

Environmental Protection Act 1994

Environmental authority EPML00668613

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

Environmental authority number: EPML00668613

Environmental authority takes effect on 29 October 2021

Environmental authority holder(s)

Name(s)	Registered address
Minerva Coal Pty Ltd	Level 34, Central Plaza One, 345 Queen Street BRISBANE CITY QLD 4000

Environmentally relevant activity and location details

Environmentally relevant activity/activities	Location(s)
ERA 13: Mining black coal Schedule 2A – Environmental Protection Regulation 2008	ML70145 ML70376
ERA 8 - Chemical Storage Schedule 2 – <i>Environmental Protection Regulation 2008</i>	
ERA 56 – Regulated waste storage Schedule 2 – <i>Environmental Protection Regulation 2008</i>	

Additional information for applicants

Environmentally relevant activities

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

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

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

Contaminated land

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

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

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

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

Take effect

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

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

However, if the EA is authorising an activity that requires an additional authorisation (a relevant tenure for a resource activity, a development permit under the *Planning Act 2016* or an SDA Approval under the *State Development and Public Works Organisation Act 1971*), this EA will not take effect until the additional authorisation has taken effect.

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

The anniversary day of this environmental authority is the same day each year as the effective date. The payment of the annual fee will be due each year on this day. An annual return will be due each year on 01 April.

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



Signature

29 October 2021

Date

Alisha Stewart
Department of Environment and Science
Delegate of the administering authority
Environmental Protection Act 1994

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Date issued: 29 October 2021

Obligations under the *Environmental Protection Act 1994*

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

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

Conditions of environmental authority

Agency Interest: General	
Condition number	Condition
A1	Financial assurance The activity must not be carried out until the environmental authority holder has given financial assurance to the administering authority as security for compliance with this environmental authority and any costs or expenses, or likely costs or expenses, mentioned in section 298 of the Act.
A2	The amount of financial assurance must be reviewed by the holder of this environmental authority when a plan of operations is amended or replaced or the authority is amended.
A3	Maintenance of measures, plant and equipment The holder of this environmental authority must: a) install all measures, plant and equipment necessary to ensure compliance with the conditions of this environmental authority b) maintain such measures, plant and equipment in a proper and efficient condition c) operate such measures, plant and equipment in a proper and efficient manner d) ensure all instruments and devices used for the measurement or monitoring of any parameter under any condition of this environmental authority are properly calibrated.
A4	Monitoring Except where specified otherwise in another condition of this environmental authority, all monitoring records or reports required by this environmental authority must be kept for a period of not less than five years.
A5	Where monitoring is a requirement of this environmental authority, ensure that a competent person(s) conducts all monitoring.
A6	Storage and handling of flammable and combustible liquids Flammable and combustible liquids, including petroleum products, should be stored and handled in accordance with the latest edition of AS1940—The storage and handling of flammable and combustible liquids. Where no relevant Australian standard exists store such materials within an effective on-site containment system.
A7	Notification of emergencies and incidents As soon as practicable 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, the administering authority must be notified of the release by telephone, facsimile or email.

A8	The notification of emergencies or incidents as required by condition A7 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.
A9	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 c) proposed actions to prevent a recurrence of the emergency or incident.

Agency interest: Air	
Condition number	Condition
B1	Dust nuisance Subject to conditions B2 and B3 the release of dust or particulate matter or both resulting from the mining activity must not cause an environmental nuisance, at any sensitive or commercial place.
B2	When requested by the administering authority, dust and particulate monitoring must be undertaken within a reasonable and practicable timeframe nominated by the administering authority to investigate any complaint (which is neither frivolous nor vexatious nor based on mistaken belief in the opinion of the authorised officer) of environmental nuisance at any sensitive or commercial place, and the results must be notified within fourteen (14) days to the administering authority following completion of monitoring.
B3	If the environmental authority holder can provide evidence through monitoring that the following limits are not being exceeded then the holder is not in breach of condition B1: a) Dust deposition of 120 milligrams per square metre per day, averaged over one (1) month, when monitored in accordance with AS 3580.10.1 <i>Methods for sampling and analysis of ambient air - Determination of particulates - Deposited matter - Gravimetric method of 1991</i>; and b) A concentration of particulate matter with an aerodynamic diameter of less than 10 micrometres (µm) (PM10) suspended in the atmosphere of 150 micrograms per cubic metre over a 24 hour averaging time, at a sensitive or commercial place downwind of the operational land, when monitored in accordance with: (i) Particulate matter - Determination of suspended particulate PM10 high-volume sampler with size-selective inlet - Gravimetric method, when monitored in accordance with AS 3580.9.6 <i>Methods for sampling and analysis of ambient air - Determination of suspended particulate matter - PM (sub) 10 high volume sampler with size-selective inlet - Gravimetric method of 1990</i>; or (ii) Any alternative method of sampling PM10, which is permitted, in writing, by the administering authority.
B4	If monitoring indicates exceedance of the relevant limits in condition B3, 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 do not result in further environmental nuisance.
B5	Odour nuisance Subject to condition B6, the release of noxious or offensive odour(s) or any other noxious or offensive airborne contaminant(s) resulting from the mining activity must not cause an environmental nuisance at any sensitive or commercial place.
B6	When requested by the administering authority, odour monitoring must be undertaken within a reasonable and practicable timeframe nominated by the administering authority to investigate any complaint (which is neither frivolous nor vexatious nor based on mistaken belief in the opinion of the authorised officer) of environmental nuisance at any sensitive or commercial place, and the results must be notified within fourteen (14) days to the administering authority following completion of monitoring.

B7	If monitoring indicates condition B5 is not being met then the environmental authority holder must: a) address the complaint including the use of appropriate dispute resolution if required; and b) immediately implement odour abatement measures so that emissions of odour from the activity do not result in further environmental nuisance.
Agency interest: Water	
Condition number	Condition
W1	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.
W2	Unless otherwise permitted under the conditions of this environmental authority, the release of mine affected water to waters must only occur from the release points specified in Table W1 and depicted in Figure 1 Location of Release Points and Monitoring Points attached to this environmental authority.
W3	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 W29 to W34 inclusive is permitted.

