Permit[1]

Environmental Protection Act 1994

Environmental Authority EPML00332013
Collinsville Coal Mine

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

Permit[1] number: EPML00332013

Environmental authority takes effect: 13 November 2017

The anniversary date is **11 December.** An annual return and payment of the annual fee will be due each year on this day.

Environmental authority holder(s)

Permit Holder (s)	Name	Registered address
Principal Holder	Glencore Coal Queensland Pty Limited	Level 44, 1 Macquarie Place SYDNEY NSW 2000

Environmentally relevant activity and location details

Environmentally relevant activities	Location(s)
ERA 13 Mining black coal *Schedule 2A – Environmental Protection Regulation 2008*	ML1005 ML1006 ML1007 ML1008 ML1009 ML1015 ML1037 ML1064 ML10111 ML10250 ML10333
ERA 31 (2)(b) Mineral processing - in a year, the following quantities of mineral products, other than coke - >100,000t/yr. *Schedule 2 – Environmental Protection Regulation 2008*	
ERA 8(1)(c) Chemical Storage – more than 500m^3 of chemicals of class C1 or C2 combustible liquids under AS 1940 or dangerous goods class 3. *Schedule 2 – Environmental Protection Regulation 2008*	
ERA 60 (1)(b)(ii)(A) Waste Disposal – general waste and either, or a combination of a quantity of limited regulated waste that is no more than 10% of the total amount of waste received at the facility in a year. *Schedule 2 – Environmental Protection Regulation 2008*	
ERA 63 (1b) Sewage treatment – operating sewage treatment works, other than no-release works, with a total daily peak design capacity of more than 100 but not more than 1500EP. *Schedule 2 – Environmental Protection Regulation 2008*	

[1] Permit includes licences, approvals, permits, authorisations, certificates, sanctions or equivalent/similar as required by legislation

Additional information for applicants

Environmentally relevant activities

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

An environmental authority authorises the carrying out of an ERA and does not authorise any environmental harm unless a condition stated by the authority 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 if an owner or occupier of land becomes aware a notifiable activity (as defined in Schedule 3 and Schedule 4) is being carried out on the land, or that the land has been, or is being, contaminated by a hazardous contaminant, the owner or occupier must, within 22 business days after becoming so aware, give written notice to the chief executive.



Signature

13/11/2017

Date

Kate Bennink
Department of Environment and Heritage Protection
Delegate of the administering authority
Environmental Protection Act 1994

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Obligations under the *Environmental Protection Act 1994*

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

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

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	**Scope of Activity** This environmental authority authorises the mining of 5.9 million tonnes of run of mine (ROM) coal per annum.
A3	**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.
A4	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.
A5	**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.
A6	Where monitoring is a requirement of this environmental authority, ensure that a competent person conducts all monitoring, in accordance with: a) the most recent Monitoring and Sampling Manual released by the administering authority, or b) an appropriate method described in AS, or c) any other document approved by the administering authority.
A7	All analyses and tests required to be conducted under this environmental authority must be carried out by a laboratory that has National Association of Testing Authorities (NATA) certification for such analyses and tests, except as otherwise authorised by the administering authority.
A8	All instruments, equipment and measuring devices used for measuring or monitoring in accordance with any condition of this authority must be: a) appropriately and competently calibrated, operated and maintained, and b) calibration reports must be supplied upon request to the administering authority in accordance with condition A19.
A9	**Notification of Emergencies, Incidents and Exceptions** As soon as practicable, but not later than **forty-eight (48) hours**, after becoming aware of any emergency, incident or information about circumstances which results or may result in environmental harm not in accordance with the conditions of this environmental authority, the administering authority must be notified by telephone or email.

A10	The notification of emergencies or incidents as required under condition A9 must include at a minimum, but not be limited to, the following: a) the holder of the environmental authority b) the permit number of the environmental authority c) the name and telephone number of the designated contact person d) the location of the emergency or incident e) the time of the emergency or incident f) the time the holder of the environmental authority became aware of the emergency or incident g) the suspected cause of the emergency or incident h) the potential environmental harm caused, threatened, or suspected to be caused by the emergency or incident i) actions taken to prevent any further environmental harm and mitigate any environmental harm caused by the emergency or incident.
A11	Within **ten (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.
A12	**Storage and Handling of Hazardous Substances** Storage of chemicals, flammable and combustible liquids, corrosive and toxic substances, gases and dangerous goods must be contained within an on-site containment system and controlled in a manner that prevents environmental harm in accordance with *AS 1940 – Storage and Handling of Flammable and Combustible Liquids* or another relevant Australian Standard.
A13	Spillage of chemicals, flammable and combustible liquids, corrosive and toxic substances, gases and dangerous goods must be controlled in a manner that prevents unlawful environmental harm.
A14	Appropriate control measures including spill kits, personal protective equipment, and relevant operator instructions/emergency procedure guides for the management of hydrocarbons, chemicals, flammable and combustible liquids, corrosive and toxic substances, gases and dangerous goods associated with the activity must be implemented at the site.
A15	Any persons handling or managing hydrocarbons, chemicals, flammable and combustible liquids, corrosive and toxic substances, gases and dangerous goods under this approval must be trained by a competent person in the use of appropriate control measures referred to in condition A14.
A16	**Contaminant Release** Contaminants that will, or have the potential to cause environmental harm must not be released directly or indirectly as a result of the authorised mining activities, except as permitted under the conditions of this environmental authority.

A17	**Standards and Guidelines** Where a condition of this environmental authority requires compliance with a standard, guideline or manual published externally to this environmental authority and the standard, guideline or manual is amended or changed subsequent to the issue of this environmental authority the holder must: a) comply with the amended or changed standard, guideline or manual: i. within **twelve (12) months** of the amendment or change being made, unless a different period is specified in the amended standard, guideline, manual or relevant legislation or ii. within a timeframe otherwise agreed between the holder of this environmental authority and the administering authority b) until compliance with the amended or changed standard, guideline or manual is achieved, continue to remain in compliance with the standard, guideline or manual that was current immediately prior to the relevant amendment or change.
A18	**Management Plans and Programs** Where this environmental authority requires the holder to develop a management plan or program, the holder may amend any such plan or program from time to time in accordance with any content requirements under this environmental authority without triggering an amendment to this environmental authority.
A19	**Request for Information** The administering authority may request any information relating to this environmental authority from the environmental authority holder at any time. The environmental authority holder must provide the information to the administering authority within an agreed timeframe.
A20	**Complaints** All complaints received must be recorded by the environmental authority holder and provided to the administering authority on request, including the following information: a) name, address and contact number for complainant b) time and date of complaint c) reasons for the complaint d) investigations undertaken e) conclusions formed f) actions taken to resolve the complaint g) any abatement measures implemented, and h) person responsible for resolving the complaint.
A21	When requested by the administering authority, the environmental authority holder must undertake relevant specified monitoring within a reasonable and practicable timeframe nominated by the administering authority to investigate any complaint of environmental harm at any sensitive place or commercial place. The results of the investigation (including analysis and interpretation of the monitoring results) and abatement measures implemented must be provided to the administering authority within **ten (10) business days** of completion of the investigation.
A22	**Non-Sensitive Location Agreements** The environmental authority holder may enter into non-sensitive location agreements with the owners of sensitive places identified in the relevant management plan.
A23	The environmental authority holder must notify the administering authority of any non-sensitive location agreement upon commencement, amendment, transfer, continuation or conclusion of the agreement.

A24	Where the owner of a sensitive place enters into a non-sensitive location agreement, that place is not considered to be a sensitive place.
A25	**Environmental Legacy Identification Program** The Environmental Legacy Identification Program must include the following as a minimum: a) be developed by an appropriately qualified person b) identification of environmental legacy issues c) identify monitoring and management strategies for each environmental legacy issue d) detail monitoring and review processes of the effectiveness of the monitoring and management strategies identified for each environmental legacy issue e) be reviewed and updated by 31 December 2017.
A26	No circumstances in relation to an environmental legacy issue will constitute a breach of any other condition(s) of this environmental authority however the permit holder must complete an investigation to the satisfaction of the administering authority as requested in accordance with condition A21.

Schedule B: Air	
Condition number	**Condition**
B1	**Air Quality Management Plan** An Air Quality Management Plan must be developed in accordance with condition B2 and implemented for all stages of the mining activities on the site.
B2	The Air Quality Management Plan must provide for effective management of actual and potential environmental impacts resulting from air management associated with the mining activities carried out under this environmental authority and include the following as a minimum: a) be developed by an appropriately qualified person b) identification of all potential sensitive and commercial locations which may be affected by air quality impacts from mining activities c) identification of all major sources of dust emissions that may occur as a result of mining activities d) description of the procedures to manage the dust emissions from the sources identified e) collection of air quality and meteorological data using the methods described in the Air Quality Monitoring Program f) identifying adverse meteorological conditions likely to produce elevated levels of PM_{10} at a sensitive or commercial place due to mining activities g) integration of dust control strategies as described in the Dust Management Program h) protocols for regular maintenance of plant and equipment, to minimise the potential for fugitive dust emissions i) description of procedures to be undertaken if any non-compliance is detected.
B3	The Air Quality Management Plan must be reviewed every **two (2) calendar years** and meet the requirement of condition B2. The latest version of the Air Quality Management Plan must be supplied upon request to the administering authority.
B4	**Air Quality Monitoring Program** The Air Quality Monitoring Program must be implemented and reviewed every **two (2) calendar years** and must be supplied upon request to the administering authority.
B5	The Air Quality Monitoring Program must include the following as a minimum: a) be developed by an appropriately qualified person b) provision for the collection of a minimum of 2 years of representative data c) collect air quality and meteorological data using industry recognised monitoring methods d) determine trigger values for the concentration of particulate matter generated by the mining activities e) a program for monitoring and review of the effectiveness of the Air Quality Monitoring Program.
B6	**Air Quality Objectives** Dust and particulate matter generated by mining activities must not cause an environmental nuisance at any sensitive or commercial place.

B7	Monitoring required pursuant to condition A19 must be carried out at a place(s) relevant to the potentially affected sensitive place. The holder of this environmental authority will not be in breach of condition B6 if dust and particulate matter does not exceed the following levels when measured at any sensitive place: a) dust deposition of 120 milligrams per square metre per day, averaged over one month, when monitored in accordance with the current edition of AS 3580.10.1 Methods for sampling and analysis of ambient air - Determination of particulate matter - Deposited matter - Gravimetric method; or b) a concentration of particulate matter with an aerodynamic diameter of less than 10 micrometre (μm) (PM_{10}) suspended in the atmosphere of 50 micrograms per cubic metre over a 24 hour averaging time, at a sensitive place downwind of the operational land, when monitored in accordance with: i. AS 3580.9.6 Methods for sampling and analysis of ambient air- Particulate matter - Determination of suspended particulate PM_{10} high-volume sampler with size-selective inlet - Gravimetric method; ii. AS/NZS 3580.9.11:2008 Method 9.11: Determination of suspended particulate matter - PM_{10} Beta Attenuation Monitor; iii. any alternative method of monitoring PM_{10} which may be permitted by the Air Quality Sampling Manual as published from time to time by the administering authority; or iv. any other method of monitoring PM_{10} which may be agreed to by the administering authority.
B8	If monitoring indicates exceedence of the relevant limits in condition G11, the environmental authority holder must: a) if a complaint is raised due to the exceedence, address the complaint including the use of appropriate dispute resolution if required b) immediately implement dust abatement measures so that emissions of dust from the activity do not result in further exceedance.
B9	Following completion of the Air Quality Monitoring Program, the program must be submitted to the administering authority by **30 December 2017. Table B1 – Final Air Quality Objectives** must be populated with the final air quality objectives, and air quality impacts generated by mining activities must not exceed the final air quality objectives in **Table B1 – Final Air Quality Objectives** at the monitoring locations and frequency defined in **Table B1 – Final Air Quality Objectives**.
B10	A Dust Management Program must be implemented and reviewed every **two (2) calendar years** and made available to the administering authority upon request.
B11	The Dust Management Program must be developed by an appropriately qualified person and include the following as a minimum: a) integration of dust control strategies with the meteorological monitoring system that would activate the timely management of dust control actions b) consideration of best practice environmental management dust control measures c) a program for monitoring and review of the effectiveness of the Dust Management Program.
B12	**Odour Nuisance** The release of noxious or offensive odour or any other noxious or offensive airborne contaminant resulting from the mining activities must not cause an environmental nuisance at any sensitive or commercial place.
B13	If the administering authority determines the odour released to constitute an environmental nuisance, then the environmental authority holder must: a) address the complaint including the use of appropriate dispute resolution if required b) immediately implement odour abatement measures so that emissions of odour from the activity do not result in further environmental nuisance.

