Permit

Environmental Protection Act 1994

Environmental authority EPPG00747513

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

Environmental authority number: EPPG00747513

Environmental authority takes effect on 16 November 2018

Environmental authority holder(s)

Name(s)	Registered address
BENGAL ENERGY (AUSTRALIA) PTY LTD	Level 10 300 Ann Street BRISBANE CITY QLD 4000
Bridgeport (Cooper Basin) Pty Limited	Level 7 111 Pacific Highway NORTH SYDNEY NSW 2060
SANTOS QNT PTY. LTD.	Ground Floor, Santos Centre 60 Flinders Street ADELAIDE SA 5000 Australia

Environmentally relevant activity and location details

Environmentally relevant activity/activities	Location(s)
Resource Activity, Non-Scheduled, Petroleum Activity, Authority to Prospect - ATP	ATP752

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).

ABN 46 640 294 485

Contaminated land

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

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

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

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

Take effect

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

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

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

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

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

Tristan Roberts
Department of Environment and Science
Delegate of the administering authority
Environmental Protection Act 1994

Date issued: 16 November 2018

Enquiries:
Petroleum and Gas Unit
Department of Environment and Science
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Obligations under the Environmental Protection Act 1994

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

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

SCHEDULE A - GENERAL

Significant disturbance

(A1) The petroleum activities when combined do not cause a total **significant disturbance** to more than 498 hectares of land on the relevant tenure(s) at any point in time.

Financial assurance

(A2) Petroleum activities that cause significant disturbance to land must not be carried out until **financial assurance** has been given to the administering authority as security for compliance with the environmental authority and any costs or expenses, or likely costs or expenses, mentioned in section 298 of the *Environmental Protection Act 1994*.

(A3) Prior to any changes in petroleum activities which would result in an increase to the maximum significant disturbance since financial assurance was last given to the administering authority, the holder of the environmental authority must amend the financial assurance and give the administering authority the increased amount of financial assurance.

(A4) If the amount of financial assurance held by the **administering authority** has been discounted and either the nominated period of financial assurance has ended, or an event or change in circumstance has resulted in the holder of the environmental authority no longer being able to meet one or more of the mandatory pre-requisites or applicable discount criteria, the holder of the environmental authority must amend the financial assurance and give the administering authority the increased amount of financial assurance as soon as practicable.

Environmentally sensitive areas

(A5) The holder of the environmental authority must not:
(a) conduct petroleum activities within a **category A or B environmentally sensitive area**;
(b) cause any significant disturbance to land within 1km of a category A environmentally sensitive area or within 500m of a category B environmentally sensitive area; or
(c) conduct petroleum activities 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.

(A6) If the administering authority imposes any conditions on undertaking petroleum activities within a Category C environmentally sensitive area, the holder must comply with those conditions.

(A7) **Significant residual impacts** to **prescribed environmental matters**, other than if the impacts were authorised by an existing authority issued before 14 November 2018, are not authorised under this environmental authority or the *Environmental Offsets Act 2014*.

Clearing Vegetation

(A8) **Clearing** vegetation must be minimised and only be undertaken where necessary to carry out the authorised petroleum activities. Where viable alternatives exist, clearing vegetation must not be undertaken:

(a) in, or within 50 metres of, the **high bank** of a **watercourse;**
(b) in, or within 100 metres of a **wetland** or **spring;**
(c) 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 dissection of corridors of vegetation that provide connection between contiguous tracts of vegetation;
(d) in a way that damages adjacent live vegetation;
(e) in an **'of concern' regional ecosystem;**
(f) on slopes greater than 6° (-10%);
(g) on **dispersible soils** or **highly erodible soils;** or
(h) in **discharge areas.**

(A9) Cleared vegetation must be stockpiled in a manner that facilitates respreading or salvaging and does not impede vehicle, stock or wildlife movements.

Topsoil management

(A10) Except in areas of **highly erodible soils**, **topsoil** must be:
(a) removed from an area prior to other significant disturbance commencing in the area;
(b) stockpiled in a manner that will minimise erosion and preserve its biological and chemical integrity; and
(c) used only for on-site rehabilitation purposes.

