

Permit

Environmental Protection Act 1994

Environmental authority EPML00815613

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

Environmental authority number: EPML00815613

Environmental authority takes effect on 22 November 2019

Environmental authority holder(s)

Name(s)	Registered address
Peabody (Bowen) Pty Ltd	Bank Of Queensland Building Lvl 5, 100 Melbourne Street SOUTH BRISBANE QLD 4101

Environmentally relevant activity and location details

Environmentally relevant activity/activities	Location(s)
Resource Activity, Schedule 3, 13: Mining black coal	ML6949
Resource Activity, Schedule 3, 08: A petroleum or GHG storage activity, other than items 1 to 7, that includes an activity from Schedule 2 with an AES	PL504
Resource Activity, Ancillary 31 - Mineral processing, 2: Processing, in a year, the following quantities of mineral products, other than coke, (b) more than 100,000t	
Resource Activity, Ancillary 63 - Sewage Treatment, 1: Operating sewage treatment works, other than no-release works, with a total daily peak design capacity of, (b-i) more than 100 but not more than 1500EP if treated effluent is discharged from the works to an infiltration trench or through an irrigation scheme	
Resource Activity, Ancillary 56 - Regulated Waste Storage, Receiving and storing regulated waste	
Resource Activity, Ancillary 60 - Waste disposal, 2: Operating a facility for disposing of, in a year, the following quantity of waste mentioned in subsection (1) (b), (a) 50t to 2000t	
Resource Activity, Ancillary 08 - Chemical Storage, 1: Storing a total of 50t or more of chemicals of dangerous goods class 1 or class 2, division 2.3 under subsection (1)(a)	

Additional information for applicants

Environmentally relevant activities

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

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

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

Contaminated land

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

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

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

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

Take effect

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

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

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

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

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



Signature

22 November 2019

Date

Gillian Naylor
Department of Environment and Science
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)

Other permits required

This permit only provides an approval under the *Environmental Protection Act 1994*. In order to lawfully operate you may also require permits / approvals from your local government authority, other business units within the department and other State Government agencies prior to commencing any activity at the site. For example, this may include permits / approvals with your local Council (for planning approval), the Department of Transport and Main Roads (to access state controlled roads), the Department of Natural Resources, Mines and Energy (to clear vegetation), and the Department of Agriculture and Fisheries (to clear marine plants or to obtain a quarry material allocation).

Conditions of environmental authority

Agency interest: General	
Condition number	Condition
A1	Coal extraction The environmental authority holder is approved for a coal extraction rate of up to ten-point-two (10.2) million tonnes per annum (mtpa) of run-of-mine (ROM) ore in accordance with this environmental authority.
A2	Prevent and/or minimise likelihood of environmental harm In carrying out the environmentally relevant activities, you must take all reasonable and practicable measures to prevent and/or to minimise the likelihood of environmental harm being caused. Any environmentally relevant activity, that, if carried out incompetently, or negligently, may cause environmental harm, in a manner that could have been prevented, shall be carried out in a proper manner in accordance with the conditions of this authority. <i>Note: This authority authorises the environmentally relevant activity. It does not authorise environmental harm unless a condition contained within this authority explicitly authorises that harm. Where there is no condition or the authority is silent on a matter, the lack of a condition or silence shall not be construed as authorising harm.</i>
A3	Maintenance of measures, plant and equipment The environmental authority holder must ensure: a) that all measures, plant and equipment necessary to ensure compliance with the conditions of this environmental authority are installed; b) that such measures, plant and equipment are maintained in a proper condition; and c) that such measures, plant and equipment are operated in a proper manner; and d) ensure all instruments and devices used for the measurement or monitoring of any parameter under any condition of this environmental authority are properly calibrated.
A4	No change, replacement or alteration of any plant or equipment is permitted if the change, replacement or alteration increases, or is likely to substantially increase, the risk of unlawful environmental harm caused by the mining activities. <i>Note: Change in this case does not refer to trivial changes e.g. a larger and stronger item of equipment replaces a small and outdated item of equipment, it takes up a slightly larger area (i.e. creating a larger area of disturbance, covered by the estimated rehabilitation cost).</i>
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(s) conducts all monitoring.
A7	Notification of emergencies, incidents and exceptions All reasonable actions are to be taken to minimise environmental harm, or potential environmental harm, resulting from any emergency, incident or circumstances not in accordance with the conditions of this environmental authority.
A8	As soon as practicable 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 in writing.
A9	Not more than ten (10) business days following the initial notification of an emergency, incident or information about circumstances which result or may result in environmental harm, written advice must be provided to the administering authority in relation to: a) proposed actions to prevent a recurrence of the emergency or incident; b) the outcomes of actions taken at the time to prevent or minimise environmental harm; and c) proposed actions to respond to the information about circumstances which result or may result in environmental harm.
A10	As soon as practicable, but not more than six (6) weeks following the initial notification of an emergency, incident or information about circumstances which result or may result in environmental harm, environmental monitoring must be performed and written advice must be provided of the results of any such monitoring performed to the administering authority.
A11	The notification of emergencies, incidents or circumstances (incident) which result or may result in environmental harm in accordance with Condition A9 must include but not be limited to the following: a) the holder of the environmental authority; b) the location of the incident; c) the number of the environmental authority; d) the name and telephone number of the designated contact person; e) the time of the incident; f) the time the holder of the environmental authority became aware of the incident; g) the suspected cause of the incident; h) the environmental harm caused, threatened, or suspected to be caused by the incident; and i) actions taken to prevent any further incident and mitigate any environmental harm caused by the incident.
A12	Mining activities All land subject to mining activities must be rehabilitated to a non-polluting, safe, stable and self-sustaining landform.

A13	Contaminants must not be released to the receiving environment unless they are in accordance with the contaminant limits authorised by this environmental authority.
A14	This environmental authority does not authorise environmental harm unless a condition contained within the authority explicitly authorises that harm. Where there is no condition or the authority is silent on a matter, the lack of a condition or silence shall not be construed as authorising harm.
A15	The only mining activities to be carried out under this environmental authority are the mining activities defined within the parameters in Table A1 Mining Activities and identified in Figure 1 attached to this environmental authority. <i>Note: Variation of mining activities to those identified within the conceptual designs is considered to be in accordance with these conditions as long as the variation is not significantly different to the conceptual design or causes a significant increase in environmental harm.</i>

Table A1 Mining Activities

Mine Domain	Mine Feature Name	Location (Lat and Long, GDA94)	Maximum disturbance area (ha)	Constraints
Open cut pits	Eaglefield Pit	As per Figure 1	As per Figure 1	As per Figure 1
	Eaglefield Expansion Pit*		850ha	Depth and surface area
Underground mine	Underground longwall panels	As per Figure 1		Mine plan
Dams	Raw Water Dam	As per Figure 1	As per Figure 1	Depth, volume and surface area
	Main Retention Dam	As per Figure 1		
	Eastern Sediment Dam	As per Figure 1		
	Mine Affected Water Dam*	As per Figure 1		
	NSD1*	TBA	TBA	Upon commencement of Eaglefield Expansion Pit
	NSD2*	TBA		
	NSD3*	TBA		
	SSD1*	TBA		
Mineral extraction, processing and disposal	Existing External Waste Rock Dump	As per Figure 1	180ha	Surface area and height (65m above surface)
	External Waste Rock Emplacement*	As per Figure 1	1,650ha	Surface area and height (140m above surface)
	Internal Waste Rock Emplacement*	As per Figure 1	605ha	Surface area and height (80m above surface)
	Co-disposal Facility	As per Figure 1	As per Figure 1	CHPP processing capacity
	CHPP	As per Figure 1	As per Figure 1	
	ROM and Waste crushers and conveyors	As per Figure 1	As per Figure 1	
Run of Mine (ROM) and Product	Existing ROM stockpile	As per Figure 1	As per Figure 1	Maximum annual ROM
	New ROM Stockpile*	As per Figure 1		
	Existing product stockpile	As per Figure 1		
	New product stockpile*	As per Figure 1		
Accommodation	Temporary on-site accommodation village	As per conditions F27 and F28	As per conditions F27 and F28	Temporary
Ancillary Infrastructure	Workshops, hardstand and storage areas Fuel and Chemical storage compounds Administration buildings, offices, carparks, ablution facilities Contractors facilities Sewage treatment plant and irrigation areas Water treatment plant Emergency helipad	As per Figure 1	As per Figure 1	Scale and intensity
	Underground mine entries, including conveyor drifts, materials drift and ventilation shafts	As per Figure 1		
	Roads and tracks Rail loop	As per Figure 1		

Note: Items marked with (*) represent features yet to be commissioned relating to the Eaglefield Expansion Pit.

Agency interest: Air	
Condition number	Condition
B1	Dust nuisance The release of dust or particulate matter or both resulting from the mining activity must not cause an environmental nuisance at any nuisance sensitive or commercial place.
B2	When requested by the administering authority or as a result of a complaint (which is neither frivolous nor vexatious nor based on mistaken belief in the opinion of the authorised officer), dust and particulate monitoring must be undertaken, and the results thereof notified to the administering authority within fourteen (14) days following completion of monitoring. Monitoring must be carried out at a place(s) relevant to the potentially affected dust sensitive place. Dust and particulate matter must not exceed the following levels when measured at any nuisance sensitive or commercial place: a) Dust deposition of 120 milligrams per square metre per day, when monitored in accordance with <i>Australian Standard AS 3580.10.1 of 2003</i> (or more recent editions); and b) A concentration of particulate matter with an aerodynamic diameter of less than 10 micrometre (µm) (PM₁₀) suspended in the atmosphere of 50 micrograms per cubic metre over a 24 hour averaging time, at a nuisance sensitive or commercial place downwind of the site, can be exceeded no more than five (5) times per year when monitored in accordance with: i) <i>Australian Standard AS 3580.9.6 of 2003</i> (or more recent editions) Ambient air - Particulate matter - Determination of suspended particulate PM₁₀ high-volume sampler with size-selective inlet - Gravimetric method; or ii) Any alternative method of monitoring PM₁₀ which may be permitted by the <i>Air Quality Sampling Manual</i> as published from time to time by the administering authority.
B3	If monitoring indicates exceedance of the relevant limits in Condition B2, then the environmental authority holder must: a) address the complaint including the use of appropriate dispute resolution if required; and b) in consultation with the administering authority and within an agreed timeframe, implement dust abatement measures so that emissions of dust from the activity do not result in further environmental nuisance.
B4	Odour nuisance The release of noxious or offensive odour(s) or any other noxious or offensive airborne contaminant(s) resulting from the mining activity must not cause an environmental nuisance at any nuisance sensitive or commercial place.
B5	When requested by the administering authority odour monitoring must be undertaken within a reasonable and practicable timeframe nominated by the administering authority to investigate any complaint (which is neither frivolous nor vexatious nor based on mistaken belief in the opinion of the authorised officer) of environmental nuisance at any sensitive or commercial place and the results must be notified within fourteen (14) days to the administering authority following completion of monitoring.

