Permit

Environmental Protection Act 1994

Environmental authority EPPG00653413

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

Environmental authority number: EPPG00653413

Environmental authority takes effect on 7 October 2021

The anniversary date of this environmental authority is 15 July each year

Environmental authority holder(s)

Name(s)	Registered address
AUSTRALIA PACIFIC LNG PTY LIMITED	Level 4 139 Coronation Drive MILTON QLD 4064
Australia Pacific LNG (Moura) Pty Limited	Level 4 139 Coronation Drive MILTON QLD 4064

Environmentally relevant activity and location details

Environmentally relevant activity/activities	Location(s)
Schedule 3 - 06 - A petroleum activity carried out on a site containing a high hazard dam or a significant hazard dam	PL101
Schedule 3 - 08 - A petroleum or GHG storage activity, other than items 1 to 7, that includes an activity from Schedule 2 with an AES	PL101
Ancillary 15 - Fuel burning - Using fuel burning equipment that is capable of burning at least 500kg of fuel in an hour	PL101
Ancillary 60 - Waste disposal - 2(b) - Operating a facility for disposing of, in a year, the following quantity of waste mentioned in subsection (1)(b) - 2,000t to 5,000t	PL101
Ancillary 63 - Sewage Treatment - 1(a-i) - Operating sewage treatment works, other than no-release works,	PL101

ABN 46 640 294 485

Queensland Government

Environmentally relevant activity/activities	Location(s)
with a total daily peak design capacity of 21 to 100EP - if treated effluent is discharged from the works to an infiltration trench or through an irrigation scheme	

Additional information for applicants

Environmentally relevant activities

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

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

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

Contaminated land

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

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

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

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

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 *Planning Act 2016* 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.

The anniversary day of this environmental authority is the same day each year as the original take effect date unless you apply to change the anniversary day. The payment of the annual fee will be due each year on this day. An annual return will be due each year on 01 April.

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.

	7 October 2021
Signature	Date

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

Enquiries:
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Privacy statement

Pursuant to section 540 of the EP Act, the Department is required to maintain a register of certain documents and information authorised under the EP Act. A copy of this document will be kept on the public register. The register is available for inspection by members of the public who are able take extracts, or copies of the documents from the register. Documents that are required to be kept on the register are published in their entirety, unless alteration is required by the EP Act. There is no general discretion allowing the Department to withhold documents or information required to be kept on the public register. For more information on the Department's public register, search 'public register' at www.qld.gov.au. For queries about privacy matters please email privacy@des.qld.gov.au or telephone 13 74 68.

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)

Other permits required

This permit only provides an approval under the *Environmental Protection Act 1994*. 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 Government agencies prior to commencing any activity at the site. For example, this may include permits / approvals with your local Council (for planning approval), the Department of Transport and Main Roads (to access state controlled roads), the Department of Resources (to clear vegetation), and the Department of Agriculture and Fisheries (to clear marine plants or to obtain a quarry material allocation).

Conditions of environmental authority

Schedule A – General conditions

(A1) This authority does not authorise environmental harm unless a condition contained within this authority explicitly authorises that harm. Where there is no condition or the authority is silent on a matter, the lack of a condition or silence shall not be construed as authorising harm.

(A2) In carrying out petroleum activities the holder of this authority must prevent and / or minimise the likelihood of environmental harm being caused.

(A3) The holder of this authority must:

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

(A4) All instruments, equipment and measuring devices used for measuring or monitoring in accordance with any condition of this authority must be calibrated, appropriately operated and maintained.

(A5) The holder of this authority must ensure that daily operation and maintenance of all plant and equipment relating to the authorised petroleum activities are carried out by suitability qualified, competent and experienced person(s).

(A6) No change, replacement or alteration of any plant or equipment is permitted if the change, replacement or alteration increases the risk of environmental harm from the petroleum activities.

(A7) All analyses and tests required to be conducted under this authority must be carried out by a laboratory that has NATA certification for such analyses and tests, except as otherwise authorised by the administering authority.

(A8) The holder of this authority must provide a financial assurance in the amount and form required by the administering authority for the authorised petroleum activities.

(A9) The financial assurance is to remain in force until the administering authority is satisfied that no claim is likely to be made on the assurance.

(A10) Words and phrases used in this authority are defined in Appendix 1 – Definitions. Where a definition for a term used in this authority is not defined within this authority, the definitions in the *Environmental Protection Act 1994*, its Regulation and Environmental Protection Policies must be used.

Schedule B – Waste

(B1) A Waste Management Program (WMP) in accordance with Part 5 of the Environmental Protection (Waste Management) Policy 2000 must be developed, implemented within three (3) months from the date of this approval, and maintained for the authorised petroleum activities.

(B2) The holder of this authority must ensure that petroleum activities do not result in the release or likely release of a hazardous contaminant to land or waters.

(B3) Any spillage of hazardous contaminants or other 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 thereby releasing such waste or contaminants to any land or waters.

(B4) The holder of this authority must ensure that all general waste produced by the petroleum activities is removed from the relevant petroleum authority and disposed to a facility licensed to accept such waste.

(B5) 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.

(B6) When regulated waste is removed from within the boundary of the petroleum authority and transported by the holder of this authority, a record must be kept of the following:

(a) date of waste transport;

(b) quantity of waste removed and transported;

(c) type of waste removed and transported;

(d) route selected for transport of waste;

(e) quantity of waste delivered; and

(f) any incidents (e.g. spillage) that may have occurred en route.

Schedule C – Sewage treatment

Sewage treatment plants with a daily peak design capacity of between >21 EP and <100 EP

(C1) Treated sewage effluent or greywater can be released to land provided it:

(a) Meets or exceeds secondary treated class C standards for a treatment system with a daily peak design capacity of between 21EP and 100EP.

(C2) The release of treated sewage effluent or greywater authorised in (Condition C1) must:

(a) Be to a fenced and signed contaminant release area(s)

(b) Not result in pooling or run-off or aerosols or spray drift or vegetation die-off

(c) Be to a contaminant release area(s) that is kept vegetated with groundcover, that is:

i. Not a declared pest species

ii. Kept in a viable state for transpiration and nutrient uptake; and

iii. Grazed or harvested and removed from the contaminant release area as needed, but not less than every three months.

Sewage treatment plants with a daily peak design capacity of <21 EP

(C3) Treated sewage effluent may only be released to land by irrigation at designated, fenced contaminant release area(s).

(C4) The release of contaminants to land authorised under this environmental authority must be carried out in a manner such that:

(a) vegetation is not damaged;

(b) soil quality is not adversely impacted;

(c) there is no surface ponding or runoff to waters;

(d) there is no aerosols or odours;

(e) deep drainage below the root zone of any vegetation is minimised;

(f) the quality of shallow aquifers is not adversely affected.

Schedule D – Storage and containment

(D1) All explosives, hazardous chemicals, corrosive substances, toxic substances, gases, dangerous goods, flammable and combustible liquids (including petroleum products and associated piping and infrastructure) must be stored and handled in accordance with the relevant Australian Standard where such is available.

(D2) Notwithstanding the requirements of any Australian Standard, any liquids stored on site that have the potential to cause environmental harm must be stored in or serviced by an effective containment system that is impervious to the materials stored and managed to prevent the release of liquids to waters or land. Where no relevant Australian Standard is available, the following must be applied:

(a) storage tanks must be bunded so that the capacity and construction of the bund is sufficient to contain at least 110 percent of a single storage tank or 100 percent of the largest storage tank plus 10 percent of the second largest storage tank in multiple storage areas; and

(b) drum storages must be bunded so that the capacity and construction of the bund is sufficient to contain at least 25 percent of the maximum design storage volume within the bund.

(D3) All containment systems must be designed to minimise rainfall collection within the system.

Schedule E – Well and drilling activities

(E1) Prior to undertaking drilling activities, the holder of this authority must investigate the location of potential well sites and determine the well lease configuration that would minimise the area of disturbance.

(E2) Subject to condition (E1), the holder of this authority must be able to demonstrate that the area disturbed by the construction of any well lease is as low as reasonably practicable, and the decision is based upon health and safety requirements and environmental considerations associated with the proposed drilling operations.

(E3) Subject to condition (E2), well leases must not be more than:

(a) 6400m^2 in areas of remnant vegetation (i.e. areas of "Not of Concern" Regional Ecosystems); and

(b) 3600m^2 in areas of remnant vegetation that has been identified as having a high conservation value by the administering authority (e.g. areas "Of Concern" and "Endangered" Regional Ecosystems).

(E4) Livestock must be excluded:

(a) around the well lease during drilling and rehabilitation operations; and

(b) around all permanent well lease infrastructure.

(E5) Well lease infrastructure (e.g. cellar pits, turkeys nest dams or drill sumps) must be appropriately fenced and / or screened to prevent the entrapment of native fauna or provide habitats for the introduction or spread of noxious pest species.

(E6) All waste fluids and muds resulting from drilling and exploration activities must be contained in a dam or containment structure for disposal, remediation or reuse where applicable.

(E7) Prior to the use of oil and synthetic based drilling muds, the administering authority must be provided with written advice that demonstrates these materials will be used, stored, contained and disposed appropriately in a manner that will not result in environmental harm.

(E8) Oil and synthetic based drilling muds are not authorised to be used under this authority.

(E9) Production testing of coal seam gas wells must be restricted to determining the feasibility of gas reserves within a specific pilot program and be undertaken in accordance with the following conditions:

(a) production test dams must be appropriately lined (using either a synthetic or clay liner) and be built in accordance with Schedule N - Dams;

(b) production test dams must be restricted to the minimum size required to adequately determine gas reserves and:

i. be no larger than 5ha; and

ii. have a capacity of no greater than 200ML;

(c) production test dams must be decommissioned and rehabilitated within 12 months of cessation of production test activities, unless a longer period is agreed to in writing by the administering authority.

(E10) Notwithstanding condition (E9)(c)), the holder can apply to the administering authority to enable the dams be used for further production testing activities for other pilot programs.

