

Permit

Environmental Protection Act 1994

Environmental Authority EA0002465

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

Environmental authority number: EA0002465

Environmental authority takes effect on 2 February 2023

Environmental authority holder(s)

Name(s)	Registered address
COKING COAL ONE PTY LTD	4/167 Eagle Street, Brisbane City, QLD 4000

Environmentally relevant activity and location details

Environmentally relevant activity/activities	Location(s)
Resource Activity, Schedule 3, 13: Mining black coal	ML70257
Resource Activity, Schedule 3, 09: A mining activity involving drilling, costeaning, pitting or carrying out geological surveys causing significant disturbance.	
Ancillary Activity, Schedule 2, 60(1): Operating a facility for disposing of, in a year, the following quantity of waste mentioned in subsection 1(a)— (d) more than 200,000t.	
Ancillary Activity, Schedule 2, 60(2): Operating a facility for disposing of, in a year, the following quantity of waste mentioned in subsection (1)(b)— (c) more than 5,000t but not more than 10,000t.	

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.

Environmental authority EA0002465 Broadmeadow East Coal Mine

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- one 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.

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.



Alison Cummings
Department of Environment and Science
Delegate of the administering authority
Environmental Protection Act 1994

Enquiries:

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Date Issued: 2 February 2023

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 Natural Resources, Mines and Energy (to clear vegetation), and the Department of Agriculture and Fisheries (to clear marine plants or to obtain a quarry material allocation).

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

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

Development Approval

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

Conditions of environmental authority

The environmentally relevant activity(ies) conducted at the location as described above must be conducted in accordance with the following site-specific conditions of approval. This environmental authority consists of the following Schedules and Appendices:

Schedule A	General
Schedule B	Air
Schedule C	Surface Water
Schedule D	Ground Water
Schedule E	Acoustic
Schedule F	Waste
Schedule G	Land
Schedule H	Regulated Structures

Conditions of environmental authority

Schedule A: General	
Condition number	Condition
A1	This environmental authority authorises environmental harm referred to in the conditions. Where there is no condition or this environmental authority is silent on a matter, the lack of a condition or silence does not authorise environmental harm.
A2	Authorised activities In carrying out the mining activity authorised by this environmental authority, disturbance of land: a) is authorised in the areas marked 'A' as depicted in Figure 1 - Disturbance Map; b) is not authorised in the areas marked 'B' as depicted in Figure 1 - Disturbance Map; and c) is only authorised in the areas marked 'C' as depicted in Figure 1 - Disturbance Map in accordance with Conditions A3 and A4; and d) is limited to the historic boreholes in the areas marked 'D' as depicted in Figure 1 - Disturbance Map, and new disturbance is not authorised.
A3	Significant residual impacts to prescribed environmental matters are not authorised under this environmental authority or the <i>Environmental Offsets Act 2014</i> .
A4	Records demonstrating that each impact to a prescribed environmental matter did not, or is not likely to, result in a significant residual impact to that matter must be: a) completed by an appropriately qualified person; and b) kept for the life of the environmental authority.
A5	Scope of activity This environmental authority authorises the mining of up to 1.9 million tonnes of run of mine (ROM) coal per annum (mtpa).
A6	Maintenance of measures, plant and equipment The environmental authority holder must ensure: a) that all measures, plant and equipment necessary to ensure compliance with the conditions of this environmental authority are installed; b) that such measures, plant and equipment are maintained in a proper condition; and c) that such measures, plant and equipment are operated in a proper manner.
A7	Storage and handling of flammable and combustible liquids Spillage of all flammable and combustible liquids must be contained within an on-site containment system and controlled in a manner that prevents environmental harm (other than trivial harm) and maintained in accordance with Section 5.8 of AS 1940 - <i>Storage and Handling of Flammable and Combustible Liquids of 2004</i>.

A8	Monitoring and records Record, compile and keep for a minimum of five (5) years all monitoring results required by this environmental authority and make available for inspection all or any of these records upon request by the administering authority.
A9	Monitoring and determinations required under any condition of this environmental authority must be conducted by an appropriately qualified person(s).
A10	Management Plans and Reports Management plans and reports required under any condition of this environmental authority must be developed by an appropriately qualified person.
A11	All records, reports, management plans, programs and compliance monitoring results required by this environmental authority, must be made available to the administering authority within five (5) business days of the administering authority's request.
A12	The holder of this environmental authority must, when requested by the administering authority, undertake relevant specified monitoring within a reasonable timeframe nominated or agreed to by the administering authority to investigate any complaint of environmental harm. The results of the investigation (including an analysis and interpretation of the monitoring results) and abatement measures, where implemented, must be provided to the administering authority within 10 business days of completion of the investigation, or no later than 10 business days after the end of the timeframe nominated by the administering authority to undertake the investigation.
A13	Notification of emergencies, incidents and exceptions All reasonable actions are to be taken to minimise environmental harm, or potential environmental harm, resulting from any emergency, incident or circumstances not in accordance with the conditions of this environmental authority.
A14	The holder of this environmental authority must notify the administering authority by written notification within 24 hours , after becoming aware of any 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 environmental authority.
A15	The notification of emergencies or incidents as required by Condition A15 of this environmental authority must include, but not be limited to, the following: a) the holder of the environmental authority; b) the location of the emergency or incident; c) the number of the environmental authority; d) the name and telephone number of the designated contact person; e) the time of the release; f) the time the holder of the environmental authority became aware of the release; g) the suspected cause of the release; h) the environmental harm caused, threatened, or suspected to be caused by the release; and i) actions taken to prevent any further release and mitigate any environmental harm caused by the release.

A16	Within 10 business days following the initial notification of an emergency or incident, or receipt of monitoring results, whichever is the latter, 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 unlawful environmental harm; and c) proposed actions to prevent a recurrence of the emergency or incident.
A17	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 environmental authority, written advice must be provided of the results of any such monitoring performed to the administering authority.
A18	Exploration activities Exploration activities must be undertaken in accordance with the conditions contained in the <i>Eligibility criteria and standard conditions for exploration and mineral development projects</i> (ESR/2016/1985).
A19	Complaint Response All complaints received must be recorded including details of complainant, reasons for the complaint, investigations undertaken, conclusions formed, and actions taken. This information must be made available for inspection by the administering authority on request.
A20	Third-party reporting The holder of this environmental authority must: a) within one (1) year of the commencement of this environmental authority, obtain from an appropriately qualified person a report on compliance with the conditions of this environmental authority; b) obtain further such reports at regular intervals, not exceeding three-yearly intervals, from the completion of the report referred to above; and c) provide each report to the administering authority within 90 days of its completion.
A21	Where a condition of this environmental authority requires compliance with a standard, policy or guideline published externally to this environmental authority and the standard is amended or changed subsequent to the issue of this environmental authority, the holder of this environmental authority must: a) comply with the amended or changed standard, policy, or guideline within two years of the amendment or change being made, unless a different period is specified in the amended standard or relevant legislation, or where the amendment or change relates specifically to regulated structures referred to in Schedule G, the time specified in that condition; and b) until compliance with the amended or changed standard, policy or guideline is achieved, continue to remain in compliance with the corresponding provision that was current immediately prior to the relevant amendment or change.

Schedule B: Air	
Condition number	Condition
B1	Dust nuisance The release of dust and/or particulate matter resulting from the mining activity must not cause an environmental nuisance to an environmental value for air.
B2	Dust and particulate matter emissions generated by the authorised mining activities must not exceed the following levels when measured at any area or place at which an air quality objective applies: a) Dust deposition of 120 milligrams per square metre per day, averaged over one (1) month, when monitored in accordance with the most recent version of Australian Standard AS3580.10.1 <i>Methods for sampling and analysis of ambient air—Determination of particulate matter—Deposited matter – Gravimetric method</i>. b) A concentration of particulate matter with an aerodynamic diameter of less than 10 micrometres (PM₁₀) suspended in the atmosphere of 50 micrograms per cubic metre over a 24-hour averaging time, monitored in accordance with the most recent version of either: i. Australian Standard AS3580.9.6 <i>Methods for sampling and analysis of ambient air—Determination of suspended particulate matter— PM₁₀ high volume sampler with size-selective inlet – Gravimetric method</i>; or ii. Australian Standard AS3580.9.9 <i>Methods for sampling and analysis of ambient air—Determination of suspended particulate matter— PM₁₀ low volume sampler—Gravimetric method</i>; or iii. Australian Standard AS3580.9.11 <i>Methods for sampling and analysis of ambient air—Determination of suspended particulate matter— PM₁₀ beta attenuation monitors or</i> c) A concentration of particulate matter with an aerodynamic diameter of less than 2.5 micrometres (PM_{2.5}) suspended in the atmosphere of 25 micrograms per cubic metre over a 24-hour averaging time, when monitored in accordance with the most recent version either of AS/NZS3580.9.10 <i>Methods for sampling and analysis of ambient air—Determination of suspended particulate matter—PM (sub)2.5(sub) low volume sampler—Gravimetric method</i> or AS/NZS3580.9.12 (2013): <i>Determination of suspended particulate matter – PM2.5 beta attenuation monitors</i>.
B3	An Air Quality Monitoring and Management Plan must be developed and implemented within 12 months of the commencement of mining activities and be made available to the administering authority upon request.

B4	The Air Quality Monitoring and Management Plan, as required by Condition B3, must include but not be limited to – a) an air quality monitoring program for PM10, PM2.5 and dust deposition showing: • air quality monitoring locations and frequency; • selection criteria for nominated air quality monitoring locations; • air quality monitoring parameters and limits; • details of monitoring equipment and methodology/standards followed for air quality monitoring; • details of at least one meteorological station capable of monitoring wind direction and speed; b) a Trigger Action Response Plan; c) a complaint response plan; and d) a requirement for review and update.
B5	If the monitoring indicates an exceedance of the relevant limits in Condition B2, then an investigation must be undertaken to determine whether the exceedance is due to emissions from the mining activity. If the authorised mining activities are found to be the cause of the exceedance, then the environmental authority holder must: a) address the complaint including the use of appropriate dispute resolution if required; and b) immediately implement dust abatement measures so that emissions of dust from the activity does not result in further environmental nuisance.

Schedule C: Water	
Condition number	Condition
C1	Contaminant Release Contaminants that will or have the potential to cause environmental harm must not be released directly or indirectly to any waters as a result of the authorised mining activities, except as permitted under the conditions of this environmental authority.
C2	Unless otherwise permitted under the conditions of this environmental authority, the release of mine affected water to waters must only occur from the release point specified in Table C1 - Mine Affected Water Release Points, Sources and Receiving Waters and depicted in Figure 3 – Mine affected water release points and monitoring locations .
C3	The release of mine affected water to waters in accordance with Condition C2 must meet the sediment load concentration measured as Total Suspended Solids (mg/L) stated in Table C2 - Contaminant Release Limits for each release.

Table C1- Mine Affected Water Release Points, Sources and Receiving Waters

Release Point (RP)	Easting (GDA20)	Northing GDA20)	Mine Affected Water Source and Location	Monitoring Point	Receiving Waters Description
RP 1	619279	7587480	Mine affected water – MWD1 and North Pit	MP2	Hat Creek

C4	The release of mine affected water to internal water management infrastructure that is installed and operated in accordance with a Water Management Plan that complies with Conditions C30 and C31 is permitted.
C5	The release of mine affected water to waters in accordance with Condition C2 must not exceed the release limits stated in Table C2 - Contaminant Release Limits when measured at the monitoring points specified in Table C1 - Mine Affected Water Release Points, Sources and Receiving Waters for each quality characteristic.
C6	The release of mine affected water to waters from the release point must be monitored at the locations specified in Table C1 - Mine Affected Water Release Points, Sources and Receiving Waters for each quality characteristic and at the frequency specified in Table C2 – Contaminant Release Limits and trigger investigation levels specified in Table C3 - Release Contaminant Trigger Investigation Levels – Potential Contaminants . NOTE: The administering authority will take into consideration any extenuating circumstances prior to determining an appropriate enforcement response in the event Condition C5 is contravened due to a temporary lack of safe or practical access. The administering authority expects the environmental authority holder to take all reasonable and practicable measures to maintain safe and practical access to designated monitoring locations.

Table C2 - Contaminant Release Limits

Quality Characteristic	Release Limits	Monitoring frequency	Comment
Electrical conductivity ($\mu\text{S}/\text{cm}$)	baseflow: 720 $\mu\text{S}/\text{cm}$ high flow: 250 $\mu\text{S}/\text{cm}$	Daily during release (the first sample must be taken within two (2) hours of commencement of release)	
pH (pH Unit)	6.5 (minimum) 8.5 (maximum)	Daily during release (the first sample must be taken within two (2) hours of commencement of release)	
Turbidity (NTU)	50	Daily during release (the first sample must be taken within two (2) hours of commencement of release)	Turbidity is required to assess ecosystems impact and can provide instantaneous results.
Total Suspended Solids (mg/L)	55	At commencement and prior to cessation of release (at a minimum) and weekly during a release [1]	Suspended solids are required to measure the performance of sediment and erosion control measures.
Sulphate (mg/L)	25	At commencement and prior to cessation of release (at a minimum) and weekly during a release [1]	
NOTE: [1] The determination of suitability for release of water should be informed by monitoring undertaken prior to release.			

Table C3 - Release Contaminant Trigger Investigation Levels – Potential Contaminants

Quality Characteristic	Trigger Levels	Comment on Trigger Level	Monitoring Frequency
Total Suspended Solids	55 (mg/L)	For aquatic ecosystem protection, based on SMD Isaac River Sub-basin Environmental Values and Water Quality Objectives.	Commencement of release and thereafter weekly during release
Total Dissolved Solids	4000 (mg/L)	For aquatic ecosystem protection, based on SMD Isaac River Sub-basin Environmental Values and Water Quality Objectives.	
Sulfate	<25 (mg/L)	For aquatic ecosystem moderately disturbed, within Upper Isaac River catchment waters, based Isaac River Sub-basin Environmental Values and Water Quality Objectives 2011.	
Aluminium	55 (µg/L)	For aquatic ecosystem protection, based on SMD Isaac River Sub-basin Environmental Values and Water Quality Objectives.	
Arsenic (As V)	13 (µg/L)	For aquatic ecosystem protection, based on SMD guideline	
Boron	940 (µg/L)	For aquatic ecosystem protection, based on SMD guideline	
Cadmium	0.2 (µg/L)	For aquatic ecosystem protection, based on SMD guideline	
Fluoride	2000 (µg/L)	ANZECC stock water drinking guideline.	
Lead	3.4 (µg/L)	For aquatic ecosystem protection, based on SMD guideline	
Manganese	1900 (µg/L)	For aquatic ecosystem protection, based on SMD guideline	
Mercury (inorganic)	0.06 (µg/L)	For aquatic ecosystem protection, based on SMD guideline	
Molybdenum	150 (µg/L)	ANZECC stock water drinking guideline	
Nickel	11 (µg/L)	For aquatic ecosystem protection, based on SMD guideline	
Chromium	1.0 (µg/L)	For aquatic ecosystem protection, based on SMD Isaac River Sub-basin Environmental Values and Water Quality Objectives.	
Copper	1.4 (µg/L)	For aquatic ecosystem protection, based on SMD Isaac River Sub-basin Environmental Values and Water Quality Objectives.	
Zinc	8 (µg/L)	For aquatic ecosystem protection, based on SMD guideline	
Selenium	5 (µg/L)	For aquatic ecosystem protection, based on SMD guideline	
Uranium	0.5 (µg/L)	For aquatic ecosystem protection, based on LOR for ICPMS	
Nitrate	400 (mg/L)	ANZECC stock water drinking guideline	
Silver	0.05 (µg/L)	For aquatic ecosystem protection, based on SMD guideline	
Petroleum hydrocarbons (C6-C9)	20 (µg/L)	For aquatic ecosystem protection, based on LOR for GCMS	
Petroleum hydrocarbons (C10-C36)	100 (µg/L)	For aquatic ecosystem protection, based on LOR for GCMS	
Sodium	180 (mg/L)	Australian Human Drinking Water Guidelines. Trigger may require amendment if future advice from Queensland Health becomes available.	
Barium	2000 µg/L	Trigger from Australian Human Drinking Water Guidelines	

NOTE:

1. All metals and metalloids must be measured as total (unfiltered) and dissolved (filtered). Trigger levels for metal/metalloids apply if dissolved results exceed trigger.
2. The quality characteristics required to be monitored as per **Table C3** can be reviewed once the results of **two (2) years** of monitoring data is available, or if sufficient data is available to adequately demonstrate negligible environmental risk, and it may be determined that a reduced monitoring frequency is appropriate or that certain quality characteristics can be removed from **Table C3** by amendment.
3. SMD – slightly moderately disturbed level of protection, guideline refers ANZG 2018.
4. LOR – typical reporting for method stated. ICPMS/CV FIMS/GCMS – analytical method required to achieve LOR.