Table B1 – Final Air Quality Objectives

Air Quality Parameter	Air Quality Objectives	Monitoring Method	Monitoring Frequency	Monitoring Locations
Deposited dust	TBA	AS 3580. 10.1 Methods for sampling and analysis of ambient air- Determination of particulate matter- Deposited matter- Gravimetric method	TBA	TBA
Total suspended particulate matter	TBA	AS 3580.9.3 Methods for sampling and analysis of ambient air- Determination of suspended particulate matter- Total suspended particulate matter (TSP) - High volume sampler gravimetric method; or any alternative monitoring method which may be permitted by the Air Quality Sampling Manual as published from time to time by the administering authority; or any other monitoring method which may be agreed to by the administering authority.	TBA	
Particulate matter with an aerodynamic diameter of less than 10 micrometres (PM_{10})	TBA	Real-time monitoring of the 24 hour average in accordance with AS 3580.9.8 Determination of suspended PM_{10} continuous direct mass method using a tapered element oscillating microbalance analyser, or AS/NZS 3580.9.11:2008 Method 9.11: Determination of suspended particulate matter- PM_{10} Beta Attenuation Monitor, or any alternative method of monitoring PM_{10} that may be permitted by the Air Quality Sampling Manual as published from time to time by the administering authority	TBA	

Schedule C: Waste	
Condition number	**Condition**
C1	**Waste Management Plan** A Waste Management Plan must be developed in accordance with condition C2, by an appropriately qualified person and implemented for all stages of the mining activities on the site.
C2	The Waste Management Plan must include: a) description of how the environmental authority holder recognises and applies the waste management hierarchy b) identification and characterisation of wastes generated by mining activities and general volume trends over a previous **five (5) year** period (including general waste, regulated waste, tailings and rejects) c) for tailings and rejects, the identification and characterisation must include at a minimum: i. chemical analysis to determine the net acid producing potential prior to placement in voids ii. the frequency of analyses iii. the availability and leachability of metals from tailings and rejects iv. placement strategies of tailings and rejects in voids or dumps to enable successful rehabilitation outcomes in accordance with condition H7. d) safe recycling or disposal of all wastes in accordance with a Recycling Management Program including maximisation of reusing and recycling where possible e) waste commitments with auditable targets to reduce, reuse and recycle f) waste management control strategies that consider: i. the type of wastes ii. segregation of wastes iii. storage of wastes iv. transport of wastes v. monitoring and reporting matters concerning wastes vi. emergency response planning vii. disposal, reuse and recycling options. g) identification of the potential adverse and beneficial impacts of wastes generated h) details of the hazardous characteristics of wastes generated (if any) i) outline of the process to be implemented to allow for continuous improvement of waste management systems j) identification of the responsible position(s) for implementing, managing and reporting the Waste Management Plan k) a staff awareness and induction program that encourages minimisation of waste generation and maximisation of reuse and recycling.
C3	The Waste Management Plan must be reviewed every **two (2) calendar years** and be supplied upon request by the administering authority.
C4	**Waste Handling and Disposal** Designated areas must be set aside for the lay down and segregation of wastes.
C5	An effective fire break must be provided and maintained around all waste lay down areas.

C6	A record of all wastes disposed off-site must be kept detailing the following information: a) date of pickup of waste b) description of waste c) quantity of waste d) origin of waste e) destination of waste.
C7	Unless otherwise permitted by the conditions of this environmental authority or with prior approval from the administering authority and in accordance with a relevant standard operating procedure, waste must not be burnt.

Schedule D: Noise and Vibration	
Condition number	**Condition**
D1	**Noise and Vibration Management Plan** The holder of this environmental authority must conduct an inquiry into each noise related complaint to determine the circumstances behind the complaint and whether the noise: a) does not cause the criteria in **Table D1 – Noise Objectives** to be exceeded at a sensitive place or commercial place b) was caused by mining activities.
D2	If the inquiry determines that the noise the subject of the complaint was caused by its mining activities and amounts to a noise disturbance, the holder of the environmental authority must: a) within **fifteen (15) business days** of completing the inquiry, devise and implement a management strategy (or strategies) to mitigate the noise disturbance (in the case of ongoing noise) or prevent the recurrence of the noise disturbance b) within **ten (10) business days** of implementing the management strategy, report to the administering authority the results of the inquiry and the management strategies implemented.
D3	**The Noise and Vibration Management Plan** The 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 and commercial locations 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 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 using the methods described in the Noise and Vibration Monitoring Program 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 as described in the Blast Management Program h) protocols for regular maintenance of plant and equipment, to minimise the potential for noise and vibration emissions i) description of procedures to be undertaken if any exceedance is detected.
D4	The Noise and Vibration Management Plan must be implemented and reviewed every **two (2) calendar years** and meet the requirements of condition D3. The latest version of the Noise and Vibration Management Plan must be supplied upon request to the administering authority.
D5	**Blast Management Program** A Blast Management Program must be developed by an appropriately qualified person and implemented at the site, The Blast Management Program must include the following as a minimum: a) planning to activate the timely implementation of additional noise and vibration controls during adverse meteorological conditions b) consideration of best practice environmental management noise and vibration control measures c) a program for monitoring and review of the effectiveness of the Blast Management Program.

D6	Every explosive blast for the mining activity shall be designed by a competent person and all relevant information pertaining to the design of every explosive blast for the mining activity must be kept in written and diagrammatic form.
D7	Blasting impacts generated by mining activities must not exceed the airblast overpressure and blast vibration objectives in **Table D2 – Blasting Objectives** at any sensitive or commercial place.

Table D1 – Noise Objectives

Sensitive Place			
Noise level dB(A) measured as:	**Monday to Sundays and public Holidays**		
	Day 7am to 6pm	Evening 6pm to 10pm	Night 10pm to 7am
LAeq, adj, 1 hour	B/g +3	B/g +3	B/g +3

Where B/g is defined as 90th Percentile Noise Contours in Figures 2,3,4.

Table D2 – Blasting Objectives

Parameters	Monday to Saturday 9am – 7pm	Night time (7pm - 9am), Sundays and Public Holidays
Air blast overpressure level (dB [Lin] Peak)	120dB	No blasting
Peak particle velocity (mm/s)	10mm/s	No blasting

Note: Table D2 does not purport to set operating hours for the mining activities.

Schedule E: Groundwater	
Condition number	**Condition**
E1	**Groundwater Monitoring** A Groundwater Quality Monitoring Program: Baseline Investigations to Determine Water Quality Objectives must be implemented by the end of March 2018.
E2	The environmental authority holder must submit a report to the administering authority by **30 April 2018**, that includes sufficient information to allow the administering authority to develop suitable groundwater monitoring conditions including: a) proposed final groundwater monitoring locations b) proposed final groundwater quality objectives and trigger values c) a review of the groundwater levels d) a review of the reliability and validity of groundwater quality data and the suitability of the monitoring program.
E3	Prior to the completion of the report required under condition E2, groundwater affected by the mining activities must be monitored at the locations specified **Table E1 – Groundwater monitoring locations**, for the quality characteristics and at the frequency stated in **Table E2 – Interim groundwater quality objectives**.
E4	In the event that groundwater fluctuations in excess of 5 metres per year are detected at the groundwater monitoring locations nominated in **Table E1 – Groundwater monitoring locations**, an investigation must be undertaken within **ten (10) business days** of detection to determine if the fluctuations are a result of: a) mining activities b) pumping from licensed bores, or c) seasonal variation.
E5	If the results of the investigation undertaken in accordance with condition E4 identify that the groundwater fluctuations are a result of mining activities, the holder of the environmental authority must notify the administering authority and provide a copy of a report detailing the findings and outcomes of the investigation within **twenty (20) business days** of completing the investigation.
E6	**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.

Table E1 – Groundwater monitoring locations

Description	Easting (AGD66)	Northing (AGD66)
GLE01	575100	7722221
GLE02	577038	7722264
GLE04	578612	7725174
GLE05	579737	7725185
GLE06	582255	7725094
GLE07[1]	584047	7725036
BLA01[1]	584041	7725049
BLA02[1]	577076	7729036
BOW01[1]	584156	7725217
DEN01	576848	7722810
DEN02	578200	7724551
GAR01	586043	7726098
GAR02	587283	7725643
GAR03	586371	7725750
MB1[1]	578918	7731203
MB2[1]	578598	7731283
MB3[1]	578297	7731321
MB7[1]	577914	7730516
2MN01	582633	7725570
R1567	587702	7726375
RH1B	587714	7726466
RH2B[1]	587753	7726284
RH2D[1]	587758	7726285
RH3B	587795	7726381
RH3LB	587795	7726381
RH4B	587915	7726486
RH5B	587908	7726360
RH5D	587908	7726360
RH5S	587908	7726360
RHW	587768	7726343
UMINA	582465	7732021
BEL01	590133	7717891
BEL02	590473	7717643
BEL03	590350	7716647

Note 1) for the purposes of reporting groundwater fluctuations these bores will not be used.

Table E2 – Interim groundwater quality objectives

Quality Characteristics	Units	Limit/Range*	Monitoring Frequency
pH	pH units	TBA	Quarterly
Electrical Conductivity	µS/cm	TBA	
Temperature	°C	TBA	
Standing Water Level	m	TBA	
Total Dissolved Solids	mg/L	TBA	
Total Calcium	mg/L	TBA	
Total Magnesium	mg/L	TBA	
Total Sodium	mg/L	TBA	
Total Potassium	mg/L	TBA	
Total Chloride	mg/L	TBA	
Total SO4	mg/L	TBA	
Total CaCO3	mg/L	TBA	
Total Iron	mg/L	TBA	
Total Aluminium	mg/L	TBA	
Total Silver	mg/L	TBA	
Total Arsenic	mg/L	TBA	
Total Mercury	mg/L	TBA	
Total Antimony	mg/L	TBA	
Total Molybdenum	mg/L	TBA	
Total Selenium	mg/L	TBA	
TPH (C6-C9)	µg/L	TBA	
TPH (C1O-C36)	µg/L	TBA	

*Note: *Trigger levels to be revised when sufficient background reference data is available to derive site specific water quality objectives through the implementation of the Surface Water Quality Monitoring Program: Baseline Investigations to Determine Water Quality Objectives*

Schedule F: Water	
Condition number	**Condition**
F1	**Water Management Plan** A Water Management Plan must be developed by an appropriately qualified person and implemented for all stages of the mining activities on the site.
F2	The Water Management Plan must include the following as a minimum: a) provide for effective management of actual and potential environmental impacts resulting from water management associated with the mining activities carried out under this environmental authority b) be developed by an appropriately qualified person and in accordance with administering authority's current guideline for preparation of water management plans for mining activities, 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 and/or minimise saline drainage v. measures to manage and prevent and/or minimise acid mine drainage vi. contingency procedures for emergencies.
F3	The Water Management Plan must be reviewed by **31 October** each calendar year and meet the requirements of condition F2. The latest version of the Water Management Plan must be supplied upon request by the administering authority in accordance with condition A19.
F4	**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 on or before **30 June** each year for the previous period of 1 May to 30 April: 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 the seepage not captured as part of the seepage interception/pump back system e) the seepage flow rate at the time of sampling each monitoring point f) the results of all monitoring and details of any exceedence with the conditions of this environmental authority g) water quality monitoring data must be provided to the administering authority in an electronic format specified by the administering authority.
F5	**Mine Affected Water Release and Reuse** 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 authorized mining activities, except as permitted under the conditions of this environmental authority.
F6	Transfer of mine affected water to internal water management infrastructure that is installed and operated in accordance with the Water Management Plan required under conditions F1 to F3 inclusive, is permitted.

F7	Mine affected water may be piped or trucked or transferred by some other means that does not contravene the conditions of this environmental authority, 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).
F8	The volume, pH and electrical conductivity of mine affected water that is transferred must meet the values in **Table F1 – Mine affected water transfer limits** and be monitored and recorded.
F9	**Activities within a Watercourse** Destroying native vegetation, excavating, or placing fill in a watercourse, lake or spring necessary for and associated with mining activities must be undertaken in accordance with Department of Natural Resources and Mines (or its successor) guideline 'Activities in a watercourse, lake or spring associated with a resource activity or mining operations'.
F10	**Stormwater and Sediment Controls** The Erosion and Sediment Control Plan must be developed by an appropriately qualified person and implemented for all stages of the mining activities on site to minimise erosion and the release of sediment to receiving waters and contamination of stormwater.
F11	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 Program required by condition F10 b) water management infrastructure that is installed and operated in accordance with a Water Management Plan that complies with conditions F1 to F3 inclusive, for the purpose of ensuring water does not become mine affected water.
F12	**Seepage Management and Monitoring** A Seepage Identification, Monitoring and Management Program must be developed and implemented and be made available to the administering authority upon request in accordance with condition A19.
F13	After completing the monitoring described in the Seepage Identification, Monitoring and Management Program, the environmental authority holder must submit a report to the administering authority that includes: a) proposed seepage collection device locations and seepage monitoring locations b) proposed seepage water quality objectives c) a review of reliability and validity of water quality data and the suitability of the monitoring program. The report must be submitted to the administering authority by **31 December 2017** and include sufficient information to allow the administering authority to develop suitable seepage monitoring conditions.
F14	The environmental authority holder must ensure flow measuring devices are installed, operated and maintained to measure and record all seepage flows into the devices at the locations specified in **Table F2 - Location of seepage collection devices**.
F15	Water quality must be monitored for the characteristics and at the frequency specified in **Table F4 - Seepage monitoring water quality objectives** and at the locations specified in **Table F2 - Location of seepage collection devices** and **Table F3 - Seepage monitoring locations**.
F16	When water quality characteristics in **Table F4 - Seepage monitoring water quality objectives** are within the corresponding water quality objectives at the monitoring locations identified in **Table F3 - Seepage monitoring locations**, seepage is allowed to pass into the receiving waters from the devices in **Table F2 - Location of seepage collection devices**.