(E11) The holder of this authority must decommission all dams or sumps associated with the drilling operations by:

(a) removing all remaining liquids in the dam;

(b) removing synthetic liners if used and disposing of them at a facility licensed to accept such waste material;

(c) removing all contaminated solids with TPH concentration >2200mg/kg and / or subsoils and:

i. disposing of the contaminated solids at a facility licensed to accept such regulated waste; or

ii. encapsulate in a purpose built storage facility that has been:

1. designed by a suitably qualified and experienced person; and

2. has been certified that that the design of the facility is fit for the purpose and is compliant in all respects with this authority;

(d) if required, remove the dam wall and rehabilitate the disturbed area in accordance with the rehabilitation conditions of this authority.

(E12) Drill sumps and flare pits are to be rehabilitated within 12 months after the cessation of drilling and completion activities.

(E13) After the cessation of drilling and well completion activities, the well lease area must be rehabilitated to a state where the site is stabilised and vegetation has been established while maintaining necessary exclusion zones for health and safety matters or future well maintenance activities.

Schedule F – General petroleum conditions

(F1) Petroleum infrastructure must be located within the area defined by the relevant petroleum authority.

(F2) All petroleum infrastructure (including buildings, structures, petroleum equipment and plant erected and/or used for the petroleum activities) must be removed from the relevant petroleum authorities prior to surrender of this authority, except where agreed in writing by the administering authority and the current landowner.

(F3) Prior to the commencement of decommissioning or abandonment activities, the scope of work for decommissioning or abandonment of project infrastructure shall be developed and agreed to with the administering authority.

Schedule G – Authorised activities in waters

(G1) Petroleum activities must not occur in or within 200m of a:

(a) wetland of high ecological significance;
(b) Great Artesian Basin Spring; or
(c) subterranean cave GDE.

(G2) Only construction or maintenance of linear infrastructure is permitted in or within any wetland of other environmental value or in a watercourse.

(G3) 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.

(G4) 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.

(G5) 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.

(G6) The construction or maintenance of linear infrastructure authorised under condition (G2) must comply with the water quality limits as specified in Schedule G - Table 1 - Release limits for construction or maintenance of linear infrastructure.

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

Water quality parameters	Units	Water quality limits
Turbidity	Nephelometric Turbidity Units (NTU)	For a wetland of other environmental value, if background water turbidity is above 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

(G7) Monitoring must be undertaken at a frequency that is appropriate to demonstrate compliance with condition (G6).

Schedule H – Pipelines

(H1) The holder of this authority must decommission each petroleum and gas pipeline to a situation where ongoing, or potential environmental harm is prevented or minimised. As a minimum, pipelines must be decommissioned such that:

(a) they no longer contain hazardous contaminants;

(b) they are left is stable condition;

(c) all the above ground infrastructure is removed; and

(d) all areas disturbed by above ground infrastructure are rehabilitated in accordance with the requirements of this authority.

(H2) Prior to the commencement of decommissioning or abandonment activities, the scope of work for decommissioning or abandonment shall be developed and agreed to with the administering authority.

(H3) The holder of this authority must ensure that:

(a) associated water must not be used for hydrotesting without an approval of resource for beneficial use under Part 6A of the Environmental Protection (Waste Regulation) 2000.

(b) hydrotest waters containing chemical additives are not released to land or waters without the prior written approval of the administering authority; and

(c) water used for the purpose of hydro-testing the relevant pipeline may only be released to land when water quality limits are in accordance with Schedule H – Table 2 – Limits for the Disposal of Hydrostatic Test Water to Land.

(d) subject to condition (H3)(c)), discharge areas must be located more than 100m from the nearest water course.

Schedule H - Table 1 - Limits for the Disposal of Hydrostatic Test Water to Land

Parameter	Value
pH	6.5-8.5 (Range)
Arsenic (mg/L)	2.0 (Maximum)
Cadmium (mg/L)	0.05 (Maximum)
Chromium (mg/L)	1 (Maximum)
Copper (mg/L)	5 (Maximum)
Iron (mg/L)	10 (Maximum)
Lead (mg/L)	5 (Maximum)
Manganese (mg/L)	10 (Maximum)
Zinc (mg/L)	5 (Maximum)
Nitrogen (mg/L)	25 (Maximum)
Phosphorus (mg/L)	0.08 (Maximum)
Electrical Conductivity (µS/cm)	2,000 (Maximum)

(H4) The holder of this authority must ensure that the release of hydrotest and/ or trench water authorised by condition (H3)(c)) is carried out in a manner that ensures that:

(a) vegetation is not damaged;
(b) soil erosion and soil structure damage is avoided;
(c) the quality of groundwater is not adversely affected;
(d) discharge of hydrotest water is controlled to prevent water runoff from the nominated discharge areas;
(e) there are no releases of trench water or hydrotest waters to any surface waters; and
(f) there is no surface ponding of hydrotest water or trench water.

(H5) Subject to condition (H3)(c)), the holder of this authority must develop and submit to the administering authority a Discharge Management Plan for disposing of hydrotest water that demonstrates the method of disposal will meet the objectives of condition (4). The Discharge Management Plan must be submitted four (4) weeks prior to any discharge event.

(H6) Notwithstanding any other condition of this authority, the holder of this authority must ensure that pipeline trench water or hydrotest water, to be released to land for disposal, does not have any properties nor contain any organisms or other contaminants in concentrations that are capable of causing environmental harm. If the water quality is not suitable for release, then it must be collected and disposed of at appropriate facility.

(H7) Water extracted from low point drains may be released to land providing that the water quality does not exceed the water quality limits set in Schedule H - Table 1 - Limits for the Disposal of Hydrostatic Test Water to Land and that the release is carried out in a manner that ensures that:

(a) vegetation is not damaged;
(b) soil erosion and soil structure damage is avoided;
(c) the quality of groundwater is not adversely affected;
(d) discharge of low point drain water will be controlled so that there is no water runoff from the nominated discharge areas; and
(e) there are no releases of low point drain water to any surface waters.

(H8) Notwithstanding any other condition of this authority, the holder of this authority must ensure that water from low point drains to be released to land for disposal, does not have any properties nor contain any organisms or other contaminants in concentrations that are capable of causing environmental harm. If the water quality is not suitable for release, then it must be collected and disposed of at appropriate facility.

(H9) For each authorised pipeline the holder of this authority must provide the administering authority, within three (3) months from the date of this approval, with a copy of the original or subsequently amended the Emergency Response Plan for operating the pipelines and associated facilities to aid in the effective

(a) means by which an emergency response is initiated;
(b) defined key roles and responsibilities required to respond to an emergency;
(c) facilities required to coordinate the emergency response;
(d) key contact list;
(e) criteria for escalation of an emergency;
(f) likely emergency scenarios and guidelines for responding to such scenarios;
(g) communication and documentation requirements; and

(h) evacuation protocols and muster points.

(H10) The Emergency Response Plan must be reviewed annually to valid the adequacy of the scope of the emergency scenarios and adequacy of the content.

(H11) In accordance with condition (H9), the holder of this authority must ensure that relevant personnel must be trained and competent to effectively fulfill their roles required as detailed in the relevant Emergency Response Plans to deal with pipeline incidents that could potentially result in environmental harm. Training records are to be kept for five (5) years.

(H12) Subject to condition (H11), the holder of this authority must undertake emergency exercises to:

(a) test the effectiveness of emergency response plan;
(b) validate the competency of key emergency response personnel;
(c) assess capability of to respond to an emergency;
(d) reinforce prior training; and
(e) identify opportunities for improvement.

Emergency response exercises may be in the form of simulated emergencies, practical drills, desktop exercises, resources and equipment checks, or other exercises designed to systematically include all personnel likely to be involved.

(H13) Subject to condition (H12), the holder of this authority must notify the administering authority in writing at least 10 business days prior to conducting emergency response exercise. The holder of this authority must also telephone the Department of Environment and Heritage Protection Pollution Hotline (1300 130 372) or local office the day during the emergency response exercise.

Schedule I – Dams

(I1) The consequence category of each dam must be determined by a suitably qualified and experienced person, prior to its construction and at least once in each two (2) year period thereafter.

(I2) The holder of this authority must not commence construction of any dam determined to be in the significant or high consequence category, unless the location, basic details, and hydraulic performance of that dam are specifically referenced in this authority.

(I3) The holder of this authority must not abandon any dam but must decommission each dam so as to avoid any environmental harm.

(I4) As a minimum, decommissioning must be conducted such that each dam either:

(a) becomes a stable landform, that no longer contains flowable substances, or
(b) is approved or authorised under relevant legislation for a beneficial use, or
(c) is a void authorised by the administering authority to remain after decommissioning; and
(d) is compliant with the rehabilitation requirements of this authority.

(I5) The following regulated dams must be located within the control points defined in Schedule I - Table 1 - Location of Regulated Dams, below.

Schedule I — Table 1 - Location of Regulated Dams

Name of Regulated Dam	Latitude (GDA 94)	Longitude (GDA 94)
Peat Facility Pond 1	150.0921 150.0929 150.09288 150.09208	-26.00989 -26.00987 -26.01055 -26.01056
Peat 12 Pond 2	150.09193 150.09393 150.09365 150.09191	-26.00712 -26.00716 -26.00766 -26.00763
Peat 12 Pond 1	150.09016 150.09033 150.09063 150.09047	-26.04446 -26.04419 -26.04436 -26.04464
Peat Facility Pond 2	150.09016 150.09033 150.09063 150.09047	-26.04402 -26.04387 -26.04417 -26.0443

(I6) The following regulated dams must conform to the basic details in Schedule I - Table 2 - Basic Details of Regulated Dams, below.

Schedule I — Table 2 - Basic Details of Regulated Dams

Name of Regulated dam	Consequence Category	Maximum surface area of dam (ha)	Maximum volume of dam (ML)	Use of Dam	Maximum depth of dam (m)	Use of dam
Peat Facility Pond 1	Significant	0.39	<10	Saline Water Storage	2.5	HDPE lined constructed in 2000
Peat Facility Pond 2	Significant	1.05	<26	Saline Water Storage	2.5	HDPE lined constructed in 2006
Peat 12 Pond 1	Significant	0.12	<3	Saline Water Storage	2.5	Earthen pond constructed 1997
Peat 12 Pond 2	Significant	0.104	<46	Saline Water Storage	2.5	Earthen pond constructed 1997
Peat 32 Pond	Significant	1.85	<92	Saline Water Storage	2.5	Bentonite lined constructed in 2003

(I7) The following regulated dams must meet the hydraulic performance criteria specified in Schedule I - Table 3 - Hydraulic Performance of Regulated Dams, below.