Table W1: Mine affected water release points, sources and receiving waters

Release Point (RP)	Latitude (decimal degree, GDA94)	Longitude (decimal degree, GDA94)	Mine Affected Water Source and Location	Monitoring Point	Receiving waters description
RP 1	-23.9220	148.0630	Dam 4	End of pipe	Sandhurst Ck
RP 2	-23.9118	148.0579	Industrial Dam 3	Spillway overflow	Sandhurst Ck
RP 3	-23.9238	148.0690	ROM Dam 3	End of pipe	Sandhurst Ck
RP 4	-23.9188	148.0589	Pumped from pit	End of pipe	Sandhurst Ck
RP 5	-23.9246	148.0616	Pumped from pit	End of pipe	Sandhurst Ck
RP 6	-23.9282	148.0427	Pumped from pit	End of pipe	Sandhurst Ck
RP 7	-23.9251	148.0360	Pumped from pit	End of pipe	Sandhurst Ck
RP 8	-23.9243	148.0348	Pumped from pit	End of pipe	Sandhurst Ck
RP 9	-23.9174	148.0327	Pumped from pit	End of pipe	Sandhurst Ck

W4	The release of mine affected water to waters in accordance with condition W2 must not exceed the release limits stated in Table W2 when measured at the monitoring points specified in Table W1 for each quality characteristic.
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Table W2: Mine affected water release limits

Quality Characteristic	Release Limits	Monitoring frequency	Comment
Electrical conductivity (uS/cm)	Release limits specified in Table 4 for variable flow criteria.	Daily during release (the first sample must be taken as soon as possible after commencement of release).	
pH (pH Unit)	6.5 (minimum) 9.0 (maximum)	Daily during release (the first sample must be taken as soon as possible after commencement of release).	
Suspended Solids (mg/L)	431	Daily during release* (first sample must be taken as soon as possible after commencement of release). For successive releases from the same site under similar circumstances, only one sample per 24 hours is required.	Suspended solids are required to measure the performance of sediment and erosion control measures.
Sulphate (SO ₄ ²⁻) (mg/L)	Release limits specified in Table 4 for variable flow criteria.	Daily during release (first sample must be taken as soon as possible after commencement of release). For successive releases from the same site under similar circumstances, only one sample per 24 hours is required.	Drinking water environmental values from NHMRC 2006 guidelines or ANZECC.

Note: *Limit for suspended solids can be omitted if turbidity limit is included. Limit for turbidity not required if suspended solids limit included. Both indicators should be measured in all cases.

W5	The release of mine affected water to waters from the release points must be monitored at the locations specified in Table W1 for each quality characteristics and at the frequency specified in Table W2 and Table W3. Note: the administering authority will take into consideration any extenuating circumstances prior to determining an appropriate enforcement response in the event condition W5 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
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Table W3: Release contaminant trigger investigation levels

Quality Characteristic	Trigger Levels (µg/L)	Comment on Trigger Level	Monitoring Frequency
Aluminium	310	Value based on 80 th percentile value from reference site data	As soon as possible after commencement of release and thereafter weekly during release. Successive releases within 24hrs of the beginning of a release do not require further sampling.
Arsenic	13	For aquatic ecosystem protection, based on SMD guideline	
Cadmium	0.2	For aquatic ecosystem protection, based on SMD guideline	
Chromium	1	For aquatic ecosystem protection, based on SMD guideline	
Copper	3	Value based on 80 th percentile value from reference site data	
Iron	300	For aquatic ecosystem protection, based on low reliability guideline	
Lead	4	For aquatic ecosystem protection, based on SMD guideline	
Mercury	0.2	For aquatic ecosystem protection, based on LOR for CV FIMS	
Nickel	11	For aquatic ecosystem protection, based on SMD guideline	
Zinc	20	Value based on 80 th percentile value from reference site data	
Boron	370	For aquatic ecosystem protection, based on SMD guideline	
Cobalt	90	For aquatic ecosystem protection, based on low reliability guideline	
Manganese	1900	For aquatic ecosystem protection, based on SMD guideline	
Molybdenum	34	For aquatic ecosystem protection, based on low reliability guideline	
Selenium	10	For aquatic ecosystem protection, based on LOR for ICPMS	
Silver	1	For aquatic ecosystem protection, based on LOR for ICPMS	
Uranium	1	For aquatic ecosystem protection, based on LOR for ICPMS	
Vanadium	20	Value based on 80 th percentile value from reference site data	
Ammonia	900	For aquatic ecosystem protection, based on SMD guideline	
Nitrate	1100	For aquatic ecosystem protection, based on ambient Qld WQ Guidelines (2006) for TN	
Petroleum hydrocarbons (C6-C9)	20		
Petroleum hydrocarbons (C10-C36)	100		
Fluoride (total)	2000	Protection of livestock and short term irrigation guideline	

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 W3 can be reviewed once the results of two years 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 3 by amendment.
3. SMD – slightly moderately disturbed level of protection, guideline refers ANZECC & ARMCANZ (2000).
4. LOR – typical reporting for method stated. ICPMS/CV FIMS – analytical method required to achieve LOR.

W6	If quality characteristics of the release exceed any of the trigger levels specified in Table W3 during a release event, the environmental authority holder must compare the down stream results in the receiving waters to the trigger values specified in Table W3 and: a) where the trigger values are not exceeded then no action is to be taken; or b) where the down stream results exceed the trigger values specified Table W3 for any quality characteristic, compare the results of the down stream site to the data from background monitoring sites and; i. if the result is less than the background monitoring site data, then no action is to be taken; or ii. if the result is greater than the background monitoring site data, complete an investigation into the potential for environmental harm and provide a written report to the administering authority in the next annual return, 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 W6 2(b) of this condition, no further reporting is required for subsequent trigger events for that quality characteristic.
W7	If an exceedance in accordance with condition W6 b) ii) is identified, the holder of the authority must notify the administering authority within fourteen (14) days of receiving the result.
W8	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 W4.
W9	Notwithstanding any other condition of this environmental authority, the release of mine affected water to waters in accordance with condition W2 must only take place during periods of natural flow events in accordance with the receiving water flow criteria for discharge specified in Table W4 for the release point(s) specified in Table W1.
W10	The release of mine affected water to waters in accordance with condition W2 must not exceed the Electrical Conductivity and Sulphate release limits or the Maximum Release Rate (for all combined release point flows) for each receiving water flow criteria for discharge specified in Table W4 when measured at the monitoring points specified in Table W1.

