

Permit

Environmental Protection Act 1994

Environmental authority EA0001498

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

Environmental authority number: EA0001498

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

Environmental authority holder(s)

Name(s)	Registered address
ARROW CSG (AUSTRALIA) PTY LTD	Level 39 111 Eagle Street BRISBANE CITY QLD 4000 Australia

Environmentally relevant activity and location details

Environmentally relevant activity/activities	Location(s)
Resource Activity, Schedule 2A, 03: A petroleum activity that is likely to have a significant impact on a category A or B environmentally sensitive area	PL1052
Resource Activity, Schedule 2A, 03: A petroleum activity that is likely to have a significant impact on a category A or B environmentally sensitive area	PL1053

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).

Environmental authority

Contaminated land

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

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

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

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

Take effect

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

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

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

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

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

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

Enquiries:
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Department of Environment and Science
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Date issued: 08 October 2018

Environmental authority

Obligations under the Environmental Protection Act 1994

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

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

Conditions of environmental authority

General conditions			
Condition number	Condition		
General 1	This environmental authority authorises the carrying out of the following resource activity(ies): a) The petroleum activities ¹ listed in Schedule A, Table 1 – Authorised petroleum activities to the extent they are carried out in accordance with the activity’s corresponding scale and intensity (or both, where applicable); and b) Incidental activities that are not otherwise specified relevant activities.		
	Schedule A, Table 1 – Authorised petroleum activities		
	Activity(ies)	Total scale of petroleum activities / infrastructure	Intensity / maximum size
	Coal seam gas (CSG) production wells	PL1052 – 20 wells	40 CSG gas production wells ²
		PL1053 – 20 wells	
	Gas and water gathering pipelines	PL1052 – 30 km	60 km of pipeline
		PL1053 – 30 km	
	¹ The petroleum activities are authorised petroleum activities for the purposes of the <i>Petroleum and Gas (production and Safety) Act 2004</i> and the <i>Petroleum Act 1923</i> .		
	² For maximum authorised disturbance area for single and multi well pads refer to definition for “essential petroleum activities” in the Definitions schedule.		
	General 2	This environmental authority does not authorise environmental harm unless a condition contained in this environmental authority explicitly authorises that harm. Where there is no condition, the lack of a condition shall not be construed as authorising harm.	
General 7	All monitoring must be undertaken by a <u>suitably qualified person</u> .		
General 8	If requested by the <u>administering authority</u> in relation to investigating a complaint, monitoring must be commenced within 10 business days.		
General 9	All laboratory analyses and tests must be undertaken by a laboratory that has <u>NATA accreditation</u> for such analyses and tests.		
General 10	Notwithstanding condition (General 9), 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 11	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 <u>waters</u> and aquatic environments, the Queensland Government's Monitoring and Sampling Manual 2009 – <i>Environmental Protection (Water) Policy 2009</i> (b) for groundwater, <i>Groundwater Sampling and Analysis – A Field Guide</i> (2009:27 GeoCat #6890.1) (c) for noise, the Environmental Protection Regulation 2008 (d) for air, the <i>Queensland Air Quality Sampling Manual</i> and/or Australian Standard 4323.1:1995 <i>Stationary source emissions method 1: Selection of sampling positions</i>, as appropriate for the relevant measurement (e) for soil, the <i>Guidelines for Surveying Soil and Land Resources, 2nd edition</i> (McKenzie <i>et al.</i> 2008), and/or the <i>Australian Soil and Land Survey Handbook, 3^d edition</i> (National Committee on Soil and Terrain, 2009) (f) for dust, <u>Australian Standard AS3580</u>.
General 12	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 <u>significant disturbance to land</u> (b) potential or actual loss of structural or <u>hydraulic integrity</u> of a <u>dam</u> (c) when the level of the contents of any <u>regulated dam</u> reaches the mandatory reporting level (d) when a regulated dam will not have available storage to meet the <u>design storage allowance</u> on 1 November of any year (e) actual loss of <u>well integrity</u> (f) when the seepage trigger action response procedure required under condition (Water 14(g)) is or should be implemented (g) unauthorised releases of any volume of <u>prescribed contaminants</u> to waters (h) unauthorised releases of volumes of contaminants, in any mixture, to land greater than: i. 200 L of hydrocarbons; or ii. 1 000 L of brine; or iii. 5 000 L of untreated coal seam gas water; or iv. 5 000 L of raw sewage; or v. 10 000 L of treated sewage effluent. (i) monitoring results where two out of any five consecutive samples do not comply with the relevant limits in the environmental authority.
General 13	Petroleum activities that cause significant disturbance to land must not be carried out until financial assurance has been given to the administering authority as security for compliance

	with the environmental authority and any costs or expenses, or likely costs or expenses, mentioned in section 298 of the <i>Environmental Protection Act 1994</i> .
General 14	Prior to any changes in petroleum activities which would result in an increase to the maximum significant disturbance since financial assurance was last given to the administering authority, the holder of the environmental authority must amend the financial assurance and give the administering authority the increased amount of financial assurance.
General 15	If the amount of financial assurance held by the administering authority has been discounted and either the nominated period of financial assurance has ended, or an event or change in circumstance has resulted in the holder of the environmental authority no longer being able to meet one or more of the mandatory pre-requisites or applicable discount criteria, the holder of the environmental authority must amend the financial assurance and give the administering authority the increased amount of financial assurance as soon as practicable.
General 16	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 17	All plant and equipment must be maintained and operated in their proper and effective condition.
General 18	The following infrastructure must be signed with a unique reference name or number in such a way that it is clearly observable: (a) regulated dams and <u>low consequence dams</u> (b) <u>exploration</u>, <u>appraisal</u> and <u>development wells</u> (c) water treatment facilities (d) brine encapsulation facilities (e) landfill cells (f) sewage treatment facilities