F17	Subject to condition F19, when water quality characteristics in **Table F4 - Seepage monitoring water quality objectives** exceed the corresponding water quality objectives at the monitoring locations identified in **Table F3 - Seepage monitoring locations**, seepage must be intercepted and transferred to a water storage listed in the Water Management Plan.
F18	The holder must install the relevant seepage interception and transfer infrastructure to comply with Condition F17 within the timeframes specified in the Seepage Identification, Monitoring and Management Program required under condition F12.
F19	Condition F17 applies from the date of installation of seepage interception and transfer infrastructure in accordance with condition F18.
F20	If the water quality characteristics defined in **Table F4 - Seepage monitoring water quality objectives** exceed the corresponding water quality objectives at the monitoring locations specified in **Table F3 - Seepage monitoring locations** during flow event, the environmental authority holder: a) must complete an investigation into the potential for environmental harm where the source of the contaminant exceedence is a result of seepage or other mining activities and provide a written report to the administering authority within **twenty (20) business days** of completing the investigation, outlining: i. details of the investigation carried out ii. actions taken to prevent environmental harm b) take no action if the water quality characteristics defined in **Table F4 - Seepage monitoring water quality objectives** were within the corresponding water quality objectives at the monitoring locations identified in **Table F2 - Location of seepage collection devices**.
F21	**Notification of Seepage Event** The environmental authority holder must notify the administering authority as soon as practicable and no later than **forty-eight (48) hours** after allowing seepage to enter the receiving waters from the devices in **Table F2 - Location of seepage collection devices** in accordance with condition F16.
F22	Notification must include the submission of written advice to the administering authority of the following information: a) seepage commencement date/time b) seepage point/s c) seepage volume (estimated) d) receiving water/s including the natural flow rate e) any details (including available data) regarding likely impacts on the receiving water(s).
F23	The environmental authority holder must notify the administering authority as soon as practicable (nominally within **twenty four (24) hours** after cessation of allowing seepage to enter the receiving waters) of the cessation of the seepage notified under condition F21 and within **twenty (20) business days** provide the following information in writing: a) seepage cessation date/time b) natural flow volume in receiving water c) estimate volume of seepage passed d) details regarding the compliance of the seepage with the conditions of environmental authority e) all related water quality monitoring results f) any other matters pertinent to the seepage event.

F24	**Surface Water Monitoring** A Surface Water Quality Monitoring Program: Baseline Investigations to Determine Water Quality Objectives, developed by an appropriately qualified person, must be implemented for all stages of the mining activities on the site and must include the following as a minimum: a) collect a minimum of 2 years of representative data b) identification of surface water quality objectives and trigger values to be met c) identification and description of the extent of any adverse impacts to local environmental values d) monitoring of any changes in the receiving surface water e) a program for monitoring a review of the effectiveness of the Surface Water Quality Monitoring Program.
F25	Within **six (6) months** after completing the monitoring described in the Surface Water Quality Monitoring Program required under condition F24, the environmental authority holder must submit a report to the administering authority by **31 December 2017** that includes: a) proposed final upstream and downstream monitoring locations b) proposed final surface water quality objectives and trigger values c) a review of the reliability and validity of water quality data and the suitability of the monitoring program. The report must include sufficient information to allow the administering authority to develop suitable receiving water monitoring conditions.
F26	**Surface Water Quality Objectives** Prior to completion of the report required under condition F25, surface water quality in the receiving environment must not, as a result of mining activities, exceed the surface water quality objectives in **Table F5 – Surface water quality objectives** at the monitoring locations defined in **Table F6 – Surface water quality monitoring locations** and frequency in **Table F5 – Surface water quality objectives**.
F27	Within **six (6) months** after completing the report required under condition F25, surface water quality in the receiving environment must not, as a result of mining activities, exceed the final surface water quality objectives.
F28	**Water Storage Monitoring** Water storages stated in **Table F7 – Water storage monitoring** must be monitored for the water quality characteristics specified in **Table F8 – Water storage contaminant limits** at the monitoring locations and at the monitoring frequency specified in **Table F7 – Water storage monitoring**.
F29	In the event that waters storages defined in **Table F7 – Water storage monitoring** exceed the contaminant limits defined in **Table F8 – Water storage contaminant limits**, the holder of the environmental authority must implement measures, where practicable, to prevent access to waters by all livestock.

F30	**Sewage Effluent** The operation of the sewage treatment plant must be carried out by a person with appropriate experience and/or qualifications to ensure the effective operation of that treatment system and control equipment
F31	Effluent storage facilities, disposal areas, pipelines and fittings associated with the effluent discharge system must be clearly identified.
F32	All effluent transferred from the treatment plant system for the purposes of dust suppression or irrigation must be monitored at the frequency and for the parameters specified in **Table F11 – Effluent quality objectives for dust suppression and irrigation** for dust suppression and irrigation.
F33	Effluent used for dust suppression or irrigation must not exceed effluent release objectives defined in **Table F11 – Effluent quality objectives for dust suppression and irrigation**.
F34	Effluent used for dust suppression or irrigation must not cause spray drift or over spray to any sensitive or commercial place.
F35	Subject to conditions F32 to F37 inclusive, effluent from sewage treatment facilities must not be directly released to any watercourses.
F36	The treated effluent irrigation areas must have a separation distance of at least 30 m from any groundwater bores and surface waters.
F37	The application of treated effluent to land must be carried out in a manner such that: a) vegetation is not damaged; b) there is no surface ponding of effluent; c) there is no run-off of effluent to the receiving environment.
F38	If areas irrigated with effluent are accessible to employees or the general public, prominent signage must be provided advising that effluent is present and care should be taken to avoid consuming or otherwise coming into unprotected contact with the effluent.
F39	The volume of effluent released to land must be determined by an appropriate method and records kept of such determinations.
F40	Screening, grit, sewage and wastewater treatment plant sludges and compost generated by any biosolids and sludges must be stored, managed and utilised such as not to cause environmental harm.

Table F1 – Mine affected water transfer limits

Characteristic	Stock water	Irrigation water*	Another Mine
pH minimum	6.5	6.5	No Limit
pH maximum	8.5	8.5	No Limit
Electrical Conductivity	5970	4700	No Limit
Volume	No Limit	No Limit**	No Limit

* Site specific value determined in accordance with irrigating moderately tolerant crops on sandy soils (e.g. Lucerne) ANZECC & ARMCANZ (2000) Guidelines for Fresh and Marine Water Quality - Section 4.2 Water Quality for Irrigation and General Water Use.
** No prescribed volume but application must not result in widespread dieback.

Table F2 – Location of seepage collection devices

Sites	Location	Easting (GDA94)	Northing (GDA94)	Receiving Waters
Red Hill Rd	Sump	588020	7726469	Carpet Snake Creek
Kerale Dam	Sump	575423.6	7723030	Pelican Creek
Colinta Dam	Sump	577985.3	7731034	Strathmore Creek
Dacon	Siphon	584585.7	7725814	Dyke Creek

Note: Collinsville Coal Mine uses GDA94 datum, Zone 55 projection

Table F3 – Seepage monitoring locations

Sites	Location	Easting (GDA94)	Northing(GDA94)	Receiving Waters
Red Hill Rd	Sump	588020	7726469	Carpet Snake Creek
Kerale Dam	Sump	575423.6	7723030	Pelican Creek
Colinta Dam	Sump	577985.3	7731034	Strathmore Creek
Dacon	Siphon	584585.7	7725814	Dyke Creek

Table F4 – Seepage monitoring water quality objectives

Quality Characteristics	Units	Objectives	Monitoring Frequency
pH	pH units	4-9	At the commencement and cessation** of a flow event and weekly during a flow event that exceeds 7 days
Electrical Conductivity	µS/cm	3,000	
Turbidity	NTU	*	
Suspended Solids	mg/l	*	
Sulfate	mg/l	1,000	
Dissolved Oxygen	% saturation	*	
Dissolved Aluminum	µg/L	*	
Dissolved Arsenic	µg/L	*	
Dissolved Cadmium	µg/L	*	
Dissolved Chromium	µg/L	*	
Dissolved Copper	µg/L	*	
Dissolved Iron	µg/L	*	
Dissolved Lead	µg/L	*	
Dissolved Mercury	µg/L	*	
Dissolved Nickel	µg/L	*	
Dissolved Zinc	µg/L	*	
Dissolved Boron	µg/L	*	
Total Cobalt	µg/L	*	
Dissolved Manganese	µg/L	*	
Total Molybdenum	µg/L	*	
Dissolved Selenium	µg/L	*	
Dissolved Silver	µg/L	*	
Total Uranium	µg/L	*	
Dissolved Vanadium	µg/L	*	

Ammonia	µg/L	*
Nitrate	µg/L	*
TPH (C6-C9)	µg/L	*
TPH (C1O-C36)	µg/L	*
Total Fluoride	µg/L	*

*Note: *Trigger levels to be revised when sufficient background reference data is available to derive site specific water quality objectives through the implementation of the Surface Water Quality Monitoring Program: Baseline Investigations to Determine Water Quality Objectives*
***Commencement and Cessation sample to be taken within 48hours of flow (start and final).*

Table F5 – Surface water quality objectives

Parameter	Objectives	Monitoring Frequency
pH (pH units)	4 – 9	Daily in situ
Electrical Conductivity (EC) (µS/cm)	3,000	Daily in situ
Sulfate (mg/L)	1,000	Daily when EC>3000 µS/cm

Table F6 – Surface water quality monitoring locations

Monitoring Locations	Latitude (decimal degree GDA94)	Longitude (decimal degree GDA94)
Confluence of Corduroy Creek and Pelican Creek	-20.603711	147.812129
Downstream from the confluence of 3 Mile Creek and Pelican Creek	-20.604587	147.743790
Confluence of drainage line from Ramp 11C and Pelican Creek	-20.594148	147.70341

Table F7 – Water storage monitoring

Water Storage Description	Easting (GDA94)	Northing (GDA94)	Monitoring Location	Frequency of Monitoring
Kerale Dam	575568	7723040	At outflow	Quarterly
BUB Pit*	581940	7728718	At Base of Ramp	
Blake Central	582601	7727102	Return water sump	
Pit 4	580266	7727705	At Base of Ramp	
Pit 6	578512	7725536	At Base of Ramp	
Pit 7	577607	7723515	At Base of Ramp	
Pit 11	576414	7722398	At Base of Ramp	
Pit 12	577563	7726740	At Base of Ramp	
Pit 14	585061	7726964	At Base of Ramp	
CHPP Primary Pond	582860	7726008	At Primary Pond embankment	

* BUB - Blake under Bowen Pit

Table F8 – Water storage contaminant limits

Quality Characteristics	Test Value	Contaminant Limit
pH (pH units)	Range	4 – 9[2]
EC(µS/cm)	Maximum	5,970[1]
Total Sulfate (mg/L)	Maximum	1,000[1]
Total Fluoride (mg/L)	Maximum	2[1]
Total Aluminium (mg/L)	Maximum	5[1]
Total Arsenic (mg/L)	Maximum	0.5[1]
Total Cadmium (mg/L)	Maximum	0.01[1]
Total Cobalt (mg/L)	Maximum	1[1]
Total Copper (mg/L)	Maximum	1[1]
Total Lead (mg/L)	Maximum	0.1[1]
Total Nickel (mg/L)	Maximum	1[1]
Total Zinc (mg/L)	Maximum	20[1]

Note: 1) Contaminant limit based on ANZECC & ARMCANZ (2000) Guidelines for Fresh and Marine Water Quality – Section 4.3 Livestock Drinking Water Quality.
2) Page 4.2-15 of ANZECC & ARMCANZ (2000) Guidelines for Fresh and Marine Water Quality, "Soil and animal health will not generally be affected by water with pH in the range of 4-9".

Table F11 – Effluent quality objectives for dust suppression and irrigation

Quality Characteristics	Objectives	Frequency
5 day Biological oxygen demand (mg/L)	20	Monthly during transfer for dust suppression and irrigation
Suspended solids (mg/L)	30	
Thermotolerant coliforms (Cfu/100mL)	10	
Total phosphorous	15	
Total nitrogen	30	
pH	6.5 to 8.5	

Schedule G: Water Treatment Plant	
Condition number	**Condition**
G1	Prior to operation of any Water Treatment Plant the environmental authority holder must and submit a Water Treatment Plant Management Program (WTPMP) to the administering authority including the following as a minimum: a) brine and sludge management protocols b) identification and characterisation of liquid and solid wastes generated by the Water Treatment Plant including volumes generated c) a program for safe disposal of all wastes generated, including details of water management control strategies and methods and identification of beneficial uses for waste products generated d) monitoring and reporting matters concerning the brine and waste, including groundwater monitoring in compliance with conditions E2 to E5 of this environmental authority e) emergency response planning, annual review and continuous improvement f) identification of responsible staff (positions) for implementing, managing and reporting the brine and sludge management g) details of proposed waste storage facility for brine disposal h) details of the proposed use and storage of permeate including determination of the permeate quality transfer limits i) details of the proposed monitoring program.
G2	**Beneficial Use of Water Treatment Plant Permeate** Permeate, from the treatment of mine affected water through a Water Treatment Plant, 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 for the purpose of: a) supplying irrigation water subject to compliance with quality transfer limits determined in the WTPMP, or b) supplying water for dust suppression, construction and/or road maintenance, mining process water in accordance with the conditions of this environmental authority, or c) supplying water for industrial uses, livestock watering or other beneficial uses in accordance with the conditions of this environmental authority.