C7	If any of the trigger levels specified in Table C3 – Release contaminant trigger investigation levels - potential contaminants are exceeded for any quality characteristic at the release point specified in Table C1 – Mine affected water release points, sources and receiving waters during a release event, the environmental authority holder must compare the downstream results in the receiving waters to the trigger values specified in Table C3 – Release contaminant trigger investigation levels - potential contaminants and: (a) Where the downstream results do not exceed the trigger values then no action is to be taken; or (b) Where the downstream results exceed the trigger values specified Table C3 – Release contaminant trigger investigation levels - potential contaminants for any quality characteristic, compare the results of the downstream site to the data from upstream background monitoring sites (specified in Table C5 - Receiving waters contaminant trigger levels); and: (i) where the downstream result is less than the upstream background monitoring site data for the quality characteristic, then no action is to be taken, or (ii) where the downstream result is greater than the upstream background monitoring site data, complete an investigation into the potential for environmental harm and provide a written report to the administering authority within ninety (90) days of receiving the result, outlining: (a) details of the investigations carried out; and (b) actions taken to prevent environmental harm. NOTE: Where an exceedance of a trigger level has occurred and is being investigated, in accordance with Condition C7(b)(ii) of this condition, no further reporting is required for subsequent trigger events for that quality characteristic.
C8	If an exceedance in accordance with Condition C7(b)(ii) is identified, the holder of the environmental authority must notify the administering authority, via WaTERS, within twenty-four (24) hours of receiving the result.
C9	Mine Affected Water Release Events The holder must ensure a stream flow gauging station/s is installed, operated, and maintained to determine and record stream flows at the locations and flow recording frequency specified in Table C4 - Mine Affected Water Release During Flow Events.
C10	The site-specific trigger values identified within Table C3 - Release contaminant trigger investigation levels - potential contaminants must be reviewed within two (2) years of the commencement of mining activities, or when sufficient monitoring data is available. The <i>Queensland Water Quality Guidelines</i> (2009) recommend a minimum of 18 samples collected at each site over at least 12 and preferably 24 months (in order to capture two complete annual cycles). The administering authority must be notified in writing of the outcome of the review within fourteen (14) days.
C11	Notwithstanding any other condition of this environmental authority, the release of mine affected water to waters in accordance with Condition C2 of this environmental authority must only take place during periods of natural flow events in accordance with the receiving water flow criteria for discharge specified in Table C4 - Mine Affected Water Release during Flow Events for the release point(s) specified in Table C1 - Mine Affected Water Release Points, Sources and Receiving Waters.

Table C4 - Mine Affected Water Release during Flow Events

Receiving waters/ stream	Release Point (RP)	Gauging Station (GS)	Gauging Station Easting (GDA20)	Gauging Station Northing (GDA20)	Receiving Water Flow Recording Frequency	Receiving Water Flow Criteria for discharge (m ³ /s) ¹	Maximum release rate (m ³ /s) (for all combined RP flows)	Electrical Conductivity and (micro-Siemens/cm) ²
Hat Creek	1	1 Upstream	617623	7587216	Continuous (minimum daily)	Medium Flow 1 >0.5m ³ /s	0.05m ³ /s	720 µS/cm
						Medium Flow 2 >1.0m ³ /s	0.1m ³ /s	250 µS/cm
		2 Downstream	620310	7587196		Medium Flow 1 >0.5m ³ /s	0.05m ³ /s	720 µS/cm
						Medium Flow 2 >1.0m ³ /s	0.1m ³ /s	250 µS/cm

NOTE:

1 Flow triggers should be compared to natural flow only.

2 Prior to release commencement, an assessment of the water quality of the relevant mine affected water source must be undertaken and the Electrical Conductivity release limit and maximum release rate determined. This determined release limit and maximum release rate applies for the duration of the release

C12	The daily quantity of mine affected water released from each release point must be measured and recorded at the monitoring points in Table C1 - Mine Affected Water Release Points, Sources and Receiving Waters .
C13	Releases to waters must be undertaken so as: a) not to cause erosion of the bed and banks of the receiving waters; b) not to cause a material build-up of sediment in such waters; c) not result in any visible discolouration of receiving waters; or d) not result in any slick or other visible or odorous evidence of oil, grease or petrochemicals nor contain visible floating oil, grease, scum, litter or other objectionable matter.
C14	Notification of Release Event The environmental authority holder must notify the administering authority, via WaTERS, as soon as practicable and no later than twenty-four (24) hours after commencing to release mine affected water to the receiving environment in accordance with Condition C2. Notification must include the submission of the following information: a) release commencement date/time; b) details regarding the compliance of the release with the conditions including EC, turbidity, and pH within this environmental authority; c) release location (release point/s); d) release rate; e) release salinity; f) receiving water/s including flow rate when release occurred; g) expected cessation date; and h) expected volume to be discharged.
C15	The administering authority must be notified via WaTERS within twenty-four (24) hours after cessation of a release event notified under Condition C14. The release cessation notification must include the following information: a) release cessation date/time; b) details of the receiving water; including the natural flow rate; c) volume of water released; d) all in-situ water quality monitoring results; and e) any other matters pertinent to the water release event. <i>NOTE: Successive or intermittent releases occurring within twenty-four (24) hours of the cessation of any individual release can be considered part of a single release event and do not require individual notification for the purpose of compliance with Conditions C14 and C15, provided the relevant details of the release are included within the notification provided in accordance with Conditions C16, C17 and C18.</i>

C16	Within twenty-eight (28) days of the notification under Condition C14, the following information must be provided to the administering authority via WaTERS: a) confirmation of: (i) The release commencement date and time; (ii) The release cessation date and time; (iii) Details of the receiving water/s including the natural flow rate; (iv) Volume of water released; b) all in-situ and laboratory water quality monitoring results; c) details assessing compliance of the release with the conditions of Schedule C – Surface Water of this environmental authority (i.e. contamination limits, natural flow, discharge volume); d) whether the release resulted in any impacts to the receiving environment; and e) any other matter(s) pertinent to the water release event.
C17	Notification of Release Event Exceedance If the release limits defined in Table C2 - Contaminant Release Limits are exceeded, the holder of the environmental authority must notify the administering authority, via WaTERS, within twenty-four (24) hours of receiving the results.
C18	The environmental authority holder must, within twenty-eight (28) days of a release that is not compliant with the conditions of this environmental authority, provide a report to the administering authority, via WaTERS detailing: a) The reason for the release; b) The location of the release; c) The total volume of the release and which (if any) part of this volume was non-compliant; d) The total duration of the release and which (if any) part of this period was non-compliant; e) All water quality monitoring results (including all laboratory analyses); f) Identification of any environmental harm as a result of the non-compliance; g) All calculations; and h) Any other matters pertinent to the water release event.
C19	Receiving Environment Monitoring and Contaminant Trigger Levels The quality of the receiving waters must be monitored at the locations specified in Table C5 - Receiving Water Monitoring Locations for each quality characteristic and at the monitoring frequency stated in Table C6 - Receiving Waters Contaminant Trigger Levels.

C20	Notification of release event exceedance If quality characteristics of the receiving water at the downstream monitoring points exceed any of the trigger levels specified in Table C6 - Receiving Waters Contaminant Trigger Levels during a release event the environmental authority holder must compare the downstream results to the upstream results in the receiving waters and: a) where the downstream result is the same or a lower value than the upstream value for the quality characteristic then no action is to be taken; or b) where the downstream results exceed the upstream results, complete an investigation into the potential for environmental harm and provide a written report to the administering authority via WaTERS by 1 March each year, outlining: i) details of the investigations carried out; and ii) actions taken to prevent environmental harm. NOTE: Where an exceedance of a trigger level has occurred and is being investigated, in accordance with Condition C20(b) of this condition, no further reporting is required for subsequent trigger events for that quality characteristic.
C21	Monitoring of water storage quality Water storages specified in Table C7 – Water Storage Monitoring must be monitored for: a) the water quality characteristics specified in Table C2 – Contaminant release limits and Table C3 - Release contaminant trigger investigation levels - potential contaminants at the monitoring locations and frequency specified in Table C7 – Water Storage Monitoring; and b) the volume of water held in each of the water storages specified in Table C7 – Water Storage Monitoring.

Table C5 - Receiving Water Monitoring Locations

Monitoring points	Receiving Waters Location Description	Easting (GDA20)	Northing (GDA20)
Upstream Background Monitoring Points			
MP3	On-lease, along Hat Creek at the convergence of two watercourse systems from the east	620310	7587196
MP4	Off-lease, along Hat Creek	622473	7586183
Downstream Monitoring Points			
MP1	Off-lease, at the convergence of Hat Creek and a tributary system from the south-east.	617623	7587216
MP2	On-lease, along Hat Creek, near the MAW release point and adjacent to the haul road.	619175	7587536

Table C6 - Receiving Waters Contaminant Trigger Levels

Quality characteristic	Trigger Level	Monitoring Frequency
pH	6.5 – 8.5	Daily during release
Electrical Conductivity ($\mu\text{S}/\text{cm}$)	250 <i>(NOTE: For protection against toxicity this may need to be reduced in some circumstances e.g. where in close proximity upstream of a drinking water dam or regional waterway.)</i>	
Total Suspended solids (mg/L)	55	Daily during release
Sulphate (SO_4^{2-}) (mg/L)	25 <i>(NOTE: Protection of drinking water Environmental Value.)</i>	
Turbidity (NTU)	50 <i>(NOTE: Turbidity may be required to assess ecosystems impacts and can provide instantaneous results.)</i>	

NOTE: The determination of suitability for release of water should be informed by monitoring undertaken prior to release.

Table C7 – Water Storage Monitoring

Water Storage Description	Easting(GDA20)	Northing (GDA20)	Monitoring Location	Frequency of Monitoring
Mine Water Dam 1 (MWD1)	619068	7586983	Dam wall	Quarterly
North Pit	619379	7587202	Dam wall	Quarterly

C22	Receiving Environment Monitoring Program (REMP) On the commencement of mining activities, the environmental authority holder must implement the Receiving Environment Monitoring Program (REMP) to monitor, identify and describe any adverse impacts to surface water environmental values, quality and flows due to the authorised mining activity. This must include monitoring the effects of the mine on the receiving environment periodically (under natural flow conditions) and while mine affected water is being discharged from the site. For the purposes of the REMP, the receiving environment is the waters of the Hat Creek and connected or surrounding waterways within 4 km downstream of the mining activity.
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C23	The REMP must: a) Assess the condition or state of receiving waters, including upstream conditions, spatially within the REMP area, considering background water quality characteristics based on accurate and reliable monitoring data that takes into consideration temporal variation (e.g., seasonality); and b) Be designed to facilitate assessment against water quality objectives for the relevant environmental values that need to be protected; c) Include monitoring from background reference sites (e.g., upstream or background) and downstream sites from the release (as a minimum, the locations specified in Table C5 - Receiving Water Monitoring Locations; d) Specify the frequency and timing of sampling required in order to reliably assess ambient conditions and to provide sufficient data to derive site specific background reference values in accordance with the <i>Queensland Water Quality Guideline 2009</i> or its subsequent revisions. This should include monitoring during periods of natural flow irrespective of mine or other discharges; e) Include monitoring and assessment of dissolved oxygen saturation, temperature and all water quality parameters listed in Table C2 -Contaminant Release Limits and Table C3 -Release Contaminant Trigger Investigation Levels – Potential Contaminants; f) Include, where appropriate, monitoring of metals/metalloids in sediments (in accordance with ANZG 2018, <i>Handbook for Sediment Quality Assessment 2005</i> and/or the most recent version of AS5667.1 <i>Guidance on Sampling of Bottom Sediments</i>); g) Include, where appropriate, monitoring of macroinvertebrates in accordance with the AusRivas methodology, h) Apply procedures and/or guidelines from ANZG 2018 and other relevant guideline documents; i) Describe sampling and analysis methods and quality assurance and control; and j) Incorporate stream flow and hydrological information in the interpretations of water quality and biological data.
C24	A REMP Design Document that addresses each criterion presented in Conditions C22 and C23 of this environmental authority must be maintained and submitted to the administering authority on request. Due consideration must be given to any comments made by the administering authority on the REMP Design Document and subsequent implementation of the program.
C25	A report outlining the findings of the REMP, including all monitoring results and interpretations in accordance with Conditions C22 and C23 of this environmental authority must be prepared annually. This must include: a) an assessment of background reference water quality; b) the condition of downstream water quality compared against water quality objectives, and c) the suitability of current discharge limits to protect downstream environmental values.
C26	Water Reuse Mine affected water may be piped or trucked or transferred by some other means that does not contravene the conditions of this environmental authority and deposited into artificial water storage structures, such as farm dams or tanks, or used directly at properties owned by the environmental authority holder or a third party (with the written consent of the third party).

C27	Water general All determinations of water quality and biological monitoring must be: a) performed by a person or body possessing appropriate experience and qualifications to perform the required measurements; b) made in accordance with methods prescribed in the latest edition of the administering authority's Monitoring and Sampling Manual; c) collected from the monitoring locations identified within this environmental authority, within ten (10) hours of each other where possible; d) carried out on representative samples; and e) analysed at a laboratory accredited (e.g., NATA) for the method of analysis being used. NOTE: Condition C27 requires the Monitoring and Sampling Manual to be followed and where it is not followed because of exceptional circumstances this should be explained and reported with the results.
C28	Annual water monitoring reporting The following information must be recorded in relation to all water monitoring required under the conditions of this environmental authority and submitted to the administering authority in the specified format by 1 March each year: a) the date on which the sample was taken; b) the time at which the sample was taken; c) the monitoring point at which the sample was taken; d) the measured or estimated daily quantity of mine affected water released from all release points; e) the release flow rate at the time of sampling for each release point; f) the results of all monitoring and details of any exceedances of the conditions of this environmental authority; and g) water quality monitoring data must be provided to the administering authority via WaTERS.
C29	Temporary interference with waterways Temporarily destroying native vegetation, excavating, or placing fill in a watercourse, lake, or spring necessary for and associated with mining operations must be undertaken in accordance with the Department of Regional Development, Manufacturing and Water (DRDMW) <i>Guideline – Riverine protection permit exemption requirements (WSS/2013/726)</i>.
C30	Water Management Plan A Water Management Plan must be developed and implemented for the duration of the mining activities authorised under this environmental authority.

C31	The Water Management Plan must: a) Provide for effective management of actual and potential environmental impacts resulting from water management associated with the mining activity carried out under this environmental authority; and b) Be developed in accordance with the administering authority's guideline <i>Preparation of water management plans for mining activities</i> (ESR/2016/3111) or its successor and include: i) a contaminant source study; ii) site water balance and model; iii) onsite water quality sampling; iv) a water management system; v) saline drainage prevention and management measures; vi) acid rock drainage prevention and management measures; vii) erosion and sediment control measures; and viii) maintenance of water management and erosion and sediment control infrastructure; onsite sewage management system.
C32	The Water Management Plan required by Condition C30 must be reviewed each calendar year and a report prepared. The report must: a) Assess the plan against the requirements under Condition C31; b) Include recommended actions to ensure actual and potential environmental impacts are effectively managed for the coming year; and c) Identify any amendments made to the Water Management Plan following the review.
C33	Saline drainage The holder of this environmental authority must ensure proper and effective measures are taken to avoid or otherwise minimise the generation and/or release of saline drainage.
C34	Acid rock drainage The holder of this environmental authority must ensure proper and effective measures are taken to avoid or otherwise minimise the generation and/or release of acid rock drainage.
C35	Stormwater and water sediment controls An Erosion and Sediment Control Plan must be developed and implemented in all stages of the mining activities on the site to minimise erosion and the release of sediment to receiving waters and contamination of stormwater.