B6	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; and b) in consultation with the administering authority and within an agreed timeframe, implement odour abatement measures so that emissions of odour from the activity do not result in further environmental nuisance.
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Agency interest: Water	
Condition number	Condition
C1	Contaminant release Contaminants that will, or have the potential to cause environmental harm, must not be released directly or indirectly to any waters as a result of the authorised mining activities, except as permitted under the conditions of this environmental authority.
C2	Unless otherwise permitted under the conditions of this environmental authority, the release of mine affected water to waters must only occur from the release points specified in Table C1 Mine Affected Water Release Points, Sources and Receiving Waters and depicted in Figure 2 attached to this environmental authority.
C3	The release of mine affected water to internal water management infrastructure that is installed and operated in accordance with a water management plan that complies with Conditions C29 to C34 inclusive is permitted.

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

Release Point (RP)	MGA Zone 55 Easting (GDA94)	MGA Zone 55 Northing (GDA94)	Mine Affected Water Source and Location	Monitoring Point	Receiving waters description
RP 1	601,764	7,603,460	Eastern Sediment Dam	Dam Spillway	Goonyella Creek
RP2*	TBA	TBA	NSD1	Dam Spillway	Goonyella Creek
RP3*	TBA	TBA	NSD2	Dam Spillway	Goonyella Creek
RP4*	TBA	TBA	NSD3	Dam Spillway	Goonyella Creek
RP5*	TBA	TBA	SSD1	Dam Spillway	Goonyella Creek

Note: Items marked with (*) represent features yet to be commissioned relating to the Eaglefield Expansion Pit.

C4	The release of mine affected water to waters in accordance with Condition C2 must not exceed the release limits stated in Table C2 Mine Affected Water Release Limits when measured at the monitoring points specified in Table C1 Mine Affected Water Release Points, Sources and Receiving Waters for each quality characteristic.
C5	The release of mine affected water to waters from the release points must be monitored at the locations and frequency specified in Table C1 Mine Affected Water Release Points, Sources and Receiving Water for each quality characteristic specified in Table C2 Mine Affected Water Release Limits. <i>Note: The administering authority will take into consideration any extenuating circumstances prior to determining an appropriate enforcement response in the event Condition C5 is contravened due to a temporary lack of safe or practical access. The administering authority expects the environmental authority holder to take all reasonable and practicable measures to maintain safe and practical access to designated monitoring locations.</i>
C6	If quality characteristics of the release exceed any of the trigger levels specified in Table C3 Release Contaminant Trigger Investigation Levels during a release event, the environmental authority holder must compare the downstream results in the receiving waters to the trigger values specified in Table C3 Release Contaminant Trigger Investigation Levels and: a) where the trigger values are not exceeded then no action is to be taken; or b) where the downstream results exceed the trigger values specified Table C3 Release Contaminant Trigger Investigation Levels for any quality characteristic, compare the results of the downstream site to the data from background monitoring sites and; i) if the result is less than the background monitoring site data, then no action is to be taken; or ii) if the result is greater than the background monitoring site data, complete an investigation into the potential for environmental harm and provide a written report within 28 days to the administering authority via WaTERS, outlining: 1) details of the investigations carried out; and 2) actions taken to prevent environmental harm. <i>Note: Where an exceedance of a trigger level has occurred and is being investigated in accordance with C6(b)(ii) of this condition, no further reporting is required for subsequent trigger events for that quality characteristic.</i>

Table C2 Mine Affected Water Release Limits

Quality Characteristic	Release Limits	Monitoring frequency	Comment
Electrical conductivity (µS/cm)	Release limits specified in Table C4	Daily during release (the first sample must be taken within 2 hours of commencement of release)	
pH (pH Unit)	6.5 (minimum) 9.0 (maximum)	Daily during release (the first sample must be taken within 2 hours of commencement of release)	
Suspended Solids (mg/L)	1,500	At commencement and prior to cessation of release (at a minimum) and weekly during a release ²	Suspended solids are required to measure the performance of sediment and erosion control measures.
Sulfate (SO ₄ ²⁻) (mg/L)	Release limits specified in Table C4	At commencement and prior to cessation of release (at a minimum) and weekly during a release ²	Drinking water environmental values from NHMRC 2006 guidelines or ANZECC 2000 guidelines.

Note:

- Limit for suspended solids can be omitted if turbidity limit is included. Limit for turbidity not required if suspended solids limit included. Both indicators should be measured in all cases.
- The determination of suitability for release of water should be informed by monitoring undertaken prior to release.

Table C3 Release Contaminant Trigger Investigation Levels

Quality Characteristic ^{1,2}	Trigger Levels (µg/L)	Comment on Trigger Level ^{3,4}	Monitoring Frequency
Arsenic	13	For aquatic ecosystem protection, based on SMD guideline	At commencement and prior to cessation of release (at a minimum) and weekly during a release
Chromium	1	For aquatic ecosystem protection, based on SMD guideline	
Copper	3	For aquatic ecosystem protection, based on LOR for ICPMS	
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	
Molybdenum	34	For aquatic ecosystem protection, based on low reliability guideline	
Uranium	1	For aquatic ecosystem protection, based on LOR for ICPMS	
Vanadium	10	For aquatic ecosystem protection, based on LOR for ICPMS	
Petroleum hydrocarbons (C6-C9)	20	For aquatic ecosystem protection, based on LOR for GCMS	
Petroleum hydrocarbons (C10-C36)	100	For aquatic ecosystem protection, based on LOR for GCMS	

Note:

- All metals and metalloids must be measured as total (unfiltered) and dissolved (filtered). Trigger levels for metal/metalloids apply if dissolved results exceed trigger.
- The quality characteristics required to be monitored as per **Table C3** can be reviewed once the results of two years monitoring data is available, or if sufficient data is available to adequately demonstrate negligible environmental risk, and it may be determined that a reduced monitoring frequency is appropriate or that certain quality characteristics can be removed from **Table C3** by amendment.
- SMD – slightly moderately disturbed level of protection, guideline refers ANZECC & ARMCANZ (2000).
- LOR – typical reporting for method stated. ICPMS/CV FIMS/GCMS – analytical method required to achieve LOR.

C7	If an exceedance in accordance with Condition C6 (b)(ii) is identified, the holder of the authority must notify the administering authority within fourteen (14) days of receiving the result via WaTERS.
C8	Mine affected water release events The holder must ensure a stream flow gauging station/s is installed, operated and maintained to determine and record stream flows at the locations and flow recording frequency specified in Table C4 Mine Affected Water Release during Flow Events.
C9	Notwithstanding any other condition of this environmental authority, the release of mine affected water to waters in accordance with Condition C2 must only take place during periods of natural flow events in accordance with the receiving water flow criteria for discharge specified in Table C4 Mine Affected Water Release during Flow Events for the release point(s) specified in Table C1 Mine Affected Water Release Points, Sources and Receiving Waters .
C10	The release of mine affected water to waters in accordance with Condition C2 must not exceed the Maximum Release Rate (for all combined release point flows) for each receiving water flow criteria for discharge specified in Table C4 Mine Affected Water Release during Flow Events when measured at the monitoring points specified in Table C1 Mine Affected Water Release Points, Sources and Receiving Waters .
C11	The daily quantity of mine affected water released from each release point must be measured and recorded at the monitoring points in Table C1 Mine Affected Water Release Points, Sources and Receiving Waters .
C12	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.
C13	Notification of release event The environmental authority holder must notify the administering authority via WaTERS as soon as practicable and no later than twenty-four (24) hours after commencing to release mine affected water to the receiving environment. Notification must include the submission of written advice to the administering authority of the following information: a) release commencement date/time; b) expected release cessation date/time; c) release point/s; d) release volume (estimated); e) receiving water/s including the natural flow rate; and f) any details (including available data) regarding likely impacts on the receiving water(s).

Table C4 Mine Affected Water Release during Flow Events

	Release Strategy 1 (Low Flow)	Release Strategy 2 (Medium Flow)		Release Strategy 3 (High Flow)
Receiving waters/stream	Isaac River (via Goonyella Creek)	Goonyella Creek	Isaac River (via Goonyella Creek)	Isaac River (via Goonyella Creek)
Release Point (RP)	RP1*			
Gauging station	Goonyella Gauging Station #130414A DNRME ^{1, 2}	Gauging Station 1	Goonyella Gauging Station #130414A DNRME ^{1, 2}	Goonyella Gauging Station #130414A DNRME ^{1, 2}
MGA Zone 55 Easting (GDA 94)	600,400	602,910	600,400	600,400
MGA Zone 55 Northing (GDA94)	7,582,721	7,603,858	7,582,721	7,582,721
Receiving Water Flow Criteria for discharge (m ³ /s)	<0.2m ³ /sec for a further 28 days after natural flow events that exceed 0.2m ³ /sec	≥0.002m ³ /sec	≥0.2m ³ /sec	≥1.0m ³ /sec
Maximum release rate	200 l/sec	20% of flow in receiving waters	10% of flow in receiving waters	10% of flow in receiving waters
Receiving Water Flow Recording Frequency	Daily as a minimum (Continuous monitoring where possible)			
Electrical Conductivity Release Limits (µS/cm)	500	3,000	3,500	5,000
Sulfate Release Limits (mg/L)	250	500	500	500

Note:

- Flow triggers must be based on natural flows, and where flows are supplemented by release water the actual flow must be determined by subtracting the release flow rate.
- An alternative gauging station may be used to measure flow where data from the DNRME #130414 gauging station is unavailable or determined inaccurate. The alternative is the Burton Gorge Dam Spillway gauging station located at: MGA Zone 55 - Easting (GDA94) 616,889 / Northing (GDA94) 7,608,719.
- Goonyella Creek must also be flowing at a rate of ≥0.002m³/sec when measured at Gauging Station 1 to allow a release of mine affected water with EC up to 3,500µS/cm.

