

Permit

Environmental Protection Act 1994

Environmental Authority

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

Environmental authority number: P-EA-100227919

Environmental authority takes effect 13 April 2026.

The anniversary date of this environmental authority is 15 August.

An annual return is due each year on 01 April.

Environmental authority holder(s)

Name(s)	Registered address
OGT ENERGY PTY LTD	Suite 1502, Tower A, The Zenith 821 Pacific Highway CHATSWOOD NSW 2067

Environmentally relevant activity and location details

Environmentally relevant activity/activities	Location(s)
Non-Scheduled - Petroleum Activity - Petroleum Lease (PL)	PL1158 (ex PL202)

Additional information for applicants

Environmentally relevant activities

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

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

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

Mobile and temporary activities

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

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

Contaminated land

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

- the presence of, or happening of an event involving, a hazardous contaminant on the land that is causing, or is reasonably likely to cause, serious or material environmental harm (notice must be given within 24 hours); or
- if the land is contaminated land – a change in the condition of the land that is causing, or is reasonably likely to cause, serious or material environmental harm (notice must be given within 24 hours); or
- a notifiable activity (as defined in Schedule 3) having been carried out, or is being carried out, on the land (notice must be given within 20 business days).

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

Take effect

Please note that, in accordance with section 200(1) of the EP Act, an EA has effect:

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

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

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

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

The anniversary day of this EA is the same day each year as the effective date. The payment of the annual fee will be due each year on this day.

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

Permit

Environmental Authority P-EA-100227919



Signature

Amelia Sellars

Department of the Environment, Tourism, Science and Innovation

Delegate of the administering authority

Environmental Protection Act 1994

13 April 2026

Date

Enquiries:

Energy and Extractive Resources Business
Centre

GPO Box 2454, Brisbane QLD 4001

Phone: (07)3330 5715

Email: EnergyandExtractive@detsi.qld.gov.au

Obligations under the *Environmental Protection Act 1994*

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

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

Other permits required

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

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

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

Development approval

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

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

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

Conditions of environmental authority

This environmental authority incorporates the following schedules:

Schedule A — General
Schedule B — Air
Schedule C — Water
Schedule D — Stormwater
Schedule E — Dams
Schedule F — Land
Schedule G — Noise
Schedule H — Waste
Schedule I — Community Issues
Schedule J — Well construction, maintenance and stimulation activities
Schedule K — Definitions

SCHEDULE A - GENERAL

Authorised Petroleum Activities

- A1 In the carrying out of the petroleum activity(ies), the holder of this environmental authority must not exceed the number and maximum size for each of the specified petroleum activities listed in *Schedule A: Table 1— Authorised Petroleum Activities* for each petroleum tenure.

Schedule A: Table 1 — Authorised Petroleum Activities

Resource Authority Number	Petroleum Activities	Scale	Maximum Authorised Disturbance (where applicable)
PL1158 (ex PL202)	Seismic (kilometres)	1	8 hectares
	Total wells	9 wells (on 7 well pads)	9 hectares
	Low hazard dam	1	1.4 hectares
	Stimulation	2 wells	N/A

Prevent or Minimise Likelihood of Environmental Harm

- A2 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.
- A3 A copy of the environmental authority must be kept in a location readily accessible to personnel carrying out the activity.
- A4 All complaints received by the holder of this environmental authority relating to operations at the licensed place must be recorded.
- A5 All monitoring must be undertaken by a suitably qualified person.
- A6 If requested by the administering authority in relation to investigating a complaint, monitoring must be commenced within 10 business days.
- A7 All laboratory analyses and tests must be undertaken by a laboratory that has NATA accreditation for such analyses and tests.
- A8 Notwithstanding condition A7, where there are no NATA accredited laboratories for a specific analyte or substance, then duplicate samples must be sent to at least two separate laboratories for independent testing or evaluation.
- A9 Monitoring and sampling must be carried out in accordance with the requirements of the following documents (as relevant to the sampling being undertaken), as amended from time to time:
- for waters and aquatic environments, the Queensland Government's Monitoring and Sampling Manual 2009 – Environmental Protection (Water) Policy 2009
 - for groundwater, Groundwater Sampling and Analysis – A Field Guide (2009:27 GeoCat #6890.1)
 - for noise, the Environmental Protection Regulation 2019
 - for air, the Queensland Air Quality Sampling Manual and/or Australian Standard 4323.1:1995 Stationary source emissions method 1: Selection of sampling positions, as appropriate for the

relevant measurement

- e) for soil, the Guidelines for Surveying Soil and Land Resources, 2nd edition (McKenzie et al. 2008), and/or the Australian Soil and Land Survey Handbook, 3rd edition (National Committee on Soil and Terrain, 2009)
- f) for dust, Australian Standard AS3580.

A10 The following events must be reported to the administering authority within 48 hours of becoming aware of the event:

- a) actual or suspected loss of structural or hydraulic integrity of a dam;
- b) actual or suspected loss of well integrity;

A11 The report in condition A10 must include:

- a) time and date when contravention/event occurred;
- b) time and date when contravention/event detected;
- c) GPS coordinates (GDA2020 decimal degrees to 4 decimal places) of location of contravention/event;
- d) unique reference name or number for any infrastructure relevant to the contravention/event;
- e) photos of or relevant to the contravention/event;
- f) estimated area of land (in m²) impacted by contravention/event;
- g) the nature of the activity being carried out that gave rise to the contravention/event;
- h) the circumstances in which the contravention/event occurred;
- i) measures that have been or will be undertaken to control the impact of the contravention/event;
- j) contaminants that:
 - i) have been released;
 - ii) may be released;
- k) the quantity of contaminants released;
- l) any sampling undertaken or proposed;
- m) relevant environmental features (e.g. waterways, wetlands, vegetation) that have or may be impacted by the contravention/event; and
- n) details of affected landowner consultation that has been or will be undertaken in response to the contravention/event.