Drilling operations

(A11) All waste fluids and muds resulting from drilling and exploration activities must be contained in an appropriately constructed dam or containment structure for disposal, remediation or reuse where applicable.

(A12) Oil based or **synthetic based drilling muds** must not be used in the carrying out of the petroleum activity(ies).

Pipeline construction

(A13) The pipeline construction corridor must not exceed 30 metres in width. Turn arounds and work areas must not exceed 50 metres in width.

(A14) From 14 November 2018 measures to prevent fauna being harmed from entrapment must be implemented during the **construction** and operation of well **infrastructure**, **dams** and pipeline trenches.

(A15) The pipeline construction corridor must be rehabilitated on completion of laying the pipe, with the exception of the width of an access track, If necessary, to enable vehicular movement along the corridor for pipeline inspection and maintenance.

Pipeline wastewater

(A16) Hydrostatic test water must be contained in dams on site, tested and either:
(a) directly reused where appropriate for petroleum activities
(b) treated so that it meets water quality criteria for the intended reuse
(c) or disposed of via evaporation.

Spill response

(A17) A spill response plan must be developed for all pipelines and other plant or equipment under this authority carrying liquids that have the potential to cause environmental harm. The plan must address the following:
(a) monitoring and detection systems;
(b) notification and reporting procedures (Internal and external);
(c) calls-out procedures and contact lists;
(d) measures required to halt the spill (i.e., control of pumps, valves etc.);
(e) spill containment procedures;
(f) procedures to safely recover the spilt material;
(g) clean up and rehabilitation procedures;
(h) requirements for the remediation or disposal of contaminated soil;
(i) personnel responsibilities;
(j) equipment requirements, location, storage, maintenance and transport;
(k) communications and logistics; and
(l) incident investigation procedures,

(A18) Workforce training must be conducted in spill response and recovery procedures.

Contaminant release

(A19) Contaminants that are likely to cause **environmental nuisance**, or serious or material **environmental harm**, must not be **released** directly or indirectly to land or **waters** unless explicitly authorised in the environmental authority.

(A20) As soon as the environmental authority holder is aware of any release to the environment specified in the preceding condition that is causing or threatening to cause environmental nuisance, or serious or material environmental harm, the release must he stopped, promptly rectified using appropriate equipment and remediation methods and all reasonable actions taken to prevent a recurrence of the release. Report in writing to the administering authority any findings and actions taken within 20 business days of that event.

Chemical storage

(A21) Chemicals and fuels stored, must be effectively contained and where relevant, meet Australian Standards, where such a standard is applicable.

(A22) The holder of this authority must**:**
(a) telephone the administering authority's 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 threatened; and
(b) notify the administering authority in writing within 14 days of the initial notification.

Erosion and sediment control

(A23) Erosion protection and sediment **control measures** must be designed, implemented and maintained to minimise erosion and the release of sediment resulting from carrying out the petroleum activities.

Environmental nuisance

(A24) Petroleum activities must not cause **environmental nuisance** from dust, odour, light, smoke or noise at a **sensitive place**, other than where an **alternative arrangement** is in place.

Monitoring standards

(A25) Monitoring and sampling must be carried out in accordance with the requirements of the following documents (as relevant to the sampling being undertaken), as amended from time to time:
- (a) for **waters** and aquatic environments, the Queensland Government's Monitoring and Sampling Manual 2009 – *Environmental Protection (Water) Policy 2009*
- (b) for groundwater, *Groundwater Sampling and Analysis – A Field Guide* (2009:27 GeoCat #6890.1)
- (c) for noise, the Environmental Protection Regulation 2008
- (d) for air, the *Queensland Air Quality Sampling Manual and/or Australian Standard 4323.1:1995 Stationary source emissions method 1: Selection of sampling positions*, as appropriate for the relevant measurement
- (e) for soil, the *Guidelines for Surveying Soil and Land Resources, 2nd edition (McKenzie et al. 2008), and/or the Australian Soil and Land Survey Handbook, 3rd edition* (National Committee on Soil and Terrain, 2009)
- (f) for dust, Australian Standard AS3580.

