BARALABA SOUTH

Baralaba South Project

Draft Air Quality Management Plan

Baralaba South Pty Ltd

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Document Control

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List of Abbreviations

AQMP	Air Quality Management Plan
CO_2	carbon dioxide
$CO_{2\text{-}e}$	carbon dioxide equivalent
DES	Department of Environment and Science
DoE	Department of the Environment
DSEWPac	Department of Sustainability, Environment, Water, Population and Communities
EA	Environmental Authority
EP Act	Environmental Protection Act 1994
EPP (Air)	Environmental Protection (Air) Policy 2019
EP Regulation	Environmental Regulation 2019
GHG	greenhouse gases
MLA	mining lease application
Mt	million tonnes
Mtpa	million tonnes per annum
NGER Act	National Greenhouse and Energy Reporting Act 2007
NPI	National Pollutant Inventory
$PM_{2.5}$	particulate matter with an equivalent aerodynamic diameter of 2.5 µm or less
PM_{10}	particulate matter with an equivalent aerodynamic diameter of 10 µm or less
ROM	run-of-mine
SR	sensitive receptor
the Project	Baralaba South Mine
TARP	Trigger Action Response Plan
Trinity	Trinity Consultants Australia
TSP	Total Suspended Particulates

1 Introduction

1.1 Project Overview

The Baralaba South Project (herein referred to as the Project), is located approximately 8 km south of Baralaba and 115 km west of Rockhampton in the lower Bowen Basin region of Central Queensland (Figure 1).

The proponent Baralaba South Pty Ltd is a privately owned Australian metallurgical coal company; and a wholly owned subsidiary of Baralaba Coal Pty Ltd (Baralaba Coal Company). Baralaba Coal Pty Ltd is majority owned by the AMCI Group. The total resource comprises 49 Mt of run-of-mine (ROM) pulverised coal injection (PCI) coal estimated to produce about 36 Mt of PCI product coal over the life of the Project. Mining activities are planned for a mining rate of up to 2.5 million tonnes per annum (Mtpa) of ROM coal.

Mining activities are to be undertaken within the area of Mining Lease Application (MLA) 700057, which covers a total of 2,214 ha. Overburden and interburden will be disposed of in out-of-pit waste rock emplacement areas located contiguous with the pit excavation, and in-pit dumps as part of ongoing progressive rehabilitation behind the advancing operations. A conventional coal handling and preparation plant will be utilised for ROM coal washing. Dry disposal of tailings and reject material will occur within the waste rock emplacements. Processed wastewater will be recovered for recycling through the plant.

Product coal will be transported via road trains about 40 km south on the Moura-Baralaba Road (a portion of the existing Baralaba North Mine haul route) to a train load out (TLO) facility located east of Moura. It will then be loaded by transport service providers via rail to the Port of Gladstone and then to international markets.

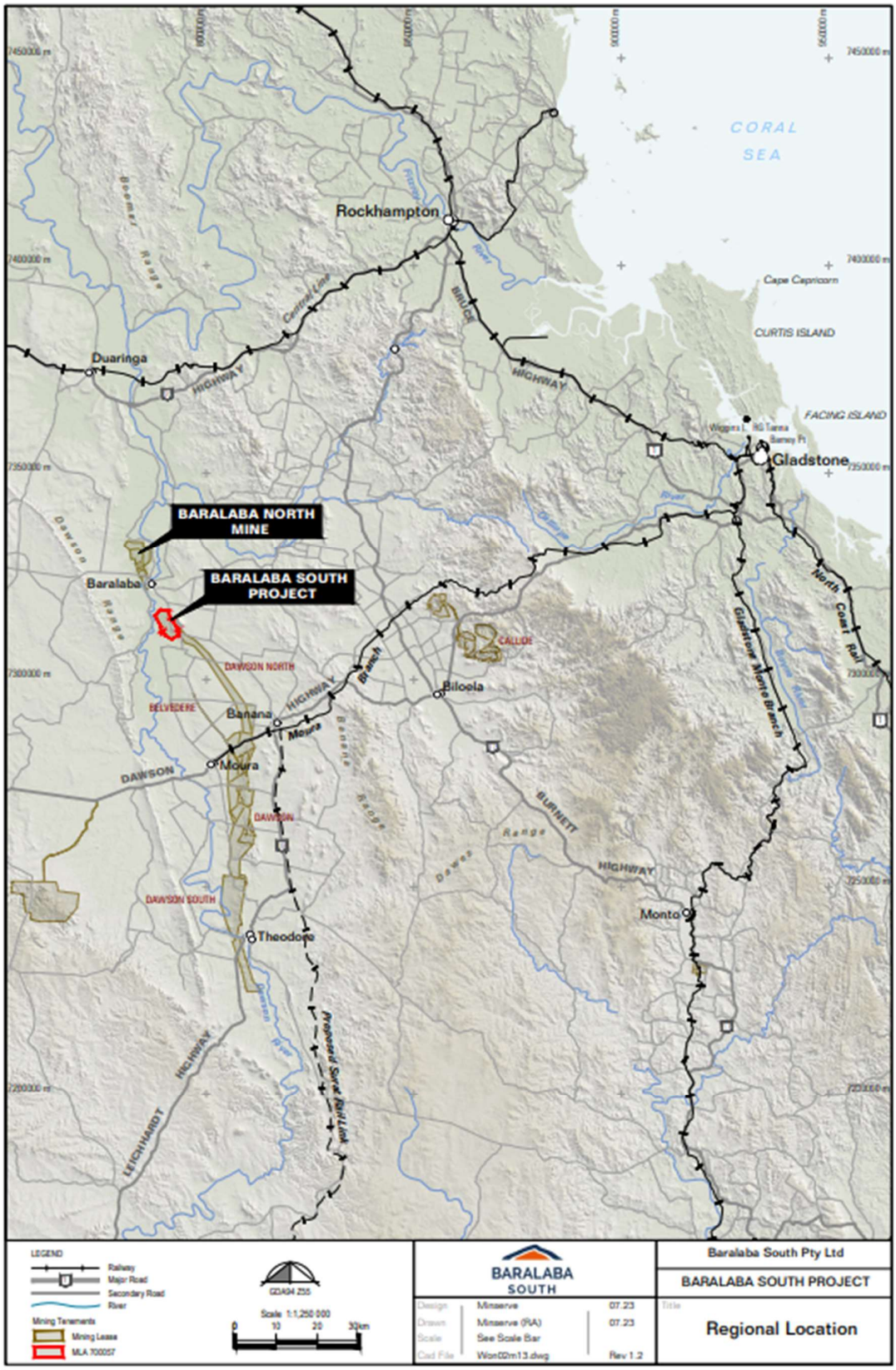

Figure 1: Regional Project Location

2 Purpose and Scope

This Air Quality Management Plan (AQMP) provides the framework and procedures for management of air quality at the Project. This plan aims to assist operations to achieve the following objectives:

- compliance with all relevant regulatory requirements;
- identification of major air emission sources during construction and operation of the mine;
- implementation of feasible and practicable management practices to minimise off-site air emissions;
- establishment and operation of an effective air quality monitoring program;
- establishment of an incident/complaint response system including investigation, documentation and reporting processes to ensure legitimate concerns relating to dust are responded to in a timely and effective manner; and
- ongoing internal reporting and management review to ensure the effectiveness of the AQMP.