* **Note:** Release points RP2, RP3, RP4 and RP5 relating to the Eaglefield Expansion Pit are yet to be commissioned. Table C4 must be amended to include these release points prior to release of mine affected water from these release points.

C14	The environmental authority holder must: 1. notify the administering authority via WaTERS as soon as practicable and nominally no later than twenty-four (24) hours after cessation of a release event of the cessation date/time and volume of a release notified under Condition C13; and 2. within twenty-eight (28) days submit a report to the administering authority via WaTERS to include the following information: 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. contamination limits, natural flow, discharge volume); e) all in-situ and laboratory water quality monitoring results; and f) any other matters pertinent to the water release event. Note: Successive or intermittent releases occurring within twenty-four (24) hours of the cessation of any individual release can be considered part of a single release event and do not require individual notification for the purpose of compliance with Conditions C13 and C14, provided the relevant details of the release are included within the notification provided in accordance with Conditions C13 and C14.
C15	Notification of release event exceedance If the release limits defined in Table C2 Mine Affected Water Release Limits are exceeded, the holder of the environmental authority must notify the administering authority via WaTERS within twenty-four (24) hours of receiving the results.
C16	The authority holder must, within twenty-eight (28) days of a release that exceeds the conditions of this authority, provide a report to the administering authority via WaTERS detailing: a) the reason for the release; b) the location of the release; c) all water quality monitoring results; d) any general observations; e) all calculations; and f) any other matters pertinent to the water release event.
C17	Water storage access by livestock Where practicable, the holder of the environmental authority must implement measures to prevent access by livestock to water storages which are associated with the release points listed in Table C1 Mine Affected Water Release Points, Sources and Receiving Waters.
C18	Receiving environment monitoring and contaminant trigger levels The quality of the receiving waters must be monitored at the locations specified in Table C5 Receiving water upstream background sites and downstream monitoring points for each quality characteristic and at the monitoring frequency stated in Table C6 Receiving waters contaminant trigger levels.

Table C5 Receiving water upstream background sites and downstream monitoring points

Monitoring Points	Receiving Waters Location Description	MGA Zone 55 Easting (GDA 94)	MGA Zone 55 Northing (GDA94)
Upstream Background Monitoring Points			
UMP1 Isaac River	Isaac River 3,000 metres upstream of the junction of Goonyella Creek and the Isaac River	605,114	7,596,630
UMP2 Goonyella Creek	Goonyella Creek 4,000 metres upstream of RP1	603,157	7,605,912
Downstream Monitoring Points			
DMP1 Isaac River	Isaac River 1,600 metres downstream of the junction of Goonyella Creek and the Isaac River	604,996	7,592,509
DMP2 Gauging Station 2	Goonyella Creek 4,200 metres downstream of RP1	604,651	7,601,802

Note: The data from background monitoring points must not be used where they are affected by releases from other mines.

Table C6 Receiving waters contaminant trigger levels

Quality Characteristic	Trigger Level	Monitoring Frequency
pH	6.5 – 8.5	Daily during the release
Electrical Conductivity (EC) ($\mu\text{S}/\text{cm}$)	1,000	
Suspended Solids (mg/L)	1,500	At commencement and prior to cessation of release (at a minimum) and weekly during a release
Sulfate (SO_4^{2-}) (mg/L)	250	

C19	If quality characteristics of the receiving water at the downstream monitoring points exceed any of the trigger levels specified in Table C6 Receiving waters contaminant trigger levels during a release event the environmental authority holder must compare the downstream results to the upstream results in the receiving waters and: - where the downstream result is the same or a lower value than the upstream value for the quality characteristic then no action is to be taken; or - where the downstream results exceed the upstream results, complete an investigation into the potential for environmental harm and provide a written report to the administering authority within 28 days via WaTERS, outlining: - details of the investigations carried out; and - actions taken to prevent environmental harm. Note: Where an exceedance of a trigger level has occurred and is being investigated in accordance with Condition C19(b), no further reporting is required for subsequent trigger events for that quality characteristic.
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C20	The environmental authority holder must develop and implement a Receiving Environment Monitoring Program (REMP) to monitor, identify and describe any adverse impacts to surface water environmental values, quality and flows due to the authorised mining activity. This must include monitoring the effects of the mine on the receiving environment periodically (under natural flow conditions) and while mine affected water is being discharged from the site. For the purposes of the REMP, the receiving environment is the waters of Goonyella Creek and connected or surrounding waterways within 10km downstream of the release. The REMP should encompass any sensitive receiving waters or environmental values downstream of the authorised mining activity that will potentially be directly affected by an authorised release of mine affected water.
C21	The REMP must: a) assess the condition or state of receiving waters, including upstream conditions, spatially within the REMP area, considering background water quality characteristics based on accurate and reliable monitoring data that takes into consideration temporal variation (e.g. seasonality); b) be designed to facilitate assessment against water quality objectives for the relevant environmental values that need to be protected; c) include monitoring from background reference sites (e.g. upstream or background) and downstream sites from the release (as a minimum, the locations specified in Table C5 Receiving water upstream background sites and downstream monitoring points; d) specify the frequency and timing of sampling required in order to reliably assess ambient conditions and to provide sufficient data to derive site specific background reference values in accordance with the <i>Queensland Water Quality Guidelines</i> 2006. This should include monitoring during periods of natural flow irrespective of mine or other discharges; e) include monitoring and assessment of dissolved oxygen saturation, temperature and all water quality parameters listed in Table C2 Mine Affected Water Release Limits and Table C3 Release Contaminant Trigger Investigation Levels; and f) include, where appropriate, monitoring of metals/metalloids in sediments (in accordance with ANZECC & ARMCANZ 2000, BATLEY and/or the most recent version of AS5667.1 <i>Guidance on Sampling of Bottom Sediments</i>); g) include, where appropriate, monitoring of macroinvertebrates in accordance with the AusRivas methodology; h) apply procedures and/or guidelines from ANZECC & ARMCANZ 2000 and other relevant guideline documents; i) describe sampling and analysis methods and quality assurance and control; and j) incorporate stream flow and hydrological information in the interpretations of water quality and biological data.
C22	An REMP Design Document that addresses each criterion presented in Conditions C20 and C21 must be maintained and submitted to the administering authority on request. Due consideration must be given to any comments made by the administering authority on the REMP Design Document and subsequent implementation of the program.

C23	A report outlining the findings of the REMP, including all monitoring results and interpretations in accordance with Condition C20 and C21 , must be prepared annually and submitted annually to the administering authority via WaTERS. 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.
C24	Water Re-use Mine affected water may be piped or trucked or transferred by some other means that does not contravene the conditions of this environmental authority and deposited into artificial water storage structures, such as dams or tanks, or used directly at properties owned by the environmental authority holder or a third party (with the written consent of the third party).
C25	Water general All determinations of water quality and biological monitoring must be: a) performed by a person or body possessing appropriate experience and qualifications to perform the required measurements; b) made in accordance with methods prescribed in the latest edition of the Department of Environment and Science's Monitoring and Sampling Manual; <i>Note: Condition C25 requires the Monitoring and Sampling Manual to be followed and where it is not followed because of exceptional circumstances this should be explained and reported with the results.</i> c) collected from the monitoring locations identified within this environmental authority, within ten (10) hours of each other where possible; d) carried out on representative samples; and e) analysed at a laboratory accredited (e.g. NATA) for the method of analysis being used.
C26	The release of any contaminants as permitted by this environmental authority, directly or indirectly to waters, other than internal water management infrastructure that is installed and operated in accordance with a water management plan that complies with Conditions C29 to C34 inclusive: a) must not produce any visible discolouration of receiving waters; and b) must not produce any slick or other visible or odorous evidence of oil, grease or petrochemicals nor contain visible floating oil, grease, scum, litter or other objectionable matter.

C27	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 via WaTERS in the specified format annually, by 10 September: a) the date on which the sample was taken; b) the time at which the sample was taken; c) the monitoring point at which the sample was taken; d) the measured or estimated daily quantity of mine affected water released from all release points; e) the release flow rate at the time of sampling for each release point; f) the results of all monitoring and details of any exceedances of the conditions of this environmental authority; and g) water quality monitoring data must be provided to the administering authority in the specified electronic format upon request.
C28	Activities within watercourses Temporarily destroying native vegetation, excavating, or placing fill in a watercourse, lake or spring necessary for and associated with mining operations must be undertaken in accordance with Department of Natural Resources, Mines and Energy <i>Guideline - Activities in a watercourse, lake or spring associated with a resource activity or mining operations</i>.
C29	Water Management Plan A Water Management Plan must be developed by an appropriately qualified person and implemented.
C30	The Water Management Plan must: a) provide for effective management of actual and potential environmental impacts resulting from water management associated with the mining activity carried out under this environmental authority; and b) be developed in accordance with Department of Environment and Science guideline <i>Preparation of water management plans for mining activities</i> and include: i) a study of the source of contaminants; ii) a water balance model for the site; iii) a water management system for the site; iv) measures to manage and prevent saline drainage; v) measures to manage and prevent acid rock drainage; vi) contingency procedures for emergencies; and vii) a program for monitoring and review of the effectiveness of the water management plan.