C36	The Erosion and Sediment Control Plan must: a) demonstrate how erosion and sediment control measures detailed in the plan adequately minimise the release of sediment to receiving waters and must include at least the following: i) an assessment of the size and relevant characteristics of all catchment areas; ii) an assessment of relevant properties of soils and waste materials; iii) identification of receiving waters environmental values, water quality objectives and management intent; iv) specification of minimum design criteria for erosion and sediment control structures to meet the management intent of receiving waters; b) detail the locations and descriptions of all erosion and sediment control measures; and c) provide an audit schedule to ensure erosion and sediment control measures are maintained.
C37	The Erosion and Sediment Control Plan must be reviewed by an appropriately qualified person by 1 March for each calendar year. The review must be documented and must: a) include a statement that the Erosion and Sediment Control Plan has been reviewed by an appropriately qualified person; b) assess the plan against the requirements of Condition C36; c) include recommended actions to ensure actual and potential environmental impacts are effectively managed; d) provide details and timelines of the actions to be taken; and e) identify any amendments made to the Erosion and Sediment Control Plan.
C38	Stormwater, other than mine affected water, is permitted to be released to waters from: a) erosion and sediment control structures that are installed and operated in accordance with the Erosion and Sediment Control Plan required by Condition C35 of this environmental authority; and b) water management infrastructure that is installed and operated, in accordance with a Water Management Plan that complies with Condition C30 for the purpose of ensuring water does not become mine affected water.
C39	Water that has come into contact with uncapped rejects, disposed in accordance with Condition F16, is considered mine affected water and must report to the mine affected water storages identified in Table C7 – Water Storage Monitoring.
C40	The maintenance and cleaning of any vehicles, plant or equipment must not be carried out in areas from which contaminants can be released into any receiving waters.
C41	Any spillage of wastes, contaminants or other materials must be cleaned up as quickly as practicable to minimise the release of wastes, contaminants or materials to any stormwater drainage system or receiving waters.
C42	Sewage management All sewage generated on site must be removed by a licensed contractor at regular intervals. A register must be maintained onsite to keep a track of amount of sewage generated, stored onsite and disposed of via licenced contractor.

Schedule D: Groundwater	
Condition number	Condition
D1	Groundwater The environmental authority holder must not release contaminants to groundwater.
D2	Baseline groundwater monitoring program A baseline groundwater monitoring program must be developed and implemented by an appropriately qualified person(s) (AQP). The baseline groundwater monitoring program must: a) include existing bores as shown in Table D1 - Groundwater Monitoring Locations and Frequency and any additional bores deemed necessary by an AQP and the administering authority. b) include at least eight (8) sampling events that are no more than three (3) months apart over a twenty-four (24) month period, to determine background groundwater quality; c) include a conceptual model used to determine the location of groundwater bores and justify; d) identify pre-mining baseline standing water levels and determine groundwater trigger elevations measured in metres above Australian Height Datum (mAHD); e) allow for the identification of natural groundwater level trends and groundwater contaminant limits; f) assess adequacy of monitoring bores network stated in Table D1 - Groundwater Monitoring Locations and Frequency to ensure monitoring of impacts within all aquifers present within the mining lease; g) assess adequacy of the monitoring bores depth to ensure predicted drawdown level could can be monitored; h) identify groundwater quality limits and triggers to update Table D2 - Groundwater quality limits and submit to the administering authority by 1 April 2024 if required; and i) propose a network of groundwater bores to detect changes, impacts and long-term threats on groundwater aquifers by the south residual void and rehabilitation activities specified in Appendix 5 (Table G1- Table G1 Post Mine Land Use (PMLU) and Rehabilitation Methods and G2 PMLU and rehabilitation success criteria).
D3	Groundwater compliance monitoring Groundwater quality and levels must be monitored at the locations and frequencies defined in Table D1 - Groundwater monitoring locations and frequency and Figure 3 – Mine affected water release points and monitoring locations of this authority. NOTE: Figure 3 – Mine affected water release points and monitoring locations also shows location of groundwater monitoring bores.
D4	Groundwater quality monitoring required by Condition D3, must be monitored for the parameters outlined in Table D2 - Groundwater quality limits. Results and analysis of

	groundwater monitoring must be submitted annually (for period January to December of the previous calendar year) to the administering authority via WaTERS by 1 March of each calendar year.
D5	For groundwater level monitoring as per Condition D3 , a groundwater drawdown fluctuation above the magnitude identified in Table D1 - Groundwater level monitoring locations and frequency for individual monitoring bores must be notified via WaTERS within fourteen (14) days following completion of monitoring.
D6	Results of monitoring of groundwater quality bores identified in Table D1 - Groundwater Monitoring Locations and Frequency must not exceed any of the contaminant limits specified in Table D2 - Groundwater Quality triggers and limits for the same monitoring bore on three (3) consecutive sampling occasions.
D7	Exceedance notification If the contaminant limits specified in Table D2 - Groundwater Quality limits are exceeded at the same monitoring bore on three (3) consecutive sampling occasions the holder of the environmental authority must notify the administering authority via WaTERS within twenty-four (24) hours of receiving the results.
D8	Exceedance investigation Within fourteen (14) days of notification given under Conditions D5 and D7, an investigation must be completed to determine if the exceedance is a result of: a) mining activities authorised under this environmental authority; or b) seasonal/natural variation; or neighbouring land use resulting in groundwater impacts; or c) any other potential cause not related to the mining activity.
D9	If the investigation under Condition D8 determines that the exceedance was caused by the mining activities authorised under this environmental authority, then a further investigation must be completed within twenty-eight (28) days (or a timeframe agreed to with the administering authority) to determine whether environmental harm has occurred or may occur, and the extent thereof.
D10	If the further investigation undertaken under Condition D9 determines that environmental harm has occurred, or may occur, the following actions must be completed within twenty-eight (28) days: a) implementation of measures as soon as reasonably practicable to reduce environmental harm including potential environmental harm; and b) development of long-term mitigation measures to address any existing groundwater contamination and prevent recurrence of groundwater contamination which is implemented in a reasonable time period; and c) if environmental harm has occurred as a result of groundwater drawdown exceedances, i) determine any actions required to reduce the potential for environmental harm; and ii) determine any mitigation measures required to limit the drawdown in the affected groundwater resource; and d) document the steps taken under Condition D10 (a), (b), and (c), and provide the documentation to the administering authority within 14 days of implementation.

D11	The following information must be recorded in relation to all groundwater sampling: a) the date on which the sample was taken; b) the time at which the sample was taken; c) the monitoring point at which the sample was taken; and d) the results of all monitoring.
D12	Monitoring and sampling of groundwater must comply with the latest edition of the administering authority's <i>Monitoring and Sampling Manual</i>.
D13	Groundwater Management and Monitoring Program A Groundwater Management and Monitoring Program must be developed, certified and implemented by an appropriately qualified person for all stages of the mining activities (including construction, mining rehabilitation, and closure) to meet the following requirements: a) identify potential sources of contamination to groundwater aquifers from the authorised mining activity, including the south residual void; identifies all environmental values (including the Hat creek) that must be protected; b) details groundwater levels in all identified aquifers present across and adjacent to the site to confirm existing groundwater flow paths and their interaction with each other and interaction with the Hat Creek, Tivot Brook river system; c) estimates the groundwater inflow to any rehabilitated landforms and surface water ingress to groundwater from flooding events in the form of a groundwater model; d) maps showing the actual water level drawdown contours caused by the take of associated water for each groundwater aquifer details of any review undertaken of the numerical groundwater model and conceptual model; e) an assessment of any differences between the groundwater level impact predicted and actual impacts for corresponding periods in the most current numerical groundwater model; f) ensures all potential adverse groundwater impacts due to mining and rehabilitation activities are identified, monitored and mitigated; g) ensures groundwater monitoring and data analysis is undertaken to: i) detect any impacts to groundwater levels due to mining and rehabilitation activities; ii) detect any impacts to groundwater quality due to mining and rehabilitation activities; iii) determine compliance with Condition D1; and iv) determine trends in groundwater quality; h) provides an appropriate quality assurance and quality control program; i) documents groundwater management and monitoring methodologies undertaken for the duration of all mining activities and rehabilitation activities; and j) includes a review process to identify improvements to the program that includes addressing any comments provided by the administering authority.
D14	The Groundwater Management and Monitoring Program required by Condition D13 must be updated by 30 November 2023 to incorporate data collected from the baseline groundwater monitoring program as detailed in Condition D2.
D15	The Groundwater Management and Monitoring Program Review

	The Groundwater Management and Monitoring Program required by Condition D13 , and the data collected must be reviewed at least every two (2) years to determine if it continues to meet the requirements stated in Condition D14
D16	The Groundwater Management and Monitoring Program Review Report A report documenting the outcomes of the review required by Condition D15 must be provided to the administering authority via WaTERS within 30 business days from the date of completion of review and must at a minimum: a) show the location of the proposed groundwater bores to detect potential impacts from the mining and rehabilitation activities; b) include the target groundwater aquifer for each of the proposed groundwater bores; c) include the conceptual model used to determine the location of groundwater bores; d) state the methodology used to determine an appropriate number of groundwater bores to be installed; e) a schedule for the construction and commissioning of the groundwater bores; f) how impacts to prescribed environmental matters will be avoided as a result of the disturbance associated with the installation of the proposed bores; and g) standing water level for each of the groundwater bores.
D17	Bore construction and maintenance and decommissioning The construction, maintenance, and management of groundwater bores (including groundwater monitoring bores) must be undertaken in a manner that prevents or minimises impacts to the environment and ensures the integrity of the bores to obtain accurate monitoring.
D18	Any groundwater monitoring bores that are mined through during operations must be replaced with bores in the equivalent Screen Stratigraphy, and updated details provided in Table D1 - Groundwater monitoring locations and frequency .

Table D1- Groundwater monitoring locations and frequencies

Location Description	Monitoring Point	Environmental Value Monitoring	Easting (GDA20)	Northing (GDA20)	Pre-mining baseline standing water levels (mbTOC) ⁶	Drawdown Trigger Levels (m)	Groundwater trigger elevation (mAHD) ⁴	Monitoring Frequency
Monitoring Bores								
Rangal Coal Measure	MBBE0008	Groundwater	620294	7585092	19.59	5	282.62	Quarterly measurements of SWL ⁵ Quarterly EC and pH Six monthly for remaining analytes
Rangal Coal Measure	BDW172 (54) ¹	Groundwater	619376	7586650	19.83	35	234.52	
Rangal Coal Measure	BDW8C ¹	Groundwater	619782	7585651	21.54	63	217.61	
Rangal Coal Measure	BDW5C ¹	Groundwater	619687	7586758	15.74	5	271.40	
Rewan Group	BDW172 (32) ¹	Groundwater	619376	7586650	13.32	7	269.03	
Tertiary Sediments	MBBE0002b ²	Terrestrial GDE within the riparian corridor near Hat and Spade creek	618436	7585329	12.57	2	331.86	
Basalt	MBBE0003 ²	Groundwater	618431	7584664	N.A	5	N.A	
Alluvium	MBBE0004 ²	Terrestrial GDE within the riparian corridor near Hat and Spade creek	620205	7586976	N.A	2	N.A	

Alluvium	MBBE0006 ^{1, 2}	Terrestrial GDE within the riparian corridor near Hat and Spade creek	619173	7587205	N.A	2	N.A	
Compliance Bores								
Rangal Coal Measures	MBBE0001 ^{1, 3}	Groundwater	619884	7585428	42.20	57	206.01	Quarterly measurements of SWL ¹
Rewan Group	MBBE0007	Groundwater	620615	7586415	24.90	23	249.92	Quarterly EC and pH Six monthly for remaining analytes ²

NOTE:

1. To be monitored until mined out.
2. Some bores are often dry and unavailable for water levels.
3. MBBE0001 to be replaced in Year 3 by another bore
4. Groundwater trigger elevations are conversion of drawdown trigger levels(m) to mAHD – metres above Australian height Datum
5. Quarterly or more frequently following granting of this Environmental Authority
6. mbTOC – metres below top of casing

Table D2 – Groundwater quality limits

Monitoring point	Parameter	pH	EC	Sulfate (SO ₄)	Arsenic	Aluminium	Molybdenum	Selenium	Major ions Interpretation Only
	Sample	Range	Max	Max	Max	Max	Max	Max	
	Unit	pH units	(µS/cm)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	
MBBE0001		6.5 – 8.5	888.3	0.5	0.002	0.08	0.001	0.005	
MBBE0007			48,540	937.6	0.005	0.37	0.025	0.046	

NOTE:

All metals must be measured as total (unfiltered) and dissolved (filtered). Trigger levels for metal apply if dissolved results exceed trigger.

Triggers are based on 95th percentile results from all groundwater quality analyses from each monitoring bore.

Schedule E: Noise and Vibration	
Condition number	Condition
E1	Noise nuisance Noise, vibration and air blast overpressure resulting from the authorised mining activities must not cause a nuisance at any sensitive receptor.
E2	A Noise and Vibration Management Plan must be implemented at the site and include the following as a minimum: a) be developed by an appropriately qualified person; b) identification of all potential sensitive receptors which may be affected by noise and vibration impacts from the mining activities; c) identification of all major sources of noise and vibration emissions that may occur as a result of the operation of the project; d) description of the procedures to manage the noise and vibration emissions from the sources identified; e) collection of noise and vibration data as per Condition E3; f) identifying adverse meteorological conditions likely to produce elevated levels of noise and vibration at a sensitive or commercial place due to mining activities; g) integration of noise and vibration control strategies; h) protocols for regular maintenance of plant and equipment, to minimise the potential for noise and vibration emissions; and i) description of procedures to be undertaken if any exceedance is detected.
E3	Noise monitoring Noise from the authorised mining activities must not exceed the limits specified in Table E1 - Noise limits and Table E2 - Blasting Noise Limits at any sensitive receptor. If the environmental authority holder can provide monitoring evidence at the time of the alleged exceedance that the limits defined in Table E1 - Noise Limits and Table E2 - Blasting Noise Limits, are not being exceeded then the holder is not in breach of Condition E1 of this environmental authority.
E4	Monitoring required by Condition E3 must be conducted in accordance with the administering authority's <i>Noise Measurement Manual</i> (ESR/2016/2195) and all recordings must include the following descriptor characteristics and matters: a) LAN,T (where N equals the statistical levels of 1, 10 and 90 and T = 1 hour) b) background noise LA90 c) the level and frequency of occurrence of impulsive or tonal noise and any adjustment and penalties to statistical levels d) atmospheric conditions including temperature, relative humidity and wind speed and directions e) effects due to any extraneous factors such as traffic noise f) location, date and time of monitoring g) if the complaint concerns low frequency noise, Max LpLIN,T and one third octave band measurements in dB(LIN) for centre frequencies in the 10 – 200 Hz range.

E5	If monitoring indicates exceedance of the limits in Table E1 - Noise Limits and Table E2 - Blasting Noise Limits, then the environmental authority holder must: a) address the complaint including the use of appropriate dispute resolution if required; and b) immediately implement noise abatement measures so that emissions of noise from the activity do not result in further environmental nuisance.
E6	If during monitoring as required by Condition E3, there is an exceedance of the relevant limits listed in Table E1 - Noise limits and Table E2 - Blasting Noise Limits, the administering authority must be notified of the exceedance occurring within twenty-four (24) hours as per Condition A15. The notification must also detail the actions taken in accordance with Condition E5.
E7	Vibration nuisance Subject to Conditions A13 and E8 of this environmental authority vibration from the mining activity must not cause an environmental nuisance, at any sensitive receptor.
E8	If the environmental authority holder can provide monitoring evidence that the limits defined in Table E2 – Blasting Noise Limits, are not being exceeded then the holder is not in breach of Condition A13 of this environmental authority. Monitoring must include: a) peak particle velocity (mm/s); b) air blast overpressure level (dB linear peak); c) location of the blast/s within the mining area (including which bench level); d) atmospheric conditions including temperature, relative humidity and wind speed and direction; and e) location, date, and time of recording.
E9	Blast monitoring must be conducted in accordance with the most recent edition of the administering authority's guideline <i>Noise and vibration from blasting</i> (ESR/2016/2169) or relevant Australian Standards.
E10	For the purposes of Condition E7 of this environmental authority, the mining activities will not cause environmental nuisance where noise from the mining activities does not exceed the criteria specified in Table E2 – Blasting Noise Limits.
E11	If monitoring indicates exceedance of the limits in Table E2 – Blasting Noise Limits, then the environmental authority holder must: a) address the complaint including the use of appropriate dispute resolution if required; and b) immediately implement noise abatement measures so that emissions of noise from the activity do not result in further environmental nuisance.
E12	Every explosive blast for the mining activity shall be designed by a competent person to achieve the criteria specified in Table E2 – Blasting Noise Limits.
E13	All relevant information pertaining to the design of every explosive blast for the mining activity in relation to the criteria specified in Table E2 - Blasting Noise Limits shall be kept in written and diagrammatic form.