Schedule I - Table 3 - Hydraulic Performance of Regulated Dams

Name of Regulated Dam	Spillway Capacity or Diversion Capacity (Levees) AEP*	Design Storage Allowance (Dams other than levees) AEP*
Peat Facility Pond 1	N/A	N/A
Peat Facility Pond 2	N/A	N/A
Peat 12 Pond 1	N/A	N/A
Peat 32 Pond	N/A	N/A
Peat 12 Pond 2	N/A	N/A

NOTE: For each entry in the table for Design Storage Allowances, the method of calculation (either 'full hydrological analysis' or 'method of monthly deciles') must be specified in conjunction with the AEP level applicable to the consequence category and method of calculation - as indicated in the Manual for Assessing Consequence Categories and Hydraulic Performance of Structures, published by the Department of Environment and Heritage Protection.
* Information unavailable as dams were built prior to current dam guidelines.

(I8) The holder of this authority must not commence construction of a regulated dam unless:

(a) the holder has submitted to the administering authority two (2) copies of a design plan, together with the certification of a suitably qualified and experienced person that the design of the regulated dam will deliver the performance stated in the design plan and that it will be compliant in all other respects with this authority, and
(b) at least 20 business days has passed since the receipt of those documents, or the administering authority notifies the holder that a design plan and certification, has been received.

(I9) When construction of any regulated dam is complete, the holder of this authority must submit to the administering authority two (2) copies of a set of 'as constructed' drawings, together with the certification of a suitably qualified and experienced person that the dam 'as constructed' will deliver the performance stated in the design plan and it is compliant in all respects with this authority.

(I10) An operational plan must be kept current for each regulated dam.

(I11) Where an operational plan covers decommissioning and rehabilitation, those operations are to be consistent with the design plan for the dam and the rehabilitation requirements of this authority.

(I12) The holder of this authority must notify the administering authority immediately the level in any regulated dam reaches the mandatory reporting level (MRL), and immediately act to prevent or minimize any actual or potential environmental harm.

(I13) Each regulated dam must be inspected annually by a suitably qualified and experienced person.

(I14) At each annual inspection, the condition and adequacy of each regulated dam must be assessed for dam safety and against the necessary structural, geotechnical and hydraulic performance criteria.

(I15) At each annual inspection, if a mandatory reporting level is required, it must be determined and marked on each regulated dam.

(I16) A final assessment of adequacy of available storage in each regulated dam must be based on a dam level observed within the month of October and result in an estimate of the level in that dam as at 1 November.

(I17) For each annual inspection, two (2) copies of a report on the condition and adequacy of each regulated dam, certified by the suitably qualified and experienced person and including any recommended actions to be taken to ensure the integrity of each regulated dam; must be provided to the administering authority by 1 December.

(I18) The holder of this authority must, upon receipt of the annual inspection report, consider the report and its recommendations, and take action to ensure that each regulated dam safely performs its intended functions.

Schedule J – Air

(J1) The release of contaminants to the atmosphere from a point source must only occur from those release points identified in Schedule J – Table 1 - Compressor Station Release Points and Contaminant Limits and must be directed vertically upwards without any impedance or hindrance.

(J2) Contaminants must be released to the atmosphere from a release point at a height and flow rate not less than the corresponding height and velocity stated for that release point stated in Schedule J – Table 1 - Compressor Station Release Points and Contaminant Limits.

(J3) Contaminants must not be released to the atmosphere from a release point at a mass emission rate / concentration, as measured at a monitoring point, in excess of the levels stated in Schedule J - Table 1 - Compressor Station Release Points and Contaminant Limits and monitored not less frequently than Schedule J - Table 2 - Required Monitoring.

Schedule J - Table 1 - Compressor Station Release Points and Contaminant Limits

Release Source	Minimum release height (metres)	Minimum velocity (m/sec)	Contaminant release	Maximum release limit g/s [1]	No. of release points	Cumulative release (g/s)
Peat Gas Plant						
Screw Compressor (Frick TDSH 233L)	5	25.27	NOx	1.55	1	1.55
Reciprocating compressors Ariel JGK4)	7	5.74	NOx	6.83	2	13.65
Power Generator (Caterpillar G3406)	4.5	8.0	NOx	2.2	1	2.2
Peat Field Booster Plant						
Screw Compressor (Gardener Denver SSY)	3.5	14.0	NOx	1.84	1	1.84

Note 1: The above NOx limits are applicable at all times except start-up, shut down and calibration of emission monitoring devices. The maximum start-up allowed is 30 mins.

(J4) The only type of fuel to be burnt in the compressors, under normal operating conditions, is methane.

(J5) The holder of this authority must ensure that exhaust gases are released (or vented) without impedance from release points at compressor stations, other than from generators, in a vertical direction not less than 5m high (above grade), or 1m above the roof of the compressor, whichever is the higher.

(J6) Diesel engined backup generators must only be used for site back-up power generation or during testing in accordance with the manufacturer's specification.

(J7) The holder of this authority must conduct and keep records of a monitoring program of contaminant release to the atmosphere at the release points, frequency, and the parameters specified in Schedule J – Table 2 - Required Monitoring and which complies with the following:

(a) monitoring provision for the release points listed in Schedule J – Table 2 - Required Monitoring must comply with the Australian Standard AS4323.1 – 1995 Stationary source emissions Method 1: Selection of sampling provisions.
(b) the following test must be performed for each required determination specified in Table 2:
    i. gas velocity and volume flow rate;
    ii. temperature and oxygen content;
    iii. water vapour concentration.
(c) where practicable samples taken must be representative of the contaminants discharged when emissions are expected to be at maximum rates.
(d) during the sampling period the following additional information must be gathered:
    i. number of operating units;
    ii. reference to actual test methods and accuracies.

Schedule J – Table 2 - Required Monitoring

Determination Required	Release Point Numbers	Frequency
Peat Gas Plant		
Maximum release rate of 1.55 g/s NOx at 2.00 percent oxygen	Peat Gas Plant – screw compressor (see Maps in Appendix 3)	During commissioning of the plant, twice a year for the first two (2) years of operation and then annually thereafter
Peat Field Booster Plant		
Maximum release rate of 13.65 g/s NOx at 5.00 percent oxygen	Peat Gas Plant - reciprocating compressors (see Maps in Appendix 3)	During commissioning of the plant, twice a year for the first two (2) years of operation and then annually thereafter
Maximum release rate of 1.84 g/s NOx at 2.00 percent oxygen	Peat #12 – screw compressor (see Maps in Appendix 3)	During commissioning of the plant, twice a year for the first two (2) years of operation and then annually thereafter

(J8) When requested by the administering authority, contaminant monitoring and recording must be undertaken to investigate any complaint, and the results notified with 14 days to the administering authority. When monitoring is requested condition (J7) (a)-(d) must be complied with.

(J9) All release points referred to in Schedule J - Table 2 – Required Monitoring, must be conspicuously marked and be located in accordance with Figure 3 in Appendix 3.

(J10) All determinations of air contaminant releases to the atmosphere must be made in accordance with the methods prescribed in the most recent version of the Department of Environment and Heritage Protection Air Quality Sampling Manual. If monitoring requirements for specific contaminants are not described in the Department of Environment and Heritage Protection Air Quality Sampling Manual, monitoring protocols must be in accordance with a method as approved by New South Wales Department of Environment and Climate Change, Victoria Environmental Protection Authority or United States Environmental Protection Agency.

(J11) The holder of this authority must assess noise emissions from the relevant gas compression facilities and, submit a report to the administering authority detailing the results of the noise assessment to confirm compliance with noise limits imposed by condition (E4). The report must be submitted to the

administering authority within three (3) months after the petroleum facility has been fully commissioned.

(J12) Subject to condition (N1), if noise emissions exceed noise emission limits set by condition (N4), the holder of this authority must implement noise abatement measures to satisfy the requirements of condition (N4) within three (3) months after notifying the administering authority.

Schedule K – Monitoring

(K1) The holder of this authority must:

(a) develop and implement a monitoring program, within one (1) month from the date of this approval, that will demonstrate compliance with the conditions in this authority; and
(b) document the monitoring and inspections carried out under the program and any actions taken.

(K2) The holder of this authority must ensure that a suitably qualified, experienced and competent person(s) conduct all monitoring required by this authority.

(K3) The holder of this authority must record, compile and keep for a minimum of five (5) years all monitoring results required by this authority and make available for inspection all or any of these records upon request by the administering authority. Monitoring results relating to rehabilitation should be kept until the relevant petroleum tenure is surrendered.

(K4) Any management or monitoring plans, systems or programs required to be developed and implemented by a condition of this authority must be reviewed for performance and amended if required on an annual basis.

Schedule L – Incidents and notification

(L1) The holder of this authority must telephone the Department of Environmental and Heritage Protection Pollution Hotline (1300 130 372) or local office as soon as practicable after becoming aware of any release of contaminants not in accordance with the conditions of this authority or any event where environmental harm has been caused or may be threatened.

(L2) The notification of emergencies or incidents as required by conditions (L1) must include but not be limited to the following:

(a) the authority number and name of holder;
(b) the name and telephone number of the designated contact person;
(c) the location of the emergency or incident;
(d) the date and time of the release;
(e) the time the holder of the authority became aware of the emergency or incident;
(f) the estimated quantity and type of any substances involved in the incident;
(g) the actual or potential suspected cause of the release;
(h) a description of the effects of the incident including the environmental harm caused, threatened, or suspected to be caused by the release;
(i) any sampling conducted or proposed, relevant to the emergency or incident; and
(j) actions taken to prevent any further release and mitigate any environmental harm caused by the release.

(L3) Within 14 days following the initial notification of an emergency or incident or receipt of monitoring results, whichever is the later, further written advice must be provided to the administering authority, including the following:

(a) results and interpretation of any samples taken and analysed;
(b) outcomes of actions taken at the time to prevent or minimise environmental harm; and
(c) proposed actions to prevent a recurrence of the emergency or incident.

(L4) As soon as practicable, but not more than six (6) weeks following the conduct of any environmental monitoring performed in relation to the emergency or incident, which results in the release of contaminants not in accordance, or reasonably expected to be not in accordance with the conditions of this authority, written advice must be provided of the results of any such monitoring performed to the administering authority.

