Strait Islander cultural heritage is located. For more information on your obligations under this legislation, please visit the Department of Women, Aboriginal and Torres Strait Islander Partnerships and Multiculturalism webpage at, www.dwatsipm.qld.gov.au.

Conditions of environmental authority

General conditions														
Condition number	Condition													
General 1	This environmental authority authorises the carrying out of the following resource activities: (a) the petroleum activities listed in <i>Schedule General, Table 1 – Scale of Activities</i> to the extent they are carried out in accordance with the activity's corresponding scale and intensity; (b) seismic activities and incidental activities that are not otherwise specified relevant activities; and (c) low impact activities. Schedule General, Table 1 – Scale of Activities <table> <tr> <th>Petroleum Activities and Infrastructure</th><th>Scale</th><th>Authorised area of disturbance hectares (ha)</th></tr> <tr> <td> Existing disturbance in previously zoned ATP2021 including: - Vali 1, Vali 2 and Vali 3 well sites - linear infrastructure - borrow pits - 2 x low consequence dams - Kudnari bore </td><td>3 well sites</td><td>33.63</td></tr> <tr> <td> New disturbance under PL1125, including: - Vali 4 and Vali 5 well sites - linear infrastructure - 1 x low consequence dams </td><td>2 well sites</td><td>41.99</td></tr> <tr> <td>Stimulation</td><td>5 wells</td><td>N/A</td></tr> </table>		Petroleum Activities and Infrastructure	Scale	Authorised area of disturbance hectares (ha)	Existing disturbance in previously zoned ATP2021 including: - Vali 1, Vali 2 and Vali 3 well sites - linear infrastructure - borrow pits - 2 x low consequence dams - Kudnari bore	3 well sites	33.63	New disturbance under PL1125, including: - Vali 4 and Vali 5 well sites - linear infrastructure - 1 x low consequence dams	2 well sites	41.99	Stimulation	5 wells	N/A
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General 2	The activities in condition General 1 are authorised subject to the conditions of this environmental authority.													
General 3	This environmental authority does not authorise a relevant act ¹ to occur in carrying out an authorised resource activity unless a condition of this environmental authority expressly authorises the relevant act													

	to occur². Where there is no condition, the lack of a condition must not be construed as authorising the relevant act. ¹ See section 493A of the <i>Environmental Protection Act 1994</i>. ² Section 493A(2) of the <i>Environmental Protection Act 1994</i> provides that a relevant act is unlawful unless it is authorised to be done under, among other things, an environmental authority.
General 4	At the request of the administering authority, a third-party auditor must audit compliance with the conditions of this environmental authority. Explanatory note: prior to undertaking the third-party audit, the timing, scope and content of the third-party audit may be negotiated with the administering authority.
General 5	An audit report must be prepared and certified by the third-party auditor presenting the findings of each audit carried out.
General 6	Any recommendations arising from the audit report must be acted upon by: (a) investigating any non-compliance issues identified; and (b) as soon as reasonably practicable, implementing measures or taking necessary action to ensure compliance with the requirements of this environmental authority.
General 7	A written response must be attached to the audit report detailing the actions taken or to be taken on stated dates: (a) to ensure compliance with this environmental authority; and (b) to prevent a recurrence of any non-compliance issues identified.
General 8	The audit report required by condition General 4 and the written response to the audit report required by condition General 7 must be submitted to the administering authority with the subsequent annual return.
General 9	All monitoring must be undertaken by a suitably qualified person.
General 10	If requested by the administering authority in relation to investigating a complaint, monitoring must be commenced within 10 business days.
General 11	All laboratory analyses and tests required to be undertaken to demonstrate compliance environmental authority requirements must be undertaken by a laboratory that has NATA accreditation for such analyses and tests
General 12	Notwithstanding condition General 11, 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.
General 13	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 – <i>Environmental Protection (Water) Policy 2019</i> (b) for groundwater, Groundwater Sampling and Analysis – A Field Guide (2009:27 GeoCat #6890.1)

	(c) for noise, the Environmental Protection Regulation 2019 (d) for air, the Queensland Air Quality Sampling Manual and/or Australian Standard 4323.1:1995 Stationary source emissions method 1: Selection of sampling positions, as appropriate for the relevant measurement (e) for soil, the Guidelines for Surveying Soil and Land Resources, 2nd edition (McKenzie et al. 2008), and/or the Australian Soil and Land Survey Handbook, 3rd edition (National Committee on Soil and Terrain, 2009) (f) for dust, Australian Standard AS3580.
General 14	In addition to the requirements under Chapter 7, Part 1, Division 2 of the <i>Environmental Protection Act 1994</i>, the administering authority must be notified through the Pollution Hotline and in writing, as soon as possible, but within 48 hours of becoming aware of any of the following events: (a) any unauthorised significant disturbance to land (b) potential or actual loss of structural or hydraulic integrity of a dam (c) potential or actual loss of well integrity (d) unauthorised releases of any volume of prescribed contaminants to waters (e) unauthorised releases of volumes of contaminants, in any mixture, to land greater than: 200 L of hydrocarbons; or 200 L of stimulation additives; or 500 L of stimulation fluids; or 1 000 L of brine; or 5 000 L of untreated produced water; or 5 000 L of raw sewage; or 10 000 L of treated sewage effluent. (f) the use of restricted stimulation fluids (g) groundwater monitoring results from a landholder's active groundwater bore monitored under the stimulation impact monitoring program which is a 10% or greater increase from a previous baseline value for that bore and which renders the water unfit for its intended use (h) monitoring results where two out of any five consecutive samples do not comply with the relevant limits in the environmental authority.
General 15	Petroleum activities involving significant disturbance to land cannot commence until the development of written contingency procedures for emergency environmental incidents which include, but are not necessarily limited to: (a) a clear definition of what constitutes an environmental emergency incident or near miss for the petroleum activity. (b) consideration of the risks caused by the petroleum activity including the impact of flooding and other natural events on the petroleum activity. (c) response procedures to be implemented to prevent or minimise the risks of environmental harm occurring. (d) the practices and procedures to be employed to restore the environment or mitigate any environmental harm caused. (e) procedures to investigate causes and impacts including impact monitoring programs for releases to waters and/or land.

	(f) training of staff to enable them to effectively respond. (g) procedures to notify the administering authority, local government and any potentially impacted landholder.
General 16	All plant and equipment must be maintained and operated in their proper and effective condition.
General 17	Measures to prevent fauna being harmed from entrapment must be implemented during the construction and operation of well infrastructure, dams and pipeline trenches.
General 18	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).
General 19	Petroleum activities must not cause environmental nuisance at a sensitive place, other than where an alternative arrangement is in place.
General 20	A certification must be prepared by a suitably qualified person within 30 business days of completing every plan (or review), procedure, program and report required to be developed under this environmental authority, which demonstrates that: (a) relevant material, including current published guidelines (where available) have been considered in the written document; (b) the content of the written document is accurate and true; and (c) the document meets the requirements of the relevant conditions of the environmental authority.
General 21	All plans, procedures, programs, reports and methodologies required under this environmental authority must be written and implemented.
General 22	All documents required to be developed under this environmental authority must be kept for five years.
General 23	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.
General 24	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.
Waste conditions	
Condition number	Condition

Waste 1	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.
Waste 2	All waste generated in carrying out the activity must be lawfully reused, recycled or removed to a facility that can lawfully accept the waste, except as permitted under another condition of this environmental authority.
Waste 3	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.
Waste 4	Green waste may be used on-site for either rehabilitation or sediment and erosion control, or both.
Waste 5	Pipeline waste water and produced 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.
Waste 6	Produced water may be re-used for the following: (a) for dust suppression on roads; (b) for construction and operational purposes of the petroleum activities authorised by this environmental authority, including drilling, well hole activities and stimulation; and (c) domestic and stock purposes.
Waste 7	Produced water may be used in accordance with the purposes authorised by Condition Waste 6 if the following criteria can be met: (a) vegetation is not damaged; (b) does not result in negative impacts on the composition and structure of soils and subsoils; (c) does not result in on site ponding or runoff; (d) is not directly or indirectly released to waters; (e) does not cause visible salting; and (f) the water quality of shallow aquifers is not adversely affected.
Waste 8	Produced water may only be provided to a third party if the quality meets the irrigation or livestock watering criteria as relevant to those purposes in the latest version of the <i>Australian and New Zealand Guidelines for Fresh and Marine Water Quality</i> and it is managed in accordance with the <i>Waste Reduction and Recycling Act 2011</i> .
Waste 9	Treated sewage effluent or greywater can be released to land provided it meets or exceeds secondary treated class C standards for a treatment system with a daily peak design capacity of less than 21 EP.
Waste 10	The release of treated sewage effluent or greywater authorised in condition Waste 9 must: (a) be to a signed contaminant release area(s); (b) not contain any properties nor contain any organisms or other contaminants in concentrations that are capable of causing environmental harm; (c) not result in pooling or run-off or aerosols or spray drift or vegetation die-off;

	(d) minimises deep drainage below the root zone of any vegetation; and (e) does not adversely affect the quality of shallow aquifers.
Waste 11	If sumps are used to store residual drilling material or drilling fluids, they must only be used for the duration of drilling activities, including workover processes.
Waste 12	Residual drilling material can only be disposed of on-site: (a) by mix-bury-cover method if the residual drilling material meets the approved quality criteria; or (b) if it is certified by a suitably qualified third party as being of acceptable quality for disposal to land by the proposed method and that environmental harm will not result from the proposed disposal.
Waste 13	In accordance with condition Waste 12, the disposal of residual drilling material must not result in a direct or indirect release of contaminants to any waters.
Waste 14	Records must be kept to demonstrate compliance with conditions Waste 11 and Waste 12.