C31	The Water Management Plan must be reviewed each calendar year and a report prepared by an appropriately qualified person. The report must: a) assess the plan against the requirements under Condition C30; b) include recommended actions to ensure actual and potential environmental impacts are effectively managed for the coming year; and c) identify any amendments made to the water management plan following the review.
C32	The holder of this environmental authority must attach to the review report required by Condition C31 a written response to the report and recommended actions, detailing the actions taken or to be taken by the environmental authority holder on stated dates: a) to ensure compliance with this environmental authority; and b) to prevent a recurrence of any non-compliance issues identified.
C33	The review report required by Condition C31 and the written response to the review report required by Condition C32 must be submitted to the administering authority with the subsequent annual return under the signature of the appointed signatory for the annual return.
C34	A copy of the Water Management Plan must be provided to the administering authority on request.
C35	Saline drainage The holder of this environmental authority must ensure proper and effective measures are taken to avoid or otherwise minimise the generation and/or release of saline drainage.
C36	Acid rock drainage The holder of this environmental authority must ensure proper and effective measures are taken to avoid or otherwise minimise the generation and/or release of acid rock drainage.
C37	Stormwater and water sediment controls An Erosion and Sediment Control Plan must be developed by an appropriately qualified person and implemented for all stages of the mining activities on the site to minimise erosion and the release of sediment to receiving waters and contamination of stormwater.
C38	The maintenance and cleaning of any vehicles, plant or equipment must not be carried out in areas from which contaminants can be released into any receiving waters.
C39	Any spillage of wastes, contaminants or other materials must be cleaned up as quickly as practicable to minimise the release of wastes, contaminants or materials to any stormwater drainage system or receiving waters.
C40	Sewage effluent All effluent released from the treatment plant must be monitored at the frequency and for the parameters specified in Table C7 Sewage effluent quality targets for dust suppression and irrigation.

C41	Sewage effluent used for dust suppression or irrigation must not exceed sewage effluent release limits defined in Table C7 Sewage effluent quality targets for dust suppression and irrigation .
C42	Sewage effluent used for dust suppression or irrigation must not cause spray drift or over spray to any sensitive or commercial place.
C43	Subject to Conditions C40 to C42 inclusive, sewage effluent from sewage treatment facilities must be reused or evaporated and must not be directly released from the sewage treatment plant to any water way or drainage line.
C44	The daily volume of contaminants released to land must be determined by an appropriate method, for example, a flow meter and records kept of such determinations.
C45	The irrigation of treated effluent must be carried out in a manner such that: a) vegetation is not damaged; b) soil erosion and soil structure damage is avoided; c) there is no surface ponding of effluent; d) percolation of effluent beyond the plant root zone is minimised; e) the capacity of the land to assimilate nitrogen, phosphorus, salts, organic matter as measured by oxygen demand and water is not exceeded; and f) the quality of groundwater is not adversely affected.

Table C7 Sewage effluent quality targets for dust suppression and irrigation

Quality Characteristic	Release Limit	Units	Limit Type	Monitoring Frequency
5-day Biochemical Oxygen Demand (uninhibited)	20	mg/L	Maximum	Monthly
pH	6.5 - 8.5	-	Range	Monthly
Free Chlorine Residual	1	mg/L	Maximum	Monthly
Faecal Coliforms, based on the average of a minimum of five samples collected	1,000	cfu/100mL	Maximum	Monthly
Total Phosphorus	15	mg/L	Maximum	Monthly
Total Nitrogen	30	mg/L	Maximum	Monthly

C46	Groundwater The holder of this environmental authority must not release contaminants to groundwater.
C47	Groundwater standing water levels (SWL) must be monitored at the locations and frequencies defined in Table C8 Groundwater monitoring locations and frequency .

Table C8 Groundwater monitoring locations and frequency

Monitoring Point	Latitude (GDA94)	Longitude (GDA94)	Monitoring Frequency
GN2479	600,200.1	7,605,302.578	Six-monthly
GN2480	603,205.16	7,607,502.323	Six-monthly
GN2481	603,428.05	7,607,761.061	Six-monthly
GN2482	603,134.4	7,608,349.718	Six-monthly
VW01**	TBA*	TBA*	Continuous
VW02**	TBA*	TBA*	Continuous

Note:

* To be commissioned by 31 December 2019.

** Continuous groundwater monitoring bores are to be installed in an adequate location in the South East quarter of Mining Lease ML6949, progressively ahead of underground mining, in the event that open cut mining is not to occur or underground mining is to progress in the South East quarter of ML6949.

C48	In the event that groundwater fluctuations in excess of two metres per year are detected at the groundwater monitoring locations in Table 8 Groundwater monitoring locations and frequency , an investigation must be undertaken within fourteen (14) days of detection to determine if the fluctuations are a result of: a) mining activities; b) pumping from licensed bores; or c) seasonal variation.
C49	If the results of the investigation undertaken in accordance with Condition C48 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 seven (7) days of completing the investigation.
C50	The holder must inform the administering authority within twenty-eight (28) days of confirming an alluvial resource aquifer. A resource aquifer is defined as: a) electrical conductivity ($\mu\text{S}/\text{cm}$) $<4,000$; b) standing water level (SWL) $<70\text{m}$.

C51	Upon notifying the administering authority of an alluvial resource aquifer the holder of this environmental authority must develop and implement a background monitoring program in consultation with the administering authority for resource aquifer understanding and contaminant triggers.
C52	The construction, maintenance, management and decommissioning of 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.

Agency interest: Noise	
Condition number	Condition
D1	Noise nuisance Noise from mining activities must not cause an environmental nuisance at any sensitive receptor or commercial place.
D2	Noise from mining activities must not exceed the levels specified in Table D1 Noise limits at any sensitive receptor or commercial place.
D3	Noise is not considered to be a nuisance under Condition D1 if monitoring shows that noise does not exceed the levels in the time periods specified in Table D1 Noise limits .

Table D1 Noise limits

Noise level dB(A)	Monday to Sunday (including public holidays)		
	7am - 6pm	6pm - 10pm	10pm - 7am
	Noise measured at a 'Sensitive Receptor'		
LA10, adj, 10 mins	B/g + 5	B/g + 5	B/g + 3
LA1, adj, 10 mins	B/g + 10	B/g + 10	B/g + 8
	Noise measured at a 'Commercial place'		
LA10, adj, 10 mins	B/g + 10	B/g + 10	B/g + 5
LA1, adj, 10 mins	B/g + 15	B/g + 15	B/g + 10

D4	When requested by the administering authority, noise monitoring must be undertaken to investigate any complaint of noise nuisance (which is neither frivolous nor vexatious nor based on mistaken belief in the opinion of the authorised officer) and the results notified within fourteen (14) days to the administering authority. Monitoring must include: a) LA 10, adj, 10 mins b) LA 1, adj, 10 mins c) the level and frequency of occurrence of impulsive or tonal noise; d) atmospheric conditions including wind speed and direction; e) effects due to extraneous factors such as traffic noise; and f) location date and time of recording.
D5	If monitoring indicates exceedance of the relevant limits in Condition D2, then the environmental authority holder must: a) address the complaint including the use of appropriate dispute resolution if required; and b) in consultation with the administering authority and within an agreed timeframe, implement noise abatement measures so that emissions of noise from the activity do not result in further environmental nuisance.
D6	The method of measurement and reporting of noise monitoring must comply with the current edition of the administering authority's <i>Noise Measurement Manual</i>.
D7	Vibration nuisance Vibration from the licensed activities must not cause an environmental nuisance at any sensitive or commercial place.
D8	When requested by the administering authority, vibration monitoring must be undertaken within a reasonable and practicable timeframe nominated by the administering authority to investigate any complaint (which is neither frivolous nor vexatious nor based on mistaken belief in the opinion of the authorised officer) of environmental nuisance at any sensitive or commercial place, and the results must be notified within fourteen (14) days to the administering authority following completion of monitoring.
D9	Airblast overpressure nuisance The airblast overpressure level from blasting operations must not exceed the limits defined in Table D2 Airblast overpressure level at any nuisance sensitive or commercial place.

Table D2 Airblast overpressure level

Location	Airblast Overpressure Measured
Sensitive or commercial place	Air blast overpressure level of 115 dB (linear) peak for 9 out of 10 consecutive blasts initiated and not greater than 120 dB (linear) peak at any time.

D10	When requested by the administering authority, airblast overpressure monitoring must be undertaken within a reasonable and practicable timeframe nominated by the administering authority to investigate any complaint (which is neither frivolous nor vexatious nor based on mistaken belief in the opinion of the authorised officer) of environmental nuisance at any sensitive or commercial place, and the results must be notified within fourteen (14) days to the administering authority following completion of monitoring.
D11	Airblast overpressure monitoring must include the following descriptors, characteristics and conditions: a) location of the blast(s) within the mining area (including which bench level); b) atmospheric conditions including temperature, relative humidity and wind speed and direction; and c) location, date and time of recording.
D12	If monitoring indicates exceedance of the relevant limits in Table D2 Airblast overpressure level, then the environmental authority holder must: a) address the complaint including the use of appropriate dispute resolution if required; and b) in consultation with the administering authority and within an agreed timeframe, implement airblast overpressure abatement measures so that airblast overpressure from the activity does not result in further environmental nuisance.
D13	The method of measurement and reporting of airblast overpressure levels must comply with the current edition of the administering authority's <i>Noise Measurement Manual</i> .

Agency interest: Waste	
Condition number	Condition
E1	Storage and disposal of tyres and conveyor belts Scrap tyres awaiting disposal or transport for take-back and recycling or waste-to-energy options, must be stored in stable stacks and at least ten (10) metres from any other waste storage area, or combustible or flammable material, including vegetation.
E2	All reasonable and practicable fire prevention measures must be implemented, including removal of grass and other materials within a ten (10) metre radius of the scrap tyre storage area.
E3	Where no feasible recycling or waste-to-energy options are available, disposing of scrap tyres and conveyor belt resulting from the authorised activities in waste rock emplacements or the underground goaf is acceptable. Where disposed of in waste rock emplacements, tyres and rolls of conveyor belt must be placed as deep in the spoil as reasonably practicable. A record must be kept of the number and location for tyres and conveyor belt disposed.
E4	Scrap tyres and conveyor belt resulting from the mining activities disposed of within the operational land must not impede saturated aquifers or compromise the stability of the consolidated landform.