This AQMP addresses mining activities occurring within ML700057 for the entire life of mine (construction, operation, upset and closure).

3 Statutory Requirements

3.1 Queensland Legislation

The Environmental Protection (Air) Policy 2019 (EPP(Air)) supersedes the EPP(Air) 2008 and provides. The environmental values to be enhanced or protected under the Air EPP are:

- The qualities of the air environment that are conducive to protecting the health and biodiversity of ecosystems.
- The qualities of the air environment that are conducive to human health and wellbeing.
- The qualities of the air environment that are conducive to protecting the aesthetics of the environment, including the appearance of buildings, structures and other property; and
- The qualities of the air environment that are conducive to protecting agricultural use of the environment.

Schedule 1 of the EPP Air outlines the objectives that address health, the aesthetic environment, ecosystems and agriculture, human health and wellbeing. DES Guideline: Application requirements for activities with impacts to air, version 5.00 (2023) recommends suitable objectives for dust deposition. The objectives applicable to the Project are summarised in Table 1.

Table 1: Air Quality Criteria

Air Quality Indicator	Period	Criteria (µg/m^3)	Source
$PM_{2.5}$	1 day	25	EPP (Air)[1]
	1 year	8	EPP (Air)[1]
PM_{10}	1 day	50	EPP (Air)
	1 year	25	EPP (Air)
TSP	1 year	90	EPP (Air)
Dust Deposition	1 month	120 mg/m^2/day	DES (2019)

Note: 1 – The criteria for $PM_{2.5}$ are expected to reduce in a future EPP Air amendment.

3.2 Commonwealth Legislation

3.2.1 National Greenhouse and Energy Reporting Scheme

The National Greenhouse and Energy Reporting Scheme established under the National Greenhouse and Energy Reporting Act 2007 (NGER Act) introduced a single national framework for reporting and disseminating company information about GHG emissions, energy consumption and energy production.

In accordance with the definitions of the NGER Act, the controlling corporation of the Baralaba South Project is Baralaba Coal Company Pty Ltd, which is currently included on the National Greenhouse and Energy Register.

The Project is required to consider the thresholds for annual Scope 1 and Scope 2 GHG emissions, energy production and consumption according to section 13(1) of the NGER Act, as listed in Table 2, in order to determine reporting obligations.

Determination of Scope 1 and Scope 2 emissions, energy production and consumption are required to be undertaken in accordance with the following subordinate legislative instruments:

- the National Greenhouse and Energy Reporting Regulation 2008 (NGER Regulations) which outlines the reporting obligations and procedures for administering the NGER Act;
- the National Greenhouse and Energy Reporting (Measurement) Determination 2008 which describes the methods, standards and criteria to be applied when estimating GHG emissions, energy production and consumption; and
- the National Greenhouse and Energy Reporting (Safeguard Mechanism) Rule 2015 which details the compliance requirements and procedures for administering the safeguard mechanism for facilities which exceed the safeguard threshold of Scope 1 covered emissions of more than 100,000 tonnes of carbon dioxide equivalent (CO2-e).

Table 2: Threshold Values Under the NGER Act

Entity	Greenhouse gas emission	Energy production	Energy consumption
Controlling corporations	50 kilotonnes per year of CO2-e	200 terajoules per year	200 terajoules per year
Single facility	25 kilotonnes per year of CO2-e	100 terajoules per year	100 terajoules per year

The Project's reporting obligations under the NGER Act will be met using the Australian Government's Emissions and Energy Reporting System.

3.2.2 National Pollutant Inventory

The National Pollutant Inventory (NPI) is established through a National Environmental Protection Measure under the Commonwealth National Environment Protection Council Act 1994. The NPI is a publicly accessible database that presents information on the emissions of 93 specified substances to air, land and water from facilities, diffuse sources and waste transfers. The Project has annual NPI reporting obligations which will rely in part on collected air quality monitoring data.

4 Existing Environment

4.1 Background Air Quality

The Air Quality and Greenhouse Gas Assessment (Trinity, 2023) described background levels of suspended particulate matter and dust deposition based on publicly available monitoring data, site-specific monitoring data and monitoring data from nearby mining operations.

Table 3 provides a summary of representative background concentrations used for the predictive modelling of Project impacts (Trinity, 2023).

Table 3: Representative Background Dust Concentrations and Objectives

Air quality indicator	Period	Background concentration	Air quality objective
PM2.5	24 hours	5.8 (µg/m3)	25 (µg/m3)
	Annual	5.5 (µg/m3)	8 (µg/m3)
PM_{10}	24 hours	17.0 (µg/m3)	50 (µg/m3)
	Annual	15.6 (µg/m3)	25 (µg/m3)
TSP	Annual	40.0 (µg/m3)	90 (µg/m3)
Dust deposition	One month	50 (mg/m2/day)	120 (mg/m2/day)

Source: Air Quality and Greenhouse Gas Assessment (Trinity, 2023)

4.2 Climate

Understanding local weather conditions is critical for effective management of dust. In July 2023, a new multi-sensor weather station was established within the Project area. Weather data collected from this on-site meteorological station includes:

- rainfall;
- temperature;
- humidity;
- evaporation
- wind speed; and
- wind direction.

4.2.1 Wind Speed and Direction

Climate and local topography can influence dust dispersion in the surrounding environment. The closest weather station with continuous long-term monitoring of wind is the Baralaba Mine weather station. Wind data for the year 2015 was considered to be an appropriately representative year for modelling (Trinity, 2023). Meteorological data from the Baralaba Mine weather station for the period 1 January 2015 to 31 December 2015 was analysed by Trinity. A wind-rose of wind monitoring data shows a higher proportion of calm conditions and winds from the south south-east