Maintenance of Measures, Plant and Equipment

A12 The holder of the environmental authority must:

- a) install all measures, plant and equipment necessary to ensure compliance with the conditions of this environmental authority;
- b) maintain such measures, plant and equipment in their proper and effective condition; and
- c) operate such measures, plant and equipment in a proper and effective manner.

A13 No change, replacement or alteration of any plant or equipment is permitted if the change, replacement, or alteration materially increases, or is likely to increase, the environmental harm caused by the petroleum activities).

Contingency Plan for Emergency Environmental Incidents

A14 A Contingency Plan for Emergency Environmental Incidents which has been certified by a suitably qualified person must be developed within 3 months of the date of issue of this authority.

A15 The Contingency Plan for Emergency Environmental Incidents must include, but not necessarily be limited to:

- a) a clear definition of what constitutes an environmental emergency incident or near miss for the petroleum activity(ies) authorised to be carried out under this environmental authority;
- b) identification of the types of environmental incidents that may occur, relevant to the petroleum activity(ies) authorised to be carried out under this environmental authority;
- c) response procedures to be implemented to prevent or minimise the risk of environmental harm arising from environmental incidents or emergency events;

- d) response procedures to minimise the extent and duration of environmental harm caused by environmental incidents or emergency events;
- e) communication procedures and lines of communication within and beyond the organisation to be employed in responding to environmental incidents or emergency events;
- f) the resources to be used in response to environmental incidents or emergency events;
- g) procedures to investigate the cause of any incidents, including releases, and where necessary, the remedial actions to be implemented to reduce the likelihood of recurrence of similar events;
- h) a receiving environment monitoring program, to be specifically implemented in the event of an emergency event or incident to examine / assess environmental impacts;
- i) the provision and availability of documented procedures to staff attending any environmental incidents or emergency events to enable them to effectively respond;
- j) training of staff that will be called upon to respond to environmental incidents or emergency events to enable them to effectively respond;
- k) timely and accurate reporting of the circumstance and nature of environmental incidents or emergency events to the administering authority in accordance with conditions of this environmental authority;
- l) procedures for accessing monitoring locations during environmental incidents or emergency events; and
- m) procedures to notify any potentially affected landholder, occupier and / or their nominated representative.

A16 The holder of this environmental authority must implement the Contingency Plan for Emergency Environmental Incidents.

A17 Effective from 13 April 2026, unless otherwise specified by a condition of this environmental authority, records must be:

- a) kept for the period outlined in *Schedule A: Table 2 – Record keeping requirements*; and
- b) provided to the administering authority upon request and in the format requested.

Schedule A: Table 2 – Record keeping requirements

Description of records	Retention requirement
Monitoring results	Retain for 15 years
All other records	Retain for 5 years

SCHEDULE B - AIR

B1 The release of any dust, particulate, aerosol or odour resulting from the activity must not cause an environmental nuisance at any sensitive place.

SCHEDULE C - WATER

C1 Contaminants must not be directly or indirectly released to any waters except as permitted under this environmental authority.

C2 No produced water shall be released into the environment.

Erosion Protection Measures and Sediment Controls

C3 Erosion protection measures and sediment control measures must be implemented and maintained to

minimise erosion and the release of sediment from all disturbed areas.

C4 Prevent any build up of sediment in any stormwater drain.

SCHEDULE D - STORMWATER

- D1 The holder must implement and maintain measures to minimise the likelihood of the release of contaminated stormwater from the place where the activities are carried out to any stormwater drain or any waters.
- D2 The maintenance and cleaning of vehicles and any other equipment or plant must be carried out in areas from where the resultant contaminants are unlikely to be released into any waters, roadside gutter or stormwater drainage system.
- D3 Any spillage of wastes or contaminants that may cause environmental harm must be effectively contained and/or cleaned up as quickly as practicable. Such spillage must not be cleaned up by hosing, or otherwise releasing such waste or contaminants to any stormwater drainage system, roadside gutter or waters.

SCHEDULE E - DAMS

- E1 The dams used for the storage of contaminants must be maintained:
- a) so as to prevent any release of contaminants through the bed or banks of the pond to any waters (including groundwater);
 - b) so that a freeboard of not less than 0.5 metres is maintained at all times; and
 - c) so as to ensure the stability of the dam's construction.

Assessment of Hazard Category

- E2 The hazard category of any dam must be assessed by a suitably qualified and experienced person in accordance with the "Manual for Assessing Hazard Categories and Hydraulic Performance of Dams", as amended from time to time.
- E3 The hazard assessment required under condition (E2) must occur in any of the following situations:
- a) prior to the design and construction of the dam;
 - b) prior to any change in its purpose or its stored contents;
 - c) for an existing low hazard dam, within 120 business days of 16 August 2011.
- E4 All certifications must be in the form set out in the "Manual for Assessing Hazard Categories and Hydraulic Performance of Dams", as amended from time to time.
- E5 Only low hazard dams are permitted under this authority.
- E6 The holder of this environmental authority must not abandon any dam but must decommission each dam such that ongoing environmental harm is prevented.
- E7 Well infrastructure and dams must be securely fenced and / or screened to:
- a) exclude and prevent the entrapment of livestock and wildlife; and
 - b) limit habitats for the introduction or spread of pests.

