

Permit

Environmental Protection Act 1994

Environmental authority EPML00738813

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

Environmental authority number: EPML00738813

Environmental authority takes effect on 18 April 2024

Environmental authority holder(s)

Name(s)	Registered address
Shinsho Moranbah Coal Pty Ltd	Level 12, 124 Walker Street NORTH SYDNEY NSW 2060
JFEMA Moranbah North Pty Ltd	Suite 3B Level 33, 52 Martin Place SYDNEY NSW 2000
NS Moranbah North Pty Ltd	Level 5, 20 Hunter St SYDNEY NSW 2000
Mitsui Moranbah North Investment Pty Ltd	Level 24, 480 Queen Street BRISBANE CITY QLD 4000
NS Coal (Moranbah North) Pty Ltd	Level 9, 10 Market Street BRISBANE CITY QLD 4000
Moranbah North Coal Pty Ltd	Level 11, 201 Charlotte Street BRISBANE QLD 4000

Environmentally relevant activity and location details

Environmentally relevant activity/activities	Location(s)
Resource Activity, Schedule 3, 13: Mining black coal	ML70108 ML700042 PPL191
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)	ML70108 ML700042 PPL191
Resource Activity, Ancillary 08 – Chemical Storage, 3: Storing more than 500 cubic metres of chemicals of class C1 or C2 combustible liquids under AS 1940 or dangerous goods class 3 under subsection (1)	ML70108 ML700042 PPL191
Resource Activity, Ancillary 10 – Gas Producing, Manufacturing, processing or reforming 200t or more of hydrocarbon gas in a year	ML70108 ML700042 PPL191
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	ML70108 PPL191



Environmental authority EPML00738813 – Moranbah North Coal Mine

Resource Activity, Ancillary 33 – Crushing, milling, grinding or screening, Crushing, grinding, milling or screening more than 5000t of material in a year	ML70108 PPL191
Resource Activity, Ancillary 60 – Waste disposal 1: Operating a facility for disposing of, in a year, the following quantity of waste mentioned in subsection (1)(a) (b) 50,000t to 100,000t	ML70108 PPL191
Resource Activity, Ancillary 62 – Resource recovery and transfer facility operation 1: Operating a facility for receiving and sorting, dismantling, baling or temporarily storing- (d) category 1 regulated waste	ML70108 ML700042 PPL191
Resource Activity, Ancillary 62 – Resource recovery and transfer facility operation 1: Operating a facility for receiving and sorting, dismantling, baling or temporarily storing- (c) category 2 regulated waste	ML70108 ML700042 PPL191
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.	ML70108 PPL191

Additional information for applicantsEnvironmentally 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'.

Environmental authority EPML00738813 – Moranbah North Coal Mine

Take effect


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

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

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

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

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

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

18 April 2024

Date

Enquiries:
 Business Centre (Coal)
 Department of Environment, Science and Innovation
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 EMERALD QLD 4720
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Environmental authority EPML00738813 – Moranbah North Coal Mine

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

Environmental authority EPML00738813 – Moranbah North Coal Mine

Conditions of environmental authority

The environmentally relevant activities conducted at the locations as described above must be conducted in accordance with the following site-specific conditions of approval. This environmental authority consists of the following Schedules:

- Schedule A: General;
- Schedule B: Air;
- Schedule C: Water;
- Schedule D: Groundwater;
- Schedule E: Noise and Vibration;
- Schedule F: Waste;
- Schedule G: Land;
- Schedule H: Regulated Structures;
- Schedule I: Community;
- Schedule J: Sewage Treatment;
- Schedule K: Stimulation Activities;
- Schedule L: Biodiversity;
- Definitions; and
- Appendices

Environmental authority EPML00738813 – Moranbah North Coal Mine

Schedule A: General	
Condition number	Condition
A1	<p>Prevent and/or minimise likelihood of environmental harm</p> <p>In the carrying out of the environmentally relevant activities, the environmental authority holder must take all reasonable and practicable measures to prevent and/or minimise the likelihood of environmental harm 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 environmental authority.</p>
A2	<p>Coal Extraction</p> <p>The environmental authority holder is approved for a coal extraction rate of up to 13.5 million tonnes per annum (mtpa) of run-of-mine (ROM) coal in accordance with this environmental authority.</p>
A3	<p>The environmental authority holder is approved for the processing of up to 24 mtpa of ROM coal including any ROM coal imported from other mining activities.</p>
A4	<p>Maintenance of measures, plant and equipment</p> <p>The environmental authority holder must:</p> <ul style="list-style-type: none"> (a) install all measures, plant and equipment necessary to ensure compliance with the conditions of this environmental authority; (b) maintain such measures, plant and equipment in a proper and efficient condition; and (c) operate such measures, plant and equipment in a proper and efficient manner.
A5	<p>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 carried out under this environmental authority.</p> <p><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 plan of operations).</i></p>
A6	<p>Monitoring and records</p> <p>Except where specified otherwise in another condition of this environmental authority, all monitoring records or reports required by this environmental authority must be kept for a period of not less than five (5) years.</p>
A7	<p>Upon request from the administering authority, copies of monitoring results, records, registers, management plans and reports required by the conditions of this environmental authority must be made available and provided to the administering authority within:</p> <ul style="list-style-type: none"> (a) ten (10) business days; or (b) an alternative timeframe agreed between the administering authority and the environmental authority holder.

Environmental authority EPML00738813 – Moranbah North Coal Mine

A8	<p>Any management or monitoring plans, systems or programs required to be developed and implemented by a condition of this environmental authority must be reviewed for effectiveness in minimising the likelihood of environmental harm on a programmed basis, and amended promptly if required, unless a particular review date and amendment program is specified in the plan, system or program.</p> <p><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 plan of operations).</i></p>
A9	<p>Notification of emergencies, incidents and exceptions</p> <p>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.</p>
A10	<p>The holder of this environmental authority must notify the administering authority by written notification within 24 hours, after becoming aware of any emergency, incident or information about circumstances which results or may result in environmental harm not in accordance with the conditions of this environmental authority or a contravention of the conditions of this environmental authority.</p>
A11	<p>The notification in condition A10 must include, but not be limited to, the following:</p> <ul style="list-style-type: none"> (a) the environmental authority number and name of the holder; (b) the name and telephone number of the designated contact person; (c) the location of the emergency or incident; (d) the date and time of the emergency or incident; (e) the time the holder of the environmental authority became aware of the emergency or incident; (f) where known: <ul style="list-style-type: none"> (i) the estimated quantity and type of substances involved in the emergency or incident; (ii) the actual or potential cause of the emergency or incident; and (iii) a description of the nature and effects of the emergency or incident including environmental risks, and any risks to public health or livestock; (g) any sampling conducted or proposed, relevant to the emergency or incident; (h) immediate actions taken to prevent or mitigate any further environmental harm caused by the emergency or incident; and (i) what notification of stakeholders who may be affected by the emergency or incident has occurred or is being undertaken.

Permit

Environmental authority EPML00738813 – Moranbah North Coal Mine

A12	<p>Not more than fourteen (14) business days following the initial notification of an emergency, incident or information about circumstances which result or may result in environmental harm or the release of contaminants, written advice must be provided to the administering authority in relation to:</p> <ul style="list-style-type: none"> (a) results and interpretation of any samples taken and analysed; and (b) proposed actions to prevent a recurrence of the emergency or incident.
A13	<p>Risk Management</p> <p>The holder of this environmental authority must develop and implement a risk management system for mining activities carried out under this environmental authority which conforms to the <i>Standard for Risk Management (ISO 31000:2018)</i> for all stages of the activities authorised under this environmental authority.</p> <p><i>Note: Implementation of a risk management system is not a defence against a breach of any other condition of this environmental authority.</i></p>
A14	<p>Activity</p> <p>All land subject to mining activities carried out under this environmental authority must be rehabilitated to a non-polluting, safe, stable and self-sustaining landform.</p>
A15	<p>Contaminants must not be released to the receiving environment unless they are in accordance with the contaminant limits authorised by this environmental authority.</p>
A16	<p>This environmental authority authorises environmental harm referred to in the conditions. Where no condition or this environmental authority is silent on matter, the lack of a condition or silence does not authorise environmental harm.</p>
A17	<p>The only mining activities authorised to be carried out under this environmental authority are the mining activities defined within the parameters in Table A1: Mining Activities and identified in Appendix 1: Moranbah North Site Plan (Layout Plan), Appendix 2: Moranbah North Surface Infrastructure Layout and Appendix 3: Moranbah North Site Plan (Underground Mine Layout Plan) attached to this environmental authority.</p> <p><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></p>
A18	<p>Notwithstanding a condition of this environmental authority, exploration activities under this environmental authority must comply with each of the Standard Conditions contained in the most recent version of the “<i>Eligibility criteria and standard conditions for exploration and mineral development projects</i>” (ESR/2016/1985).</p>

Permit

Environmental authority EPML00738813 – Moranbah North Coal Mine

Table A1: Mining Activities

Mine activity	Mine feature name	Tenure type and number	Location		Maximum disturbance area (ha)	Constraints
			Latitude	Longitude		
Dams	Dam 1	ML70108	-21.92422	147.98772	7.6	Depth and volume
	Dam 2	ML70108	-21.92561	147.98598	6.2	
	Dam 4	ML70108	-21.89306	147.99854	5.7	
	Dam 5	ML70108	-21.88658	147.95999	56.3	
	Dam 6	ML70108	-21.88989	147.94889	46	
	Worked Water Dam	ML70108	-21.88208 -21.87788	147.96411 147.96625	9.4	
	Production Dam	ML70108	-21.87401	147.96843	5.7	
	Environment Dam	ML70108	-21.87045	147.96766	2.2	
	Grosvenor Product Dam	ML70108	-21.8989	147.9713	3.4	
Grosvenor Raw Dam	ML70108	-21.8767	147.9505	4.2		
Exploration	Exploration activities	ML70108 ML700042	N/A		As per the Standard Conditions contained in the most recent version of the "Eligibility criteria and standard conditions for exploration and mineral development projects" (ESR/2016/1985)	
Co-disposal	Co-disposal	ML70108	-21.92422	147.98772	360	Area and height
Run of Mine (ROM)	ROM stockpiles ¹	ML70108	-21.8801	147.9633		Maximum annual ROM 13.5Mt
Ancillary infrastructure	Workshops, Offices, Storage areas, Grosvenor ROM, Product ROM stockpile, CHPP	ML70108	-21.88445	147.96597	920	Scale and intensity
			-21.88544	147.96576		
			-21.89639	147.9714		
			-21.8724	147.9672		
			-21.88005	147.96341		
			-21.87435	147.96455		
	OLC	ML70108	N/A			
	Roads and tracks	ML70108	N/A			
Gas drainage and subsidence area ²	Gas drainage and subsidence	ML70108	N/A		3472	Project mining area as depicted in orange in Appendix 3: Moranbah North Site Plan (Underground Mine Layout Plan).
		ML700042			2542.8	Project mining area as depicted in purple in Appendix 3: Moranbah North Site Plan (Underground Mine Layout Plan)
Ancillary gas drainage ³	Ancillary gas drainage	ML700042	N/A		246.2	ML700042

Table A1 Notes:

¹ Includes Moranbah North and Grosvenor stockpiles

² Includes all surface requirements, such as gas drainage (including disturbance associated with stimulation activities), goaf drainage, service holes and ventilation shafts and associated roads and tracks. Clearing for surface requirements for ML700042 that are within areas of prescribed environmental matters listed in **Table L1 – Significant residual impacts to prescribed environmental matters within ML700042** must comply with the conditions **L1 to L8** of this environmental authority.

³ Ancillary gas drainage refers to surface requirements, such as gas drainage (including disturbance associated with stimulation activities), goaf drainage, service holes and ventilation shafts and associated roads and tracks, that occur outside the Underground Mine Layout Plan in **Appendix 3**, but within the boundaries of ML700042. Clearing for surface requirements for ML700042 that are within areas of prescribed environmental matters listed in **Table L1 – Significant residual impacts to prescribed environmental matters within ML700042** must comply with the conditions **L1 to L8** of this environmental authority.

Environmental authority EPML00738813 – Moranbah North Coal Mine

Schedule B: Air	
Condition number	Condition
B1	<p>Dust nuisance</p> <p>The release of dust and/or particulate matter resulting from the mining activities carried out under this environmental authority must not cause an environmental nuisance at any sensitive or commercial place.</p>
B2	<p>Dust and particulate matter resulting from the mining activities carried out under this environmental authority must not exceed any of the following levels when measured at any sensitive or commercial place:</p> <p>(a) Dust deposition of 120 milligrams per square metre per day, averaged over one month, when monitored in accordance with the most recent version of <i>Australian Standard AS 3580.10.1 Methods for sampling and analysis of ambient air – Determination of particulate matter – Deposited matter – Gravimetric method</i>;</p> <p>(b) A concentration of particulate matter with an aerodynamic diameter of less than 10 micrometres (PM10) suspended in the atmosphere of 50 micrograms per cubic metre over a 24 hour averaging time, for no more than five exceedances per year when monitored in accordance with the most recent version of either:</p> <p>(i) <i>Australian Standard AS3580.9.6 Methods for sampling and analysis of ambient air - Determination of suspended particulate matter – PM10 high volume sampler with size-selective inlet – Gravimetric method</i>; or</p> <p>(ii) <i>Australian Standard AS3580.9.9 Methods for sampling and analysis of ambient air – Determination of suspended particulate matter – PM10 low volume sampler – Gravimetric method</i>.</p>
B3	<p>If monitoring indicates exceedance of the relevant limits in condition B2 resulting from the mining activities carried out under this environmental authority, then the environmental authority holder must:</p> <p>(a) address the complaint including the use of appropriate dispute resolution if required; and</p> <p>(b) immediately implement dust abatement measures so that emissions of dust from the activity do not result in further environmental nuisance.</p>

Environmental authority EPML00738813 – Moranbah North Coal Mine

B4	<p>Dust Management Plan</p> <p>A Dust Management Plan to outline measures to minimise and manage any impacts from the operation of the project on local air quality must be developed and implemented for all stages of the activities authorised under this environmental authority. The Plan must include, but not necessarily be limited to:</p> <ul style="list-style-type: none">(a) identification of all major sources of dust emissions that may occur as result of the operation of the project;(b) description of the procedures to manage the dust emissions from the sources identified;(c) collection of air quality and meteorological data at location;(d) identifying adverse meteorological conditions likely to produce elevated levels of PM10 at a sensitive or commercial place due to the mining activities carried out under this environmental authority;(e) protocols for regular maintenance of plant and equipment, to minimise the potential for fugitive dust emissions; and(f) description of procedures to be undertaken if any non-compliance is detected.
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Environmental authority EPML00738813 – Moranbah North Coal Mine

Schedule C: Water	
Condition number	Condition
C1	<p>Surface Water</p> <p>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 mining activities carried out under this environmental authority, except as permitted under the conditions of this environmental authority.</p>
C2	<p>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 Appendix 4: Water Release Points and Monitoring Points attached to this environmental authority.</p>
C3	<p>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 condition C28 is permitted.</p>
C4	<p>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.</p>

Environmental authority EPML00738813 – Moranbah North Coal Mine

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

Release point (RP)	Latitude (AGD84)	Longitude (AGD84)	Mine affected water source and location	Monitoring point	Receiving waters description
RP1	-21.875223	147.967913	Environment Dam	Crossing at base of spillway	Isaac River

Table C2: Mine Affected Water Release Limits

Quality characteristic	Release limits	Monitoring frequency	Comment
Electrical conductivity ($\mu\text{S}/\text{cm}$)	Release limits specified in Table C4 for variable flow criteria.	Daily during release (first sample within 2 hours of commencement of release)	
pH (pH unit)	6.5 (minimum) 9.0 (maximum)		
Suspended solids (mg/L)	550		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 for variable flow criteria.		Drinking water environmental values from Australian Drinking Water Guidelines (ADWG) 2011 or ANZG 2018.