Noise conditions

Condi on number	Condition																													
Noise 1	Notwithstanding condition General 19, emission of noise from the petroleum activity(ies) at levels less than those specified in <i>Protecting acoustic values, Table 2—Noise nuisance limits</i> are not considered to be environmental nuisance. Protecting acoustic values, Table 2—Noise nuisance limits <table><tr><th>Time period</th><th>Metric</th><th>Short term noise event</th><th>Medium term noise event</th><th>Long term noise event</th></tr><tr><td>7:00am-6:00pm</td><td>L_{Aeq,adj,15 min}</td><td>45 dBA</td><td>43 dBA</td><td>40 dBA</td></tr><tr><td>6:00pm-10:00pm</td><td>L_{Aeq,adj,15 min}</td><td>40 dBA</td><td>38 dBA</td><td>35 dBA</td></tr><tr><td rowspan="2">10:00pm-6:00am</td><td>L_{Aeq,adj,15 min}</td><td>28 dBA</td><td>28 dBA</td><td>28 dBA</td></tr><tr><td>Max L_{pA, 15 min}</td><td>55 dBA</td><td>55 dBA</td><td>55 dBA</td></tr><tr><td>6:00am-7:00am</td><td>L_{Aeq,adj,15 min}</td><td>40 dBA</td><td>38 dBA</td><td>35 dBA</td></tr></table> The noise limits in Table 2 have been set based on the following deemed background noise levels (L_{ABG}): 7:00am—6:00 pm: 35 dBA 6:00pm—10:00 pm: 30 dBA 10:00pm—6:00 am: 25 dBA 6:00am—7:00 am: 30 dBA	Time period	Metric	Short term noise event	Medium term noise event	Long term noise event	7:00am-6:00pm	L _{Aeq,adj,15 min}	45 dBA	43 dBA	40 dBA	6:00pm-10:00pm	L _{Aeq,adj,15 min}	40 dBA	38 dBA	35 dBA	10:00pm-6:00am	L _{Aeq,adj,15 min}	28 dBA	28 dBA	28 dBA	Max L _{pA, 15 min}	55 dBA	55 dBA	55 dBA	6:00am-7:00am	L _{Aeq,adj,15 min}	40 dBA	38 dBA	35 dBA
Time period	Metric	Short term noise event	Medium term noise event	Long term noise event																										
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	Max L _{pA, 15 min}	55 dBA	55 dBA	55 dBA																										
6:00am-7:00am	L _{Aeq,adj,15 min}	40 dBA	38 dBA	35 dBA																										

Noise 2	If the noise subject to a valid complaint is tonal or impulsive, the adjustments detailed in <i>Protecting acoustic values, Table 3—Adjustments to be added to noise levels at sensitive receptors</i> are to be added to the measured noise level(s) to derive $L_{Aeq, adj, 15 \text{ min}}$. Protecting acoustic values, Table 3—Adjustments to be added to noise levels at sensitive receptors <table> <tr> <th>Noise characteristic</th><th>Adjustment to noise</th></tr> <tr> <td>Tonal characteristic is just audible</td><td>+ 2 dBA</td></tr> <tr> <td>Tonal characteristic is clearly audible</td><td>+ 5 dBA</td></tr> <tr> <td>Impulsive characteristic is detectable</td><td>+ 2 to + 5 dBA</td></tr> </table>	Noise characteristic	Adjustment to noise	Tonal characteristic is just audible	+ 2 dBA	Tonal characteristic is clearly audible	+ 5 dBA	Impulsive characteristic is detectable	+ 2 to + 5 dBA
Noise characteristic	Adjustment to noise								
Tonal characteristic is just audible	+ 2 dBA								
Tonal characteristic is clearly audible	+ 5 dBA								
Impulsive characteristic is detectable	+ 2 to + 5 dBA								
Noise 3	Notwithstanding condition Noise 1, emission of any low frequency noise must not exceed either Noise 3(a) and Noise 3(b), or Noise 3(c) and Noise 3(d) in the event of a valid complaint about low frequency noise being made to the administering authority: (a) 60 dB(C) measured outside the sensitive receptor; and (b) the difference between the external A-weighted and C-weighted noise levels is no greater than 20 dB; or (c) 50 dB(Z) measured inside the sensitive receptor; and (d) the difference between the internal A-weighted and Z-weighted ($\text{Max } L_{pZ, 15 \text{ min}}$) noise levels is no greater than 15 dB.								
Noise 4	Blasting is not authorised on PL1125.								
Air conditions									
Condition number	Condition								
Air 1	Unless venting is authorised under the <i>Petroleum and Gas (Production and Safety) Act 2004</i> or the <i>Petroleum Act 1923</i>, waste gas must be flared in a manner that complies with all of (Air 1(a)) and (Air 1(b)) and (Air 1(c)), or with (Air 1(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 20 minutes in any 2 hours, or (d) it uses an enclosed flare.								
Land conditions									
Condition number	Condition								
Land 1	Contaminants must not be directly or indirectly released to land except for those releases authorised by conditions Waste 5, 6, 7, 8, 9, 10, and 12.								

Land 2	Top soil must be managed in a manner that preserves its biological and chemical properties.
Land 3	Chemicals and fuels stored, must be effectively contained and where relevant, meet Australian Standards, where such a standard is applicable.
Land 4	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).
Land 5	Pipeline trenches must be backfilled and rehabilitated as soon as practical but no longer than three (3) months after completion of pipeline construction.
Land 6	Preparation for seismic activity must minimise disturbance and removal of vegetation.
Biodiversity conditions	
Condition number	Condition
Biodiversity 1	All vegetation clearing activities must be undertaken under the direction of a suitably qualified fauna spotter-catcher.
Biodiversity 2	Construction activities must be undertaken under the direction of a suitably qualified fauna spotter-catcher and a record must be kept detailing the name, location, condition and number of any protected wildlife encountered.
Biodiversity 3	Fauna must not be harmed from entrapment during the construction, operation and decommissioning of well infrastructure, dams, pipeline trenches and pipelines.
Biodiversity 4	Confirming biodiversity values Prior to clearing of native vegetation, confirmation of on-the-ground biodiversity values of the native vegetation communities to be cleared must be undertaken by an appropriately qualified person using a methodology which an appropriately qualified person has certified in writing as being appropriate for the confirmation.
Biodiversity 5	For conditions Biodiversity 4 to Biodiversity 9 where mapped biodiversity values differ from those confirmed under conditions Biodiversity 4, the activity may proceed in accordance with the conditions of the environmental authority based on the confirmed on-the-ground biodiversity values.
Biodiversity 6	Planning for land disturbance The location of the activity 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.
Biodiversity	Planning for land disturbance – linear infrastructure