Table E1 - Noise limits

Noise level dB(A)	Monday to Sunday (including public holidays)		
	7am - 6pm	6pm - 10pm	10pm - 7am
	Noise measured at a 'Sensitive receptor'		
L _{Aeq} , Adj, 1hr	40	40	35
L _{A1} , adj, 1hr	50	50	45

NOTE: Table E1 does not purport to set operating hours for the mining activities.

Table E2 - Blasting Noise Limits

Noise Level dB(A)	Sensitive or commercial place	
	7am – 6pm	6pm – 7am
Airblast overpressure	115 dB (Linear) Peak for 4 out of 5 consecutive blasts initiated and not greater than 120 dB (Linear) Peak at any time.	No blasting to occur
Ground vibration peak particle velocity	5mm/second peak particle velocity for 4 out of 5 consecutive blasts and not greater than 10 mm/second peak particle velocity at any time	No blasting to occur

NOTE: Table E2 does not purport to set limits applicable to any particular explosive blast, rather sets design criteria for every explosive blast.

Schedule F: Waste	
Condition number	Condition
F1	Waste Management Plan A Waste Management Plan must be developed and implemented for all stages of mining activities. The Waste Management Plan must at a minimum include the following: a) types and amounts of regulated waste generated, including rejects; b) description of how the types of regulated waste are generated and will be dealt with under the waste and resource management hierarchy; c) procedures for identifying and implementing opportunities to minimise the amount of regulated waste generated and improve practices employed; d) procedures for dealing with accidents, spills and incidents that may impact on waste management; e) staff training on matters relevant to regulated waste management; and f) mechanisms and dates for review of the waste management plan.
F2	Waste must not be burnt or allowed to burn on the site unless permitted by the administering authority.
F3	A designated area must be set aside for the segregation of economically viable recycling solid or liquid waste.
F4	Site contamination will be assessed at relinquishment of the mining tenure according to the <i>Environmental Protection Act 1994</i> , with results and any required remediation actions detailed in the Final Rehabilitation Report.
F5	Records of trade waste or material leaving the Mining Lease for recycling or disposal, including the final destination and method of treatment, in accordance with the <i>Environmental Protection Act 1994</i> , will be maintained and be made available for inspection by an authorised person or the administering authority.
F6	Inert demolition and construction waste disposal Inert demolition and construction waste must only be disposed of into the spoil emplacements disposal area consistent with the site Waste Management Plan.
F7	Deposited waste must be covered as soon as practicable to limit stormwater infiltration, prevent exposure of waste, and prevent issues arising from vectors and pest species.
F8	All reasonable and practicable measures must be taken to contain litter within the waste operations area, and retrieve litter released.
F9	The only types of regulated waste authorised to be disposed are scrap tyres and rejects.
F10	A register recording all volumes and locations of regulated waste disposed must be established and maintained to ensure that the information contained in the register is current and complete on any given day.

F11	Storage of tyres Scrap tyres stored awaiting disposal or transport for take-back and recycling, or waste-to-energy options must be stored in stable stacks and at least ten (10) meters from any other scrap tyre storage area, or combustible or flammable material, including vegetation.
F12	All reasonable and practicable fire prevention measures must be implemented, including removal of grass and other materials within a ten (10) meter radius of the scrap tyre storage area.
F13	Where no feasible recycling or waste to energy options are available, disposing of scrap tyres resulting from the mining activities in spoil emplacements is acceptable, provided tyres are placed as deep in the spoil as reasonably practicable.
F14	Scrap tyre waste disposal areas on the mining lease will be capped with two meters of inert material and revegetated in accordance with available and recognised best practice following the cessation of their use as disposal areas in a manner that will encourage run-off.
F15	Scrap tyres resulting from the mining activities disposed within the operational land must not impede saturated aquifers or compromise the stability of the consolidated landform.
F16	Rejects disposal The only regulated waste authorised to be disposed of under environmentally relevant activity 60(1) is rejects and it must be disposed in accordance with Conditions F17 and F18.
F17	Rejects are authorised to be disposed of within spoil emplacements in the following disturbance areas: a) out of pit overburden dumps; and b) central pit.
F18	Rejects must be disposed of according to, at a minimum, the following emplacement design criteria: a) each emplacement is not more than 50 metres in width and 100 metres in length; b) there is not less than ten (10) metres in between rejects emplacements; and c) each emplacement is not less than ten (10) metres from a spoil dump boundary.

Schedule G: Land and Biodiversity	
Condition number	Condition
G1	Preventing contaminant release to land Contaminants must not be released to land unless otherwise authorised by a condition of this environmental authority.
G2	Topsoil Topsoil resources that are suitable for use in rehabilitation must be salvaged ahead of mining disturbance for strategic use in rehabilitation of the mine area.
G3	A Topsoil Management Plan must be developed, implemented, and made available to the administering authority upon request. The Topsoil Management Plan must contain topsoil management strategies including but not limited to: a) Topsoil stripped and stockpiled in advance of mining activities; b) Measures to ensure that the mixing and erosion of topsoil and overburden stockpiles is prevented; and c) A topsoil inventory which identifies the topsoil requirements and availability of suitable topsoil on site for the mining activity must be maintained and made available on request by the administering authority.
G4	Mineral Waste A Mineral Waste Management Plan must be developed and implemented for the duration of the mining activities. The plan must include at a minimum: a) a program of progressive sampling and characterisation to identify the physical properties of mineral waste, the dispersive and non-dispersive material, salinity, acid and alkali producing potential, and metal concentrations; b) the availability or leachability of metals from mineral waste; c) a materials balance and disposal plan demonstrating how potentially acid forming, acid forming and sodic mineral waste will be selectively placed and/or encapsulated; d) where relevant, a sampling program to verify encapsulation and/or placement of potentially acid forming, acid-forming and sodic mineral waste; e) details as to how seepage and leachability from mineral waste will be managed both during operation and the foreseeable future; and f) mechanisms for review of the Mineral Waste Management Plan.
G5	Rehabilitation and final landform design All areas significantly disturbed by mining activities must be rehabilitated to a safe, stable, non-polluting landform with a self-sustaining vegetation cover in accordance with the following: a) Appendix 5, Table G1 - Post Mining Land Use (PMLU) and Rehabilitation Methods; b) Appendix 5, Table G2 - PMLU Rehabilitation Success Criteria; c) The Rehabilitation Management Plan required by Condition G10; and d) A Residual Void Design and Closure Plan required by Condition G7.

G6	Residual Void Outcome Only the residual void detailed in Appendix 5, Table G1 - Post Mine Land Use (PMLU) and Rehabilitation Methods, is permitted at the approved place located as per Figure 4 - Final Landform. The residual void must comply with its design requirements specified in Appendix 5, Table G2 - PMLU Rehabilitation Success Criteria
G7	The south residual void as detailed in Appendix 5, Table G1 - Post Mine Land Use (PMLU) and Rehabilitation Methods must act as groundwater sink to the receiving groundwater environment.
G8	A Residual Void Design and Closure Plan must be developed and submitted for a review to the administering authority by 29 September 2023.
G9	Within twenty (20) business days of receiving comments from the administering authority as per Condition G8, a Residual Void Design and Closure plan must be updated by the AQP to address any comments suggested by the administering authority.
G10	A Residual Void (Southern void) Design and Closure Plan required by Condition G8 must include, but is not limited to, the following details: a) a study of options available for minimising residual void area and volume; b) detailed design criteria and rehabilitation methodology of residual voids in accordance with Appendix 5, Table G1 - Post Mine Land Use (PMLU) and Rehabilitation Methods and Table G2 - PMLU Rehabilitation Success Criteria; c) a void hydrology study, addressing the long-term water balance in the void, connections to groundwater resources and water quality parameters in the long-term; d) a pit wall stability study, considering the effects of long-term erosion and weathering of the pit wall and the effects of significant hydrological events; e) a study of void capability to support a PMLU of stock watering as per the relevant Water Quality Objectives; f) a proposal/s for end of mine void rehabilitation success criteria and residual void areas and volumes; and g) post closure monitoring and management requirements. NOTE: At the completion of decommissioning and rehabilitation, the residual void must be protected from Probable Maximum Floods (PMFs) from nearby watercourses such that the protection is sustainable for the foreseeable future.

G11	Rehabilitation Management Plan A Rehabilitation Management Plan for all areas disturbed by the authorised mining activities must be developed and implemented by an appropriately qualified person that includes, at a minimum, the following: a) a map of proposed areas of rehabilitation including classification and status of rehabilitation; b) a strategy and schedule for the progressive rehabilitation of all disturbance during the life of mine; c) a strategy for weed and pest management which includes disturbed and rehabilitated areas; d) a strategy for successfully achieving rehabilitation requirements of this environmental authority; e) details of the grazing trials; f) details of landform design to achieve rehabilitation outcomes listed in Appendix 5, Table G1 - Post Mine Land Use (PMLU) and Rehabilitation Methods including end of mine design and schematic representation of final landform inclusive of: i. drainage design and features; ii. slope designs; iii. cover design; iv. erosion controls proposed on reformed land; g) details of how landform design will be consistent with surrounding topography; h) details of how the final land uses will align with local planning scheme requirements; i) specify the spoil characteristics, soil analysis and soil separation for use on rehabilitation; j) specify the topsoil requirements for the site and how topsoil will be managed for use in rehabilitation; k) details of any topsoil deficit and how any deficit will be managed for successful rehabilitation; l) details of rehabilitation methods to be applied to each domain as per Appendix 5, Table G1 Post Mine Land Use (PMLU) and Rehabilitation Methods, including defined water quality parameters for water structures to be retained onsite post mine; m) describe the monitoring of reference sites; n) description of rehabilitation indicators and how these will be monitored; o) description of management actions to address unsuccessful rehabilitation or redesign; p) description of wastewater collection and reticulation and treatment systems; q) description of any risks to groundwater and how these will be managed; and r) description of seepage and leachate management considerations.
G12	The Rehabilitation Management Plan required by Condition G11 must be submitted to the administering authority for review and comment before 29 September 2023 .
G13	Within twenty (20) business days of receiving comments from the administering authority as per Condition G12 , the Rehabilitation Management Plan must be updated by the appropriately qualified person to address any comments suggested by the administering authority.
G14	Rehabilitation must commence and be undertaken progressively in accordance with the Rehabilitation Management Plan required by Condition G11 .
G15	Rehabilitation Monitoring Program A Rehabilitation Monitoring Program must be developed and implemented by an appropriately qualified person for the life of this environmental authority.

G16	A review of the Rehabilitation Monitoring Program required by Condition G15 must occur at intervals no greater than thirty-six (36) months from the commencement of the mining activities.
G17	A report of the findings of the rehabilitation monitoring program review required by Condition G16 . The report must contain the following: a) how the rehabilitation objectives in the Rehabilitation Management Plan required by Condition G4 are being met; b) if the rehabilitation objectives are not being met, the corrective actions to be taken; c) a statistical analysis of how areas of rehabilitation compare to reference sites; d) a statistical analysis of how areas of rehabilitation are meeting the requirements of Condition G11; e) the sampling and monitoring intensity used in the Rehabilitation Monitoring Program required by Condition G15; and f) justification of the sampling and monitoring intensity used in the Rehabilitation Monitoring Program required by Condition G15.
G18	Infrastructure All infrastructure, constructed by or for the environmental authority holder during the mining activities including water storage structures, must be removed from the site prior to mining lease surrender, except where agreed in writing by the post mining landowner / holder. NOTE: <i>This is not applicable where the landowner/holder is also the environmental authority holder.</i>
G19	The characteristics of overburden must be determined prior to disturbance by mining to a standard sufficient to enable selective handling of materials required.
G20	Cleared vegetation from the site must be managed in accordance with the following hierarchy: a) reuse, e.g., use of logs and tree stumps as shelter for fauna in rehabilitated areas; b) recycle, e.g., mulching of vegetation and use in rehabilitation on the site; and c) other alternative management options implemented in a way that causes the least amount of environmental harm.
G21	Chemical Storage Chemicals and fuels stored, must be effectively contained and where relevant, meet Australian Standards, where such a standard is applicable. Where no standard exists, storage of such materials must be within an effective on-site containment system.

Schedule H: Regulated Structures	
Condition number	Condition
H1	Assessment of consequence category The consequence category of any structure must be assessed by a suitably qualified and experienced person in accordance with the <i>Manual for Assessing Consequence Categories and Hydraulic Performance of Structures</i> (ESR/2016/1933) at the following times: a) prior to the design and construction of the structure, if it is not an existing structure; or b) prior to any change in its purpose or the nature of its stored contents.
H2	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.
H3	Certification must be provided by the suitably qualified and experienced person who undertook the assessment, in the form set out in the <i>Manual for Assessing Consequence Categories and Hydraulic Performance of Structures</i> (ESR/2016/1933).
H4	Design and construction¹ of a regulated structure Conditions H5 to H9 inclusive do not apply to existing structures.
H5	All regulated structures must be designed by, and constructed ² under the supervision of, a suitably qualified and experienced person in accordance with the requirements of the <i>Manual for Assessing Consequence Categories and Hydraulic Performance of Structures</i> (ESR/2016/1933).
H6	Construction of a regulated structure is prohibited unless the holder has submitted a consequence category assessment report and certification to the administering authority has been certified by a suitably qualified and experienced person for the design and design plan and the associated operating procedures in compliance with the relevant condition of this authority.
H7	Certification must be provided by the suitably qualified and experienced person who oversees the preparation of the design plan in the form set out in the <i>Manual for Assessing Consequence Categories and Hydraulic Performance of Structures</i> (ESR/2016/1933) and must be recorded in the Register of Regulated Structures.

¹ Construction of a dam includes modification of an existing dam — refer to the definitions.

² Certification of design and construction may be undertaken by different persons.

H8	Regulated structures must: a) be designed and constructed in accordance with and conform to the requirements of the <i>Manual for Assessing Consequence Categories and Hydraulic Performance of Structures</i> (ESR/2016/1933); b) be designed and constructed with due consideration given to ensuring that the design integrity would not be compromised on account of: i) floodwaters from entering a regulated dam from any watercourse or drainage line; and ii) wall failure due to erosion by floodwaters arising from any watercourse or drainage line. c) for regulated dams that are dams associated with a failure to contain – seepage: have the floor and sides of the dam designed and constructed to prevent or minimise the passage of the wetting front and any entrained contaminants through either the floor or sides of the dam during the operational life of the dam and for any period of decommissioning and rehabilitation of the dam.
H9	Certification by the suitably qualified and experienced person who supervises the construction must be submitted to the administering authority on the completion of construction of the regulated structure, and state that: a) the 'as constructed' drawings and specifications meet the original intent of the design plan for that regulated structure; b) construction of the regulated structure is in accordance with the design plan.
H10	Operation of a regulated structure Operation of a regulated structure, except for an existing structure, is prohibited unless the holder has submitted to the administering authority: a) one electronic copy of the design plan and certification of the 'design plan' in accordance with Condition H6, and b) a set of 'as constructed' drawings and specifications, and c) certification of those 'as constructed drawings and specifications' in accordance with Condition H9, and d) where the regulated structure is to be managed as part of an integrated containment system for the purpose of sharing the DSA volume across the system, a copy of the certified system design plan. e) the requirements of this authority relating to the construction of the regulated structure have been met; f) The holder has entered the details required under this authority, into a Register of Regulated Dams; and g) There is a current operational plan for the regulated structures.
H11	Each regulated structure must be maintained and operated, for the duration of its operational life until decommissioned and rehabilitated, in a manner that is consistent with the current operational plan and, if applicable, the current design plan and associated certified 'as constructed' drawings.
H12	Mandatory reporting level Conditions H14 to H17 inclusive only apply to regulated dams which have not been certified as low consequence category for 'failure to contain – overtopping'.