C5	<p>The release of mine affected water to waters from the release points must be monitored at the locations specified in Table C1: Mine Affected Water Release Points, Sources and Receiving Waters for each quality characteristics and at the frequency specified in Table C2: Mine Affected Water Release Limits and Table C3: Release Contaminant Trigger Investigation Levels.</p> <p><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></p>
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Environmental authority EPML00738813 – Moranbah North Coal Mine

Table C3: Release Contaminant Trigger Investigation Levels

Quality characteristic	Trigger levels (µg/L)	Comment on trigger level	Monitoring frequency
Aluminium	100	For aquatic ecosystem protection, based on SMD guideline	Commencement of release and thereafter weekly during release
Arsenic	13	For aquatic ecosystem protection, based on SMD guideline	
Cadmium	0.2	For aquatic ecosystem protection, based on SMD guideline	
Chromium	1	For aquatic ecosystem protection, based on SMD guideline	
Copper	2	For aquatic ecosystem protection, based on LOR for ICPMS	
Iron	300	ADWG aesthetic guideline	
Lead	10	For aquatic ecosystem protection, based on SMD guideline	
Mercury	0.2	For aquatic ecosystem protection, based on LOR for CV FIMS	
Nickel	11	For aquatic ecosystem protection, based on SMD guideline	
Zinc	8	For aquatic ecosystem protection, based on SMD guideline	
Boron	370	For aquatic ecosystem protection, based on SMD guideline	
Cobalt	90	For aquatic ecosystem protection, based on low reliability guideline	
Manganese	1900	For aquatic ecosystem protection, based on SMD guideline	
Molybdenum	34	For aquatic ecosystem protection, based on low reliability guideline	
Selenium	10	For aquatic ecosystem protection, based on LOR for ICPMS	
Silver	1	For aquatic ecosystem protection, based on LOR for ICPMS	
Uranium	1	For aquatic ecosystem protection, based on LOR for ICPMS	
Vanadium	10	For aquatic ecosystem protection, based on LOR for ICPMS	
Ammonia	900	For aquatic ecosystem protection, based on SMD guideline	
Nitrate	1100	For aquatic ecosystem protection, based on ambient Qld WQ Guidelines (2006) for TN	
Total Recoverable Hydrocarbons (TRH) C6 – C9 Fraction	20	For aquatic ecosystem protection, based on LOR for GCMS	
TRH C10 – C36 Fraction	100	For aquatic ecosystem protection, based on LOR for GCMS	
Fluoride (total)	2000	ANZECC protection of livestock drinking water and short term irrigation guideline	
Suspended Solids	Limit to be determined based on receiving water reference data and achievable best practice sedimentation control and treatment		

Table C3 Notes:

1. All metals and metalloids must be measured as total (unfiltered) and dissolved (filtered). Trigger levels for metal/metalloids apply if dissolved results exceed trigger.
2. SMD – slightly moderately disturbed level of protection, guideline refers ANZG 2018.
3. LOR – typical reporting limit for method stated. ICPMS/CV FIMS/GCMS – analytical method required to achieve LOR.

Environmental authority EPML00738813 – Moranbah North Coal Mine

C6	<p>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:</p> <ul style="list-style-type: none"> (a) where the trigger values are not exceeded then no action is to be taken; or (b) where the monitoring point results exceed the trigger values specified Table C3: Release Contaminant Trigger Investigation Levels for any quality characteristic, compare the results of the downstream monitoring to upstream monitoring data in the receiving waters and: <ul style="list-style-type: none"> (i) if the result is the same or less than the upstream monitoring site data, then no action is to be taken; or (ii) if the result is greater than the upstream monitoring site data, complete an investigation into the potential for environmental harm and provide a written report to the administering authority via WaTERs within twenty-eight (28) days of receiving the report, outlining: <ul style="list-style-type: none"> 1) details of the investigations carried out; and 2) actions taken to prevent environmental harm. <p><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></p>
C7	<p>If an exceedance in accordance with condition C6(b)(ii) is identified, the holder of this environmental authority must notify the administering authority within fourteen (14) days of receiving the result.</p>
C8	<p>Mine Affected Water Release Events</p> <p>The holder must ensure a stream flow gauging station/s is 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.</p>
C9	<p>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.</p>
C10	<p>The release of mine affected water to waters in accordance with condition C2 must not exceed the Electrical Conductivity and Sulfate release limits or 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.</p>

Table C4: Mine Affected Water Release during Flow Events

Receiving Waters	Release Point (RP)	Gauging Station	Gauging Station Latitude (decimal degree AGD84)	Gauging Station Longitude (decimal degree AGD84)	Receiving Water Flow Recording Frequency	Receiving Water Flow Criteria for Discharge (m ³ /second)	Maximum release rate (m ³ /second)	Electrical Conductivity (µS/cm) Release Limits	Sulfate (SO ²⁻) ⁴ (mg/L) Release Limits
Isaac River	RP1	Monitoring point 1 (Upstream AWS)	-21.870424	147.97056	Continuous (minimum daily)	Medium Flow > 5	< 0.15	< 3,500	<1,800
						High Flow (1) > 20	< 0.260	< 7,500	<2,600
						High Flow (2) > 50	< 1	< 5,000	<3,900
						High Flow (3) > 100	< 2	< 5,000	<2,600
						High Flow (4) > 150	< 1.3	< 7,500	<3,900
							< 3	< 5,000	<2,600
						High Flow (5) > 200	<2	< 7,500	<3,900
							< 4	< 5,000	<2,600
						High Flow (6) > 250	<2.6	<7,500	<3,900
							< 7.5	< 3,500	<1,800
						High Flow (7) > 300	<5	<5000	<2,600
							< 8.9	< 3,500	<1,800
High Flow (8) > 350	<6	<5000	<2,600						
	< 10.4	< 3,500	<1,800						
High Flow (9) > 400	<7	<5000	<2,600						
	< 11.9	< 3,500	<1,800						
High Flow (10) > 500	<8	<5,000	<2,600						
	< 14.9	< 3,500	<1,800						
					<10	<5,000	<2,600		

C11	The daily quantity of mine affected water released from the release point must be measured and recorded at the release point 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	<p>Notification of Release Event</p> <p>The environmental authority holder must notify the administering authority via WaTERS as soon as practicable and no later than 24 hours after commencing to release mine affected water to the receiving environment. Notification must include the submission of written advice to the administering authority of the following information:</p> <ul style="list-style-type: none"> (a) release commencement date/time; (b) details regarding the compliance of the release with the conditions of Schedule C: Water of this environmental authority (that is, contaminant limits, natural flow, discharge volume); (c) release point/s; (d) release rate; (e) release salinity; and (f) receiving water/s including the natural flow rate.
C14	<p>The environmental authority holder must:</p> <ul style="list-style-type: none"> (a) notify the administering authority via WaTERS as soon as practicable (nominally within 24 hours after cessation of a release event) of the cessation of a release notified under condition C13; and (b) within 28 days provide the following information in writing: <ul style="list-style-type: none"> (i) release cessation date/time; (ii) natural flow volume in receiving water; (iii) volume of water released; (iv) details regarding the compliance of the release with the conditions of Schedule C: Water of this environmental authority (i.e. contaminant limits, natural flow, discharge volume); (v) all in-situ water quality monitoring results; and (vi) any other matters pertinent to the water release event. <p><i>Note: Successive or intermittent releases occurring within 24 hours of the cessation of any individual release can be considered part of a single release event and do not require individual notification for the purpose of compliance with conditions C13 and C14, provided the relevant details of the release are included within the notification provided in accordance with conditions C13 and C14.</i></p>
C15	<p>Notification of Release Event Exceedance</p> <p>If the release limits defined in Table C4: Mine Affected Water Release Limits are exceeded, the holder of the environmental authority must notify the administering authority via WaTERS within 24 hours of receiving the results.</p>

Environmental authority EPML00738813 – Moranbah North Coal Mine

C16	<p>The holder of this environmental authority must, within 28 days of a release that exceeds the conditions of this environmental authority, provide a report to the administering authority via WaTERS detailing:</p> <ul style="list-style-type: none"> (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	<p>Receiving Environment Monitoring and Contaminant Trigger Levels</p> <p>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.</p>

Table C5: Receiving Water Upstream Background Sites and Down Stream Monitoring Points

Monitoring points	Receiving waters location description	Latitude (decimal degree AGD84)	Longitude (decimal degree AGD84)
Upstream background monitoring point			
Monitoring point 1	North of upstream automated water station (sensor location)	-21.8696754°S	147.9705236°E
Downstream monitoring points			
Monitoring point 2	Les' Crossing	-21.8824317°S	147.9831345°E
Monitoring point 3	South of downstream automated water station (sensor location)	-21.9218655°S	148.0162522°E

Table C6: Receiving Waters Contaminant Trigger Levels

Quality characteristic	Trigger level	Monitoring frequency
pH	6.5 – 9.0	Daily during the release
Electrical conductivity (µS/cm)	800	
Suspended solids (mg/L)	1000	
Sulfate (SO ₄ ²⁻)(mg/L)	250 (ADWG 2011)	
Sodium (mg/L)	180 (ADWG 2011)	

Environmental authority EPML00738813 – Moranbah North Coal Mine

C18	<p>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:</p> <ul style="list-style-type: none"> (a) where the downstream result is the same or a lower value than the upstream value for the quality characteristic then no action is to be taken; or (b) where the downstream results exceed the upstream results complete an investigation into the potential for environmental harm and provide a written report to the administering authority via WaTERS within twenty-eight (28) days of receiving the report, outlining: <ul style="list-style-type: none"> (i) details of the investigations carried out; and (ii) actions taken to prevent environmental harm. <p><i>Note: Where an exceedance of a trigger level has occurred and is being investigated, in accordance with condition C18(b) of this condition, no further reporting is required for subsequent trigger events for that quality characteristic.</i></p>
C19	<p>Receiving Environment Monitoring Program (REMP)</p> <p>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 mining activities carried out under this environmental authority. 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.</p> <p>For the purposes of the REMP, the receiving environment is the waters of the Isaac River 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 mining activities carried out under this environmental authority that will potentially be directly affected by an authorised release of mine affected water.</p>

Environmental authority EPML00738813 – Moranbah North Coal Mine

C20	<p>The Receiving Environment Monitoring Program (REMP) must:</p> <ul style="list-style-type: none"> (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 Down Stream 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>” (DEHP, 2009). 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 C4: Mine Affected Water Release Limits during flow events and Table C3: Release Contaminant Trigger Investigation Levels; (f) include, where appropriate, monitoring of metals/metalloids in sediments (in accordance with ANZG 2018, BATLEY and/or the most recent version of <i>Australian Standard AS5667.1 Guidance on Sampling of Bottom Sediments</i>); (g) include, where appropriate, monitoring of macroinvertebrates in accordance with the AusRivas methodology; (h) apply procedures and/or guidelines from ANZG 2018 and other relevant guideline documents; (i) describe sampling and analysis methods and quality assurance and control; and (j) incorporate stream flow and hydrological information in the interpretations of water quality and biological data.
C21	<p>A report outlining the findings of the Receiving Environment Monitoring Program (REMP), including all monitoring results and interpretations in accordance with conditions C19 and C20 must be prepared annually and made available on request to the administering authority. This must include an assessment of background reference water quality, the condition of downstream water quality compared against water quality objectives, and the suitability of current discharge limits to protect downstream environmental values.</p>
RR1	<p>Conditions C19 to C21 do not apply if the environmental authority holder is a participant of the FRREMP.</p>
RR2	<p>The environmental authority holder must notify the administering authority in a written statement within twenty (20) business days of ceasing to be a participant of the FRREMP. The written statement must detail how the environmental authority holder is going to fulfil the requirements of conditions C19 to C21.</p>

Environmental authority EPML00738813 – Moranbah North Coal Mine

C22	<p>Water Reuse</p> <p>Mine affected water may be piped or trucked or transferred by some other means that does not contravene the conditions of this environmental authority and deposited into artificial water storage structures, such as farm dams or tanks, or used directly at properties owned by the environmental authority holder or a third party (with the written consent of the third party).</p> <p><i>Note: To avoid doubt, this includes mine affected water that is transferred between Moranbah North Mine and Grosvenor Mine for water management purposes.</i></p>
C23	<p>If the responsibility for mine affected water is given or transferred to another person in accordance with conditions C22:</p> <ul style="list-style-type: none"> (a) the responsibility for the mine affected water must only be given or transferred in accordance with a written agreement (the third party agreement); (b) the third party agreement must include a commitment from the person utilising the mine affected water to use it in such a way as to prevent environmental harm or public health incidents and specifically make the persons aware of the General Environmental Duty (GED) under section 319 of the <i>Environmental Protection Act 1994</i>, environmental sustainability of the water disposal and protection of environmental values of waters; and (c) the third party agreement must be signed by both parties. <p><i>Note: This condition does not apply to transfers between Moranbah North Coal Mine and Grosvenor Coal Mine.</i></p>
C24	<p>Water General</p> <p>All determinations of water quality and biological monitoring must be performed by an appropriately qualified person.</p>
C25	<p>Annual Water Monitoring Reporting</p> <p>The following information must be recorded in relation to all water monitoring required for releases under the conditions of this environmental authority and be submitted to the administering authority in the specified format by 1 April each year:</p> <ul style="list-style-type: none"> (a) the date on which the sample was taken; (b) the time at which the sample was taken; (c) the monitoring point at which the sample was taken; (d) the measured or estimated daily quantity of mine affected water released from all release points; (e) the release flow rate at the time of sampling for each release point; (f) the results of all monitoring and details of any exceedances of the conditions of this environmental authority; and (g) water quality monitoring data must be provided to the administering authority via WaTERS.
C26	<p>Temporary Interference with Waterways</p> <p>Destroying native vegetation, excavating, or placing fill in a watercourse, lake or spring necessary for and associated with mining operations must be undertaken in accordance with the most recent edition of the Department of Regional Development, Manufacturing and Water's (or its successor's) document – "<i>Riverine protection permit exemption requirements</i>" (WSS/2013/726).</p>

Environmental authority EPML00738813 – Moranbah North Coal Mine

C27	<p>Water Management Plan</p> <p>A Water Management Plan must be developed by an appropriately qualified person and implemented for all stages of the mining activities carried out under this environmental authority.</p>
C28	<p>The Water Management Plan must:</p> <ul style="list-style-type: none"> (a) provide for effective management of actual and potential environmental impacts resulting from water management associated with the mining activities carried out under this environmental authority; and (b) must include at a minimum: <ul style="list-style-type: none"> (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.
C29	<p>Stormwater and Water sediment controls</p> <p>An Erosion and Sediment Control Plan must be developed by an appropriately qualified person and be implemented for all stages of the mining activities carried out under this environmental authority to minimise erosion and the release of sediment to receiving waters and contamination of stormwater.</p>
C30	<p>Stormwater, other than mine affected water, is permitted to be released to waters from:</p> <ul style="list-style-type: none"> (a) erosion and sediment control structures that are installed and operated in accordance with the Erosion and Sediment Control Plan required by condition C29; and (b) water management infrastructure that is installed and operated, in accordance with a Water Management Plan that complies with conditions C27 and C28, for the purpose of ensuring water does not become mine affected water.
C31	<p>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.</p>