	(g) specifically authorised discharge points to air and waters (h) any chemical storage facility associated with the environmentally relevant activity of chemical storage (i) field compressor stations (j) central compressor stations (k) gas processing facilities; and (l) pipeline compressor stations.
General 19	Measures to prevent fauna being harmed from entrapment must be implemented during the construction and operation of well infrastructure, dams and pipeline trenches.
General 20	For activities involving significant disturbance to land, <u>control measures</u> 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 21	Petroleum activities must not cause <u>environmental nuisance</u> at a <u>sensitive place</u> , other than where an <u>alternative arrangement</u> is in place.
General 22	A <u>certification</u> must be prepared by a suitably qualified person within 30 business days of completing every plan, procedure, program and report required to be developed under this environmental authority, which demonstrates that: (a) relevant material, including current published guidelines (where available) have been considered in the written document (b) the content of the written document is accurate and true; and (c) the document meets the requirements of the relevant conditions of the environmental authority.
General 23	All plans, procedures, programs, reports and methodologies required under this environmental authority must be written and implemented.
General 24	All <u>documents</u> required to be developed under this environmental authority must be kept for five years.
General 25	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 26	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 <u>waste and resource management hierarchy</u> and the <u>waste and resource management principles</u> .
Waste 2	Waste, including waste fluids, but excluding waste used in <u>closed-loop systems</u> , must be transported off-site for lawful re-use, remediation, recycling or disposal, unless the waste is specifically authorised by conditions Waste 4, Waste 6, Waste 7, Waste 8, Waste 9 and Waste 16 to be disposed of or used on site.
Waste 3	<u>Waste fluids</u> , other than <u>flare precipitant</u> stored in <u>flare pits</u> , or <u>residual drilling material</u> or drilling fluids stored in <u>sumps</u> , must be contained in either: (a) an above ground container; or (b) a <u>structure</u> which contains the wetting front.
Waste 4	<u>Green waste</u> may be used on-site for either rehabilitation or sediment and erosion control, or both.
Waste 6	<u>Pipeline waste water</u> , may be released to land provided that it: (a) can be demonstrated it meets the <u>acceptable standards for release to land</u> ; 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 7	<u>Produced water</u> may be re-used in: (a) drilling and well hole activities.
Waste 8	Produced water may be used for dust suppression provided the following criteria are met: (a) the amount applied does not exceed the amount required to effectively suppress dust; and (b) the application: i. does not cause on-site ponding or runoff ii. is directly applied to the area being dust suppressed iii. does not harm vegetation surrounding the area being dust suppressed; and iv. does not cause visible salting.
Waste 9	Produced water may be used for construction purposes provided the use: (a) does not result in negative impacts on the composition and structure of soil or subsoils

	(b) is not directly or indirectly released to waters (c) does not result in runoff from the construction site; and (d) does not harm vegetation surrounding the construction site.
Waste 10	If there is any indication that any of the circumstances in condition (Waste 8)(b)(i) to (Waste 8)(b)(iv)) or (Waste 9)(a) to (Waste 9)(d)) is occurring the use must cease immediately and the affected area must be remediated without delay.
Waste 15	If sumps are used to store residual drilling material or drilling fluids, they must only be used for the duration of drilling activities.
Waste 16	Residual drilling material can only be disposed of on-site: (a) by mix-bury-cover method if the residual drilling material meets the <u>approved quality criteria</u> ; 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 17	Records must be kept to demonstrate compliance with condition (Waste 15) and (Waste 16).

Noise conditions

Condition number	Condition																																		
Noise 1	Notwithstanding condition (General 21), emission of noise from the petroleum activity(ies) at levels less than those specified in Protecting acoustic values, Table 1—Noise nuisance limits are not considered to be environmental nuisance. Protecting acoustic values, Table 1—Noise nuisance limits <table><tr><th>Time period</th><th>Metric</th><th><u>Short term noise event</u></th><th><u>Medium term noise event</u></th><th><u>Long term noise event</u></th></tr><tr><td>7:00am—6:00pm</td><td><u>L_{Aeq,adj,15 min}</u></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><u>Max L_{pA, 15 mins}</u></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><tr><td>Drilling activities undertaken from 10:00 pm – 7:00 am²</td><td>L_{Aeq, adj, 15 min}</td><td colspan="3">28 (measured indoors) 33 (measured outdoors)</td></tr></table>	Time period	Metric	<u>Short term noise event</u>	<u>Medium term noise event</u>	<u>Long term noise event</u>	7:00am—6:00pm	<u>L_{Aeq,adj,15 min}</u>	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	<u>Max L_{pA, 15 mins}</u>	55 dBA	55 dBA	55 dBA	6:00am—7:00am	L _{Aeq,adj,15 min}	40 dBA	38 dBA	35 dBA	Drilling activities undertaken from 10:00 pm – 7:00 am ²	L _{Aeq, adj, 15 min}	28 (measured indoors) 33 (measured outdoors)		
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	1. The noise limits in Table 1 have been set based on the following deemed <u>background noise levels</u> (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 2. <i>Drilling activities undertaken from 10:00 pm – 7:00 am</i> must be temporary and mobile in nature, and must not contribute to long-term background noise creep.										
Noise 2	If the noise subject to a <u>valid complaint</u> is tonal or <u>impulsive</u>, the adjustments detailed in Protecting acoustic values, Table 2—Adjustments to be added to noise levels at sensitive receptors are to be added to the measured noise level(s) to derive $L_{Aeq, adj, 15 min}$. Protecting acoustic values, Table 2—Adjustments to be added to noise levels at sensitive receptors <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Noise characteristic</th><th>Adjustment to noise</th></tr> </thead> <tbody> <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 just audible</td><td>+ 2 dBA</td></tr> <tr> <td>Impulsive characteristic is clearly audible</td><td>+ 5 dBA</td></tr> </tbody> </table>	Noise characteristic	Adjustment to noise	Tonal characteristic is just audible	+ 2 dBA	Tonal characteristic is clearly audible	+ 5 dBA	Impulsive characteristic is just audible	+ 2 dBA	Impulsive characteristic is clearly audible	+ 5 dBA
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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 ($Max L_{pZ, 15 min}$) noise levels is no greater than 15 dB.										
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 5 minutes in any 2 hours, or (d) it uses an <u>enclosed flare</u>.										

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 6, Waste 8, Waste 9 and Waste 16.
Land 2	<u>Top soil</u> must be managed in a manner that preserves its biological and chemical properties.
Land 3	Land that has been significantly disturbed by the petroleum activities must be managed to ensure that mass movement, gully erosion, rill erosion, sheet erosion and tunnel erosion do not occur on that land.
Land 4	<u>Acid sulfate soils</u> must be treated and managed in accordance with the latest edition of the <i>Queensland Acid Sulfate Soil Technical Manual</i> .
Land 5	Chemicals and fuels stored, must be effectively contained and where relevant, meet Australian Standards, where such a standard is applicable.
Land 6	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 (2013 or more recent editions).
Land 7	Pipeline trenches must be backfilled and topsoils <u>reinstated</u> within three <u>months</u> after pipe laying.
Land 8	<u>Reinstatement</u> and <u>revegetation</u> of the pipeline right of way must commence within 6 months after cessation of petroleum activities for the purpose of pipeline construction.
Land 9	Backfilled, reinstated and revegetated pipeline trenches and right of ways must be: (a) a <u>stable</u> landform (b) re-profiled to a level consistent with surrounding soils (c) re-profiled to original contours and established drainage lines; and (d) vegetated with groundcover which is not a declared pest species, and which is established and growing.
Biodiversity conditions	
Condition number	Condition
Biodiversity 1	Prior to undertaking activities that result in significant disturbance to land in areas of native vegetation, confirmation of on-the-ground <u>biodiversity values</u> of the native vegetation communities at that location must be undertaken by a suitably qualified person.