SCHEDULE F - LAND

Preventing Contaminant Release to Land

F1 Contaminants must not be directly or indirectly released to land.

Progressive Rehabilitation for Significantly Disturbed Land

F2 Pipelines trenches must be backfilled immediately after pipe laying and rehabilitated as soon as practicable but not longer than three (3) months after completion.

F3 During backfilling of pipeline trenches, soils must be replaced so that the soil horizons are consistent with the soil horizons of the immediately surrounding area.

F4 Backfilled and rehabilitated pipeline trenches must:

- a) be a stable landform;
- b) exhibit no subsidence or erosion gullies for the life of the operational pipeline; and
- c) be re-profiled to a level consistent with surrounding soils; and
- d) be re-profiled to original contours and established drainage lines; and
- e) be visually consistent with the surrounding land features; and
- f) be vegetated with groundcover as a minimum to ensure that erosion is minimised.

F5 Progressive rehabilitation of significantly disturbed land caused by the carrying out of the petroleum activity(ies) (other than constructing pipelines) which is not required for the ongoing conduct of the petroleum activity(ies) must commence as soon as practicable, but not longer than nine (9) months following the completion of any construction or operational works associated with the petroleum activity(ies).

F6 Progressive rehabilitation of significantly disturbed land caused by the carrying out of the petroleum activity(ies) must:

- a) remediate any contaminated land (e.g. contaminated soils, decommissioned dams containing salt);
- b) reshape all significantly disturbed land to a stable landform;
- c) reprofile all significantly disturbed land to original contours;
- d) on all significantly disturbed land:
 - i. re-establish surface drainage lines;
 - ii. reinstate the top layer of the soil profile;
 - iii. establish groundcover to ensure that erosion is minimised;
 - iv. establish vegetation of floristic species composition found in analogue sites;
- e) undertake rehabilitation in a manner such that any actual and potential acid sulfate soils in or on the site are either not disturbed, or submerged, or are treated to prevent and / or minimise environmental harm.

SCHEDULE G - NOISE

G1 Noise from activities must not cause an environmental nuisance at any noise sensitive place.

G2 Prior to undertaking petroleum activities that will result in short-term, medium-term or long term noise events that are likely to impact on a sensitive receptor, the holder of this environmental authority must model or calculate any potential noise emissions from the relevant petroleum activity(ies) to ensure that noise emissions will not exceed the noise levels specified in *Schedule G: Table 1— Noise limits at*

Sensitive Receptors.

- G3 The emission of noise from the petroleum activity(ies) authorised under this environmental authority must not result in levels greater than those specified in *Schedule G: Table 1— Noise limits at Sensitive Receptors* in the event of a valid complaint about noise being made to the administering authority.

Schedule G: Table 1 — Noise Limits at Sensitive Receptors

Time Period	Metric	Short Term Noise Event	Medium Term Noise Event	Long Term Noise Event
7:00am - 6:00pm	$L_{Aeq, adj, 15min}$ Max $L_{pA, 15mins}$	$L_{ABG} + 10 \text{ dBA}$ 55 dBA	$L_{ABG} + 8 \text{ dBA}$ 51 dBA	$L_{ABG} + 5 \text{ dBA}$ 45 dBA
6:00pm - 10:00pm	$L_{Aeq, adj, 15min}$ Max $L_{pA, 15mins}$	$L_{ABG} + 10 \text{ dBA}$ 50 dBA	$L_{ABG} + 8 \text{ dBA}$ 46 dBA	$L_{ABG} + 5 \text{ dBA}$ 40 dBA
10:00pm - 6:00am	$L_{Aeq, adj, 15min}$ Max $L_{pA, 15mins}$	$L_{ABG} + 3 \text{ dBA}$ 38 dBA	$L_{ABG} + 3 \text{ dBA}$ 36 dBA	$L_{ABG} + 3 \text{ dBA}$ 33 dBA
6:00am - 7:00am	$L_{Aeq, adj, 15min}$ Max $L_{pA, 15mins}$	$L_{ABG} + 10 \text{ dBA}$ 50 dBA	$L_{ABG} + 8 \text{ dBA}$ 46 dBA	$L_{ABG} + 5 \text{ dBA}$ 40 dBA

L_{Aeq} and Max L_{pA} are to be measured over any 15 minute period.

L_{ABG} is the deemed background noise levels which for the purposes of *Schedule G: Table 1— Noise Limits at Sensitive Receptors* are:

7:00 am - 6:00 pm:	35 dBA
6:00 pm - 10:00 pm:	30 dBA
10:00 pm - 6:00 am:	25 dBA
6:00 am - 7:00 am:	30 dBA

- G4 If the noise subject to a complaint is tonal or impulsive, the adjustments detailed in *Schedule G: Table 2 — Adjustments to be Added to Noise Levels at Sensitive Receptors* are to be added to the measured noise level(s) to derive $L_{Aeq, adj, 15min}$.