sity 7	Linear infrastructure construction corridors must: (a) maximise co-location of linear infrastructure (where practicable); and (b) be minimised in width to the greatest practicable extent.																																																											
Biodiver sity 8	The activity is not permitted within Category A environmentally sensitive area (ESA) or Category B ESA primary protection zone and secondary protection zone.																																																											
Biodiver sity 9	Despite Biodiversity 8, the activity may be located in Category C ESA and its primary and secondary protection zones within PL1125.																																																											
Biodiver sity 10	Prescribed environmental matters - matters of State environmental significance Impacts to prescribed environmental matters (PEMs) as a result of carrying out the activity must only occur within the locations and to the maximum extents stated in <i>Table 4 – Authorised impacts to PEMs</i> . Table 4 – Authorised impacts to PEMs <table border="1"> <thead> <tr> <th>Prescribed environmental matter</th><th>Location of impact</th><th>Significant residual impact and offset required</th><th>Total area of impact (hectares)</th><th>Stage 1 'Vali 1-3 + flowlines' Area of impact (hectares)</th><th>Stage 2 'Vali 4' Area of impact (hectares)</th><th>Stage 3 'Vali 5' Area of impact (hectares)</th></tr> </thead> <tbody> <tr> <td colspan="4">REGULATED VEGETATION</td><td></td><td></td><td></td></tr> <tr> <td>Regional ecosystems (not within an urban area) that intersect a wetland on the vegetation management wetlands map – RE 5.3.22</td><td>PL1125</td><td>Yes</td><td>8.8ha</td><td>5.8</td><td>2.9</td><td>0.1</td></tr> <tr> <td colspan="4">PROTECTED WILDLIFE HABITAT</td><td></td><td></td><td></td></tr> <tr> <td colspan="7">Habitat for an animal that is critically endangered wildlife, endangered wildlife or vulnerable wildlife or a special least concern animal</td></tr> <tr> <td>Sharp-tailed Sandpiper <i>Calidris acuminata</i></td><td rowspan="3">PL1125</td><td>No</td><td>8.8</td><td>5.8</td><td>2.9</td><td>0.1</td></tr> <tr> <td>Blue-winged Parrot <i>Neophema chrysostoma</i></td><td>Yes</td><td>21.6</td><td>18.4</td><td>3.0</td><td>0.2</td></tr> <tr> <td>Southern Whiteface</td><td>Yes</td><td>11.5</td><td>6.5</td><td>1.8</td><td>3.2</td></tr> </tbody> </table>						Prescribed environmental matter	Location of impact	Significant residual impact and offset required	Total area of impact (hectares)	Stage 1 'Vali 1-3 + flowlines' Area of impact (hectares)	Stage 2 'Vali 4' Area of impact (hectares)	Stage 3 'Vali 5' Area of impact (hectares)	REGULATED VEGETATION							Regional ecosystems (not within an urban area) that intersect a wetland on the vegetation management wetlands map – RE 5.3.22	PL1125	Yes	8.8ha	5.8	2.9	0.1	PROTECTED WILDLIFE HABITAT							Habitat for an animal that is critically endangered wildlife, endangered wildlife or vulnerable wildlife or a special least concern animal							Sharp-tailed Sandpiper <i>Calidris acuminata</i>	PL1125	No	8.8	5.8	2.9	0.1	Blue-winged Parrot <i>Neophema chrysostoma</i>	Yes	21.6	18.4	3.0	0.2	Southern Whiteface	Yes	11.5	6.5	1.8	3.2
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	<i>Aphelocephala leucopsis</i>						
	Dusky Hopping-mouse <i>Notomys fuscus</i>		No	20.2	15.2	1.8	3.2
	Australian Painted Snipe <i>Rostratula australis</i>		Yes	8.8	2.9	0.1	8.7
	Curlew Sandpiper <i>Calidris ferruginea</i>		Yes	8.8	2.9	0.1	8.7
	Common Greenshank <i>Tringa nebularia</i>		No	8.8	2.9	0.1	8.7
	Night parrot <i>Pezoporus occidentalis</i>		No	42	33.6	4.9	3.5
	Plains -wanderer <i>Pedionomus torquatus</i>		No	21.9	18.5	3.1	0.3
	Latham's snipe <i>Gallinago hardwickii</i>		Yes	21.9	18.5	3.1	0.3
	Painted Honeyeater <i>Grantiella picta</i>		No* *In accordance with condition Biodiversity 11	11.5	6.5	1.8	3.2
	Major Mitchell's Cockatoo (eastern) <i>Lophochroa leadbeateri leadbeateri</i>		No* *In accordance with condition Biodiversity 12	20.2	15.2	1.8	3.2
	Kowari (Crest-tailed Mulgara) <i>Dasyuroides bynei</i>		No	20.2	15.2	1.8	3.2
	Greater Bilby <i>Macrotis lagotis</i>		No	20.2	15.2	1.8	3.2
	Flame Spiderflower		No* * In accordance with the protected plant	11.5	6.5	1.8	3.2

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	(b) for the previous stage, if applicable – the actual significant residual impacts to each prescribed environmental matter, to date.
Biodiversity 18	The report required by condition Biodiversity 17 must be approved by the administering authority before a notice of election for the forthcoming stage, if applicable, is given to the administering authority.
Biodiversity 19	The notice of election for the staged environmental offset referred to in <i>Table 4 – Authorised impacts to PEMS</i> , 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 in writing by the administering authority.
Biodiversity 20	Within six months from the completion of the final stage of the project, a report completed by (a) an appropriately qualified person, that includes the following matters must be provided to the administering authority: (b) an analysis of the actual impacts on prescribed environmental matters resulting from the final stage; and (c) if applicable, a notice of election to address any outstanding offset debits for the authorised impacts.
Biodiversity 21	Spatial records Spatial records sufficient to demonstrate compliance with conditions Biodiversity 4 to Biodiversity 10, Biodiversity 13 to Biodiversity 15 must be kept for the life of the environmental authority. For clarity, this includes mapped biodiversity values, confirmed on-the-ground biodiversity values, location of the activity, environmentally sensitive areas and their protection zones, prescribed environmental matters and impacts to prescribed environmental matters.
Water conditions	
Condition number	Condition
Water 1	Contaminants must not be directly or indirectly released to any waters except as permitted under this environmental authority.
Water 2	The extraction of groundwater as part of the petroleum activity(ies) from underground aquifers must not directly or indirectly cause environmental harm to any watercourse, wetland or spring.
Water 3	The maintenance of existing linear infrastructure 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; and (c) thirdly, in times of flow, but providing flow is not impeded
Water 4	Only essential petroleum activities are permitted within a wetland of general ecological significance.
Water 5	Prior to carrying out essential petroleum activities within a wetland of general environmental significance it must be demonstrated, in the following order of preference that:

	(a) no reasonable or practicable alternative exists for carrying out the essential petroleum activities within a wetland of general environmental significance; and (b) the essential petroleum activities are preferentially located in pre-existing areas of clearing or significant disturbance.										
Water 6	Construction or maintenance of essential petroleum activities in a general environmental significance wetland (other than linear infrastructure) must not: (a) prohibit the flow of surface water in or out of the wetland; (b) impact surface water quality in the wetland unless specifically authorised by this environmental authority; (c) drain or fill the wetland; (d) impact bank stability; or (e) result in the clearing of riparian vegetation outside of the minimum area practicable to carry out the works.										
Water 7	Petroleum activities other than construction and maintenance activities carried out within a wetland of general ecological significance must not: (a) change the existing surface water hydrological regime; or (b) impact bank stability.										
Water 8	The maintenance of linear infrastructure in a watercourse must not release contaminants to any waters that exceed the water quality limits specified in <i>Table 5 – Release limits to Waters for Construction or Maintenance Activities</i>.										
Water 9	The construction or maintenance of essential petroleum activities within a wetland of general environmental significance must not release from the site any contaminants to any waters that exceed the water quality limits specified in <i>Table 5 – Release Limits to Waters for Construction or Maintenance Activities</i>. Protecting water values, Table 5—Release Limits to Waters for Construction or Maintenance Activities <table><tr><th>Water quality parameters</th><th>Units</th><th>Water quality limits</th></tr><tr><td rowspan="2">Turbidity</td><td rowspan="2">Nephelometric Turbidity Units (NTU)</td><td>For a wetland of general environmental significance or wetland of high ecological significance, if background water turbidity is above 45 NTU, no greater than 25% above background water turbidity measured within a 50m radius of the construction or maintenance activity.</td></tr><tr><td>For a watercourse, if background water turbidity is above 45 NTU, no greater than 25% above background water turbidity measured within 50m downstream of the construction or maintenance activity.</td></tr><tr><td></td><td></td><td>For a wetland of general environmental significance or wetland of high ecological significance, if background water turbidity is equal to, or below 45 NTU, a turbidity limit of no greater than 55 NTU applies, measured</td></tr></table>	Water quality parameters	Units	Water quality limits	Turbidity	Nephelometric Turbidity Units (NTU)	For a wetland of general environmental significance or wetland of high ecological significance, if background water turbidity is above 45 NTU, no greater than 25% above background water turbidity measured within a 50m radius of the construction or maintenance activity.	For a watercourse, if background water turbidity is above 45 NTU, no greater than 25% above background water turbidity measured within 50m downstream of the construction or maintenance activity.			For a wetland of general environmental significance or wetland of high ecological significance, if background water turbidity is equal to, or below 45 NTU, a turbidity limit of no greater than 55 NTU applies, measured
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		Hydrocarbons	-	For a wetland of general environmental significance, wetland of high ecological significance, or watercourse, no visible sheen or slick	
Water 10	Monitoring must be undertaken at a frequency that is appropriate to demonstrate compliance with conditions Water 8 and Water 9.				
Water 11	Records must be kept of infrastructure construction and maintenance activities in all watercourses and any wetland of general ecological significance during times of flow, which must include: (a) location of the activity (e.g. GPS coordinates (GDA2020) and watercourse name) (b) duration of works, and (c) results of impact monitoring carried out under condition Water 10.				
Water 12	After the construction or maintenance works for petroleum activities in a general ecologically significant wetland the petroleum 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.				
Water 13	Petroleum activity(ies) on floodplains must be carried out in a way that does not: (a) concentrate flood flows in a way that will or may cause or threaten a negative environmental impact; or (b) divert flood flows from natural drainage paths and alter flow distribution; or (c) increase the local duration of floods; or (d) increase the risk of detaining flood flows.				
Rehabilitation conditions					
Condition number	Condition				
Rehabilitation 1	All significantly disturbed areas caused by petroleum activities must be rehabilitated to meet the following final rehabilitation acceptance criteria in <i>Appendix 1 - Rehabilitation Requirements</i> .				
Rehabilitation 2	Rehabilitation of significantly disturbed areas in accordance with condition Rehabilitation 1 that are no longer required for on-going petroleum activities must commence within 12 months (unless an				

	exceptional circumstance in the area to be rehabilitated (e.g. a flood event) prevents this timeframe being met).
Rehabilitation 3	A Rehabilitation Plan must be developed and implemented by an appropriately qualified person that includes: (a) A schedule of actions to be carried out to achieve the rehabilitation objectives stated in <i>Appendix 1 - Rehabilitation Requirements</i>, including completion timeframes for each action; and (b) A process for determining how areas no longer required for petroleum activities are identified for rehabilitation in accordance with condition Rehabilitation 2; and (c) A monitoring and maintenance program, to be undertaken by an appropriately qualified person, that assesses the rehabilitation commenced with regards to the objective and final rehabilitation acceptance criteria stated in <i>Appendix 1 - Rehabilitation Requirements</i>; and (d) a process for intervention where rehabilitation has commenced and is not meeting the final rehabilitation acceptance criteria.
Rehabilitation 4	The Rehabilitation Plan must be reviewed every three (3) years and updated as required by an appropriately qualified person to ensure compliance with condition Rehabilitation 3.
Well construction, maintenance and stimulation activities conditions	
Condition number	Condition
Well activities 1	Oil based or synthetic based drilling muds must not be used in the carrying out of the petroleum activity(ies).
Well activities 2	Drilling and stimulation activities must not result in the connection of the target gas producing formation and another aquifer.
Well activities 3	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.
Well activities 4	Polycyclic aromatic hydrocarbons or products that contain polycyclic aromatic hydrocarbons must not be used in stimulation fluids in concentrations above the reporting limit.
Well activities 5	Stimulation activities must not negatively affect water quality, other than that within the stimulation impact zone of the target gas producing formation.
Well activities 6	The internal and external mechanical integrity of the well system prior to and during stimulation must be ensured such that there is: (a) no significant leakage in the casing, tubing, or packer; and (b) there is no significant fluid movement into another aquifer through vertical channels adjacent to the well bore hole.