Biodiversity 2	A suitably qualified person must develop and certify a methodology so that condition (Biodiversity 1) can be complied with and which is appropriate to confirm on-the-ground biodiversity values.
Biodiversity 3	For conditions (Biodiversity 4) to (Biodiversity 9), where mapped biodiversity values differ from those confirmed under conditions (Biodiversity 1) and (Biodiversity 2), petroleum activities may proceed in accordance with the conditions of the environmental authority based on the confirmed on-the-ground biodiversity value.
Biodiversity 4	The location of the petroleum activity(ies) must be selected in accordance with the following site planning principles: (a) maximise the use of <u>areas of pre-existing disturbance</u> (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 <u>land degradation</u> (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 <u>clearing</u> of native mature trees.
Biodiversity 5	Linear infrastructure construction corridors must: (a) maximise co-location (b) be minimised in width to the greatest practicable extent; and (c) for linear infrastructure that is an <u>essential petroleum activity</u> authorised in an <u>environmentally sensitive area</u> or its <u>protection zone</u>, be no greater than 40m in total width.
Biodiversity 8	Where petroleum activities are to be carried out in environmentally sensitive areas or their protection zones, the petroleum activities must be carried out in accordance with Protection of Biodiversity Values, Table 1—Authorised petroleum activities in environmentally sensitive areas and their protection zones .

Protecting biodiversity values, Table 1—Authorised petroleum activities in environmentally sensitive areas and their protection zones

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

Biodiversity 8a	Despite condition (Biodiversity 8), the total scale and maximum footprint of significant disturbance specified in Schedule F, Table 2 – Maximum significant disturbance are authorised to be undertaken at the location and within the footprint prescribed in Schedule F, Table 2 – Maximum significant disturbance. Protecting biodiversity values, Table 2 – Maximum significant disturbance <table><tr><th>Activity(ies)</th><th>Total scale</th><th>Maximum footprint</th></tr><tr><td rowspan="2">Ground disturbance for petroleum activities</td><td>PL1052 – 160 ha</td><td rowspan="2">325 ha</td></tr><tr><td>PL1053 – 165 ha</td></tr><tr><td rowspan="2">Ground disturbance within a <u>Category B Environmentally Sensitive Area</u></td><td>PL1052 – 0 ha</td><td rowspan="2">1 ha</td></tr><tr><td>PL1053 – 1 ha</td></tr><tr><td rowspan="2">Ground disturbance within a <u>Category C Environmentally Sensitive Area</u></td><td>PL1052 – 1.5 ha</td><td rowspan="2">3 ha</td></tr><tr><td>PL1053 – 1.5 ha</td></tr></table>	Activity(ies)	Total scale	Maximum footprint	Ground disturbance for petroleum activities	PL1052 – 160 ha	325 ha	PL1053 – 165 ha	Ground disturbance within a <u>Category B Environmentally Sensitive Area</u>	PL1052 – 0 ha	1 ha	PL1053 – 1 ha	Ground disturbance within a <u>Category C Environmentally Sensitive Area</u>	PL1052 – 1.5 ha	3 ha	PL1053 – 1.5 ha
Activity(ies)	Total scale	Maximum footprint														
Ground disturbance for petroleum activities	PL1052 – 160 ha	325 ha														
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Ground disturbance within a <u>Category C Environmentally Sensitive Area</u>	PL1052 – 1.5 ha	3 ha														
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Biodiversity 9	A report must be prepared for each <u>annual return period</u> for all petroleum activities that involved clearing of any environmentally sensitive area or protection zone which includes: (a) records able to demonstrate compliance with conditions (Biodiversity 4), (Biodiversity 5), (Biodiversity 8) and (Biodiversity 8a). (b) a description of the works (c) a description of the area and its pre-disturbance values (which may include maps or photographs, but must include GPS coordinates for the works); and (d) based on the extent of environmentally sensitive areas and primary protection zones on the relevant resource authority(ies), the proportion of native vegetation cleared per environmentally sensitive area and primary protection zone, including regional ecosystem type, over the annual return period.															
Biodiversity 10	<u>Significant residual impacts to prescribed environmental matters</u> are not authorised under this environmental authority or the <i>Environmental Offsets Act 2014</i> unless the impact(s) is specified in Protecting biodiversity values, Table 3—Significant residual impacts to prescribed environmental matters.															

Protecting biodiversity values, Table 3—Significant residual impacts to prescribed environmental matters

Prescribed environmental matter	Location of impact	<u>Maximum extent of impact</u>	Maximum extent of impact – Stage 1 (Years 1 – 5 inclusive)	Maximum extent of impact – Stage 2 (Years 6 – 10 inclusive)	Maximum extent of impact – Stage 3 (Years 11 – 15 inclusive)	Maximum extent of impact – Stage 4 (Years 16 – 20 inclusive)
Regulated vegetation						
Endangered regional ecosystem						
RE 11.4.12	PL1053 (Warra)	1 ha	0 ha	TBC ³	TBC ³	TBC ³
Of concern regional ecosystem (not within an urban area)						
RE 11.3.2	PL1052 PL1053	1 ha	0 ha	TBC ³	TBC ³	TBC ³
RE 11.3.4	PL1052 PL1053	2 ha	0 ha	TBC ³	TBC ³	TBC ³
Regional ecosystems (not within an urban area) that intersect a wetland on the vegetation management wetlands map						
NA	N/A	0 ha	0 ha	TBC ³	TBC ³	TBC ³
Regional ecosystems (not within an urban area) within the defined distance from the defining banks of a relevant watercourse on the vegetation management watercourse map						
RE 11.3.2 (17a)	PL1052	0.7 ha	0 ha	TBC ³	TBC ³	TBC ³
RE 11.3.4 (16c)	PL1052 PL1053	0.1 ha	0 ha	TBC ³	TBC ³	TBC ³
RE 11.3.25 (16a)	PL1052 PL1053	2.6 ha	0 ha	TBC ³	TBC ³	TBC ³
Essential habitat (not in an urban area) for endangered wildlife						
NA	NA	0 ha	0 ha	TBC ³	TBC ³	TBC ³
Essential habitat (not in an urban area) for vulnerable wildlife						
<i>Petauroides volans</i> (Greater glider)	NA	MNES ^{1, 2}	MNES ^{1, 2}	TBC ³	TBC ³	TBC ³