Schedule G: Table 2 — Adjustments to be Added to Noise Levels at Sensitive Receptors

Noise Characteristic	Adjustment to Noise
Tonal characteristic is just audible	+ 2 dBA
Tonal characteristic is clearly audible	+ 5 dBA
Impulsive characteristic is just audible	+ 2 dBA
Impulsive characteristic is clearly audible	+ 5 dBA

- G5 Where alternative arrangements are in place with an affected person(s) at a sensitive receptor, the noise limits in *Schedule G: Table 1— Noise limits at Sensitive Receptors* do not apply at that sensitive receptor for the duration for which the alternative arrangements are in place.

SCHEDULE H - WASTE

- H1 Any spillage of regulated waste must be cleaned up forthwith.

- H2 Regulated waste must be handled and transferred in a proper and efficient manner to prevent any leakage or spillage of waste.
- H3 All regulated waste removed from the site must be removed by a person who holds a current authority to transport such waste under the provisions of the *Environmental Protection Act 1994* and sent to a facility licensed to accept such waste.
- H4 Except as otherwise provided by the conditions of this authority, all disposal of waste generated in carrying out the environmentally relevant activity must be to a proper and appropriate facility that accepts that waste.
- H5 Where regulated waste is removed from within the boundary of the environmental authority (other than by a release as permitted under another schedule of this environmental authority), the holder of this environmental authority must monitor and record the following:
- a) the date, quantity and type of waste removed; and
 - b) name of the waste transporter and/or disposal operator that removed the waste.

SCHEDULE I - COMMUNITY ISSUES

Notification Procedures

- I1 The holder of this environmental authority must telephone the Department of Environment and Science's Pollution Hotline (telephone: 1300 130 372) and any affected landholder, occupier or their nominated representative as soon as reasonably practicable, but within 24 hours after becoming aware of:
- a) any release of contaminants not in accordance with the conditions of this environmental authority; or
 - b) any event where environmental harm (excluding environmental nuisance) has been caused or may be caused.
- I2 Notwithstanding condition I1, the holder of this environmental authority must telephone the Department of Environment and Science's Pollution Hotline (telephone: 1300 130 372) as soon as reasonably practicable, but within 24 hours after becoming aware of:
- a) any non-compliance with any condition of this environmental authority other than in relation to a release of contaminants; or
 - b) a potential or actual loss of structural or hydraulic integrity of a dam.
- I3 Subject to condition I1, the holder of this environmental authority must report spills of contaminants (including but not limited to hydrocarbons) of the following volumes or kind:
- a) releases of any volume of contaminants to water;
 - b) releases of greater than 200L of hydrocarbons and/or 10,000L of produced water to land; and
 - c) releases of any volumes of contaminants where potential serious or material environmental harm has occurred or may occur.
- I4 The notification of emergencies or incidents as required by conditions I1, I2 and I3 must include but not be limited to the following information:
- a) the environmental authority number and name of the holder;
 - b) the tenure type and number where the emergency or incident occurred;
 - c) the name and telephone number of the designated contact person;
 - d) the location of the emergency or incident (GDA94);
 - e) the date and time that the emergency or incident occurred;
 - f) the date and time the holder of this environmental authority became aware of the emergency or incident;
 - g) details of the nature of the event and the circumstances in which it occurred;
 - h) the estimated quantity and type of any contaminants involved in the incident;

- i) the actual or potential suspected cause of the emergency or incident;
 - j) a description of the land use at the site of the emergency or incident (e.g. grazing, pasture, forest etc.) and/or the name of any relevant waters and other environmentally sensitive features;
 - k) a description of the possible impacts from the emergency or incident;
 - l) a description of whether stock and/or wildlife were actually or potentially exposed to any contaminants released and measures taken to prevent access for the duration of the emergency or incident;
 - m) any sampling conducted or proposed, relevant to the emergency or incident;
 - n) landholder details and details of landholder consultation;
 - o) immediate actions taken to control the impacts of the emergency or incident and how environmental harm was mitigated at the time of the emergency or incident; and
 - p) whether further examination / root cause analysis is required and if so, the expected date by when this examination will be completed and reported to the administering authority.
- I5 Within 10 business days following the initial notification, unless a longer time is agreed to by the administering authority, a written report must be provided to the administering authority, including the following (where relevant to the emergency or incident):
- a) the information required by condition I4;
 - b) the root cause of the emergency or incident;
 - c) the confirmed quantities and types of any contaminants involved in the incident;
 - d) results and interpretation of any analysis of samples taken at the time of the emergency or incident (including the analysis results of any impact monitoring);
 - e) a final assessment of the impacts from the emergency or incident including any actual or potential environmental harm that has occurred or may occur in the longer term as a result of the release;
 - f) the success or otherwise of actions taken at the time of the incident to prevent or minimise environmental harm;
 - g) results and current status of landholder consultation, including commitment to resolve any outstanding issues / concerns; and
 - h) actions and / or procedural changes to prevent a recurrence of the emergency or incident.

Schedule J - Well construction, maintenance and stimulation activities

- J1 Oil based or synthetic based drilling muds must not be used in the carrying out of the activity.
- J2 The activity must not cause:
 - a) the connection of the target gas producing formation and another aquifer; or
 - b) the connection of any aquifers.
- J3 Practices and procedures must be in place to detect, as soon as practicable any:
 - a) connection of a target gas producing formation and another aquifer caused by the activity; and
 - b) connection of any aquifers caused by the activity.
- J4 Other than as permitted by this environmental authority, the activity must not adversely impact the water quality of groundwater.