Table W4: Mine affected water release during flow events

Receiving waters/ stream	Release Point (RP)	Gauging station	Gauging Station Latitude (decimal degree, GDA94)	Gauging Station Longitude (decimal degree, GDA94)	Receiving Water Flow Recording Frequency	Receiving Water Flow Criteria for discharge (m³/s)		Maximum release rate (for all combined RP flows)	Electrical Conductivity and Sulphate Release Limits						
Sandhurst Creek	RP1 RP2 RP3 RP4 RP5 RP6 RP7 RP8 RP9	Wurba Rd Culvert Gauging Board OR Gregory Hwy Culvert Gauging Board	-23.9117	148.0880	Daily	Low Flow < 0.5 m3/s for a period of 6 weeks after natural flow events that exceed 0.5 m3/s		0.5 m3/s	Electrical conductivity (uS/cm): 450						
			-23.8637	148.1253									Sulphate (SO4 ²⁻): 250 mg/L		
						Medium Flow		>0.5 m3/s					<0.395 m3/s	Electrical conductivity (uS/cm) 2000	
													<0.158 m3/s	Electrical conductivity (uS/cm) 3500	
													>2.5 m3/s	<1.0 m3/s	Electrical conductivity (uS/cm) 2000
													<0.790 m3/s	Electrical conductivity (uS/cm) 3500	
						High Flow		>5 m3/s					<1.6m3/s	Electrical conductivity (uS/cm) 2000	
													<1.5m3/s	Electrical conductivity (uS/cm) 3500	
													<0.878 m3/s	Electrical conductivity (uS/cm) 5,500	
						Very High Flow		>10 m3/s					<1.6m3/s	Electrical conductivity (uS/cm) 3500	
			<1.5m3/s	Electrical conductivity (uS/cm) 5,500											
<1.0 m3/s	Electrical conductivity (uS/cm) 7,500														

W11	The daily quantity of mine affected water released from each release point must be measured and recorded at the monitoring points in Table W1 .
W12	Releases to waters must be undertaken so as not to cause erosion of the bed and banks of the receiving waters, or cause a material build up of sediment in such waters.
W13	Notification of release events The environmental authority holder must notify the administering authority as soon as practicable and no later than twenty four (24) hours after commencing to release mine affected water to the receiving environment. Notification must include the submission of written advice to the administering authority of the following information: a) release commencement date/time; b) expected release cessation date/time; c) release point/s; d) release volume (estimated); e) receiving water/s including the natural flow rate; and f) any details (including available data) regarding likely impacts on the receiving water(s). Note: Notification to the administering authority must be addressed to the Manager and Project Manager of the local Administering Authority via email or facsimile.
W14	The environmental authority holder must notify the administering authority as soon as practicable (nominally within twenty four (24) hours after cessation of a release event) of the cessation of a release notified under Condition W13 and within twenty eight (28) days provide the following information in writing: a) release cessation date/time; b) natural flow volume in receiving water; c) volume of water released; d) details regarding the compliance of the release with the conditions of Agency Interest: Water of this environmental authority (i.e. contamination limits, natural flow, discharge volume); e) all in-situ water quality monitoring results; and f) any other matters pertinent to the water release event. Note: Successive or intermittent releases occurring within 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 W13 and W14, provided the relevant details of the release are included within the notification provided in accordance with conditions W13 and W14.
W15	Notification of release event exceedance If the release limits defined in Table W2 are exceeded, the holder of the environmental authority must notify the administering authority within twenty four (24) hours of receiving the results.
W16	The authority holder must, within twenty eight (28) days of a release that exceeds the conditions of this authority, provide a report to the administering authority detailing: a) the reason for the release; b) the location of the release; c) all water quality monitoring results; d) any general observations; e) all calculations; and f) any other matters pertinent to the water release event.

W17	Monitoring of water storage quality Water storages stated in Table W5 which are associated with the release points must be monitored for the water quality characteristics specified in Table W6 at the monitoring locations and at the monitoring frequency specified in Table W5 .
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Table W5: Water storage monitoring

Water Storage Description	Latitude (decimal degree, GDA94)	Longitude (decimal degree, GDA94)	Monitoring Location	Frequency of Monitoring
Industrial Area Dam 3	-23.9119	148.0588	Dam edge	Quarterly
Dam 4	-23.9219	148.0618	Dam edge	Quarterly
ROM Dam 3	-23.9241	148.0680	Dam edge	Quarterly

W18	In the event that waters storages defined in Table W5 exceed the contaminant limits defined in Table W6 , the holder of the environmental authority must implement measures, where practicable, to prevent access to waters by all livestock.
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Table W6: Onsite water storage contaminant limits

Quality Characteristic	Test Value	Contaminant Limit
pH (pH unit)	Range	Greater than 4, less than 9 ²
EC (µS/cm)	Maximum	5970 ¹
Suspended Solids (mg/L)	Maximum	4000 ¹
Sulphate (mg/L)	Maximum	1000 ¹
Fluoride (mg/L)	Maximum	2 ¹
Aluminium (mg/L)	Maximum	5 ¹
Arsenic (mg/L)	Maximum	0.5 ¹
Cadmium (mg/L)	Maximum	0.01 ¹
Cobalt (mg/L)	Maximum	1 ¹
Copper (mg/L)	Maximum	1 ¹
Lead (mg/L)	Maximum	0.1 ¹
Nickel (mg/L)	Maximum	1 ¹
Zinc (mg/L)	Maximum	20 ¹

Note:

¹ Contaminant limit based on ANZECC & ARMICANZ (2000) stock water quality guidelines.

² Page 4.2-15 of ANZECC & ARMICANZ (2000) "Soil and animal health will not generally be affected by water with pH in the range of 4–9".

Note: Total measurements (unfiltered) must be taken and analysed

W19	Receiving environment monitoring and contaminant trigger levels The quality of the receiving waters must be monitored at the locations specified in Table W8 for each quality characteristic and at the monitoring frequency stated in Table W7 .
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Table W7: Receiving waters contaminant trigger levels

Quality Characteristic	Trigger Level	Monitoring Frequency
pH	6.5 – 8.5	Daily during release
Electrical Conductivity (µS/cm)	1000	
Suspended solids (mg/L)	431	
Sulphate (SO ₄ ²⁻) (mg/L)	250	

Note:

¹ Downstream receiving water monitoring of Suspended Solids to be taken and analysed at Wurba X only.