(L5) In addition to the requirements under Chapter 7, Part 1, Division 2 of the *Environmental Protection Act 1994*, the administering authority must be notified through the Pollution Hotline and in writing, as soon as possible, but within 48 hours of becoming aware of any of the following events:

(a) any unauthorised significant disturbance to land
(b) potential or actual loss of structural or hydraulic integrity of a dam
(c) when the level of the contents of any regulated dam reaches the mandatory reporting level
(d) when a regulated dam will not have available storage to meet the design storage allowance on 1 November of any year
(e) potential or actual loss of well integrity
(f) when the seepage trigger action response procedure required under condition RMW016(g) is or should be implemented

(g) unauthorised releases of any volume of prescribed contaminants to waters
(h) unauthorised releases of volumes of contaminants, in any mixture, to land greater than:
    i. 200 L of hydrocarbons; or
    ii. 200 L of stimulation additives; or
    iii. 500 L of stimulation fluids; or
    iv. 1 000 L of brine; or
    v. 5 000 L of untreated coal seam gas water; or
    vi. 5 000 L of raw sewage; or
    vii. 10 000 L of treated sewage effluent.
(i) the use of restricted stimulation fluids
(j) groundwater monitoring results from a landholder's active groundwater bore monitored under the stimulation impact monitoring program which is a 10% or greater increase from a previous baseline value for that bore and which renders the water unfit for its intended use
(k) monitoring results where two out of any five consecutive samples do not comply with the relevant limits in the environmental authority.

Schedule M – Acoustic

(M1) Noise from the carrying out of petroleum activities must not cause an environmental nuisance at any sensitive or commercial place.

(M2) Prior to undertaking any petroleum activities, the holder of this authority must investigate the potential noise impacts from the proposed activities on surrounding sensitive and commercial places.

(M3) If the investigation of noise emissions under condition (E2) indicates that noise emissions from the proposed petroleum activities are likely to cause environmental nuisance at surrounding sensitive or commercial places, then the holder of this authority must take appropriate measures to either relocate the petroleum activities or incorporate noise abatement and / or attenuation measures to mitigate those impacts as far as is practicable.

(M4) For the purposes of investigating a complaint of unlawful environmental nuisance and determining compliance with condition (M1), noise emissions from the petroleum activities will not constitute unlawful environmental nuisance where the limits specified in Schedule M – Table 1 – Noise Limits are complied with.

Schedule M – Table 1 – Noise limits

Sensitive place						
Noise level dB(A) measured as:	Monday to Saturday			Sundays and public holidays		
	7am to 6pm	6pm to 10pm	10pm to 7am	9am to 6pm	6pm to 10pm	10pm to 9am
$L_{A90, adj, 15 mins}$	lesser of bg+3 or 48	lesser of bg+0 or 40	lesser of bg+0 or 40	lesser of bg+0 or 40	lesser of bg+0 or 40	lesser of bg+0 or 40
$L_{A10, adj, 15 mins}$	lesser of bg+5 or 50	lesser of bg+5 or 45	lesser of bg+0 or 40	lesser of bg+5 or 45	lesser of bg+5 or 40	lesser of bg+0 or 35
$L_{A1, adj, 15 mins}$	lesser of bg+10 or 55	lesser of bg+10 or 50	lesser of bg+5 or 45	lesser of bg+10 or 50	lesser of bg+10 or 45	lesser of bg+5 or 40
Commercial place						
Noise level dB(A) measured as:	Monday to Saturday			Sundays and public holidays		
	7am to 6pm	6pm to 10pm	10pm to 7am	9am to 6pm	6pm to 10pm	10pm to 9am
$L_{A90, adj, 15 mins}$	lesser of bg+5 or 50	lesser of bg+0 or 45	lesser of bg+0 or 40	lesser of bg+3 or 43	lesser of bg+0 or 40	lesser of bg+0 or 40
$L_{A10, adj, 15 mins}$	lesser of bg+10 or 55	lesser of bg+10 or 50	lesser of bg+5 or 45	lesser of bg+10 or 50	lesser of bg+10 or 45	lesser of bg+5 or 40
$L_{A1, adj, 15 mins}$	lesser of bg+15 or 60	lesser of bg+15 or 55	lesser of bg+10 or 50	lesser of bg+15 or 55	lesser of bg+15 or 50	lesser of bg+10 or 45

• bg = background noise level

• In the event that measured background is less than 25 dB(A), then 25 dB(A) can be substituted for the measured level

(M5) Noise monitoring must be undertaken as directed by the administering authority to investigate any complaint of noise nuisance being caused by the petroleum and associated activities which the administering authority considers is neither frivolous, nor vexatious nor based on mistaken belief, and the results thereof notified to the administering authority within 14 days following the completion of noise monitoring.

(M6) Noise monitoring must be undertaken in accordance with the latest edition of the Department of Environment and Heritage Protection Noise Measurement Manual or the most recent version of AS1055 Acoustics – Description and measurement of environmental noise and the Department of Environment and Heritage Protection guideline, Assessment of Low Frequency Noise and Planning for Noise Control and include:

(a) LAmax, adj, 15 mins (LA10, adj, 15 mins);
(b) relevant background sound pressure level (LA90, 15 mins);
(c) LA1, adj, 15 mins;
(d) the level and frequency of occurrence of impulsive or tonal noise;
(e) atmospheric conditions including wind speed and direction; and
(f) location, date and time of measurements.

(M7) Where the holder of this authority has, at their cost, made alternative arrangements to the satisfaction of and with the written agreement of each person that may be affected by nuisance noise emissions at a sensitive or commercial place, then the requirements specified in Schedule M - Table 1 - Noise Limits will not apply at that sensitive or commercial place for the period of the alternative arrangements.

(M8) As a minimum each written agreement of an alternative arrangement must state:

(a) the location of the sensitive or commercial place;
(b) the names of the affected persons;
(c) the nature of the alternative arrangement(s) (e.g. provision of alternative accommodation); and
(d) the period of the alternative arrangement(s).

Schedule N – Air

(N1) The release of any dust and particulate matter resulting from the petroleum activities must not cause an environmental nuisance at any sensitive or commercial place.

(N2) In relation to a complaint received in condition (N1), dust and particulate matter must not exceed the following levels at any sensitive or commercial place:

(a) dust deposition of 120 milligrams per square metre per day, averaged over one (1) month, when monitored in accordance with AS 3580.10.1 Methods for sampling and analysis of ambient air - Determination of particulates - Deposited matter - Gravimetric method of 1991; or

(b) a concentration of particulate matter with an aerodynamic diameter of less than 10 micrometre (μm) (PM10) suspended in the atmosphere of 50 micrograms per cubic metre over a 24 hour averaging time, at a nuisance sensitive or commercial place downwind of the site, when monitored in accordance with AS3580.9.6 'Ambient air – Particulate matter – Determination of suspended particulate PM10 high-volume sampler with size-selective inlet Gravimetric method'; or

(c) a concentration of particulate matter with an aerodynamic diameter of less than 2.5 micrometre (μm) (PM2.5) suspended in the atmosphere of 25 micrograms per cubic metre over a 24 hour averaging time, at a nuisance sensitive or commercial place downwind of the site, when monitored in accordance with AS/NZS3580.9.10.2006.

(N3) The release of noxious and / or offensive odour(s) or any other noxious or offensive airborne contaminant(s) resulting from the petroleum activity must not cause an environmental nuisance at any sensitive or commercial place.

(N4) Where the holder of this authority has, at their cost, made alternative arrangements to the satisfaction of and with the written agreement of each person affected by nuisance air emissions at a sensitive or commercial place, then the requirements specified in conditions (B=N1)-(N3) will not apply at that sensitive or commercial place for the period of the alternative arrangements.

(N5) As a minimum each written agreement of an alternative arrangement must state:

(a) the location of the sensitive or commercial place;
(b) the names of the affected persons;
(c) the nature of the alternative arrangement(s) (e.g. provision of alternative accommodation); and
(d) the period of the alternative arrangement(s).

Schedule O – Land

(O1) The holder of this environmental authority must:

(a) minimise disturbance to land in order to prevent land degradation; and
(b) ensure that for land that is to be significantly disturbed by petroleum activities, the top layer of the soil profile is removed; and
    i. stockpiled in a manner that will preserve its biological and chemical properties, and
    ii. used for rehabilitation purposes in accordance with condition (O15).

(O2) The holder of this authority must:

(a) minimise the risk to wildlife and stock; and
(b) construct borrow pits in a manner that will enable effective restoration consistent with the surrounding land use.

(O3) The holder of this authority must:

(a) prevent or minimise disturbance to vegetation;
(b) manage the effects of clearing to prevent the loss of biodiversity, reduction of ecological processes and land degradation.

(O4) The holder of this authority must consider whether it is feasible to avoid clearing, and where viable alternatives exist, must not clear vegetation:

(a) in a way that dissects large tracts of vegetation resulting in a reduction in the current level of ecosystem functioning, an increase in threatening processes, or a dissection of corridors of vegetation that provide connection between contiguous tracts of vegetation;
(b) in a way that damages adjacent live vegetation;
(c) on slopes greater than 6 degrees (10 percent);
(d) on dispersible soils or highly erodible soils; and
(e) in discharge areas.

(O5) Cleared vegetation must be stockpiled in a manner that facilitates respreading or salvaging and does not impede vehicle, stock or wildlife movements.

(O6) Clearing must be limited to the extent that is necessary for the conduct of petroleum activities only.

(O7) Clearing of remnant vegetation for the purpose of establishing roads or tracks, shall not exceed 10m in width.

(O8) Clearing for well leases must not be more than:

(a) 6,400m^2 in areas of remnant vegetation (e.g. areas of “Not of Concern” Regional Ecosystems); and
(b) 3600m^2 in areas of “Of Concern” and “Endangered” Regional Ecosystems.

(O9) Notwithstanding condition (O8), in circumstances where multi-pad directional drilling is employed clearing for well leases may exceed the limits in specified in condition (O8) provided that the holder of this authority can demonstrate that the area of disturbance is as low as reasonably practicable and not more than 15,000m^2.