Environmental authority EPML00738813 – Moranbah North Coal Mine

Schedule D: Groundwater	
Condition number	Condition
D1	Contaminants that will, or have the potential to, cause environmental harm must not be released directly or indirectly to any groundwaters as a result of the mining activities carried out under this environmental authority, except as permitted under the conditions of this environmental authority.
D2	<p>Groundwater monitoring and management program</p> <p>The holder of the environmental authority must maintain a groundwater monitoring and management program. The program must:</p> <ul style="list-style-type: none"> (a) ensure adequate groundwater monitoring and data analysis is undertaken to achieve the following objectives: <ul style="list-style-type: none"> (i) detect any impacts to groundwater quality due to the activities authorised under this environmental authority; (ii) detect any changes to groundwater level due to the activities authorised under this environmental authority; (iii) determine compliance with condition D12; (iv) determine trends in groundwater quality; and (v) determine any interaction or impact from groundwater on surface water (groundwater monitoring locations should align with receiving environment surface water quality monitoring locations, if appropriate); (b) document groundwater management and monitoring methodologies undertaken for the duration of all the activities authorised under this environmental authority; (c) document background groundwater quality in hydraulically isolated background bore(s) that have not been affected by the mining activities carried out under this environmental authority; (d) provide sufficient information to allow the holder to determine predicted seasonal fluctuations of groundwater levels; (e) provide an appropriate quality assurance and quality control program; (f) include a review process to identify improvements to the program that includes addressing any comments provided by the administering authority; and (g) include contingency procedures for emergencies.
D3	<p>Groundwater monitoring bores</p> <p>The holder of this environmental authority must install all new and replacement bores as identified in Table D1: Groundwater monitoring locations and frequencies, prior to 11 August 2023.</p>
D4	The new and replacement bores required by condition D3 must be suitable to monitor for the parameters identified in Table D2: Groundwater Quality Monitoring and be capable of targeting the aquifer specified in Table D1: Groundwater monitoring locations and frequencies .
D5	Monitoring bores RDH754 and MNM MB006 must each be replaced, as per condition D3 with one tertiary sediment bore and one tertiary basalt bore.
D6	The groundwater quality of monitoring bores, identified in Table D1: Groundwater monitoring locations and frequencies as 'New', 'Review' or 'Replacement' bores, must be compared with limits detailed in Table D3: Groundwater Investigation Trigger Values for the sufficiency of the

Permit

Environmental authority EPML00738813 – Moranbah North Coal Mine

	limit to ensure detection of a significant change to groundwater quality values due to mining activities carried out under this environmental authority.
D7	A report detailing the findings of condition D6 must be developed and provided to the administering authority by 1 January 2024 .

Environmental authority EPML00738813 – Moranbah North Coal Mine

Table D1: Groundwater Monitoring Locations and Frequencies

Monitoring Points	Longitude (Decimal Degree, AGD84)	Latitude (Decimal Degree, AGD84)	Frequency
Alluvium			
MNM MB001#	147.9673	-21.8697	Monthly
MNM MB002#	148.0439	-21.9147	Monthly
Tertiary Sediments above Basalt			
RDH745 §	147.9729	-21.8732	Monthly
RDH747 §	147.9689	-21.8708	Monthly
RDH751 §	147.9625	-21.8671	Monthly
RDH752 §	147.9660	-21.8695	Monthly
RDH754*	147.9414	-21.8860	Monthly
MNM MB006*	147.9414	-21.8860	Monthly
MNM MB004*	147.9407	-21.8670	Monthly
SO155 §	147.9989	-21.8938	Quarterly
SO156 §	147.9961	-21.8942	Quarterly
SO157 §	147.9970	-21.8924	Quarterly
RDH753 §	147.9661	-21.8695	Monthly
MNM MB003#	148.0208	-21.9294	Monthly
DDH773 ^	147.9467	-21.8963	Monthly
RDH681 §	147.9406	-21.8779	Monthly
RDH870 §	147.9566	-21.8668	Monthly
RDH877 ^	147.9496	-21.8670	Monthly
RDH896 ^	147.9659	-21.8676	Monthly
MNM MB005#	147.9673	-21.8697	Monthly
RDH891 ~	147.9583	21.8923	Monthly
RDH892 ~	147.9577	21.8838	Monthly
RDH893 ~	147.9646	21.8812	Monthly
Tertiary Basalt			
RDH513 §	147.9673	-21.8856	Quarterly
RDH746 §	147.9689	-21.8708	Monthly
RDH748 §	147.9624	-21.8671	Monthly
MNM MB007*	147.9407	-21.8671	Monthly
RDH808 §	147.9710	-21.8720	Monthly
TWM17010B §	148.0611	-21.8374	Quarterly
TWM17004 §	148.0365	-21.8890	Quarterly
DDH663 §	147.9565	-21.8668	Monthly
DDH664 §	147.9496	-21.8671	Monthly
DDH732 ^	147.9660	-21.8677	Monthly
DDH727 ~	147.9583	-21.8923	Monthly
DDH728 ~	147.9577	-21.8838	Monthly
DDH729 ~	147.9646	-21.8812	Monthly
RDH744 §	147.9728	-21.8732	Monthly
RDH933 ^	147.9688	-21.8903	Monthly
MNM MB009#	147.9944	-21.9300	Monthly
MNM MB008#	147.9511	-21.8963	Monthly
MNM MB010#	147.9735	-21.8787	Monthly

Table D1 Notes:

New bore

^ Review bore: recently drilled bores or bores with inadequate water quality data.

* Replacement bore

~ Interpretation bore for the purpose of condition D2(a)(iv)

§ Existing compliance bore.

Environmental authority EPML00738813 – Moranbah North Coal Mine

D8	<p>Groundwater Monitoring and Management Program (GMMP) Review</p> <p>From 2 August 2022, the GMMP required by condition D2, must be reviewed every three (3) years by an appropriately qualified person. The review must include:</p> <ul style="list-style-type: none"> (a) an assessment of groundwater levels and groundwater quality value data collected in relation to a condition of this environmental authority; (b) an assessment of the suitability of the monitoring network; (c) an assessment the program against the requirements under condition D2; (d) recommended actions and reasonable timeframes for these actions to ensure actual and potential environmental impacts are effectively identified and managed; and (e) identify any amendments to the groundwater monitoring and management program following the review.
D9	<p>Annual Groundwater Monitoring Report</p> <p>From 2 August 2022, an Annual Groundwater Monitoring Report (AGMR) must be completed each year and submitted to the administering authority via WaTERS within twenty-eight (28) days of receiving the AGMR.</p>
D10	<p>The AGMR required by condition D9 must include:</p> <ul style="list-style-type: none"> (a) a review of all the groundwater quality and standing water level (SWL) data of all groundwater bores listed within Table D1: Groundwater monitoring locations and frequencies; (b) an assessment of groundwater quality and SWL trends for all data from all groundwater bores listed in Table D1: Groundwater monitoring locations and frequencies; (c) an assessment of any impacts on groundwater level due to the mining activities; (d) comparison with receiving environment surface water quality monitoring results to determine any interaction or impact from groundwater on surface water; and (e) actions taken to minimise impacts or potential impacts on groundwater resources by mining activities carried out under this environmental authority.
D11	<p>Groundwater Quality Monitoring</p> <p>Groundwater quality must be monitored:</p> <ul style="list-style-type: none"> (a) at the locations specified in Table D1: Groundwater monitoring locations and frequencies, as illustrated in Appendix 6 – Groundwater Monitoring Bore Locations; (b) at the frequencies specified in Table D1: Groundwater monitoring locations and frequencies; and (c) for the quality characteristics listed in Table D2: Groundwater Investigation Trigger Values.

Environmental authority EPML00738813 – Moranbah North Coal Mine

D12	<p>Subject to the requirements of condition D11, if a limit defined in Table D3: Groundwater Investigation Trigger Values is exceeded on three (3) consecutive monitoring occasions, an investigation must be completed within twenty-eight (28) days of detection to determine if the exceedance is a result of:</p> <ul style="list-style-type: none"> (a) mining activities authorised under this environmental authority; (b) natural variation; or (c) neighbouring land use resulting in groundwater impacts; and (d) if the exceedance is due to D12(a), determine whether environmental harm has occurred or may occur.
D13	<p>The holder of this environmental authority must notify the administering authority via WaTERS and provide a report of the investigation to the administering authority within fourteen (14) days of completion of the investigation under condition D12.</p>
D14	<p>Groundwater level monitoring</p> <p>Groundwater levels must be monitored:</p> <ul style="list-style-type: none"> (a) at the locations specified in Table – D4 Groundwater level monitoring locations, frequency and triggers, as illustrated in Appendix 6 – Groundwater Monitoring Bore Locations; and (b) at the frequencies specified in Table – D4 Groundwater level monitoring locations, frequency and triggers.

Table D2: Groundwater Quality Monitoring

Parameter	Unit	Trigger type	Limit Type
pH	pH Units	As per Table D3	Minimum/Maximum
Electrical Conductivity (EC)	µS/cm		Maximum
Sulfate (SO ₄ ²⁻)	mg/L		Maximum
Dissolved Aluminium (Al)	mg/L		Maximum
Dissolved Arsenic (As)	mg/L		Maximum
Dissolved Iron (Fe)	mg/L		Maximum
Dissolved Molybdenum (Mo)	mg/L		Maximum
Dissolved Selenium (Se)	mg/L		Maximum
Total Recoverable Hydrocarbons (TRH) C6 – C9 Fraction	µg/L		Maximum
Total Recoverable Hydrocarbons (TRH) C10 – C36 Fraction	µg/L		Maximum
Sodium (Na)	mg/L		No specified trigger
Magnesium (Mg)	mg/L		
Calcium (Ca)	mg/L		
Potassium (K)	mg/L		
Chloride (Cl)	mg/L		
Bicarbonate Alkalinity as CaCO ₃	mg/L		

Environmental authority EPML00738813 – Moranbah North Coal Mine

Table D3: Groundwater Investigation Trigger Values

Monitoring Point	pH	EC	SO ₄	Al	As	Fe	Mo	Se	TRH		
									C6-C9	C10-C36	
	pH units	µS/cm	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	µg/L	µg/L	
Alluvium											
MNM MB001# MNM MB002#	<6.5 or >8.5	8,910	318	0.055	0.013	0.14	0.034	0.005	20	100	
Tertiary Sediments above Basalt											
MNM MB005# MNM MB003#	<6.5 or >8.5	8,910	318	0.055	0.013	0.14	0.034	0.005	20	100	
SO155		5,600	55	0.055	0.013	0.14	0.034	0.005	20	100	
DDH773		8,910	318	0.055	0.013	0.14	0.034	0.005	20	100	
RDH681		8,910	318	0.055	0.013	0.14	0.034	0.005	20	100	
RDH744		19,000	606	0.09	0.004	0.33	0.005	0.009	20	100	
RDH745		22,700	741	0.07	0.009	5.3	0.006	0.01	20	100	
RDH747		22,000	1,600	0.09	0.004	0.08	0.004	0.009	20	100	
RDH751		25,000	1,300	0.12	0.003	0.61	0.002	0.010	20	100	
RDH753		23,000	1,100	0.09	0.003	0.05	0.002	0.011	20	100	
RDH754*		8,910	318	0.055	0.013	0.14	0.034	0.005	20	100	
MNM MB006*		8,910	318	0.055	0.013	0.14	0.034	0.005	20	100	
MNM MB004*		14,000	660	0.03	0.002	0.005	0.002	0.006	20	100	
RDH870		14,550	320	0.07	0.007	0.93	0.005	0.005	20	100	
RDH877		8,910	318	0.055	0.013	0.14	0.034	0.005	20	100	
RDH896		8,910	318	0.055	0.013	0.14	0.034	0.005	20	100	
Tertiary Basalt											
TWM17010B (East-TB-1)		<6.5 or >8.5	20,545	759	0.055	0.012	1.68	0.003	0.005	20	100
TWM17004 (East-TB-2)	10,690		217	0.029	0.016	3.26	0.012	0.005	20	100	
RDH933	16,000		398	0.055	0.013	0.14	0.034	0.005	20	100	
MNM MB009#	16,000		398	0.055	0.013	0.246	0.034	0.005	20	100	
DDH663	2,255		181	0.013	0.004	0.11	0.006	0.005	20	100	
DDH664	3,320		116	0.01	0.003	0.06	0.006	0.005	20	100	
DDH732	16,000		398	0.055	0.013	0.14	0.034	0.005	20	100	
RDH513	23,225		614	0.055	0.007	0.14	0.005	0.005	20	100	
RDH746	2,100		32	0.03	0.007	0.04	0.002	0.005	20	100	
RDH748	3,265		50	0.02	0.007	0.025	0.002	0.005	20	100	
RDH752	4,700		45	0.026	0.003	0.025	0.004	0.005	20	100	
MNM MB007*	6,900		90	3.2	0.002	0.19	0.002	0.005	20	100	
RDH808	7,900		100	0.03	0.004	0.20	0.002	0.005	20	100	
MNM MB008#	8,910		318	0.055	0.013	0.14	0.034	0.005	20	100	
MNM MB010#	8,910		318	0.055	0.013	0.14	0.034	0.005	20	100	

Table D3 Notes:

Bore to be drilled as per condition D4.

* Replacement bore as confirmed by condition D4.