Well Stimulation

- J5 Polycyclic aromatic hydrocarbons or products that contain polycyclic aromatic hydrocarbons must not be used in stimulation fluids in concentrations above the reporting limit.

Note: this condition is not intended to capture polycyclic aromatic hydrocarbons that naturally occur within produced water.

- J6 Stimulation activities must not adversely impact the water quality of groundwater, other than in the stimulation impact zone for a well during stimulation of that well.

Stimulation risk assessment

- J7 Prior to undertaking stimulation of a well, an individual site-specific risk assessment must be undertaken for each well to ensure that stimulation of the well will not cause environmental harm.

- J8 The stimulation risk assessment in condition J7 must include for each well, but not necessarily be limited to:

- a) identification of issues at a relevant geospatial scale such that changes to features and attributes relevant to each well are adequately described;
- b) a process description of the stimulation activity to be applied, including equipment and a comparison to best international practice;
- c) provide details of where, when and how often stimulation is to be undertaken on the tenures covered by this environmental authority;
- d) a geological model of the field to be stimulated including geological names, descriptions and depths of the target gas producing formations;
- e) naturally occurring geological faults;
- f) seismic history of the region (e.g. earth tremors, earthquakes);
- g) proximity of overlying and underlying aquifers;
- h) description of the depths that aquifers with environmental values occur, both above and below the target gas producing formation;
- i) identification and proximity of landholder' active groundwater bores in the area where stimulation activities are to be carried out;
- j) the environmental values of groundwater in the area;
- k) an assessment of the appropriate limits of reporting for all water quality indicators relevant to stimulation monitoring in order to accurately assess the risks to environmental values of groundwater;
- l) description of overlying and underlying formations in respect of porosity, permeability, hydraulic conductivity, faulting and fracture propensity;
- m) consideration of barriers or known direct connections between the target gas producing formation and the overlying and underlying aquifers;
- n) a description of the well mechanical integrity testing program;
- o) process control and assessment techniques to be applied for determining extent of stimulation activities (e.g. microseismic measurements, modelling etc.);
- p) practices and procedures to ensure that the stimulation activities are designed to be contained within the target gas producing formation;
- q) groundwater transmissivity, flow rate, hydraulic conductivity and direction of flow;
- r) a description of the chemical compounds used in stimulation activities (including estimated total mass, estimated composition, chemical abstract service numbers and properties), their mixtures and the resultant compounds that are formed after stimulation;
- s) a mass balance estimating the concentrations and absolute masses of chemical compounds that will be reacted, returned to the surface or left in the target gas producing formation subsequent to stimulation;

- t) an environmental hazard assessment of the chemicals used including their mixtures and the resultant chemicals that are formed after stimulation including:
 - i) toxicological and ecotoxicological information of chemical compounds used;
 - ii) information on the persistence and bioaccumulation potential of the chemical compounds used; and
 - iii) identification of the chemicals of potential concern in stimulation fluids derived from the risk assessment;
 - u) an environmental hazard assessment of use, formation of, and detection of polycyclic aromatic hydrocarbons in stimulation activities;
 - v) identification and an environmental hazard assessment of using radioactive tracer beads in stimulation activities;
 - w) an environmental hazard assessment of leaving chemical compounds in stimulation fluids in the target gas producing formation for extended periods subsequent to stimulation;
 - x) human health exposure pathways to operators and the regional population;
 - y) risk characterisation of environmental impacts based on the environmental hazard assessment;
 - z) potential impacts to landholder bores as a result of stimulation activities;
 - aa) an assessment of cumulative underground impacts, spatially and temporally of the stimulation activities to be carried out on the tenures covered by this environmental authority; and
 - bb) potential environmental or health impacts which may result from stimulation activities including but not limited to water quality, air quality (including suppression of dust and other airborne contaminants), noise and vibration.
- J9 Stimulation of a well must not occur if the risk assessment in conditions J7 and J8 identifies that stimulation of that well would potentially:
- (a) impact:
 - (i) a spring; or
 - (ii) a landholders' active groundwater bore; or
 - (b) cause:
 - (i) environmental harm outside of the target gas producing formation; or
 - (ii) the connection of the target gas producing formation and another aquifer.

Water quality baseline monitoring

- J10 Prior to undertaking any stimulation activity, a baseline bore assessment must be undertaken of the water quality of the following bores:
- (a) all landholders' active groundwater bores (subject to access being permitted by the landholder) in any aquifer that is within 200m above or below the target gas producing formation and is spatially located with a two (2) kilometre radius from the location of the stimulation initiation point.
 - (b) any other bore that could potentially be adversely impacted by the stimulation activities in accordance with the findings of the risk assessment required by conditions J7 and J8.
- J11 Prior to undertaking stimulation activities at a well, there must be sufficient water quality data to accurately represent the water quality in the well to be stimulated. The data must include as a minimum the results of analyses for the parameters in condition J13.
- J12 Despite Condition J11, if a water sample cannot be retrieved from the bore and there is limited or no data available for water quality, stimulation activities can occur in accordance with the risk assessment in conditions J7 and J8
- J13 The bore assessments in condition J10 must include monitoring of:
- (a) pH;
 - (b) electrical conductivity [mS/m];