G3	The holder of this environmental authority, the permeate provider, may only transfer the resource to another person, where that person has stated in writing that the resource will be used in accordance with the conditions of this approval. Transfer of responsibility for the permeate resource is subject to the following conditions: a) the responsibility for permeate resource must only be given or transferred in accordance with a written agreement (the third party agreement) b) the third party agreement must include a commitment from the person utilising the permeate resource to use it in such a way as to prevent environmental harm or public health incidents and specifically make the persons aware of the General Environmental Duty (GED) under Section 319 of the Environmental Protection Act 1994 c) the third party agreement must be signed by both parties to the agreement d) a copy of the transfer agreement must be provided to the administering authority e) notification of any transfer in accordance with the transfer agreement must be provided to the administering authority and include the following: i. date of the transfer ii. volume and quality of permeate transferred iii. records of any issues encountered during the transfer.
G4	The permeate provider must conduct monitoring to determine the quality characteristics of the treated permeate to effectively demonstrate that at the time that the permeate resource is supplied to another party or used off-site that it meets the water quality objectives specified in the WTPMP.
G5	**Water Treatment Plant Brine Disposal** Brine wastes produced by the operation of a Water Treatment Plant must be stored within the defined Tailings Storage Areas.
G6	**Treated Water Release Conditions** 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 G1 – Mine affected water release points, sources and receiving waters** and depicted in Figure 1 attached to this environmental authority.
G7	The release of mine affected water to waters in accordance with condition G6 must not exceed the release limits stated in **Table G2 – Release Water Quality Criteria**, when measured at the monitoring points specified in **Table G1 – Mine affected water release points, sources and receiving waters** and depicted in Figure 1.
G8	The release of treated waters must be monitored at the locations specified in **Table G1 – Mine affected water release points, sources and receiving waters** for each of the quality characteristics and the frequency specified in **Table G3 – Release Water Trigger Investigation Levels**.
G9	The holder must ensure stream flow gauging stations are installed, operated and maintained to determine and record stream flows at locations and flow recording frequency specified in **Table G4 – Mine affected water release during flow events**.
G10	Notwithstanding any other condition of this environmental authority, the release of treated waters in accordance with condition G6 must only take place during periods of natural flow in accordance with the receiving water flow criteria for treated water release specified in **Table G4 – Mine affected water release during flow events** for the release point(s) specified in **Table G1 – Mine affected water release points, sources and receiving waters**.
G11	The daily quantity of treated water releases from each release point must be measured and recorded at the monitoring points in **Table G1 – Mine affected water release points, sources and receiving waters**.

G12	**Notification of Release Event** The environmental authority holder must notify the administering authority via WaTERS as soon as practicable and no later than **24 hours** after commencing to release mine affected water to the receiving environment. Notification must include submission of written advice to the administering authority of the following information; a) release commencement date/time b) any details (including available data) regarding the likely impacts on the receiving water(s) c) release point/s d) release rate e) release water quality f) receiving water/s including the natural flow rate.
G13	The environmental authority holder must notify the administering authority via WaTERS as soon as practicable and nominally no later than **24 hours** after cessation of a release event notified under Condition G14, and within **28 days** provide the following information in writing: a) release cessation date/time b) natural flow rate in receiving water c) volume of water released d) details regarding the compliance of the release with the conditions of this environmental authority (i.e. contaminant limits, natural flow, discharge volume) e) all in-situ water quality monitoring results 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.*
G14	**Notification of Release Event Exceedance** If the release limits defined in **Table G2 – Release Water Quality Criteria** are exceeded, the holder of the environmental authority must notify the administering authority within **24 hours** of receiving the results.
G15	The environmental authority holder must, within **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-complaint 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 h) any other matter pertinent to the water release event.
G16	**Receiving Environment Monitoring and Contaminant Trigger Levels** 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.
G17	The quality of the receiving waters must be monitored at the locations specified in **Table G6 – Receiving Water Upstream Background Sites and Downstream Monitoring Points** for each quality characteristic and at the monitoring frequency stated in **Table G3 – Release Water Trigger Investigation Levels** and **Table G5 – Receiving Waters Contaminant Trigger Levels**.

G18	**Investigation of an Exceedance** If quality characteristics of the release exceed any of the trigger levels specified in **Table G3 – Release Water Trigger Investigation Levels**, the environmental authority holder must compare downstream results in the receiving waters to the trigger values specified in **Table G3 – Release Water Trigger Investigation Levels**, and: 1) Where the trigger values are not exceeded then no action is to be taken; or 2) Where the downstream results exceed the trigger values specified in **Table G3 – Release Water Trigger Investigation Levels**, compare the results of the downstream site to the data from background upstream monitoring sites and: a. If the result is less than the upstream monitoring sites, then no action is to be taken; or b. If the result is greater than the background upstream monitoring data, complete an investigation into the potential for environmental harm and provide a written report to the administering authority within 90 days of receiving the result, outlining: i. Details of the investigations carried out ii. Actions taken to prevent environmental harm. *Note: Where an exceedance of a trigger level has occurred and is being investigated, in accordance with G18 2(b) of this condition, no further reporting is required for subsequent trigger events for that quality characteristic.*
G19	If an exceedance in accordance with condition G18 2(b) is identified, the holder of the environmental authority must notify the administering authority via WaTERS within **24 hours** of receiving the result.
G20	**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 of the effects of the mine on the receiving environment periodically (under natural flow conditions) and while WTP product water is being discharged from the site. For the purposes of the REMP, the receiving environment is the waters of: • Powerhouse Creek • Three Mile Creek • Pelican Creek • Strathmore Creek • and the waters between the confluence of Pelican Creek and the Bowen River, downstream to DSMP2.
G21	The REMP Design Document that addresses the requirements of the REMP must be prepared, implemented and made available to the administrating authority upon request.
G22	A report outlining the findings of the REMP, including all monitoring results and interpretations 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.

Table G1 – 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
RP1	-20.555770	147.801423	Treatment Plant	End of pipe	Three Mile Creek
RP2	-20.534410	147.791825	Treatment Plant	End of pipe	Powerhouse Creek
RP3	-20.589963	147.723064	Kerale Dam	End of pipe	Pelican Creek
RP4	-20.516448	147.763574	Treatment Plant	End of pipe	Strathmore Creek

Note: Mine affected water includes water treated through a treatment plant.

Table G2 – Release Water Quality Criteria

Quality characteristic	Release Limits	Monitoring Frequency	Monitoring Technique
Electrical conductivity (µS/cm)	Refer Table G4	Daily during release*	Continuous data using in-situ instruments. Daily average of continuous data will be used to determine compliance. Instrument readings or grab samples, if continuous data is unavailable, when safe to do so and access permits.
pH (pH Unit)	6.0 (minimum) 9.0 (maximum)	Daily during release*	
Turbidity (NTU)	50	Daily during release*	
Sulfate (mg/L)	1000	Weekly (for RP3)/ Monthly (for all other RPs) during release*	Grab samples, when safe to do so and access permits.

* *First sample within two hours of commencement of release*

Table G3 – Release Water Trigger Investigation Levels

Quality Characteristic	Trigger Levels (µg/L)	Comment on Trigger Level (all 80th percentile)	Monitoring Frequency
Aluminium	50		First sample within two hours of commencement of release and thereafter monthly during release from treatment plant. Weekly if releasing from Kerale Dam.
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	50		
Iron	100		
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	8	*For aquatic ecosystem protection, based on SMD guideline.*	
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	10	*For aquatic ecosystem protection, based on LOR for ICPMS*	
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: Quality characteristics, trigger levels and frequency required to monitored as per Table G3 can be reviewed once the results of 18 months' monitoring data is available, or if sufficient data is available to adequately demonstrate negligible risk, and it may be determined appropriate to make changes to the number of characteristics, trigger level values and/or monitoring frequency by amendment.

1) All metals and metalloids must be measured as total (unfiltered) and dissolved (filtered). Trigger levels for metals/metalloids apply if dissolved results exceed trigger.
2) SMD – Slightly to Moderately Disturbed level of protection, guideline refers to ANZECC & ARMCANZ (2000).
3) LOR – Limit of Reading: typical reporting for method stated. ICPMS/CV FIMS – analytical method required to achieve LOR. The administering authority will take into consideration any extenuating circumstance prior to determining an appropriate enforcement response in the event condition C11-C13 is contravened due to a temporary lack of safe or practical access to designated monitoring locations.

Table G4 – Mine affected water release during flow events

Receiving waters/ stream	RP	Gauging Station	Gauging Station latitude (decimal degrees, GDA94)	Gauging Station longitude (decimal degrees, GDA94)	Receiving water flow recording frequency	Receiving water flow criteria for discharge	Maximum release rate (for all combined RP flows)	Electrical conductivity release limits
Three Mile Creek	RP1	USMP 1	147.5878	-20.5623	Continuous (minimum daily)	60Ml/day	6Ml/day	2000µS/cm
Powerhouse Creek	RP2					>3m³/s	0.235m³/s	3000µS/cm
Pelican Creek	RP3					>6m³/s	0.471m³/s	
Strathmore Creek	RP4					>10m³/s	0.784m³/s	

Note: The release rates are calculated on flow rate in Bowen River only. If the natural flow in Pelican or Strathmore Creek is added in then the rate will increase.
The co-ordinates of the proposed release and monitoring points are to be confirmed prior to commencement of the planned release.

Table G5 – Receiving Waters Contaminant Trigger Levels

Quality characteristic	Release Limits	Monitoring Frequency
Electrical conductivity (µS/cm)	USMP1 (in the case of releases to Pelican Creek system or USMP2 (in the case of releases to Strathmore Creek system) +200	Continuous data to be monitored during release using in-situ instruments. Daily average of continuous data will be used to determine compliance. Instrument readings or grab samples, if continuous data is unavailable, when safe to do so and access permits.
pH (pH Unit)	6.0 (minimum) 9.0 (maximum)	
Suspended Solids (mg/L)	1000	Grab samples – monthly when safe to do so and access permits (first sample within two hours of commencement).
Sulfate (mg/L)	1000	

Table G6 – Receiving Water Upstream Background Sites and Downstream Monitoring Points

Monitoring Points	Receiving Waters Location Description	Latitude (decimal degree, GDA94)	Longitude (decimal degree, GDA94)
Upstream background monitoring points			
USMP1	Bowen River Upstream of Pelican Creek	147.5878	-20.5623
USMP2*	Bowen River Upstream of Strathmore Creek	147.5804	-20.54905
Downstream monitoring points			
DSMP1*	Bowen River Downstream of Pelican Creek	147.5804	-20.54905
DSMP2	Bowen River Downstream of Strathmore Creek	147.5405	-20.47541

Note: The co-ordinates of the proposed monitoring points are to be confirmed prior to commencement of the planned release.
*Same station – progressive flow monitoring D/S of Pelican Creek and U/S of Strathmore Creek

Schedule H: Land and Rehabilitation	
Condition number	**Condition**
H1	**Land and Biodiversity Management Plan** A Land and Biodiversity Management Plan must be developed, by an appropriately qualified person and implemented for all stages of the mining activities on the site.
H2	The Land and Biodiversity Management Plan must include the following as a minimum: a) be developed by an appropriately qualified person b) provide for effective management of actual and potential environmental impacts resulting from land management associated with the mining activities carried out under this environmental authority c) identify the environmental values within the footprint of the mining activities including: i. geology; ii. soil classification and land suitability; iii. flora and fauna including regional ecosystems, vegetation communities and fauna survey results; iv. rehabilitation planning, design, criteria and management objectives; and v. post closure maintenance. *Note: This environmental authority does not authorise the environmental authority holder to contravene the Land Protection (Pest and Stock Route Management) Act 2002 and subsequent legislation.*
H3	The Land and Biodiversity Management Plan must be reviewed every **two (2) calendar years** by an appropriately qualified person and be available to the administering authority upon request. The report must: a) assess the plan against the requirements under condition H2 b) include recommended actions to ensure actual and potential environmental impacts are effectively managed for the coming year c) identify any amendments made to the Land and Biodiversity Management Plan following the review.
H4	**Mining Materials Management Program** A Mining Materials Management Program must be reviewed every **two calendar years** and meet the requirements of condition H5.
H5	Mining materials are to be managed according to the Mining Materials Management Program which must include the following as a minimum: a) be developed by an appropriately qualified person b) detail the mining materials inventory which identifies the different mining materials requirements for the mining activities and availability of suitable materials on site c) map all relevant mining materials prior to disturbance with volumes estimated and / or recorded d) assessment and characterisation of relevant mining materials by appropriately qualified persons e) recommendations of mining materials excavation depths and management requirements for each mining material type f) salvage methods for relevant mining materials g) design, operation and management of mining material stockpiles to ensure preservation of mining materials inventory and characteristics h) a program for monitoring and review of the effectiveness of the Mining Materials Management Program.