(A26) The holder of the environmental authority must:
- (a) develop a monitoring program that will demonstrate compliance with the conditions of the environmental authority;
- (b) document monitoring and inspections died out under the monitoring program and any actions taken; and
- (c) record, compile and keep for a minimum of seven (7) years all monitoring results and data.

Complaints

(A27) The holder of the environmental authority must:
- (a) when the administering authority advises the holder of a complaint that the administering authority does not consider to be frivolous, vexatious or based on a mistaken belief alleging nuisance (e.g. caused by dust or noise), investigate the complaint and advise the administering authority of the action proposed or undertaken in relation to the complaint;
- (b) if the administering authority is not satisfied with the proposed or completed action, undertake monitoring or other action requested by the administering authority; and
- (c) maintain a record of complaints and incidents causing environmental harm and actions taken in response to the complaints or incidents for a minimum of seven (7) years,

SCHEDULE B — WATER

(B1) Unless otherwise approved under relevant legislation, the holder of the environmental authority must not:
(a) excavate or place **fill** in a way that interferes with the flow of water in a **watercourse**, **wetland**, or **spring**, including; works that divert the course of flow of the water, or works that impound the water;
(b) undertake activities that take water from a watercourse, wetland or spring; or
(c) undertake activities that take overland flow water using works that are mentioned as assessable development in a water resource plan under the *Water* Act *2000.*

(B2) Significant disturbance to the bed or banks of a watercourse or wetland, or to a spring must:
(a) only be caused where necessary for the construction, operation and / or maintenance of roads, tracks and pipelines that are essential for carrying out other authorised petroleum activities and no reasonable alternative location is feasible; and
(b) he no larger than the minimum area necessary for the purpose; and
(c) be designed by an **appropriately qualified person**; and
(d) be undertaken and maintained by a person with appropriate skills who has been informed of the design and is appropriately supervised; and
(e) have rehabilitation commence as soon as reasonably practicable upon cessation of the relevant authorised petroleum activities.

(B3) Sediment control measures must be implemented to minimise any increase in water turbidity due to carrying out petroleum activities in the **bed** or **banks** of a watercourse or wetland, or in a spring.

(B4) Routine visual monitoring must be undertaken while carrying out petroleum activities in a watercourse, wetland or spring. If, due to the petroleum activities, water turbidity increases in the watercourse, wetland or spring outside contained areas, works must cease and the sediment control measures must be rectified before activities recommence.

SCHEDULE C — DAMS

Assessment of consequence category

(C1) **Regulated structures** are not authorised under this environmental authority.

(C2) The **consequence category** of any **structure** other than **flare pits** and **sumps** must be **assessed** by a **suitably qualified and experienced person** in accordance with the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures* (ESR/2016/1933) at the following times:
(a) following the design and prior to **construction** of the structure**,** if it is not an **existing structure**; or
(b) or if it is an existing structure, 14 November 2019; or
(c) prior to any change in its purpose or the nature of its stored contents.

(C3) A **consequence assessment** report and **certification** must be prepared for each **structure assessed** and the report may include a **consequence assessment** for more than one **structure**.

(C4) **Certification** must be provided by the suitably qualified and experienced person who undertook the **assessment**, in the form set out in the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933).*

Transfer arrangements

(C5) The holder must provide a copy of any reports, documentation and **certifications** prepared under this authority, including but not limited to any **consequence assessment**, **design plan** and other supporting documentation, to a new holder on transfer of this authority.

Decommissioning Dams

(C6) Each dam must be decommissioned such that it 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, or
(d) is compliant with the rehabilitation requirements of the authority; and
(e) is agreed by the post **petroleum authority** landowner/holder to remain after surrender of the environmental authority and meets water quality criteria for the intended use.

SCHEDULE D – WASTE

(D1) **Associated water** may be temporarily contained in a **dam** or other containment vessel on site prior to:
(a) reuse on **site** for petroleum activities; or
(b) use under the provisions of the *Petroleum and Gas (Production and Safety) Act 2004;* or
(c) use for an approved **beneficial use**; or
(d) removal from site for treatment or disposal at an appropriately authorised facility.