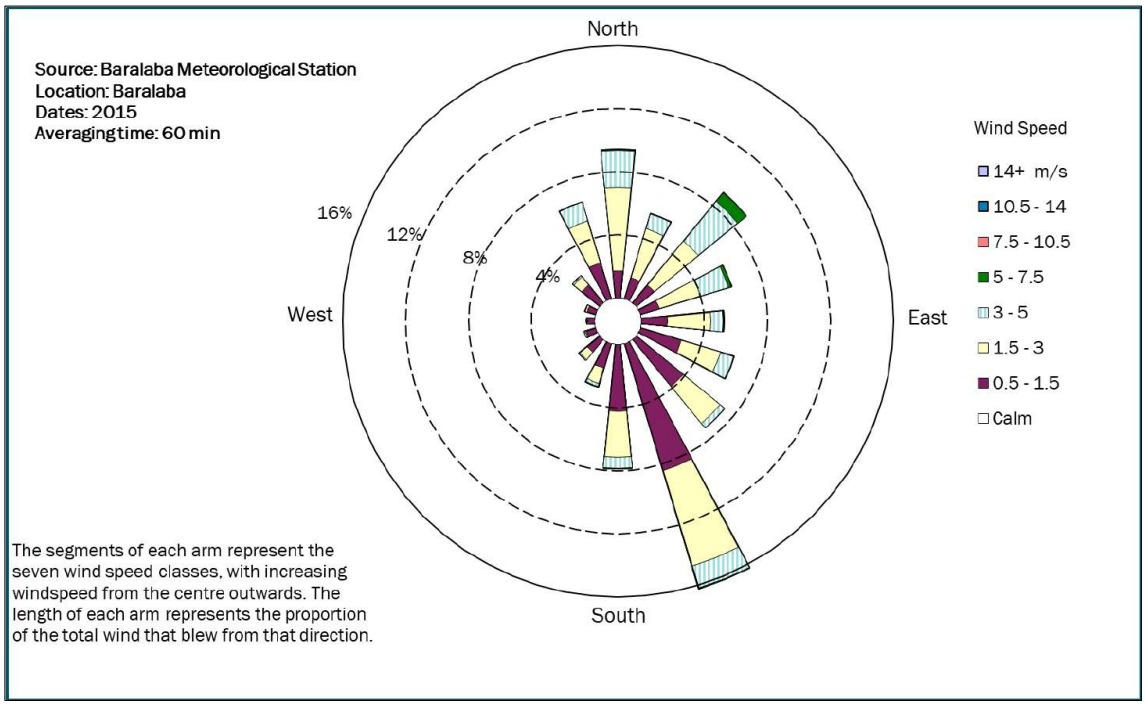

Figure 2: Baralaba South Wind Rose.

4.2.2 Rainfall

Figure 3 compares rainfall recorded in 2020 at the Baralaba South weather station against the Thangool recorded rainfall and long-term average. This figure suggests that rainfall recorded at Baralaba South aligns generally with the regional rainfall, with minor variation recorded because of the distance between the two stations.

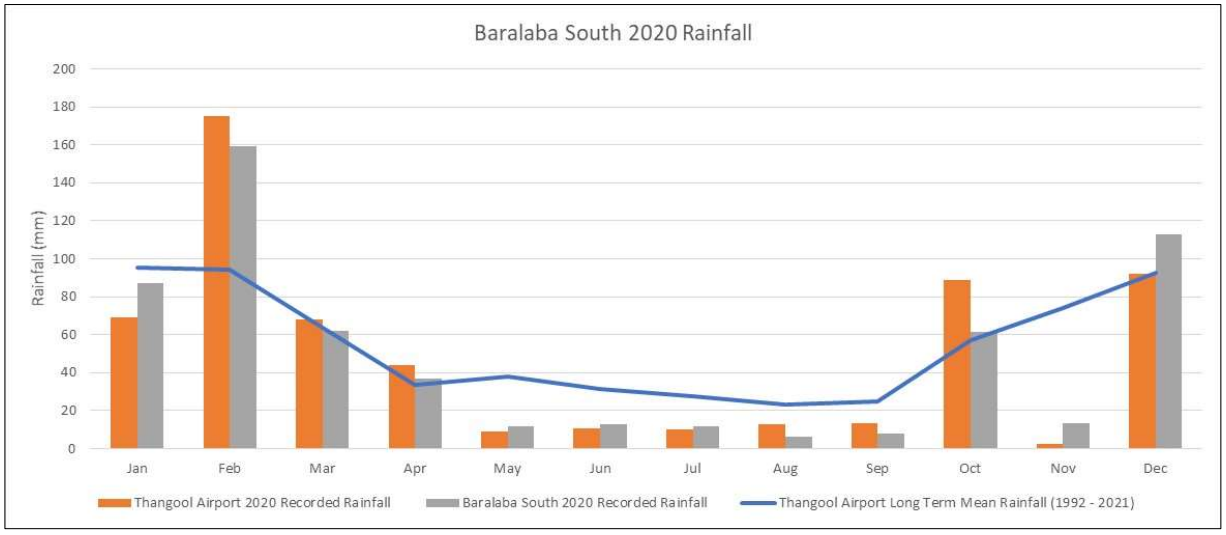

Figure 3: Baralaba South Recorded Rainfall

4.3 Sensitive Receivers

The Project is located in a rural area surrounded by agricultural land. At the time of preparation of this AQMP, there were 21 sensitive receivers (SRs) located within 5 km of the Project boundary (ML), all of which are residential (Table 4). SR1, SR2, SR3 and SR14 are located within the ML and SR9 is partially within the ML (Figure 4). The Project will agree compensation and reach agreement with these sensitive receptors before the mining lease may be granted. This list of sensitive receivers will be updated prior to the commencement of construction activities.

Table 4: Sensitive Receivers

SR ID	Real property description	Approximate distance and direction from the Project boundary
1	Lot 11 on FN153	Within the Project boundary
2	Lot 11 on FN153	Within the Project boundary
3	Lot 26 on FN153	Within the Project boundary
4	Lot 35 on FN141	3.6 km south-west
5	Lot 141 on FN137	3.7 km north
6	Lot 5 on RP856832	2.9 km north-west
7	Lot 3 on RP856832	4.9 km north-west
8	Lot 110 on FN103	4.8 km north-west
9	Lot 1 on RP801031	900 m north-east
10	Lot 126 on FN148	3.2 km north-east
11	Lot 102 on SP107139	2.9 km north
12	Lot 80 on SP131479	4.9 km north
13	Lot 133 on FN143	3.1 km north-east
14	Lot 135 on FN143	Within the Project boundary
15	Lot 6 on KM50	3.5 km west
16	Lot 4 on FN514	1.8 km south-west
17	Lot 28 on FN514	4.1 km south-east
18	Lot 30 on FN 154	4.5 km south-east
19	Lot 5 on RP856832	3.2 km north-west
20	Lot 12 on FN514	2.2 km south-west
21	Lot 12 on FN514	4.6 km south-west