H13	The Mandatory Reporting Level (the MRL) must be marked on a regulated dam in such a way that during routine inspections of that dam, it is clearly observable.
H14	The holder must, as soon as practical and within forty-eight (48) hours of becoming aware, notify the administering authority when the level of the contents of a regulated dam reaches the MRL.
H15	The holder must, immediately on becoming aware that the MRL has been reached, act to prevent the occurrence of any unauthorised discharge from the regulated dam.
H16	The holder must record any changes to the MRL in the Register of Regulated Structures.
H17	Design Storage Allowance The holder must assess the performance of each regulated dam or linked containment system over the preceding November to May period based on actual observations of the available storage in each regulated dam or linked containment system taken prior to 1 July of each year.
H18	By 1 November of each year, storage capacity must be available in each regulated dam (or network of linked containment systems with a shared DSA volume), to meet the Design Storage Allowance (DSA) volume for the dam (or network of linked containment systems).
H19	The holder must, as soon as possible and within forty-eight (48) hours of becoming aware that the regulated dam (or network of linked containment systems) will not have the available storage to meet the DSA volume on 1 November of any year, notify the administering authority.
H20	The holder must, immediately on becoming aware that a regulated dam (or network of linked containment systems) will not have the available storage to meet the DSA volume on 1 November of any year, act to prevent the occurrence of any unauthorised discharge from the regulated dam or linked containment systems.
H21	Annual Inspection report Each regulated structure must be inspected each calendar year by a suitably qualified and experienced person.
H22	At each annual inspection, the condition and adequacy of all components of the regulated structure must be assessed and a suitably qualified and experienced person must prepare an annual inspection report containing details of the assessment and include recommended actions to ensure the integrity of the regulated structure.
H23	The suitably qualified and experienced person who prepared the annual inspection report must certify the report in accordance with the <i>Manual for Assessing Consequence Categories and Hydraulic Performance of Structures</i> (ESR/2016/1933).

H24	The holder must: a) Within twenty (20) business days of receipt of the annual inspection report, provide to the administering authority: i) The recommendations section of the annual inspection report; and ii) If applicable, any actions being taken in response to those recommendations; and b) If, following receipt of the recommendations and (if applicable) actions, the administering authority requests a full copy of the annual inspection report from the holder, provide this to the administering authority within ten (10) business days of receipt of the request.
H25	Transfer arrangements The holder must provide a copy of any reports, documentation and certifications prepared under this authority, including but not limited to any Register of Regulated Structures, consequence assessment, design plan and other supporting documentation, to a new holder on transfer of this authority.
H26	Decommissioning and rehabilitation Dams must not be abandoned but be either: a) decommissioned and rehabilitated to achieve compliance with Condition H28; or b) be left in-situ for a beneficial use(s) provided that: i) it no longer contains contaminants that will migrate into the environment; ii) it contains water of a quality that is demonstrated to be suitable for its intended beneficial use(s); and iii) the administering authority, the holder of the environmental authority and the landholder agree in writing that the dam will be used by the landholder following the cessation of the environmentally relevant activity(ies).
H27	After decommissioning, all significantly disturbed land caused by the carrying out of the environmentally relevant activity(ies) must be rehabilitated to meet the following final acceptance criteria: a) the landform is safe for humans and fauna; b) the landform is stable with no subsidence or erosion gullies for at least three (3) years; c) any contaminated land (e.g. contaminated soils) is remediated and rehabilitated; d) not allowing for acid mine drainage; e) there is no ongoing contamination to waters (including groundwater); f) rehabilitation is undertaken in a manner such that any actual or potential acid sulfate soils on the area of significant disturbance are treated to prevent or minimise environmental harm in accordance with the <i>Instructions for the treatment and management of acid sulfate soils</i> (2001); g) all significantly disturbed land is reinstated to the pre-disturbed land suitability class; and h) for land that is not being cultivated by the landholder: i) groundcover, that is not a declared pest species is established and self-sustaining; ii) vegetation of similar species richness and species diversity to pre-selected analogue sites is established and self-sustaining; iii) the maintenance requirements for rehabilitated land is no greater than that required for the land prior to its disturbance caused by carrying out the resource activities;

	iv) for land that is to be cultivated by the landholder, cover crop is revegetated, unless the landholder will be preparing the site for cropping within three (3) months of the resource activities being completed.
H28	Register of Regulated Structure A Register of Regulated Structures must be established and maintained by the holder for each regulated dam.
H29	The holder must provisionally enter the required information in the Register of Regulated Structures when a design plan for a regulated structure is submitted to the administering authority.
H30	The holder must make a final entry of the required information in the Register of Regulated Structures once compliance with Condition H10 to H11 has been achieved.
H31	The holder must ensure that the information contained in the Register of Regulated Structures is current and complete on any given day.
H32	All entries in the Register of Regulated Structures must be approved by the chief executive officer for the holder of this authority, or their delegate, as being accurate and correct.

Definitions

Key terms and/or phrases used in this document are defined in this section. Applicants should note that 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.

“accepted engineering standards” in relation to dams, means those standards of design, construction, operation and maintenance that are broadly accepted within the profession of engineering as being good practice for the purpose and application being considered. In the case of dams, the most relevant documents would be publications of the Australian National Committee on Large Dams (ANCOLD), guidelines published by Queensland government departments, and relevant Australian and New Zealand Standards.

“acceptance criteria” means the measures by which the actions implemented to rehabilitate the land are deemed to be complete. The acceptance criteria indicate the success of the rehabilitation outcome or remediation of areas which have significantly been disturbed by the resource activities. Acceptance criteria may include information regarding:

- a) vegetation establishment, survival and succession;
- b) vegetation productivity, sustained growth and structure development;
- c) fauna colonisation and habitat development;
- d) 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;
- e) microbiological studies including recolonisation by mycorrhizal fungi, microbial biomass and respiration;
- f) effects of various establishment treatments such as deep ripping, topsoil handling, seeding and fertiliser application on vegetation growth and development;
- g) resilience of vegetation to disease, insect attack, drought and fire; and
- h) vegetation water use and effects on ground water levels and catchment yields.

“acid sulfate soil(s)” means a soil or soil horizon which contains sulfides or an acid soil horizon affected by oxidation of sulfides.

“acid rock drainage” means any contaminated discharge emanating from a mining activity formed through a series of chemical and biological reactions when geological strata is disturbed and exposed to oxygen and moisture as a result of mining activity.

“administering authority” means the Department of Environment and Science or its successor.

“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.

“airblast overpressure” means energy transmitted from the blast site within the atmosphere in the form of pressure waves. The maximum excess pressure in this wave, above ambient pressure is the peak airblast overpressure measured in decibels linear (dBL).

“ANZECC” means the **Australian and New Zealand Guidelines for Fresh Marine Water Quality 2000**

“annual inspection report” means an assessment prepared by a suitably qualified and experienced person containing details of the assessment against the most recent consequence assessment report and design plan (or system design plan);

- a) against recommendations contained in previous annual inspections reports;
- b) against recognised dam safety deficiency indicators;
- c) for changes in circumstances potentially leading to a change in consequence category;
- d) for conformance with the conditions of this authority;
- e) for conformance with the ‘as constructed’ drawings;
- f) for the adequacy of the available storage in each regulated dam, based on an actual observation or observations taken after 31 May each year but prior to 1 November of that year, of accumulated sediment, state of the containment barrier and the level of liquids in the **dam** (or network of linked containment systems);
- g) for evidence of conformance with the current operational plan.

“APPEA Code” means the current APPEA, Code of Environmental Practice.

“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 on performance relative to the subject matter using the relevant protocols, standards, methods or literature.

“areas of pre-existing disturbance” means areas where environmental values have been negatively impacted as a result of anthropogenic activity and these impacts are still evident. Areas of pre-disturbance may include areas where legal clearing, logging, timber harvesting, or grazing activities have previously occurred, where high densities of weed or pest species are present which have inhibited re-colonisation of native regrowth, or where there is existing infrastructure (regardless of whether the infrastructure is associated with the authorised petroleum activities). The term ‘areas of pre-disturbance’ does not include areas that have been impacted by wildfire/s, controlled burning, flood or natural vegetation die-back.

“authority” means environmental authority (mining activities) under the *Environmental protection Act 1994*.

“AS2885” means the *Australian Standard Pipelines – Gas and Liquid Petroleum*.

“assessed” or **“assess”** by a suitably qualified and experienced person in relation to a hazard assessment of a structure, 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” is defined in section 185 of the *Petroleum and Gas (Production and Safety) Act 2004* and means underground water taken or interfered with, if the taking or interference happens during the course of, or results from, the carrying out of another authorised activity under a petroleum authority, such as a petroleum well, and includes waters also known as produced formation water. The term includes all contaminants suspended or dissolved within the water.

“associated works” in relation to a dam, means:

- a) operations of any kind and all things constructed, erected or installed for that dam; and
- b) any land used for those operations.

“background noise level” means the sound pressure level, measured in the absence of the noise under investigation, as the LA90, T being the A-weighted sound pressure level exceeded for 90% of the measurement time period T of not less than 15 minutes, using Fast response.

“bed and banks” for a waters, river, creek, stream, lake, lagoon, pond, swamp, wetland or dam means land over which the water of the waters, lake, lagoon, pond, swamp, wetland or dam 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 and banks that is from time to time covered by floodwater.

“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.

“blasting” means the use of explosive materials to fracture-

- a) rock, coal and other minerals for later recovery; or
- b) structural components or other items to facilitate removal from a site or for reuse.

“bunded” means within bunding consistent with Australian Standard 1940.

“certification”, “certifying” or “certified” by an appropriately qualified and experienced person in relation to a design plan or an annual report regarding dams/structures, 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.

“chemical” means:

- a) an agricultural chemical product or veterinary chemical product within the meaning of the *Agricultural and Veterinary Chemicals Code Act 1994* (Commonwealth); or
- b) a dangerous good under the Australian Code for the Transport of Dangerous Goods by Road and Rail approved by the Australian Transport Council; or
- c) a lead hazardous substance within the meaning of the *Workplace Health and Safety Regulation 1997*;
- d) a drug or poison in the Standard for the Uniform Scheduling of Drugs and Poisons prepared by the Australian Health Ministers’ Advisory Council and published by the Commonwealth; or

e) any substance used as, or intended for use as:

- i) a pesticide, insecticide, fungicide, herbicide, rodenticide, nematocide, miticide, fumigant or related product; or
- ii) a surface active agent, including, for example, soap or related detergent; or
- iii) a paint solvent, pigment, dye, printing ink, industrial polish, adhesive, sealant, food additive, bleach, sanitiser, disinfectant, or biocide; or
- iv) a fertiliser for agricultural, horticultural or garden use; or
- v) a substance used for, or intended for use for mineral processing or treatment of metal, pulp and paper, textile, timber, water or wastewater; or
- vi) manufacture of plastic or synthetic rubber.

“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 tracks; 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.

“commercial place” means a workplace used as an office or for business or commercial purposes, which is not part of the mining activity and does not include employees accommodation or public roads.

“competent person” means 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.

“completion criteria” these are the standards that are to be met by successful rehabilitation. They will generally be in the form of numerical values that can be verified by measurement of the indicators selected for the rehabilitation objectives. They may include an element based on time, e.g. the criterion has been achieved for 7 consecutive years for 95 percent of the area.

“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 structure 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/2016/1933)*.

“construction” includes building a new regulated structure and modifying or lifting an existing regulated structure.

“contaminate” means to render impure by contact or mixture.

“contaminated” means the substance has come into contact with a contaminant.

“contaminant” – a contaminant can be:

- 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
- e) a combination of contaminants.

“control measure” means any action or activity that can be used to prevent or eliminate a hazard or reduce it to an acceptable level.

“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. 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. In case there is any doubt, a levee (dyke or bund) is a dam, but (for example) a bund designed for spill containment to AS1940 is *not* a dam.

“dam crest volume” means the volume of material (liquids and/or solids) that could be within the walls of a dam at any time when the upper level of that material is at the crest level of that dam. That is, the instantaneous maximum volume within the walls, without regard to flows entering or leaving (for example, via spillway).

“declared pest plants” are listed in Schedule 2 of the *Land Protection (Pest and Stock Route Management) Regulation 2003*.

“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.

“design storage allowance” or **“DSA”** means the minimum storage required in a dam at the first of November each year in order to meet the hydraulic performance requirements.

“development approval” means a development approval under the *Integrated Planning Act 1997* or the *Sustainable Planning Act 2009* in relation to a matter that involves an environmentally relevant activity under the *Environmental Protection Act 1994*.

“disturbance” of land includes:

- a) compacting, removing, covering, exposing or stockpiling of earth;
- b) removal or destruction of vegetation or topsoil or both to an extent where the land has been made susceptible to erosion;
- c) carrying out mining within a watercourse, waterway, wetland or lake;
- d) the submersion of areas by tailings or hazardous contaminant storage and dam/structure walls;
- e) temporary infrastructure, including any infrastructure (roads, tracks, bridges, culverts, dam/structures, bores, buildings, fixed machinery, hardstand areas, airstrips, helipads etc.) which is to be removed after the mining activity has ceased; or
- f) releasing of contaminants into the soil, or underlying geological strata.

However, the following areas are not included when calculating areas of ‘disturbance’:

- g) areas off lease (e.g. roads or tracks which provide access to the mining lease);
- h) areas previously disturbed which have achieved the rehabilitation outcomes;
- i) by agreement with the administering authority, areas previously disturbed which have not achieved the rehabilitation objective(s) due to circumstances beyond the control of the mine operator (such as climatic conditions);
- j) areas under permanent infrastructure. Permanent infrastructure includes any infrastructure (roads, tracks, bridges, culverts, dam/structures, bores, buildings, fixed machinery, hardstand areas, airstrips, helipads etc.) which is to be left by agreement with the landowner.
- k) disturbance that pre-existed the grant of the tenure.

“dwelling” means any of the following structures or vehicles that is principally used as a residence –

- a) a house, unit, motel, nursing home or other building or part of a building; or
- b) a caravan, mobile home or other vehicle or structure on land; or
- c) a watercraft in a marina.

“EC” means electrical conductivity

“effluent” treated wastewater discharged from sewage treatment plants.

“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 particular activity, the time at which the petroleum authority ends or the time that the land in question ceases to be part of the authority. Under the APPEA Code ‘completion’ refers to the point at which the particular survey, program or operation has been rehabilitated and abandoned.

“end of pipe” means the location at which water is released to waters or land.

“environmental authority” means an environmental authority under Chapter 5 of the *Environmental Protection Act 1994*.

“environmental authority holder” means the holder of this environmental authority.

“environmental nuisance” is defined in section 15 of the *Environmental Protection Act 1994* and is unreasonable interference or likely interference with an environmental value caused by:

- a) aerosols, fumes, light, noise, odour, particles or smoke; or
- b) an unhealthy, offensive or unsightly condition because of contamination; or
- c) another way prescribed by regulation.

“environmentally relevant activity” means an environmentally relevant activity as defined under Section 18 of the *Environmental Protection Act 1994* and listed in the *Environmental Protection Regulation 1998*.

“equivalent person” means an equivalent person as defined in Item 63 of Schedule 2 in the *Environmental Protection Regulation 2008*.

“emergency action plan” means documentation forming part of the operational plan held by the holder or a nominated responsible officer, that identifies emergency conditions that sets out procedures and actions that will be followed and taken by the structure owner and operating personnel in the event of an emergency. The actions are to minimise the risk and consequences of failure, and ensure timely warning to downstream communities and the implementation of protection measures. The plan must require structure owners to annually update contact.

“existing structure” means a structure that was in existence prior to the adoption of this schedule of conditions under the authority.

“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.

“floodplain” has the meaning in the *Water Act 2000* and means an area of reasonably flat land adjacent to a watercourse that:

- is covered from time to time by floodwater overflowing from the watercourse; and
- does not, other than in an upper valley reach, confine floodwater to generally follow the path of the watercourse; and
- has finer sediment deposits than the sediment deposits of any bench, bar or in-stream island of the watercourse.

“floodwater” means water overflowing, or that has overflowed, from waters, river, creek, stream, lake, pond, wetland or dam onto or over riparian land that is not submerged when the watercourse or lake flows between or is contained within its bed and banks.

“flowline” is a small diameter pipeline through which fluids move on a petroleum lease before being sold.

“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.

“hazardous contaminant” means 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, mutagenicity, corrosiveness, explosiveness, radioactivity or flammability; or
- b) its physical, chemical or infectious characteristics.

“hazardous waste” means a substance, whether liquid, solid or gaseous that, if improperly treated, stored, disposed of or otherwise managed, is likely to cause environmental harm.