<i>Phascolarctos cinereus</i> (Koala)	NA	MNES ^{1, 2}	MNES ^{1, 2}	TBC ³	TBC ³	TBC ³
Connectivity areas						
Connectivity area that is a regional ecosystem (not in urban area)						
	NA	0 ha	0 ha	TBC ³	TBC ³	TBC ³
	NA	0 ha	0 ha	TBC ³	TBC ³	TBC ³
Wetlands and watercourses						
A wetland in a wetland protection area shown on the Map of referable wetlands (HES wetlands in GBR)	NA	0 ha	0 ha	TBC ³	TBC ³	TBC ³
A wetland of high ecological significance shown on the Map of referable wetlands	NA	0 ha	0 ha	TBC ³	TBC ³	TBC ³
Designated precincts in strategic environmental areas						
Designated precinct in a strategic environmental areas	NA	0 ha	0 ha	TBC ³	TBC ³	TBC ³
Protected wildlife habitat						
An area shown as a high risk area on the flora survey trigger map that contains plants that are	NA	0 ha	0 ha	TBC ³	TBC ³	TBC ³

	endangered or vulnerable wildlife						
	An area not shown as a high risk area on the flora survey trigger map that contains plants that are endangered or vulnerable wildlife	NA	0 ha	0 ha	TBC ³	TBC ³	TBC ³
	A non-juvenile koala habitat tree located in an area shown as a bushland habitat, high value rehabilitation habitat or medium value rehabilitation habitat in the 'Map of Assessable Development Area Koala Habitat Values'	NA	MNES ^{1, 2}	MNES ^{1, 2}	TBC ³	TBC ³	TBC ³
	Habitat for an animal that is endangered wildlife	NA	0 ha	0 ha	TBC ³	TBC ³	TBC ³
	Habitat for an animal that is vulnerable wildlife	NA	0 ha	0 ha	TBC ³	TBC ³	TBC ³

	Habitat for an animal that is special least concern wildlife	NA	0 ha	0 ha	TBC ³	TBC ³	TBC ³
Protected areas							
	National park	NA	0 ha	0 ha	TBC ³	TBC ³	TBC ³
	Regional park	NA	0 ha	0 ha	TBC ³	TBC ³	TBC ³
	Nature refuge	NA	0 ha	0 ha	TBC ³	TBC ³	TBC ³
Highly protected zones of State marine parks							
	Conservation park zone	NA	0 ha	0 ha	TBC ³	TBC ³	TBC ³
	Marine national park zone	NA	0 ha	0 ha	TBC ³	TBC ³	TBC ³
	Preservation zone	NA	0 ha	0 ha	TBC ³	TBC ³	TBC ³
	Other zones	NA	0 ha	0 ha	TBC ³	TBC ³	TBC ³
Fish habitat areas							
	A declared fish habitat area	NA	0 ha	0 ha	TBC ³	TBC ³	TBC ³
Waterway providing for fish passage							
	Fish passage (not in an urban area) – Condamine River and Wilkie Creek	PL1052 PL1053	1 ha	0 ha	TBC ²	TBC ²	TBC ²
Marine plants							
	Marine plant (not in an urban area)	NA	0 ha	0 ha	TBC ³	TBC ³	TBC ³
Legally secured offset area							
	Legally secured offset area	NA	0 ha	0 ha	TBC ³	TBC ³	TBC ³

	¹ Matter(s) of National Environmental Significance (MNES) have been prescribed and will be offset in accordance with the <i>Environment Protection and Biodiversity Conservation Act 1999</i> (EPBC Act) Species Impact Management and Offset Plans, specifically the EPBC approval for the Surat Gas Project Environment Impact Statement (EPBC Approval 2010/5344, Tables 1 and 2). ² No significant residual impacts to prescribed environmental matters are authorised under this environmental authority unless they are covered within EPBC Approval 2010/5344. ³ Stages 2 through 4 are to be confirmed in accordance with condition (Biodiversity 16).
Biodiversity 11	Records demonstrating that each impact to a prescribed environmental matter not listed in <i>Protecting biodiversity values, Table 3—Significant residual impacts to prescribed environmental matters</i> did not, or is not likely to, result in a significant residual impact to that matter must be: (a) completed by an <u>appropriately qualified person</u>; and (b) kept for the life of the environmental authority.
Biodiversity 12	An <u>environmental offset</u> made in accordance with the <i>Environmental Offsets Act 2014</i> and Queensland Environmental Offsets Policy, as amended from time to time, must be undertaken for the maximum extent of impact to each prescribed environmental matter authorised in <i>Protecting biodiversity values, Table 3—Significant residual impacts to prescribed environmental matters</i>, unless a lesser extent of the impact has been approved in accordance with condition (Biodiversity 14).
Biodiversity 13	The significant residual impacts to a prescribed environmental matter authorised in condition (Biodiversity 10) for which an environmental offset is required by condition (Biodiversity 12) may be carried out in stages. An environmental offset can be delivered for each stage of the impacts to prescribed environmental matters.
Biodiversity 14	Prior to the commencement of each stage, a report completed by an appropriately qualified person, that includes an analysis of the following must be provided to the administering authority: (a) for the forthcoming stage—the estimated significant residual impacts to each prescribed environmental matter; and (b) for the previous stage, if applicable—the actual significant residual impacts to each prescribed environmental matter, to date.
Biodiversity 15	The report required by condition (Biodiversity 14) 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 16	A notice of election for the staged environmental offset referred to in condition (Biodiversity 15), if applicable, must be provided to the administering authority no less than three months before the proposed commencement of that stage, unless a lesser timeframe has been agreed to by the administering authority.
Biodiversity 17	Within six months from the completion of the final stage of the project, a report completed by an appropriately qualified person, that includes the following matters must be provided to the administering authority:

	(a) an analysis of the actual impacts on prescribed environmental matters resulting from the final stage; and (b) if applicable, a notice of election to address any outstanding offset debits for the authorised impacts.
Water conditions	
Condition number	Condition
Water 1	Contaminants must not be directly or indirectly released to any waters.
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 a <u>wetland</u> .
Water 3	Petroleum activities must not occur in or within 200m of a: (a) <u>wetland of high ecological significance</u> (b) <u>Great Artesian Basin Spring</u> (c) <u>subterranean cave GDE</u>.
Water 4	Only construction or maintenance of <u>linear infrastructure</u> is permitted in or within any <u>wetland of other environmental value</u> or in a <u>watercourse</u> .
Water 5A	The construction or maintenance of linear infrastructure in a wetland of other environmental value must not result in the: (a) clearing of riparian vegetation outside of the minimum area practicable to carry out the works; or (b) ingress of saline water into freshwater aquifers; or (c) draining or filling of the wetland beyond the minimum area practicable to carry out the works.
Water 5B	After the construction or maintenance works for linear infrastructure in a wetland of other environmental value are completed, the linear infrastructure must not: (a) drain or fill the wetland (b) prohibit the flow of surface water in or out of the wetland (c) lower or raise the water table and hydrostatic pressure outside the bounds of natural variability that existed before the activities commenced (d) result in ongoing negative impacts to water quality (e) result in bank instability; or (f) result in fauna ceasing to use adjacent areas for habitat, feeding, roosting or nesting.
Water 6	The construction or maintenance of linear infrastructure activities in a watercourse must be conducted in the following preferential order: (a) firstly, in times where there is no water present (b) secondly, in times of no flow