Environmental authority EPML00738813 – Moranbah North Coal Mine

D15	<p>In the event that groundwater level fluctuations in excess of two (2) metres per year beyond predictable seasonal fluctuations as determined by condition D2(d) are detected at the groundwater monitoring locations nominated in Table D4: Groundwater level monitoring locations, frequency and triggers, an investigation must be undertaken within fourteen (14) days of detection to determine if the groundwater level fluctuations are a result of:</p> <ul style="list-style-type: none"> (a) the mining activities carried out under this environmental authority; or (b) pumping from licensed bores; or (c) seasonal variation.
D16	<p>If the results of the investigation conducted under condition D15 identify that the groundwater level fluctuations are a result of the mining activities carried out under this environmental authority, the holder of the environmental authority must notify the administering authority via WaTERS and provide a copy of a report detailing the findings and outcomes of the investigation within seven (7) days of receiving the result.</p>
D17	<p>The holder of this environmental authority must submit a report to the administering authority proposing bore specific groundwater level trigger thresholds (mAHD) by 22 December 2023.</p>
D18	<p>Groundwater sampling</p> <p>The following information must be recorded in relation to all groundwater water sampling:</p> <ul style="list-style-type: none"> (a) the date on which the sample was taken; (b) the time at which the sample was taken; (c) the monitoring point at which the sample was taken; and (d) the results of all monitoring.
D19	<p>The method of groundwater sampling required by this environmental authority must comply with that set out in the latest edition of the administering authority's "<i>Monitoring and Sampling Manual</i>" as amended from time to time and consider the methodology and matters stated in administering authority's (or its successor's) guideline "<i>Using monitoring data to assess groundwater quality and potential environmental impacts</i>", February 2021 as amended from time to time.</p>
D20	<p>Bore construction and maintenance and decommissioning</p> <p>The construction, maintenance, management and decommissioning of groundwater bores (including groundwater monitoring bores) must be undertaken in a manner that prevents or minimises impacts to the environment and ensures the integrity of the bores to obtain accurate monitoring results.</p>

Permit

Environmental authority EPML00738813 – Moranbah North Coal Mine

Table D4: Groundwater level monitoring locations, frequency, and triggers

Monitoring Points	Longitude (decimal degree) (AGD84)	Latitude (decimal degree) (AGD84)	Surface RL (mAHD) ¹	Frequency ²	Pre-mining baseline water level (mAHD) ¹	Level Trigger Threshold (mAHD) ¹
Alluvium						
TWM17008A	148.0653744	-21.8612064	245.85	M	As per condition D18	
Tertiary Sediments above Basalt						
PZ002 *	147.9591	-21.8825	251.95	M	As per condition D18	
PZ004	147.9619	-21.8779	249.75	M	As per condition D18	
RDH744	147.9728	-21.8732	241.30	M	As per condition D18	
RDH745	147.9729	-21.8732	241.18	M	As per condition D18	
RDH747	147.9689	-21.8708	239.46	M	As per condition D18	
RDH751	147.9625	-21.8671	242.72	M	As per condition D18	
RDH752	147.9660	-21.8695	241.17	M	As per condition D18	
RDH754	147.9414	-21.8860	263.16	M	As per condition D18	
MNM MB006	147.9414	-21.8860	263.28	M	As per condition D18	
MNM MB004	147.9407	-21.8670	258.14	M	As per condition D18	
SO155	147.9989	-21.8938	232.75	M	As per condition D18	
SO156	147.9961	-21.8942	234.06	M	As per condition D18	
SO157	147.9970	-21.8924	233.08	M	As per condition D18	
TWM17007A	148.060175	-21.8595236	261.00	M	As per condition D18	
Tertiary Basalt						
PZ001*	147.9591	-21.8825	251.93	M	As per condition D18	
PZ003	147.9620	-21.8779	249.71	M	As per condition D18	
RDH513	147.9673	-21.8856	252.70	M	As per condition D18	
RDH933	147.9688	-21.8903	259.28	M	As per condition D18	
RDH746	147.9689	-21.8708	239.43	M	As per condition D18	
RDH748	147.9624	-21.8671	242.94	M	As per condition D18	
RDH753	147.9660	-21.8695	241.23	M	As per condition D18	
MNM MB007	147.9407	-21.8671	258.03	M	As per condition D18	
RDH808	147.9710	-21.8720	240.89	M	As per condition D18	
TWM17010B	148.0611	-21.8375	298.69	M	As per condition D18	
Permian Coal Measures						
DDH072	147.9831	-21.9214	265.10	M	As per condition D18	
RDH287	148.0020	-21.9081	233.80	M	As per condition D18	
RDH121	147.9761	-21.9080	255.40	M	As per condition D18	
TWM17008B	148.0654	-21.8611	250.57	M	As per condition D18	

Table D4 Notes:

¹ mAHD denotes metres above Australia Height Datum.² M - monthly monitoring

* or replacement bore

Environmental authority EPML00738813 – Moranbah North Coal Mine

Schedule E: Noise and Vibration	
Condition number	Condition
E1	The holder of this environmental authority must ensure that noise generated by the mining activities carried out under this environmental authority does not cause the criteria in Table E1: Noise Limits to be exceeded at a sensitive or commercial place.
E2	<p>Noise monitoring</p> <p>When requested by the administering authority, noise monitoring must be undertaken to investigate any complaint of noise nuisance, and the results notified within 14 days to the administering authority. Monitoring must include:</p> <p>(a) LA10, adj, 10 mins;</p> <p>(b) LA1, adj, 10 mins;</p> <p>(c) the level and frequency of occurrence of impulsive or tonal noise;</p> <p>(d) atmospheric conditions including wind speed and direction;</p> <p>(e) effects due to extraneous factors such as traffic noise; and</p> <p>(f) location, date and time of recording.</p>
E3	The method of measurement and reporting of noise monitoring must comply with the current edition of the administering authority's "Noise Measurement Manual" (ESR/2016/2195).
E4	<p>If monitoring indicates exceedance of the relevant limits in condition E1, then the environmental authority holder must:</p> <p>(a) address the complaint including the use of appropriate dispute resolution if required; and</p> <p>(b) immediately implement noise abatement measures so that emissions of noise from the activity do not result in further environmental nuisance.</p>

Table E1: Noise Limits

Noise level dB(A)	Monday to Saturday			Sundays and public holidays		
	7am - 6pm	6pm - 10pm	10pm - 7am	9am - 6pm	6pm - 10pm	10pm - 9am
	Noise measured at a 'Noise sensitive place'					
LA10, adj, 10 mins	B/g* + 5	B/g + 5	B/g + 0	B/g + 5	B/g + 5	B/g + 0
LA1, adj, 10 mins	B/g + 10	B/g + 10	B/g + 5	B/g + 10	B/g + 10	B/g + 5
	Noise measured at a 'Commercial place'					
LA10, adj, 10 mins	B/g + 10	B/g + 10	B/g + 5	B/g + 10	B/g + 10	B/g + 5
LA1, adj, 10 mins	B/g + 15	B/g + 15	B/g + 10	B/g + 15	B/g + 15	B/g + 10

Table E1 Notes:

* B/g means background noise level.

E5	<p>Vibration nuisance</p> <p>Vibration from the licensed activities must not cause an environmental nuisance, at any sensitive or commercial place.</p>
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Environmental authority EPML00738813 – Moranbah North Coal Mine

E6	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.
E7	Vibration monitoring must include the following descriptors, characteristics and conditions: (a) location of the blast(s) within the mining area; (b) atmospheric conditions including temperature, relative humidity and wind speed and direction; and (c) location, date and time of recording.
E8	If monitoring indicates exceedance of the relevant limits in Table E2: Vibration Limits , then the environmental authority holder must: (a) address the complaint including the use of appropriate dispute resolution if required; and (b) immediately implement vibration abatement measures so that vibration from the activity does not result in further environmental nuisance.

Table E2: Vibration limits

Location	Vibration measured
Sensitive or commercial place	5 mm/s peak particle velocity for nine (9) out of ten (10) consecutive blasts and not greater than 10 mm/s peak particle velocity at any time

Table E2 Notes:

The method of measurement and reporting of vibration levels must comply with the latest edition of the administering authority's guideline – "Noise and vibration from blasting" (ESR/2016/2169).

Environmental authority EPML00738813 – Moranbah North Coal Mine

Schedule F: Waste	
Condition number	Condition
F1	<p>Waste Management</p> <p>For the purpose of conditions F3 to F15, effluent, waste rock, spoil, overburden, rejects and tailings generated on Mining Lease (ML) 70108 and ML700042 and waste products specified in condition F2 are not considered as ‘waste’.</p>
F2	<p>The following waste products produced on ML70378 (Grosvenor Mine); or MDL277, EPC548 and MDL377 (Moranbah South); or EPC1454 (Grosvenor East); or EPC552, MDL166 and MDL274 (Grosvenor West) are authorised to be disposed of within the Moranbah North Co-disposal Area located on ML70108:</p> <ul style="list-style-type: none"> (a) breaker rejects; (b) drilling muds/fluids, and cuttings; and (c) coal sediment from the desilting of dams in the coal handling facility areas.
F3	<p>Waste is not permitted to be disposed of within ML70108 and ML700042, except as permitted in accordance with condition F13 of this environmental authority.</p>
F4	<p>The holder of this environmental authority must develop, implement and maintain a waste management program in accordance with the <i>Environmental Protection Act 1994</i> and subordinate legislation for this site. The waste management program must include:</p> <ul style="list-style-type: none"> (a) the waste management control strategies must consider: <ul style="list-style-type: none"> (i) the types and amounts of wastes generated by the mining activities; (ii) segregation of the wastes; (iii) storage of the wastes; (iv) transport of the wastes; and (v) monitoring and reporting matters concerning the waste; (b) the hazardous characteristics of the wastes generated including disposal procedures for hazardous wastes; (c) a program for reusing, recycling, or disposing of all wastes; (d) how the waste will be dealt with in accordance with the waste management hierarchy, including a description of the types and amounts of waste that will be dealt with under each of the waste management practices in the waste management hierarchy (i.e. avoidance, reuse, recycling, energy recovery, disposal); (e) procedures for identifying and implementing opportunities to minimise the amount of waste generated, promote efficiency in the use of resources and improve the waste management practices employed; (f) procedures for dealing with accidents, spills and other incidents; (g) details of any accredited management system employed, or planned to be employed, to deal with waste; (h) how often the performance of the waste management program will be assessed; (i) the indicators or other criteria on which the performance of the waste management program will be assessed; and (j) staff training and induction to the waste management program.

Permit

Environmental authority EPML00738813 – Moranbah North Coal Mine

F5	All general and regulated waste may be temporarily stored on ML70108 and ML700042 in the process of being removed from the site to a facility that is lawfully able to accept the waste under the <i>Environmental Protection Act 1994</i> .
F6	Unless otherwise permitted by a condition of this environmental authority or with prior approval from the administering authority and in accordance with a relevant standard operating procedure, waste must not be burnt.
F7	The holder of this environmental authority may burn vegetation cleared in the course of carrying out extraction activities provided the activity does not cause environmental harm at any sensitive place or commercial place.
F8	Regulated waste, other than that authorised to be disposed of onsite under this environmental authority, must only be removed and transported from the site by a person who holds a current authority to transport such wastes to a facility that is lawfully able to accept the waste under the <i>Environmental Protection Act 1994</i> .
F9	The following regulated waste may be temporarily stored on ML70108 before being directed to a facility that can lawfully accept such waste: <ul style="list-style-type: none"> (a) tyres; (b) batteries; (c) hydrocarbons; (d) oils; (e) oil interceptor sludges; (f) oil water emulsions and mixtures; and (g) chemicals listed under the <i>Environmental Protection Act 1994</i> and subordinate legislation.
F10	Each container of regulated waste stored awaiting movement off site must be marked to identify the contents.
F11	Scrap tyres stored awaiting disposal or transport for take-back and recycling, or waste-to-energy options must be stored or stockpiled in volumes less than 3m in height and 200m ² in area and at least 10m from any other tyre storage area.
F12	All combustible materials, including grass and vegetation, must be removed within a 10m radius of any waste storage area. <i>Note: Waste storage area includes areas for the storage of general wastes, scrap tyres or other regulated wastes.</i>
F13	Subject to demonstrating to the administering authority that no other use higher in the waste management hierarchy can be practicably implemented, waste tyres generated from mining activities conducted on ML70108, ML700042 or ML70378 may be disposed of on ML70108 in underground stopes.
F14	Waste batteries must be stored: <ul style="list-style-type: none"> (a) in a bunded and roofed area; or (b) palletised and plastic wrapped.

Environmental authority EPML00738813 – Moranbah North Coal Mine

F15	A record of all wastes must be kept detailing the following information: <ul style="list-style-type: none">(a) date of pickup of waste;(b) description of waste;(c) quantity of waste;(d) origin of the waste; and(e) destination of the waste.
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Environmental authority EPML00738813 – Moranbah North Coal Mine

Schedule G: Land	
Condition number	Condition
G1	<p>Topsoil</p> <p>Topsoil must be strategically stripped ahead of mining in accordance with a Topsoil Management Plan.</p>
G2	<p>Topsoil and subsoils must be managed to ensure stability and minimise the release of contaminants. Measures must include:</p> <ul style="list-style-type: none"> (a) vegetating stockpiles; (b) minimising the height of stockpiles; and (c) re-using stockpiles as soon as possible.
G3	<p>Preventing Contaminant Release to Land</p> <p>Contaminants must not be released to land in a manner which constitutes nuisance, material or serious environmental harm unless otherwise authorised under this environmental authority.</p>
G4	<p>Contaminated Land</p> <p>Before applying for surrender of a mining lease, the holder must (if applicable) provide to the administering authority a site investigation report under the <i>Environmental Protection Act 1994</i>, in relation to any part of the mining lease which has been used for notifiable activities or which the holder is aware is likely to be contaminated land, and also carry out any further work that is required as a result of that report to ensure that the land is suitable for its final land use.</p>
G5	<p>Before applying for progressive rehabilitation certification for an area, the holder must (if applicable) provide to the administering authority a site investigation report under the <i>Environmental Protection Act 1994</i>, in relation to any part of the area the subject of the application which has been used for notifiable activities or which the holder is aware is likely to be contaminated land, and also carry out any further work that is required as a result of that report to ensure that the land is suitable for its final land use under Table G1: Rehabilitation requirements.</p>
G6	<p>Chemicals and Flammable or Combustible Liquids</p> <p>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 edition of <i>AS 1940 – Storage and Handling of Flammable and Combustible Liquids</i>.</p>

Environmental authority EPML00738813 – Moranbah North Coal Mine

G7	<p>Subsidence</p> <p>The holder of this environmental authority must maintain and implement a Subsidence Management Plan that will address the following matters:</p> <ul style="list-style-type: none"> (a) the changes in the surface relief and drainage due to underground mining at the site; (b) subsidence modelling (predictions) ahead of mining; (c) the management of erosion arising from subsidence; (d) the implementation of remedial drainage works on ML700042 to prevent residual ponding of surface water on lands overlying mining activities and establishment of a stable, free draining post mining landform on ML700042; (e) the monitoring of stream bank and bed erosion rates pre and post subsidence; (f) the management and works required for maintaining the physical and ecological integrity of the Isaac River; and (g) rehabilitation methods and timeframes.
G8	<p>The Subsidence Management Plan must be reviewed each calendar year and a report prepared by an appropriately qualified person and provided to the administering authority within six (6) months of the end of the annual period to which the review relates. The report must include:</p> <ul style="list-style-type: none"> (a) an assessment of the plan against the requirements under condition G7; (b) recommended actions and reasonable timeframes to ensure actual and potential environmental impacts are effectively managed; and (c) identify any amendments made to the Subsidence Management Plan following the review.
G9	<p>The recommended actions detailed for condition G8(b) must be completed within the associated timeframes detailed for condition G8(b) unless the administering authority has approved otherwise.</p>
G10	<p>Subsidence must not cause residual ponding on lands overlying mining activities on ML700042.</p>
G11	<p>Rehabilitation landform criteria</p> <p>Land disturbed by mining must be rehabilitated in accordance with Table G1: Rehabilitation Requirements.</p>
G12	<p>All areas significantly disturbed by mining activities carried out under this environmental authority must be rehabilitated to a stable landform with a self-sustaining vegetation cover in accordance with Table G1: Rehabilitation requirements.</p>
G13	<p>The holder of this environmental authority must maintain a Land Suitability Plan applying to all areas of disturbance and detailing the following:</p> <ul style="list-style-type: none"> (a) site plans indicating pre mining land use and post mining land use; (b) description of pre mining land use and post mining land use; (c) the area, in hectares, within each land suitability class pre mining and post mining; (d) the analogue sites chosen for rehabilitation of post mining areas and why these landforms were chosen; (e) detail rehabilitation monitoring and maintenance provisions including geotechnical stability, presence of erosion, quality of surface water runoff, foliage protection cover, fauna and species richness and diversity; and (f) detail revegetation criteria.