(D2) Where practicable, general waste generated in carrying out the petroleum activities must be reused, recycled or removed to a facility that can lawfully accept the waste under the *Environmental Protection Act 1994.*

(D3) If no viable alternative exists, solid general waste may be disposed of on site at a facility designed to receive waste at a rate of less than 50t per year only if it is;
(a) disposed of into a waste disposal trench;
(b) consolidated, compacted and covered with a layer of inert material following placement of the waste into the trench; managed in a way that prevents scavenging and access by vermin;
(c) managed in a way that prevents or contains wind-blown litter; and
(d) managed in a way that prevents or controls **leachate** generated from the activity.

(D4) Waste, including vegetation, must not be burnt.

SCHEDULE E – REHABILITATION

(E1) As soon as practicable after the **end** of petroleum activities that have caused **significant disturbance to land**, the holder of the environmental authority must:

(a) remediate contaminated land caused by petroleum activities in accordance with *Environmental Protection Act 1994* requirements and this authority; and

(b) undertake works to establish a safe, **stable,** non-polluting landform similar to that of surrounding undisturbed areas, including where relevant

(i) backfilling any **voids** and trenches;

(ii) neutralising and for encapsulating any acid producing or potentially acid producing material;

(iii) removing or encapsulating in low permeability material saline residues from **evaporation pond**s;

(iv) re-establishing surface drainage lines;

(v) minimising the potential for slumping, subsidence or erosion;

(vi) reinstating the top layer of the soil profile;

(vii) respreading any cleared vegetation; and

(viii) promoting establishment of vegetation of similar species composition and density of cover to the surrounding undisturbed land;

(c) unless the holder has the written consent of the landowner holder and the administering authority.

(E2) Monitoring and 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.

(E3) 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.

Decommissioning pipelines

(E4) Decommission inactive buried pipelines by in-situ decommissioning (abandonment in place).

(E5) Prior to pipelines and equipment being disconnected they must be drained or vented and cleaned via purging or flushing.

(E6) Any water used for purging or flushing pipelines must be contained in dams on site, tested and either:
(a) directly reused where suitable for petroleum activities;
(b) treated so that it meets water quality criteria for the intended reuse; or
(c) removed from the site for disposal or treatment at an appropriately authorised facility; or
(d) disposed of via evaporation in a suitably lined pond.

Infrastructure

(E7) All above ground **infrastructure** used for the petroleum activities must be removed prior to surrender of the environmental authority, except where it is to remain under the authority of the *Petroleum and Gas (Production and Safely) Act 2004;,* or with the written agreement of the administering authority and the post **petroleum authority** landowner/holder.

Transition of petroleum authority

(E8) The holder of the environmental authority must take responsibility for the rehabilitation of any disturbance to land undertaken as part of a petroleum activity on a petroleum authority that has been transitioned (all or in part) due to the grant of a new petroleum authority over that land which now forms part of the current project.

SCHEDULE F – DEFINITIONS

Note: Where a term is not defined in this Authority, the definition in the *Environmental Protection Act 1994, i*ts regulations and Environmental Protection Policies or the *Petroleum and Gas (Production and Safety) Act 2004* and its regulations must be used in that order.

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 Science; or
(c) another State Government Department, Authority, Storage Operator, Board or Trust, whose role is to administer provisions under other enacted legislation.

Alternative arrangement means a written agreement about the way in which a particular nuisance impact will be dealt with at a sensitive place, and may include an agreed period of time for which the arrangement is in place. An alternative arrangement may include, but is not limited to, a range of nuisance abatement measures to be installed at the sensitive place, or provision of alternative accommodation for the duration of the relevant nuisance impact.

Appropriately qualified person means a person who has professional qualifications, training, skills or experience relevant to the nominated subject matter and can give authoritative assessment, advice and analysis to performance relative to the subject matter using the relevant protocols, standards, methods or literature.