H6	**Rehabilitation Management Plan** A Rehabilitation Management Plan must be developed and implemented.
H7	The Rehabilitation Management Plan must include the following as a minimum: a) be developed by an appropriately qualified person b) map existing areas of rehabilitation including classification of stage (i.e. time since establishment) and condition c) develop final land use and landform design criteria and objectives for rehabilitation of all areas disturbed by mining activities for sustainable mine closure d) identify a minimum of 3 reference and 3 rehabilitation sites to be used to develop rehabilitation acceptance criteria to allow valid comparison of self-sustaining rehabilitation vegetation communities to local reference sites e) description of monitoring of reference sites (rehab areas are already defined in (b)) f) provide a plan/map of final landform inclusive i. Drainage design and features ii. erosion controls proposed on reshaped land iii. retained features and infrastructure g) specify future planned rehabilitation methods for disturbance areas h) investigate and consider integration of native vegetation rehabilitation area with identified buffer zones and wildlife corridors i) include a table describing the rehabilitation requirements applied to all mine domains with respect to rehabilitation goals, rehabilitation objectives, indicators and completion criteria j) a progressive rehabilitation schedule on a rolling three year term starting January 2018. k) describe a program for monitoring and review of the effectiveness of the Rehabilitation Management Plan.
H8	Land disturbed by mining must be rehabilitated in accordance with **Table H1 - Rehabilitation Requirements**.
H9	The Rehabilitation Management Plan must be provided to the administering authority for review when changes are made to the progressive rehabilitation schedule.
H10	The environmental authority holder must submit an annual report (for the previous calendar year) by **30 September** each year, detailing the performance of rehabilitation established during the previous reporting period, and include at a minimum: a) How the rehabilitation was progressing towards the defined objectives during the establishment period b) How the rehabilitation objectives will be achieved in the coming years c) Any proposed changes to rehabilitation methods. *Note: This will include rehab monitoring data collected under the established site rehabilitation monitoring program described in Condition H7(k).*
H11	A description of the topsoil inventory, identifying the current topsoil requirements for the project, must be detailed in the Plan of Operations.
H12	Inert material, with a net acid generating (NAG) pH of >4, must be used in rehabilitation to cover areas disturbed by mining with acid generating potential - to achieve the final rehabilitation objective of 'non-polluting'.
H13	**Biodiversity** A Biodiversity Monitoring and Management Program must be developed in accordance with condition H14, by an appropriately qualified person and implemented for all stages of the mining activities on the site.

H14	The Biodiversity Monitoring and Management Program must as a minimum: a) be developed by an appropriately qualified person b) identify vegetation communities and regional ecosystems c) plan for ongoing flora and fauna monitoring d) plan for management of bushfires e) include a program to monitor and review the effectiveness of the Biodiversity Monitoring and Management Program.
H15	**Spontaneous Combustion Heatings** The environmental authority holder must ensure that spontaneous combustion heatings management procedures are reviewed every **two (2) calendar years** and be made available to the administering authority upon request. The spontaneous combustion heatings management procedure must be implemented at the site and at a minimum consider the following: a) identification of spontaneous combustion heating areas b) remedial actions and inspections required for spontaneous combustion heating areas.
H16	**Post Closure Management Program** A Post Closure Management Program for the site must be developed and submitted to the administering authority at least **eighteen (18) months** prior to final coal processing on site and implemented for a nominal period of: a) at least **thirty (30) years** following final coal processing on site, or b) a shorter period if the site is proven to be geotechnically and geochemically stable and it can be demonstrated to the satisfaction of the administering authority that no release of contaminants from the site will result in environmental harm.
H17	The Post Closure Management Program as required under condition H16 must at a minimum include the following elements: a) operation and maintenance of: i. wastewater collection and reticulation system ii. wastewater treatment systems iii. the groundwater monitoring networks iv. final cover systems of spoil dumps v. vegetative cover. b) monitoring of: i. surface water quality ii. groundwater quality iii. seepage rates iv. erosion rates v. the integrity and stability all slopes, ramps and voids vi. the health and resilience of native vegetation cover. c) long term management of environmental legacy issues.
H18	**Residual Void Outcome** Residual voids must comply with the following outcomes: a) 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 b) residual voids must comply with condition H12.

H19	The environmental authority holder must complete an investigation into residual voids and submit this to the administering authority within an agreed timeframe in accordance with condition A19. The report must propose rehabilitation acceptance criteria to meet the outcomes in condition H18. The investigation must at a minimum include the following: a) a study of options available for minimising final void area and volume b) develop design and success criteria for rehabilitation of final voids c) a void hydrology study in accordance with condition H20 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 native flora and fauna.
H20	The void hydrology study required under condition H19 must include: a) development of a detailed hydrological model that includes: i. predicted storage capacity, dilution and evaporation rates during a series of AEP rainfall events for 1 in 10, 1 in 100, 1 in 500 and 1 in 1000 ii. potential for discharge during AEP rainfall events for 1 in 10, 1 in 100, 1 in 500 and 1 in 1000 iii. predicted quality of void water between cessation of mining and the post mining equilibrium iv. predicted quality of void water correlated with predicted evaporation rates. b) the catchment area for the void at the cessation of mining c) the predicted impact on the environment caused by the release of any void water d) modelling and assessment of practicable management measures to mitigate contaminant increases e) develop a monitoring program to be undertaken both during and after mining, to assess the performance of any management measures required.
H21	**Exploration** Disturbance due to exploration activities in areas not authorised or planned to be mined within **two (2) years** must be rehabilitated in accordance with provisions detailed in the *Eligibility criteria and standard conditions for exploration and mineral development projects*.
H22	**Subsidence** The environmental authority holder must ensure that subsidence management procedures are implemented at the site and at a minimum consider the following: a) identification and mapping of areas of potential subsidence b) the proposed subsidence monitoring that is undertaken at the identified areas.

Table H1 – Rehabilitation Requirements

Mine Domain	Mine Feature Name	Rehabilitation Goal	Rehabilitation Objectives	Indicators	Completion Criteria
Overburden	In and out of pit dumps, roads, open pit and ramps, stripped topsoil, cleared area	Safe	Safe for humans and animals	No exposed hazardous material. Structurally sound with no major slumping.	Risk assessment for slopes greater than 25% and greater than 10m vertical. Risk must be Moderate or Low or slopes re-engineered. Adequate safety protection devices are in place.

					Minimal exposure for humans and fauna to toxic water or plants.
		Stable	Low probability of Subsidence, rock falls, slope slippage or inert material loss.	Structural and geo-technical adequacy. No major erosion. No hanging material which carries a moderate risk of rock fall	Up to 25% slopes for box cut and external batters. Minimal slumping or gullying (<0.9m) after 5 years (<2% planimetric surface). Engineered drop structures in place and functioning.
		Non-polluting	Acid mine drainage will not cause serious environmental harm. Water quality solute concentrations met.	Schedule B Table 8 stock drinking water contaminant limits at localised catchment monitoring points	Water quality within the objectives listed in Schedule B Table 5 at the locations indicated in Schedule B Table 6 during all runoff events.
		Self-sustaining	Either natural communities or low density grazing area (<15% slope)	Species diversity and multiple canopy layers – ground, middle and upper	Two key framework species present. Minimum of 10 (Ecosystem) or 6 (Grazing) species present and evidence of recruitment (regrowth) during past 5 years. >60% overall ground cover. Evidence collected during established rehab / IDC monitoring program. Effective weed control program in place.
Rejects	In and out of pit reject storage areas / dumps	Safe	Safe for humans and animals	Structural and geotechnical adequacy. No exposed hazardous material. No contaminated mine drainage or discharges. Minimal erosion.	Fully capped with spontaneous combustion areas to be risk assessed – must achieve low risk rating. Minimal slumping or gullying after 5 years (<2% planimetric surface). Minimal exposure for plants, humans and fauna to hazardous materials and toxic water.

		Stable	Low probability of capping subsidence, rock falls, slumping of batters or inert material loss.	Structural and geo-technical adequacy. No major erosion. No hanging material which carries a moderate risk of rock fall Capping must free drain	Up to 15% slopes for external batters. Minimal slumping or gullying (<0.9m) after 5 years (<2% planimetric surface). Engineered drop structures in place and functioning.
		Non-polluting	Acid mine drainage will not cause serious environmental harm. Water quality solute concentrations met	Schedule B Table 8 stock drinking water contaminant limits at localised catchment monitoring points	Water quality within the objectives listed in Schedule B Table 5 at the locations indicated in Schedule B Table 6 during all runoff events
		Self-sustaining	Natural communities	Species diversity and multiple canopy layers – ground, middle and upper	Two key framework species present. Minimum of 10 species present and evidence of recruitment (regrowth) during past 5 years. >70% overall ground cover, or comparable to analogue sites if less than 70%. Evidence collected during established rehab monitoring program. Effective weed control program in place.
Diversion	Licensed diversion channel	Safe	Safe for humans and animals	Structural, geotechnical and hydraulic adequacy. Minimal erosion.	Meet engineering design criteria – consideration for natural, ephemeral geomorphic processes. Engineered structures to control water flow. Adequate safety protection devices are in place.
		Stable	Low probability of capping subsidence, rock falls, slumping of batters/embankments or inert material loss.	Structural and geo-technical adequacy. No major erosion. No hanging material which carries a moderate risk of rock fall	Up to 15% or design slopes for internal and external batters. Minimal slumping or gullying (<0.9m) after 5 years Drainage lines and drop structures functioning.

				As built (approved design) criteria to be met.	
		Non-polluting	Acid mine drainage will not cause serious environmental harm. Water quality solute concentrations met	Schedule B Table 8 stock drinking water contaminant limits at localised catchment monitoring points	Water quality within the objectives listed in Schedule B Table 5 at the locations indicated in Schedule B Table 6 during all runoff events
		Self-sustaining	Native riparian community with 2 framework species e.g. *Eucalyptus tereticornis, Corymbia tessellaris, Casuarina cunninghamiana Melaleuca bracteata, Melaleuca leucadendron or callistemon* viminalis	Species diversity and multiple canopy layers – ground, middle and upper	Minimum of 8 species present and evidence of recruitment (regrowth) during past 5 years. >80% overall ground cover (embankments only). Evidence collected during established rehab / IDC monitoring program.
Drain	Unlicensed diversion drain	Safe	Safe for humans and animals	Structural, geotechnical and hydraulic adequacy. Minimal erosion.	Resembles regional ephemeral, gully lines (analogue site) – show natural geomorphic processes. Engineered structures to control water flow. Adequate safety protection devices are in place.
		Stable	Low probability of capping subsidence, rock falls, slumping of batters/embankments or inert material loss.	Structural and geo-technical adequacy. No major erosion. No hanging material which carries a moderate risk of rock fall As built (approved design) criteria to be met.	Up to 15% or design slopes for internal and external batters. Minimal slumping or gullying (<0.9m) after 5 years Drainage lines and drop structures functioning.
		Non-polluting	Acid mine drainage will not cause serious environmental harm. Water quality solute concentrations met	Schedule B Table 8 stock drinking water contaminant limits at localised catchment monitoring points	Water quality within the objectives listed in Schedule B Table 5 at the locations indicated in Schedule B Table 6 during all runoff events
		Self-sustaining	Native riparian community with 2 framework species e.g. *Eucalyptus*	Species diversity and multiple canopy layers – ground, middle and upper	Minimum of 8 species present and evidence of recruitment (regrowth) during past 5 years.

			tereticornis, Corymbia tessellaris, Casuarina cunninghamiana Melaleuca bracteata, Melaleuca leucadendron or callistemon viminalis		>80% overall ground cover (embankments only). Evidence collected during established rehab monitoring program.
Levee	Constructed embankment	Safe	Protects infrastructure, humans and animals	Structural geotechnical and hydraulic adequacy. No contaminated mine drainage or discharges. Minimal erosion.	Align with design criteria: 1:100 ARI plus 1 metre freeboard – risk assessment completed to confirm consequence of overtopping. Rock armour intact. Drop structures functioning.
		Stable	Low probability of capping subsidence, rock falls, slumping of batters/embankments or inert material loss.	Structural and geo-technical adequacy. No major erosion. No hanging material which carries a moderate risk of rock fall As built (approved design) criteria to be met.	Up to 15% or design slopes for internal and external batters. Minimal slumping or gullying (<0.9m) after 5 years Drainage lines and drop structures functioning.
		Non-polluting	Acid mine drainage will not cause serious environmental harm. Water quality solute concentrations met	Schedule B Table 8 stock drinking water contaminant limits at localised catchment monitoring points	Water quality within the objectives listed in Schedule B Table 5 at the locations indicated in Schedule B Table 6 during all runoff events
		Self-sustaining	Native upper riparian community with 2 framework species e.g. *Eucalyptus tereticornis, Corymbia tessellaris, Casuarina cunninghamiana Melaleuca bracteata, Melaleuca leucadendron or Callistemon* viminalis	Species diversity and multiple canopy layers – ground, middle and upper	Minimum of 8 species present and evidence of recruitment (regrowth) during past 5 years. >70% overall ground cover (embankments only), or comparable to analogue sites if less than 70%.. Evidence collected during established rehab monitoring program.
Dams	Tailings and mine water dams	Safe	Protects infrastructure, humans and animals	Structural, geotechnical and hydraulic adequacy. Minimal erosion.	Final structure is stable. Bywash / spillway must have adequate capacity.