Permit

Environmental authority EPML00738813 – Moranbah North Coal Mine

Table G1: Rehabilitation Requirements

Land Suitability Class (DPI, 1994)	Land Use Category	Estimated Pre-Mine Area (%)	Estimated Post Mine Area (%)
ML70108 and PPL191			
1	Agricultural ¹	0	0
	Conservation ²	0	0
2	Agricultural ¹	0	0
	Conservation ²	5	5
3	Agricultural ¹	0	0
	Conservation ²	10	10
4	Agricultural ¹	20	15
	Conservation ²	45	50
5	Agricultural ¹	20	10
	Conservation ²	0	10
		Total: 100%	Total: 100%
ML700042			
1	Agricultural ¹	0	0
2	Agricultural ¹	7	7
3	Agricultural ¹	67	67
4	Agricultural ¹	26	26
5	Agricultural ¹	0	0
		Total: 100%	Total: 100%

Table G1 Notes:

¹ Agricultural – entails grazing as the defined land use (DME Jan 1995)

² Conservation – entails native ecosystem as the defined land use (DME Jan 1995)

G14	<p>Areas which are to be progressively rehabilitated to native ecosystem must comply with the following outcomes:</p> <p>(a) a self-sustaining native ecosystem has been established with a species composition and distribution similar to appropriate analogue sites;</p> <p>(b) all areas disturbed by mining activities carried out under this environmental authority have been rehabilitated to the landform design and comply with the estimated category percentages indicated in Table G1: Rehabilitation requirements;</p> <p>(c) landforms are stable with erosion similar to appropriate analogue sites; and</p> <p>(d) landforms have been reshaped as close as practicable to the aspect orientation of similar analogue sites.</p>
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Environmental authority EPML00738813 – Moranbah North Coal Mine

G15	<p>Areas which are to be rehabilitated to grazing pasture must comply with the following outcomes:</p> <ul style="list-style-type: none"> (a) a self-sustaining vegetative protective cover has been established with species composition and distribution similar to appropriate analogue sites; (b) all areas disturbed by the mining activities carried out under this environmental authority have been rehabilitated to the landform design indicated in the Land Suitability Plan and comply with the estimated category percentages indicated in Table G1: Rehabilitation requirements; (c) landforms are stable with rates of erosion similar to appropriate analogue sites; and (d) a similar level of productivity (e.g. sustainable dry matter production, stock live weight gain) to appropriate analogue sites.
G16	<p>Progressive rehabilitation must commence within six (6) months of operations ceasing within an area.</p>
G17	<p>Remnant vegetation disturbed by mining activities carried out under this environmental authority on ML700042, that are identified with a 'Vegetation Management Act Status' in Appendix 5: ML700042 Regulated Vegetation, must be rehabilitated in a manner that supports the establishment of vegetation connectivity across ML700042.</p>
G18	<p>Rehabilitation Management Plan</p> <p>The holder of this environmental authority must complete a Rehabilitation Management Plan for disturbed areas and provide it to the administering authority for review and comment by 1 July 2020. The Rehabilitation Management Plan must, at a minimum:</p> <ul style="list-style-type: none"> (a) develop design criteria for rehabilitation of each domain; (b) identify success factors and completion criteria for each domain; (c) identify three (3) reference sites to be used to develop rehabilitation success criteria; (d) describe the monitoring of reference sites inclusive of statistical design; (e) detail rehabilitation methods applied to each domain; (f) contain landform design criteria including end of mine design; (g) detail how landform design will be consistent with the surrounding topography; (h) provide schematic representation of final landform inclusive of: <ul style="list-style-type: none"> i) drainage design and features ii) slope designs; iii) cover design; iv) erosion controls proposed on reformed land; v) explain planned native vegetation rehabilitation areas and corridors; (i) describe rehabilitation monitoring and maintenance requirements to be applied to all areas of disturbance; (j) develop a contingency plan for rehabilitation maintenance or redesign; and (k) describe end of mine landform design plan and post mining land uses across the mine.

Environmental authority EPML00738813 – Moranbah North Coal Mine

G19	<p>Rehabilitation Monitoring Program</p> <p>Once rehabilitation has commenced, the holder of the environmental authority must conduct a Rehabilitation Monitoring Program on a yearly basis, which must include sufficient spatial and temporal replication to enable statistically valid conclusions as established under the rehabilitation program.</p>
G20	<p>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.</p>
G21	<p>Verification of rehabilitation success, determined by the rehabilitation success criteria developed as per condition G18 is to be carried out as follows:</p> <ul style="list-style-type: none"> (a) the minimum sampling intensity must be specified for the monitoring of progressive rehabilitation; (b) justification of the suitability of the minimum sampling intensity must be provided; (c) monitoring must include sufficient replication to enable statistical analysis of results at an acceptable power; and (d) undertaken at twelve monthly intervals.
G22	<p>The Rehabilitation Monitoring Program must be updated and provided to the administering authority upon request, describing:</p> <ul style="list-style-type: none"> (a) how the rehabilitation objectives as per the Rehabilitation Management Plan will be achieved; and (b) verification of rehabilitation success as per condition G21.
G23	<p>Post Closure Management Plan</p> <p>A Post Closure Management Plan for the site must be developed and submitted to the administering authority at least 18 months prior to the final coal processing on site and implemented for a nominal period of:</p> <ul style="list-style-type: none"> (a) at least 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.

Environmental authority EPML00738813 – Moranbah North Coal Mine

G24	<p>The Post Closure Management Plan must include the following elements:</p> <p>(a) operation and maintenance of:</p> <ul style="list-style-type: none"> (i) wastewater collection and reticulation systems; (ii) wastewater treatment systems; (iii) the groundwater monitoring network; (iv) final cover systems of spoil dumps; and (v) vegetative cover; <p>(b) monitoring of:</p> <ul style="list-style-type: none"> (i) surface water quality; (ii) groundwater quality; (iii) seepage rates; (iv) erosion rates; (v) the integrity and stability of all slopes, ramps and voids; and (vi) the health and resilience of native vegetation cover.
G25	<p>Petroleum Pipeline</p> <p>Pipeline operations and maintenance must be in accordance, to the greatest practical extent, with the relevant section of the <i>APGA Code of Environmental Practice: Onshore Pipelines (2022) as amended and/or Australian Standard AS2885.3.2012 Pipelines – Gas and Liquid Petroleum, Part 3 Operation and Maintenance</i>.</p>
G26	<p>Written procedures must be developed prior to operation, to ensure operations and maintenance of the pipeline complies with the conditions of the environmental authority.</p>
G27	<p>After decommissioning, all significantly disturbed land caused by the carrying out of the petroleum activity(ies), must be rehabilitated in accordance with conditions of the environmental authority.</p>
G28	<p>Trench water, hydrostatic testing water, flush water or water used for pressure testing of this pipeline must be managed in accordance with conditions C1 to C16 inclusive and conditions C22 and C23 of the environmental authority.</p>

Environmental authority EPML00738813 – Moranbah North Coal Mine

Schedule H: Regulated Structures	
Condition number	Condition
H1	<p>Assessment of consequence category</p> <p>The consequence category of any structure must be assessed by a suitably qualified and experienced person in accordance with <i>the latest version of the administering authority's Manual for assessing consequence categories and hydraulic performance of structures</i> (ESR/2016/1933) at the following times:</p> <ul style="list-style-type: none"> (a) prior to the design and construction of the structure, if it is not an existing structure; or (b) prior to any change in its purpose or the nature of its stored contents.
H2	A consequence assessment report and certification must be prepared for each structure assessed and the report may include a consequence assessment for more than one structure.
H3	Certification must be provided by the suitably qualified and experienced person who undertook the assessment, in the form set out in the <i>Manual for assessing consequence categories and hydraulic performance of structures</i> (ESR/2016/1933).
H4	<p>Design and construction of a regulated structure</p> <p>Conditions H5 to H9 inclusive do not apply to existing structures.</p>
H5	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</i> (ESR/2016/1933).
H6	<p>Construction of a regulated structure is prohibited unless:</p> <ul style="list-style-type: none"> (a) the holder has submitted a consequence category assessment report and certification to the administering authority; and (b) certification for the design, design plan and the associated operating procedures has been certified by a suitably qualified and experienced person in compliance with the relevant condition of this environmental authority.
H7	Certification must be provided by the suitably qualified and experienced person who oversees the preparation of the design plan in the form set out in the <i>Manual for assessing consequence categories and hydraulic performance of structures</i> (ESR/2016/1933) and must be recorded in the Register of Regulated Structures.

Environmental authority EPML00738813 – Moranbah North Coal Mine

H8	<p>Regulated structures must:</p> <ul style="list-style-type: none"> (a) be designed and constructed in compliance with the <i>Manual for assessing consequence categories and hydraulic performance of structures</i> (ESR/2016/1933); (b) be designed and constructed with due consideration given to ensuring that the design integrity would not be compromised on account of: <ul style="list-style-type: none"> (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.
H9	<p>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:</p> <ul style="list-style-type: none"> (a) the 'as constructed' drawings and specifications meet the original intent of the design plan for that regulated structure; and (b) construction of the regulated structure is in accordance with the design plan.
H10	<p>Notification of affected persons</p> <p>All affected persons must be provided with a copy of the emergency action plan in place for each regulated structure:</p> <ul style="list-style-type: none"> (a) for existing structures that are regulated structures, within ten (10) business days of this conditiontaking effect; (b) prior to the operation of the new regulated structure; and (c) if the emergency action plan is amended, within five (5) business days of it being amended.

Environmental authority EPML00738813 – Moranbah North Coal Mine

H11	<p>Operation of a regulated structure</p> <p>Operation of a regulated structure, except for an existing structure, is prohibited unless the holder has submitted to the administering authority in respect of regulated structure, all of the following:</p> <ul style="list-style-type: none"> (a) one paper copy and one electronic copy of the design plan and certification of the 'design plan' in accordance with condition H6; (b) a set of 'as constructed' drawings and specifications; (c) certification of the 'as constructed drawings and specifications' in accordance with condition H9; (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 environmental authority relating to the construction of the regulated structure have been met; (f) the holder has entered the details required under this environmental authority, into a Register of Regulated Structures; and (g) there is a current operational plan for the regulated structure.
H12	<p>For existing structures that are regulated structures:</p> <ul style="list-style-type: none"> (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.
H13	<p>Each regulated structure must be maintained and operated, for the duration of its operational life until decommissioned and rehabilitated, in compliance with the current operational plan and, if applicable, the current design plan and associated certified 'as constructed' drawings.</p>
H14	<p>Mandatory reporting level</p> <p>Conditions H15 to H16 inclusive only apply to Regulated Structures which have not been certified as low consequence category for 'failure to contain – overtopping'.</p>
H15	<p>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.</p>
H16	<p>The holder must, as soon as practicable but within forty-eight (48) hours of becoming aware, notify the administering authority when the level of the contents of a regulated dam reaches the MRL.</p>
H17	<p>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.</p>
H18	<p>The holder must record any changes to the MRL in the Register of Regulated Structures.</p>

Permit

Environmental authority EPML00738813 – Moranbah North Coal Mine

H19	<p>Design storage allowance</p> <p>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.</p>
H20	<p>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).</p>
H21	<p>The holder must, as soon as practicable but within forty-eight (48) hours of becoming aware that the regulated dam (or network of linked containment systems) will not have the available storage to meet the DSA volume on 1 November of any year, notify the administering authority.</p>
H22	<p>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.</p>
H23	<p>Annual inspection report</p> <p>Each regulated structure must be inspected each calendar year by a suitably qualified and experienced person.</p>
H24	<p>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 a recommendations section, with any recommended actions to ensure the integrity of the regulated structure or a positive statement that no recommendations are required.</p>
H25	<p>The suitably qualified and experienced person who prepared the annual inspection report must certify the report in accordance with the <i>Manual for assessing consequence categories and hydraulic performance of structures</i> (ESR/2016/1933).</p>
H26	<p>The holder must within 20 business days of receipt of the annual inspection report, provide to the administering authority:</p> <ul style="list-style-type: none"> (a) the recommendations section of the annual inspection report; and (b) if applicable, any actions being taken in response to those recommendations; and (c) if, following receipt of the recommendations and (if applicable) recommended actions, the administering authority requests a 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.
H27	<p>Transfer arrangements</p> <p>The holder must provide a copy of any reports, documentation and certifications prepared under this environmental 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 environmental authority.</p>
H28	<p>Register of Regulated Structures</p> <p>A Register of Regulated Structures must be established and maintained by the holder for each regulated structure.</p>

Permit

Environmental authority EPML00738813 – Moranbah North Coal Mine

H29	The holder must provisionally enter the required information in the Register of Regulated Structures when a design plan for a regulated dam is submitted to the administering authority.
H30	The holder must make a final entry of the required information in the Register of Regulated Structures once compliance with conditions H11 and H12 have been achieved.
H31	The holder must ensure that the information contained in the Register of Regulated Structures is current and complete on any given day.
H32	All entries in the Register of Regulated Structures must be approved by the chief executive officer for the holder of this authority, or their delegate, as being accurate and correct.
H33	The holder must supply a copy of the records contained in the Register of Regulated Structures, in the electronic format required, upon request from the administering authority.
H34	<p>Transitional arrangements</p> <p>All existing structures that have not been assessed in accordance with either the Manual or the former Manual for Assessing Hazard Categories and Hydraulic Performance of Dams must be assessed and certified in accordance with the Manual within 6 months of amendment of the authority adopting this schedule.</p>
H35	All existing structures must subsequently comply with the timetable for any further assessments in accordance with the Manual specified in Table H1 – 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.
H36	<p>Table H1 – Transitional hydraulic performance requirements for existing structures ceases to apply for a structure once any of the following events has occurred:</p> <p>(a) it has been brought into compliance with the hydraulic performance criteria applicable to the structure under the Manual; or</p> <p>(b) it has been decommissioned; or</p> <p>(c) it has been certified as no longer being assessed as a regulated structure.</p>
H37	Certification of the transitional assessment required by H35 and H36 (as applicable) must be provided to the administering authority within 6 months of amendment of the authority adopting this schedule.

Environmental authority EPML00738813 – Moranbah North Coal Mine

Table H1: Transitional hydraulic performance requirements for existing structures

Transition period required for existing structures to achieve the requirements of the <i>Manual for Assessing Consequence Categories and Hydraulic Performance of Dams</i>			
Compliance with criteria	High consequence	Significant consequence	Low consequence
>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 by 30 July 2025 and by 30 July every 7 years thereafter.
>70%-≤90%	By 30 July 2025 , unless otherwise agreed with the administering authority, based on no history of unauthorised releases.	By 30 July 2033 , unless otherwise agreed with the administering authority, based on no history of unauthorised releases.	No transitional conditions apply. Review consequence assessment by 30 July 2025 and by 30 July every 7 years thereafter.
>50-≤70%	By 30 July 2023 unless otherwise agreed with the administering authority, based on no history of unauthorised releases.	By 30 July 2025 unless otherwise agreed with the administering authority, based on no history of unauthorised releases.	Review consequence assessment by 30 July 2025 and by 30 July every 7 years thereafter.
≤50%	By 30 July 2023 or as per compliance requirements (e.g. TEP timing).	By 30 July 2023 or as per compliance requirements (e.g. TEP timing).	Review consequence assessment by 30 July 2023 and by 30 July every 5 years thereafter.
Regulated levee designed to prevent the ingress of clean flood water <100% compliant.	By 30 July 2023 years unless otherwise agreed with the administering authority.		