Well activities 7	Practices and procedures must be in place to detect, as soon as practicable, any fractures that cause the connection of a target gas producing formation and another aquifer.
Well activities 8	Prior to undertaking stimulation activities, a risk assessment must be developed to ensure that stimulation activities are managed to prevent environmental harm.
Well activities 9	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.
Well activities 10	Prior to undertaking any stimulation activity, a baseline bore assessment must be undertaken of the water quality of: (a) all landholder's active groundwater bores (subject to access being permitted by the landholder) that are spatially located within a two (2) kilometre horizontal radius from the location of the stimulation initiation point within the target 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 (2) kilometre radius from the location of the stimulation initiation point; and (c) any other bore that could potentially be adversely impacted by the stimulation activities in accordance with the findings of the risk assessment required by conditions Well activities 8 and Well activities 9.
Well activities 11	Baseline bore assessments required in condition Well activities 10 must include the minimum water quality analytes and physico-chemical parameters identified in the Baseline Assessment Guideline and any restricted stimulation fluids as defined in section 206 of the <i>Environmental Protection Act 1994</i>, as amended from time to time, in order to establish baseline water quality.
Well activities 12	A stimulation impact monitoring program (SIMP) 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. The SIMP must consider the findings of the stimulation risk assessment required by conditions Well activities 8 and Well activities 9 and must include, as a minimum, monitoring of: (a) stimulation fluids injected which are representative of the quantity and quality of the fluids; (b) the volume of flow back waters from stimulation activities; and (c) all bores in accordance with condition Well activities 10 and Well activities 11.

Well activities 13	The stimulation impact monitoring program must provide for monitoring of: (a) analytes and physico-chemical parameters relevant to baseline bore assessments required by Well Activities 10 and Well Activities 11. (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 during stimulation activities.
Well activities 14	The stimulation impact monitoring program must provide for monitoring of the bores in condition Well activities 12(c) at the following minimum frequency: (a) monthly for the first six (6) months subsequent to stimulation activities being undertaken; then (b) annually for the first five (5) years subsequent to stimulation being undertaken or until analytes and physico-chemical parameters listed in condition Well activities 11, are not detected in concentrations above baseline bore monitoring data on two (2) consecutive monitoring occasions.
Well activities 15	The results of the stimulation impact monitoring program must be made available to any potentially affected landholder upon request by that landholder.

Definitions

Key terms and/or phrases used in this document are defined in this section. Where a term is not defined, the definition in the *Environmental Protection Act 1994*, its regulations or environmental protection policies must be used. If a word remains undefined it has its ordinary meaning.

Term	Definition
acceptable standards for release to land	means wastewater of the following quality as determined by monitoring results or by characterisation: (a) electrical conductivity (EC) not exceeding 3000µS/cm (b) sodium adsorption ratio (SAR) not exceeding 8 (c) pH between 6.0 and 9.0 (d) heavy metals (measured as total) meets the respective short term trigger value in section 4.2.6, Table 4.2.10—Heavy metals and metalloids in Australian and New Zealand Guidelines for Fresh and Marine Water Quality (e) does not contain biocides.
adjacent land use(s)	means the <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: (a) for a matter, the administration and enforcement of which has been devolved to a local government under section 514 of the <i>Environmental Protection Act 1994</i>—the local government; or (b) for all other matters—the Chief Executive of the Department of the Environment, Tourism, Science and Innovation; or (c) another State Government Department, Authority, Storage Operator, Board or Trust, whose role is to administer provisions under other enacted legislation.
alternative arrangement	means a written agreement about the way in which a particular environmental nuisance impact will be dealt with at a sensitive place, and may include an agreed period of time for which the arrangement is in place. An alternative arrangement may include, but is not limited to, a range of nuisance abatement measures to be installed at the sensitive place, or provision of alternative accommodation for the duration of the relevant nuisance impact.
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.
annual return period	means the most current 12-month period between two anniversary dates.
appraisal well	means a petroleum well to test the potential of one (1) or more natural underground reservoirs for producing or storing petroleum. For clarity, an appraisal well does not include an exploration well.
appropriately qualified person / 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.

approved quality
criteria

for the purposes of residual drilling materials, means the residual drilling material meet the following quality standards:

Part A In all cases:

Parameter	Maximum concentration
pH	6–10.5 (range)
Electrical Conductivity	20dS/m (20,000µS/cm)
Chloride*	8000mg/L

*Chloride analysis is only required if an additive containing chloride was used in the drilling process

The limits in Part A must be measured in the clarified filtrate of oversaturated solids prior to mixing.

Part B If any of the following metals are a component of the drilling fluids, then for that metal:

Parameter	Maximum concentration
Arsenic	20mg/kg
Selenium	5mg/kg
Boron	100mg/kg
Cadmium	3mg/kg
Chromium (total)	400mg/kg
Copper	100mg/kg
Lead	600mg/kg

The limits in Part B and Part C refer to the post soil/by-product mix.

Part C If a hydrocarbon sheen is visible, the following hydrocarbon fractions:

TPH	Maximum concentration
C6-C10	170mg/kg
C10-C16	150mg/kg
C16-C34	1300mg/kg
C34-C40	5600mg/kg
Total Polycyclic Aromatic Hydrocarbons (PAHs)	20mg/kg
Phenols (halogenated)	1mg/kg
Phenols (non-halogenated)	60mg/kg
Monocyclic aromatic hydrocarbons	7mg/kg

	(Total sum of benzene, toluene, ethyl benzene, xylenes (includes ortho, para and meta xylenes) and styrene)	
	Benzene	1mg/kg
areas of pre-existing disturbance	means areas where environmental values have been negatively impacted as a result of anthropogenic activity and these impacts are still evident. Areas of pre-disturbance may include areas where legal clearing, logging, timber harvesting, or grazing activities have previously occurred, where high densities of weed or pest species are present which have inhibited re-colonisation of native regrowth, or where there is existing infrastructure (regardless of whether the infrastructure is associated with the authorised petroleum activities). The term 'areas of pre-disturbance' does not include areas that have been impacted by wildfire/s, controlled burning, flood or natural vegetation die-back.	
associated water	means underground water taken or interfered with, if the taking or interference happens during the course of, or results from, the carrying out of another authorised activity under a petroleum authority, such as a petroleum well, and includes waters also known as produced formation water. The term includes all contaminants suspended or dissolved within the water.	
associated works	in relation to a dam, means: (a) operations of any kind and all things constructed, erected or installed for that dam; and (b) any land used for those operations.	
Australian Standard 3580	means any of the following publications: - AS3580.10.1 Methods for sampling and analysis of ambient air—Determination of particulate matter—Deposited matter—Gravimetric method. - AS3580.9.6 Methods for sampling and analysis of ambient air—Determination of suspended particulate matter—PM10 high volume sampler with size-selective inlet—Gravimetric method - AS3580.9.9 Methods for sampling and analysis of ambient air—Determination of suspended particulate matter— PM10 low volume sampler—Gravimetric sampler.	
Australian Standard 4323	means Australian Standard 4323.1:1995 <i>Stationary source emissions method 1: Selection of sampling positions</i> .	
background noise level	means the sound pressure level, measured in the absence of the noise under investigation, as the $L_{A90,T}$ being the A-weighted sound pressure level exceeded for 90% of the measurement time period T of not less than 15 minutes (or $L_{A90,adj,15 mins}$), using Fast response.	
bankfull	means the channel flow rate that exists when the water is at the elevation of the channel bank above which water begins to spill out onto the floodplain. The term describes the condition of the channel relative to its banks (e.g. overbank, in-bank, bankfull, low banks, high bank).	
bed	of any waters, has the meaning in Schedule 19 of the Environmental Protection Regulation 2019 and— (a) includes an area covered, permanently or intermittently, by tidal or non-tidal waters; but (b) does not include land adjoining or adjacent to the bed that is from time to time covered by floodwater.	