E5	Waste Management A Waste Management Plan, in accordance with the <i>Environmental Protection (Waste Management) Policy 2000</i>, must be maintained and implemented and must: a) describe how North Goonyella Coal Mine recognises and applies the waste management hierarchy; b) identify characterisations of wastes generated from the project and general volume trends over the past five years; c) include a program for safe recycling or disposal of all wastes - reusing and recycling where possible; d) identify waste commitments with auditable targets to reduce, reuse and recycle; e) the waste management control strategies must consider: i) the type of wastes; ii) segregation of the wastes; iii) storage of the wastes; iv) transport of the wastes; v) monitoring and reporting matters concerning the waste; vi) emergency response planning; vii) disposal, reused and recycling options; f) identify the potential adverse and beneficial impacts of the wastes generated; g) detail the hazardous characteristics of the waste generated (if any); i) cover a disposal procedure for hazardous wastes ii) outline the process to be implemented to allow for continuous improvement of the waste management systems; iii) identify responsible staff (positions) for implementing, managing and reporting the Waste Management Plan; and iv) cover a staff awareness and induction program that encourages re-use and recycling.
E6	Waste must not be burnt or be allowed to burn on the licensed site unless permitted by the administering authority.
E7	A designated area must be set aside for the segregation of economically viable, recyclable solid and liquid waste.
E8	Records of trade and regulated wastes or material leaving the mining lease for recycling or disposal, including the final destination and method of treatment, must be in accordance with the <i>Environmental Protection (Waste Management) Policy 2000</i> .
E9	All regulated waste received at and removed from the site must be transported by a person who holds a current authority to transport such waste under the provisions of the <i>Environmental Protection Act 1994</i> .
E10	Except as otherwise provided by the conditions of this authority, all waste removed from the site must be taken to a facility that is lawfully allowed to accept such waste under the provisions of the <i>Environmental Protection Act 1994</i> .

E11	The holder of this environmental authority may burn vegetation cleared in the course of carrying out mining activities provided the activity does not cause environmental harm at any sensitive place or commercial place.
E12	Records must be kept for five (5) years, and must include the following information: a) date of pickup of waste; b) description of waste; c) cross reference to relevant waste transport documentation; d) quantity of waste; e) origin of the waste; f) destination of the waste; and g) intended fate of the waste, for example, type of waste treatment, reprocessing or disposal. Note: Records of documents maintained in compliance with a waste tracking system established under the Environmental Protection Act 1994 or any other law for regulated waste will be deemed to satisfy this condition.

Agency interest: Land	
Condition number	Condition
F1	Preventing contaminant release to land Contaminants must not be released to land in a manner which constitutes nuisance, material or serious environmental harm.
F2	Topsoil Topsoil must be strategically stripped ahead of mining in accordance with a topsoil management plan.
F3	Topsoil and subsoils must be managed to ensure stability and minimise the release of contaminants. Measures must include: a) vegetating stockpiles; b) minimising the height of stockpiles; and c) re-using stockpiles as soon as possible.
F4	A topsoil inventory which identifies the topsoil requirements for the North Goonyella Coal Mine and availability of suitable topsoil on site must be detailed in the estimated rehabilitation cost.
F5	Overburden The characteristics of overburden must be determined prior to disturbance by mining activities to a standard sufficient to enable selective handling of materials if required.

F6	Rehabilitation landform criteria All areas significantly disturbed by mining activities must be rehabilitated to a stable landform with a self-sustaining vegetation cover in accordance with Table F1 Final land use and rehabilitation approval schedule.
F7	Progressive rehabilitation must commence within twelve (12) months of when areas become available within the operational land.
F8	The environmental authority holder must maintain and implement the proposed acceptance criteria identified in the Rehabilitation Management Plan required by Condition F10. Acceptance criteria for rehabilitation of disturbed areas must meet the following outcomes: a) areas which are to be progressively rehabilitated to a native ecosystem must be self-sustaining and established with a species composition and distribution similar to appropriate reference sites; b) areas which are to be progressively rehabilitated to a grazing pasture must have self-sustaining vegetative protective cover with a species composition and distribution similar to appropriate reference sites; and c) all areas disturbed by mining activities must be rehabilitated to the design criteria outlined in the Rehabilitation Management Plan required by Condition F10.
F9	Co-disposal areas on the mining lease must be capped with one (1) metre of inert material and revegetated in accordance with available and recognised best practices following the cessation of their use in a manner that will encourage run-off.

Table F1 Final land use and rehabilitation approval schedule

Disturbance Type	Post Mining Land Use	Post Mine Land Use Classification ¹
Subsidence areas	Cattle Grazing	Class 2 or 3 grazing land
Co-disposal	Native Bushland	N/A
Main Retention Dam	Stock and Fauna Watering	N/A
Raw Water Dam	Cattle Grazing	Class 2 or 3 grazing land
Internal Roads and Tracks	Cattle Grazing	Class 2 or 3 grazing land
Coarse Rejects Areas	Native Bushland	N/A
Sewage Treatment Plant	Cattle Grazing	Class 2 or 3 grazing land
Ventilation shafts and Exploration and Service	Cattle Grazing	Class 2 or 3 grazing land
Other Infrastructure Areas	Cattle Grazing	Class 2 or 3 grazing land
Final Void	N/A	N/A
EWRE	Native Bushland	N/A
IWRE	Native Bushland	N/A

Note:

1. Land Suitability Classification in accordance with Shields and Williams (1991) and DME (1995b).

F10	Rehabilitation Management Plan The holder of this environmental authority must submit a Rehabilitation Management Plan to the administering authority by 31 December 2020 for review and comment. The Rehabilitation Management Plan will propose rehabilitation performance criteria which will be refined during the life of the mine based on leading practice improvements, rehabilitation trials and the monitoring of progressive rehabilitation. The Rehabilitation Management Plan must, at a minimum: a) map existing areas of rehabilitation; b) develop design objectives for rehabilitation of disturbed areas and post mining land uses across the mine; c) specify waste rock characteristics, soil analysis, soil separation for use on rehabilitation; d) detail rehabilitation methods to be applied to areas; e) contain landform design criteria including end of mine design; f) detail how landform design will be consistent with the surrounding topography; g) include figures of the final landform that illustrate contours, internal surface drainage patterns, appropriate drop structures and runoff retention features; h) include cross-sections of the final landform at appropriate intervals; i) identify success criteria for areas and itemise revegetation criteria; j) explain planned native vegetation rehabilitation areas and corridors; k) identify at least a minimum of three (3) reference and three (3) rehabilitation sites to be used to develop rehabilitation success criteria; l) describe rehabilitation indicators and the monitoring program to be used; m) develop a contingency plan for rehabilitation maintenance or redesign; n) describe end of mine landform design plan and post mining land uses across the mine; o) include a cost benefit analysis/triple bottom line assessment (or an alternative assessment method) of the proposed final landform design criteria and alternatives; p) propose Endangered Regional Ecosystem (ERE) management and offset protection; and q) identify and consider the potential for cumulative impacts on rehabilitation outcomes as a result of applying mine affected water with high electrical conductivity for dust suppression.
F11	Residual void outcome Residual voids must not cause any serious environmental harm to the 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.
F12	Rehabilitation monitoring program Once rehabilitation has commenced, the holder of the environmental authority must conduct a Rehabilitation Monitoring Program, which must include sufficient spatial and temporal replication to enable statistically valid conclusions as established under the rehabilitation program.
F13	The Rehabilitation Monitoring Program must be developed and implemented by a person possessing appropriate qualifications and experience in the field of rehabilitation management, nominated by the environmental authority holder.

F14	Post closure management plan A Post Closure Management Plan for the site must be prepared at least eighteen (18) months prior to the 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.
F15	The Post Closure Management Plan must include the following elements: a) operation and maintenance of: i) wastewater collection and reticulation systems; ii) wastewater treatment systems; iii) the groundwater monitoring network; iv) final cover systems; and v) vegetative cover. b) monitoring of: i) surface water quality; ii) groundwater quality; iii) seepage rates; iv) erosion rates; v) the integrity and effectiveness of final cover systems; and vi) the health and resilience of native vegetation cover.
F16	Acid rock drainage and leachate management Subject to the release limits defined in Department Interest: Water, all reasonable and practicable measures must be implemented to prevent hazardous leachate being directly or indirectly released or likely to be released as a result of the activity to any groundwater.
F17	Chemicals and flammable or combustible liquids All flammable and combustible liquids must be contained within an on-site containment system and controlled in a manner that prevents environmental harm and maintained in accordance with the current version of <i>AS 1940 – Storage and Handling of Flammable and Combustible Liquids</i>.
F18	Flammable and combustible liquid spills must be controlled in a manner that prevents environmental harm.
F19	All chemicals must be contained within an on-site containment system and controlled in a manner that prevents environmental harm and maintained in accordance with the current version of the relevant Australian Standard.
F20	Chemical spills must be controlled in a manner that prevents environmental harm.
F21	All explosives, corrosive substances, toxic substances, gases and dangerous goods must be stored and handled in accordance with the relevant Australian Standard.