	(c) thirdly, in times of flow, providing a bankfull situation is not expected and that flow is maintained.									
Water 7	The construction or maintenance of linear infrastructure authorised under condition (Water 4) must comply with the water quality limits as specified in Protecting water values, Table 1—Release limits for construction or maintenance of linear infrastructure. Protecting water values, Table 1—Release limits for construction or maintenance of linear infrastructure <table><tr><th>Water quality parameters</th><th>Units</th><th>Water quality limits</th></tr><tr><td>Turbidity</td><td>Nephelometric Turbidity Units (NTU)</td><td> For a wetland of other environmental value, if background water turbidity is above 45 NTU, no greater than 25% above background water turbidity measured within a 50m radius of the construction or maintenance activity. For a watercourse, if background water turbidity is above 45 NTU, no greater than 25% above background water turbidity measured within 50m downstream of the construction or maintenance activity. For a wetland of other environmental value, if background water turbidity is equal to, or below 45 NTU, a turbidity limit of no greater than 55 NTU applies, measured within a 50m radius of the construction or maintenance activity. For a watercourse, if background water turbidity is equal to, or below 45 NTU, a turbidity limit of no greater than 55 NTU applies, measured within 50m downstream of the construction or maintenance activity. </td></tr><tr><td>Hydrocarbons</td><td>-</td><td>For a wetland of other environmental value, or watercourse, no visible sheen or slick</td></tr></table>	Water quality parameters	Units	Water quality limits	Turbidity	Nephelometric Turbidity Units (NTU)	For a wetland of other environmental value, if background water turbidity is above 45 NTU, no greater than 25% above background water turbidity measured within a 50m radius of the construction or maintenance activity. For a watercourse, if background water turbidity is above 45 NTU, no greater than 25% above background water turbidity measured within 50m downstream of the construction or maintenance activity. For a wetland of other environmental value, if background water turbidity is equal to, or below 45 NTU, a turbidity limit of no greater than 55 NTU applies, measured within a 50m radius of the construction or maintenance activity. For a watercourse, if background water turbidity is equal to, or below 45 NTU, a turbidity limit of no greater than 55 NTU applies, measured within 50m downstream of the construction or maintenance activity.	Hydrocarbons	-	For a wetland of other environmental value, or watercourse, no visible sheen or slick
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Hydrocarbons	-	For a wetland of other environmental value, or watercourse, no visible sheen or slick								
Water 8	Monitoring must be undertaken at a frequency that is appropriate to demonstrate compliance with condition (Water 7).									
Water 9	A register must be kept of all linear infrastructure construction and maintenance activities in a wetland of other environmental value and watercourses, which must include: (a) location of the activity (e.g. GPS coordinates (<u>GDA94</u>) and watercourse name) (b) estimated flow rate of surface water at the time of the activity (c) duration of works, and (d) results of impact monitoring carried out under condition (Water 8).									
Water 10	Measures must be taken to minimise negative impacts to, or reversal of, any river improvement works carried out in River Improvement Areas by Queensland's River Improvement Trusts.									

Water 11	Petroleum activity(ies) on <u>floodplains</u> 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	A Rehabilitation Plan must be developed by a suitably qualified person and must include the: (a) <u>rehabilitation</u> goals; and (b) procedures to be undertaken for rehabilitation that will: i. achieve the requirements of conditions (Rehabilitation 2) to (Rehabilitation 8), inclusive; and ii. provide for appropriate monitoring and maintenance.
Rehabilitation 2	<u>Significantly disturbed areas</u> that are no longer required for the on-going petroleum activities, must be rehabilitated within 12 months (unless an exceptional circumstance in the area to be rehabilitated (e.g. a flood event) prevents this timeframe being met) and be maintained to meet the following acceptance criteria: (a) contaminated land resulting from petroleum activities is remediated and rehabilitated (b) the areas are: i. non-polluting ii. a <u>stable</u> landform iii. re-profiled to contours consistent with the surrounding landform (c) surface drainage lines are re-established, consistent with natural flow patterns and are self-sustaining; (d) top soil is reinstated; and (e) either: i. groundcover, that is not a <u>declared pest species</u>, is growing; or ii. an alternative soil stabilisation methodology that achieves effective stabilisation is implemented and maintained.
Rehabilitation 3	All significantly disturbed areas caused by petroleum activities which are not <u>being or intended to be utilised by the landholder or overlapping tenure holder</u>, must be rehabilitated to meet the following final acceptance criteria measured either against the highest ecological value <u>adjacent land use</u> or the <u>pre-disturbed land use</u>: (a) greater than or equal to 70% of native ground cover <u>species richness</u> (b) greater than or equal to the total per cent of ground cover

	(c) less than or equal to the per cent species richness of <u>declared plant pest species</u>; and (d) where the adjacent land use contains, or the pre-clearing land use contained, one or more <u>regional ecosystem(s)</u>, then at least one regional ecosystem(s) from the same broad vegetation group, and with the equivalent biodiversity status or a biodiversity status with a higher conservation value as any of the regional ecosystem(s) in either the adjacent land or pre-disturbed land, must be present.
Rehabilitation 4	Where significant disturbance to land has occurred in an environmentally sensitive area, the following final rehabilitation criteria as measured against the pre-disturbance biodiversity values assessment (required by conditions (Biodiversity 1) and (Biodiversity 2)) must be met: (a) greater than or equal to 70% of native ground cover species richness (b) greater than or equal to the total per cent ground cover (c) less than or equal to the per cent species richness of declared plant pest species (d) greater than or equal to 50% of organic litter cover (e) greater than or equal to 50% of <u>total density of coarse woody material</u>; and (f) all <u>predominant species</u> in the <u>ecologically dominant layer</u>, that define the pre-disturbance regional ecosystem(s) are present.
Rehabilitation 5	Conditions (Rehabilitation 2), (Rehabilitation 3) and (Rehabilitation 4) continue to apply after this environmental authority has ended or ceased to have effect.
Well construction, maintenance and stimulation activities conditions	
Condition number	Condition
Well activities 1	Oil based or <u>synthetic based drilling muds</u> must not be used in the carrying out of the petroleum activity(ies).
Well activities 2	Drilling 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	Stimulation activities are not permitted.