being or intended to be utilised by the landholder or overlapping tenure holder	for significantly disturbed land, means there is a written agreement (e.g. land and compensation agreement) between the landholder or the overlapping tenure holder and the holder of the environmental authority identifying that the landholder or the overlapping tenure holder has a preferred use of the land such that rehabilitation standards for revegetation by the holder of the environmental authority are not required. For dams, means there is a written agreement (e.g. land and compensation agreement) between the landholder or the overlapping tenure holder and the holder of the environmental authority identifying that the landholder or the overlapping tenure holder has a preferred use for the dam such that rehabilitation standards for revegetation by the holder of the environmental authority are not required.
biodiversity values	for the purposes of this environmental authority, means environmentally sensitive areas, prescribed environmental matters and wetlands.
Category A Environmentally Sensitive Area	has the meaning in the Environmental Protection Regulation 2019.
Category B Environmentally Sensitive Area	has the meaning in the Environmental Protection Regulation 2019.
Category C Environmentally Sensitive Area	means any of the following areas: • nature refuges as defined in the conservation agreement for that refuge under the <i>Nature Conservation Act 1992</i> Guideline Streamlined model conditions for petroleum activities; • state forests or timber reserves as defined under the <i>Forestry Act 1959</i>; • Resources Reserve under the <i>Nature Conservation Act 1992</i>; • an area validated as from ground-truthing surveys as 'essential habitat' on the Queensland Government Essential Habitat Map in accordance with section 20AC of the <i>Vegetation Management Act 1999</i> for a species of wildlife listed as critically endangered, endangered, vulnerable under the <i>Nature Conservation Act 1992</i>; • an area validated from ground-truthing surveys as 'protected wildlife habitat' that is category A, B or C on the Regulated Vegetation Management Map, in accordance with section 20A of the <i>Vegetation Management Act 1992</i>, for a species of wildlife listed as critically endangered, endangered or vulnerable under the <i>Nature Conservation Act 1992</i>; • 'of concern regional ecosystems' that are remnant vegetation and identified in the database called 'RE description database' containing regional ecosystem numbers and descriptions.
certified or certification	in relation to any matter other than a design plan, 'as constructed' drawings or an annual report regarding dams means, a Statutory Declaration by a suitably qualified person or suitably qualified third party accompanying the written document stating: • the person's qualifications and experience relevant to the function • that the person has not knowingly included false, misleading or incomplete information in the document • that the person has not knowingly failed to reveal any relevant information or document to the administering authority • that the document addresses the relevant matters for the function and is factually correct; and • that the opinions expressed in the document are honestly and reasonably held.

clearing	has the meaning in the dictionary of the <i>Vegetation Management Act 2000</i> and for vegetation— (a) means remove, cut down, ringbark, push over, poison or destroy in any way including by burning, flooding or draining; but (b) does not include destroying standing vegetation by stock, or lopping a tree.
closed-loop systems	means using waste on site in a way that does not release waste or contaminants in the waste to the environment.
construction activities	means the: (a) initial clearing of native vegetation, including but not limited to new well pads, access tracks, pipeline and flowline corridors, and borrow pits; and (b) opening of trenches for buried pipeline and flowline installation in areas not previously disturbed, from the time a trench is opened until it is backfilled.
control measure	has the meaning in section 31 of the Environmental Protection Regulation 2019.
containment facility	containment facilities include produced formation water management facilities and regulated structures.
daily peak design capacity	for sewage treatment works, has the meaning in Schedule 2, section 63(4) of the Environmental Protection Regulation 2019 as the higher equivalent person (EP) for the works calculated using each of the formulae found in the definition for EP.
dam(s)	means a land-based structure or a <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.
designated precinct	has the meaning in Part 5 section 15(3) of the Regional Planning Interests Regulation 2014 and means: - for a strategic environmental area mentioned in section 4(1) – the area identified as a designated precinct on the strategic environmental area map for the strategic environmental area; or - if a strategic environmental area is shown on a map in a regional plan – the area identified on the map as a designated precinct for the strategic environmental area.
design storage allowance or DSA	means an available volume, estimated in accordance with the Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635), published by the administering authority, as amended from time to time, that must be provided in a dam to an annual exceedance probability specified in that Manual.
development wells	means a petroleum well which produces or stores petroleum. For clarity, a development well does not include an appraisal well.
document	has the meaning in the <i>Acts Interpretation Act 1954</i> and means:

	- any paper or other material on which there is writing; and - any paper or other material on which there are marks; and - figures, symbols or perforations having a meaning for a person qualified to interpret them; and - any disc, tape or other article or any material from which sounds, images, writings or messages are capable of being produced or reproduced (with or without the aid of another article or device).
ecologically dominant layer	has the meaning in the Methodology for Surveying and Mapping of Regional Ecosystems and Vegetation Communities in Queensland (Version 3.2 August 2012) and means the layer making the greatest contribution to the overall biomass of the site and the vegetation community (NLWRA 2001). This is also referred to as the ecologically dominant stratum or the predominant canopy in woody ecosystems.
ecosystem function	means the interactions between and within living and nonliving components of an ecosystem and generally correlates with the size, shape and location of the vegetation community.
enclosed flare	means a device where the residual gas is burned in a cylindrical or rectilinear enclosure that includes a burning system and a damper where air for the combustion reaction is admitted.
environmental harm	has the meaning in section 14 of the <i>Environmental Protection Act 1994</i> and means any adverse effect, or potential adverse effect (whether temporary or permanent and of whatever magnitude, duration or frequency) on an environmental value, and includes environmental nuisance. Environmental harm may be caused by an activity— (a) whether the harm is a direct or indirect result of the activity; or (b) whether the harm results from the activity alone or from the combined effects of the activity and other activities or factors.
environmental nuisance	has the meaning in section 15 of the <i>Environmental Protection Act 1994</i> and means unreasonable interference or likely interference with an environmental value caused by— (a) aerosols, fumes, light, noise, odour, particles or smoke; or (b) an unhealthy, offensive or unsightly condition because of contamination; or (c) another way prescribed by regulation.
environmental offset	has the meaning in section 7 of the <i>Environmental Offsets Act 2014</i> .
environmentally sensitive area	means Category A, B or C environmentally sensitive areas (ESAs)
equivalent person or EP	has the meaning under section 3 of the Planning Guidelines For Water Supply and Sewerage, 2005, published by the Queensland Government. It is calculated in accordance with Schedule 2, Section 63(4) of the Environmental Protection Regulation 2019 where: $EP = V/200$ where V is the volume, in litres, of the average dry weather flow of sewage that can be treated at the works in a day; or $EP = M/2.5$ where M is the mass, in grams, of phosphorus in the influent that the works are designed to treat as the inlet load in a day.

essential petroleum activities	means activities that are essential to bringing the resource to the surface and are only the following: • <u>low impact</u> petroleum activities • geophysical, geotechnical, geological, topographic and cadastral surveys (including seismic, sample /test / geotechnical pits, core holes) • single well sites not exceeding 1.5 hectares disturbance (and up to 1.65 hectares for stimulated well sites) and multi-well sites not exceeding 3 hectares disturbance • well sites with monitoring equipment (including monitoring bores): ○ for single well sites, not exceeding 1.25 hectares disturbance ○ for multi-well sites, not exceeding 1.75 hectares disturbance • associated infrastructure located on a well site necessary for the construction and operations of wells: ○ water pumps and generators ○ flare pits ○ chemical / fuel storages ○ sumps for residual drilling material and drilling fluids ○ tanks, or dams which are not significant or high consequence dams to contain wastewater (e.g. stimulation flow back waters, produced water) ○ pipe laydown areas ○ soil and vegetation stockpile areas ○ a temporary camp associated with a drilling rig that may involve sewage treatment works that are no release works ○ temporary administration sites and warehouses ○ dust suppression activities using water that meets the quality and operational standards approved under the environmental authority • communication and power lines that are necessary for the undertaking of petroleum activities and that are located within well sites, well pads and pipeline right of ways without increasing the disturbance area of petroleum activities • supporting access tracks • gathering / flow pipelines from a well head to the initial compression facility • activities necessary to achieve compliance with the conditions of the environmental authority in relation to another essential petroleum activity (e.g. sediment and erosion control measures, rehabilitation).
existing authority	has the meaning in section 94 of the <i>Environmental Offsets Act 2014</i> .
exploration well	means a petroleum well that is drilled to: • explore for the presence of petroleum or natural underground reservoirs suitable for storing petroleum; or • obtain stratigraphic information for the purpose of exploring for petroleum. For clarity, an exploration well does not include an appraisal or development well.
flare pit	has the meaning in the Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635), and means containment area where any hydrocarbon that is discovered in an over-pressured reservoir during a drilling operation

	is diverted to, and combusted, The flare pit is only used during the drilling and work over process on a petroleum well.
flare precipitant	means waste fluids which result from the operation of a flare.
floodplains	has the meaning in the <i>Water Act 2000</i> and means an area of reasonably flat land adjacent to a watercourse that— • is covered from time to time by floodwater overflowing from the watercourse; and • does not, other than in an upper valley reach, confine floodwater to generally follow the path of the watercourse; and • has finer sediment deposits than the sediment deposits of any bench, bar or in-stream island of the watercourse.
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 500 kg of fuel in an hour.
GDA	means Geocentric Datum of Australia.
Great Artesian Basin (GAB) spring	means an area protected under the <i>Environment Protection and Biodiversity Conservation Act 1999</i> because it is considered to be a Matter of National Environmental Significance and identified as a: • community of native species dependent on natural discharge of groundwater from the Great Artesian Basin; or • Great Artesian Basin spring; or • Great Artesian Basin discharge spring wetland. A GAB spring includes a spring vent, spring complex or watercourse spring and includes the land to which water rises naturally from below the ground and the land over which the water then flows. <i>Note: The Australian Government's Protected Matters Search Tool should be used to get an indication of whether the area of interest may contain an MNES spring.</i> <i>Note: The GAB springs dataset can be requested from the Queensland Government Herbarium</i>
green waste	means waste that is grass cuttings, trees, bushes, shrubs, material lopped from trees, untreated timber or other waste that is similar in nature but does not include declared pest species.
greywater	means wastewater generated from domestic activities such as laundry, dishwashing, and bathing. Greywater does not include sewage.
groundwater dependent ecosystem (GDE)	means ecosystems which require access to groundwater on a permanent or intermittent basis to meet all or some of their water requirements so as to maintain their communities of plants and animals, ecological processes and ecosystem services. For the purposes of the environmental authority, groundwater dependent ecosystems do not include those mapped as "unknown".
growing	means to increase by natural development, as any living organism or part thereof by assimilation of nutrient; increase in size or substance.