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) 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 fads 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 means underground water taken or Interfered with, if the taking or interference happens during the course of, or results from, the carrying out of another activity authorised under a petroleum authority, such as producing petroleum from a well, and includes water also known as produced formation water. The term includes all contaminants suspended or dissolved in the water.

Associated works in relation to a dam means:
(a) operations of any kind and all things constructed, erected or installed for that dam; and
(b) any land used for those operations.

Bed and **banks** for a watercourse or wetland means land over which the water of the watercourse or wetland normally flows or that is normally covered by the water, whether

permanently or intermittently; but does not Include land adjoining or adjacent to the bed or banks that is from time to time covered by floodwater.

Beneficial use means:

1. With respect to dams, that the current or proposed owner of the land on which a dam stands, has found a use for that darn 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 die *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; or
2. With respect to associated water, see Environmental Protection Agency's Operational Policy *Management of water produced in association with petroleum activities (associated water)* and *Notice of decision to approve a resource for beneficial use — associated water* which can be accessed on administering authority's website at www.des.qld.gov.au.

Bund or bunded in relation to spill containment systems for fabricated or manufactured tanks or containers designed to a recognised standard means an embankment or wall of brick, stone, concrete or other impervious material which may form part or all of the perimeter of a compound and provides a barrier to retain liquid. Since the bund is the main part of a spill containment system, the whole system (or bunded area) is sometimes colloquially referred to within industry as the bund. The bund is designed to contain spillages and leaks from liquids used, stored or processed above ground and to facilitate clean-up operations. As well as being used to prevent pollution of the receiving environment, bunds are also used for fire protection, product recovery and process isolation.

Category A Environmentally Sensitive Area means any area listed in Schedule 12, part 1, section 1 of the Environmental Protection Regulation 2008.

Category B Environmentally Sensitive Area means any area listed in Schedule 12, part 1, section 2 of the Environmental Protection Regulation 2008.

Category C Environmentally Sensitive Area means any of the following areas:

- Nature Refuges as defined 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 (resource use area) under the *Nature Conservation Act 1992;*
- An area validated as "Essential Habitat" from ground-truthing surveys in accordance with the *Vegetation Management Act 1999* for a species of wildlife listed as endangered or vulnerable under the *Nature Conservation Act 1992*;
- Of Concern Regional Ecosystems that are remnant vegetation 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.

Clearing means:
(a) in relation to grass, scrub or bush - the removal of vegetation by disturbing root systems and exposing underlying soil (including burning), but does not include—
    i. the flattening or compaction of vegetation by vehicles if the vegetation remains living; or
    ii. the slashing or mowing of vegetation to facilitate access hacks; or
    iii. the clearing of noxious or introduced plant species; and
(b) in relation to trees - cutting down, ringbarking, pushing over, poisoning or destroying in any way.

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* (ESR/2016/193313).

Construction in relation to a dam includes building a new dam and modifying or lifting an existing dam.

Control measures has the meaning in section 47 of the Environmental Protection Regulation 2008 and means a device, equipment, structure, or management strategy used to prevent or control the release of a contaminant or waste to the environment.

Dam means a land-based structure (including a levee, dyke or bund) or a void that is intended or used to contain, divert or control flowable substances, and includes any substances that are thereby contained or controlled by that land-based structure or void and associated works. However; a dam does *not* mean a fabricated or manufactured tank or container designed to a recognised standard, nor does a dam mean a land-based structure where that structure is designed to an Australian Standard such as a bund designed for spill containment to AS1940.

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 design and investigation reports, specifications and certifications, together with the planned decommissioning and rehabilitation works and outcomes. A design plan may include 'as constructed' drawings.

Discharge area is an area in the landscape where the net movement of groundwater is out of the aquifer. This may be expressed by waterlogging where groundwater discharges at the soil surface because of seepage or salting because of evaporation.

Dispersible soils are structurally unstable soils that readily breakdown into their constituent particles in water (e.g. the clay material disintegrates into particles less than 2 microns across within 24 hours when soil crumbs are submerged in distilled water). These soils are also known as sodic soils and have a high percentage of sodium ions (In soluble or exchangeable form).