Definitions

Key terms and/or phrases underlined in this environmental authority 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.
acid sulfate soil(s)	means a soil or soil horizon which contains sulfides or an acid soil horizon affected by oxidation of sulfides.
adjacent land use(s)	means the <u>ecosystem function</u> adjacent to an area of significant disturbance, or where there is no ecosystem function, the use of the land. An adjacent land use does not include an adjacent area that shows evidence of edge effect.
administering authority	means: (a) for a matter, the administration and enforcement of which has been devolved to a local government under section 514 of the <i>Environmental Protection Act 1994</i> —the local government; or (b) for all other matters—the Chief Executive of the Department of Environment and Heritage Protection; or (c) another State Government Department, Authority, Storage Operator, Board or Trust, whose role is to administer provisions under other enacted legislation.
alternative arrangement	means a written agreement about the way in which a particular environmental nuisance impact will be dealt with at a sensitive place, and may include an agreed period of time for which the arrangement is in place. An alternative arrangement may include, but is not limited to, a range of nuisance abatement measures to be installed at the sensitive place, or provision of alternative accommodation for the duration of the relevant nuisance impact.
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: <u>Part A</u> In all cases: <table border="1"> <thead> <tr> <th>Parameter</th><th>Maximum concentration</th></tr> </thead> <tbody> <tr> <td>pH</td><td>6–10.5 (range)</td></tr> <tr> <td>Electrical Conductivity</td><td>20dS/m (20,000µS/cm)</td></tr> <tr> <td>Chloride*</td><td>8000mg/L</td></tr> </tbody> </table> *Chloride analysis is only required if an additive containing chloride was used in the drilling process The limits in Part A must be measured in the clarified filtrate of oversaturated solids prior to mixing. <u>Part B</u> If any of the following metals are a component of the drilling fluids, then for that metal: <table border="1"> <thead> <tr> <th>Parameter</th><th>Maximum concentration</th></tr> </thead> <tbody> <tr> <td>Arsenic</td><td>20mg/kg</td></tr> <tr> <td>Selenium</td><td>5mg/kg</td></tr> <tr> <td>Boron</td><td>100mg/kg</td></tr> <tr> <td>Cadmium</td><td>3mg/kg</td></tr> <tr> <td>Chromium (total)</td><td>400mg/kg</td></tr> <tr> <td>Copper</td><td>100mg/kg</td></tr> <tr> <td>Lead</td><td>600mg/kg</td></tr> </tbody> </table> The limits in Part B and Part C refer to the post soil/by-product mix. <u>Part C</u> If a hydrocarbon sheen is visible, the following hydrocarbon fractions: <table border="1"> <thead> <tr> <th>TPH</th><th>Maximum concentration</th></tr> </thead> <tbody> <tr> <td>C6-C10</td><td>170mg/kg</td></tr> <tr> <td>C10-C16</td><td>150mg/kg</td></tr> <tr> <td>C16-C34</td><td>1300mg/kg</td></tr> <tr> <td>C34-C40</td><td>5600mg/kg</td></tr> </tbody> </table>	Parameter	Maximum concentration	pH	6–10.5 (range)	Electrical Conductivity	20dS/m (20,000µS/cm)	Chloride*	8000mg/L	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	TPH	Maximum concentration	C6-C10	170mg/kg	C10-C16	150mg/kg	C16-C34	1300mg/kg	C34-C40	5600mg/kg
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	Total Polycyclic Aromatic Hydrocarbons (PAHs)	20mg/kg
	Phenols (halogenated)	1mg/kg
	Phenols (non-halogenated)	60mg/kg
	Monocyclic aromatic hydrocarbons (Total sum of benzene, toluene, ethyl benzene, xylenes (includes ortho, para and meta xylenes) and styrene)	7mg/kg
	Benzene	1mg/kg
areas of pre-existing disturbance	means areas where environmental values have been negatively impacted as a result of anthropogenic activity and these impacts are still evident. Areas of pre-disturbance may include areas where legal clearing, logging, timber harvesting, or grazing activities have previously occurred, where high densities of weed or pest species are present which have inhibited re-colonisation of native regrowth, or where there is existing infrastructure (regardless of whether the infrastructure is associated with the authorised petroleum activities). The term 'areas of pre-disturbance' does not include areas that have been impacted by wildfire/s, controlled burning, flood or natural vegetation die-back.	
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.	
background noise level	means the sound pressure level, measured in the absence of the noise under investigation, as the $L_{A90,T}$ being the A-weighted sound pressure level exceeded for 90% of the measurement time period T of not less than 15 minutes (or $L_{A90,adj,15 mins}$), using Fast response.	
bankfull	means the channel flow rate that exists when the water is at the elevation of the channel bank above which water begins to spill out onto the floodplain. The term describes the condition of the channel relative to its banks (e.g. overbank, in-bank, bankfull, low banks, high bank).	

bed	of any waters, has the meaning in Schedule 12 of the Environmental Protection Regulation 2008 and— (a) includes an area covered, permanently or intermittently, by tidal or non-tidal waters; but (b) does not include land adjoining or adjacent to the bed that is from time to time covered by floodwater.
being or intended to be utilised by the landholder or overlapping tenure holder	for significantly disturbed land, means there is a written agreement (e.g. land and compensation agreement) between the landholder or the overlapping tenure holder and the holder of the environmental authority identifying that the landholder or the overlapping tenure holder has a preferred use of the land such that rehabilitation standards for revegetation by the holder of the environmental authority are not required. For dams, means there is a written agreement (e.g. land and compensation agreement) between the landholder or the overlapping tenure holder and the holder of the environmental authority identifying that the landholder or the overlapping tenure holder has a preferred use for the dam such that rehabilitation standards for revegetation by the holder of the environmental authority are not required.
biodiversity values	for the purposes of this environmental authority, means environmentally sensitive areas, prescribed environmental matters and wetlands.
BTEX	means benzene, toluene, ethylbenzene, ortho-xylene, para-xylene, meta-xylene and total xylene.
Category A Environmentally Sensitive Area	means any area listed in Schedule 12, Section 1 of the Environmental Protection Regulation 2008.
Category B Environmentally Sensitive Area	means any area listed in Schedule 12, Section 2 of the Environmental Protection Regulation 2008.
Category C Environmentally Sensitive Area	means any of the following areas: • nature refuges as defined in the conservation agreement for that refuge under the <i>Nature Conservation Act 1992</i> • koala habitat areas as defined under the Nature Conservation (Koala) Conservation Plan 2006 • state forests or timber reserves as defined under the <i>Forestry Act 1959</i> • regional parks (previously known as resource reserves) under the <i>Nature Conservation Act 1992</i> • an area validated as 'essential habitat' from ground-truthing surveys in accordance with the <i>Vegetation Management Act 1999</i> for a species of wildlife listed as endangered or vulnerable under the <i>Nature Conservation Act 1992</i> • 'of concern regional ecosystems' that are remnant vegetation and identified in the database called 'RE description database' containing regional ecosystem numbers and descriptions.
certified or certification	in relation to any matter other than a design plan, 'as constructed' drawings or an annual report regarding dams means, a Statutory Declaration by a suitably qualified person or suitably qualified third party accompanying the written document stating: • the person's qualifications and experience relevant to the function