holder	means any person who is the holder of, or is acting under, that environmental authority
hydraulic integrity	refers to the capacity of a dam to contain or safely pass <u>flowable substances</u> based on its design.
impulsive (for noise)	means sound characterised by brief excursions of sound pressure (acoustic impulses) that significantly exceed the background sound pressure. The duration of a single impulsive sound is usually less than one second.
Incidental activities	means an activity that is not a specified relevant activity and is necessary to carry out the activities listed in <i>Schedule A, Table 1 – Scale and Intensity for the Activities</i> .
LA 90, adj, 15 mins	means the A-weighted sound pressure level, adjusted for tonal character that is equal to or exceeded for 90% of any 15 minutes sample period equal, using Fast response.
L _{Aeq} , adj, 15 mins	means the A-weighted sound pressure level of a continuous steady sound, adjusted for tonal character, that within any 15 minute period has the same square sound pressure as a sound level that varies with time.
land degradation	has the meaning in the <i>Vegetation Management Act 1999</i> and means the following: • soil erosion • rising water tables • the expression of salinity • mass movement by gravity of soil or rock • stream bank instability • a process that results in declining water quality.
landholder's active groundwater bore	means bores that are able to continue to provide a reasonable yield of water in terms of quantity for the bores authorised purpose or use. This term does not include monitoring bores owned by the administering authority of the <i>Water Act 2000</i> .
linear infrastructure	means communication and powerlines, pipelines, flowlines, roads and access tracks.
liquid	means a substance which is flowing and offers no permanent resistance to changes of shape.
long term noise event	means a noise exposure, when perceived at a sensitive receptor, persists for a period of greater than five (5) days, even when there are respite periods when the noise is inaudible within those five (5) days.
low consequence dam	means any dam that is not classified as high or significant as assessed using the Manual for Assessing Consequence Categories and Hydraulic Performance of Structures, published by the administering authority, as amended from time to time.
low impact petroleum activities	means petroleum activities which do not result in the clearing of native vegetation, cause disruption to soil profiles through earthworks or excavation or result in significant disturbance to land which cannot be rehabilitated immediately using hand tools after the activity is completed. Examples of such activities include but are not necessarily limited to soil surveys (excluding test pits), topographic surveys, cadastral surveys and ecological surveys, may include installation of monitoring equipment provided that it is within the meaning of low impact and traversing land by car or foot via existing access tracks or routes or in such a way that does not result in permanent damage to vegetation.

Map of Queensland wetland environmental values	See the Environmental Protection (Water and Wetland Biodiversity) Policy 2019, schedule 2.
Max L_{pA} , 15 min	means the absolute maximum instantaneous A-weighted sound pressure level, measured over 15 minutes.
Max L_{pZ} , 15 min	means the maximum value of the Z-weighted sound pressure level measured over 15 minutes.
maximum extent of impact	means the total, cumulative, residual extent and duration of impact to a prescribed environmental matter that will occur over a project's life after all reasonable avoidance and reasonable on-site mitigation measures have been, or will be, undertaken.
medium term noise event	is a noise exposure, when perceived at a sensitive receptor, persists for an aggregate period not greater than five (5) days and does not re-occur for a period of at least four (4) weeks. Re-occurrence is deemed to apply where a noise of comparable level is observed at the same receptor location for a period of one hour or more, even if it originates from a difference source or source location.
methodology	means the science of method, especially dealing with the logical principles underlying the organisation of the various special sciences, and the conduct of scientific inquiry.
mix-bury-cover method	means the stabilisation of residual drilling solids in the bottom of a sump by mixing with subsoil and which occurs in accordance with the following methodology: - the base of the subsoil and residual solid mixture must be separated from the groundwater table by at least one metre of a continuous layer of impermeable subsoil material ($k_w=10-8m/s$) or subsoil with a clay content of greater than 20%; and - the residual solids is mixed with subsoil in the sump and cover; and - the subsoil and residual solids is mixed at least three parts subsoil to one part waste (v/v); and - a minimum of one metre of clean subsoil must be placed over the subsoil and residual solids mixture; and - topsoil is replaced.
month	has the meaning in the <i>Acts Interpretation Act 1954</i> and means a calendar month and is a period starting at the beginning of any day of one (1) of the 12 named months and ending— - immediately before the beginning of the corresponding day of the next named month; or - if there is no such corresponding day—at the end of the next named month.
NATA accreditation	means accreditation by the National Association of Testing Authorities Australia.
notice of election	has the meaning in section 18(2) <i>Environmental Offsets Act 2014</i> .
prescribed environmental matters	has the meaning in section 10 of the <i>Environmental Offsets Act 2014</i> , limited to the matters of State environmental significant listed in schedule 2 of the Environmental Offsets Regulation 2014.
Pipeline	Means flowlines for produced water and gas gathering lines.

pipeline waste water	means hydrostatic testing water, flush water or water from low point drains.
pre-disturbed land use	means the function or use of the land as documented prior to significant disturbance occurring at that location.
predominant species	has the meaning in the Methodology for Surveying and Mapping of Regional Ecosystems and Vegetation Communities in Queensland (Version 3.2 August 2012) and means a species that contributes most to the overall above-ground biomass of a particular stratum.
prescribed contaminants	has the meaning in section 440ZD of the <i>Environmental Protection Act 1994</i> and means:
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.
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 5.1 March 2020) and means a Vegetation community in a bioregion that is consistently associated with a particular combination of geology, landform and soil.
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.
rehabilitation or rehabilitated	means the process of reshaping and revegetating land to restore it to a stable landform and in accordance with acceptance criteria and, where relevant, includes remediation of contaminated land. For the purposes of pipeline rehabilitation, rehabilitation includes reinstatement, revegetation and restoration.
reinstate or reinstatement	for pipelines, means the process of bulk earth works and structural replacement of pre-existing conditions of a site (i.e. soil surface 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).
reporting limit	means the lowest concentration that can be reliably measured within specified limits of precision and accuracy during routine laboratory operating conditions. For many analytes, the reporting limit is selected as the lowest non-zero standard in the calibration curve. Results that fall below the reporting limit will be reported as "less than" the value of the reporting limit. The reporting limit is also referred to as the practical quantitation limit or the limit of quantitation. For polycyclic aromatic hydrocarbons, the reporting limit must be based on super-ultra trace methods and, depending on the specific polycyclic aromatic hydrocarbon, will range between 0.005 ug/L–0.02 ug/L.
residual drilling material	means waste drilling materials including workover solids and fluids, 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</u> site. For the purposes of pipelines, restoration applies to final rehabilitation after pipeline decommissioning.

restricted stimulation fluids	has the meaning in section 206 of the <i>Environmental Protection Act 1994</i> and means fluids used for the purpose of stimulation, including fracturing, that contain the following chemicals in more than the maximum amount prescribed under section 70(1) of the Environmental Protection Regulation 2019— (a) petroleum hydrocarbons containing benzene, ethylbenzene, toluene or xylene (b) chemicals that produce, or are likely to produce, benzene, ethylbenzene, toluene or xylene as the chemical breaks down in the environment. For clarity, the term restricted stimulation fluid only applies to fluid injected down well post-perforation. As per section 70(3) of the Environmental Protection Regulation 2019, the amount of chemicals mentioned above are not measured in relation to water included in the restricted stimulation fluid.
revegetation or revegetating or revegetate	means to actively re-establish vegetation through seeding or planting techniques in accordance with site specific management plans.
secondary protection zone	in relation to a Category A or Category B ESA means an area within 100 metres from the boundary of the primary protection zone.
secondary treated class C standards	means treated sewage effluent or greywater which meets the following standards: • total phosphorous as P, maximum 20mg/L • total nitrogen as N, maximum 30mg/L • 5-day biochemical oxygen demand (inhibited) (e.g. Release pipe from sewage treatment plant), maximum 20mg/L • suspended solids, maximum 30mg/L • pH, range 6.0 to 8.5 • e-Coli, 80th percentile based on at least 5 samples with not less than 30 minutes between samples, 10 000cfu per 100mL, maximum 100 000cfu per 100mL.
sensitive place	includes the following and includes a place within the curtilage of such a place reasonably used by persons at that place: • a dwelling, residential allotment, mobile home or caravan park, residential marina or other residential premises; or • a motel, hotel or hostel; or • a kindergarten, school, university or other educational institution; or • a medical centre or hospital; or • a protected area under the <i>Nature Conservation Act 1992</i>, the <i>Marine Parks Act 2004</i> or a World Heritage Area; or • a public park or garden; or • for noise, a place defined as a sensitive receptor for the purposes of the Environmental Protection (Noise) Policy 2019.
sensitive receptor	is defined in Schedule 2 of the Environmental Protection (Noise) Policy 2019, and means an area or place where noise is measured.
short term noise event	is a noise exposure, when perceived at a sensitive receptor, persists for an aggregate period not greater than eight hours and does not re-occur for a period of at least seven (7) days. Re-occurrence is deemed to apply where a noise of comparable level is observed at the same receptor location for a period of one hour or more, even if it originates from a different source or source location.