(O10) Clearing other than for well leases must not be more than:

(a) 10m wide or 2ha in total for areas of remnant vegetation (i.e. areas of "Not of Concern" Regional Ecosystems); and
(b) 10m wide for pipelines, 6m wide for tracks, or 0.5ha in total in areas of "Of Concern" and "Endangered" Regional Ecosystems.

(O11) The holder of this authority must develop and implement a Fauna Management Plan that details how the holder will ensure that petroleum activities are undertaken to minimise the potential risk of causing harm to fauna. The Plan must be developed prior to undertaking the authorised petroleum activities.

(O12) The Plan must consider, but not be limited to:

(a) the Australian Pipeline Industry Association Code of Environmental Practice – Onshore Pipelines;
(b) practices to prevent fauna entrapment and death in pipeline trenches;
(c) practices to prevent fauna entrapment within well heads, borrow pits, and water storage facilities;
(d) fauna handling by a suitably qualified person; and
(e) fauna awareness training.

(O13) Progressive rehabilitation of disturbed areas must commence as soon as practicable following the completion of any construction or operational works associated with the petroleum activities on the relevant petroleum authority.

(O14) As soon as practicable and within three (3) months of cessation of petroleum activities, the holder of this authority must:

(a) if a notifiable activity has been carried out on the land or the land has been subject to contamination by a hazardous contaminant – investigate the contamination status of the land in accordance with the Environmental Protection Act 1994 and with the Guideline – Contaminated Land Professionals EM1200 (EHP 2014) and, before the environmental authority is surrendered, obtain any necessary suitability statement that demonstrates that the land is suitable for its intended use; or
(b) if the petroleum activities have caused any land to be significantly disturbed for other reasons –take all reasonable and practicable measures to:
    i. re-establish surface drainage lines;
    ii. reinstate the top layer of the soil profile; and
    iii. promote the re-establishment of vegetation.

(O15) All land significantly disturbed by petroleum activities must be rehabilitated to:

(a) a stable landform and with a self-sustaining vegetation cover and species that are similar to adjoining undisturbed areas;
(b) ensure that all land is reinstated to the pre-disturbed land use and suitability class;
(c) ensure that the maintenance requirements for rehabilitated land is no greater than that required for the land prior to its disturbance by petroleum activities; and
(d) ensure that the water quality of any residual void or water bodies constructed by petroleum activities meets criteria for subsequent uses and does not have potential to cause environmental harm.

(O16) Maintenance of rehabilitated areas must take place to ensure and demonstrate:

(a) stability of landforms;
(b) erosion control measures remain effective;
(c) stormwater runoff and seepage from rehabilitated areas does not negatively affect the environmental values of any waters;
(d) plants show healthy growth and recruitment is occurring; and
(e) rehabilitated areas are free of any declared pest plants.

(O17) Rehabilitation can be considered successful when the site can be managed for its designated land-use (either similar to that of surrounding undisturbed areas or as otherwise agreed in a written document with the landowner/holder and administering authority) without any greater management input than for other land in the area being used for a similar purpose and there is evidence that the rehabilitation has been successful for at least three (3) years.

Schedule P – Biological diversity

(P1) Notwithstanding any other condition of this authority, the holder of this authority must ensure that petroleum activities:

(a) are not conducted within a category A or B environmentally sensitive area; and
(b) do not cause a significant disturbance within 1km of a category A environmentally sensitive area or within 500m of a category B environmentally sensitive area; and
(c) are not conducted in a category C environmentally sensitive area unless there is a written agreement to enter the area for those activities from the relevant administering authority.

(P2) Prior to carrying out field based activities, the holder of the environmental authority should make all relevant staff, contractors or agents carrying out those activities, aware of the location of any category A, B or C environmentally sensitive areas within area of the proposed activity.

(P3) Despite condition (P1), where no reasonable alternative exists, petroleum activities may be undertaken within an endangered regional ecosystem or the 500m buffer zone of an endangered regional ecosystem, provided that those activities are located according to the following order of preference:

(a) pre-existing areas of significant disturbance within the buffer zone;
(b) undisturbed areas more than 100m from the environmentally sensitive area;
(c) undisturbed areas less than 100m from the environmentally sensitive area;
(d) pre-existing areas of significant disturbance within the environmentally sensitive area;
(e) areas within the environmentally sensitive area of lower environmental value (eg. not of concern remnant vegetation or of concern remnant vegetation in a polygon mapped as containing endangered regional ecosystem and other ecosystems); and
(f) areas where clearing of an endangered regional ecosystem is unavoidable provided the clearing does not exceed 10 percent of a polygon mapped as an endangered regional ecosystem and all reasonable effort is made to minimise the area cleared and to avoid clearing mature trees.

(P4) Condition (P3) does not authorise clearing that is:

(a) more than 10 percent of a polygon mapped as an endangered regional ecosystem;
(b) more than 3600m^2 for the operational area for any drill site within an endangered regional ecosystem;
(c) within an endangered regional ecosystem for construction of a sump larger than 30m^2;
(d) greater than 6m in width for tracks that are necessary within an endangered regional ecosystem for production and exploration purposes; and
(e) greater than 12m in width for pipeline construction purposes that is necessary within an endangered regional ecosystem.

(P5) The holder of this authority must ensure that any petroleum activities carried out within a wild river area comply with the conditions stated in the relevant wild river declaration for that area.

Schedule Q – Social

(Q1) When the administering authority advises the holder of a complaint alleging nuisance, the holder must investigate the complaint and advise the administering authority in writing of the action proposed or undertaken in relation to the complaint.

(Q2) When requested by the administering authority, the holder of this authority must undertake monitoring specified by the administering authority, within a reasonable and practicable timeframe nominated by the administering authority to investigate any complaint of environmental harm at any sensitive or commercial place.

(Q3) The results of the investigation (including an analysis and interpretation of the monitoring results) and abatement measures implemented must be provided to the administering authority within 14 days of completion of the investigation, or receipt of monitoring results, whichever is the latter.

(Q4) If monitoring in accordance with condition (Q2), indicates that emissions exceed the limits set by this authority or are causing nuisance, then the holder of this authority must:

(a) address the complaint including the use of appropriate dispute resolution if required; and/or
(b) as soon as practicable implement abatement or attenuation measures so that noise, dust, particulate or odour emissions from the authorised activities do not result in further environmental nuisance.

(Q5) The holder of this authority must maintain a record of complaints and incidents causing environmental harm, and actions taken in response to the complaint or incident.

(Q6) The holder of this authority must record the following details for all complaints received and provide this information to the administering authority on request:

(a) name, address and contact number for complainant;
(b) time and date of complaint;
(c) reasons for the complaint;
(d) investigations undertaken;
(e) conclusions formed;
(f) actions taken to resolve complaint;
(g) any abatement measures implemented; and
(h) person responsible for resolving the complaint.

(Q7) The holder of this authority must retain the record of complaints required by this condition for five (5) years.

Schedule R – Water

(R1) The holder of this authority must ensure that the petroleum activities do not result in the release of contaminants to waters unless specifically authorised under this authority.

(R2) Except as otherwise provided by the conditions of this authority, petroleum activities must be carried out by such reasonable and practicable means necessary to prevent the contact of incident rainfall and stormwater runoff with waste or other contaminants arising from petroleum activities.

(R3) All stormwater treatment devices must be maintained in proper and efficient working condition.

(R4) The maintenance and cleaning of vehicles and other equipment or plant must be carried out in purpose built facilities or areas where the resultant contaminants will not be released to any waters.

(R5) A stormwater management system must be designed, implemented and maintained so that:

(a) in areas with the potential for significant erosion, contour banks and diversion drains are constructed to minimise the potential for overland flow to enter areas disturbed by petroleum activities;
(b) erosion and sediment control structures are placed to minimise erosion of disturbed areas and prevent the contamination of any waters; and
(c) contaminated stormwater runoff, incident rainfall and leachate is collected; and treated, reused, or released in accordance with the conditions of this authority.

(R6) A seepage monitoring program must be developed by a suitably qualified person which is commensurate with the site-specific risks of contaminant seepage from containment facilities, and which requires and plans for detection of any seepage of contaminants to groundwater as a result of storing contaminants by 31 May 2015.

(R7) The seepage monitoring program required by condition (R6) must include but not necessarily be limited to:

(a) identification of the containment facilities for which seepage will be monitored;
(b) identification of trigger parameters that are associated with the potential or actual contaminants held in the containment facilities;
(c) identification of trigger concentration levels that are suitable for early detection of contaminant releases at the containment facilities;
(d) installation of background seepage monitoring bores where groundwater quality will not have been affected by the petroleum activities authorised under this environmental authority to use as reference sites for determining impacts;
(e) installation of seepage monitoring bores that:
    i. are within formations potentially affected by the containment facilities authorised under this environmental authority (i.e. within the potential area of impact);
    ii. provide for the early detection of negative impacts prior to reaching groundwater dependent ecosystems, landholder's active groundwater bores, or water supply bores;
    iii. provide for the early detection of negative impacts prior to reaching migration pathways to other formations (i.e. faults, areas of unconformities known to connect two or more formations);

(f) Monitor the trigger parameters identified in condition (R7)(b) for groundwater at background and seepage monitoring bores and at a frequency determined by a suitably qualified person, but no less than once every two years;
(g) seepage trigger action response procedures for when trigger parameters and trigger levels identified in conditions (R7)(b) and (C7)(c) trigger the early detection of seepage, or upon becoming aware of any monitoring results that indicate potential groundwater contamination;
(h) a rationale detailing the program conceptualisation including assumptions, determinations, monitoring equipment, sampling methods and data analysis; and
(i) provides for annual updates to the program for new containment facilities constructed in each annual return period.

(R8) All determinations of the quality of contaminants released to waters must be made in accordance with methods prescribed in the latest edition of the Department of Environment and Heritage Protection Water Quality Sampling Manual, and carried out on samples that are representative.

Schedule S – Associated Water Management Plan

(S1) The holder of this authority must ensure that any ponds used as a primary means of disposal of associated water are decommissioned by 1 November 2011.

(S2) Despite condition (S1) of this environmental authority, Peat GPF Pond 2 may be used as a primary means of disposal of associated water.