- (c) turbidity [NTU];
- (d) total dissolved solids [mg/L];
- (e) temperature [°C];
- (f) dissolved oxygen [mg/L];
- (g) dissolved gases (methane, chlorine, carbon dioxide, hydrogen sulfide) [mg/L];
- (h) alkalinity (bicarbonate, carbonate, hydroxide and total as CaCO₃) [mg/L];
- (i) sodium adsorption ratio (SAR);
- (j) anions (bicarbonate, carbonate, hydroxide, chloride, sulphate) [mg/L];
- (k) cations (aluminium, calcium, magnesium, potassium, sodium) [mg/L];
- (l) dissolved and total metals and metalloids (including but not necessarily being limited to: aluminium, arsenic, barium, borate (boron), cadmium, total chromium, copper, iron, fluoride, lead, manganese, mercury, nickel, selenium, silver, strontium, tin and zinc) [mg/L];
- (m) total petroleum hydrocarbons [mg/L];
- (n) BTEX (as benzene, toluene, ethylbenzene, ortho-xylene, para- and meta-xylene, and total xylene) [mg/L];
- (o) polycyclic aromatic hydrocarbons (including but not necessarily being limited to: naphthalene, phenanthrene, benzo[a]pyrene) [mg/L];
- (p) sodium hypochlorite [mg/L];
- (q) sodium hydroxide [mg/L];
- (r) formaldehyde [mg/L];
- (s) ethanol [mg/L]; and
- (t) gross alpha + gross beta or radionuclides by gamma spectroscopy [Bq/L].

J14 Prior to the carrying out of stimulation activities a Water Impact Monitoring Program must be:

- (a) developed by an appropriately qualified person to detect potential impacts to groundwater caused by the activity; and
- (b) implemented at all times.

J15 The Water Impact Monitoring Program in condition J14 must:

- (a) be able to detect:
 - (i) the connection of the target gas producing formation with another aquifer;
 - (ii) the connection of any aquifers caused by the activity;
 - (iii) a decline in water pressure or water levels in a spring; and
 - (iv) adverse impacts to the water quality of groundwater caused by the activity;
- (b) consider the findings of the risk assessment required by in conditions J7 and J8;
- (c) include monitoring of:
 - (i) the stimulation fluids to be used in stimulation activities at sufficient frequency and which sufficiently represents the quantity and quality of the fluids used;
 - (ii) the volume of flow back waters from stimulation activities; and
 - (iii) all bores in accordance with condition J10:
 - (1) at the following minimum frequency:
 - monthly for the first six (6) months subsequent to stimulation activities being undertaken; then
 - annually for the first five (5) years subsequent to stimulation being undertaken or until all of the analytes and physico-chemical parameters listed in conditions J13, are not detected in concentrations above baseline bore monitoring data collected in accordance with condition J10 for that bore on two (2) consecutive monitoring occasions; and
 - (2) for the following analytes and physico-chemical parameters:
 - analytes and physico-chemical parameters relevant to baseline bore and risk assessments to enable data referencing and comparison including, but not necessarily being limited to the analytes and physico-chemical parameters in condition J13; and
 - any other analyte or physico-chemical parameters that will enable detection of adverse water quality impacts and the inter-connection with a non-target aquifer as a result of

stimulation activities including chemical compounds that are actually or potentially formed by chemical reactions with each other or coal seam materials during stimulation activities.

- J16 If the administering authority requests changes to the Water Impact Monitoring Program in conditions J14 and J15 via written correspondence, then the Water Impact Monitoring Program must be amended in accordance with the requested changes and a revised copy provided to the administering authority within 30 business days of the date of the request.

Annual water monitoring program

- J17 An Annual Water Monitoring Report must be prepared by 1 April each year and made available to any potentially affected landholder or the administering authority upon request.
- J18 The Annual Water Monitoring Report in condition J17 must:
- (a) be prepared by an appropriately qualified person;
 - (b) analyse and summarise all monitoring data collected under Water Impact Monitoring Program required by condition J14 for the previous financial year; and
 - (c) assess whether compliance with conditions J2, J4, and J5 has been achieved.

SCHEDULE K - DEFINITIONS

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

Note: Where a term is not defined in this environmental authority, the definition in the *Environmental Protection Act 1994*, its regulations and Environmental Protection Policies, or the *Acts Interpretation Act 1954*, or the Macquarie Dictionary or the *Petroleum and Gas (Production and Safety) Act 2004* or its regulations must be used in that order.

Word or Phrase	Definition
acid sulfate soils	means soil or sediment containing highly acidic soil horizons or layers affected by the oxidation of iron sulfides (actual acid sulfate soils) and / or soil or sediment containing iron sulfides or other sulfidic material that has not been exposed to air and oxidised (potential acid sulfate soils). The term acid sulfate soil generally includes both actual and potential acid sulfate soils. Actual and potential acid sulfate soils are often found in the same soil profile, with actual acid sulfate soils generally overlying potential acid sulfate soil horizons.
alternative arrangement	means a written agreement between the holder of this environmental authority and an affected or potentially affected person at a sensitive receptor for a defined noise nuisance impact and may include an agreed period of time for which the arrangement is in place. An agreement for alternative arrangements may include, but not necessarily be limited to a range of noise abatement measures to be installed at a sensitive receptor and / or provision of alternative accommodation for the duration of the defined noise nuisance
analogue site	means the pre-disturbance state of a site to be disturbed by petroleum activities, from which benchmark parameters for rehabilitation success can be established.
associated works	in relation to a dam, means any kind and all things associated with the construction and operation of a dam; and any land used for those operations.
authorised person	means a person holding office as an authorised person under an appointment under the <i>Environmental Protection Act 1994</i> by the chief executive or chief executive officer of a local government.