Table W8: Receiving water upstream background sites and down stream monitoring points

Monitoring Points	Receiving Waters Location Description	Latitude (decimal degree, GDA94)	Longitude (decimal degree, GDA94)
Upstream Background Monitoring Points			
Upstream North	Sandhurst Creek 312 metres upstream of RP 9	-23.9147	148.0333
Upstream West	Sandhurst Creek west trib. 190 metres upstream of RP 7	-23.9239	148.0337
Upstream East	Sandhurst Creek south trib. 350 metres upstream of RP 5	-23.9281	148.0598
Downstream Monitoring Points			
Wurba X	Sandhurst Creek 3.0 kilometres downstream of RP1	-23.9117	148.0880
Gregory X	Sandhurst Creek 10.0 kilometres downstream of RP 1	-23.8637	148.1253

W20	If quality characteristics of the receiving water at the downstream monitoring points exceed any of the trigger levels specified in Table W7 during a release event the environmental authority holder must compare the down stream 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 down stream results exceed the upstream results complete an investigation into the potential for environmental harm and provide a written report to the administering authority in the next annual return, outlining: i. details of the investigations carried out; and ii. actions taken to prevent environmental harm. <i>Note: Where an exceedance of a trigger level has occurred and is being investigated, in accordance with W20(b) of this condition, no further reporting is required for subsequent trigger events for that quality characteristic.</i>
W21	Receiving Environment Monitoring Program (REMP) The environmental authority holder must develop and implement a 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 Sandhurst Creek and connected or surrounding waterways within ten (10) km downstream of the release. The REMP should encompass any sensitive receiving waters or environmental values downstream of the authorised mining activity that will potentially be directly affected by an authorised release of mine affected water.
W22	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; and 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 W8); and 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 Guidelines 2006</i>. This should include monitoring during periods of natural flow irrespective of mine or other discharges; and e) Include monitoring and assessment of dissolved oxygen saturation, temperature and all water quality parameters listed in Table W2 and W 3); and f) Include, where appropriate, monitoring of metals/metalloids in sediments (in accordance with ANZECC & ARMCANZ 2000, BATLEY and/or the most recent version of AS5667.1 <i>Guidance on Sampling of Bottom Sediments</i>); and g) Include, where appropriate, monitoring of macro invertebrates in accordance with the AusRivas methodology, and h) Apply procedures and/or guidelines from ANZECC & ARMCANZ 2000 and other relevant guideline documents; and 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.

W23	A report outlining the findings of the REMP, including all monitoring results and interpretations in accordance with conditions W21 and W22 must be prepared annually and made available on request to the administering authority. This must include an assessment of background reference water quality, the condition of downstream water quality compared against water quality objectives, and the suitability of current discharge limits to protect downstream environmental values.
W24	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 consent of the third party).
W25	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 W26 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.
W26	The release of any contaminants as permitted by this environmental authority, directly or indirectly to waters, other than internal water management infrastructure that is installed and operated in accordance with a water management plan that complies with conditions W29 to W34 inclusive: a) must not produce any visible discolouration of receiving waters; and b) must not produce 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.
W27	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 with each annual return: 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 in the specified electronic format upon request.

W28	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 administering authority's <i>Guideline - Activities in a Watercourse, Lake or Spring associated with Mining Activities</i>.
W29	Water management plan A Water Management Plan must be developed by an appropriately qualified person.
W30	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> and include: i. a study of the source of contaminants; ii. a water balance model for the site; iii. a water management system for the site; iv. measures to manage and prevent saline drainage; v. measures to manage and prevent acid rock drainage; vi. contingency procedures for emergencies; and vii. a program for monitoring and review of the effectiveness of the water management plan.
W31	The Water Management Plan must be reviewed each calendar year and a report prepared by an appropriately qualified person. The report must: a) assess the plan against the requirements under condition W32; 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.
W32	The holder of this environmental authority must attach to the review report required by condition W31, a written response to the report and recommended actions, detailing the actions taken or to be taken by the environmental authority holder on stated dates: a) to ensure compliance with this environmental authority; and b) to prevent a recurrence of any non-compliance issues identified.
W33	The review report required by condition W31 and the written response to the review report required by condition W32 must be submitted to the administering authority with the subsequent annual return under the signature of the appointed signatory for the annual return.
W34	A copy of the Water Management Plan must be provided to the administering authority on request.
W35	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.
W36	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.

W37	Stormwater and water sediment controls An Erosion and Sediment Control Plan must be developed by an appropriately qualified person and implemented for all stages of the mining activities on the site to minimise erosion and the release of sediment to receiving waters and contamination of stormwater.
W38	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 W37 ; and b) water management infrastructure that is installed and operated, in accordance with a Water Management Plan that complies with conditions W29 to W34 inclusive, for the purpose of ensuring water does not become mine affected water.
W39	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.
W40	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.
W41	Groundwater Groundwater affected by the mining activities must be monitored at the locations and frequencies defined in Table W9 and Figure 1 Location of release points and monitoring points .

Table W9: Groundwater monitoring locations and frequency

Monitoring point	Easting (GDA 94)	Northing (GDA 94)	Bore RL (m)	Monitoring frequency
1077	605763	7355755	281	November and April annually
1114	604708	7352805	288	November and April annually
1116	606883	7351040	282	November and April annually

Table W10: Groundwater contaminant trigger levels

Parameter	Units	Limit type	Contaminant trigger levels
pH	-	Min	6.0
pH	-	Max	9.0
TDS ¹	mg/L	Max	800
Sulphate	mg/L	Max	100
Iron	mg/L	Max	5

Note: ¹ EC can be used as a replacement for TDS where sufficient data verifies the relationship at Minerva

W42	Subject to condition W41 , if the groundwater contaminant trigger levels defined in Table W10 are exceeded then the environmental authority holder must complete an investigation into the potential for environmental harm and notify the administering authority within one (1) month of receiving the analysis results.
W43	Subject to condition W41 , groundwater contaminant limits must not exceed the contaminant limits defined in Table W11 .