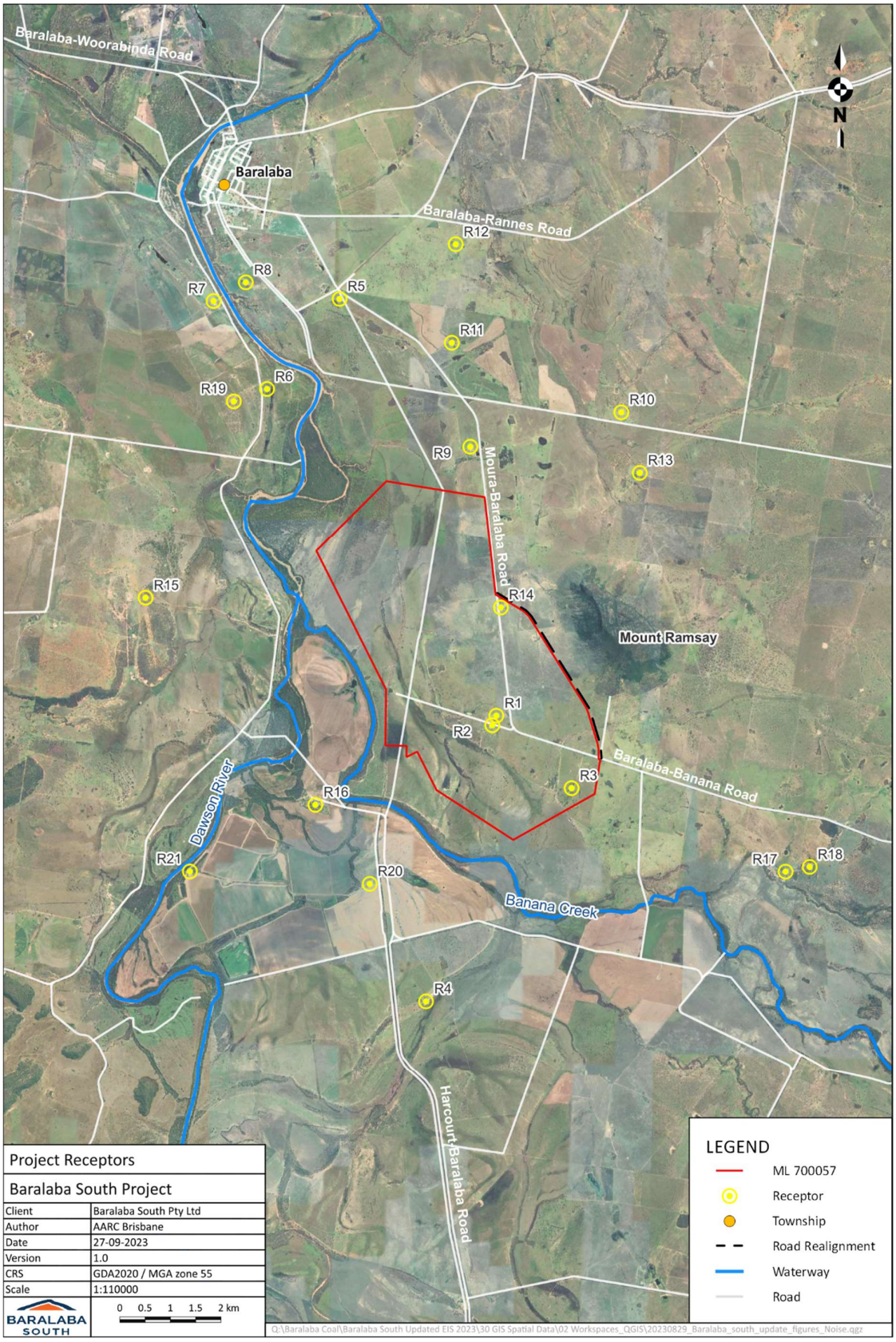

Figure 4: Sensitive Receivers Within 5 km of The Project

5 Potential Project Impacts

5.1 Activities Contributing to Air Quality Emissions

Mine activities proposed during construction, operation, upset and closure will generate emissions to air. However, particulate emissions have been assessed to be substantially higher during operations than any other stage of mine development (Trinity, 2023).

Emission sources of significance include:

- Run-of-mine (ROM) coal extraction;
- waste rock removal;
- truck haulage emissions;
- drilling;
- blasting;
- grading;
- crushing material;
- material handling; and
- wind erosion.

5.2 Predicted Impacts from Particulate Emissions

Conservatively, air quality modelling of particulate emissions has been undertaken for three maximum case production scenarios over the operating mine life. These scenarios are considered representative of worst-case dust impacts over the life of the Project (Trinity, 2023).

5.2.1 Annual Average TSP Concentration

For the years assessed, all SRs outside of the MLA are predicted to experience TSP concentrations well below the Project's objective of 90 µg/m³ other than year 1 and 2 of construction. The maximum annual average TSP predicted at SRs outside of the MLA is 42.9 µg/m³ in year 2 of operation. Refer to Table 5.

Table 5: Predicted Annual Average TSP (µg/m³) Concentrations Under Worst Case Operating Scenarios

SR ID	Year 1 scenario	Year 3 scenario	Year 11 scenario
Objective	90	90	90
Background	**40**	**40**	**40**
	Cumulative	**Cumulative**	**Cumulative**
1 (within MLA)	42.3	44.2	192.5
2 (within MLA)	42.8	45.0	95.9
3 (within MLA)	40.8	41.1	41.4
4	40.5	40.7	40.8
5	40.8	40.7	40.3
6	40.8	40.8	40.4
7	40.5	40.5	40.3
8	40.5	40.5	40.3
9	42.9	42.5	40.6
10	40.2	40.2	40.2
11	41.3	41.1	40.4
12	40.7	40.7	40.3
13	40.1	40.2	40.1
14 (within MLA)	41.9	43.4	47.0
15	40.7	40.8	40.5
16	41.6	42.1	41.7
17	40.0	40.0	40.0
18	40.0	40.0	40.0
19	40.8	40.8	40.4
20	41.1	41.8	41.9
21	40.7	40.9	40.7

Notes: for properties within the ML, Baralaba Coal Company must agree compensation and reach agreement with these sensitive receptors before the mining lease may be granted. Where appropriate and where requested by the landholders, such agreements will involve the relocation of the sensitive receptors before operations commence. These dwellings should not be used as accommodation for non-mine workers during operation of the mine Annual Average PM10 Concentration

For the years assessed, all SRs outside of the MLA are predicted to experience annual average PM_{10} concentrations below the Project objective of 25 µg/m³. The maximum annual average PM_{10} concentration predicted at any SR outside of the MLA is 18.2 µg/m³. Refer to Table 6.

Table 6: Predicted Annual Average PM_{10} (µg/m^3) Concentrations Under Worst Case Operating Scenarios

SR ID	Year 1 scenario	Year 3 scenario	Year 11 scenario
Objective	**25**	**25**	**25**
Background	**15.6**	**15.6**	**15.6**
	Cumulative	**Cumulative**	**Cumulative**
1 (within MLA)	17.4	18.9	90.2
2 (within MLA)	17.9	19.6	40.6
3 (within MLA)	16.2	16.4	16.6
4	16.0	16.2	16.4
5	16.3	16.3	15.9
6	16.4	16.4	16.0
7	16.1	16.1	15.8
8	16.1	16.1	15.9
9	18.2	17.9	16.2
10	15.7	15.8	15.7
11	16.9	16.7	16.0
12	16.3	16.2	15.8
13	15.7	15.7	15.7
14 (within MLA)	17.2	18.4	19.7
15	16.2	16.4	16.1
16	17.1	17.6	17.1
17	15.6	15.6	15.6
18	15.6	15.6	15.6
19	16.3	16.4	15.9
20	16.6	17.3	17.3
21	16.3	16.5	16.3

5.2.2 24-Hour Average PM_{10} Concentration

For the years assessed, all SRs outside of the MLA are predicted to experience 24-hour average PM_{10} concentrations below the Project objective of 50 µg/m³. The maximum annual average PM_{10} concentration predicted at any SR outside of the MLA is 49.0 µg/m³. Refer to Table 7.

Table 7: Predicted 24-Hour Average PM_{10} (µg/m³) Concentrations Under Worst Case Operating Scenarios

SR ID	Year 1 scenario	Year 3 scenario	Year 11 scenario
Objective	**50**	**50**	**50**
Background	**17**	**17**	**17**
	Cumulative	**Cumulative**	**Cumulative**
1 (within MLA)	43.9	45.8	654.0
2 (within MLA)	58.4	59.5	171.2
3 (within MLA)	31.7	32.7	37.4
4	23.5	24.4	25.7
5	25.4	26.6	21.2
6	23.6	25.2	21.6
7	21.1	21.2	20.7
8	21.8	22.6	20.9
9	47.5	49.0	26.3
10	21.2	20.8	19.8
11	33.4	31.9	23.6
12	26.2	26.8	22.2
13	20.3	20.3	20.5
14 (within MLA)	43.6	60.8	33.6
15	20.7	21.9	22.4
16	26.6	30.3	38.1
17	17.7	17.9	17.9
18	17.8	17.9	17.8
19	21.8	23.8	20.5
20	26.6	27.7	32.2
21	23.1	23.7	25.9

5.2.3 24-Hour Average $PM_{2.5}$ Concentration

For the years assessed, all SRs outside of the MLA are predicted to experience maximum 24-hour average $PM_{2.5}$ levels below the Project objective of 25 µg/m³. The maximum 24-hour predicted $PM_{2.5}$ at any SR outside of the MLA is 13.0 µg/m³. Refer to Table 8.