significant residual impact	has the meaning in section 8 <i>Environmental Offsets Act 2014</i> .
significantly disturbed or significant disturbance or significant disturbance to land or areas	Is land that: (a) is contaminated land; or (b) has been disturbed and human intervention is needed to rehabilitate it— - to a condition required under the relevant environmental authority; or - 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. Examples of a disturbance to land— - the covering, compaction, exposure, removal or stockpiling of soil or other material - the destruction or removal of vegetation - the carrying out of a mining activity in a watercourse or wetland - the submergence of an area with a hazardous contaminant, tailings, or water Without limiting (b) above, land requires human intervention to rehabilitate it if— (a) the disturbance has made the land more susceptible to erosion; or (b) the land use capability or suitability of the land is diminished; or (c) the quality of water in a watercourse downstream of the land has been significantly reduced. If land is significantly disturbed land because it is contaminated land, it ceases to be significantly disturbed land if a suitability statement is issued for the land. If land is significantly disturbed land under subsection (1)(b), it ceases to be significantly disturbed land if the administering authority is satisfied the land has been rehabilitated— (a) to the condition it was in immediately before the disturbance; or (b) to another condition decided by the administering authority.
species richness	means the number of different species in a given area.
specified relevant activities	means an activity that but for being carried out as a resource activity, would otherwise be an activity prescribed under section 19 of the <i>Environmental Protection Act 1994</i> as an environmentally relevant activity and is identified in the cover pages of this environmental authority.
stable	for a site, means the rehabilitation and <u>restoration</u> 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— (a) the criteria (the compliance criteria) the document or work must comply with; and (b) that the statement of compliance must state whether the document or work complies with the compliance criteria; and (c) the information (the supporting information) that must be provided to the administering authority to demonstrate compliance with the compliance criteria; and (d) when the statement of compliance and supporting information must be given to the administering authority.
stimulation	means a technique used to increase the permeability of natural underground reservoir that is undertaken above the formation pressure and involves the addition of chemicals. It

	includes hydraulic fracturing / hydrofracking, fracture acidizing and the use of proppant treatments. Explanatory note: This definition is restricted from that in the <i>Petroleum and Gas (Production and Safety) Act 2004</i> in order to only capture the types of stimulation activities that pose a risk to environmental values of water quality in aquifers.
stimulation fluid	means the fluid injected underground to increase permeability. For clarity, the term stimulation fluid only applies to fluid injected down well post-perforation.
stimulation impact zone	means a 100m maximum radial distance from the stimulation target location within a gas producing formation.
strategic environmental area	has the meaning in section 11(1) of the <i>Regional Planning Interest Act 2014</i> .
structure	means a dam or levee.
subterranean cave GDE	- means an area identified as a subterranean cave in the mapping produced by the Queensland Government and identified in the Queensland Government Information System, as amended from time to time; and - means a cave ecosystem which requires access to groundwater on a permanent or intermittent basis to meet all or some of their water requirements so as to maintain its communities of plants and animals, ecological processes and ecosystem services. Subterranean cave GDEs are caves dependent on the subterranean presence of groundwater. Subterranean cave GDEs have some degree of groundwater connectivity and are indicated by either high moisture levels or the presence of stygofauna, or both, referred to in the Queensland Government WetlandsInfo mapping program, as amended from time to time. <i>Note: the Subterranean GDE (caves) dataset can be displayed through the Queensland Government WetlandInfo mapping program.</i> <i>Note: the Subterranean GDE (caves) dataset can be obtained from the Queensland Government Information System.</i>
suitably qualified person	means a person who has professional qualifications, training or skills or experience relevant to the nominated subject matters and can give authoritative assessment, advice and analysis about performance relevant to the subject matters using relevant protocols, standards, methods or literature.
suitably qualified third party	means a person who: - has qualifications and experience relevant to performing the function including but not limited to: - a bachelor's degree in science or engineering; and 3 years' experience in undertaking soil contamination assessments; and - is a member of at least one organisation prescribed in Chapter 12 of the Environmental Protection Regulation 2019; and - not be an employee of, nor have a financial interest or any involvement which would lead to a conflict of interest with the holder(s) of the environmental authority.
sump	means a pit in which waste residual drilling material or drilling fluids are stored only for the duration of drilling activities.
synthetic based drilling mud	means a mud where the base fluid is a synthetic oil, consisting of chemical compounds which are artificially made or synthesised by chemically modifying petroleum components or other raw materials rather than the whole crude oil.

top soil	means the surface (top) layer of a soil profile, which is more fertile, darker in colour, better structured and supports greater biological activity than underlying layers. The surface layer may vary in depth depending on soil forming factors, including parent material, location and slope, but generally is not greater than about 300mm in depth from the natural surface.
total density of coarse woody material	means the total length of logs on the ground greater than or equal to 10cm diameter per hectare and number of logs on the ground greater than or equal to 10cm diameter per hectare.
transmissivity	means the rate of flow of water through a vertical strip of aquifer which is one unit wide and which extends the full saturated depth of the aquifer.
valid complaint	means all complaints unless considered by the administering authority to be frivolous, vexatious or based on mistaken belief.
void	means any constructed open excavation in the ground (includes but is not limited to borrow pits, drill sumps, frac pits, flare pits, cavitation pits and trenches).
waste and resource management hierarchy	has the meaning provided in section 9 of the <i>Waste Reduction and Recycling Act 2011</i> and is the following precepts, listed in the preferred order in which waste and resource management options should be considered— (a) AVOID unnecessary resource consumption (b) REDUCE waste generation and disposal (c) RE-USE waste resources without further manufacturing (d) RECYCLE waste resources to make the same or different products (e) RECOVER waste resources, including the recovery of energy (f) TREAT waste before disposal, including reducing the hazardous nature of waste (g) DISPOSE of waste only if there is no viable alternative.
waste and resource management principles	has the meaning provided in section 4(2)(b) of the <i>Waste Reduction and Recycling Act 2011</i> and means the: (a) polluter pays principle (b) user pays principle (c) proximity principle (d) product stewardship principle.
waste fluids	has the meaning in section 13 of the <i>Environmental Protection Act 1994</i> in conjunction with the common meaning of “fluid” which is “a substance which is capable of flowing and offers no permanent resistance to changes of shape”. Accordingly, to be a waste fluid, the waste must be a substance which is capable of flowing and offers no permanent resistance to changes of shape.
watercourse	has the meaning in Schedule 4 of the <i>Environmental Protection Act 1994</i> and means: 1) a river, creek or stream in which water flows permanently or intermittently— (a) in a natural channel, whether artificially improved or not; or (b) in an artificial channel that has changed the course of the watercourse. 2) Watercourse includes the bed and banks and any other element of a river, creek or stream confining or containing water.
waters	includes all or any part of a creek, river, stream, lake, lagoon, swamp, wetland, spring, unconfined surface water, unconfined water in natural or artificial watercourses, bed and

	bank of any waters, non-tidal or tidal waters (including the sea), stormwater channel, stormwater drain, roadside gutter, stormwater run-off, and underground water.
well integrity	the ability of a well to contain the substances flowing through it.
Well site	means a maximum area of land disturbance for the purposes of constructing, installing and operating a well(s) and includes well lease infrastructure.
wetland	for the purpose of this environmental authority, wetland means: • areas shown on the map of Queensland wetland environmental values which is a statewide statutory map under the Environmental Protection (Water and Wetland Biodiversity) Policy 2019.; and • areas defined under the Queensland Wetlands Program as permanent or periodic / intermittent inundation, with water that is static or flowing fresh, brackish or salt, including areas of marine water, the depth of which at low tide does not exceed six (6) metres, and possess one or more of the following attributes: ○ at least periodically, the land supports plants or animals that are adapted to and dependent on living in wet conditions for at least part of their life cycle, or ○ the substratum is predominantly undrained soils that are saturated, flooded or ponded long enough to develop anaerobic conditions in the upper layers, or ○ the substratum is not soil and is saturated with water, or covered by water at some time. The term wetland includes riverine, lacustrine, estuarine, marine and palustrine wetlands; and it does not include a Great Artesian Basin Spring or a subterranean wetland that is a cave or aquifer.
wetland of high ecological significance	means a wetland that meets the definition of a wetland and that is shown as a wetland of 'high ecological significance' or wetland of 'high ecological value' on the map of Queensland wetland environmental values.
Wetland of general ecological significance	means a 'Wetland of general ecological significance' shown on the map of Queensland wetland environmental values.
Workover process	works that include intervention in the wellbore after initial drilling and completion, and can range from minor maintenance to re-entry, recompletion activities, or protection / remedial operations carried out on a well.