Table W11: Groundwater contaminant limits

Parameter	Units	Minimum	Maximum
PH	-	6.5	9.5
TDS ¹	mg/L	-	1250
Sulphate	mg/L	-	500
Iron	mg/L	-	10

Note: ¹EC can be used as a replacement for TDS where sufficient data verifies the relationship at Minerva

W44	Subject to condition W41 groundwater levels must be monitored and groundwater draw down fluctuations in excess of two (2) metres per year , not resulting from the pumping of licensed bores, must be notified within fourteen (14) days to the administering authority following completion of monitoring.
W45	The method of water sampling required by this environmental authority must comply with that set out in the latest edition of the administering authority's <i>Water Quality Sampling Manual</i> .

Agency interest: Noise	
Condition number	Condition
D1	Noise nuisance Subject to conditions D2 and D3 noise from the mining activity must not cause an environmental nuisance, at any sensitive or commercial place.
D2	When requested by the administering authority, noise monitoring must be undertaken within a reasonable and practicable timeframe nominated by the administering authority to investigate any complaint (which is neither frivolous nor vexatious nor based on mistaken belief in the opinion of the authorised officer) of environmental nuisance at any sensitive or commercial place, and the results must be notified within fourteen (14) days to the administering authority following completion of monitoring.
D3	If the environmental authority holder can provide evidence through monitoring that the limits defined in Table D1 and D2 inclusive, are not being exceeded then the holder is not in breach of condition D1 . Monitoring must include: a) LA, max adj, T ; b) the level and frequency of occurrence of impulsive or tonal noise; c) atmospheric conditions including wind speed and direction; and d) location, date and time of recording.
D4	If monitoring indicates exceedence of the limits in Table D1 and D2 , 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.
D5	The method of measurement and reporting of noise levels must comply with the latest edition of the administering authority's Noise Measurement Manual.

Table D1: Noise limits

Noise level dB(A) measured as	Monday to Saturday			Sundays and public holidays		
	7am - 6pm	6pm - 10pm	10pm - 7am	9am - 6pm	6pm - 10pm	10pm - 9am
	Noise measured at a 'Noise sensitive place'					
LA ₁₀ , adj, 10 mins	b/g+5	b/g+5	b/g+3	b/g+5	b/g+5	b/g+0
LA ₁ , adj, 10 mins	b/g+10	b/g+10	b/g+5	b/g+10	b/g+10	b/g+5
	Noise measured at a 'Commercial place'					
LA ₁₀ , adj, 10 mins	b/g+10	b/g+10	b/g+5	b/g+10	b/g+10	b/g+5
LA ₁ , adj, 10 mins	b/g+15	b/g+15	b/g+10	b/g+15	b/g+15	b/g+10

Table D2: Airblast Overpressure Level

Location	Monday to Friday 7 am - 6 pm Saturday 7 am - 6 pm	Sundays and public holidays
Sensitive or commercial place	Air blast overpressure level of 120db (linear peak.) for nine (9) out of ten (10) consecutive blasts initiated and not greater than 125 db (linear peak) at any time.	Air blast overpressure level of 115 db (linear peak.) for nine (9) out of ten (10) consecutive blasts initiated and not greater than 120 db (linear peak) at any time.

D6	Vibration nuisance Subject to conditions D7 and D8 vibration from the mining activity must not cause an environmental nuisance, at any sensitive or commercial place.
D7	When requested by the administering authority, vibration monitoring must be undertaken within a reasonable and practicable timeframe nominated by the administering authority to investigate any complaint (which is neither frivolous nor vexatious nor based on mistaken belief in the opinion of the authorised officer) of environmental nuisance at any sensitive or commercial place, and the results must be notified within fourteen (14) days to the administering authority following completion of monitoring.
D8	If the environmental authority holder can provide evidence through monitoring that the limits defined in Table D3 are not being exceeded then the holder is not in breach of condition D6 . Monitoring must include: a) location of the blast(s) within the mining area (including which bench level); b) atmospheric conditions including temperature, relative humidity, wind speed and direction; and c) location, date and time of recording.
D9	If monitoring indicates exceedance of the relevant limits in Table D3 , then the environmental authority holder must: a) address the complaint including the use of appropriate dispute resolution if required; and b) immediately implement vibration abatement measures so that vibration from the activity does not result in further environmental nuisance.

Table D3: Vibration limits

Location	Vibration measured	
	Monday to Friday 7 am - 6 pm Saturday 7 am - 6 pm	Sundays and public holidays
Sensitive or commercial place	10mm/s peak particle velocity for nine (9) out of ten (10) consecutive blasts and not greater than 20 mm/s peak particle velocity at any time	5mm/s peak particle velocity for nine (9) out of ten (10) consecutive blasts and not greater than 10 mm/s peak particle velocity at any time

Agency interest: Waste	
Condition number	Condition
E1	Storage of tyres Scrap tyres stored awaiting disposal or transport for take-back, recycling, or waste-to-energy options must be stored in stable stacks and at least ten (10) metres from any other scrap tyre storage area, or combustible or flammable material, including vegetation.
E2	All reasonable and practicable fire prevention measures must be implemented, including removal of grass and other materials within a ten (10) metre radius of the scrap tyre storage area.
E3	Disposal of tyres Where practicable, scrap tyres resulting from the mining activities can be disposed of in underground stopes provided this practice does not cause an unacceptable fire risk or compromise mine safety.
E4	Disposing of scrap tyres resulting from the mining activities in spoil emplacements is acceptable, provided; a) tyres are placed as deep in the spoil as reasonably practicable; and b) all other stages (options) in the waste hierarchy have been considered
E5	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.
E6	Waste management The implemented Waste Management Plan must: a) include a program for safe recycling or disposal of all wastes - re-using and recycling where possible; b) contain a disposal procedure for hazardous wastes; c) have a staff awareness and induction program that encourages re-use and recycling; and d) be reviewed annually.
E7	Waste must not be burned or allowed to be burned on the licensed site unless by approval of the administering authority.
E8	A designated area must be set aside for the segregation of economically viable, recyclable solid and liquid waste.
E9	Records of trade and regulated wastes or material leaving the mining lease for recycling or disposal, including the final destination and method of treatment, must be in accordance with the <i>Environmental Protection (Waste Management) Regulation 2000</i> .
E10	All putrescible waste must be disposed of in a licensed landfill.
E11	Disposal in the spoil emplacements, above the elevation of the pre-mining water table and at a depth in excess of two (2) metres , of up to fifty (50) cubic metres / year of general waste resulting from mining activities is acceptable, provided volumes are recorded.