F22	Spill Kit An appropriate spill kit, personal protective equipment and relevant operator instructions/emergency procedure guides for the management of wastes, chemicals and flammable and combustible liquids associated with the activity must be kept at the site.
F23	Anyone operating with wastes, chemicals or flammable and combustible liquids under this approval must be trained in the use of the spill kit.
F24	Accommodation camp This environmental authority authorises the construction and use of a temporary accommodation camp on ML6949. The camp must be located within the control points defined in Table F2 Location of temporary accommodation camp.
F25	The temporary accommodation camp may be utilised for a period of twenty-four (24) months including commissioning and decommissioning. Email notification must be sent to the administering authority at the commencement of commissioning and completion of decommissioning of the camp. Post decommissioning, the area must be rehabilitated in accordance with the conditions of this schedule.
F26	Infrastructure All infrastructure, constructed by or for the environmental authority holder during the licensed activities including water storage structures, must be removed from the site prior to surrender, except where agreed in writing by the post mining land owner / holder. <i>Note: This is not applicable where the landowner / holder is also the environmental authority holder.</i>

Table F2 Location of temporary accommodation camp

GDA94		
Point	Easting	Northing
SE	603,556	7,605,488
SW	603,257	7,605,488
NE	603,556	7,606,034
NW	603,257	7,605,918

F27	Final Void Investigation Prior to commencement of the Eaglefield Expansion Pit, a Final Void Investigation to develop mine decommissioning acceptance criteria must be completed and submitted to the administering authority. The investigation must at a minimum include: 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, addressing the long-term water balance in the voids, connections to groundwater resources and water quality parameters in the long-term; d) a pit wall stability study, considering the effects of long-term erosion and weathering of the pit wall as well as the effects of significant hydrological events; e) a study of void capability to support native flora and fauna; f) a proposal for end of mine void rehabilitation success criteria and final void areas and volumes; g) determination of ongoing financial liability associated with monitoring and maintenance of control measures (e.g. fencing, bunding, signage, water quality, structural integrity/stability); h) a proposal for end of mine void final use; and i) a proposal for possible relinquishment of the final void under the environmental authority and consideration of required residual risk payment.
F28	Waste Rock and Coal Rejects Management Plan Prior to the commencement of the Eaglefield Expansion Pit, a Waste Rock and Coal Rejects Management Plan must be developed and submitted to the administering authority. The Waste Rock and Coal Rejects Management Plan must include (but not necessarily be limited to): a) programs to ensure that all mining waste is progressively characterised prior to disposal for net acid producing potential, salinity and the following contaminants: Iron, Aluminium, Copper, Magnesium, Manganese, Calcium, Sodium and Sulphate; b) programs to ensure that the physical properties of the mining waste is progressively characterised prior to disposal; c) information on the availability or leachability of metals from the mining waste; d) management actions for mining waste that has been identified as having a high availability or leachability of metals, including strategies to dispose of such waste in a manner that prevents contaminants being directly or indirectly released to waters; e) identification and quantification of potentially acid forming (PAF) mining waste; f) management actions for mining waste that has been identified as PAF; g) strategies for the handling, treatment, mixing and placement of mining waste in the EWRE and IWRE to ensure appropriate stability and containment of contaminants, and to reduce the risk of acid rock drainage, enriched metal concentration and potential release of contaminants; h) record keeping of mining waste characteristics and placement locations; i) identification of environmental values and potential environmental impacts; j) control measures for routine operations to minimise likelihood of environmental harm; k) contingency plans and emergency procedures for non-routine situations (e.g. outages of the processing plant and/or conveyors); l) monitoring and reporting; and m) periodic review of environmental performance, and continual improvement.

F29	Subsidence Management The use of Long Wall Top Coal Cave underground mining technology and method is authorised for use within the extraction of the Goonyella Middle coal seam only.
F30	A third party certified Subsidence Management Strategy must be developed, implemented and submitted to the regulatory authority, by the holder of this environmental authority twenty-eight (28) days prior to the Longwall 8 retreat reaching 1700 chainage. <i>Note: The Subsidence Management Strategy must be developed to the satisfaction of the administering authority in accordance with the departmental guideline entitled Watercourse Subsidence – Central Queensland Mining Industry.</i>
F31	The Subsidence Management Strategy must include the following components: a) baseline condition assessment of the existing watercourse(s); b) assessment of 1st to 4th order impacts on Goonyella Creek and associated tributaries: i) 1st order – direct effects of subsidence (vertical and horizontal extents of changes to land surface); ii) 2nd order – predicted geomorphic response of surface water systems to 1st order impacts; iii) 3rd order – predicted impacts to water quantity and quality from 1st and 2nd order impacts; iv) 4th order – predicted impacts to flora and fauna from 1st to 3rd order impacts; v) the current land surface area to be impacted by subsidence; vi) infrastructure; c) risk assessment; d) proposed options for mitigating any impacts; and e) monitoring, evaluation and maintenance programs.
F32	Subsidence Panel Plan and Inspection Upon third party certification of the Subsidence Management Strategy a Subsidence Panel Plan must be developed for Longwall 8 retreat by 1700 chainage.
F33	A Subsidence Panel Plan must be developed for each longwall panel prior to the commencement of longwall extraction. The Subsidence Panel Plan must include specific details for the mitigation of environmental harm with respect to the Subsidence Management Strategy (Condition F31). The Subsidence Panel Plan must include an inspection of the previously mined panel by a suitability qualified and experienced person. The inspection must assess: a) 1st to 4th order impacts; and b) the adequacy of the works with respect to the previous panel plans.
F34	Subsidence Reporting For each Subsidence Panel Plan, a report must be provided to the administering authority upon request.

Agency interest: Regulated Structures	
Condition number	Condition
G1	Assessment of consequence category The consequence category of any structure must be assessed by a suitably qualified and experienced person in accordance with the <i>Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933)</i> at the following times: a) prior to the design and construction of the structure, if it is not an existing structure; or b) if it is an existing structure, prior to the adoption of this schedule; or c) prior to any change in its purpose or the nature of its stored contents.
G2	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.
G3	Certification must be provided by the suitably qualified and experienced person who undertook the assessment, in the form set out in the <i>Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933)</i> .
G4	Conditions G5 to G9 inclusive do not apply to existing structures.
G5	All regulated structures must be designed by, and constructed under the supervision of, a suitably qualified and experienced person in accordance with the requirements of the <i>Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933)</i> .
G6	Construction of a regulated structure is prohibited unless the holder has submitted a consequence category assessment report and certification to the administering authority has been certified by a suitably qualified and experienced person for the design and design plan and the associated operating procedures in compliance with the relevant condition of this authority.
G7	Certification must be provided by the suitably qualified and experienced person who oversees the preparation of the design plan in the form set out in the <i>Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933)</i> , and must be recorded in the Regulated Dams/Levees register.

G8	Regulated structures must: a) be designed and constructed in accordance with and conform to the requirements of the <i>Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933)</i>; 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; and ii) wall failure due to erosion by floodwaters arising from any watercourse or drainage line. c) have the floor and sides of any dam regulated for failure to contain – seepage designed and constructed to prevent or minimise the passage of the wetting front and any entrained contaminants through either the floor or sides of the dam during the operational life of the dam and for any period of decommissioning and rehabilitation of the dam.
G9	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.
G10	Operation of a regulated structure Operation of a regulated structure, except for an existing structure, is prohibited unless the holder has submitted to the administering authority: a) one electronic copy of the design plan and certification of the 'design plan' in accordance with Condition G6; b) a set of 'as constructed' drawings and specifications; c) certification of those 'as constructed drawings and specifications' in accordance with Condition G9; 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 Structures; and g) there is a current operational plan for the regulated structures.

G11	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 twelve (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.
G12	Each regulated structure must be maintained and operated, for the duration of its operational life until decommissioned and rehabilitated, in a manner that is consistent with the current operational plan and, if applicable, the current design plan and associated certified 'as constructed' drawings.
G13	Conditions G14 to G17 inclusive only apply to Regulated Structures which have not been certified as low consequence category for 'failure to contain – overtopping'.
G14	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.
G15	The holder must, as soon as practical and within forty-eight (48) hours of becoming aware, notify the administering authority when the level of the contents of a regulated dam reaches the MRL.
G16	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.
G17	The holder must record any changes to the MRL in the Register of Regulated Structures.
G18	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.
G19	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).
G20	The holder must, as soon as possible and within forty-eight (48) hours of becoming aware that the regulated dam (or network of linked containment systems) will not have the available storage to meet the DSA volume on 1 November of any year, notify the administering authority.
G21	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.

G22	Each regulated structure must be inspected each calendar year by a suitably qualified and experienced person.
G23	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.
G24	The suitably qualified and experienced person who prepared the annual inspection report must certify the report in accordance with the <i>Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933)</i> .
G25	The holder must: a) within twenty (20) business days of receipt of the annual inspection report, provide to the administering authority: i) the recommendations section of the annual inspection report; and ii) if applicable, any actions being taken in response to those recommendations; and b) if, following receipt of the recommendations and (if applicable) actions, the administering authority requests a full copy of the annual inspection report from the holder, provide this to the administering authority within ten (10) business days of receipt of the request.
G26	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.
G27	Decommissioning and rehabilitation Regulated dams must not be abandoned but be either: a) decommissioned and rehabilitated to achieve compliance with Condition G28; 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; and ii) it contains water of a quality that is demonstrated to be suitable for its intended beneficial use(s); and iii) the administering authority, the holder of the environmental authority and the landholder agree in writing that the dam will be used by the landholder following the cessation of the environmentally relevant activity(ies).

G28	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; or e) there is no ongoing contamination to waters (including groundwater); f) rehabilitation is undertaken in a manner such that any actual or potential acid sulfate soils on the area of significant disturbance are treated to prevent or minimise environmental harm in accordance with the <i>Instructions for the treatment and management of acid sulfate soils (2001)</i>; 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, and 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.
G29	Register of Regulated Structures A Register of Regulated Structures must be established and maintained by the holder for each regulated dam.
G30	The holder must provisionally enter the required information in the Register of Regulated Structures when a design plan for a regulated structure is submitted to the administering authority.
G31	The holder must make a final entry of the required information in the Register of Regulated Structures once compliance with Conditions G10 and G11 has been achieved.
G32	The holder must ensure that the information contained in the Register of Regulated Structures is current and complete on any given day.
G33	All entries in the Register of Regulated Structures must be approved by the chief executive officer for the holder of this authority, or their delegate, as being accurate and correct.
G34	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 Structures, in the electronic format required by the administering authority.