background noise level	means the sound pressure level, measured in the absence of the noise under investigation, as the L_{A90T} being the A-weighted sound pressure level exceeded for 90 percent of the measurement time period T of not less than 15 minutes, using Fast response.
brine	means saline water with a total dissolved solid concentration greater than 40 000 mg/L.
brine dam	means a regulated dam that is designed to receive, contain or evaporate brine.
business day	has the meaning in the <i>Acts Interpretation Act 1954</i> and means a day that is not a Saturday or Sunday; or a public holiday, special holiday or bank holiday in the place in which any relevant act is to be or may be done.
certification or certified by a suitably qualified and experienced person	in relation to a design plan, 'as constructed' drawings or an annual report regarding dams, means that a statutory declaration has been made by that person and, when taken together with any attached or appended documents referenced in that declaration, all of the following aspects are addressed and are sufficient to allow an independent audit at any time: - o exactly what is being certified and the precise nature of that certification. - o the relevant legislative, regulatory and technical criteria on which the certification has been based; - o the relevant data and facts on which the certification has been based, the source of that material, and the efforts made to obtain all relevant data and facts; and - o the reasoning on which the certification has been based using the relevant data and facts, and the relevant criteria.
certify or certification or certified	in relation to any matter other than a design plan, 'as constructed' drawings or an annual report regarding dams in this environmental authority means a Statutory Declaration by a suitably qualified person accompanying the written document stating that: - o all relevant material has been considered in the written document; - o that the content of the written document is accurate and true; and - o that the written document meets the requirements of the relevant conditions of the environmental authority.
construction	in relation to a dam includes building a new dam and modifying or lifting an existing dam but does not include investigations and testing necessary for the purposes of preparing a design plan.
dam	means a land-based structure or a void that is designed to contains, diverts or controls flowable substances, and includes any substances that are thereby contained, diverted or controlled by that landbased structure or void and associated works. A dam does not mean a fabricated or manufactured tank or container, designed and constructed to an Australian Standard that deals with strength and structural integrity of that tank or container.
design plan	is the documentation required to describe the physical dimensions of the dam, the materials and standards to be used for construction of the dam, and the criteria to be used for operating the darn. The documents must include design and investigation reports, specifications and certifications, together with the planned decommissioning and rehabilitation works and outcomes. A design plan may include 'as constructed' drawings.
development well	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).
end	means the stopping of the particular activity that has caused a significant disturbance in a particular area. It refers to, among other things, the end of a seismic survey or the end of a drilling operation. It does not refer to the end of all related petroleum activities such as rehabilitation. In other words, it does not refer to the 'completion' of the petroleum activity(ies), the time at which the petroleum authority ends or the time that the land in question ceases to be part of an authority.
equivalent person or EP	means an equivalent person under volume 1, section 2 of the "Guidelines for Planning and Design of Sewerage Schemes", October 1991, published by the Water Resources Commission, Department of Primary Industries, Fisheries and Forestry.
evaporation dam	means a land based structure designed to contain or impound coal seam gas water, the purpose of which is to contain or impound the water, until the water content has been removed by evaporation.
existing low hazard dam	means [insert names and locations of existing low hazard dams that are constructed and / or whose construction had substantially commenced on the approval date of this environmental authority].
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.
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.
hazard category	means a category, either low significant or high, into which a dam is assessed as a result of the application of tables and other criteria in 'Manual for Assessing Hazard Categories and Hydraulic Performance of Dams, prepared by the Department of Environment and Science, as amended from time to time
hydraulic performance	means the capacity of a regulated dam to contain or safely pass flowable substances based on a probability (AEP) of performance failure specified for the relevant hazard category 'Manual for Assessing Hazard Categories and Hydraulic Performance of Dams', prepared by the Department of Environment and Science as amended from time to time.

infrastructure	means plant or works including for example, communication systems, compressors, powerlines, pumping stations, reservoirs, roads and tracks, water storage dams, evaporation or storage ponds and tanks, equipment, buildings and other structures built for the purpose and duration of the conduct of the petroleum activity(ies) including temporary structures or structures of an industrial or technical nature, including, for example, mobile and temporary camps. Infrastructure does not include other facilities required for the long term management of the impact of those petroleum activities or the protection of potential resources. Such other facilities include dams other than water storage dams (e.g. evaporation dams), pipelines and assets, that have been decommissioned, rehabilitated, and lawfully recognised as being subject to subsequent transfer with ownership of the land.
L_{Aeq,adj,15min}	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.
L_{A90,adj,15min}	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.
limited petroleum activities	mean only the following petroleum activities: ○ geophysical surveys (including seismic petroleum activities); ○ well sites; ○ well pads; ○ water pumps and generators associated with well operations; ○ sumps; ○ flare pits; ○ gathering / flow pipelines from a well head to the initial compression facility; and supporting access tracks. ○ For clarity, limited petroleum activities exclude and are not necessarily limited to: ○ the construction of infrastructure for processing or storing petroleum or by-products; ○ dams; ○ borrow pits; ○ ponds used to contain and/or store stimulation fluids; ○ compressor stations; ○ campsites / workforce accommodation; ○ power supplies; ○ pipelines which are used to transport gas after the initial compression facility e.g. trunk pipelines, transmission pipelines or pipelines that require a pipeline licence) ○ waste disposal; or ○ other supporting infrastructure for the project (e.g. sewage treatment plants).
long term noise event	is 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 hazard dam	means any dam in the low hazard category as assessed using the 'Manual for Assessing Hazard Categories and Hydraulic Performance of Dams', prepared by the Department of Environment and Science, as amended from time to time.