Environmental authority EPML00738813 – Moranbah North Coal Mine

Schedule I: Community	
Condition number	Condition
I1	<p>Complaint Response</p> <p>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:</p> <ul style="list-style-type: none"> (a) name, address, and contact number for complainant (if not available record – not identified); (b) time and date of complaint; (c) investigations undertaken; (d) conclusions formed; (e) actions taken to resolve complaint; (f) any abatement measures implemented; and (g) person responsible for resolving the complaint.
I2	<p>The holder of this environmental authority must, when requested by the administering authority, undertake relevant specified monitoring within a timeframe nominated or agreed to by the administering authority to investigate any complaint of environmental harm. The results of the investigation (including an analysis and interpretation of the monitoring results) and abatement measures, where implemented, must be provided to the administering authority within ten (10) business days of completion of the investigation, or no later than ten (10) business days after the end of the timeframe nominated by the administering authority to undertake the investigation.</p>

Environmental authority EPML00738813 – Moranbah North Coal Mine

Schedule J: Sewage Treatment	
Condition number	Condition
J1	<p>Sewage Treatment</p> <p>The daily operation of the sewage treatment plant and pollution control equipment must be carried out by a person(s) with appropriate experience and/or qualifications to ensure the effective operation of that treatment system and control equipment.</p>
J2	Pipelines and fittings associated with the sewage treatment plant must be clearly identified. Lockable valves or removable handles must be fitted to all release pipelines situated in public access areas.
J3	Effluent from the sewage treatment plant must only be discharged from the authorised discharge points for the purpose of irrigation, as specified in Table J1: Effluent Discharge Locations in compliance with the limits stated in Table J2: Effluent Release Limits to Land and the conditions of this environmental authority.

Table J1: Effluent Discharge Locations

Authorised Discharge Points	Location	Latitude (decimal degree, ADG84)	Longitude (decimal degree,ADG84)
Effluent Discharge Point	Effluent irrigation area	X1: 147.5759 X2: 147.5840	Y1: -21.5255 Y2: -21.5253

Table J2: Effluent Release Limits to Land

Quality characteristics	Release Limit		
	Minimum	Median	Maximum
5 Day BOD	n/a	n/a	50 mg/L
Faecal Coliform (FC)	n/a	1000 cfu/100mL	n/a
Suspended solids	n/a	n/a	30 mg/L
Electrical conductivity	n/a	1600 µS/cm	n/a
pH	6.5	n/a	8.5
Free Chlorine Residual	n/a	n/a	10 mg/L
Total Nitrogen	n/a	n/a	40 mg/L
Total Phosphorus	n/a	n/a	8 mg/L
Oil and Grease	n/a	n/a	10 mg/L

Environmental authority EPML00738813 – Moranbah North Coal Mine

J4	Notwithstanding the quality characteristic limits specified in Table J2: Effluent Release Limits to Land , releases of effluent must not have any properties nor contain any organisms or other contaminants in concentrations that are capable of causing environmental harm.
J5	Effluent from the sewage treatment plant, for the purpose of dust suppression, must only be discharged from the authorised discharge points, as specified in Table J1: Effluent Discharge Locations in compliance with the limits stated in Table J2: Effluent Release Limits to Land and the conditions of this environmental authority.
J6	Effluent must not be released from the site to any waters or the bed and banks of any waters.
J7	Water or storm water contaminated by sewage treatment activities must not be released to any waters or the bed and banks of any waters
J8	Water or storm water contaminated by sewage treatment activities must not be released to land.
J9	<p>Land Disposal - Irrigation</p> <p>The irrigation of effluent must be carried out in a manner such that:</p> <ul style="list-style-type: none"> (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.
J10	Notices must be prominently displayed on areas undergoing effluent irrigation, warning the public that the area is irrigated with effluent and not to use or drink the effluent. These notices must be maintained in a visible and legible condition.
J11	The daily volume of contaminants released to land must be determined or estimated by an appropriate method, for example a flow meter, and records kept of such determinations and estimates.
J12	When conditions prevent the irrigation of treated effluent to land (such as during or following rain events), the contaminants must be directed to a wet weather storage or alternative measures must be taken to store/lawfully dispose of effluent (such as wet weather storage or tanking off site to another treatment plant or sewer). A record must be kept of any removal or discharge off site, including destination, transporter, dates and volumes.

Environmental authority EPML00738813 – Moranbah North Coal Mine

J13	<p>Treated Effluent Removal</p> <p>A record of the removal of treated effluent from site must be kept detailing the following information:</p> <ul style="list-style-type: none"> (a) date of pickup of treated effluent; (b) volume of treated effluent removed from the site; (c) destination of the treated effluent; and (d) the transporter.
J14	<p>If the responsibility of the treated effluent is given or transferred to another person:</p> <ul style="list-style-type: none"> (a) the responsibility of such effluent must only be given or transferred in accordance with a written agreement (the third party agreement); (b) include in the third party agreement a commitment from the person utilising the effluent to use effluent in such a way as to prevent environmental harm or public health incidences and specifically make the persons aware of the General Environmental Duty (GED) under section 319 of the <i>Environmental Protection Act 1994</i>, environmental sustainability of any effluent disposal and protection of environmental values of waters; and (c) upon being notified or otherwise becoming aware that the person's use of effluent is causing or threatens to cause environmental harm or is posing a human health risk, and if the person does not rectify the situation upon written request, the giving and transferring responsibility for such effluent must cease.
J15	<p>Monitoring must be undertaken, and records kept of a monitoring program of contaminant releases to the irrigation area at the monitoring points, frequency, and for the parameters specified in Table J3: Effluent Monitoring Program.</p>
J16	<p>The following information must be recorded in relation to all sampling:</p> <ul style="list-style-type: none"> (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 flow of effluent at the time of sampling; and (e) the results of all monitoring.
J17	<p>Biosolids</p> <p>Biosolids produced by the activity for re-use must be:</p> <ul style="list-style-type: none"> (a) sampled, analysed, graded and classified according to the procedures specified in the administering authority's systems and standards; and (b) re-used under a relevant approval issued by the administering authority.

Permit

Environmental authority EPML00738813 – Moranbah North Coal Mine

Table J3: Effluent Monitoring Program

Monitoring point	Quality characteristics	Units	Frequency
Effluent Monitoring Point 1 (effluent irrigation line)	5 Day BOD	mg/L	Monthly
	Faecal Coliform	cfu/100mL ²	
	Suspended Solids	mg/L	
	Electrical Conductivity	µS/ cm	
	pH	pH units	
	Free Chlorine Residual	mg/L	
	Total Nitrogen	mg/L	
	Total Phosphorus	mg/L	
	Oil and Grease	mg/L	

Environmental authority EPML00738813 – Moranbah North Coal Mine

Schedule K: Stimulation Activities	
Condition number	Condition
K1	Stimulation activities must not cause the connection of the target gas producing formation and another aquifer.
K2	Practices and procedures must be in place to detect, as soon as practicable, any fractures that cause the connection of a target gas producing formation and another aquifer.
K3	The use of restricted stimulation fluids (as defined in the <i>Environmental Protection Act 1994</i>) is prohibited.
K4	Polycyclic aromatic hydrocarbons or products that contain polycyclic aromatic hydrocarbons must not be used in stimulation fluids in concentrations above the reporting limit.
K5	Stimulation activities must not negatively affect water quality, other than that within the stimulation impact zone of the target gas producing formation.
K6	The internal and external mechanical integrity of the well system prior to and during stimulation must be ensured such that there is: <ul style="list-style-type: none"> (a) no significant leakage in the casing, tubing, or packer; and (b) there is no significant fluid movement into another aquifer through vertical channels adjacent to the well bore hole.
K7	<p>Stimulation Risk Assessment</p> <p>Prior to undertaking stimulation activities, a risk assessment must be developed to ensure that stimulation activities are managed to prevent environmental harm.</p>

Environmental authority EPML00738813 – Moranbah North Coal Mine

K8	<p>The stimulation risk assessment must be carried out for every well to be stimulated prior to stimulation being carried out at that well and address issues at a relevant geospatial scale such that changes to features and attributes are adequately described and must include, but not necessarily be limited to:</p> <ul style="list-style-type: none"> (a) a process description of the stimulation activity to be applied, including equipment and a comparison to best international practice; (b) provide details of where, when and how often stimulation is to be undertaken on the tenures covered by this environmental authority; (c) a geological model of the field to be stimulated including geological names, descriptions and depths of the target gas producing formation(s); (d) naturally occurring geological faults; (e) seismic history of the region (e.g. earth tremors, earthquakes); (f) proximity of overlying and underlying aquifers; (g) description of the depths that aquifers with environmental values occur, both above and below the target gas producing formation; (h) identification and proximity of landholder' active groundwater bores in the area where stimulation activities are to be carried out; (i) the environmental values of groundwater in the area; (j) an assessment of the appropriate limits of reporting for all water quality indicators relevant to stimulation monitoring in order to accurately assess the risks to environmental values of groundwater; (k) description of overlying and underlying formations in respect of porosity, permeability, hydraulic conductivity, faulting and fracture propensity; (l) consideration of barriers or known direct connections between the target gas producing formation and the overlying and underlying aquifers; (m) a description of the well mechanical integrity testing program; (n) process control and assessment techniques to be applied for determining extent of stimulation activities (e.g. microseismic measurements, modelling etc.); (o) practices and procedures to ensure that the stimulation activities are designed to be contained within the target gas producing formation; (p) groundwater transmissivity, flow rate, hydraulic conductivity and direction(s) of flow; (q) a description of the chemical compounds used in stimulation activities (including estimated total mass, estimated composition, chemical abstract service numbers and properties), their mixtures and the resultant compounds that are formed after stimulation; (r) a mass balance estimating the concentrations and absolute masses of chemical compounds that will be reacted, returned to the surface or left in the target gas producing formation subsequent to stimulation;
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Environmental authority EPML00738813 – Moranbah North Coal Mine

	<p>(s) an environmental hazard assessment of the chemicals used, including their mixtures and the resultant chemicals that are formed after stimulation including:</p> <ul style="list-style-type: none"> a. toxicological and ecotoxicological information of chemical compounds used; b. information on the persistence and bioaccumulation potential of the chemical compounds used; and c. identification of the chemicals of potential concern in stimulation fluids derived from the risk assessment. <p>(t) an environmental hazard assessment of use, formation of, and detection of polycyclicaromatic hydrocarbons in stimulation activities;</p> <p>(u) identification and an environmental hazard assessment of using radioactive tracer beads instimulation activities;</p> <p>(v) an environmental hazard assessment of leaving chemical compounds in stimulation fluids in the target gas producing formation for extended periods subsequent to stimulation;</p> <p>(w) human health exposure pathways to operators and the regional population;</p> <p>(x) risk characterisation of environmental impacts based on the environmental hazard assessment;</p> <p>(y) potential impacts to active landholder bores as a result of stimulation activities;</p> <p>(z) an assessment of cumulative underground impacts, spatially and temporally of the stimulation activities to be carried out on the tenures covered by this environmental authority; and</p> <p>(aa) potential environmental or health impacts which may result from stimulation activities including but not limited to water quality, air quality (including suppression of dust and other airborne contaminants), noise and vibration.</p>
<p>K9</p>	<p>Water quality baseline monitoring</p> <p>Prior to undertaking any stimulation activity, a baseline bore assessment must be undertaken of the water quality of:</p> <ul style="list-style-type: none"> (a) all landholder's active groundwater bores (subject to access being permitted by the landholder) that are spatially located within a two (2) kilometre horizontal radius from the location of the stimulation initiation point within the target gas producing formation; and (b) all landholders' active groundwater bores (subject to access being permitted by the landholder) in any aquifer that is within two hundred (200) metres above or below the target gas producing formation and is spatially located with a two (2) kilometre radius from the location of the stimulation initiation point; and (c) any other bore that could potentially be adversely impacted by the stimulation activities in accordance with the findings of the risk assessment required by conditions K7 and K8.

Environmental authority EPML00738813 – Moranbah North Coal Mine

K10	Prior to undertaking stimulation activities at a well, there must be sufficient water quality data to accurately represent the water quality in the well to be stimulated. The data must include as a minimum the results of analyses for the parameters in condition K11 .
K11	<p>Baseline bore assessments required by condition K9 and well assessments required by condition K10 must include relevant analytes and physico-chemical parameters to be monitored in order to establish baseline water quality and must include, but not necessarily be limited to:</p> <ul style="list-style-type: none"> (a) pH; (b) electrical conductivity [$\mu\text{S}/\text{m}$]; (c) turbidity [NTU]; (d) total dissolved solids [mg/L]; (e) temperature [$^{\circ}\text{C}$]; (f) dissolved oxygen [mg/L]; (g) dissolved gases (methane, chlorine, carbon dioxide, hydrogen sulfide) [mg/L]; (h) alkalinity (bicarbonate, carbonate, hydroxide and total alkalinity as CaCO_3) [mg/L]; (i) sodium adsorption ratio (SAR); (j) anions (bicarbonate, carbonate, hydroxide, chloride, sulphate) [mg/L]; (k) cations (aluminium, calcium, magnesium, potassium, sodium) [mg/L]; (l) dissolved and total metals and metalloids (including but not necessarily being limited to: aluminium, arsenic, barium, borate (boron), cadmium, total chromium, copper, iron, fluoride, lead, manganese, mercury, nickel, selenium, silver, strontium, tin and zinc) [$\mu\text{g}/\text{L}$]; (m) total petroleum hydrocarbons [$\mu\text{g}/\text{L}$]; (n) BTEX (as benzene, toluene, ethylbenzene, ortho-xylene, para- and meta-xylene, and total xylene) [$\mu\text{g}/\text{L}$]; (o) polycyclic aromatic hydrocarbons (including but not necessarily being limited to: naphthalene, phenanthrene, benzo[a]pyrene) [$\mu\text{g}/\text{L}$]; (p) sodium hypochlorite [mg/L]; (q) sodium hydroxide [mg/L]; (r) formaldehyde [mg/L]; (s) ethanol [mg/L]; and (t) gross alpha + gross beta or radionuclides by gamma spectroscopy [Bq/L].