Ecosystem functioning means the interactions between and within living and non-living components of an ecosystem and generally correlates with the size, shape and location of an area of vegetation.

End means the stopping of the particular activity that has caused a significant disturbance in a particular area. It refers to, among other things, the end of a seismic survey or the end of a drilling operation. It does not refer to the end of all related activities such as rehabilitation. In other words, it does not refer to the 'completion' of the petroleum activity, the time at which the petroleum authority ends or the time that the land in question ceases to be part of an authority.

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 has the meaning in section 15 of the *Environmental Protection Act 1994*.

Evaporation pond means a dam specifically designed for the purpose of disposing of a liquid via evaporation.

Existing structure means a structure that prior to 14 November 2018 meets any or both of the following, a structure:
(a) with a design that is in accordance with the Manual for Assessing Consequence Categories and Hydraulic Performance of Structures and that is considerably in progress;
(b) that is under considerable construction or that is constructed.

Fill means any kind of material in solid form (whether or not naturally occurring) capable of being deposited at a place but does not include material that forms a part of, or is associated with, a structure constructed in a watercourse, wetland or spring including a bridge, road, causeway, pipeline, rock revetment, drain outlet works, erosion prevention structure or fence.

Financial assurance means a security deposit, either cash or a bank guarantee, held by the administering authority to cover the potential costs of preventing or minimising environmental harm from, Or rehabilitating areas significantly disturbed by, the petroleum activities.

Flare pit has the meaning in the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures* (ESR/2016/1933), and means containment area where any hydrocarbon that is discovered in an over-pressured reservoir during a drilling operation is diverted to, and combusted. The flare pit may be used during the drilling, work over process and operation on a petroleum well.

Flowable substance means matter or a mixture of materials which can flow under conditions potentially affecting that substance, Constituents of a flowable substance can include water, other fluids or solids, or a mixture that includes water and any other 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 acceptably low probability of failure before that time.

High bank means the defining terrace or bank or, if no bank is present, the point on the active floodplain, which confines the average annual peak flows in a watercourse.

Highly erodible soils means very unstable soils that are generally described as Sodosols with hard-setting, fine sandy loam to silty clay loam surfaces (solodics, solodised solonetz and solonetz) or soils with a dispersible layer located less than 25cm deep or soils less than 25cm deep.

Infrastructure means water storage dams, roads and tracks, equipment, buildings and other structures built for the purpose and duration of the conduct of 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 (e.g. evaporation ponds), pipelines and assets that have been decommissioned, rehabilitated and lawfully recognised as being subject to subsequent transfer with ownership of the land.

Leachate means a liquid that contains soluble, suspended or miscible contaminants likely to have been derived from material which is stored, processed or disposed of on site and which the liquid has passed through or emerged from, or is likely to have passed through or emerged front

Levee means a dyke or bund 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 unplanned releases from other works of infrastructure, during the progress of those stormwater or flood flows or those unplanned releases; and does not store any significant volume of water or flowable substances at any other times.

'Of concern' regional ecosystem means an 'of concern' regional ecosystem identified in the database maintained by the Department of Environment and Science called 'Regional ecosystem description database' containing regional ecosystem numbers and descriptions. The database is available for inspection on the administering authority's website at www.des.qld.gov.au.

Overland flow water means water, including floodwater, flowing over land, otherwise than in a watercourse or lake;

(a) after having fallen as rain or in any other way; or
(b) after rising to the surface naturally from underground.

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 environmental matter has the meaning in section 10 of the *Environmental Offsets Act 2014*, limited to the matters of State environmental significant listed in schedule 2 of the Environmental Offsets Regulation 2014.

Regulated structure means any dam in the significant or high consequence category as assessed using the *Manual for assessing consequence categories and hydraulic performance of structures* published by the administering authority.

Release of a contaminant into the environment includes:
(a) to deposit, discharge, emit or disturb the contaminant; and
(b) to cause or allow the contaminant to be deposited, discharged, emitted or disturbed; rid
(c) to allow the contaminant to escape; and
(d) to fail to prevent the contaminant from escaping.