				No contaminated mine drainage or discharges.	Contaminated sediment to be removed and placed in pit void. Sign off by post mining landholder (for retained structures only) – asset transfer agreement.
		Stable	Low probability of capping subsidence, rock falls, slumping of batters/embankments or inert material loss	Structural and geo-technical adequacy. No major erosion. Regulated structures (>8.0m vertical embankment height) must be certified by RPEQ.	Up to 15% or design slopes for internal and external batters. Minimal slumping or gullying (<0.9m) after 5 years Bywash / spillway must have adequate capacity. Drainage lines and bywash structures functioning.
		Non-polluting	Acid mine drainage will not cause serious environmental harm. Water quality solute concentrations met	Schedule B Table 8 stock drinking water contaminant limits at localised catchment monitoring points	Water quality within the objectives listed in Schedule B Table 5 at the locations indicated in Schedule B Table 6 during all runoff events
		Self-sustaining	Grazing area objectives (<10% slopes)	Limited species diversity – promote stability of structure.	Stabilising species present and evidence of recruitment (regrowth) during past 5 years. >70% overall ground cover on areas outside of inundation zone, or comparable to analogue sites if less than 70%.. Photographic evidence collected during rehab monitoring program.
Voids	Mining pits, borrow pits and quarries	Safe	Safe for humans and animals	Geotechnical stability No exposed hazardous material. No access to steep zones (angle of repose or greater) No contaminated mine drainage or discharges.	Coal seam fully capped with Spontaneous Combustion mitigation in place to prevent future flare ups. No public access (Vehicle or personal) to high walls/end walls (bunding and security fencing as a minimum). Minimal exposure for humans and fauna to toxic water or plants.

					Solid barrier to be erected 15m of highwall/endwall toe.
		Stable	Low probability of subsidence, rock falls, slumping of highwalls/batters/embankments or inert material loss	Geotechnically stable and Structurally sound with no major slumping or erosion. Voids are a sink or storage for contaminated water with no risk to fauna.	Risk assessment for slopes greater than 30% and greater than 10m vertical, to not exceed Moderate ranking. Steep slopes consist of competent rock.
		Non-polluting	Water quality solute concentrations met	Schedule B Table 8 stock drinking water contaminant limits at all void monitoring locations No exposed hazardous material.	No livestock access to any voids containing water quality that exceeds Schedule B Table 8 contaminant limits. Total containment of any water that exceed the Table 8 contaminant limits. All hazardous material capped or covered with inert material
		Self-sustaining	Natural communities.	Species diversity and multiple canopy layers – ground, middle and upper	Minimum of 10 species present and evidence of recruitment (regrowth) during past 5 years. >60% overall ground cover above natural ground level. Not including highwalls/endwalls. Evidence collected during established rehab monitoring program.
Infrastructure	Haul roads, hard stands, sediment dams, easement, transmission lines, car parks, etc.	Safe	Protects retained infrastructure, humans and animals	Geotechnical adequacy. Energy isolation Minimal erosion. No exposed hazardous material or chemicals. No contaminated mine drainage or discharges.	Final landform is stable. Sign off by post mining landholder (for retained structures only) – asset transfer agreement. Formal asset handover –change management to be completed for engineered assets or non-engineered assets that do not achieve a low risk ranking. Treat or remove hazardous materials.

					Energy isolation to be applied to any assets/objects not retained.
		Stable	Low probability of Subsidence, rock falls, slope slippage or inert material loss.	Structural and geo-technically stable. No major erosion. No hanging material which carries a moderate risk of rock fall. No overhead structures that are not designed or certified.	Minimal slumping or gullying (<0.9m) after 5 years. RPEQ signoff on any geotechnical related or hazardous civil structures.
		Non-polluting	Water quality solute concentrations within 80%ile	Schedule B Table 8 stock drinking water contaminant limits at localised catchment monitoring points	Water quality within the objectives listed in Schedule B Table 5 at the locations indicated in Schedule B Table 6 during all runoff events
		Self-sustaining	Native ecosystem and/or sustainable grazing area (<10% slopes)	Species diversity and multiple canopy layers – ground, middle and upper	Minimum of 10 (Ecosystem) or 6 (Grazing) species present and evidence of recruitment (regrowth) during past 5 years. Evidence collected during rehab monitoring program.
	Buildings, conveyors, rail line, etc.	Safe	Protects retained infrastructure, humans and animals	Geotechnical/structural adequacy. Minimal erosion. Product stewardship performance. Condition of retained equipment.	Final landform is stable. Manage waste to meet the waste management hierarchy of control. Sign off by post mining landholder (for retained structures only) – asset transfer agreement. Certification and condition report on all buildings,
		Stable	Low probability of Subsidence, collapse, slippage or loss.	Structural and geo-technically stable. No major erosion. No hanging material which carries a moderate risk of rock fall.	RPEQ signoff on any geotechnical related or hazardous civil structures.

				No overhead structures that are not designed or certified.	
		Non-polluting .	Water quality solute concentrations within 80%ile .	Schedule B Table 8 stock drinking water contaminant limits at localised catchment monitoring points	Water quality within the objectives listed in Schedule B Table 5 at the locations indicated in Schedule B Table 6 during all runoff events Manage waste to meet the waste management
					Contaminated soil to be remediated (to meet the criteria stipulated in the Landfarm procedure or removed from site under the Waste Management Plan..
		Self-sustaining	Native ecosystem	Native ecosystem and/or sustainable grazing area (<10% slopes)	Species diversity and multiple canopy layers – ground, middle and upper Evidence collected during rehab monitoring program
Contaminated land	Refuelling areas, protective bunds and earthen material around other active infrastructure	Safe	Is not detrimental to Groundwater and surface water, retained infrastructure, humans and animals	Geotechnical adequacy. Minimal erosion. Hazardous material contained/removed. Runoff and seepage from contaminated areas to be good quality.	Final landform is stable. Must be a non-combustible environment. Manage waste to meet the waste management plan. Monitoring results for specified chemicals/substances
		Stable	Low probability of Bunding or containment failure around retained assets	Structural sound and geo-technical adequacy. No major erosion.	Minimal slumping or gullying (<0.3m) after 5 years Bunding must have adequate capacity. Contaminated water within the bunded area must be managed to avoid pollution of groundwater and surface water.
		Non-polluting	Water quality solute concentrations within 80%ile	Schedule B Table 8 stock drinking water contaminant limits at	Water quality within the EA Groundwater, the receiving water and the release water

				localised catchment monitoring points	contaminant limits during runoff events. No contaminated mine drainage or discharges. Contaminated soil to be remediated (to meet the criteria stipulated in the Landfarm Procedure) or removed from site; or placed within the Tailings storage. Other chemical contamination is to meet the EP Regs (Waste Management) 2000.
		Self-sustaining	Native ecosystem	Species diversity and multiple canopy layers – ground, middle and upper	Minimum of 10 species present and evidence of recruitment (regrowth) during past 5 years. Evidence collected during rehab monitoring program. No visible surface rubbish.
Exploration	Tracks, drilling sumps and bore holes on MLs (not including EPCs)	Safe and stable	Protects humans and animals	Minimal erosion.	Gully and rill erosion <0.3metres. Holes grouted and cut off below ground surface. Sumps filled in.
		Non-polluting	Water quality solute concentrations within 80%ile	Schedule B Table 8 stock drinking water contaminant limits at localised catchment monitoring points.	Water quality within the objectives listed in Schedule B Table 5 at the locations indicated in Schedule B Table 6 during all runoff events
		Self-sustaining	Native ecosystem and/or sustainable grazing area (<10% slopes)	Species diversity and multiple canopy layers – ground, middle and upper	Minimum of 10 (Ecosystem) or 6 (Grazing) species present and evidence of recruitment (regrowth) during past 5 years. Evidence collected during rehab monitoring program.

Schedule I: Regulated Structures	
Condition number	**Condition**
I1	**Assessment of consequence category** The **consequence category** of any structure must be **assessed** by a **suitably qualified and experienced person** in accordance with the Manual for Assessing Consequence Categories and *Hydraulic Performance of Structures* (ESR/2016/1933) at the following times: a) 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.
I2	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.
I3	Certification must be provided by the suitably qualified and experienced person who undertook the assessment, in the form set out in the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures* (ESR/2016/1933).
I4	**Design and construction[1] of a regulated structure** Conditions I5 to I9 inclusive do not apply to existing structures.
I5	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 *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures* (ESR/2016/1933).
I6	Construction of a regulated structure is prohibited unless: a) the **holder** has submitted a **consequence category assessment** report and certification to the administering authority; and **b)** the **design, design plan** and the associated operating procedures have been **certified** by a suitably qualified and experienced person,in compliance with the relevant condition of this **authority**.
I7	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 *Manual for Assessing Consequence Categories and Hydraulic Performance of* Structures (ESR/2016/1933), and must be recorded in the Register of Regulated Structures.
I8	**Regulated structures** must: a) be designed and constructed in accordance with and conform to the requirements of the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures* (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 the **regulated dam** from any **watercourse** or drainage line ii. wall failure due to erosion by floodwaters arising from any watercourse or drainage line.

[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.

I9	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.
I10	**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 paper copy and one electronic copy of the design plan and certification of the 'design plan' in accordance with condition I6 b) a set of 'as constructed' drawings and specifications c) certification of those 'as constructed drawings and specifications' in accordance with condition I9 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 g) there is a current operational plan for the regulated structure.
I11	For existing structures that are regulated structures: a) where the existing structure that is a regulated structure is to be managed as part of an **integrated containment system** for the purpose of sharing the DSA volume across the system, the holder must submit to the administering authority within **12 months** of the commencement of this condition a copy of the certified **system design plan** including that structure, and b) there must be a current operational plan for the existing structures.
I12	Each regulated structure must be maintained and operated, for the duration of its operational life until decommissioned and rehabilitated, in compliance with the current operational plan and, if applicable, the current design plan and associated certified 'as constructed' drawings.
I13	**Mandatory reporting level** Conditions I14 to I17 inclusive only apply to Regulated Structures which have not been certified as low consequence category for 'failure to contain – overtopping'.
I14	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.
I15	The holder must, as soon as practical but 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.
I16	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.
I17	The holder must record any changes to the MRL in the Register of Regulated Structures.
I18	**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.
I19	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).

I20	The holder must, as soon as possible but 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.
I21	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.
I22	**Annual Inspection Report** Each regulated structure must be inspected each calendar year by a suitably qualified and experienced person.
I23	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**.**
I24	The suitably qualified and experienced person who prepared the annual inspection report must certify the report in accordance with the *Manual for Assessing Consequence Categories and Hydraulic Performance of* Structures (ESR/2016/1933).
I25	The holder must: a) within **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 10 business days[3] of receipt of the request.
I26	**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.
I27	**Decommissioning and rehabilitation** Dams must not be abandoned but be either: a) decommissioned and rehabilitated to achieve compliance with condition (I28); 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) 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).

[3] Please note that for some model conditions, such as model conditions for dams associated with a resource activity - non mining activity, the notification requirements may be located in a separate part of the conditions of an environmental authority (e.g. under notification requirement conditions).

I28	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 Instructions for the treatment and management of acid sulfate soils (2001) g) all significantly disturbed land is reinstated to the pre-disturbed soil suitability class 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 petroleum activity(ies). i) 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 3 months of petroleum activities being completed.
I29	**Register of Regulated Dams** A **Register of Regulated Dams** must be established and maintained by the **holder** for each **regulated dam**.
I30	The holder must provisionally enter the required information in the Register of Regulated Dams when a design plan for a regulated dam is submitted to the administering authority.
I31	The holder must make a final entry of the required information in the Register of Regulated Dams once compliance with condition (I10) and (I11) has been achieved.
I32	The holder must ensure that the information contained in the Register of Regulated Dams is current and complete on any given day.
I33	All entries in the Register of Regulated Dams must be approved by the chief executive officer for the holder of this authority, or their delegate, as being accurate and correct.
I34	The holder must, at the same time as providing the annual return, supply to the administering authority a copy of the records contained in the Register of Regulated Dams, in the electronic format required by the administering authority.
I35	**Transitional arrangements** All existing structures that have not been assessed in accordance with either the Manual or the former *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures* must be assessed and certified in accordance with the Manual within 6 months of amendment of the authority adopting this schedule.
I36	All existing structures must subsequently comply with the timetable for any further assessments in accordance with the Manual specified in **Table I1 – Transitional hydraulic performance requirements for existing structures**, depending on the consequence category for each existing structure assessed in the most recent previous certification for that structure.

I37	**Table I1 – Transitional hydraulic performance requirements for existing structures** ceases to apply for a structure once any of the following events has occurred: a) It has been brought into compliance with the hydraulic performance criteria applicable to the structure under the Manual; or b) It has been decommissioned; or c) It has been certified as no longer being assessed as a regulated structure.
I38	Certification of the transitional assessment required by I35 and I36 (as applicable) must be provided to the administering authority within 6 months of amendment of the authority adopting this schedule.

Table I1 – Transitional hydraulic performance requirements for existing structures

Transition period required for existing structures to achieve the requirements of the *Manual for Assessing Consequence Categories and Hydraulic Performance of Dams*			
Compliance with criteria	**High**	**Significant**	**Low**
>90% and a history of good compliance performance in last 5 years	No transition required	No transition required	No transitional conditions apply. Review consequence assessment every 7 years.
>70%-≤90%	Within 7 years, unless otherwise agreed with the administering authority, based on no history of unauthorised releases.	Within 10 years, unless otherwise agreed with the administering authority, based on no history of unauthorised releases.	No transitional conditions apply. Review consequence assessment every 7 years.
>50-≤70%	Within 5 years unless otherwise agreed with the administering authority, based on no history of unauthorised releases.	Within 7 years unless otherwise agreed with the administering authority, based on no history of unauthorised releases.	Review consequence assessment every 7 years.
≤50%	Within 5 years or as per compliance requirements (e.g. TEP timing)	Within 5 years or as per compliance requirements (e.g. TEP timing)	Review consequence assessment every 5 years.