“hazard” in relation to a dam as defined, means the potential for environmental harm resulting from the collapse or failure of the dam to perform its primary purpose of containing, diverting or controlling flowable substances.

“hazard category” means a category, either low significant or high, into which a dam is assessed as a result of the application of tables and other criteria in *Manual for Assessing Hazard Categories and Hydraulic Performance of Dams* (EM635), prepared by the administering authority, as amended from time to time.

“high bank” - the defining bank is the terrace or bank or, if no bank is present, the point on the active floodplain which confines the average annual peak flows.

“hydraulic performance” means the capacity of a regulated dam to contain or safely pass flowable substances based on a probability (AEP) of performance failure specified for the relevant hazard category in the *Manual for Assessing Hazard Categories and Hydraulic Performance of Dams* (EM635).

“Holder” means:

- a) where this document is an environmental authority, any person who is the holder of, or is acting under, that environmental authority; or
- b) where this document is a development approval, any person who is the registered operator for that development approval.

“inert demolition and construction waste” means non-putrescible waste arising from construction or demolition activity. It may include materials such as brick, timber, concrete and steel.

“infrastructure” means water storage dams, roads and tracks, buildings and other structures built for the purpose of resource activities but does not include other facilities required for the long term management of mining impacts or the protection of potential resources. Such other facilities include dams, waste rock dumps, voids, or ore stockpiles and buildings as well as other structures whose ownership can be transferred and which have a residual beneficial use for the next owner of the operational land or the background landowner.

“LA10, adj, 10 mins” means the A-weighted sound pressure level, (adjusted for tonal character and impulsiveness of the sound) exceeded for 10% of any 10-minute measurement period, using Fast response.

“LA1, adj, 10 mins” means the A-weighted sound pressure level, (adjusted for tonal character and impulsiveness of the sound) exceeded for 1% of any 10-minute measurement period, using Fast response

“LA, max adj, T” means the average maximum A-weighted sound pressure level, adjusted for noise character and measured over any 10 minute period, using Fast response.

“lake” includes –

- a) lagoon, swamp or other natural collection of water, whether permanent or intermittent; and
- b) the bed and banks and any other element confining or containing the water.

“land” in the “land schedule” of this document means land excluding waters and the atmosphere.

“land capability” as defined in the DME 1995 Technical Guidelines for the Environmental Management of Exploration and Mining in Queensland.

“land suitability” as defined in the DME 1995 Technical Guidelines for the Environmental Management of Exploration and Mining in Queensland.

“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.

“LA 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 meter with a frequency weighting that corresponds to perceived loudness (*A* weighting) and the meter must be set to the *fast* response time weighting. The measured values are to be adjusted upwards by 2dB(A) to 5dB(A) if the noise source has tonal characteristics. The measuring period must be in excess of five 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% or less. Refer to Australian Standard AS1055.)

“land use” term to describe the selected use of the land, which is planned to occur after the cessation of resource activities.

“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 from.

“levee” means a dam, 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 substance 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.

“litter” refers to scattered items of rubbish (less than 200 litres), such as cigarette butts, discarded food wrappers and beverage containers.

“licenced waste disposal facility” is a facility approved under a development approval and operated by a holder of a registration certificate for environmentally relevant activity item number 75 under Schedule 1 of the *Environmental Protection Regulation 2008*.

“limited regulated waste” means any of the following regulated wastes, asbestos, clinical waste or quarantine waste that has been rendered non-infectious, fish processing waste, food processing waste, poultry processing waste, tyres or treatment tank sludge or residue produced in the carrying out of an activity in relation to sewage treatment and water supply activities.

“linear infrastructure” means powerlines, pipelines, flowlines, roads and access tracks.

“low consequence dam” means any dam that is not a high or significant consequence category as assessed using the Manual for assessing consequence categories and hydraulic performance of structures (ESR/2016/1933).

“mandatory reporting level” or **“MRL”** means a warning and reporting level determined in accordance with the criteria in the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures* (EM635) published by the administering authority.

“manual” means the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures* (EM635) published by the administering authority.

“maximum extent of impact” means the total, cumulative, residual extent and duration of impact to a prescribed environmental matter that will occur over a project's life after all reasonable avoidance and reasonable on-site mitigation measures have been, or will be, undertaken.

“mg/L” means milligrams per litre.

“mining activity” means

- a) an activity that is an authorised activity for a mining tenement under the *Mineral Resources Act 1989*; or
- b) another activity that is authorised under the *Mineral Resources Act 1989* that grants rights over land.

“mine affected water”:

- a) means the following types of water:
- i) pit water, tailings dam water, processing plant water;
 - ii) water contaminated by a mining activity which would have been an environmentally relevant activity under Schedule 2 of the *Environmental Protection Regulation 2008* if it had not formed part of the mining activity;
 - iii) rainfall runoff which has been in contact with any areas disturbed by mining activities which have not yet been rehabilitated, excluding rainfall runoff discharging through release points associated with erosion and sediment control structures that have been installed in accordance with the standards and requirements of an Erosion and Sediment Control Plan to manage such runoff, provided that this water has not been mixed with pit water, tailings dam water, processing plant water or workshop water;
 - iv) groundwater which has been in contact with any areas disturbed by mining activities which have not yet been rehabilitated;
 - v) groundwater from the mine’s dewatering activities;
 - vi) a mix of mine affected water (under any of paragraphs i)-v) and other water;
 - vii) associated water, coal seam gas water or produced water from the mine’s petroleum activities.
- b) does not include surface water runoff which, to the extent that it has been in contact with areas disturbed by resource activities that have not yet been completely rehabilitated, has only been in contact with:
- i) land that has been rehabilitated to a stable landform and either capped or revegetated in accordance with the acceptance criteria set out in the environmental authority but only still awaiting maintenance and monitoring of the rehabilitation over a specified period of time to demonstrate rehabilitation success; or
 - ii) land that has partially been rehabilitated and monitoring demonstrates the relevant part of the landform with which the water has been in contact does not cause environmental harm to waters or groundwater, for example:
 - 1) areas that are been capped and have monitoring data demonstrating hazardous material adequately contained with the site;
 - 2) evidence provided through monitoring that the relevant surface water would have met the water quality parameters for mine affected water release limits in this environmental authority, if those parameters had been applicable to the surface water runoff; or
 - 3) both.

“mineral waste” means mining materials resulting from the extraction of coal including overburden, interburden, waste rock and rejects.

“measures” includes any measures to prevent or minimise environmental impacts of the mining activity such as bunds, silt fences, diversion drains, capping, and containment systems.

“NATA” means National Association of Testing Authorities, Australia.

“natural flow” means the flow of water through waters caused by nature.

“nature” includes:

- a) ecosystems and their constituent parts; and
- b) all natural and physical resources; and
- c) natural dynamic processes.

“non-polluting” means having no adverse impacts upon the receiving environment.

“notice of election” has the meaning in section 18(2) *Environmental Offsets Act 2014*.

“noxious” means harmful or injurious to health or physical well-being.

“offensive” means causing reasonable offence or displeasure; is disagreeable to the sense; disgusting, nauseous or repulsive, other than trivial harm.

“operational land” means the land associated with the project for which this environmental authority has been issued.

“operational plan” includes:

- a) normal operating procedures and rules (including clear documentation and definition of process inputs in the DSA allowance); and
- b) contingency and emergency action plans including operating procedures designed to avoid and/or minimise environmental impacts including threats to human life resulting from any overtopping or loss of structural integrity of the regulated structure.

“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.

“peak particle velocity (ppv)” means a measure of ground vibration magnitude which is the maximum rate of change of ground displacement with time, usually measured in millimetres/second (mms⁻¹).

“permanent infrastructure” includes any infrastructure (roads, tracks, bridges, culverts, dams, bores, buildings, fixed machinery, hardstand areas, airstrips, helipads, pipelines etc.) which is to be left by agreement with the landowner.

“progressive rehabilitation” means rehabilitation (defined below) undertaken progressively or a staged approach to rehabilitation as mining operations are ongoing.

“process water” means water used or produced during the mineral development activities.

“Prescribed environmental matters” has the meaning in section 10 of the *Environmental Offsets Act 2014*, and in section 5 of the *Environmental Offsets Regulation 2014*.

“receiving environment” means all groundwater, surface water, land, and sediments that are not disturbed areas authorised by this environmental authority.

“receiving waters” means all groundwater and surface water that are not disturbed areas authorised by this environmental authority.

“reference site” (or analogue 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.

“Register of Regulated structures” includes:

- a) date of entry in the register;
- b) name of the structure, its purpose and intended/actual contents;
- c) the consequence category of the structure as assessed using the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures* (EM635);

- d) dates, names, and reference for the design plan plus dates, names, and reference numbers of all document(s) lodged as part of a design plan for the structure;
- e) name and qualifications of the suitably qualified and experienced person who certified the design plan and 'as constructed' drawings;
- f) for the regulated structure, other than in relation to any levees –
 - i) the dimensions (metres) and surface area (hectares) of the structure measured at the footprint of the structure;
 - ii) coordinates (latitude and longitude in GDA94) within five metres at any point from the outside of the dam including its storage area
 - iii) dam crest volume (megalitres);
 - iv) spillway crest level (metres AHD).
 - v) maximum operating level (metres AHD);
 - vi) storage rating table of stored volume versus level (metres AHD);
 - vii) design storage allowance (megalitres) and associated level of the dam (metres AHD);
 - viii) mandatory reporting level (metres AHD);
- g) the design plan title and reference relevant to the structure;
- h) the date construction was certified as compliant with the design plan;
- i) the name and details of the suitably qualified and experienced person who certified that the constructed dam was compliant with the design plan;
- j) details of the composition and construction of any liner;
- k) the system for the detection of any leakage through the floor and sides of the dams only;
- l) dates when the regulated structure underwent an annual inspection for structural and operational adequacy, and to ascertain the available storage volume for 1 November of any year;
- m) dates when recommendations and actions arising from the annual inspection were provided to the administering authority;
- n) dam water quality as obtained from any monitoring required under this authority as at 1 November of each year.

“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.

“regulated waste” means non-domestic waste mentioned in schedule 7 of the *Environmental Protection Regulation 2008* (whether or not it has been treated or immobilised), and includes –

- a) for an element – any chemical compound containing the element; and
- b) anything that has contained the waste.

“rehabilitation objectives” the end points that rehabilitation aims to achieve. They may be described in terms of future land use, biodiversity values, conservation values, health and safety outcomes, aesthetics or social outcomes or combinations of these.

“rehabilitation indicators” an indicator is something that can be measured and audited according to an established protocol and used to evaluate changes in a system.

“rehabilitation” or **“rehabilitated”** means the process of reshaping and revegetating land to restore it to a stable landform and in accordance with acceptance criteria and, where relevant, includes remediation of contaminated land.

“rejects” means any of the following from the processing of run-of-mine coal, including any sediment containing hydrocarbons:

- a) breaker rejects;
- b) coarse rejects;
- c) mid/fine size rejects;
- d) ultra-fines that have been dewatered; or
- e) any combination of rejects under any of paragraphs a to d.

“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; and
- c) to fail to prevent the contaminant from being deposited, discharged, emitted or disturbed; and
- d) to allow the contaminant to escape; and
- e) to fail to prevent the contaminant from escaping.

“representative” means a sample set which covers the variance in monitoring or other data either due to natural changes or operational phases of the resource activities.

“Resource activity” is an activity that involves—

- (a) a geothermal activity; or
- (b) a GHG storage activity; or
- (c) a mining activity; or
- (d) a petroleum activity.

“residual void” means an open pit resulting from the removal of ore and/or waste rock which will remain following the cessation of all mining activities and completion of rehabilitation processes.

“riverine area” refers to the land confined to the flood flow channel of a watercourse.

“Run of mine (ROM) coal” means raw coal which has been extracted as part of the mining activities and has not been subject to any form of processing, crushing, screening or washing.

“saline drainage” The movement of waters, contaminated with salt(s), as a result of the mining activity.

“Scheme fund” means the scheme fund established under the *Mineral and Energy Resources (Financial Provisioning) Act 2018*, section 24.

“sensitive place” means:

- a) a dwelling, residential allotment, mobile home or caravan park, residential marina or other residential premises;
or
- b) a motel, hotel or hostel; or
- c) an educational institution; or
- d) a medical centre or hospital; or
- e) a protected area under the *Nature Conservation Act 1992*, the *Marine Parks Act 1992* or a World Heritage Area; or
- f) a public park or gardens.

“sewage” means the used water of person’s to be treated at a sewage treatment plant.

“self sustaining” means an area of land which has been rehabilitated and has maintained the required acceptance criteria without human intervention for a period nominated by the administering authority.

“significant residual impact” has the meaning in section 8 *Environmental Offsets Act 2014*.

“significantly disturbed” or **“significant disturbance”** or **“significant disturbance to land or areas”** has the meaning in Schedule 12, section 4 of the *Environmental Protection Regulation 2008*. Land is significantly disturbed if—

- a) it is contaminated land; or
- b) it has been disturbed and human intervention is needed to rehabilitate it—
 - i) to a condition required under the relevant environmental authority; or
 - ii) if the environmental authority does not require the land to be rehabilitated to a particular condition—to the condition it was in immediately before the disturbance.

“site” means the area within the petroleum authority or authorities to which the environmental authority relates.

“spillway” means a weir, channel, conduit, tunnel, gate or other structure designed to permit discharges from the structure, normally under flood conditions or in anticipation of flood conditions.

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

“stable” has the meaning in Schedule 5 of the *Environmental Protection Regulation 2008* and, for a site, means the rehabilitation and restoration of the site is enduring or permanent so that the site is unlikely to collapse, erode or subside.

“storm water” means all surface water runoff from rainfall.

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

“suitably qualified 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:

- a) knowledge of engineering principles related to the structures, geomechanics, hydrology, hydraulics, chemistry and environmental impact of dams; and
- b) a total of five years of suitable experience and demonstrated expertise in at least four of the following categories, with the 'geomechanics of dams' category being compulsory:
 - i) geomechanics of dams with particular emphasis on stability, geology and geochemistry.
 - ii) investigation, design or construction of dams.
 - iii) operation and maintenance of dams.
 - iv) hydrology with particular reference to flooding, estimation of extreme storms, water management or meteorology.
 - v) hydraulics with particular reference to sediment transport and deposition, erosion control, beach processes.
 - vi) hydrogeology with particular reference to seepage, groundwater.
 - vii) solute transport processes and monitoring thereof.
 - viii) dam safety.

“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

“system design plan” means a plan that manages an integrated containment system that shares the required DSA and/or ESS volume across the integrated containment system.

“top soil” means the top layer of soil, alluvium or weathered rock that forms a suitable plant growth medium. Top soil should be non-crusting and low in salinity.

“trivial harm” means environmental harm which is not material or serious environmental harm and will not cause actual or potential loss or damage to property of an amount of, or amounts totalling more than \$5,000.

“void” means any man-made, open excavation in the ground.

“waste” as defined in section 13 of the *Environmental Protection Act 1994*.

“waste and resource management hierarchy” has the meaning given by the *Waste Reduction and Recycling Act 2011*.

“water” means –

- a) water in waters or spring;
- b) underground water;
- c) overland flow water; or
- d) water that has been collected in a dam.

“watercourse” means a watercourse as defined under Chapter 2 of the *Water Act 2000*.

“waterlogging” is the saturation of soil by soil water.

“waste water” means used water from the activity, process water or contaminated storm water.

“water quality” means the chemical, physical and biological condition of water.

“waters” includes –

- a) river, creek, stream in which water flows permanently or intermittently either:
 - i) in a natural channel, whether artificially improved or not; or
 - ii) in an artificial channel that has changed the course of the river, creek or stream; or
- b) lake, lagoon, pond, swamp, wetland, dam; or
- c) unconfined surface water; or
- d) storm water channel, storm water drain, roadside gutter; or
- e) bed and banks and any other element of a river, creek, stream, lake, lagoon, pond, swamp, wetland, storm water channel, storm water drain, roadside gutter or dam confining or containing water; or
- f) groundwater; or
- g) non-tidal or tidal waters (including the sea); or
- h) any part-thereof.

“water year” means the 12-month period from 1 July to 30 June. **“watercourse”** - means a river, creek or stream in which water flows permanently or intermittently in a visibly defined channel (natural, artificial or artificially improved) with:

- (a) continuous bed and banks;
- (b) an extended period of flow for some months after rain ceases, and
- (c) an adequacy of flow that sustains basic ecological processes and maintains biodiversity.