Agency interest: Land	
Condition number	Condition
F1	Rehabilitation All areas significantly disturbed by mining activities must be rehabilitated to achieve the following rehabilitation goals: a) Safe to humans and wildlife; b) Stable; c) Non-polluting; d) Self-sustaining for the post-mining land use.
F2	Rehabilitation must commence progressively in accordance with the plan of operations.
F3	A Rehabilitation Plan must be developed by 1 July 2015 by a suitably qualified person and implemented.
F4	The Rehabilitation Plan must include: a) Rehabilitation objectives to achieve the rehabilitation goals for all disturbed areas; b) Detailed rehabilitation methods for each disturbed area; c) Rehabilitation indicators to measure the success of the rehabilitation against the rehabilitation objectives; d) Final completion criteria that will achieve the rehabilitation goals and objectives; and e) Details of appropriate monitoring and maintenance of rehabilitation.
F5	The environmental authority holder must notify the administering authority of any changes to the Rehabilitation Plan, and submit the updated document to the administering authority.
F6	All areas significantly disturbed by mining activities must be rehabilitated in accordance with the Rehabilitation Plan to achieve the final completion criteria.
F7	Residual void outcome Residual voids must not cause any serious environmental harm to land, surface waters or any recognised groundwater aquifer, other than the environmental harm constituted by the existence of the residual void itself and subject to any other condition within this environmental authority.

F8	If residual voids are to be left an investigation into residual void options and landform design are to be completed. The subsequent report is to be submitted to the administering authority proposing acceptance criteria to meet the outcomes in condition F7, landform design criteria in Table F1, void volume reduction options and options to reduce the height of the main dumps by 29 November 2021. The investigation shall be completed by a competent person, and include detailed research and modelling and at a minimum include the following: a) a study of options available for minimising residual void area and volume; b) a void hydrology study, addressing the long-term water balance in the voids, connections to groundwater resources and water quality parameters in the long term; c) 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; d) a hydrological study into the long-term risk of the Sandhurst Creek / final void interaction, including erosion of the banks and spoil and extreme hydrological events, and the consequences of such interaction to the long-term stability of the final voids; e) a study of void capability to support native flora and fauna; and f) a proposal/s for end of mine void rehabilitation success criteria and final void areas and volumes.
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Table F1: Residual Void Design

Void Identification	Void wall - competent rock max slope (%)	Void wall - incompetent rock max slope (%)	Void maximum surface area (ha)
Residual void	275% (70 degrees); highwall slope mostly to be 60 degrees	Approx. 65% (angle-of-repose)	91

F9	Topsoil Topsoil resources that are suitable for use in rehabilitation must be identified and salvaged ahead of mining for strategic use in rehabilitation of the mine area.
F10	Where practicable stripped topsoil must be directly placed on rehabilitation areas. Where direct placement is not practicable, topsoil must be stored in stockpiles less than four (4) meters high and vegetated.
F11	An inventory of topsoil resources must be maintained.
F12	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 land owner / holder. Note: This is not applicable where the landowner / holder is also the environmental authority holder.

Agency interest: Dams	
Condition number	Condition
G1	All dams The holder of this environmental authority must ensure that dams are designed, constructed, operated and maintained in accordance with accepted engineering standards.
G2	Except for dams affected by condition G3 , the hazard category of dams must be assessed by a suitably qualified and experienced person prior to their construction, and then not less frequently than on an annual basis.
G3	The hazard category of dams constructed prior to grant of this environmental authority, must be assessed by a suitably qualified and experienced person within six (6) months of environmental authority taking effect, and not less frequently than on an annual basis.
G4	Where the hazard category of a dam is assessed as significant or high, the holder of the environmental authority must act immediately to ensure: a) the administering authority is advised of the current location and details of that dam; and b) that the dam meets the hydraulic performance required of the assessed hazard category within six (6) months of that assessment.
G5	The condition of dams must be monitored for early signs of loss of structural or hydraulic integrity, based on the advice of a suitably qualified and experienced person. The methods of monitoring and frequency of monitoring shall be as assessed by that suitably qualified and experienced person, based on the hazard category and particular circumstances of each dam.
G6	In the event of early signs of loss of structural or hydraulic integrity, the holder of this environmental authority must immediately take action to prevent or minimize any actual or potential environmental harm, and report in writing any findings and actions taken to the administering authority within twenty eight (28) days .
G7	The holder of this environmental authority must decommission each dam to a situation where ongoing environmental harm is prevented.
G8	As a minimum, dams must be decommissioned such that they: a) no longer contain flowable substances; b) become stable landforms; and c) comply with the rehabilitation requirements of this environmental authority.
G9	Regulated dams No regulated dams are authorised under this environmental authority.

Agency interest: Community	
Condition number	Condition
H1	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.

END OF CONDITIONS

Definitions

Key terms and/or phrases used in this document are defined in this section and **bolded** throughout this document. 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.

“20th percentile flow” means the 20th percentile of all daily flow measurements (or estimations) of daily flow over a 10 year period for a particular site. The 20th percentile calculation should only include days where flow has been measured (or estimated), i.e. not dry weather days.

“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 mining 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 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 Resource Management 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*

“ambient (or total) noise” at a place, means the level of noise at the place from all sources (near and far), measured as the Leq for an appropriate time interval.

“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.

“assessed” or “assess” by a suitably qualified and experienced person in relation to a hazard assessment of a dam, means that a statutory declaration has been made by that person and, when taken together with any attached or appended documents referenced in that declaration, all of the following aspects are addressed and are sufficient to allow an independent audit at any time:

- 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 works” in relation to a dam, means:

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

“bed and banks” for a 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.

“biosolids” means the treated and stabilised solids from sewage.

“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” or “certified” by a suitably qualified and experienced person in relation to a design plan or an annual report regarding dams, means that a statutory declaration has been made by that person and, when taken together with any attached or appended documents referenced in that declaration, all of the following aspects are addressed and are sufficient to allow an independent audit at any time:

- a) exactly what is being certified and the precise nature of that certification.
- b) the relevant legislative, regulatory and technical criteria on which the certification has been based;
- c) the relevant data and facts on which the certification has been based, the source of that material, and the efforts made to obtain all relevant data and facts; and
- d) the reasoning on which the certification has been based using the relevant data and facts, and the relevant criteria.