	- that the person has not knowingly included false, misleading or incomplete information in the document - that the person has not knowingly failed to reveal any relevant information or document to the administering authority - that the document addresses the relevant matters for the function and is factually correct; and - that the opinions expressed in the document are honestly and reasonably held.
clearing	has the meaning in the dictionary of the <i>Vegetation Management Act 2000</i> and for vegetation— (a) means remove, cut down, ringbark, push over, poison or destroy in any way including by burning, flooding or draining; but (b) does not include destroying standing vegetation by stock, or lopping a tree.
closed-loop systems	means using waste on site in a way that does not release waste or contaminants in the waste to the environment.
control measure	has the meaning in section 47 of the Environmental Protection Regulation 2008 and means a device, equipment, structure, or management strategy used to prevent or control the release of a contaminant or waste to the environment.
critically limited regional ecosystem	means the regional ecosystems defined and listed in Appendix 5 of the Queensland Biodiversity Offset Policy.
coal seam gas water	means underground water brought to the surface of the earth, or moved underground in connection with exploring for, or producing coal seam gas.
daily peak design capacity	for sewage treatment works, has the meaning in Schedule 2, section 63(4) of the Environmental Protection Regulation 2008 as the higher equivalent person (EP) for the works calculated using each of the formulae found in the definition for EP.
dam(s)	means a land-based structure or a <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 2008 where: • $EP = V/200$ where V is the volume, in litres, of the average dry weather flow of sewage that can be treated at the works in a day; or • $EP = M/2.5$ where M is the mass, in grams, of phosphorus in the influent that the works are designed to treat as the inlet load in a day.
essential petroleum activities	means activities that are essential to bringing the resource to the surface and are only the following: • <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 hectare disturbance and multi-well sites not exceeding 1.5 hectare disturbance • well sites with monitoring equipment (including monitoring bores): ○ for single well sites, not exceeding 1.25 hectares disturbance ○ for multi-well sites, not exceeding 1.75 hectares disturbance • well sites with monitoring equipment (including monitoring bores) and tanks (minimum 1 ML) for above ground fluid storage: ○ for single well sites, not exceeding 1.5 hectares disturbance ○ for multi-well sites, not exceeding 2.0 hectares disturbance • associated infrastructure located on a well site necessary for the construction and operations of wells: ○ water pumps and generators ○ flare pits ○ chemical / fuel storages ○ sumps for residual drilling material and drilling fluids ○ tanks, or dams which are not significant or high consequence dams to contain wastewater (e.g. stimulation flow back waters, produced water) ○ pipe laydown areas ○ soil and vegetation stockpile areas ○ a temporary camp associated with a drilling rig that may involve sewage treatment works that are no release works ○ temporary administration sites and warehouses ○ dust suppression activities using water that meets the quality and operational standards approved under the environmental authority • communication and power lines that are necessary for the undertaking of petroleum activities and that are located within well sites, well pads and pipeline right of ways without increasing the disturbance area of petroleum activities • supporting access tracks • gathering / flow pipelines from a well head to the initial compression facility

	activities necessary to achieve compliance with the conditions of the environmental authority in relation to another essential petroleum activity (e.g. sediment and erosion control measures, rehabilitation).
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 nutriment; increase in size or substance.
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.
L _A 90, adj, 15 mins	means the A-weighted sound pressure level, adjusted for tonal character that is equal to or exceeded for 90% of any 15 minutes sample period equal, using Fast response.
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 powerlines, pipelines, flowlines, roads and access tracks.
liquid	means a substance which is flowing and offers no permanent resistance to changes of shape.

long term noise event	means a noise exposure, when perceived at a sensitive receptor, persists for a period of greater than five (5) days, even when there are respite periods when the noise is inaudible within those five (5) days.
low consequence dam	means any dam that is not classified as high or significant as assessed using the Manual for Assessing Consequence Categories and Hydraulic Performance of Structures, published by the administering authority, as amended from time to time.
low impact petroleum activities	means petroleum activities which do not result in the clearing of native vegetation, cause disruption to soil profiles through earthworks or excavation or result in significant disturbance to land which cannot be rehabilitated immediately using hand tools after the activity is completed. Examples of such activities include but are not necessarily limited to soil surveys (excluding test pits), topographic surveys, cadastral surveys and ecological surveys, may include installation of monitoring equipment provided that it is within the meaning of low impact and traversing land by car or foot via existing access tracks or routes or in such a way that does not result in permanent damage to vegetation.
Map of referable wetlands	has the meaning in Schedule 12 of the Environmental Protection Regulation 2008 and means the 'Map of referable wetlands', a document approved by the chief executive on 4 November 2011 and published by the department, as amended from time to time by the chief executive under section 144D.
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 (kw=10–8m/s) or subsoil with a clay content of greater than 20%; and - the residual solids is mixed with subsoil in the sump and cover; and - the subsoil and residual solids is mixed at least three parts subsoil to one part waste (v/v); and - a minimum of one metre of clean subsoil must be placed over the subsoil and residual solids mixture; and - topsoil is replaced.

month	has the meaning in the <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 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 3.2 August 2012) and means a vegetation community in a bioregion that is consistently associated with a particular combination of geology, landform and soil. Regional ecosystems of Queensland were originally described in Sattler and Williams (1999). The Regional Ecosystem Description Database (Queensland Herbarium 2013) is maintained by Queensland Herbarium and contains the current descriptions of regional ecosystems.
regulated dam	means any dam in the significant or high consequence category as assessed using the Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635), published by the administering authority, as amended from time to time.
rehabilitation or rehabilitated	means the process of reshaping and revegetating land to restore it to a stable landform and in accordance with acceptance criteria and, where relevant, includes remediation of contaminated land. For the purposes of pipeline rehabilitation, rehabilitation includes reinstatement, revegetation and restoration.