“wet season” means the time of year, covering one or more months, when most of the average annual rainfall in a region occurs. For the purposes of DSA determination this time of year is deemed to extend from 1 November in one year to 31 May in the following year inclusive.

“wet season” means the time of year, covering one or more months, when most of the average annual rainfall in a region occurs. For the purposes of DSA determination this time of year is deemed to extend from 1 November in one year to 31 May in the following year inclusive.

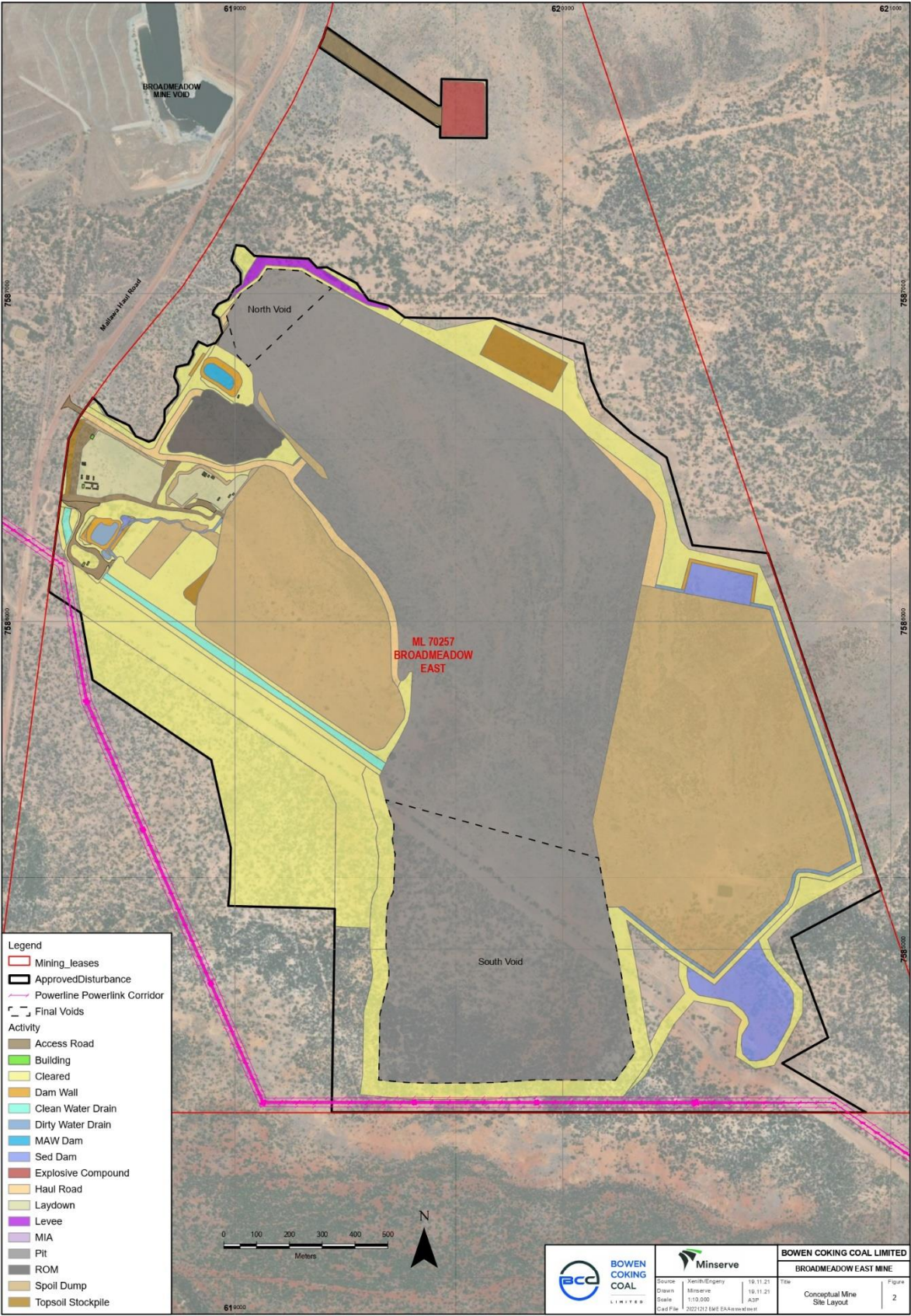
“wetland” means an area shown as a wetland on a ‘Map of referable wetlands’, a document approved by the chief executive (environment). A map of referable wetlands can be viewed at www.ehp.qld.gov.au.

“µg/L” means micrograms per litre.

Appendix 1 Figure 1 – Disturbance Map



Appendix 2 Figure 2 – Mine Plan



Appendix 3 Figure 3 – Mine affected water release points and monitoring locations



Appendix 4 Figure 4 – Final landform, post closure



Appendix 5

Table G1 Post Mine Land Use (PMLU) and Rehabilitation Methods

Disturbance Area (DA)	Description	Pre-Mining Land Suitability Class		Rehabilitation Method	PMLU	Post-Mining Land Suitability Class	
		Cattle Grazing	Rainfed Broadacre Cropping			Cattle Grazing	Rainfed Broadacre Cropping
1. Out of Pit dumps (OOPD)	Two OOPDs border the eastern and western boundaries of the pit area.	4 & 5	4 & 5	- Confirm the engineering and design final landform plans with associated QA/QC methods. - Bulk earthworks to achieve required landform and slopes as per design and proposed methods within the Environmental Management System (EMS). 5m capping of any rejects stored in the OOPD with overburden that is non-reactive (geochemically and physically inert). - General reshaping and pushing/trimming to achieve final landform. - Fill in associated sediment dams when no longer required as per updated Erosion and Sediment Control Plan (ESCP). - Install long term erosion and sediment control systems/features as per closure ESCP based on achieved groundcover and landform stability. - Remediate subsidence and erosion before sourcing, delivering, and spreading growth media. - Apply ameliorants and fertilisers to growth media before and after application (based on QA/QC process). - Trim/rip, apply seeding and irrigate. - If possible, rehabilitation trials on areas that have been progressively rehabilitated. - Monitoring and reporting as per Rehabilitation Monitoring Program required under Condition G15.	Low-intensity grazing	4	4
2. Northern Pit	The residual void created at the start of the pit development and used for bulk water storage over the	4	4	- Dewater (for use in dust suppression) prior to rehab. - Backfill to 270 RL.	Low-intensity grazing	4	4

Disturbance Area (DA)	Description	Pre-Mining Land Suitability Class		Rehabilitation Method	PMLU	Post-Mining Land Suitability Class	
		Cattle Grazing	Rainfed Broadacre Cropping			Cattle Grazing	Rainfed Broadacre Cropping
	operational mine life. Borders the central backfilled void. The final depth will be backfilled to 270 RL (above groundwater levels post closure).			- Reshaping, trimming and construction of long-term drainage/ESC. - Cover exposed coal seams with 2 or more meters of NAF material. Develop specific rehabilitation strategies that includes monitoring, surveying, stability analysis and reporting.			
3. Central backfilled Pit	Central portion of the previously active pit area that is backfilled as the resource is extracted and the mining moves in a southern direction. The area will be backfilled to a final height of 310 RL (above groundwater level post closure).	4 &5	4 &5	- Conduct long term water balance studies regarding void hydrology that includes surface water and groundwater assessments. - A suitably qualified person to conduct a geotechnical assessment of the final landform. - A suitably qualified person to conduct an assessment of hydraulic properties of the backfilled material to ascertain potential for instability. - Update flood modelling according to final design, geochemical and stability assessments. - General reshaping and pushing/trimming to achieve final landform. 5m capping of any rejects stored in the central backfilled pit with overburden that is non-reactive (geochemically and physically inert). - Rejects are buried above the expected (post-closure) groundwater level. - Fill in associated sediment dams. - Install long term erosion and sediment control systems/features. - Remediate subsidence and erosion before sourcing, delivering, and spreading growth media. - Apply ameliorants and fertilisers to growth media before and after application (based on QA/QC process). - Trim/rip, apply seeding and irrigate. - If possible, rehabilitation trials. - Monitoring and reporting.	Low-intensity grazing	4	4

Disturbance Area (DA)	Description	Pre-Mining Land Suitability Class		Rehabilitation Method	PMLU	Post-Mining Land Suitability Class	
		Cattle Grazing	Rainfed Broadacre Cropping			Cattle Grazing	Rainfed Broadacre Cropping
4. Southern Void	The residual void remaining post mining at the southern pit extent. Borders the central backfilled void	4 & 5	4	- Minimised void area and volume based on economic, engineering, geotechnical, geochemical, surface water and groundwater technical reporting outcomes (Condition G8). - Design final slope angles of the high, low and end walls. - Conduct long term water balance studies regarding void hydrology that includes surface water and groundwater assessments. - Create a final void design plan. Predict long term water quality through geochemical modelling. - Manage long term water quality for livestock consumption as per Australian and New Zealand Guidelines for Fresh and Marine Water Quality (the Guidelines). - Backfill above the regional groundwater level, treat or remove exposed coal seams. - Develop specific rehabilitation strategies that includes monitoring, surveying, stability analysis and reporting.	Water storage	4 (Low wall slopes)	N/A
5. Water management infrastructures.	Water infrastructure includes: - Existing farm dam at the northern tip of the ML which will remain post closure as per the existing landholder agreement (to remain post closure). - Five sediment dams (rehabilitation at closure). - One clean water dam. (Rehabilitation at closure) - One MAW dam (rehabilitation at closure).	4	4	- Conduct land contamination investigation. - Remove fencing and signage. - Dewater (for use in dust suppression) prior to rehab if applicable. - Remove the top 250 mm of sediment and bury it. - General reshaping and pushing/trimming to achieve final landform. - Trim/rip, apply seeding and irrigate. - Monitoring and reporting.	Low-Intensity Grazing	4	4

Disturbance Area (DA)	Description	Pre-Mining Land Suitability Class		Rehabilitation Method	PMLU	Post-Mining Land Suitability Class	
		Cattle Grazing	Rainfed Broadacre Cropping			Cattle Grazing	Rainfed Broadacre Cropping
	5. North pit flood diversion levee (A regulated structure). 6. North-eastern levee (integrated into the final landform). 7. Five groundwater monitoring bores will remain until the completion of the post closure monitoring program.						
6. Mining Industrial Area (MIA), explosives storage area and exploration	Workshops, ROM, offices, waste, explosives and chemical storage.	4	4	- Remove buildings. - Disconnect services, empty tanks, and licenced removal of contaminated water. - Remove and proper disposal of road surface and fencing. - Rehabilitate remaining boreholes not required for post closure monitoring. - Conduct contaminated land investigation and remediate any contaminated soils. - Remove and properly dispose of general and regulated waste. - Remove imported fill used to raise MIA (treat as contaminated) and encapsulate in backfilled pit or open waste dumps.	Low-intensity grazing	4	4
7. Roads, tracks and cleared areas	Internal roads, tracks and cleared areas associated with haulage, site and powerline access.	4 & 5	4 & 5	- Remove signage and other non-permanent markers. - General reshaping and pushing trimming to achieve pre-disturbance contours (including re-establishment of bed and banks). - Installation of long terms erosion and sediment control systems where required. - Source, cart and spread growth media. - Rip and seed. - Monitoring and reporting.	Low-intensity grazing	4	4

Table G2 PMLU and rehabilitation success criteria

PMLU	DA	Goals	Objectives/Indicators	Criteria	Validation Method
1 Out of Pit Dumps					
Low intensity Grazing	Out of Pit Dumps	Safe	Safety hazards in rehabilitation are similar to surrounding unmined landscapes	Hazard assessment by a suitably qualified and experienced person	Risk is as low as reasonably practical (ALARP) in accordance with AS/NZS ISO 31000:2009 <i>Risk Management</i> .
		Stable	a. Landform development and reshaping/re-profiling b. Surface preparation. c. Structurally sound with no major slumping. d. No exposed hazardous material. e. No major erosion.	Outer slopes: ▪ 15% as per landform design. ▪ Vertical distance between berms: 20 m ▪ Berm width: 5 m ▪ Drainage outward away from void towards original topo drainage paths. Inner slopes (into full backfill area): ▪ 12% as per landform design. ▪ Vertical distance between berms: 20 m ▪ Berm width: 5 m ▪ Drainage outward away from void towards original topo drainage paths. Subsidence ▪ Subsidence monitored pre and post wet season and addressed accordingly. Factor of Safety ▪ Geotechnical adequacy with 1.5 Factor of Safety.	▪ Certification from an AQP that the area has achieved stable condition. ▪ All rehabilitated areas are geo-technically stable for the intended post mining grazing land use, with no active areas of rill or gully erosion, and; drainage follows appropriate drainage paths.
		Non-polluting	a. Surface Run off is minimised and is non-polluting to land and receiving waters¹ b. No environmental harm.	Receiving environment contaminant limit - ○ pH – 6.5-8.5 ○ EC - baseflow 720 µS/cm^a ○ high flow 250 µS/cm^b ○ Turbidity - 50 NTU ○ Arsenic – 13 µg/L ○ Molybdenum – 0.15mg/L ○ Selenium – 5 µg/L	▪ Assessment of soil health and suitability has been completed by an AQP. ▪ Receiving water quality indicators do not exceed specified criteria limits ▪ Groundwater monitoring demonstrates that the

PMLU	DA	Goals	Objectives/Indicators	Criteria	Validation Method
				○ Sulfate - 25 mg/L ○ Suspended solids - 55 mg/L^b ▪ Groundwater aquifers maintain their pre-mining or reference bore water quality. ▪ Erosion rate of <5 t/ha/yr and 10.0 t/ha/yr as determined by landform design. ▪ The installation of certified contours and drains as per design by an AQP (CPESC). ▪ 5m capping of rejects within OOPD with overburden that is non-reactive (geochemically and physically inert).	groundwater quality is within 95th percentile of the results of baseline pre-mining bore monitoring results, or when baseline is not available, reference bores which have not been impacted by mining activities. ▪ Certification by an AQP that rejects are buried under geochemically and physically inert overburden with a minimum cover thickness of 5m.

PMLU	DA	Goals	Objectives/Indicators	Criteria	Validation Method
		Self-Sustaining	a. Adequate revegetation. b. Ameliorate spoil as required to a depth of a minimum of 200 mm to suitably stabilise the landform and c. promote vegetative establishment.	- Groundcover 60% perennial pasture biomass. - Less than 5% of declared weeds (excluding Parthenium weed- <i>Parthenium hysterophorus</i>) - Land Class suitability 4 for grazing. - Abundance of declared weeds is less than reference sites. - No active areas of rill or gully erosion and drainage follows the appropriate drainage paths. - Resilience to fire and drought. - Soil nutrient concentrations and nutrient cycling comparable to reference sites.	- Results, that rehabilitated areas meet the land suitability assessment that meets class 4 for cattle grazing as defined by the Guideline for Agricultural Land Evaluation in Queensland (State Department of Queensland 2015). - Certification of less than 5% declared weed and pest species identified in rehabilitated areas - Post closure flora and fauna monitoring as per the monitoring plan.
Northern pit (Partial Backfill)					
Low intensity grazing	Northern pit (Partial Backfill)	Safe	a. Safety hazards in rehabilitation are similar to surrounding unmined landscapes b. Provide a safe landscape for humans and animals post closure.	- Hazard assessment by a suitably qualified and experienced person - Backfill level (water level based on groundwater conceptual modelling): 270RL - No access to steep zones through the construction of safety bunds at 2 m high, base width of 5 m from unweathered, freely draining, end-dumped rockfill at a minimum 20 m offset from the depression perimeter as per the void closure plan.	Risk is as low as reasonably practical (ALARP) in accordance with AS/NZS ISO 31000:2009 Risk Management.