“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 dangerous goods code; or
- c) a lead hazardous substance within the meaning of the *Workplace Health and Safety Regulation 1997*; or
- 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
- f) a substance used for, or intended for use for –
 - i. mineral processing or treatment of metal, pulp and paper, textile, timber, water or wastewater; or
 - ii. manufacture of plastic or synthetic rubber.

“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.

“commercial place” means a work place 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.

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

“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.

“cover material” means any soil or rock suitable as a germination medium or landform armouring.

“dam” means a land-based structure or a void that is designed to contain, divert or control flowable substances - including any substances that are thereby contained, diverted or controlled by that land-based structure or void; but does *not* mean a fabricated or manufactured tank or container designed to a recognised standard. In case there is any doubt, a levee dyke or bund is a dam.

“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* in relation to a matter that involves an environmentally relevant activity under the *Environmental Protection Act 1994*.

“domestic waste” means waste, other than domestic clean-up waste, green waste, recyclable waste, interceptor waste or waste discharged to a sewer, produced as a result of the ordinary use or occupation of domestic premises.

“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 water craft in a marina.

“effluent” treated waste water discharged from sewage treatment plants.

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

“environmental authority” means an environmental authority granted in relation to an environmentally relevant activity under the *Environmental Protection Act 1994*.

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

“environmentally relevant activity” means an environmentally relevant activity as defined in the *Environmental Protection Act 1994* and listed in the *Environmental Protection Regulation 2008*.

“financial assurance” means a security required under the *Environmental Protection Act 1994* by the administering authority to cover the cost of rehabilitation or remediation of disturbed land or to secure compliance with the environmental authority.

“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.

“flowable substance” means matter or a mixture of materials which can be forced to or otherwise flow under any conditions possible in a situation. It includes water, other liquids or a mixture that includes water or any other liquid or suspended solids.

“foreseeable future” is the period used for assessing the total probability of an event occurring. Permanent structures and ecological sustainability should be expected to still exist at the end of a 150 year foreseeable future with an acceptable probability of failure before that time.

“general waste” means waste other than regulated waste.

“hazardous waste” means any substance, whether liquid, solid or gaseous, derived by or resulting from, the processing of minerals that tends to destroy life or impair or endanger health.

“hazard” in relation to a dam as defined in this environmental authority, 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 the Manual for Assessing Hazard Categories and Hydraulic Performance of Dams.

“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 *Site Water Management Technical Guideline for Environmental Management of Exploration and Mining in Queensland (DME 1995)*.

“infrastructure” means water storage dams, roads and tracks, buildings and other structures built for the purpose of mining 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 land owner.

“ L_A 10, 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.

“ L_A 1, 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

“ L_A , 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.

“landfill” means land used as a waste disposal site for lawfully putting solid waste on the land.

“land use” term to describe the selected post mining use of the land, which is planned to occur after the cessation of mining operations.

“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 materials resulting from unplanned releases from other works of infrastructure, during the progress of those stormwater or flood flows or those unplanned releases; and does not store any significant volume of water or flowable substances at any other times.

“mandatory reporting level” means the volume below the spillway crest, equivalent to the lower of the AEP, 72 hour storm or the AEP wave allowance (AEP is the natural exceedance probability).

‘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.
- b) does not include surface water runoff which, to the extent that it has been in contact with areas disturbed by mining activities that have not yet been completely rehabilitated, has only been in contact with:
 - vii) 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
 - viii) 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:
 - a) areas that are been capped and have monitoring data demonstrating hazardous material adequately contained with the site;
 - b) 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
 - ix) both.

“mineral” means a substance which normally occurs naturally as part of the earth’s crust or is dissolved or suspended in water within or upon the earth’s crust and includes a substance which may be extracted from such a substance, and includes—

- a) clay if mined for use for its ceramic properties, kaolin and bentonite;
- b) foundry sand;

- c) hydrocarbons and other substances or matter occurring in association with shale or coal and necessarily mined, extracted, produced or released by or in connection with mining for shale or coal or for the purpose of enhancing the safety of current or future mining operations for coal or the extraction or production of mineral oil there from;
- d) limestone if mined for use for its chemical properties;
- e) marble;
- f) mineral oil or gas extracted or produced from shale or coal by in situ processes;
- g) peat;
- h) salt including brine;
- i) shale from which mineral oil may be extracted or produced;
- j) silica, including silica sand, if mined for use for its chemical properties;
- k) rock mined in block or slab form for building or monumental purposes;
- l) But does not include—
- m) living matter;
- n) petroleum within the meaning of the Petroleum Act 1923;
- o) soil, sand, gravel or rock (other than rock mined in block or slab form for building or monumental purposes) to be used or to be supplied for use as such, whether intact or in broken form;
- p) water.

“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.

“noxious” means harmful or injurious to health or physical well being, other than trivial harm.

“non standard” means a mining operation that if in the opinion of the administering authority does not have a low risk of serious environmental harm and the activities can not comply with the criteria for standard mining activities prescribed in schedule 1A of the *Environmental Protection Regulation 1998*. The standard mining activity trigger criteria are as follows:

- (a) the mining activities do not or will not cause more than 10ha of land to be significantly disturbed at any one time;
- (b) the mining activities do not or will not cause more than 5ha of land to be significantly disturbed at any one time;
 - in a riverine area;
 - because of mine workings;
- (c) the mining activities are not or will not be carried out in, or within 2km of a category A *Environmentally Sensitive Area*;
- (d) the mining activities are not or will not be carried out in, or within 1km of a category B *Environmentally Sensitive Area*;
- (e) the mining activities do not include a level 1 environmentally relevant activity;
- (f) no more than 20 persons are carrying out or will, at any one time, carry out the mining activities.

“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” means a document that amongst other things sets out procedures and criteria to be used for operating a dam during a particular time period. The operational plan as defined herein may form part of a plan of operations or plan otherwise required in legislation.

“palletised” means stored on a movable platform on which batteries are placed for storage or transportation.

“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).

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

“protected area” means - a protected area under the *Nature Conservation Act 1992*; or
- a marine park under the *Marine Parks Act 1992*; or
- a World Heritage Area.

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

“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.

“recycled water” means appropriately treated effluent and urban stormwater suitable for further use.

“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.