reinstate or reinstatement	for pipelines, means the process of bulk earth works and structural replacement of pre-existing conditions of a site (i.e. soil surface typography, watercourses, culverts, fences and gates and other landscape(d) features) and is detailed in the Australian Pipeline Industry Association (APIA) Code of Environmental Practice: Onshore Pipelines (2013).
reporting limit	means the lowest concentration that can be reliably measured within specified limits of precision and accuracy during routine laboratory operating conditions. For many analytes, the reporting limit is selected as the lowest non-zero standard in the calibration curve. Results that fall below the reporting limit will be reported as “less than” the value of the reporting limit. The reporting limit is also referred to as the practical quantitation limit or the limit of quantitation. For polycyclic aromatic hydrocarbons, the reporting limit must be based on super-ultra trace methods and, depending on the specific polycyclic aromatic hydrocarbon, will range between 0.005 ug/L–0.02 ug/L.
residual drilling material	means waste drilling materials including muds and cuttings or cement returns from well holes and which have been left behind after the drilling fluids are pumped out.
restoration	means the replacement of structural habitat complexity, ecosystem processes, services and function from a disturbed or degraded site to that of a pre-determined or <u>analogue</u> site. For the purposes of pipelines, restoration applies to final rehabilitation after pipeline decommissioning.
revegetation or revegetating or revegetate	means to actively re-establish vegetation through seeding or planting techniques in accordance with site specific management plans.
secondary protection zone	in relation to a Category A or Category B ESA means an area within 100 metres from the boundary of the primary protection zone.
sensitive place	means: • a dwelling (including residential allotment, mobile home or caravan park, residential marina or other residential premises, motel, hotel or hostel) • a library, childcare centre, kindergarten, school, university or other educational institution • a medical centre, surgery or hospital • a protected area • a public park or garden that is open to the public (whether or not on payment of money) for use other than for sport or organised entertainment • a work place used as an office or for business or commercial purposes, which is not part of the petroleum activity(ies) and does not include employees accommodation or public roads • for noise, a place defined as a sensitive receptor for the purposes of the Environmental Protection (Noise) Policy 2008.
sensitive receptor	is defined in Schedule 2 of the Environmental Protection (Noise) Policy 2008, and means an area or place where noise is measured.
short term noise event	is a noise exposure, when perceived at a sensitive receptor, persists for an aggregate period not greater than eight hours and does not re-occur for a period of at least seven (7) days. Re-occurrence is deemed to apply where a noise of comparable level is observed at the same receptor location for a period of one hour or more, even if it originates from a different source or source location.

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	has the meaning in Schedule 12, section 4 of the Environmental Protection Regulation 2008. Land is significantly disturbed if— (i) to a condition required under the relevant environmental authority; or (ii) if the environmental authority does not require the land to be rehabilitated to a particular condition—to the condition it was in immediately before the disturbance.
species richness	means the number of different species in a given area.
stable	has the meaning in Schedule 5 of the Environmental Protection Regulation 2008 and, 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 / hydrofracturing, fracture acidizing and the use of proppant treatments. Explanatory note: This definition is restricted from that in the <i>Petroleum and Gas (Production and Safety) Act 2004</i> in order to only capture the types of stimulation activities that pose a risk to environmental values of water quality in aquifers.
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 WetlandsInfo 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: (a) has qualifications and experience relevant to performing the function including but not limited to: i. a bachelor's degree in science or engineering; and ii. 3 years' experience in undertaking soil contamination assessments; and (b) is a member of at least one organisation prescribed in Schedule 8 of the Environmental Protection Regulation 2008; and (c) not be an employee of, nor have a financial interest or any involvement which would lead to a conflict of interest with the holder(s) of the environmental authority.
sump	means a pit in which waste residual drilling material or drilling fluids are stored only for the duration of drilling activities.
synthetic based drilling mud	means a mud where the base fluid is a synthetic oil, consisting of chemical compounds which are artificially made or synthesised by chemically modifying petroleum components or other raw materials rather than the whole crude oil.
top soil	means the surface (top) layer of a soil profile, which is more fertile, darker in colour, better structured and supports greater biological activity than underlying layers. The surface layer may vary in depth depending on soil forming factors, including parent material, location and slope, but generally is not greater than about 300mm in depth from the natural surface.
total density of coarse woody material	means the total length of logs on the ground greater than or equal to 10cm diameter per hectare and number of logs on the ground greater than or equal to 10cm diameter per hectare.
transmissivity	means the rate of flow of water through a vertical strip of aquifer which is one unit wide and which extends the full saturated depth of the aquifer.
valid complaint	means all complaints unless considered by the administering authority to be frivolous, vexatious or based on mistaken belief.
void	means any constructed, open excavation in the ground.
waste and resource management hierarchy	has the meaning provided in section 9 of the <i>Waste Reduction and Recycling Act 2011</i> and is the following precepts, listed in the preferred order in which waste and resource management options should be considered— (a) AVOID unnecessary resource consumption (b) REDUCE waste generation and disposal

	(c) RE-USE waste resources without further manufacturing (d) RECYCLE waste resources to make the same or different products (e) RECOVER waste resources, including the recovery of energy (f) TREAT waste before disposal, including reducing the hazardous nature of waste (g) DISPOSE of waste only if there is no viable alternative.
waste and resource management principles	has the meaning provided in section 4(2)(b) of the <i>Waste Reduction and Recycling Act 2011</i> and means the: (a) polluter pays principle (b) user pays principle (c) proximity principle (d) product stewardship principle.
waste fluids	has the meaning in section 13 of the <i>Environmental Protection Act 1994</i> in conjunction with the common meaning of “fluid” which is “a substance which is capable of flowing and offers no permanent resistance to changes of shape”. Accordingly, to be a waste fluid, the waste must be a substance which is capable of flowing and offers no permanent resistance to changes of shape.
watercourse	has the meaning in Schedule 4 of the <i>Environmental Protection Act 1994</i> and means: 1) a river, creek or stream in which water flows permanently or intermittently— (a) in a natural channel, whether artificially improved or not; or (b) in an artificial channel that has changed the course of the watercourse. 2) Watercourse includes the bed and banks and any other element of a river, creek or stream confining or containing water.
waters	includes all or any part of a creek, river, stream, lake, lagoon, swamp, wetland, spring, unconfined surface water, unconfined water in natural or artificial watercourses, bed and bank of any waters, non-tidal or tidal waters (including the sea), stormwater channel, stormwater drain, roadside gutter, stormwater run-off, and underground water.
well integrity	the ability of a well to contain the substances flowing through it.
wetland	for the purpose of this environmental authority, wetland means: • areas shown on the Map of referable wetlands which is a document approved by the chief executive on 4 November 2011 and published by the department, as amended from time to time by the chief executive under section 144D of the <i>Environmental Protection Regulation 2008</i>; and • areas defined under the Queensland Wetlands Program as permanent or periodic / intermittent inundation, with water that is static or flowing fresh, brackish or salt, including areas of marine water, the depth of which at low tide does not exceed six (6) metres, and possess one or more of the following attributes: ○ at least periodically, the land supports plants or animals that are adapted to and dependent on living in wet conditions for at least part of their life cycle, or ○ the substratum is predominantly undrained soils that are saturated, flooded or ponded long enough to develop anaerobic conditions in the upper layers, or

	○ the substratum is not soil and is saturated with water, or covered by water at some time. The term wetland includes riverine, lacustrine, estuarine, marine and palustrine wetlands; and it does not include a Great Artesian Basin Spring or a subterranean wetland that is a cave or aquifer.
wetland of high ecological significance	means a wetland that meets the definition of a wetland and that is shown as a wetland of 'high ecological significance' or wetland of 'high ecological value' on the Map of referable wetlands.
wetland of other environmental value	means a wetland that meets the definition of a wetland and that is shown as a wetland of 'general environmental significance' or wetland of 'other environmental value' on the Map of referable wetlands.

Appendices

END OF ENVIRONMENTAL AUTHORITY