Table 8: Predicted 24-Hour Average $PM_{2.5}$ (µg/m³) Concentrations Under Worst Case Operating Scenarios

SR ID	Year 1 Scenario	Year 3 Scenario	Year 11 Scenario
Objective	**25**	**25**	**25**
Background	**5.8**	**5.8**	**5.8**
	Cumulative	**Cumulative**	**Cumulative**
1 (within MLA)	10.1	13.1	84.7
2 (within MLA)	9.8	17.8	57.4
3 (within MLA)	7.1	9.2	14.6
4	6.7	7.4	7.0
5	7.7	7.9	6.8
6	7.1	7.3	6.9
7	6.5	6.8	6.6
8	6.7	6.8	6.7
9	13.0	12.1	7.6
10	7.0	6.6	6.5
11	9.4	8.8	7.2
12	7.8	7.8	6.8
13	6.7	6.9	6.5
14 (within MLA)	28.1	16.3	14.5
15	6.7	7.0	7.1
16	7.8	9.3	8.2
17	6.1	6.1	6.1
18	6.1	6.0	6.0
19	6.9	7.1	6.7
20	7.3	8.4	8.3
21	7.4	8.0	6.8

5.2.4 Annual Average $PM_{2.5}$ Concentration

For the years assessed, all SRs outside of the MLA are predicted to experience annual average $PM_{2.5}$ levels below the Project's objective of 8 µg/m³. The highest annual average predicted $PM_{2.5}$ at any SR outside of the MLA is 6.2 µg/m³. Refer to Table 9.

Table 9: Predicted Annual Average $PM_{2.5}$ (µg/m³) Concentrations Under Worst Case Operating Scenarios

Receptor ID#	Year 1 Scenario	Year 3 Scenario	Year 11 Scenario
Objective	**8**	**8**	**8**
Background	**5.5**	**5.5**	**5.5**
	Cumulative	**Cumulative**	**Cumulative**
1 (within MLA)	5.7	6.1	14.8
2 (within MLA)	5.8	6.2	10.7
3 (within MLA)	5.6	5.6	5.7
4	5.6	5.6	5.6
5	5.7	5.7	5.6
6	5.7	5.7	5.6
7	5.6	5.6	5.6
8	5.6	5.6	5.6
9	6.2	6.0	5.7
10	5.5	5.5	5.5
11	5.8	5.7	5.6
12	5.7	5.6	5.6
13	5.5	5.5	5.5
14 (within MLA)	5.9	6.0	7.6
15	5.6	5.7	5.6
16	5.8	5.9	5.8
17	5.5	5.5	5.5
18	5.5	5.5	5.5
19	5.7	5.7	5.6
20	5.7	5.8	5.8
21	5.6	5.7	5.6

5.2.5 Dust deposition

For the years assessed, all SRs outside of the MLA are predicted to experience cumulative monthly average dust deposition levels below the Project objective of 120 mg/m^2/day. Refer to Table 10.

Table 10: Predicted Dust Deposition Concentrations (mg/m2/day) Under Worst Case Operating Scenarios

SR ID	Year 1 Scenario	Year3 Scenario	Year 11 Scenario
Guideline	**120**	**120**	**120**
Background	**50**	**50**	**50**
	Cumulative	**Cumulative**	**Cumulative**
1 (within MLA)	63.0	70.8	1378.3
2 (within MLA)	64.6	72.3	398.8
3 (within MLA)	54.4	56.1	58.2
4	51.3	51.7	52.4
5	50.8	50.5	50.4
6	51.0	50.5	50.4
7	50.4	50.3	50.2
8	50.4	50.3	50.2
9	59.3	54.9	52.8
10	50.5	50.5	50.8
11	52.7	51.7	51.4
12	51.0	50.8	50.8
13	50.6	50.6	50.8
14 (within MLA)	57.4	64.3	83.5
15	51.3	51.0	51.4
16	53.7	55.4	57.0
17	50.0	50.1	50.1
18	50.0	50.1	50.1
19	50.9	50.6	50.4
20	52.3	53.5	56.3
21	51.5	51.7	52.0

5.3 Odour and Fume Emissions

Potential odour and fume sources sometimes associated with coal mining include spontaneous combustion and blasting. Potential secondary sources include odour emissions from hydrocarbons and effluent discharge areas.

Odour and fume impacts are currently not expected for the Project. Spontaneous combustion is not a significant risk for the nature of the coal deposit or the waste materials. Effective management strategies are provided for control of other potential odour and fume sources.

5.4 Greenhouse Gas Emissions

Greenhouse gas emissions from the Project were calculated under annual production scenarios (Trinity, 2023). This assessment identified that the major sources of greenhouse gas emissions were diesel fuel combustion due to mining equipment and fugitive seam gas.

Greenhouse gas emissions have also been calculated with decarbonisation measures in place, including improvements onsite (10% reduction in Scope 1 GHG emissions relating to diesel fuel usage) and purchase of 50 to 100% renewable energy (50 to 100% reduction in Scope 2 GHG emissions). Revised emissions have been determined (Katestone, 2023).

A summary of the predicted annual emissions breakdown during the 23 year mine life is presented in Table 11.

Table 11: Greenhouse Gas Emissions

Scope	Activity	Base case - Total Annual Emissions (kt CO_2-e)	Mitigated case with decarbonization measures- Total Annual Emissions (kt CO_2-e)
1	Vegetation clearing and rehabilitation	-0.3	-0.3
	Fugitive gas emissions	66	66
	Fuel combustion on-site (including mobile plant, stationary plant and ANFO)	86	77
	Fuel combustion on-site at TLO	0.3	0.3
	Fuel combustion (off-site road product haulage)	2.7	2.4
2	Grid electricity consumption	26	0 to 13
1 & 2	**Total**	**180**	**146 to 159**

Note: GHG emission predictions are inclusive of off-lease product haulage and train loadout (TLO) activities.

6 Air Quality Mitigation and Management

The air quality management measures described in this section are designed to minimise the air quality impacts of the Project on the surrounding environment. The measures will be revised and updated as required based on operational and legislative changes, as well as advancements in technologies. Refer also (Trinity, 2023) and (Katestone, 2023).

6.1 Management Hierarchy

The management hierarchy for air emissions as set out in section 8 of the EPP (Air) requires that, to the extent that it is reasonable to do so, air emissions should be managed in the following order of preference:

- Avoid: Use technology that avoids air emissions.
- Recycle: Reuse air emissions in another industrial process (for dust and odour, it is acknowledged that limited options exist at this level).
- Minimise: Use technology, materials or industrial processes that minimise air emissions.
- Manage: Consider the location of the activity, controls applicable to the activity or disperse air emissions to minimise their impact.