(S3) The holder of this authority must ensure that associated water is not released to land or waters, unless specifically authorised:

(a) under this authority; or
(b) under Section 186 of the *Petroleum and Gas (Production and Safety) Act 2004*; or
(c) under Section 86 of the *Petroleum Act 1923*; or
(d) under Section 74 of the *Water Act 2000*; or
(e) for dust suppression and in civil construction works on the relevant petroleum authority, provided that the water meets the standards set out in Schedule S – Table 1 - Construction and Road Maintenance Water Containment Release Limits.

(S4) Despite condition (S3)(a) or (S3)(b), the holder of this authority must ensure that the associated water to be used for domestic or stock purposes meets the ANZECC 2000 Water Quality Guidelines, or subsequent versions thereof, for stock and domestic purposes.

(S5) Associated water released in accordance with condition (S3) must not have any properties nor contain any contaminants in concentrations that are capable of causing environmental harm.

(S6) Associated water released in accordance with condition (S3) must be carried out in a manner that ensures:

(a) vegetation is not damaged;
(b) soil erosion and soil structure damage is avoided;
(c) the quality of groundwater is not adversely affected;
(d) there is no water runoff from the nominated discharge areas;
(e) there are no releases to any surface waters;
(f) there is no surface ponding of associated water; and
(g) there are no releases of associated water to any surface waters.

Schedule S - Table 1 - Construction and Road Maintenance Water Contaminant Release Limits.

PARAMETER	UNITS	MINIMUM	MAXIMUM
pH	ph Units	6	9
Total Dissolved Salts	mg/L	Not specified	2,000
TPH	mg/L	Not specified	10

Schedule T – Well activities

(T1) Produced water may be re-used in:

(a) drilling and well hole activities; or
(b) stimulation activities.

(T2) Drilling activities must not result in the connection of the target gas producing formation and another aquifer.

(T3) 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.

(T4) Polycyclic aromatic hydrocarbons or products that contain polycyclic aromatic hydrocarbons must not be used in stimulation fluids in concentrations above the reporting limit.

(T5) Stimulation activities must not negatively affect water quality, other than that within the stimulation impact zone of the target gas producing formation.

(T6) Stimulation activities must not cause the connection of the target gas producing formation and another aquifer.

(T7) The internal and external mechanical integrity of the well system prior to and during stimulation must be ensured such that there is:

(a) no significant leakage in the casing, tubing, or packer; and
(b) there is no significant fluid movement into another aquifer through vertical channels adjacent to the well bore hole.

(T8) Practices and procedures must be in place to detect, as soon as practicable, any fractures that cause the connection of a target gas producing formation and another aquifer.

(T9) Prior to undertaking stimulation activities, a risk assessment must be developed to ensure that stimulation activities are managed to prevent environmental harm.

(T10) The stimulation risk assessment must be carried out for every well to be stimulated prior to stimulation being carried out at that well and address issues at a relevant geospatial scale such that changes to features and attributes are adequately described and must include, but not necessarily be limited to:

(a) a process description of the stimulation activity to be applied, including equipment and a comparison to best international practice
(b) provide details of where, when and how often stimulation is to be undertaken on the tenures covered by this environmental authority
(c) a geological model of the field to be stimulated including geological names, descriptions and depths of the target gas producing formation(s)
(d) naturally occurring geological faults
(e) seismic history of the region (e.g. earth tremors, earthquakes)
(f) proximity of overlying and underlying aquifers
(g) description of the depths that aquifers with environmental values occur, both above and below the target gas producing formation

(h) identification and proximity of landholder' active groundwater bores in the area where stimulation activities are to be carried out
(i) the environmental values of groundwater in the area
(j) an assessment of the appropriate limits of reporting for all water quality indicators relevant to stimulation monitoring in order to accurately assess the risks to environmental values of groundwater
(k) description of overlying and underlying formations in respect of porosity, permeability, hydraulic conductivity, faulting and fracture propensity
(l) consideration of barriers or known direct connections between the target gas producing formation and the overlying and underlying aquifers
(m) a description of the well mechanical integrity testing program
(n) process control and assessment techniques to be applied for determining extent of stimulation activities (e.g. microseismic measurements, modelling etc.)
(o) practices and procedures to ensure that the stimulation activities are designed to be contained within the target gas producing formation
(p) groundwater transmissivity, flow rate, hydraulic conductivity and direction(s) of flow
(q) a description of the chemical compounds used in stimulation activities (including estimated total mass, estimated composition, chemical abstract service numbers and properties), their mixtures and the resultant compounds that are formed after stimulation
(r) a mass balance estimating the concentrations and absolute masses of chemical compounds that will be reacted, returned to the surface or left in the target gas producing formation subsequent to stimulation
(s) an environmental hazard assessment of the chemicals used including their mixtures and the resultant chemicals that are formed after stimulation including:
    i. toxicological and ecotoxicological information of chemical compounds used
    ii. information on the persistence and bioaccumulation potential of the chemical compounds used; and
    iii. identification of the chemicals of potential concern in stimulation fluids derived from the risk assessment
(t) an environmental hazard assessment of use, formation of, and detection of polycyclic aromatic hydrocarbons in stimulation activities
(u) identification and an environmental hazard assessment of using radioactive tracer beads in stimulation activities
(v) an environmental hazard assessment of leaving chemical compounds in stimulation fluids in the target gas producing formation for extended periods subsequent to stimulation
(w) human health exposure pathways to operators and the regional population
(x) risk characterisation of environmental impacts based on the environmental hazard assessment
(y) potential impacts to landholder bores as a result of stimulation activities
(z) an assessment of cumulative underground impacts, spatially and temporally of the stimulation activities to be carried out on the tenures covered by this environmental authority; and
(aa) potential environmental or health impacts which may result from stimulation activities including but not limited to water quality, air quality (including suppression of dust and other airborne contaminants), noise and vibration.

(T11) Prior to undertaking any stimulation activity, a baseline bore assessment must be undertaken of the water quality of:

(a) all landholder's active groundwater bores (subject to access being permitted by the landholder) that are spatially located within a two (2) kilometre horizontal radius from the location of the stimulation initiation point within the target gas producing formation; and
(b) all landholders' active groundwater bores (subject to access being permitted by the landholder) in any aquifer that is within 200m above or below the target gas producing formation and is spatially located with a two (2) kilometre radius from the location of the stimulation initiation point; and
(c) any other bore that could potentially be adversely impacted by the stimulation activities in accordance with the findings of the risk assessment required by conditions (T9) and (T10).

(T12) 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 (T13).

(T13) Baseline bore and well assessments must include relevant analytes and physico-chemical parameters to be monitored in order to establish baseline water quality and must include, but not necessarily be limited to:

(a) pH
(b) electrical conductivity [µS/m]
(c) turbidity [NTU]
(d) total dissolved solids [mg/L]
(e) temperature [ºC]
(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) [µg/L]
(m) total petroleum hydrocarbons [µg/L]
(n) BTEX (as benzene, toluene, ethylbenzene, ortho-xylene, para- and meta-xylene, and total xylene) [µg/L]
(o) polycyclic aromatic hydrocarbons (including but not necessarily being limited to: naphthalene, phenanthrene, benzo[a]pyrene) [µg/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].

(T14) A stimulation impact monitoring program must be developed prior to the carrying out of stimulation activities which must be able to detect adverse impacts to water quality from stimulation activities and must consider the findings of the risk assessment required by conditions (T9) and (T10) that relate to stimulation activities and must include, as a minimum, monitoring of:

(a) the stimulation fluids to be used in stimulation activities at sufficient frequency and which sufficiently represents the quantity and quality of the fluids used
(b) flow back waters from stimulation activities at sufficient frequency and which sufficiently represents the quality of that flow back water
(c) flow back waters from stimulation activities at sufficient frequency and accuracy to demonstrate that 150% of the volume used in stimulation activities has been extracted from the stimulated well; and
(d) all bores in accordance with condition (T11).

(T15) The stimulation impact monitoring program must provide for monitoring of:

(a) analytes and physico-chemical parameters relevant to baseline bore and well assessments to enable data referencing and comparison including, but not necessarily being limited to the analytes and physico-chemical parameters in condition (T13); and
(b) any other analyte or physico-chemical parameters that will enable detection of adverse water quality impacts and the inter-connection with a non-target aquifer as a result of stimulation activities including chemical compounds that are actually or potentially formed by chemical reactions with each other or coal seam materials during stimulation activities.

(T16) The stimulation impact monitoring program must provide for monitoring of the bores in condition (T14)(d) at the following minimum frequency:

(a) monthly for the first six (6) months subsequent to stimulation activities being undertaken; then
(b) annually for the first five (5) years subsequent to stimulation being undertaken or until analytes and physico-chemical parameters listed in conditions (T13)(a) to(T13)(t) inclusive, are not detected in concentrations above baseline bore monitoring data on two (2) consecutive monitoring occasions.

(T17) The results of the stimulation impact monitoring program must be made available to any potentially affected landholder upon request by that landholder.

Definitions

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

TERM	MEANING
acceptance criteria	means the measures by which actions implemented are deemed to be complete. The acceptance criteria indicate the success of the decommissioning and rehabilitation outcomes or remediation of areas which have been significantly disturbed by the environmentally relevant activities. Acceptance criteria may include information regarding: • stability of final land forms in terms of settlement, erosion, weathering, pondage and drainage; • control of geochemical and contaminant transport processes; • quality of runoff waters and potential impact on receiving environment; • vegetation establishment, survival and succession; • vegetation productivity, sustained growth and structure development; • fauna colonisation and habitat development; • ecosystem processes such as soil development and nutrient cycling, and the recolonisation of specific fauna groups such as collembola, mites and termites which are involved in these processes; • microbiological studies including recolonisation by mycorrhizal fungi, microbial biomass and respiration; • effects of various establishment treatments such as deep ripping, topsoil handling, seeding and fertiliser application on vegetation growth and development; • resilience of vegetation to disease, insect attack, drought and fire; • vegetation water use and effects on ground water levels and catchment yields.
administering authority	administering authority means - a) for a matter, the administration and enforcement of which has been devolved to a local government under section 514 of the Environmental Protection Act 1994 – the local government; or b) for all other matters – the Chief Executive of the Department of Environment and Heritage Protection; or c) another State Government Department, Authority, Storage Operator, Board or Trust, whose role is to administer provisions under other enacted legislation.
AEP	means the Annual Exceedance Probability, which is the probability that at least one event in excess of a particular magnitude will occur in any given year.
annulus	the space between the production casing and the inner injection tubing. It is filled with an inert fluid such that loss of the fluid to a water resource aquifer will not result in environmental harm or damage to the aquifer.