Figure 1 – Proposed Water Release Points

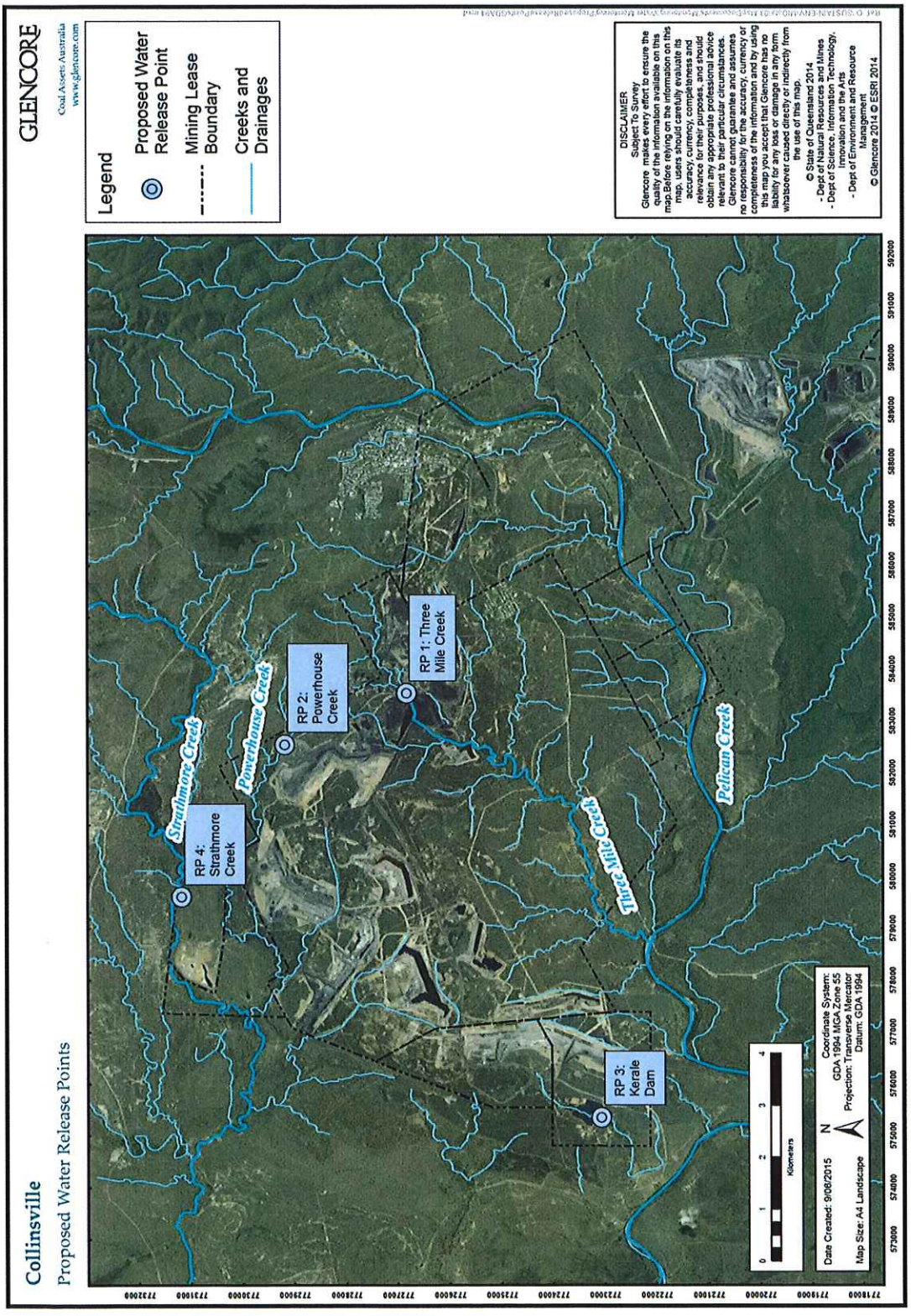


Figure 2 – Indicative 90th Percentile Noise Contours, Historic Baseline Scenario (maximum envelope) - Day Period

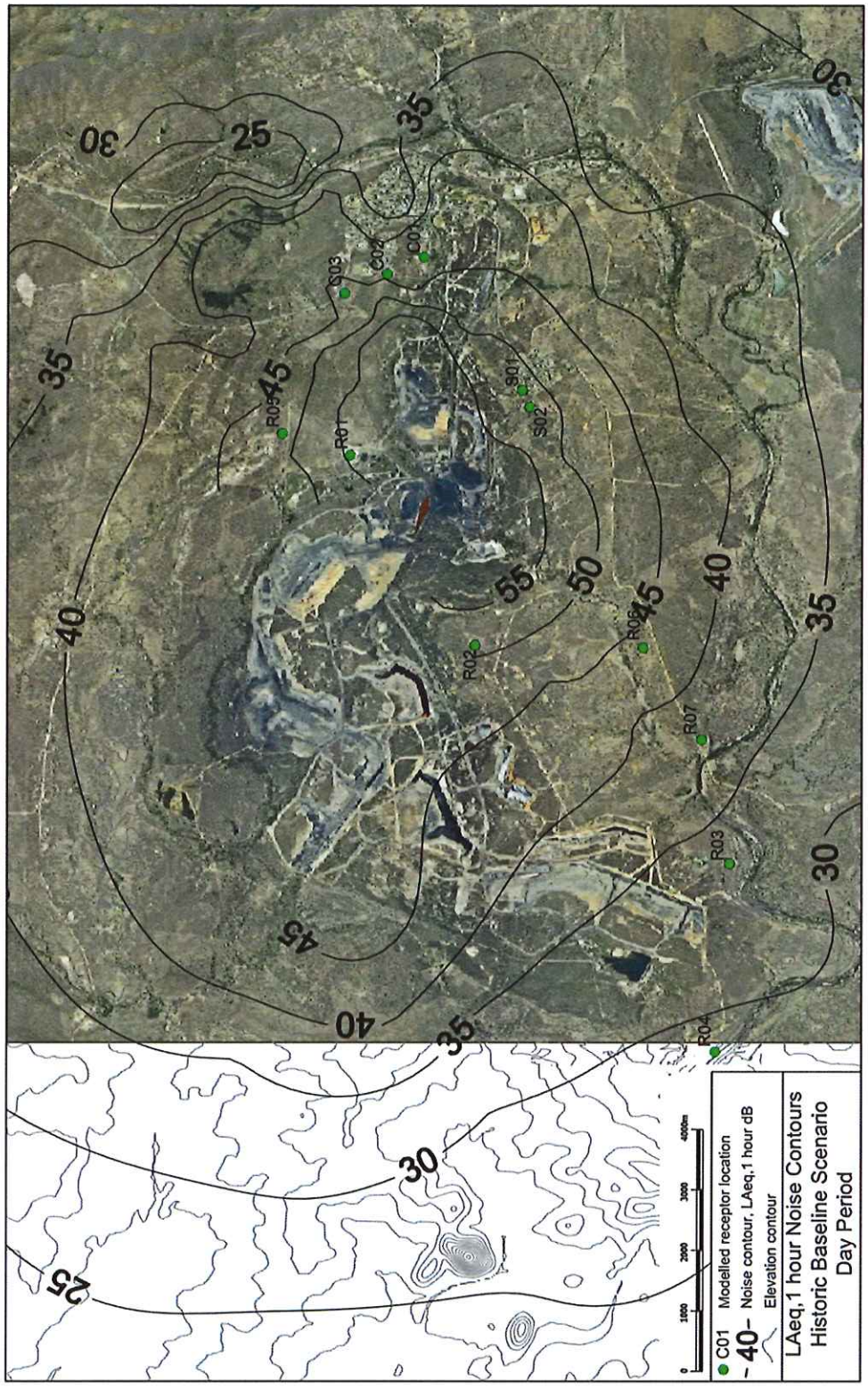


Figure 3 – Indicative 90th Percentile Noise Contours, Historic Baseline Scenario (maximum envelope) - Evening Period

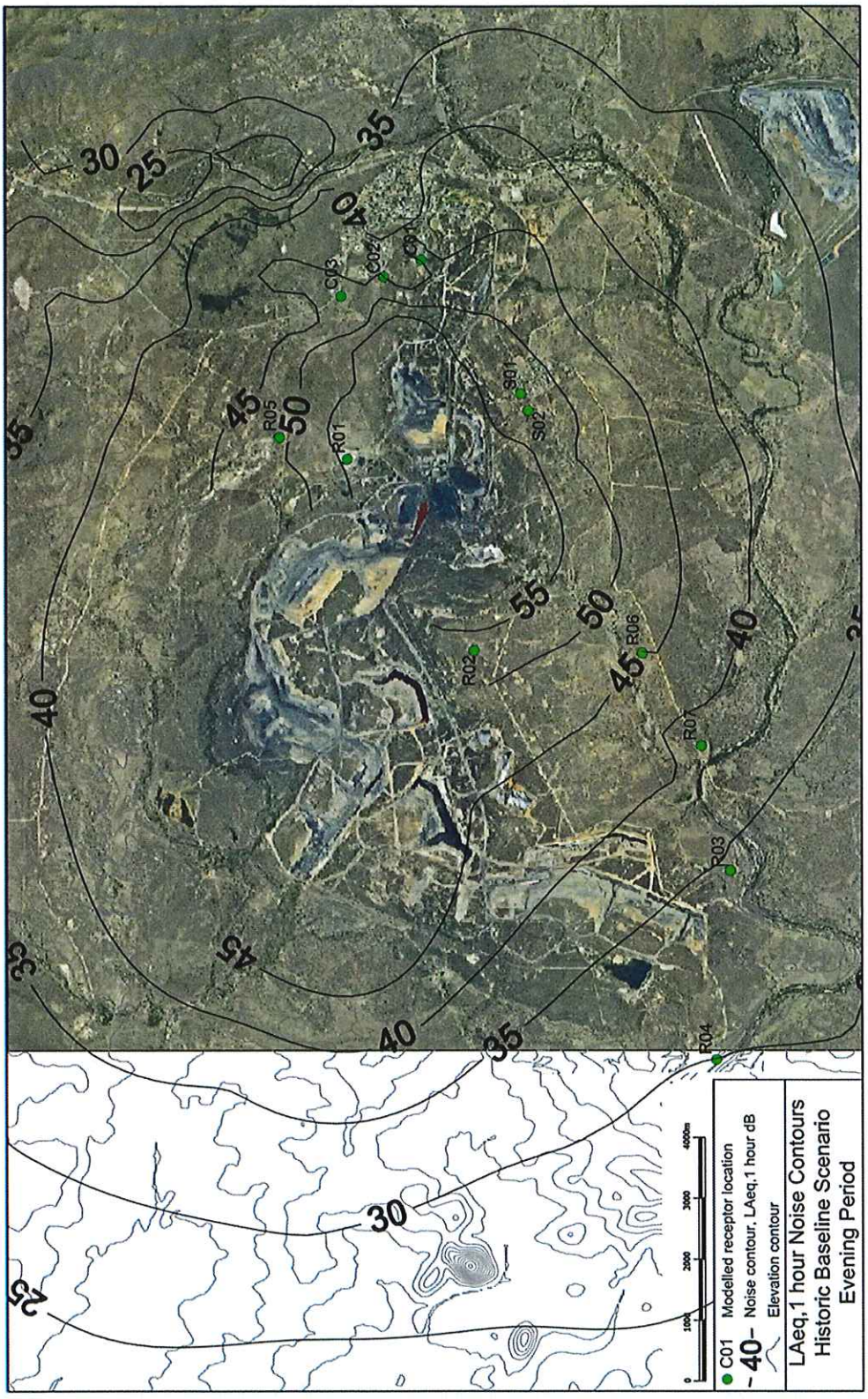
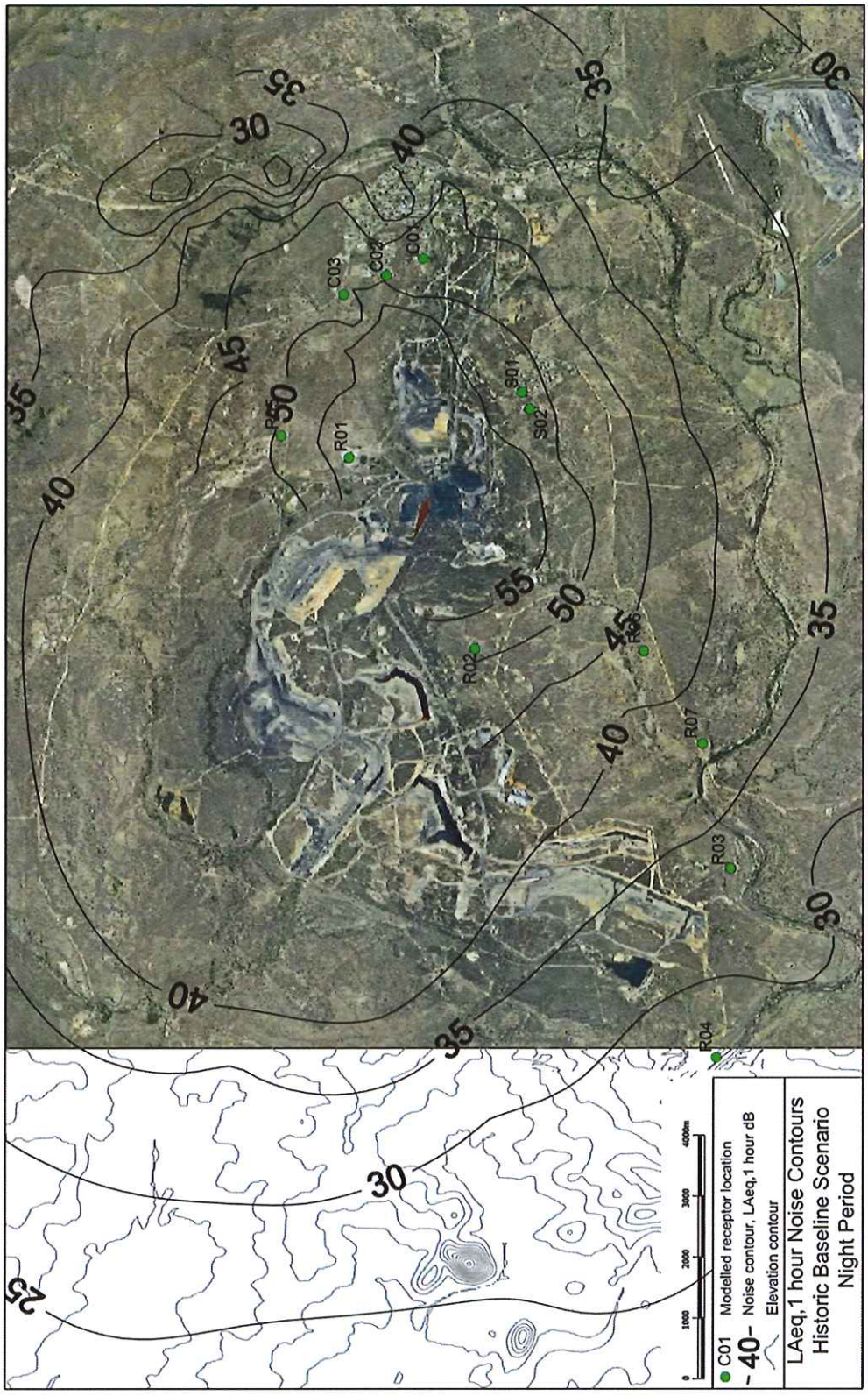