6.2 Air Quality Management

Dust mitigation and management measures to be implemented for the Project are summarised in Table 12.

Table 12: Dust Mitigation and Management Measures

Source	Mitigation and management measures	EPP (Air) Management Hierarchy
General management measures and fugitive sources	Site inductions for all employees to include the requirements of the AQMP.	Manage
	Establish, operate and maintain the air-quality monitoring program detailed in Section 0.	Manage
	Implement a Trigger Action Response Plan (TARP) that progressively implements controls ranging from increased watering through to modification of operations as the risk increases.	Manage
	Minimise the construction of and control the use of perimeter light-vehicle access tracks, only to that necessary for operations.	Minimise
	Pre-strip areas will be planned to minimise the time of exposure following vegetation clearing in advance of mine development.	Minimise
	Commence rehabilitation of disturbed areas as soon as practicable after those areas become available.	Minimise
Drilling and blasting operations	Properly fitting and maintaining drill shrouds (curtains);	Minimise
	Dust extraction installed on drill rigs	Minimise
	Blasting only during daytime hours	Minimise

Source	Mitigation and management measures	EPP (Air) Management Hierarchy
	During operations limit or relocate drilling activities during adverse weather conditions	Minimise
	Reschedule blasting activities during adverse weather conditions	Minimise
Digging and loading operations (overburden and coal)	Material drop heights during loading and unloading are to be reduced as far as practical.	Minimise
	Identify priority areas for watering	Minimise
	Train site personnel on identification and reporting of dust hazards	Manage
	Utilise water sprays on loading equipment where required and practicable	Minimise
Overburden dumping and overburden dump reshaping operations	Speed limits to be put in place for all overburden dump locations	Minimise
	Regularly inspect dump operational area for visible dust	Minimise
	During operations, relocate dumping locations where practical to manage dust emissions under applicable weather conditions	Minimise
Heavy vehicle material haulage	Construct and maintain haul roads in accordance with industry best practice to minimise the silt content and dust generation potential from haul truck movements. This may include the use of gravel sheeting or surfactants on haul roads.	Minimise
	Post and enforce speed limits to reduce wheel generated dust from vehicular traffic	Minimise
	Regular haul road watering	Minimise
	Regular haul road surface condition maintenance	Minimise
	Haul road routing and dump/load locations to be modified where practical to manage dust emissions under applicable weather conditions	Minimise
ROM pad activities	Regular watering of trafficked areas within the ROM Pad operational area.	Minimise
	Material drop heights during loading and unloading are to be reduced as far as practical.	Minimise
	Utilise water sprays on equipment where required and practicable	
Primary Crusher, processing plant and product coal stockpiles	Water sprays will be installed at the ROM bin and primary crusher. The CHPP is not usually a source of dust emissions but will be visually inspected as part of regular inspections.	Minimise
	Sprinklers will be used regularly to mitigate dust from product coal stockpiles	Minimise
	Regular watering of trafficked areas within the CHPP operational area	Minimise

Source	Mitigation and management measures	EPP (Air) Management Hierarchy
Product coal load-out and road transport operations	Regular watering of trafficked areas within the product coal operational area	Minimise
	All road-trains used for road haulage to be covered before leaving the product coal load-out area	Minimise
	Regular watering of trafficked areas within the product coal load-out area	Minimise
Topsoil Management	Depth of stripping is determined in accordance with a soil distribution plan and specified in the land clearing plan	Minimise
	Topsoil stripping is limited where possible to 100 metres or less in advance of mining	Minimise
	Loading of topsoil is carried out using appropriately sized excavators or loaders	Minimise
	Topsoil haulage routes are identified and traffic control measure implemented	Minimise
	Loading areas are watered by water carts including topsoil stockpiles if required, to minimise excessive dust	Minimise
	Clearing and loading of topsoil is minimised or ceased during adverse conditions	Minimise
Topsoil Stockpiles	Topsoil stockpiles are located away from mining, traffic areas and watercourses to minimise disturbance.	Minimise
	Level or gently sloping areas are selected as stockpile sites to minimise erosion and potential soil loss	Minimise
	Drainage from higher areas is diverted around stockpiles and appropriate sediment controls installed where required at the base of stockpiles.	Minimise
	Stockpiles are less than three metres high.	Minimise
	Stockpiles to be kept for more than three months are sown with a suitable cover crop to minimise erosion	Minimise
	Stockpiles are appropriately sign-posted to identify the area and minimise the potential for unauthorised use or disturbance.	Minimise
Ancillary activities	To be addressed as required	

6.2.1 Trigger Action Response Plan (TARP)

In addition to the onsite control measures outlined above, continuous air quality monitors will be established at high-risk sites with alarms enabled to alert the Project personnel of deteriorating ambient air quality conditions. Data collected from this network will be used to inform the TARP outlined in Table 13.

Table 13: Air Quality Trigger Action Response Plan

Trigger	***Level 1 - Green (Normal State)***	***Level 2 – Amber (Medium Risk)***	***Level 3 – Red (High Risk)***
PM_{10} Monitoring Data	Short-term rolling 4-hour average alarm, calculated for each hour of the day where the value is less than or equal to 200 µg/m3	Short-term rolling 4-hour average alarm, calculated for each hour of the day where the value is greater than 200 µg/m3	Short-term rolling 6-hour average alarm, calculated for each hour of the day where the value is greater than 200 µg/m^3
	Long-term 24-hour rolling average alarm, calculated for each hour of the day where the value is less than or equal to 40 µg/m3.	Long-term 24-hour rolling average alarm, calculated for each hour of the day where the value is greater than 40 µg/m3.	Long-term 24-hour rolling average alarm, calculated for each hour of the day where the value is greater than 50 µg/m^3
Response			
All personnel	Continue normal activities and monitor work area for potential elevated dust.	Continue to monitor work area for excessive dust. Report excessive visible dust to Mining Superintendent.	Monitor work area for excessive dust. Report excessive visible dust to Mining Superintendent and follow their instructions.
Mining Superintendent	Ensure relevant dust mitigation measures outlined in Table 7 are operable and in use.	Inspect work areas to identify and restrict sources of excessive dust. Review wind speed and direction to identify at risk sensitive receivers. Review PM_{10} monitoring data and implement mitigation measures to address ambient dust levels. This might include; • increasing watering of high-risk locations; • reducing speed limits on unsealed roads; • delaying blasts until conditions improve; • where practical, modifying mining methods and locations to maintain compliance with air quality criteria at all sensitive receivers.	Review wind speed and direction to identify at risk sensitive receivers. Review PM_{10} monitoring data and immediately implement relevant mitigation measures to minimise or avoid dust emissions. This might include; • Implement additional dust suppression: o Water Cart and/or water sprays on stockpiles and any other dusty areas. • Temporarily cease dust-producing activities • Modification to mining methods and locations to maintain compliance with air quality criteria at all sensitive receivers. • Delay blasts until ambient dust conditions have reduced to safe levels.