“regulated dam” means any dam in the significant or high hazard category as assessed using the Site Water Management Technical Guideline for Environmental Management of Exploration and Mining in Queensland (DME 1995).

“rehabilitation” the process of reshaping and revegetating land to restore it to a stable landform and in accordance with the acceptance criteria set out in this environmental authority and, where relevant, includes remediation of contaminated land.

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

“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.

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

“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.

“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.

“significant disturbance” – includes land

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

Some examples of disturbed land include:

- areas where soil has been compacted, removed, covered, exposed or stockpiled;
- areas where vegetation has been removed or destroyed to an extent where the land has been made susceptible to erosion; (vegetation & topsoil)
- areas where land use suitability or capability has been diminished;
- areas within a watercourse, waterway, wetland or lake where mining activities occur;
- areas submerged by tailings or hazardous contaminant storage and dam walls in all cases;
- areas under temporary infrastructure. Temporary infrastructure includes any infrastructure (roads, tracks, bridges, culverts, dams, bores, buildings, fixed machinery, hardstand areas, airstrips, helipads etc) which is to be removed after mining activities have ceased; or
- areas where land has been contaminated and a suitability statement has not been issued.

“spillway” means passage or outlet from the dam through which surplus water flows.

“stable” means geotechnical stability of the rehabilitated landform where instability related to the excessive settlement and subsidence caused by consolidation / settlement of the wastes deposited, and sliding / slumping instability has ceased.

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

“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.

“trackable waste” means a waste or combination of waste stated in Schedule 1 of the *Environmental Protection (Waste Management) Regulation 2000*.

“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.

“tolerable limits” means a range of parameters regarded as being sufficient to meet the objective of protecting relevant environmental values. For example, a range of settlement for a tailings capping, rather than a single value, could still meet the objective of draining the cap quickly, preventing pondage and limiting infiltration and percolation.

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

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

“waste management hierarchy” has the meaning given by the *Environmental Protection (Waste Management) Policy 2000*.

“waste management principles” has the meaning given by the *Environmental Protection (Waste Management) Policy 2000*.

“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.

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

“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.

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

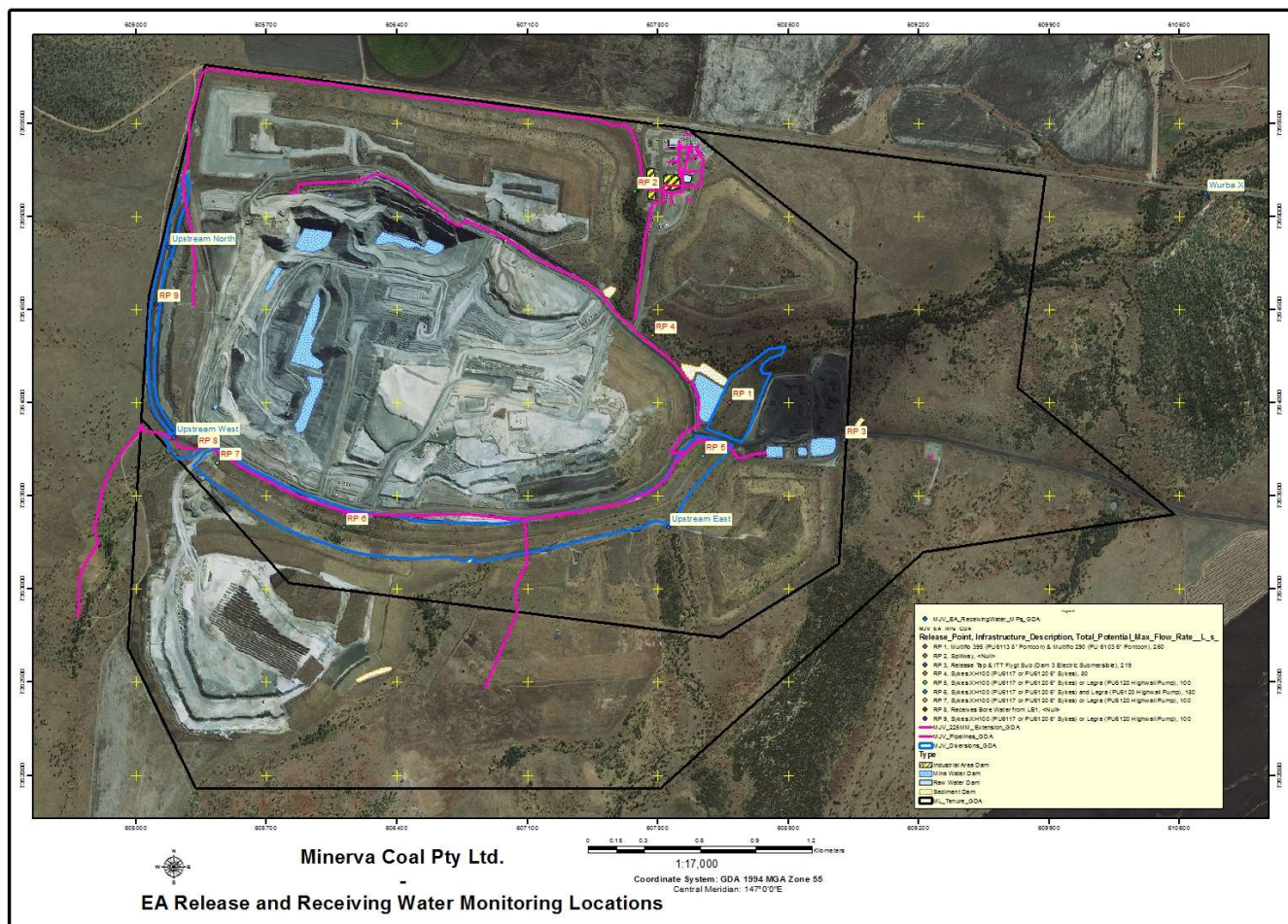
“waters” includes river, stream, lake, lagoon, pond, swamp, wetland, unconfined surface water, unconfined water natural or artificial watercourse, bed and bank of any waters, dams, non-tidal or tidal waters (including the sea), stormwater channel, stormwater drain, and groundwater and any part thereof.

“µg/L” means micrograms per litre

“**μs.cm-1**” means microsiemens per centimetre

END OF DEFINITIONS

Figure 1 Location of Release Points and Monitoring Points



END OF ENIRONMENTAL AUTHORITY