Environmental authority EPML00738813 – Moranbah North Coal Mine

K12	<p>Stimulation Impact Monitoring Program</p> <p>A Stimulation Impact Monitoring Program must be developed prior to the carrying out of stimulation activities which must be able to detect adverse impacts to water quality from stimulation activities and must consider the findings of the risk assessment required by conditions K7 and K8 that relate to stimulation activities and must include, as a minimum, monitoring of:</p> <ul style="list-style-type: none"> (a) the stimulation fluids to be used in stimulation activities at sufficient frequency and which sufficiently represents the quantity and quality of the fluids used; (b) flow back waters from stimulation activities at sufficient frequency and which sufficiently represents the quality of that flow back water; (c) flow back waters from stimulation activities at sufficient frequency and accuracy to demonstrate that: <ul style="list-style-type: none"> i) 150% of the volume used in stimulation activities has been extracted from the stimulated well; or ii) all additives used in stimulation activities have been removed; and (d) all bores in accordance with condition K9.
K13	<p>The Stimulation Impact Monitoring Program must provide for monitoring of:</p> <ul style="list-style-type: none"> (a) analytes and physico-chemical parameters relevant to baseline bore and well assessments to enable data referencing and comparison including, but not necessarily being limited to the analytes and physicochemical parameters in condition K11; and (b) any other analyte or physico-chemical parameters that will enable detection of adverse water quality impacts and the inter-connection with a non-target aquifer as a result of stimulation activities including chemical compounds that are actually or potentially formed by chemical reactions with each other or coal seam materials during stimulation activities.
K14	<p>The Stimulation Impact Monitoring Program must provide for monitoring of the bores in condition K12 d) at the following minimum frequency:</p> <ul style="list-style-type: none"> (a) monthly for the first six (6) months subsequent to stimulation activities being undertaken; then, (b) annually for the first five (5) years subsequent to stimulation being undertaken or until analytes and physico-chemical parameters listed in conditions K11 a) to K11 t) inclusive, are not detected in concentrations above baseline bore monitoring data on two (2) consecutive monitoring occasions, or up until the stimulation well is mined through due to longwall activities and is no longer accessible.
K15	<p>The results of the Stimulation Impact Monitoring Program must be made available to any potentially affected landholder upon request by that landholder.</p>

Environmental authority EPML00738813 – Moranbah North Coal Mine

K16	<p>In addition to the requirements under Chapter 7, Part 1, Division 2 of the <i>Environmental Protection Act 1994</i>, the administering authority must be notified through the Pollution Hotline and in writing, as soon as possible, but within forty-eight (48) hours of becoming aware of any of the following events:</p> <ul style="list-style-type: none"> (a) unauthorised releases of volumes of contaminants, in any mixture, to land greater than: <ul style="list-style-type: none"> i) 200 L of stimulation additives; or ii) 500 L of stimulation fluids. (b) the use of restricted stimulation fluids (as defined in the <i>Environmental Protection Act 1994</i>); and (c) groundwater monitoring results from a landholder's active groundwater bore monitored under the Stimulation Impact Monitoring Program which is a 10% or greater increase from a previous baseline value for that bore and which renders the water unfit for its intended use.
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Environmental authority EPML00738813 – Moranbah North Coal Mine

Schedule L: Biodiversity	
Condition number	Condition
L1	<p>Offsets for ML700042</p> <p>Conditions L2 to L8 apply only to the area of disturbance associated with ML700042.</p>
L2	<p>Significant residual impacts to prescribed environmental matters are not authorised under this environmental authority unless the impacts are specified in Table L1 – Significant residual impacts to prescribed environmental matters within ML700042 and the location of impact are as identified in Appendix 3: Moranbah North Site Plan (Underground Mine Layout Plan) for ML700042, and only ancillary gas drainage activities outside the project area depicted in Appendix 3: Moranbah North Site Plan (Underground Mine Layout).</p>
L3	<p>An environmental offset made in accordance with the <i>Environmental Offsets Act 2014</i> and Queensland Environmental Offset Policy, must be undertaken for the maximum extent of impact to each prescribed environmental matter authorised in Table L1 – Significant residual impacts to prescribed environmental matters within ML700042 unless a lesser extent of the impact has been approved in accordance with condition L6 or the same or substantially the same impact has been assessed under the EPBC Act.</p>
L4	<p>Staged Impacts</p> <p>The significant residual impacts to a prescribed environmental matter authorised in condition L2 for which an environmental offset is required by condition L3 may be carried out in stages. An environmental offset can be delivered for each stage of the impacts to prescribed environmental matters.</p>
L5	<p>Prior to the commencement of each stage, a report completed by an appropriately qualified person, that includes an analysis of the following must be provided to the administering authority:</p> <ul style="list-style-type: none"> (a) For the forthcoming stage—the estimated significant residual impacts to each prescribed environmental matter; and (b) For the previous stage, if applicable—the actual significant residual impacts to each prescribed environmental matter, to date.
L6	<p>The report required by condition L5 must be accepted by the administering authority before a notice of election for the forthcoming stage, if applicable, is given to the administering authority.</p>
L7	<p>A notice of election for the staged environmental offset referred to in condition L6, if applicable, must be provided to the administering authority no less than three (3) months before the proposed commencement of that stage, unless a lesser timeframe has been agreed to by the administering authority.</p>
L8	<p>Within six (6) months from the completion of the final stage of the project, a report completed by an appropriately qualified person, that includes the following matters must be provided to the administering authority:</p> <ul style="list-style-type: none"> (a) An analysis of the actual impacts on prescribed environmental matters resulting from the final stage; and (b) If applicable, a notice of election to address any outstanding offset debits for the authorised impacts.

Environmental authority EPML00738813 – Moranbah North Coal Mine

Table L1: Significant residual impacts to prescribed environmental matters within ML700042

Prescribed environmental matter		Maximum extent of impact (ha)	Offset requirement
REGULATED VEGETATION			
Of concern regional ecosystem	RE11.3.2 – <i>Eucalyptus populnea</i> woodland on alluvial plains*	10.1	Yes
Regional ecosystems within the defined distance from the defining banks of a relevant watercourse on the vegetation management watercourse map –	RE11.3.2 – <i>Eucalyptus populnea</i> woodland on alluvial plains	1.9	No
	RE 11.5.3 and BVG 17a – <i>Eucalyptus populnea</i> and/or <i>Eucalyptus melanophloia</i> and/or <i>Corymbia clarksoniana</i> woodland on Cainozoic sand plains*	6.2	Yes
	RE 11.5.9c and BVG 18b - <i>Eucalyptus crebra</i> and other <i>Eucalyptus</i> spp. and <i>Corymbia</i> spp. woodland on Cainozoic sand plains	8.9	Yes
	RE 11.7.2 and BVG 24a – <i>Acacia</i> spp. woodland on Cainozoic lateritic duricrust	5.9	Yes
	RE 11.7.3 – <i>Eucalyptus persistens</i> , <i>Triodia mitchellii</i> open woodland on stripped margins of Cainozoic lateritic duricrust	1.9	No
	RE 11.3.25 – <i>Eucalyptus tereticornis</i> or <i>Eucalyptus camaldulensis</i> woodland fringing drainage lines	1.5	No
Connectivity	Remnant vegetation	532.7	No
THREATENED SPECIES (listed under the Nature Conservation Act 1992)			
Special Least Concern species	Short-beaked Echidna (<i>Tachyglossus aculeatus</i>)	534.2	No
MATTERS OF NATIONAL ENVIRONMENTAL SIGNIFICANCE			
Endangered regional ecosystem	Brigalow TEC	5.4	No
Protected Wildlife Habitat	Vulnerable Squatter Pigeon (Southern) (<i>Geophaps scripta scripta</i>) breeding habitat	265	Yes*
	Squatter Pigeon (Southern) (<i>Geophaps scripta scripta</i>) foraging habitat	270	Yes*
	Vulnerable Koala	530	Yes*
	Vulnerable Australian Painted Snipe	12.3	No
	Vulnerable Greater Glider	530	Yes*
	Vulnerable Ornamental Snake	41	Yes*

Table L1 Notes:

* These matters will be offset under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC) approval conditions (EPBC2018/8338).

Environmental authority EPML00738813 – Moranbah North Coal Mine

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.

“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 ground water levels and catchment yields.

“administering authority” is the agency or department that administers the environmental authority provisions under the *Environmental Protection Act 1994*.

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

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

“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 environmental authority;
- (e) for conformance with the ‘as constructed’ drawings;
- (f) for the adequacy of the available storage in each regulated dam, based on an actual observation or observations taken after 31 May each year but prior to 1 November of that year, of accumulated sediment, state of the containment barrier and the level of liquids in the **dam** (or network of linked containment systems);
- (g) for evidence of conformance with the current operational plan.

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

 Environmental authority EPML00738813 – Moranbah North Coal Mine

“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 relating to the subject matter using the relevant protocols, standards, methods or literature.

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

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

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

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

“authority” or “environmental authority” means environmental authority (resource activities) under Chapter 5 of the *Environmental Protection Act 1994*.

“bed and banks” for a waters, river, creek, stream, lake, lagoon, pond, swamp, wetland or dam means land over which the water of the waters, lake, lagoon, pond, swamp, wetland or dam normally flows or that is normally covered by the water, whether permanently or intermittently; but does not include land adjoining or adjacent to the bed and banks that is from time to time covered by floodwater.

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

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

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

“bunded” means within bunding consistent with *Australian Standard AS1940 The Storage and Handling of Flammable and Combustible Liquids*.

“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 to ‘certification’.

 Environmental authority EPML00738813 – Moranbah North Coal Mine

“chemical” means –

- (a) an agricultural chemical product or veterinary chemical product within the meaning of the *Agricultural and Veterinary Chemicals Code Act 1994* (Commonwealth); or
- (b) a dangerous good under the dangerous goods code; or
- (c) a lead hazardous substance within the meaning of the *Workplace Health and Safety Regulation 2008*; or
- (d) a drug or poison in the Standard for the Uniform Scheduling of Drugs and Poisons prepared by the Australian Health Ministers’ Advisory Council and published by the Commonwealth; or
- (e) any substance used as, or intended for use as –
 - (i) a pesticide, insecticide, fungicide, herbicide, rodenticide, nematocide, miticide, fumigant or related product; or
 - (ii) a surface active agent, including, for example, soap or related detergent; or
 - (iii) a paint solvent, pigment, dye, printing ink, industrial polish, adhesive, sealant, food additive, bleach, sanitiser, disinfectant, or biocide; or
 - (iv) a fertiliser for agricultural, horticultural or garden use; or
- (f) a substance used for, or intended for use for –
 - (i) mineral processing or treatment of metal, pulp and paper, textile, timber, water or wastewater; or
 - (ii) manufacture of plastic or synthetic rubber.

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

“competent person” means a person with the demonstrated skill and knowledge required to carry out the task to a standard necessary for the reliance upon collected data or protection of the environment.

“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.

“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.

“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 Hazard Categories and Hydraulic Performance of Dams* published by the Department of Environment and Resource Management, that 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.

Environmental authority EPML00738813 – Moranbah North Coal Mine

“**disturbance**” of land includes:

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

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

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

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

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

“**exploration activities**” means mining activities conducted to assess the geological structure, define the resource and support mine planning.

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

“**flowable substance**” means matter or a mixture of materials which can 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.

“**FRREMP**” means a Fitzroy Basin Receiving Environment Monitoring Program for the region in which the EA is located, that has been endorsed in writing by the administering authority.

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

“**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).

 Environmental authority EPML00738813 – Moranbah North Coal Mine

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

“**L_{A10, 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_{A1, 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, that is, the term has a different meaning from the term as defined in the *Environmental Protection Act 1994*. For the purposes of the *Acts Interpretation Act 1954*, it is expressly noted that the term ‘land’ in this environmental authority relates to physical land and not to interests in land.

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

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

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

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

“**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.

“**LOR**” means typical reporting for method stated in ICPMS/CV FIMS – analytical method required to achieve LOR.

“**m**” means metres.

“**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.

“**mg/L**” means milligrams per litre.

Environmental authority EPML00738813 – Moranbah North Coal Mine

“mine affected water”:

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

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

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

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

“operational plan” includes:

- (a) normal operating procedures and rules (including clear documentation and definition of process inputs in the DSA);
- (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.

‘Participant of the FRREMP’ means an environmental authority holder that is identified as a current participant by the organisation carrying out the Regional REMP.

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

Environmental authority EPML00738813 – Moranbah North Coal Mine

“**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).

“**prescribed environmental matters**” has the meaning in section 10 of the *Environmental Offsets Act 2014*, limited to the matters of State environmental significance listed in Schedule 2 of the *Environmental Offsets Regulation 2014*.

“**protected area**” means:

- (a) a protected area under the *Nature Conservation Act 1992*;
- (b) a marine park under the *Marine Parks Act 2004*; or
- (c) a World Heritage Area.

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

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

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

“**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 presented 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* (ESR/2016/1933);
- (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,

Environmental authority EPML00738813 – Moranbah North Coal Mine

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 environmental authority as at 1 November of each year.

“regulated structure” means any structure 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. A regulated structure does not include:

- (a) a fabricated or manufactured tank or container, designed and constructed to an Australian Standard that deals with strength and structural integrity of that tank or container;
- (b) a sump or earthen pit used to store residual drilling material and drilling fluid only for the duration of drilling and well completion activities;
- (c) a flare pit.

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

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

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

“residual ponding” means the accumulation of surface water (permanent or periodic or intermittent with water that is static or flowing) in a surface depression caused as a direct result of longwall mining subsidence on ML700042 for greater than 3 months, or for a period otherwise demonstrated as being consistent with the surrounding landscape that is not part of a stream or riverine area (including the bank and bed).

“saline drainage” 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.

Note: The definition of ‘sensitive place’ and ‘commercial place’ is based on Schedule 1 of EPP Noise. That is, a sensitive place is inside or outside on a dwelling, library and educational institution, childcare or kindergarten, school or playground, hospital, surgery or other medical institution, commercial & retail activity, protected area or an area identified under a conservation plan under Nature Conservation Act 1992 as a critical habitat or an area of major interest, marine park under Marine Parks Act 2004, park or garden that is outside of the mining lease and open to the public for the use other than for sport or organised entertainment. A commercial place is inside or outside a commercial or retail activity.

Environmental authority EPML00738813 – Moranbah North Coal Mine

A mining camp (i.e., accommodation and ancillary facilities for mine employees or contractors or both, associated with the mine the subject of the environmental authority) is not a sensitive place for that mine or mining project, whether or not the mining camp is located within a mining tenement that is part of the mining project the subject of the environmental authority. For example, the mining camp might be located on neighbouring land owned or leased by the same company as one of the holders of the environmental authority for the mining project, or a related company. Accommodation for mine employees or contractors is not a sensitive place if the land is held by a mining company or related company, and if occupation is restricted to the employees, contractors and their families for the particular mine or mines which are held by the same company or a related company.

However, a township (occupied by the mine employees, contractors and their families for multiple mines that are held by different companies) would be a sensitive place, even if part or all of the township is constructed on land owned by one or more of the companies.

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

“**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.

“**suitably qualified and experienced person**” means a person who is a Registered Professional Engineer of Queensland under the provisions of the *Professional Engineers Act 2002*, who has an **appropriate level of expertise** in the structures, geomechanics, hydrology, hydraulics and environmental impact of watercourse diversions.

An **appropriate level of expertise** includes:

- (a) demonstrable competency, experience and expertise in:
 - (i) investigation, design or construction of watercourses diversions
 - (ii) operation and maintenance of watercourse diversions
 - (iii) geomechanics with particular emphasis on channel equilibrium, geology and geochemistry
 - (iv) hydrology with particular reference to flooding, estimation of extreme storms, water management or meteorology
 - (v) hydraulics with particular reference to sediment transport and deposition and erosion control
 - (vi) hydrogeology with particular reference to seepage and groundwater solute transport processes and monitoring thereof, or
- (b) sufficient knowledge and experience to certify that where the **suitably qualified and experienced person** has relied on advice and information provided by other **persons with relevant expertise**
- (c) the expert providing the advice and information has knowledge, competency, suitable experience and demonstrated expertise in the matters related to watercourse diversions.

Persons with relevant expertise include:

- Geomorphologist: person who has demonstrated competency and relevant experience in stream geomorphology and watercourse diversions.
- Geotechnical Expert: person who has demonstrated competency and relevant experience in geotechnical assessment of soil characteristics suitable for watercourse diversions.
- Vegetation Expert: person who has demonstrated competency and relevant experience in the identification, role and function of vegetation with watercourses and adjoining floodplains, and has demonstrated competency and relevant experience in revegetation of watercourse diversions and adjoining floodplains.
- Groundwater Expert: person who has demonstrated competency and relevant experience in groundwater systems.

Environmental authority EPML00738813 – Moranbah North Coal Mine

- Surface Water Expert: person who has demonstrated competency and relevant experience in hydrology.
- Engineer: person who is a Registered Professional Engineer of Queensland (RPEQ) under the provisions of the *Professional Persons Act 2002* or has similar qualifications under a respected professional registration association, and has demonstrated competency and relevant experience in design and construction of watercourse diversions.
- Soils Expert: person who has demonstrated competency and relevant experience in soil classification including the physical, chemical and hydrologic analysis of soil.

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

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

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

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

“**water**” is defined under Schedule 4 of the *Water Act 2000*.