G35	Transitional arrangements All existing structures that have not been assessed in accordance with either the Manual or the former <i>Manual for Assessing Hazard Categories and Hydraulic Performance of Dams</i> must be assessed and certified in accordance with the Manual within 6 months of amendment of the authority adopting this schedule.
G36	All existing structures must subsequently comply with the timetable for any further assessments in accordance with the Manual specified in Table G1 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.
G37	Table G1 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.
G38	Certification of the transitional assessment required by Conditions G35 and G36 (as applicable) must be provided to the administering authority within six (6) months of amendment of the authority adopting this schedule.

Table G1 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.

Agency interest: Community	
Condition number	Condition
H1	Complaint response All complaints received must be recorded including investigations undertaken, conclusions formed and action taken. This information must be made available to the administering authority on request.
H2	The holder of this environmental authority must record the following details for all complaints received and provide this information to the administering authority on request: a) time, date, name and contact details of the complainant; b) reasons for the complaint; c) conclusions formed; and d) any actions taken.
H3	In consultation with the administering authority, cooperate with and participate in any community environmental liaison committee established in respect of either the licensed place specifically or the industrial estate where the licensed place is located.

END OF CONDITIONS

Definitions

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

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

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 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 groundwater levels and catchment yields.

Accepted engineering standards means those standards of design, construction, operation and maintenance that are broadly accepted within the profession of engineering as being good practice for the purpose and

application being considered. In the case of dams, the most relevant documents would be publications of the Australian National Committee on Large Dams (ANCOLD), guidelines published by Queensland government departments, and relevant Australian and New Zealand Standards.

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

Administering authority means the Department of Environment and Resource Management (the department) 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.

AEP means the Annual Exceedance Probability, which is the probability that at least one event in excess of a particular magnitude will occur in any given year.

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

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

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

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); and
- (g) for evidence of conformance with the current operational plan.

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

Assessed or **Assessment** by a suitably qualified and experienced person in relation to a consequence assessment of a dam, means that a statutory declaration has been made by that person and, when taken together with any attached or appended documents referenced in that declaration, all of the following aspects are addressed and are sufficient to allow an independent audit of the assessment:

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

Associated works in relation to a dam, means:

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

Authorised place means the place authorised under this environmental authority/development approval for the carrying out of the specified environmentally relevant activities.

Authority means an environmental authority or a development approval.

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'.

Coal seam gas evaporation dam is defined as an impoundment, enclosure or structure that is designed to be used to hold coal seam gas water for evaporation.

Coal seam gas water means groundwater that is necessarily or unavoidably brought to the surface in the process of coal seam gas exploration or production.

Coal seam gas water concentrate means the concentrated saline water waste stream from a water treatment process that does not exceed a total dissolved solid concentration of 40 000 mg/L.

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.

Control measures means actions that can be taken in order to minimise environmental impacts or environmental harm. Control measures can be, but are not limited to, planning, procedural or engineering controls.

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 (ESR/2016/1933)* 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*.

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; and
- (c) a water craft in a marina.

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.

Endangered regional ecosystems as defined by Sattler & Williams in *The Conservation Status of Queensland's Bioregional Ecosystems* (1999).

Environmental harm has the meaning given in the *Environmental Protection Act 1994*.

Environmental impacts means changes that occur in the environment as a result of the mining activities. Impacts could be positive, negative or neutral.

Environmental management system means the part of the overall management system that includes organisational structure, planning activities, responsibilities, practices, procedures, processes and resources for developing, implementing, achieving, reviewing and maintaining the environmental policy and achieving compliance with the environmental authority and the general environmental duty.

Environmental value has the meaning given in the *Environmental Protection Act 1994*;

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

Expected impact means the predicted changes under normal conditions of a value subject to the influence of an authorised activity. Methods available for the determination of expected impacts include:

- (a) predictions based on historical data;
- (b) knowledge based intuition;
- (c) numerical analysis; and
- (d) modelling.

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 (ESR/2016/1933)* published by the administering authority

Flare pit means containment area where any hydrocarbon that is discovered in an over-pressured reservoir during a drilling operation is diverted to, and combusted, the flare pit is only used during the drilling and work over process on a petroleum well.

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 risk 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 risk of failure before that time.

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

Hazard category means a category, either low significant or high, into which a dam is assessed as a result of the application of tables and other criteria in the *Manual for Assessing Hazard Categories and Hydraulic Performance of Dams, 2012*.

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 (ESR/2016/1933)*.

Impacts to State Significant Biodiversity Values means to have a negative effect on those values listed in Appendix 1 of the Queensland Biodiversity Offsets Policy (3 October 2011). Examples may include, but are not limited to:

- (a) clearing, removal or fragmentation of vegetation
- (b) interference or disturbance of fauna habitat.

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

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

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

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

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

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 (ESR/2016/1933)*; and

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 (ESR/2016/1933)* published by the administering authority.

Manual means the *Manual for Assessing Consequence Categories and Hydraulic Performance of Structures (ESR/2016/1933)* 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;
- f) a mix of mine affected water (under any of paragraphs a)-e) and other water.

Modification or **Modifying** (see definition of 'construction')

Noxious means harmful or injurious to health or physical wellbeing, other than trivial harm.

Natural flow means the flow of water through waters caused by nature.

NTU means nephelometric turbidity units.

Nuisance sensitive place includes:

- a) a dwelling, residential allotment, mobile home or caravan park, residential marina or other residential premises; or
- b) a motel, hotel or hostel; or
- c) a kindergarten, school, university or other educational institution; or
- d) a medical centre or hospital; or
- e) a protected area under the *Nature Conservation Act 1992*, the *Marine Parks Act 1992* or a World Heritage Area; or
- f) a public thoroughfare, park or gardens; or
- g) a place used as a workplace, an office or for business or commercial purposes and includes a place within the curtilage of such a place reasonably used by persons at that place.

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 on which the project is to be carried out.

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.

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}).

Protected area means a protected area under the *Nature Conservation Act 1992*; or

- a) a marine park under the *Marine Parks Act 2004*; or
- b) a World Heritage Area.

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

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

Reference site (or analogue site) may reflect the original location, adjacent area or another area where rehabilitation success has been completed for a similar biodiversity. Details of the reference site may be as photographs, computer generated images and vegetation models etc.

Register of Regulated Structures includes:

- (a) date of entry in the register;
- (b) name of the structure, its purpose and intended/actual contents;
- (c) the consequence category of the 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 (ESR/2016/1933)* 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.

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

Release influence period the period during which the downstream monitoring points are influenced by mine affected water released from Peak Downs Mine and includes both the duration of release and any lag time between release point/s and downstream monitoring points.

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

Residual drilling material means waste drilling materials including muds and cuttings or cement returns from well holes and which have been left behind after the drilling fluids are pumped out.

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

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

Sensitive place means;

- (a) a dwelling, residential allotment, mobile home or caravan park, residential marina or other residential premises; or
- (b) a motel, hotel or hostel; or
- (c) an educational institution; or
- (d) a medical centre or hospital; or
- (e) a protected area under the *Nature Conservation Act 1992*, the *Marine Parks Act 2004* or a World Heritage Area; or
- (f) a public park or gardens.

Site means the place to which this environmental authority relates or the premises to which this development approval relates.

Spillway means a weir, channel, conduit, tunnel, gate or other structure designed to permit discharges from 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.

Stakeholder means an individual or group concerned with or affected by the environmental performance of the holder of the environmental authority.

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:

- (a) for regulated dams, an RPEQ who is a civil engineer with the required qualifications in dam safety and dam design.
- (b) 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.

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 ponding and limiting infiltration and percolation.

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.

Watercourse means a river, creek or stream in which water flows permanently or intermittently in a visibly defined channel (natural, artificial or artificially improved) with:

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

You means the holder of this Environmental Authority or owner / occupier of the land which is the subject of this Development Approval.

Void means any constructed, open excavation in the ground.

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.

WaTERS means Water Tracking and Electronic Reporting System or subsequent updated system, used to submit monitoring data and notify the Queensland Government. [<https://waters.ehp.qld.gov.au/>] or psd.help@qld.gov.au.

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.

Zone of impact means those areas, whether on or off the licensed place, where authorised activities could or do result in a change in the environment.