Figure 4 – Indicative 90th Percentile Noise Contours, Historic Baseline Scenario (maximum envelope) - Night Period



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 structures, 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 structures, 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 been 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 mine drainage (AMD) 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. This is also known as Acid Metalliferous Drainage.

administering authority means the Department of Environment and Heritage Protection or its successor.

affected person is someone whose drinking water can potentially be impacted as a result of discharges from a dam or their life can be put at risk due to dwellings or workplaces being in the path of a dam break flood.

"**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).

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

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.

annual exceedance probability or **AEP** the probability that at least one event in excess of a particular magnitude will occur in any given year.

ANZECC & ARMCANZ means the *Australian and New Zealand Guidelines for Fresh Marine Water Quality 2000*.

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 and **assessment** 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 of the assessment:
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 structure, means:
a) operations of any kind and all things constructed, erected or installed for that structure; and
b) any land used for those operations.

authorised officer means a person appointed by the chief executive as defined in section 445 of the Environmental *Protection Act 1994*, including:
a) an appropriately qualified public service officer;
b) an employee of the department;
c) a person included in a class of persons declared by regulation to be an approved class of persons for this section.

authority means an environmental authority or a development approval.

bed and banks for a waters, river, creek, stream, lake, lagoon, pond, swamp, wetland or structure means land over which the water of the waters, lake, lagoon, pond, swamp, wetland or structure 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 structures means that the current or proposed owner of the land on which a structure 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 structure; or
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.

brine means saline water with a total dissolved solid concentration greater than 40,000 mg/L.

bunded means within bunding consistent with *Australian Standard 1940.*

certification means assessment and approval must be undertaken by a suitably qualified and experienced person in relation to any assessment or documentation required by this manual, including design plans, 'as constructed' drawings and specifications, construction, operation or an annual report regarding regulated structures, undertaken in accordance with the Board of Professional Engineers of Queensland Policy Certification by RPEQs (ID: 1.4 (2A)).

certifying, **certify** or **certified** have a corresponding meaning as 'certification'.

chemical means:
a) an agricultural chemical product or veterinary chemical product within the meaning of the Agricultural and Veterinary Chemicals Code Act 1994 (Commonwealth);
b) a dangerous good under the dangerous goods code;
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;
e) any substance used as, or intended for use as:
    i. a pesticide, insecticide, fungicide, herbicide, rodenticide, nematocide, miticide, fumigant or related product;
    ii. a surface active agent, including, for example, soap or related detergent;
    iii. a paint solvent, pigment, dye, printing ink, industrial polish, adhesive, sealant, food additive, bleach, sanitiser, disinfectant, or biocide; and
    iv. a fertiliser for agricultural, horticultural or garden use.
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; and
    ii. manufacture of plastic or synthetic rubber.

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.

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.

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

consequence category means a category, either low, significant or high, into which a dam is assessed as a result of the application of tables and other criteria in the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635)*.

construction or **constructed** in relation to a dam includes building a new dam and modifying or lifting an existing dam, but does not include investigations and testing necessary for the purpose of preparing a design plan.

contaminant - a contaminant can be:

a) a gas, liquid or solid;
b) an odour;
c) an organism (whether alive or dead), including a virus;
d) energy, including noise, heat, radioactivity and electromagnetic radiation; or
e) a combination of contaminants.

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

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 contains, diverts or controls flowable substances, and includes any substances that are thereby contained, diverted or controlled by that land-based structure or void and associated works.

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).

design plan is a document setting out how all identified consequence scenarios are addressed in the planned design and operation of a regulated structure.

design storage allowance or DSA means an available volume, estimated in accordance with the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635)* published by the administering authority, must be provided in a dam as at 1 November each year in order to prevent a discharge from that dam to an **annual exceedance probability** (AEP) specified in that Manual.

designer for the purposes of a regulated dam, means the certifier of the design plan for the regulated dam.

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*.

disturbed means any area that has had its natural state altered by the action or interference of carrying out an activity associated with the exploration project.

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;
b) a caravan, mobile home or other vehicle or structure on land; or
c) a water craft in a marina.

effluent means treated waste water discharged from sewage treatment plants.

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 dam 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 dam owners to annually update contact.

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.

environmental legacy in the case of Collinsville Coal Mine, means an environmental issue or liability that is the result of historical mining or rehabilitation practices which by contemporary standards would be considered undesirable or unacceptable.

environmentally relevant activity means an environmentally relevant activity as defined under section 18 of the *Environmental Protection Act 1994* and listed under Schedule 2 of the *Environmental Protection Regulation 2008*.

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

extreme storm storage – means a storm storage allowance determined in accordance with the criteria in the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635)* published by the administering authority

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, creeks, streams, lakes, ponds, wetlands or structures 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 flow under any conditions potentially affecting that substance. Constituents of a flowable substance can include water, other liquids fluids or solids, or a mixture that includes water and any other liquids fluids or solids either in solution or suspension.

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

general waste means waste other than regulated waste.

hazard in relation to a dam 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.

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*.

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.

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.

hydraulic performance means the capacity of a regulated dam to contain or safely pass flowable substances based on the design criteria specified for the relevant consequence category in the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (EM635)*.

infrastructure means water storage structures, 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 structures, 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.

$LA_{10,\ adj,\ 10\ mins}$ 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.

$LA_{1,\ adj,\ 10\ mins}$ 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.

lake includes:

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

land in the 'Agency Interest: Land' section of this document means land excluding waters and the atmosphere.

land suitability as defined in the *Technical Guidelines for the Environmental Management of Exploration and Mining in Queensland (DME 1995).*

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

levee means an embankment that only provides for the containment and diversion of stormwater or flood flows from a contributing catchment, or containment and diversion of flowable materials resulting from releases from other works, during the progress of those stormwater or flood flows or those releases; and does not store any significant volume of **water** or **flowable substances** at any other times.

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 (EM635).*

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.

mg/L means milligrams per litre.

mine affected water means the following types of water:

a) pit water, tailings dam water, processing plant water;
b) 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;
c) 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 runoff containing sediment only, provided that this water has not been mixed with pit water, tailings dam water, processing plant water or workshop water;
d) groundwater which has been in contact with any areas disturbed by mining activities which have not yet been rehabilitated;
e) groundwater from the mine's dewatering activities; or
f) a mix of mine affected water (under any of paragraphs a)-e)) and other water.

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 therefrom;
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; or
k) rock mined in block or slab form for building or monumental purposes.

But does not include:

a) living matter;
b) petroleum within the meaning of the Petroleum Act 1923;
c) 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; or

d) water.

mining materials means:

a) the following types of non-mineral soil and rock resources:
   i. topsoil;
   ii. inert material;
   iii. overburden;
   iv. spoil;
   v. interburden; and
   vi. tailings and washery wastes;
b) but does not include:
   i. liquids; and
   ii. gases.

modification or modifying (see definition of 'construction')

native vegetation means vegetation that occurs naturally in a certain area.

natural flow means the flow of water through waterways caused by nature.

nature means:

a) as per section 8 of the Nature Conservation Act 1992, including:
   i. ecosystems and their constituent parts;
   ii. all natural and physical resources;
   iii. natural dynamic processes; and
   iv. the characteristics of places, however large or small, that contribute to:
      a. their biological diversity and integrity; or
      b. their intrinsic or scientific value.

b) The basic or inherent features or something, especially when seen as a characteristic.

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);
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.

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}).

progressive rehabilitation means rehabilitation undertaken progressively or a staged approach to rehabilitation as mining operations are ongoing.

process water means water used or produced during the activities authorised under this environmental authority.

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 dams includes:

a) Date of entry in the register;
b) Name of the dam, its purpose and intended/actual contents;
c) The consequence category of the dam 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 dam;
e) Name and qualifications of the suitably qualified and experienced person who certified the design plan and 'as constructed' drawings;
f) For the regulated dam, other than in relation to any levees –
    i. The dimensions (metres) and surface area (hectares) of the dam measured at the footprint of the dam;
    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 dam;
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 dam;
l) Dates when the regulated dam 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 structure includes land-based containment structures, levees, bunds and voids, but not a tank or container designed and constructed to an Australian Standard that deals with strength and structural integrity.

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; or
b) anything that has contained the waste.

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

representative means a sample set which covers the variance in monitoring or other data either due to natural changes or climatic 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.

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

seasonal variation means groundwater level fluctuation that is a direct result of seasonal conditions. For example, above average rainfall over an extended period, resulting in aquifer recharge and subsequent rises in groundwater levels. Conversely, below average rainfall periods may result in groundwater level decline due to the lack of recharge over this period. Seasonal variation is most readily observed in shallow unconfined aquifers where a direct connection to surface waters exists, however variations in water levels due to seasonal conditions can occur in other aquifer types where hydraulic linkages to surface waters and other aquifers are more complex.

seepage means the process by which water leaks through the base or sides of a water storage but does not mean the movement of water as the result of opening a gate or valve or turning on a pump.

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;
b) a motel, hotel or hostel;
c) an educational institution;
d) a medical centre or hospital;

e) a protected area under the *Nature Conservation Act 1992*, the *Marine Parks Act 2004* or a World Heritage Area; or
f) a public park or gardens.

serious environmental harm means serious environmental harm as defined under the *Environmental Protection Act 1994.*

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

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

stable in relation to land, means land form dimensions are or will be stable within tolerable limits now and in the foreseeable future. Stability includes consideration of geotechnical stability, settlement and consolidation allowances, bearing capacity (trafficability), erosion resistance and geochemical stability with respect to seepage, leachate and related contaminant generation.

stormwater means all surface water runoff from rainfall.

structure means dam or levee.

suitably qualified and experienced person in relation to regulated structures means a person who is a Registered Professional Engineer of Queensland (RPEQ) under the provisions of the *Professional Engineers Act 2002*, and has demonstrated competency and relevant experience:

- for regulated dams, an RPEQ who is a civil engineer with the required qualifications in dam safety and dam design.
- for regulated levees, an RPEQ who is a civil engineer with the required qualifications in the design of flood protection embankments.

Note: It is permissible that a suitably qualified and experienced person obtain subsidiary certification from an RPEQ who has demonstrated competence and relevant experience in either geomechanics, hydraulic design or engineering hydrology.

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.

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 constructed, 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 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.

wastewater means used water from the activity, process water or contaminated stormwater.

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

watercourse has the meaning in Schedule 4 of the *Environmental Protection Act 1994* and means a river, creek or stream in which water flows permanently or intermittently—
(a) in a natural channel, whether artificially improved or not; or

(b) in an artificial channel that has changed the course of the watercourse.

Watercourse includes the bed and banks and any other element of a river, creek or stream confining or containing water.

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

water year means the 12-month period from 1 July to 30 June.

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.

µg/L means micrograms per litre.

µS/cm means microsiemens per centimetre.

END OF PERMIT