Max L_{pz}, 15mins	means the maximum value of the Z-weighted sound pressure level measured over 15 minutes.
Max L_{pA}, 15mins	means the absolute maximum instantaneous A-weighted sound pressure level, measured over 15 minutes.
medium term noise event	is a noise exposure, when perceived at a sensitive receptor, persists for an aggregate period not greater than five (5) days and does not re-occur for a period of at least four (5) 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.
month	has the meaning in the Acts Interpretation Act 1954 and means a calendar month and is a period starting at the beginning of any day of one (1) of the 12 named months and ending: - o immediately before the beginning of the corresponding day of the next named month; or - o if there is no such corresponding day—at the end of the next named month.
NATA	means accreditation by the National Association of Testing Authorities Australia.
produced water	means groundwater that is necessarily or unavoidably brought to the surface in the process of conventional oil and gas exploration or production and the withdrawal of gas from an underground gas storage facility.
regulated dam	means any dam in the significant or high hazard category as assessed using the 'Manual for Assessing Hazard Categories and Hydraulic Performance of Dams', prepared by the Department of Environment and Science, as amended from time to time.
rehabilitation	means the process of reshaping and revegetating land to restore it to a stable landform and in accordance with the acceptance criteria set out in this environmental authority and, where relevant, includes remediation of contaminated land.
sensitive place	means: - o a dwelling (including residential allotment, mobile home or caravan park, residential marina or other residential premises, motel, hotel or hostel; or - o a library, childcare centre, kindergarten, school, university or other educational institution; - o a medical centre, surgery or hospital; or - o a protected area; or - o 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; or - o 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.
short term noise event	is a noise exposure, when perceived at a sensitive receptor, persists for an aggregate period not greater than eight hours and does not re-occur for a period of at least seven (7) days. Re-occurrence is deemed to apply where a noise of comparable level is observed at the same receptor location for a period of one hour or more, even if it originates from a different source or source location.

significantly disturbed or significant disturbance or significant disturbance to	Land is significantly disturbed if— (a) it is contaminated land ; or (b) it has been disturbed and human intervention is needed to rehabilitate it – (i) to a condition required under the relevant environmental authority; or (ii) if the environmental authority does not require the land to be rehabilitated to a particular condition—to the condition it was in immediately before the disturbance.
Stimulation impact zone	means a 100m maximum radial distance from the stimulation target location within a gas producing formation.
suitably qualified person	means a person who has professional qualifications, training, skills or experience relevant to the nominated subject matter and can give authoritative assessment, advice and analysis to performance relative to the subject matter using the relevant protocols, standards, methods or literature.
suitably qualified and experienced person	in relation to a hazard assessment of a dam, means that a statutory declaration has been made by that person and, when taken together with any attached or appended documents referenced in that declaration, all of the following aspects are addressed and are sufficient to allow an independent audit at any time: ○ exactly what has been assessed and the precise nature of that assessment; ○ the relevant legislative, regulatory and technical criteria on which the assessment has been based; ○ the relevant data and facts on which the assessment has been based, the source of that material, and the efforts made to obtain all relevant data and facts; and ○ the reasoning on which the assessment has been based using the relevant data and facts, and the relevant criteria.
suitably qualified and experienced person	In relation to dams means one who is a Registered Professional Engineer of Queensland (RPEQ) under the provisions of the Professional Engineers Act 1988, or registered as a National Professional Engineer (N PER) with the Institution of Engineers Australia, or holds equivalent professional qualifications to the satisfaction of the administering authority for the <i>Environmental Protection Act 1994</i>, and the administering authority for the <i>Environmental Protection Act 1994</i> is satisfied that person has knowledge, suitable experience and demonstrated expertise in relevant fields, as set out below: ○ knowledge of engineering principles related to the structures, geomechanics, hydrology, hydraulics, chemistry and environmental impact of dams; and ○ a total of five (5) years of suitable experience and demonstrated expertise in the geomechanics of dams with particular emphasis on stability, geology and geochemistry, and ○ a total of five (5) years of suitable experience and demonstrated expertise each, in three (3) of the following categories: ○ investigation and design of dams. ○ construction, operation and maintenance of dams. ○ hydrology with particular reference to flooding, estimation of extreme storms, water management or meteorology. ○ hydraulics with particular reference to sediment transport and deposition, erosion control, beach processes. ○ hydrogeology with particular reference to seepage, groundwater. ○ solute transport processes and monitoring thereof. ○ dam safety.

valid complaint	means a complaint the administering authority considers is not frivolous, nor vexatious, nor based on mistaken belief.
void	means any man-made, open excavation in the ground (includes borrow pits, drill sumps, frac pits, flare pits, cavitation pits and trenches).
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.
watercourse	has the meaning provided in section 5 of the <i>Water Act 2000</i> and includes the bed and banks and any other element of a river, creek or stream confining or containing water. "year" means a period of 12 months.

END OF ENVIRONMENTAL AUTHORITY