Trigger	***Level 1 - Green (Normal State)***	***Level 2 – Amber (Medium Risk)***	***Level 3 – Red (High Risk)***
Environmental Manager	Ensure PM_{10} monitoring equipment and weather station(s) is calibrated and operating as expected.	Investigate possible causes by considering other regional activities/events (e.g., fire, dust storms etc.). Note changes in air quality and continue to monitor closely.	Prepare notifications to the regulator and/or any affected stakeholders.

6.3 Odour and Fume Management

Odour and fume mitigation and management measures to be implemented for the Project are summarised in Table 14. Odour and fume are not anticipated to be problematic for the Project.

Table 14: Odour and Fume Management Measures

Source	Mitigation and Management Measures	EPP (Air) Management Hierarchy
Spontaneous combustion	There are no indications that spontaneous combustion is a risk for the Project. No mitigation measures are considered necessary.	Avoid
Blasting NO_x fume	All blasting events to be video-captured and visually monitored, and records to be maintained for the generation of NOx fume. Should NOx fume generation be identified as a risk, the following measures are to be implemented: • review of blast design parameters to minimise risk of fume; • market assessment for lower fume potential blasting agents; and • blasting restrictions when wind conditions are not favourable.	Manage
Other fume sources	Housekeeping checklists to include an assessment of nuisance fume in the vicinity of diesel/fuel storage areas, Sewerage Treatment Plants and Water Treatment Plants.	Manage

6.4 Greenhouse Gas Emissions Management

The measures to minimise GHG emissions for the Project are summarised in Table 15.

Table 15: GHG Management and Mitigation

Source	Mitigation and Management Measure
Equipment and energy efficiency	Include energy efficiency as a criterion when selecting diesel and electric powered motors and other equipment for purchase; for example, variable speed pumps
	Install energy efficient lighting and controls where practical
	Haulage fleet should be sized and selected according to production schedules over the life of the mine with the goal of efficient haulage of materials
Mine planning	Design pit and dump haul roads and ramps to be efficient and limit travel time and duty cycle for both waste and coal trucks especially when fully loaded
	Minimise vegetation clearing as far as practicable
	Where practical, reuse vegetation that has to be cleared as a fauna habitat, or mulch in areas of rehabilitation.
	Rehabilitate the landform as soon as practical after the land becomes available
Mine operations	Use production monitoring systems and payload management to optimise the digging and hauling efficiency
	Use monitoring systems to minimise fuel burn rates and reduce the time when trucks are idling
	Use mobile crib huts and in-pit parking so trucks can be left at work sites
	Maintain equipment to retain energy efficiency

Source	Mitigation and Management Measure
	Regular haul road maintenance
	Provide training for operators of mobile plant on how to minimise fuel consumption
	Where suitable, use local personnel and suppliers to reduce transport emissions
	Consider using solar energy and other clean energy sources including solar panels to extend battery life at workshops, lighting plants, remote monitoring and control stations.
	Include annual reporting of GHG emissions, energy production and energy consumption in annual systems management reviews.
New technology	Undertake internal energy audits and energy mass balances to ensure that the activities are using best practice for minimisation of energy consumption.
Reporting	Include annual reporting of GHG emissions, energy production and energy consumption in annual systems management reviews.
Management system	Undertake internal energy audits and energy mass balances to ensure that the activities are using best practice for minimisation of energy consumption.

7 Air Quality Monitoring Program

To ensure air quality objectives are met and the protection of values at SRs, ambient air quality and dust deposition monitoring will be conducted during operations at locations that are considered representative of at-risk SRs that may be influenced by mining operations.

In addition, supplementary monitoring to be undertaken in response to any valid dust complaints.

7.1 Dust Deposition

On the commencement of operations, a minimum of three (3) depositional dust monitoring sites is to have been established at sensitive receivers surrounding the MLA boundary (Table 16) (subject to agreement with each landholder). These locations will be sampled in accordance with Australian Standard AS/NZS 3580.10.1:2016 'Methods for sampling and analysis of ambient air – Determination of particulate matter – Deposited matter – Gravimetric method' (Standards Australia 2016a).

Table 16: Summary of the Proposed Depositional Dust Monitoring Network

Site	Rationale for Site Selection	Latitude	Longitude	Averaging Period	Sampling Period	Sample Collection
SR9* Located 900 m north-east of the Project.	Closest SR beyond Project boundaries. Modelling indicates potential higher risk SR	TBC	TBC	1 month	Ongoing	Every 30 days (±2 days)
SR16 Located 1.8 km south-west of the Project boundary.	Modelling indicates potential higher risk SR	TBC	TBC	1 month	Ongoing	Every 30 days (±2 days)
SR20 Located 2.2 km south-west of the Project.	Modelling indicates potential higher risk SR	TBC	TBC	1 month	Ongoing	Every 30 days (±2 days)

Note: * SR11 is recommended as an alternative site if SR9 is acquired by the mine.

7.2 PM_{10} Monitoring

On the commencement of operations, a minimum of two (2) PM_{10} monitoring sites is to have been established at sensitive receivers surrounding the MLA boundary (Table 17). Data collected through this monitoring program will also be used to estimate the $PM_{2.5}$ levels and annual average TSP levels.

Monitoring of PM_{10} concentrations will be undertaken using one or more of the following Australian Standard methods:

- AS 3580.9.9:2017 'Methods for sampling and analysis of ambient air – Determination of suspended particulate matter—PM_{10} low volume sampler—Gravimetric method (Standards Australia, 2017);

- AS/NZS 3580.9.6:2015 'Methods for sampling and analysis of ambient air, Method 9.6: Determination of suspended particulate matter—PM_{10} high volume sampler with size selective inlet—Gravimetric method' (Standards Australia, 2015a); and/or
- AS/NZS 3580.9.11:2016 'Methods for sampling and analysis of ambient air, Method 9.11: Determination of suspended particulate matter—PM_{10} beta attenuation monitors', (Standards Australia 2016b).

Table 17: Summary of the Proposed PM_{10} Monitoring Network

Site	Rationale for site selection	Latitude	Longitude	Averaging period	Sampling period
SR9* Located 900 m north-east of the Project.	Closest SR beyond Project boundaries. Modelling indicates potential higher risk SR	TBC	TBC	24 hrs	Continuous
SR16 Located 1.8 km south-west of the Project boundary.	Modelling indicates potential higher risk SR	TBC	TBC	24 hrs	Continuous

Note: * SR11 is recommended as an alternative site if SR9 is acquired by the mine.

7.3 Meteorological Monitoring

Monitoring of meteorological conditions will be undertaken continuously during operations. In July 2023, a multi-sensor meteorological monitoring station was established in the Project Area in accordance with the AS 3580.14:2014 'Methods for sampling and analysis of ambient air, Part 14: Meteorological monitoring for ambient air quality monitoring applications' (Standards Australia, 2014). This continuous meteorological monitoring station monitors for the following parameters:

- rainfall;
- temperature;
- humidity;
- wind speed; and
- wind direction.

The weather station is accessed at https://www.weathermation.net.au/WMLogin.aspx, using the appropriate username (currently it is: Baralaba.Weather) and password.

8 Reporting

8.1 Incidents

If monitoring results identify an exceedance of the air quality objectives, an investigation to identify the source of any exceedances will be undertaken. If the Project's activities are found to be the cause of an exceedance, then the EA holder will immediately implement preventative measures to avoid the reoccurrence. Corrective actions to be taken may include increasing water applications for dust sources, changing activities or activity locations, and/or reducing activities for periods of time.