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

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

“**waters**” includes –

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

“**WaTERs**” means the Water Tracking and Electronic Reporting System

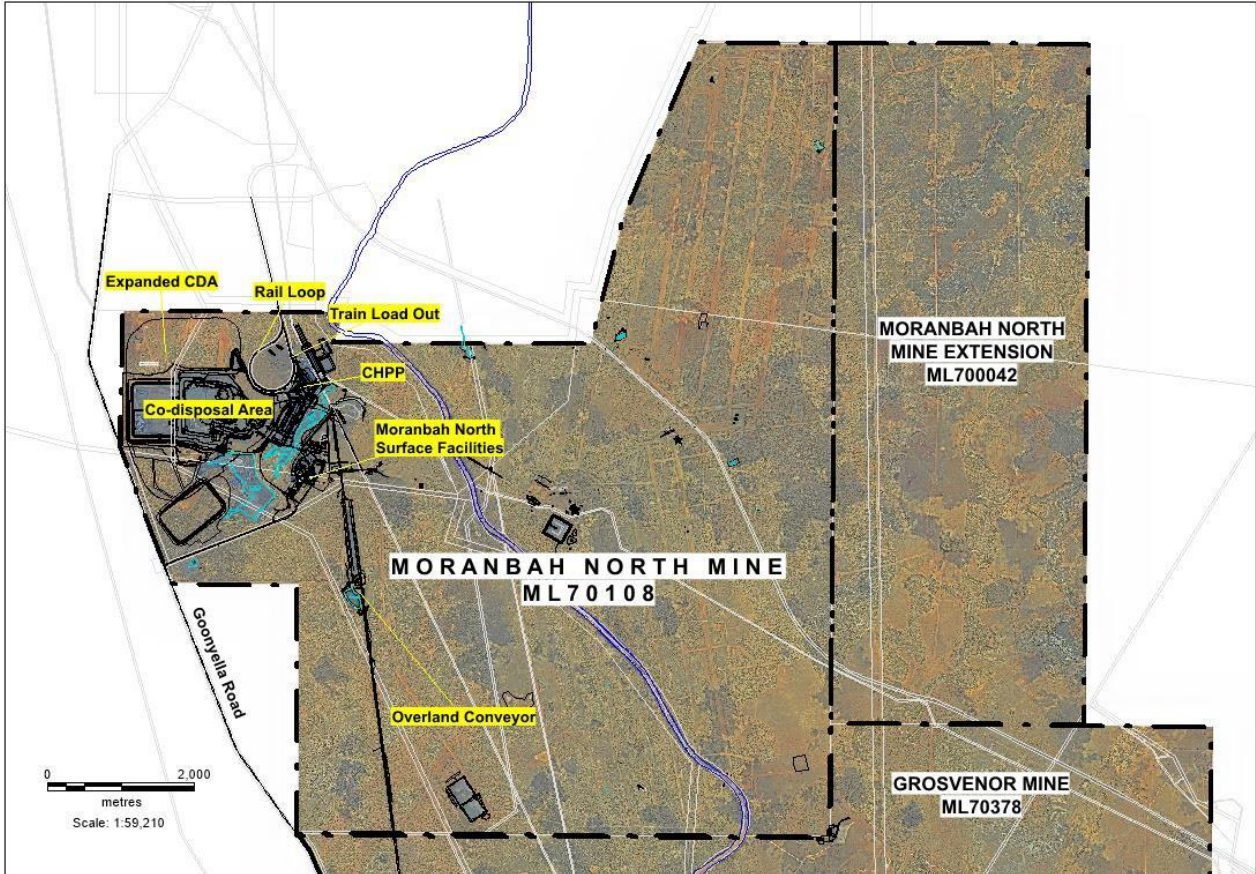
“**µg/L**” means micrograms per litre

“**µS/cm**” means microsiemens per centimetre

Environmental authority EPML00738813 – Moranbah North Coal Mine

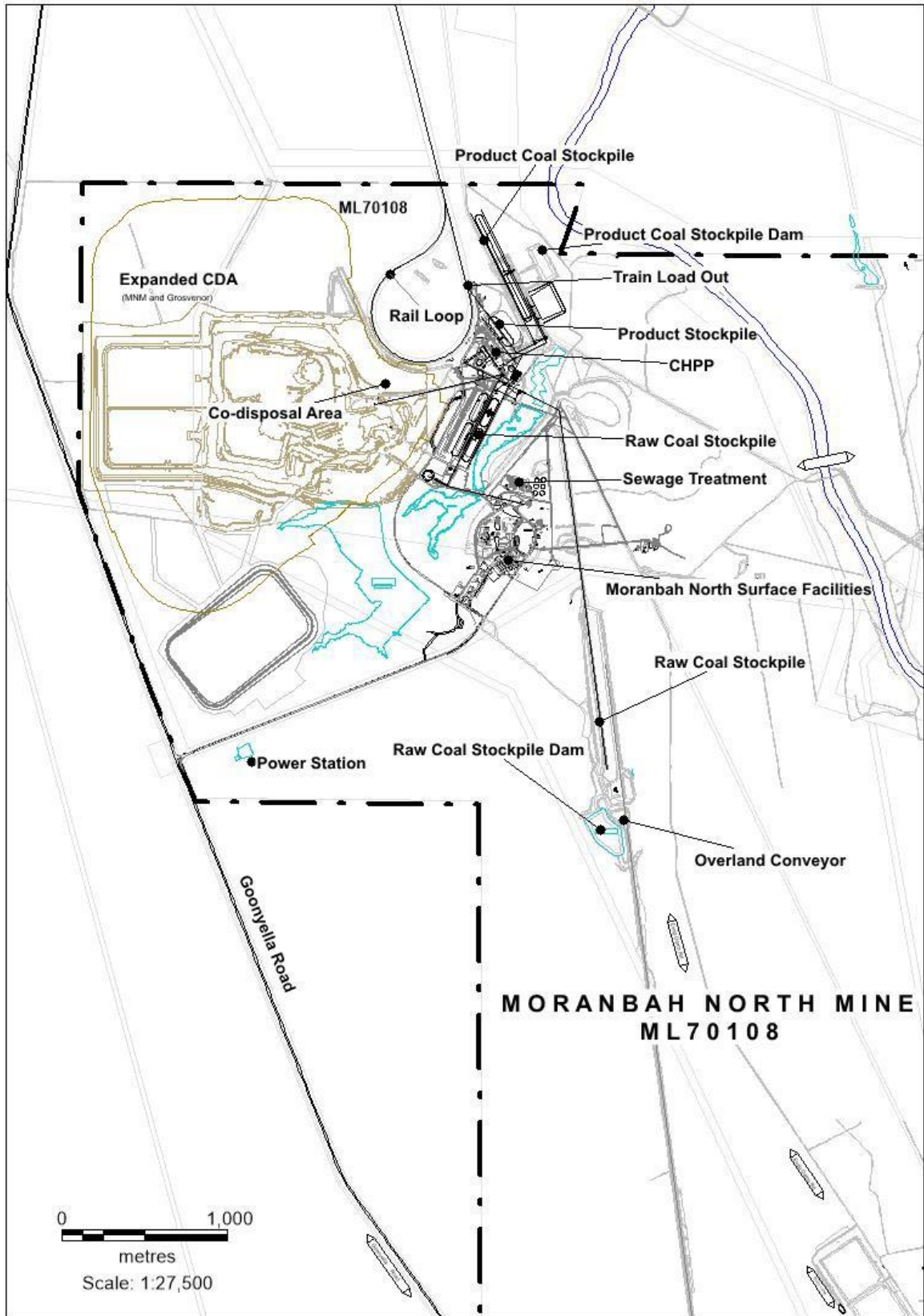
Appendices

Appendix 1: Moranbah North Site Plan (Layout Plan)



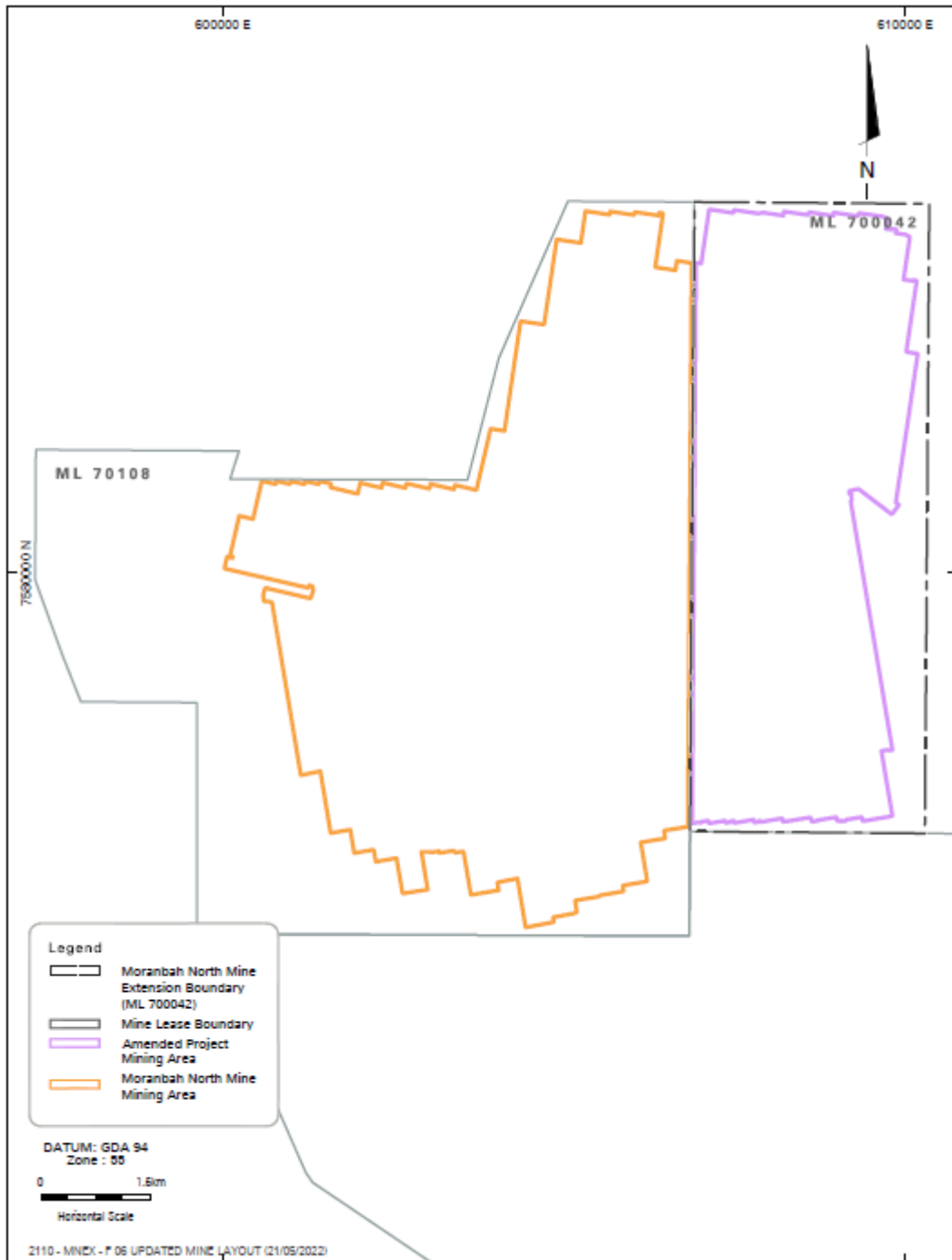
Permit
Environmental authority EPML00738813 – Moranbah North Coal Mine

Appendix 2: Moranbah North Surface Infrastructure layout



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Appendix 3: Moranbah North Site Plan (Underground Mine Layout plan)



MORANBAH NORTH MINE
Amended Moranbah North Mine EA Appendix 3
- Underground Mine Layout Plan

Permit

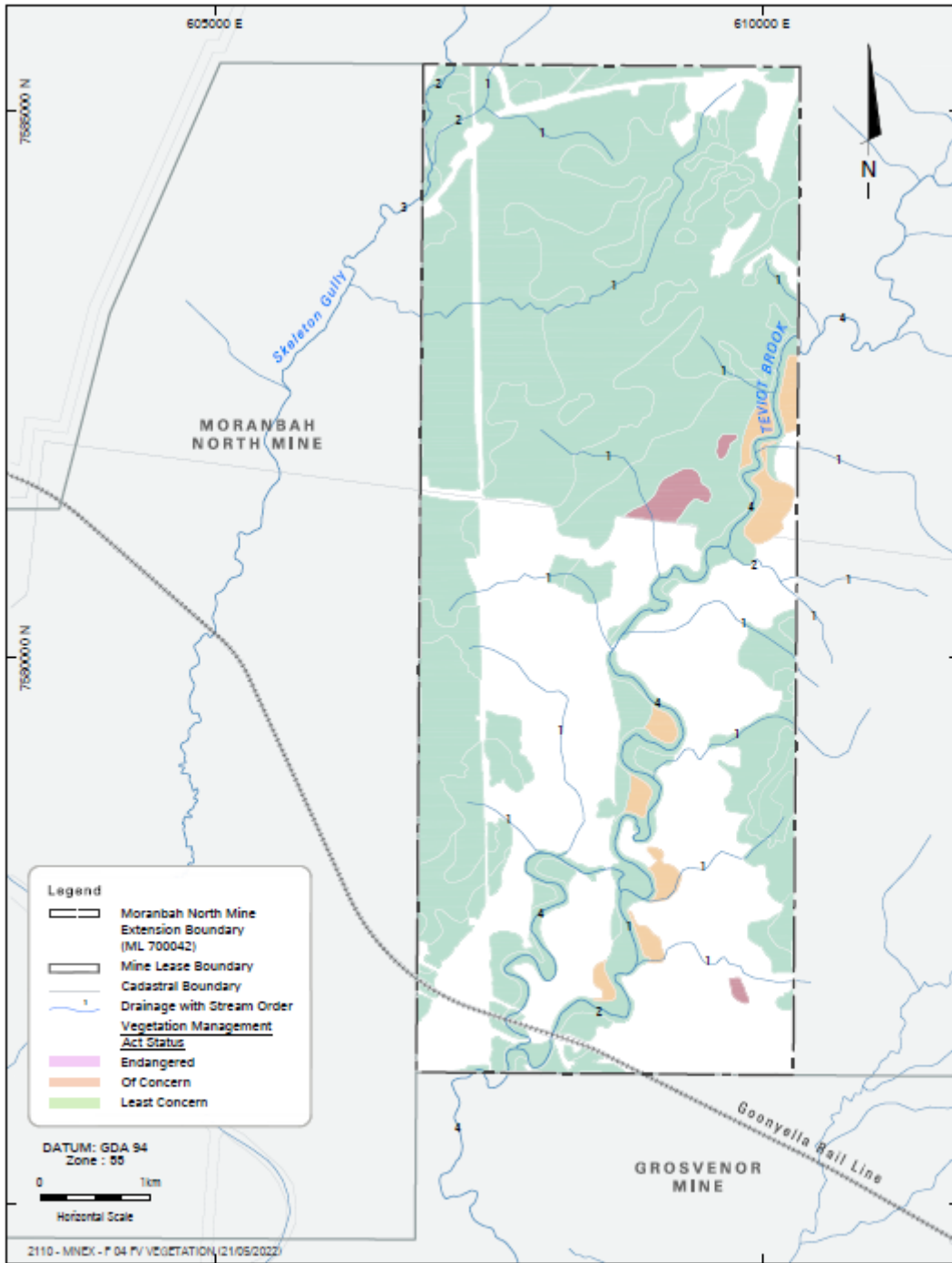
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Appendix 4 – Water Release Points and Monitoring Points



Permit
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Appendix 5: ML700042 Regulated Vegetation



MORANBAH NORTH MINE
Amended Moranbah North Mine EA Appendix 5
- Groundtruthed Regional Ecosystems