assessment, assessed or assess	by a suitably qualified and experienced person in relation to a consequence 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: a) exactly what has been assessed and the precise nature of that assessment; b) the relevant legislative, regulatory and technical criteria on which the assessment has been based; c) 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 d) the reasoning on which the assessment has been based using the relevant data and facts, and the relevant criteria.
associated water	underground water taken from or interfered with from a petroleum well during the course of or resulting from carrying out petroleum activities. Associated water may be potable or suitable for stock purposes, or saline, high in fluoride, contain hydrocarbons, and/or is otherwise contaminated by a hazardous contaminant. It may be classified as a hazardous waste.
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.
AS 2885	Australian Standard Pipelines – Gas and Liquid Petroleum (2007 or subsequent versions thereof)
authority	means an environmental authority granted in relation to an environmentally relevant activity under the *Environmental Protection Act 1994*.
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 LA 90, 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).
beneficial use	in respect of dams means that the current or proposed owner of the land on which a dam stands, has found a use for that dam that is: a) of benefit to that owner in that it adds real value to their business or to the general community, b) in accordance with relevant provisions of the Environmental Protection Act 1994, c) sustainable by virtue of written undertakings given by that owner to maintain that dam, and d) the transfer and use have been approved or authorised under any relevant legislation.
category A environmentally sensitive area	means any area listed in Schedule 19, Part 1 of the Environmental Protection Regulation 2019.

category B environmentally sensitive area	means any area listed in Schedule 19, Part 2 of the Environmental Protection Regulation 2019.
category C environmentally sensitive area	means any of the following areas: • nature refuges as defined in the conservation agreement for that refuge under the *Nature Conservation Act 1992* • koala habitat areas as defined under the Nature Conservation (Koala) Conservation Plan 2006 • state forests or timber reserves as defined under the *Forestry Act 1959* • regional parks (previously known as resource reserves) under the *Nature Conservation Act 1992* • an area validated as 'essential habitat' or 'essential regrowth habitat' from ground-truthing surveys in accordance with the *Vegetation Management Act 1999* for a species of wildlife listed as endangered or vulnerable under the *Nature Conservation Act 1992* • 'of concern regional ecosystems' that are remnant vegetation and identified in the database called 'RE description database' containing regional ecosystem numbers and descriptions.
certification or certified	by a suitably qualified and experienced person in relation to a design plan 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: a) exactly what is being certified and the precise nature of that certification. b) the relevant legislative, regulatory and technical criteria on which the certification has been based; c) 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 d) the reasoning on which the certification has been based using the relevant data and facts, and the relevant criteria.
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.
competent person	A person with the demonstrated skill and knowledge required to carry out the task to a standard necessary for the reliance upon collected data or protection of the environment.
commercial place	a work place used as an office or for business or commercial purposes, which is not part of the petroleum activity and does not include employees' accommodation or public roads.
consequence	in relation to a structure as defined, means the potential for environmental harm resulting from the collapse or failure of the structure to perform its primary purpose of containing, diverting or controlling flowable substances.
consequence category	means a category, either low, significant or high, into which a dam is assessed as a result of the application of tables and other criteria in the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures* (EM635).

construction	means a dam includes building a new dam and modifying or lifting an existing dam, but does not include investigations and testing necessary for purposes of preparing a design plan.
contaminant	the *Environmental Protection Act 1994* defines, under Section 11, a contaminant as: a) a gas, liquid or solid; or b) an odour; or c) an organism (whether alive or dead), including a virus; or d) energy, including noise, heat, radioactivity and electromagnetic radiation; or a combination of contaminants.
dam	means a land-based structure or a void that is designed to contain, divert or control flowable substances, and includes any substances that are thereby contained, diverted or controlled by that land-based 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 dam. The documents must include all investigation and design reports, plans and specifications sufficient to hand to a contractor, and planned decommissioning and rehabilitation outcomes; so as to address all consequence scenarios that would be identified by a properly conducted consequence assessment for the structure. Documentation must be such that a 'suitable qualified and experience person' could conduct an independent review without seeking further information from the designer.
design storage allowance or DSA	means the minimum storage required in a dam at 1 November each year in order to meet the hydraulic performance requirements.
discharge area	is: a) that part of the land surface where groundwater discharge produces a net movement of water out of the groundwater; and b) identified by an assessment process consistent with the document: Salinity Management Handbook, Queensland Department of Natural Resources, 1997; or c) identified by an approved salinity hazard map held by the Department of Natural Resources, Mines and Water.
dispersible soils	soils in which clay material disintegrates into particles less than two (2) microns across. This can be observed within 24 hours when soil crumbs are submerged in distilled water.
dispersible soils	Soils in which clay material disintegrates into particles less than two (2) microns across. This can be observed within 24 hours when soil crumbs are submerged in distilled water.
dissects corridors	Dissects corridors of vegetation means clearing vegetation that results in a break more than 50m wide across a corridor.

environmental harm	has the meaning in section 14 of the *Environmental Protection Act 1994* and means any adverse effect, or potential adverse effect (whether temporary or permanent and of whatever magnitude, duration or frequency) on an environmental value, and includes environmental nuisance. 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	is unreasonable interference or likely interference with an environmental value caused by: a) noise, dust, odour, light; or b) an unhealthy, offensive or unsightly condition because of contamination; or c) another way prescribed by regulation.
environmentally sensitive area	(as determined from the Department of Environment and Heritage Protection geographical information systems data base) means a location, however large or small, that has environmental values that contribute to maintaining biological diversity and integrity, have intrinsic or attributed scientific, historical or cultural heritage value, or are important in providing amenity, harmony or sense of community.
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 of the Environmental Protection Regulation 2019 where: • EP = V/200 where V is the volume, in litres, of the average dry weather flow of sewage that can be treated at the works in a day; or • EP = M/2.5 where M is the mass, in grams, of phosphorus in the influent that the works are designed to treat as the inlet load in a day.
evaporation pond	means a dam or interceptor pond constructed outside a watercourse, wetland or waterway by excavating a pit and constructing a wall around the pit with the excavated material. Natural surface flow is excluded from the pond.
financial assurance	a security deposit, either cash or a bank guarantee, held by the administering authority to cover the potential costs of rehabilitating areas significantly disturbed by the petroleum activities.
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.
foreseeable future	is the period used for assessing the total probability of an event occurring. Permanent structures and ecological sustainability should be expected to still exist at the end of a 150 year foreseeable future with an acceptable probability of failure before that time.
formation	a named body of rock or minerals resources identified as distinct from other rocks on a geological map. It generally consists of a dominant rock type or combination of rock types.

Great Artesian Basin (GAB) spring	means an area protected under the *Environment Protection and Biodiversity Conservation Act 1999* 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. 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. Note: The GAB springs dataset can be requested from the Queensland Government Herbarium
groundwater	means subsurface water, generally saturating the soil or rock in which it occurs.
hazardous contaminant	a contaminant that, if improperly treated, stored, disposed of or otherwise managed, is likely to cause serious or material environmental harm because of: a) its quantity, concentration, acute or chronic toxic effects, carcinogenicity, teratogenicity, mutagenicity, corrosiveness, explosiveness, radioactivity or flammability; or b) its physical, chemical or infectious characteristics.
hydraulic integrity	refers to the capacity of a dam to contain or safely pass flowable substances based on its design.
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 consequence category in the current version of the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures* published by the Department of Environment and Heritage Protection.
inert fluid	the fluid contained in the annulus that is monitored to ascertain integrity of the injection string. If a loss of this fluid is detected indicating a loss of mechanical integrity, adjacent water resource aquifers are protected from harm due to the inert nature of this fluid.
infrastructure	means water storage dams, roads and tracks, buildings and other structures built for the purpose and duration of the conduct the petroleum activities, but does not include other facilities required for the long term management of the impact of those activities or the protection of potential resources. Such other facilities include dams other than water storage dams, waste dumps, voids, or stockpiles and assets, that have been decommissioned, rehabilitated, and lawfully recognised as being subject to subsequent transfer with ownership of the land.
injection tubing	the inner casing that conveys the injection fluid and terminates at the injection zone. This tubing provides the primary containment of the injection fluid.
injection zone	the zone of the injection formation where the injection tubing terminates.
landholder's active groundwater bore	means bores that are able to continue to provide a reasonable yield of water in terms of quantity for the bores authorised purpose or use. This term does not include monitoring bores owned by the administering authority of the *Water Act 2000*.

levee (dyke or bund)	means a long embankment that is designed only to provide for the containment and diversion of stormwater or flood flows from a contributing catchment, or containment and diversion of flowable materials resulting from releases from other works, during the progress of those stormwater or flood flows or those releases; and does not store any significant volume of water or flowable substances at any other times.
$L_{A10, ADJ, 10 mins}$	means the A-weighted sound pressure level, (adjusted for tonal character and impulsiveness of the sound) exceeded for 10 percent of any 10 minute measurement period using Fast response.
$L_{A max, adj, T}$	$L_{A max, adj, T}$ is the adjusted average maximum A-weighted sound pressure level measured over a time period T. The maxima must be measured on a sound level metre with a frequency-weighting that corresponds to perceived loudness ("A" weighting) and the metre must be set to the "fast" response time-weighting. The measured values are to be adjusted upwards by 2 dB(A) to 5 dB(A) if the noise source has tonal characteristics. The measuring period must be in excess of five (5) minutes. The arithmetic average of the adjusted maxima, after eliminating any extraneous noise peaks, is the measure used to characterise the noise environment. (This measure will generally be similar to a percent exceedance of 10 percent or less. Refer to Australian Standard AS1055.)
lake	means a natural or artificial body of water, either permanent or intermittent.
land degradation	land degradation includes the following: a) soil erosion; b) rising water tables; c) the expression of salinity; d) mass movement by gravity of soil or rock; e) stream bank instability; and f) a process that results in declining water quality.
land use	term to describe the selected final use of the land, which is planned to occur after the cessation of petroleum operations.
linear infrastructure	means powerlines, pipelines, flowlines, roads and access tracks.
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.
mg/L	means milligrams per litre
mandatory reporting level or MRL	means a warning and reporting level determined in accordance with the current version of the Manual for Assessing Consequence Categories and Hydraulic Performance of Structures published by the Department of Environment and Heritage Protection.
NATA	National Association of Testing Authorities.
noise	noise means a sound or vibration of any frequency, whether transmitted through air or any other physical medium.
odour	means organoleptic attributes perceptible by the olfactory organ on sniffing certain volatile substances.