Appendix 1 - Rehabilitation Requirements

Significantly Disturbed Areas		Rehabilitation Objectives	Final Rehabilitation Acceptance Criteria
Domain	Land Zone		
1. Well Sites	All*	Minimise the visual impact and revegetate native plant species	1.1 Well site contours are consistent with the surrounding environment, including reinstatement of drainage; 1.2 The earthwork disturbance is beginning to blend with the surrounding environment; 1.3 Soil material used for construction of well sites is removed and returned to a borrow pit as far as is reasonably practicable if it does not blend with the surrounding environment; 1.4 Native species revegetation is consistent with the surrounding environment and compatible with the surrounding land use; 1.5 Where criteria 1.4 cannot be met, a report must be prepared by an appropriately qualified person demonstrating that landscapes at difference stages of vegetation succession show the potential for native species, including emergent species, to grow and progress towards maturity; and 1.6 No observed adverse impact to vegetation outside the well site footprint.
2. Petroleum Wells and associated bores	All*	Minimise the visual impact and revegetation of native species	2.1 Well infrastructure removed and well plugged and abandoned in accordance with the Code for the Construction and Abandonment of Petroleum wells and associated bores; 2.2 Contaminated land is removed or remediated; and 2.3 Waste removed from well site.
3. Flare pits, sumps / mix-bury-cover	All*	Minimise the visual impact and revegetation of native species	3.1 Sumps have been backfilled and rehabilitated in accordance with condition Waste 16; 3.2 Rehabilitated sump earthworks are beginning to blend with the surrounding environment; 3.3 Flare pits have had their contents and liner removed and appropriately disposed of, and then backfilled and rehabilitated such that the earthworks are beginning to blend with the contours of the surrounding environment;

			3.4 Soil surfaces are stable with no accelerated erosion; and 3.5 Weeds are consistent with the surrounding land.
4. Access Roads and Tracks	All*	Minimise the visual impact and revegetation of native species	4.1 All access roads and tracks are rehabilitated, with the exception of any infrastructure agreed to be retained by the landholder as evidenced by a signed landholder agreement; 4.2 Soil material used for construction of access roads and tracks is removed and returned to a borrow pit as far as is reasonably practicable if it does not blend with the surrounding environment; 4.3 Rehabilitated tracks recontoured and blends with the surrounding environment; 4.4 The earthwork disturbance is beginning to blend with the surrounding natural environment; 4.5 Native species revegetation is consistent with the surrounding environment and compatible with the surrounding land use; and 4.6 Where criteria 4.5 cannot be met, a report must be prepared by an appropriately qualified person demonstrating that landscapes at difference stages of vegetation succession show the potential for native species, including emergent species, to grow and progress towards maturity.
5. Borrow Pits	All*	Minimal or no water retention in pit footprint, minimise soil erosion, no weed infestations on footprint and revegetation of native species, effectively ripped and contoured, foreign material removed.	5.1 Where present, topsoil and vegetative material re-spread over disturbed area; 5.2 Rehabilitated pit does not retain water or water retention is consistent with the surrounding environment; 5.3 Soil surfaces are stable with no accelerated erosion; 5.4 Native species revegetation is consistent with the surrounding environment and compatible with the surrounding land use; 5.5 Where criteria 5.4 cannot be met, a report must be prepared by an appropriately qualified person demonstrating that landscapes at difference stages of vegetation

			succession show the potential for native species, including emergent species, to grow and progress towards maturity. 5.6 Weeds are consistent with the surrounding land; and 5.7 Pit contours blends with the surrounding environment;
6. Camps and Laydown Areas	Interdune and Floodplain; and Dune	Rehabilitate operational areas to agreed standards	6.1 All services are disconnected, terminated and removed, and all infrastructure, buildings, hardstand, and machinery/equipment removed with the exception of any infrastructure agreed to be retained by the landholder as evidenced by a signed landholder agreement; 6.2 Compacted soil areas have been ripped (except on gibber and tablelands); 6.3 Soil surface profile reinstated and ground re-contoured consistent with the surrounding environment; 6.4 Soil surfaces are stable with no accelerated erosion; 6.5 Soil material used for construction of camps and laydown areas is removed and returned to a borrow pit as far as is reasonably practicable where it does not blend with the surrounding environment; 6.6 Native species revegetation is consistent with the surrounding environment and compatible with the surrounding land use; and 6.7 Where criteria 6.6 cannot be met, a report must be prepared by an appropriately qualified person demonstrating that landscapes at difference stages of vegetation succession show the potential for native species, including emergent species, to grow and progress towards maturity.
7. Pipelines, Gathering lines and Utilities (Export, Flowlines, and Trunklines)	All*	Rehabilitate operational areas to agreed standards	7.1 No evidence of waste, redundant equipment / infrastructure or signs markers on abandoned pipelines; 7.2 Soil surfaces are stable with no accelerated erosion; 7.3 Native species revegetation is consistent with the surrounding environment and compatible with the surrounding land use;

			7.4 Where criteria 7.3 cannot be met, a report must be prepared by an appropriately qualified person demonstrating that landscapes at difference stages of vegetation succession show the potential for native species, including emergent species, to grow and progress towards maturity. 7.5 Contaminated land is removed or remediated; 7.6 Pipeline decommissioning must meet Australian Standards where such a standard is applicable. 7.7 Terrain profiles at pipeline dune crossings have been restored consistent with surrounding profiles.
8. Electrical and Communications Infrastructure (Overhead Lines and Fibre Optic Cables)	All*	Rehabilitate operational areas to agreed standards	8.1 Large items, e.g. drums, pieces of casing and cables etc. removed from site and reused or disposed of appropriately.
10. Seismic Line disturbance	Dune	Rehabilitate vegetation, land surface disturbance, uphole site restoration reduce visual impact, impact on infrastructure, and pollution	10.1 Seismic line disturbance blends with the surrounding landscape, and vegetation has re-established; 10.2 Wheel tracks may be visible, however native vegetation has re-established, is consistent with the surrounding environment and compatible with the surrounding land use; 10.3 Where criteria 10.2 cannot be met, a report must be prepared by an appropriately qualified person demonstrating that landscapes at difference stages of vegetation succession show the potential for native species, including emergent species, to grow and progress towards maturity; 10.4 Holes have been plugged and no evidence of cuttings; 10.5 No evidence of upholes; 10.6 No pollution (water or oil) or litter;

			10.7 Dune cuts have been recontoured and blends with the surrounding environment; and
			10.8 No evidence of windrows.
	Floodplain and Wetlands	Rehabilitate vegetation, land surface disturbance, uphole site restoration reduce visual impact, impact on infrastructure, and pollution	10.9 Seismic line disturbance blends with the surrounding landscape, and vegetation has re-established; 10.10 Wheel tracks may be visible, however native vegetation has re-established, is consistent with the surrounding environment and compatible with the surrounding land use; 10.11 Where criteria 10.10 cannot be met, a report must be prepared by an appropriately qualified person demonstrating that landscapes at difference stages of vegetation succession show the potential for native species, including emergent species, to grow and progress towards maturity; 10.12 Holes have been plugged and no evidence of cuttings; 10.13 No evidence of upholes; 10.14 No pollution (water or oil) or litter; 10.15 Soil surfaces are stable with no accelerated erosion; 10.16 Cuts to creek banks have been recontoured and blend with the surrounding environment; 10.17 Creeks are not blocked; 10.18 No interference with drainage channels; and 10.19 No evidence of windrows.
11. Infrastructure: Compressor stations (field or centralised)	All*	Rehabilitate operational areas to agreed standards	11.1 All infrastructure removed and rehabilitated, with the exception of any infrastructure agreed to be retained by the landholder as evidenced by a signed landholder agreement; 11.2 Compacted soil areas have been ripped (except on gibber and tablelands) to assist revegetation;

Power Generation Units (diesel/gas gensets, substations)			11.3 Ground surface re-contoured, natural drainage restored and soil colour blend is consistent with the surrounding natural environment; 11.4 The earthwork disturbance is beginning to blend with the surrounding natural environment; 11.5 Soil surfaces are stable with no accelerated erosion; 11.6 Contaminated land is removed or remediated; 11.7 Native species revegetation is consistent with the surrounding environment and compatible with the surrounding land use; and 11.8 Where criteria 11.7 cannot be met, a report must be prepared by an appropriately qualified person demonstrating that landscapes at difference stages of vegetation succession show the potential for native species, including emergent species, to grow and progress towards maturity.
12 Produced formation water (PFW) low consequence structures	All	Native ecosystem/ transfer to landowner	11.9 Produced formation water (PFW) treatment and disposal in accordance with requirements of the <i>Environmental Protection Act 1994</i>, and the Environmental Protection (Water and Wetland Biodiversity) Policy 2019; 11.10 PFW dams are removed and rehabilitated, with the exception of any infrastructure agreed to be retained by the landholder as evidenced by a signed landholder agreement; 11.11 Contaminated land is removed or remediated; 11.12 Discussion held with landowner prior to transfer regarding dams potential to attract invasive species; 11.13 Remaining dams water quality is suitable to support the post activity land use; 11.14 No observed adverse impact to vegetation outside of the dam footprint; 11.15 Soil surfaces are stable with no accelerated erosion.

*all of the landzones applicable to PL1125 including interdune, dune, floodplain, wetlands

Permit

Environmental Authority P-EA-100847922

END OF ENVIRONMENTAL AUTHORITY