In the event that monitoring indicates dust levels are above the air quality objective values, the event will be reported to the DES within 24 hours of the EA holder becoming aware.

Within 10 business days of notifying DES of an exceedance, The Project will submit a written report that:

- details the date, time and nature of the event;
- identifies the cause (or likely cause) of the incident;
- describes what action has been taken;
- details any stakeholder engagement which has occurred as the result of the incident; and
- describes proposed measures to prevent reoccurrence of the incident.

8.2 Greenhouse Gas Reporting

GHG monitoring will include the collation of activity data such as energy use, coal production and carbon stock loss as per Table 18. Data will be recorded monthly and stored in an electronic database.

Due to the variation in global warming potential between different gases, the emission factors used to calculate GHG emissions from the Project will be stated in terms of carbon dioxide equivalents (CO_2-e), which consider the various global warming potentials of different GHGs.

In compliance with the requirements of the NGER Act, the following records are to be maintained:

- a list of all sources monitored;
- the activity data used for calculating GHG emissions for each source - categorised by process and fuel or material type;
- documentary evidence relating to calculations (e.g. receipts, invoices and details of payment methods);
- documentation of the methods used for GHG emissions and energy estimations;
- documents justifying selection of the monitoring methods chosen;
- documentation of the collection process for activity data for a facility and its sources; and
- records supporting business decisions and accuracy, especially for high-risk areas relating to reporting coverage (e.g. applying concepts of controlling corporation, corporate group and facility).

Table 18: GHG Monitoring Program

Emission type	Energy source	Monitoring system
Scope 1 (direct)	Carbon stock loss associated with land/vegetation clearing	Vegetation type and land disturbed/cleared to be recorded in hectares.
	Fugitive gas emissions from open cut and coal stockpiles	• Run-of-mine coal extracted. • Method 1 calculation of fugitive gas emissions from the NGER Technical Guidelines (Clean Energy Regulator, 2019) to be used. • Further assessment of the validation using method 2 calculation of fugitive gas emissions (Clean Energy Regulator, 2019) will be conducted in the event this significantly lowers emission values. This section will be updated prior to the commencement of construction.
	Diesel consumption by mobile plant (i.e., mining equipment, light vehicles, product haulage)	• Invoices • Monthly fuel reconciliation return • Operating hours
	Diesel consumption by stationary plant (i.e. lighting rigs and pumps, coal handling and processing plant, and generators)	• Invoices • Monthly fuel reconciliation return • Operating hours
	Diesel consumption in ammonium nitrate fuel oil explosive mixes	• Invoices • Monthly fuel reconciliation return • Blasting records
Scope 2 (indirect)	Electricity consumption from the grid	Electricity supplier invoices

Records will be held for five years from the end of the reporting period.

GHG reporting under NGERS will be undertaken each financial year by 31 October through the online Emissions and Energy Reporting System.

8.3 National Pollutant Inventory

The Project's use of any prescribed NPI chemicals will be updated monthly using the Project's activity data and direct measurements of dust. Annual reports will be generated. Emissions of prescribed chemicals under the NPI (DoE, 2017) will be calculated in accordance with Section 5 of the NPI technical guideline for the mining industry (DSEWaC, 2012).

Prescribed chemicals meeting the NPI reporting thresholds described in the NPI Guideline (DoE, 2017) for each financial year will be reported by 30 September each year via the NPI website.

9 Complaints Management

The EA holder will maintain a phone line that is dedicated to the receipt of community feedback. An investigation will be conducted to determine the likely cause of the complaint and develop appropriate mitigation measures.

Should a non-frivolous complaint regarding dust nuisance be received, dust deposition monitoring will be undertaken at a site representative of the complainant's residence using the appropriate Australian Standard method. Monitoring will be undertaken for an appropriate period of time until representative data of the air quality recorded at the receiver is gathered.

Should a non-frivolous complaint regarding health concerns about dust be received, PM_{10} concentrations will be monitored at a site representative of the complainant's residence using an appropriate Australian Standard method, frequency and duration.

Concerns and other issues raised will be managed in accordance with the Community and Stakeholder Engagement Plan . A register will record the following details:

- nature of complaints;
- date and time of concern;
- the nature of concern;
- the method by which the concern was received;
- the name and title of the person who received the concern;
- the personal details of the complainant if made available, or if no details were provided, a note to that effect;
- the action taken in relation to the concern including any follow-up contact, the outcome of investigations and any required on-going actions;
- if no action was taken, then the reason why no action was taken; and
- the final status of the concern (e.g. resolved, continuing or unresolved).

10 Training

Prior to commencing any work duties on-site, all personnel will undergo a site-specific induction which includes a detailed summary of the EA holder's operations as well as associated health, safety, environment and community requirements. The induction is also to include details of the environmental impacts and aspects register with a focus on relevant legislation and legal responsibilities applicable to site.

Where required, training in specific environmental management duties (i.e. use of air quality monitoring equipment or use of real-time response protocols) is to be provided to relevant employees and contractors.

11 Roles and Responsibilities

Roles and responsibilities for the implementation, review and reporting of the AQMP are outlined in Table 19.

Table 19: Roles and Responsibilities

Responsibility	Accountabilities
Senior Site Executive	• Provide sufficient resources to manage air quality related risks and progress opportunities for improvement. • Identify and allocate sufficient resources to manage air quality related risks by supporting AQMMP implementation.
Mining Manager	Oversee the implementation of air quality management measures on all mining and related operations.
CHPP Manager	Oversee the implementation of air quality management measures at all CHPP-related locations.
Mining Superintendent	• Oversee the implementation of air quality management measures listed in the AQMMP applicable to their area. • Modify operations that are generating excessive air emissions. • Report excessive dust emissions to the Mining Manager. • Coordinate mining operations to minimise dust generation. • Suspend or modify operations when dust suppression systems are not operational or effective. • Implement appropriate contingency measures in the event of triggers activated as specified in the Dust Management TARP. • Inform Environment Manager about operations that are creating excessive dust or if the measures listed in this AQMMP are not being implemented or if they are not effective in mitigating air emissions.
Environmental Manager	• Have a sound understanding of mine-related air emission sources and controls. • Oversee the implementation, monitoring and review of this AQMMP. • Record, investigate and respond to air quality related incidents and complaints in accordance with site complaint and incident management procedures. • Provide induction programs for employees, contractors and visitors addressing relevant air quality management objectives, hazards, risks, controls, behaviours and consequences of inappropriate behaviour. • Consult with affected stakeholders regarding air quality issues; maintaining records of consultation, personnel participating in the consultation and the issues discussed. • Ensure data is collected and analysed in accordance with legislative requirements, and Australian Standards.
All Personnel	• Demonstrate an awareness of dust emission sources and related risks, both generally and specifically in relation to their own site activities. • Identify and report incidents involving excessive dust emissions. • Consistently implement dust management measures integrated within site operating procedures.

12 Document Control and Review

This Air Quality Management Plan will be reviewed on an annual basis to ensure validity of the plan and data collected.

The annual review process is intended to:

- examine the status of the key components of the AQMP;
- review air quality concerns;
- evaluate the overall performance of the AQMP; and
- capture changes to legislative and reporting requirements, when relevant.

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