PMLU	DA	Goals	Objectives/Indicators	Criteria	Validation Method
		Stable	Stabilise walls and slopes.	- Final shape implemented as per rehabilitation and management strategies included in the void closure plan. - Partial backfill according to appropriate groundwater level and as per the methods and techniques from the void closure plan. - Slopes less than 20%., to be re-assessed and designed as per the chemical and physical characteristics of the site - Geotechnical adequacy with 1.5 Factor of Safety. - Structural, geotechnical and hydraulic factors based on the physical and chemical characteristics of the site. - Spoil shaped to connect to the surrounding landscape where possible. - No active erosion or gullies.	Geotechnical report and certification from an AQP that the area has achieved stable condition as per the criteria.
		Non-polluting	Surface Run off or any discharge, seepage is non-polluting to land, surface water ¹ and ground water	- Removal of all mine affected water for use in dust suppression prior to backfilling. - Removal of potential contaminated sediments that may be identified in the land contamination survey. - The installation of certified contours and drains as per design by an AQP (CPESC). Receiving environment contaminant limit - - pH – 6.5-8.5 - EC - baseflow 720 µS/cm^a - high flow <250 µS/cm^b - Turbidity - 50 NTU - Arsenic – 13 µg/L	- Land contamination survey results. - Groundwater monitoring demonstrates that the groundwater quality is within 95th percentile of the results of baseline pre-mining bore monitoring results, or when baseline is not available, reference bores which have not been impacted by mining activities. - Certification by an AQP that the groundwater level and

PMLU	DA	Goals	Objectives/Indicators	Criteria	Validation Method
				○ Molybdenum – 0.15mg/L ○ Selenium – 5 µg/L ○ Sulfate - 25 mg/L ○ Suspended Solids - 55 mg/L^b ▪ Groundwater aquifers maintain their pre-mining or reference bore water quality. ▪ Prescribed environmental matters maintain their pre-mining condition ▪ Coal seams will be removed or covered in the backfilling process. ▪ No exposed hazardous material.	quality will not cause harm to the surrounding environment. ▪ Receiving water quality indicators do not exceed specified criteria limits.
		Self-sustaining	a. Adequate revegetation and aquatic species richness. b. Littoral zone increases and linkages with terrestrial vegetation.	▪ Battered slopes with 60% perennial pasture biomass as per the closure and revegetation plans. ▪ Land Class 4 for grazing. ▪ Less than 5% of declared weeds (excluding Parthenium weed- <i>Parthenium hysterophorus</i>) ▪ Resilience to fire and drought. ▪ Grazing vegetation resilient to disease, drought and fire. ▪ Soil nutrient concentrations, nutrient cycling and vegetation diversity and cover comparable to reference sites. ▪ -Establishment of a mix of perennial grasses suitable for grazing in the area.	▪ Results, that rehabilitated areas meet the land suitability assessment that meets class 4 for cattle grazing as defined by the Guideline for Agricultural Land Evaluation in Queensland (State Department of Queensland 2015). ▪ Post closure flora and fauna ecological monitoring as per the monitoring plan.
Central Pit (full backfill)					
Grazing	Central Pit (full backfill)	Safe	Safety hazards in rehabilitation are similar to surrounding unmined landscapes	Hazard assessment by a suitably qualified and experienced person	Risk is as low as reasonably practical (ALARP) in accordance with AS/NZS ISO 31000:2009 Risk Management.

PMLU	DA	Goals	Objectives/Indicators	Criteria	Validation Method
		Stable	- Landform development and reshaping/re-profiling. Hydraulic assessment conducted to determine instability from floodwaters. - Surface preparation.	- Contoured to the surrounding topography as per landform design. - Subsidence monitored pre and post wet season and addressed accordingly. - Slopes less than 20% - Geotechnical adequacy with 1.5 Factor of Safety - Final shape implemented as per rehabilitation and management strategies included in the void closure plan.	Certification from an AQP that the area has is geotechnically stable condition.
		Non-polluting	Surface run off is minimised and is non-polluting to land and receiving waters¹	- Maximum erosion rate of <5 t/ha/yr and 10.0 t/ha/yr as determined by landform design. - The installation of certified contours and drains as per design by an AQP (CPESC). - Drainage outward away from void towards and/original topo drainage paths. Receiving environment contaminant limit - - pH – 6.5-8.5 - EC - baseflow 720 µS/cm^a - high flow <250 µS/cm^b - Turbidity - 50 NTU - Arsenic – 13 µg/L - Molybdenum – 0.15mg/L - Selenium – 5 µg/L - Sulfate - 25 mg/L - Suspended Solids - 55 mg/L^b - Groundwater aquifers maintain their pre-mining or reference bore water quality. - Groundwater quality as per the water management plan.	- Contaminated land survey conducted by an AQP to ensure there is no contamination that will prohibit the establishment of the PMLU. - Receiving water quality indicators do not exceed specified criteria limits - Groundwater monitoring demonstrates that the groundwater quality is within 95th percentile of the results of baseline pre-mining bore monitoring results, or when baseline is not available, reference bores which have not been impacted by mining activities. - Certification by an AQP that rejects are buried under geochemically and

PMLU	DA	Goals	Objectives/Indicators	Criteria	Validation Method
				▪ Coal seams to be treated, removed or covered in the backfilling process. ▪ 5m capping of rejects within central backfilled pit with overburden that is non-reactive (geochemically and physically inert).	physically inert overburden with a minimum cover thickness of 5m.
		Self-sustaining	Adequate revegetation and connectivity to the surrounding landscape including into the final voids.	▪ Groundcover is 60% perennial pasture biomass as per the revegetation plan. ▪ Land Class 4 for grazing. ▪ Less than 5% of declared weeds (excluding Parthenium weed- <i>Parthenium hysterophorus</i>). ▪ No active areas of rill lor gully erosion and drainage follows the appropriate drainage paths. ▪ Resilience to fire and drought.	▪ Results, that rehabilitated areas meet the land suitability assessment that meets class 4 for cattle grazing as defined by the Guideline for Agricultural Land Evaluation in Queensland (State Department of Queensland 2015). ▪ Certification that less than 5% of weed and pest species identified in Rehabilitation Areas Post closure flora and fauna monitoring as per the monitoring plan.
Southern Void					
Water storage	Southern Void	Safe	a. Safety hazards in rehabilitation are as low as reasonably practical. b. Minimise void area. c. Stabilise walls and slopes.	▪ Install slopes and batters as per the void closure plan: ○ Overall slope: 15% ○ Vertical distance between berms: 20 m ○ Berm width: 5 m ○ Final pit walls (Competent material): 70 degrees ○ Final pit walls (Incompetent material): 45 degrees ○ Underwater slopes: Angle of repose 37 degrees ○ Void maximum surface area (31 ha).	▪ Geotechnical report and certification from an appropriately qualified and experienced person AQP that the area has achieved stable condition, including: ▪ Safety bund constructed in accordance with engineering
		Stable			

PMLU	DA	Goals	Objectives/Indicators	Criteria	Validation Method
				○ Void maximum depth (105 m). ○ Maximum Void lake equilibrium level will not reach 300 m AHD. ○ Drainage direction: into the void ○ Backfill above the groundwater level (water level based on conceptual modelling). ▪ Safety bund constructed at 2 m high, base width of 5 m from unweathered, freely draining, end-dumped rockfill at a minimum 20 m offset from the pit perimeter as per the closure plan. ▪ Design the void as per the void closure plan. ▪ Final shape implemented as per rehabilitation and management strategies included in the void closure plan. ▪ Partial backfill according to above the groundwater level and as per the baseline groundwater assessment.	- requirements for height, based on crest width. ▪ No public access to high wall or end wall areas. ▪ Fence entire perimeter and bund to high wall areas. ▪ Absence of active rill/gully erosion ▪ Certification that drainage measures and structures have been appropriately established and are directing overland flow away from the highwall edge; and ▪ Certification that erosion and sediment control measures have been installed and are operating as designed ▪ Final void located outside of the Isaac River floodplain, as defined under the <i>Environmental Protection Act</i>. ▪ Evidence, which has been certified by an appropriately qualified person, based on up to date groundwater modelling, that any final void lakes will not overflow nor potentially contaminate any

PMLU	DA	Goals	Objectives/Indicators	Criteria	Validation Method
					other surface water bodies and groundwater aquifers.
		Non-polluting	Pit waters are contained such that they do not impact or interact surface or groundwater.	- Coal seams to be treated, removed or covered in the backfilling process. - The installation of certified contours and drains as per design by an AQP (CPESC). - Surface water quality of the receiving environment as per the water management plan. - Groundwater aquifers maintain their pre-mining or reference bore water quality. - Prescribed environmental matters maintain their pre-mining condition - Groundwater quality as per the closure water management plan. - No exposed hazardous material. - Conduct a water balance study to assess the void surface and groundwater interactions. - Predict long term water quality for the overall final void system.	- Surface water and groundwater trigger limits assessed as per the frequencies noted in the closure water management plan. - Certification by an AQP that the water level and quality will not cause harm to the surrounding environment. - Groundwater monitoring demonstrates that the groundwater quality is within 95th percentile of the results of baseline pre-mining bore monitoring results, or when baseline is not available, reference bores which have not been impacted by mining activities.
		Self-sustaining	a. Adequate revegetation and aquatic species richness. b. Littoral zone increases and linkages with terrestrial vegetation.	- Battered slopes with 60% vegetation cover as per the closure and revegetation plans. - Structural, geotechnical and hydraulic factors based on the physical and chemical characteristics of the site. - Spoil shaped to connect to the surrounding landscape where possible. - No active erosion.	Post closure aquatic, flora and fauna ecological monitoring as per the monitoring

PMLU	DA	Goals	Objectives/Indicators	Criteria	Validation Method	
				Water quality suitable for stock watering as per Australian and New Zealand Guidelines for Fresh and Marine Water Quality (the Guidelines).		
Water management Infrastructure (to be rehabilitated)						
Low intensity grazing	Water management infrastructure includes: 1. Four sediment dams (rehabilitation at closure). 3. One clean water dam. 4. One MAW dam 5. North pit flood diversion levee. 6. North-eastern levee (integrated into the final landform if not required). 7. Five groundwater monitoring bores will remain until the completion of the post closure monitoring program.	Safe	Safety hazards in rehabilitation are similar to surrounding unmined landscapes	Hazard assessment by a suitably qualified and experienced person	Risk is as low as reasonably practical (ALARP) in accordance with AS/NZS ISO 31000:2009 <i>Risk Management</i> . - Progressive rehabilitation certification under the EP Act. - Contaminated land survey conducted by an AQP to ensure there is no contamination that will prohibit the establishment of the PMLU. - Receiving water quality indicators do not exceed specified limits - Groundwater monitoring demonstrates that the groundwater quality is within 95th percentile of the results	
		Stable	a. Dewatering and landform profiling in line with surrounding topography. b. Surface preparation.	Subsidence and erosion are monitored and addressed.		
				60% perennial pasture groundcover is achieved.		
		Non-polluting	a. Desilting 200m. b. Land investigations. c. Surface run off is minimised and is non-polluting to land and receiving waters ¹	Receiving environment contaminant limit - - pH – 6.5-8.5 - EC - baseflow 720 µS/cm^a - high flow <250 µS/cm^b - Turbidity - 50 NTU - Arsenic – 13 µg/L - Molybdenum – 0.15mg/L - Selenium – 5 µg/L - Sulfate - 25 mg/L - Suspended Solids - 55 mg/L^b		
Self-sustaining	Adequate revegetation.					

PMLU	DA	Goals	Objectives/Indicators	Criteria	Validation Method
				- Groundwater aquifers maintain their pre-mining or reference bore water quality. - Groundcover is 60% perennial pasture biomass as per the revegetation plan. - Land Class 4 for grazing. - Less than 5% of declared weeds (excluding <i>Parthenium</i> weed- <i>Parthenium hysterophorus</i>). - No active areas of rill or gully erosion and drainage follows the appropriate drainage paths. - Resilience to fire and drought.	- of baseline pre-mining bore monitoring results, or when baseline is not available, reference bores which have not been impacted by mining activities. - Certification that less than 5% of weed and pest species identified in Rehabilitation Areas. - Results, that rehabilitated areas meet the land suitability assessment that meets class 4 for cattle grazing as defined by the Guideline for Agricultural Land Evaluation in Queensland (State Department of Queensland 2015). - Post closure flora and fauna monitoring as per the monitoring.
Water management Infrastructure (to be retained)					
Water storage (above ground landholder dam to be retained)	Water infrastructure 1. Existing farm dam at the northern tip of the ML which will remain post closure as per the existing landholder	Safe	a. Fencing in place where appropriate in consultation with the landholder b. Surface preparation. c. Landholder accepts the condition of the	Subsidence and erosion are monitored and addressed.	Contaminated land survey conducted by an AQP to ensure there is no contamination that will prohibit the establishment of the PMLU.
		Stable		Area adequately accessible to livestock.	

PMLU	DA	Goals	Objectives/Indicators	Criteria	Validation Method
	agreement (to remain post closure). 2. Sediment Dam 4 (southeast).		infrastructure including its structural integrity.		
		Non-polluting	a. Water quality sampling. b. Desilting 200m. c. Land investigations.	Farm dam water quality must be suitable for release into watercourse in compliance with the EA prior to surrender (as per Section 1.3 of the current agreement).	
		Self-sustaining	Structurally sound at the time of handover.	No active areas of rill or gully erosion and drainage follows the appropriate drainage paths.	
MIA/Exploration/Explosives					
Grazing	MIA/exploration/ Explosives	Safe	a. Landform profiling in line with surrounding topography. b. All exploration drill holes have been rehabilitated. c. Drill holes grouted and casings cut to ground level. d. Surface preparation.	▪ 'Requirements for Water Bores in Australia' (Australian Government, February 2012) or latest edition. ▪ No active erosion rills or gullies present. ▪ 60% groundcover of perennial pasture biomass is achieved.	▪ Progressive rehabilitation certification under the EP Act. ▪ All exploration drill holes have been rehabilitated in accordance with the applicable Australian Standard or guideline. ▪ Certification that less than 5% of weed and pest species identified in Rehabilitation Areas.
		Stable			
				Non-polluting	a. All services disconnected, buildings and infrastructure removed. b. Contaminated soil identified and removed in

PMLU	DA	Goals	Objectives/Indicators	Criteria	Validation Method
			accordance with relevant guidelines and standards. c. Surface run off is non-polluting to land and receiving waters ¹	○ Sulfate - 25 mg/L ○ Suspended Solids - 55 mg/L^b ▪ Wastes are managed according to waste and resource management hierarchy. ▪ No exposed hazardous materials at surface determined by results of site contaminated land investigation including exposure due to erosion.	▪ Receiving water quality indicators do not exceed specified criteria limits
		Self-sustaining	Adequate revegetation.	▪ Groundcover is 60% perennial pasture cover/ biomass ▪ Land Class 4 for grazing ▪ Less than 5% of declared weeds (excluding Parthenium weed- <i>Parthenium hysterophorus</i>) ▪ No active areas of rill or gully erosion and drainage follows the appropriate drainage paths. ▪ Resilience to fire and drought. ▪ Soil nutrient concentrations and nutrient cycling comparable to reference sites.	▪ Certification that less than 5% of declared weed and pest species identified in Rehabilitation Areas. ▪ Post closure flora and fauna monitoring as per the monitoring plan. ▪ Results, that rehabilitated areas meet the land suitability assessment that meets class 4 for cattle grazing as defined by the Guideline for Agricultural Land Evaluation in Queensland (State Department of Queensland 2015).
Roads, tracks and cleared areas					
Grazing	Roads, tracks and cleared areas	Safe	a. Landform profiling in line with surrounding topography. b. Surface preparation.	▪ Subsidence and erosion are monitored and addressed. ▪ 60% perennial pasture groundcover is achieved.	▪ Progressive rehabilitation certification under the EP Act ▪ Contaminated land survey conducted by an AQP to
		Stable			

PMLU	DA	Goals	Objectives/Indicators	Criteria	Validation Method
		Non-polluting	a. Signage and fencing removed. b. Contaminated soil identified and removed in accordance with relevant guidelines and standards.	- Surface water quality of the receiving environment as per the water management plan. - Land Class 4 for grazing. - Less than 5% of declared weeds (excluding Parthenium weed- <i>Parthenium hysterophorus</i>). - Abundance of declared weeds is less than reference sites. - No active areas of rill or gully erosion and drainage follows the appropriate drainage paths. - Resilience to fire and drought.	ensure there is no contamination that will prohibit the establishment of the PMLU. - Receiving water quality indicators do not exceed limits specified in Table C2. - Certification that less than 5% of declared weed and pest species identified in Rehabilitation Areas. - Post closure flora and fauna monitoring as per the monitoring plan. - Results, that rehabilitated areas meet the land suitability assessment that meets class 4 for cattle grazing as defined by the Guideline for Agricultural Land Evaluation in Queensland (State Department of Queensland 2015).
		Self-sustaining	Adequate revegetation.		

END OF ENVIRONMENTAL AUTHORITY