Appendices

Figure 1 – Mining activities

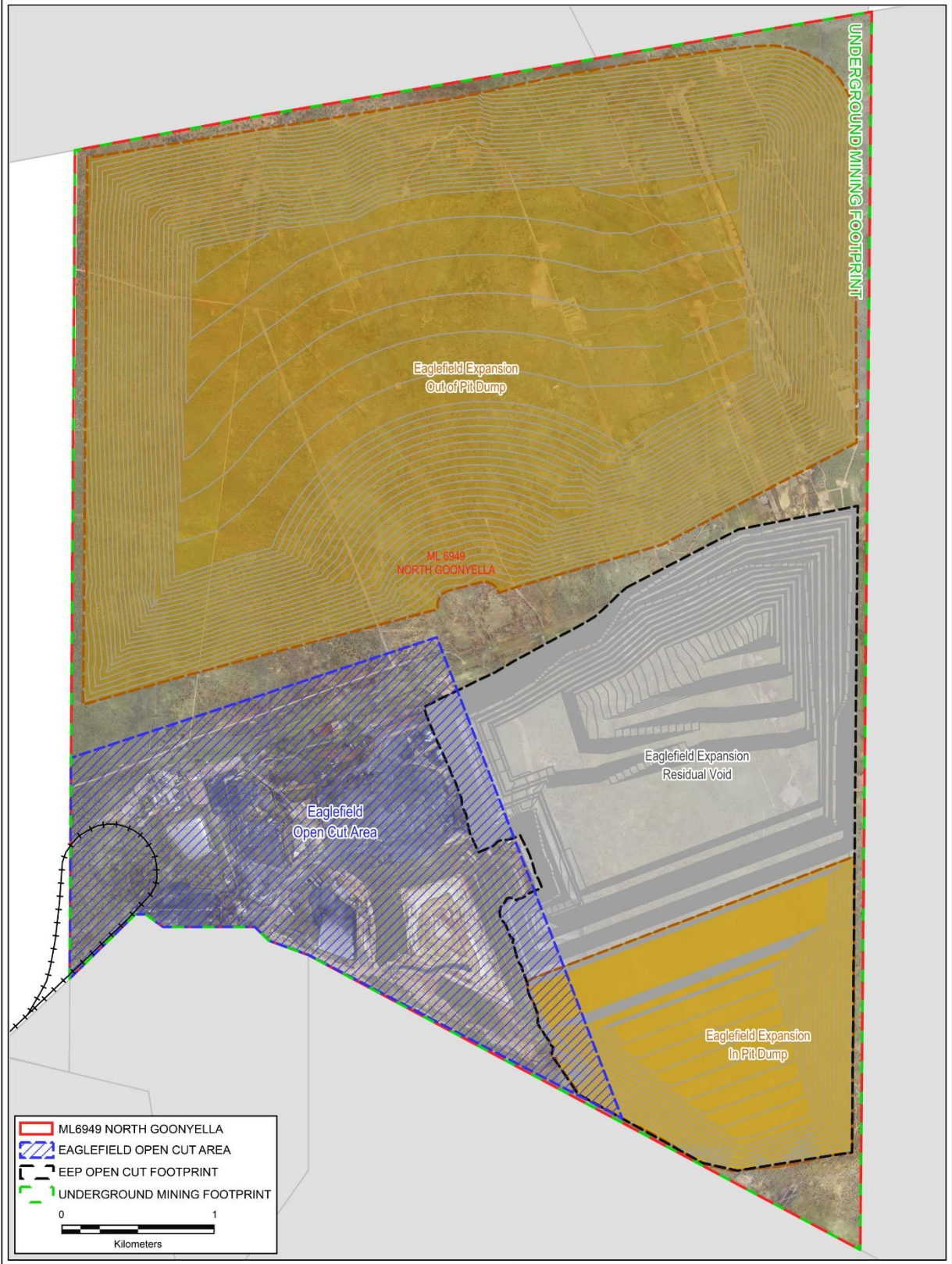


Figure 2 – North Goonyella Coal Mine Release Points and Monitoring Points

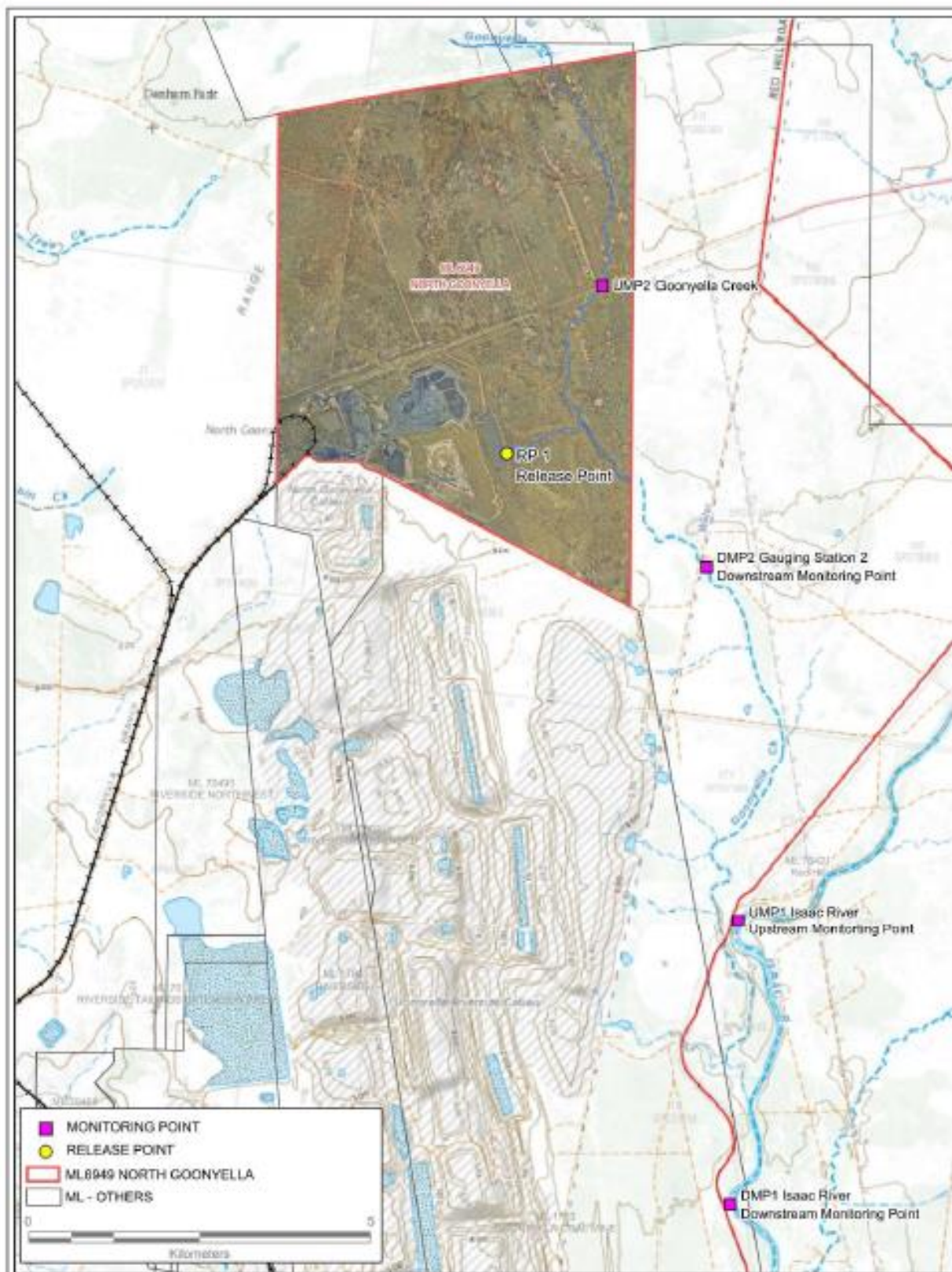
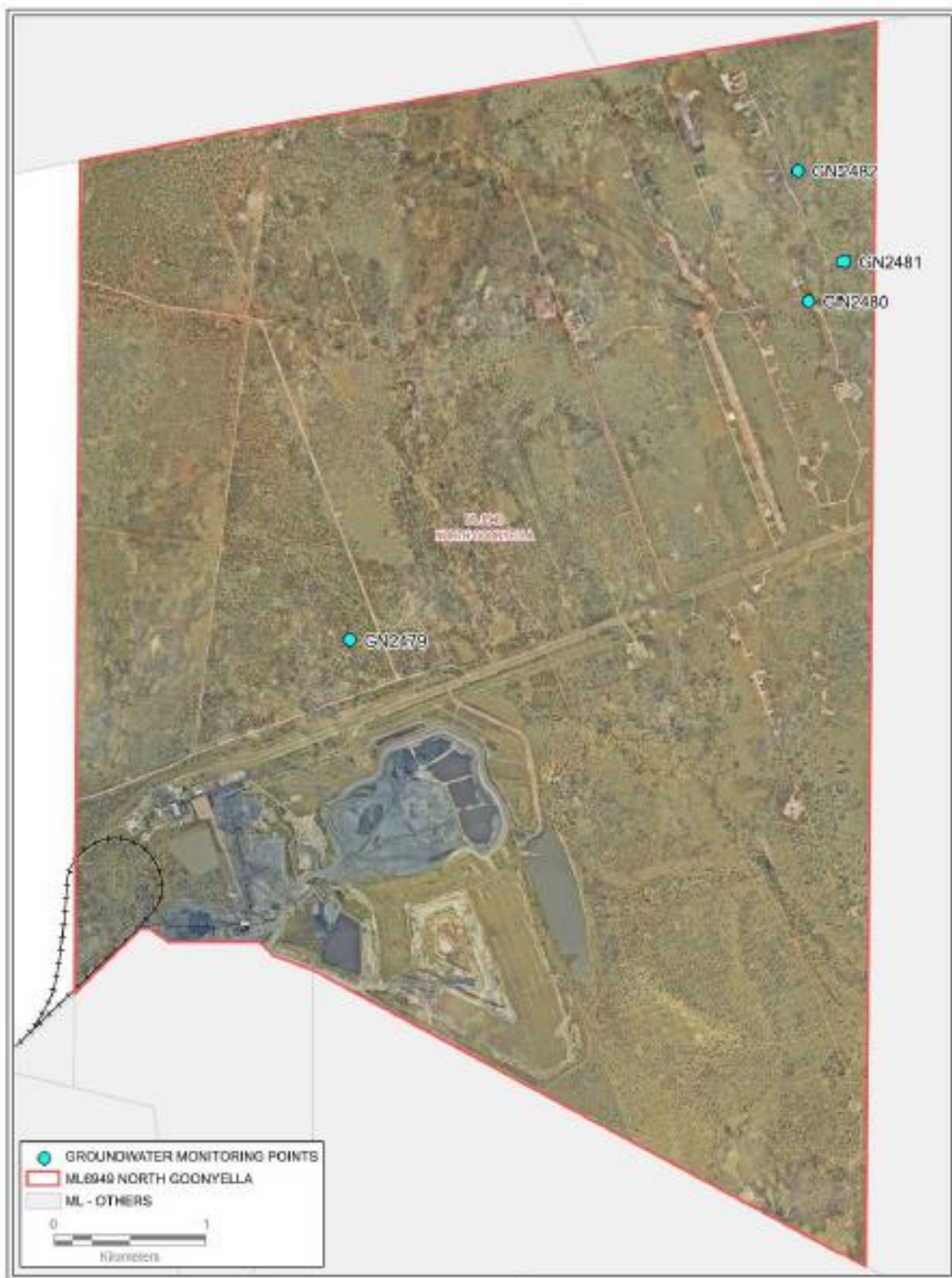


Figure 3 – Groundwater Monitoring Locations



END OF ENVIRONMENTAL AUTHORITY