Sensitive place means:
(a) a dwelling (including residential allotment, mobile home or caravan park, residential marina or other residential premises, motel, hotel or hostel;
(b) a library, childcare centre, kindergarten, school, university or other educational institution;
(c) a medical centre, surgery or hospital;
(d) a protected area;
(e) a public park or garden that is open to the public (whether or not on payment of money) for use other than for sport or organised entertainment.

Significantly disturbed land or **significant disturbance to land** means land that is:

(a) contaminated land; or
(b) disturbed and human intervention is needed to rehabilitate it:
    a. to a state required under this authority; or
    b. if the authority does not require the land to be rehabilitated to a particular state to its state immediately before the disturbance.

Examples of a significant 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, wetland, or spring where petroleum activities have occurred causing the loss of habitat or a decline in ecological processes and requiring human intervention to restore or stabilise the disturbed area and/or protect the quality of the water downstream of the disturbance;
(e) areas submerged by waste or water;
(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, for the purpose of this authority 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 (e.g. roads, bridges, buildings) as agreed by the administering authority and landholder,
(d) areas that were significantly disturbed prior to the grant of the petroleum authority, unless those areas are re-disturbed by the petroleum authority holder during the course of carrying out the petroleum activities or were conducted on a petroleum authority that was replaced by the current authority (e.g. through conditional surrender or the transition from an authority to prospect to a petroleum lease).

Significant Residual Impact has the meaning in section 8 *Environmental Offsets Act 2014*.
Site means the area within the petroleum authority or authorities to which the environmental authority relates.

Spring means the land to which water rises naturally from below the ground and the land over which the water then flows.

Stable in relation to land means landform 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,

Structure means a dam or levee.

Suitably qualified and experienced person in relation to dams means one who is a Registered Professional Engineer of Queensland (RPEQ) under the provisions of the *Professional Engineers Act 1988,* OR registered as a National Professional Engineer (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:
knowledge of engineering principles related to the structures, geomechanics, hydrology, hydraulics, chemistry and environmental impact of dams; and

(a) 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
(b) a total of five (5) years of suitable experience and demonstrated expertise each, in three (3) of the following categories:
    i investigation and design of dams;
    ii construction, operation and maintenance of dams;
    iii hydrology with particular reference to flooding, estimation of extreme storms, water management or meteorology;
    iv hydraulics with particular reference to sediment transport and deposition, erosion control, beach processes;
    v hydrogeology with particular reference to seepage, groundwater,
    vi solute transport processes and monitoring thereof;
    vii dam safety.

Sump means a pit in which waste residual drilling material or drilling fluids are stored only for the duration of drilling activities.

Synthetic based drilling mud means a mud where the base fluid is a synthetic oil, consisting of chemical compounds which are artificially made or synthesised by chemically modifying petroleum components or other raw materials rather than the whole crude oil.

Threatening processes are processes, features and actions that can have a detrimental effect upon the health and viability of an area of vegetation. For example, altered hydrology, land use practices, invasion by pest and weed species, land degradation, edge effects and fragmentation.

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.

Topsoil means the surface (top) layer of a soil profile which is more fertile, darker in colour, better structured and supports greater biological activity than underlying layers. The surface layer may vary in depth depending on soil forming factors, including parent material, location and slope, but generally is not greater than about 300mm in depth from the natural surface.

Void means any man-made, open excavation in the ground (Includes borrow pits, drill sumps, frac pits, flare pits, cavitation pits and trenches).

Waters includes all or any part of a creek, river, stream, lake, lagoon, pond, swamp, wetland, spring, unconfined surface water, unconfined water in natural or artificial watercourses, bed and bank of any waters, dams, non-tidal or tidal waters (including the sea), stormwater channel, stormwater drain, roadside gutter, stormwater run-off, and underground water.

Watercourse is a creek, river or stream:

(a) in which water flows intermittently or permanently in a visibly defined channel, whether artificial, artificially improved or natural; and
(b) that has evidence of biological dependence on any water that flows in the creek, river or stream or on the banks or bed.

Wetland means an area shown as a wetland on a 'Map of referable wetlands', a document approved by the chief executive (environment).