offensive	means causing offence or displeasure; is disagreeable to the sense; disgusting, nauseous or repulsive.
petroleum activities	petroleum activities means activities authorised to take place on land subject to a petroleum authority, including rehabilitation and decommissioning activities.
petroleum authority	a petroleum authority is— a) a 1923 Act petroleum tenure granted under the *Petroleum Act 1923*; or b) a petroleum authority granted under the *Petroleum and Gas (Production and Safety) Act 2004*; or c) a licence, permit, pipeline licence, primary licence, secondary licence or special prospecting authority granted under the *Petroleum (Submerged Lands) Act 1982.*
prescribed contaminants	has the meaning in section 440ZD of the *Environmental Protection Act 1994* and means: a) earth; or b) a contaminant prescribed under section 440ZF.
produced water	has the meaning in Section 15A of the *Petroleum and Gas (Production and Safety) Act 2004* and means CSG water or associated water for a petroleum tenure.
production casing	the outer casing which extends into the injection zone. Within it is an inert fluid between the production casing and the inner tubing conveying the injection fluid. It provides the secondary containment protection of the injection fluid.
protected area	means: • a protected area under the *Nature Conservation Act 1992*; or • marine park under the *Marine Parks Act 1992*; or • a World Heritage Area.
progressive rehabilitation	rehabilitation (defined below) undertaken progressively or as a staged approach to rehabilitation as petroleum operations are ongoing.
reference site	may reflect the original location, adjacent area or another area where rehabilitation success has been completed for a similar biodiversity. Details of the reference site may be as photographs, computer generated images and vegetation models etc.
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	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.
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.

representative	a sample set which covers the variance in monitoring or other data either due to natural changes or operational phases of the petroleum activities.
restricted stimulation fluids	has the meaning in section 206 of the *Environmental Protection Act 1994* and means fluids used for the purpose of stimulation, including fracturing, that contain the following chemicals in more than the maximum amount prescribed under a regulation— (a) petroleum hydrocarbons containing benzene, ethylbenzene, toluene or xylene (b) chemicals that produce, or are likely to produce, benzene, ethylbenzene, toluene or xylene as the chemical breaks down in the environment.
riverine area	refers to the land confined to the flood flow channel of a watercourse.
secondary treated class C standards	means treated sewage effluent or greywater which meets the following standards: • total phosphorous as P, maximum 20mg/L • total nitrogen as N, maximum 30mg/L • 5-day biochemical oxygen demand (inhibited) (e.g. Release pipe from sewage treatment plant), maximum 20mg/L • suspended solids, maximum 30mg/L • pH, range 6.0 to 8.5 • e-Coli, 80th percentile based on at least 5 samples with not less than 30 minutes between samples, 10 000cfu per 100mL, maximum 100 000cfu per 100mL.
Self-sustaining	An area of land that has been rehabilitated and has maintained the required acceptance criteria without human intervention for a period nominated by the administering authority.
sensitive place	means any of the following places – a) a dwelling; b) a library, childcare centre, kindergarten, school, college, university or other educational institution; c) a hospital, surgery or other medical institution; d) a protected area or an area identified under a conservation plan as a critical habitat or an area of major interest, under the *Nature Conservation Act 1992*; e) a marine park under the *Marine Parks Act 1982*; and f) a 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).
sewage	is the effluent discharged from a sanitary appliance (i.e. sewage treatment works).

significantly disturbed land and significant disturbance to land	means land if: a) it is contaminated land; or b) it has been disturbed and human intervention is needed to rehabilitate it: i. to a state required under the relevant environmental authority; or ii. if the environmental authority does not require the land to be rehabilitated to a particular state – to its state immediately before the disturbance. Examples of a disturbance to land: a) areas where soil has been compacted, removed, covered, exposed or stockpiled; b) areas where vegetation has been removed or destroyed to an extent where the land has been made susceptible to erosion; c) areas where land use suitability or capability has been diminished; d) areas within a watercourse, waterway, wetland or lake where petroleum activities occur and human intervention is necessary to restore or stabilise the disturbed area; e) areas submerged by hazardous waste storage and dam walls in all cases; f) areas under temporary infrastructure. Temporary infrastructure includes any infrastructure (roads, tracks, bridges, culverts, dams, bores, buildings, fixed machinery, hardstand areas, airstrips, helipads etc) which is to be removed after petroleum activities have ceased; or g) areas where land has become contaminated land and a suitability statement has not been issued. However, the following areas are not significantly disturbed: a) areas off the petroleum authority (e.g. roads or tracks which provide access to the petroleum authority); b) areas previously significantly disturbed which have been rehabilitated to the administering authority's satisfaction; c) areas under permanent infrastructure; d) areas that were significantly disturbed prior to the grant of the environmental authority, unless those areas are re-disturbed by the holder of the environmental authority during the term of the authority; e) minor disturbances such as drill sumps and minor respreading of soil on GPS located seismic lines.
significant wetland	means the area of land that supports plants or is associated with plants that are adapted to and dependent on living in wet conditions for at least part of their life cycle and that is— a) a regional ecosystem listed in Table 14 and the area on the ground represented as a swamp, lake, marsh, waterhole, wetland, billabong, pool, spring or like, on the most recent 1:250 000 Geoscience Australia topographic map of the area; or b) a Ramsar wetland.
spillway	means a weir, channel, conduit, tunnel, gate or other structure designed to permit discharges form the dam, normally under flood conditions or in anticipation of flood conditions.
stable	means land form dimensions are or will be stable within tolerable limits now and in the foreseeable future. Stability includes consideration of geotechnical stability, settlement and consolidation allowances, bearing capacity (trafficability), erosion resistance and geochemical stability with respect to seepage, leachate and related contaminant generation.

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 / hydrofraccing, fracture acidizing and the use of proppant treatments. **Explanatory note:** This definition is restricted from that in the *Petroleum and Gas (Production and Safety) Act 2004* in order to only capture the types of stimulation activities that pose a risk to environmental values of water quality in aquifers.
stimulation fluid	means the fluid injected underground to increase permeability. For clarity, the term stimulation fluid only applies to fluid injected down well post-perforation.
stimulation impact zone	means a 100m maximum radial distance from the stimulation target location within a gas producing formation.
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. Note: the Subterranean GDE (caves) dataset can be displayed through the Queensland Government WetlandInfo mapping program. Note: the Subterranean GDE (caves) dataset can be obtained from the Queensland Government Information System.

suitably qualified and experienced person (for 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 (NPER) with the Institution of Engineers Australia, OR holds equivalent professional qualifications to the satisfaction of the administering authority for the Act; AND the administering authority for the Act is satisfied that person has knowledge, suitable experience and demonstrated expertise in relevant fields, as set out below: a) knowledge of engineering principles related to the structures, geomechanics, hydrology, hydraulics, chemistry and environmental impact of dams; and b) 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 c) 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.
suitably qualified and experienced person	means a person: a) holding a National Association of Testing Authorities (NATA) signatory; or b) either; i. who is holder of a degree in Science or Applied Science conferred after due examination by a University or College of Advanced Education in Queensland; or ii. who is the holder of a degree in Science or Applied Science conferred after due examination by a University, College of Advanced Education or other Tertiary Education Institution outside Queensland and that is to be the like effect as a degree conferred by a University or College of Advanced Education in Queensland; or iii. who has corporate membership of the Royal Australian Chemical Institute; and iv. has gained at least three (3) years practical experience in chemical bacteriological or other specialist analysis to demonstrate the persons capacity to maintain a high level of performance in all aspects of the performance of the particular analysis; or c) working under the direct supervision of person(s) mentioned in a) and b).
this authority	means this environmental authority.
this approval	means this environmental authority.

tolerable limits	means a range of parameters regarded as being sufficient to meet the objective of protecting relevant environmental values. For example, a range of settlement for a tailings capping, rather than a single value, could still meet the objective of draining the cap quickly, preventing pondage and limiting infiltration and percolation.
top layer	the surface layer of a soil profile, which is usually 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 natural surface.
TPH	total petroleum hydrocarbons
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.
void	means any man-made, open excavation in the ground.
watercourse	has the meaning in Schedule 4 of the *Environmental Protection Act 1994* and means: 1) a river, creek or stream in which water flows permanently or intermittently— a) in a natural channel, whether artificially improved or not; or b) in an artificial channel that has changed the course of the watercourse. 2) watercourse includes the bed and banks and any other element of a river, creek or stream confining or containing water.
waters	includes all or any part of a river, stream, lake, lagoon, pond, swamp, wetland, unconfined surface water, unconfined water in natural or artificial watercourses, bed and banks of a watercourse, dams, non-tidal or tidal waters (including the sea), stormwater channel, stormwater drain, roadside gutter, stormwater run-off, and groundwater or any part there-of.
waterway	a naturally occurring feature where surface water runoff normally collects, such as a clearly defined swale or gully, but only flows in response to a local rainfall event.
well integrity	the ability of a well to contain the substances flowing through it.
wetland	for the purpose of this environmental authority, wetland means an area shown as a wetland on the map of Queensland Wetland Environmental Values. Note: The Environmental Protection (Water and Wetland Biodiversity) Policy 2019 Schedule 2, Map of Queensland Wetland Environmental Values means the document 'Map of Queensland Wetland Environmental Values' made by the Chief Executive and published on the website. Environmental values in section 8 of the Environmental Protection (Water and Wetland Biodiversity) Policy 2019 apply to wetland areas on the map, which are categorised as wetlands of high or general ecological significance.
wetland of high ecological significance	means a wetland that meets the definition of a wetland and that is shown as a wetland of 'high ecological significance' or wetland of 'high ecological value' on the Map of Queensland Wetland Environmental Values.
wetland of 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 Queensland Wetland Environmental Values.

wild river areas	wild river areas are defined in the *Wild Rivers Act 2005* and may include the following– a) high preservation areas; b) preservation areas; c) floodplain management areas; and d) subartesian management areas.

END OF ENVIRONMENTAL AUTHORITY