



**ROCGLLEN COAL MINE  
ENVIRONMENTAL  
MANAGEMENT SYSTEM**

|                     |                    |
|---------------------|--------------------|
| Document Owner:     | Operations Manager |
| Last Revision Date: | 03/2022            |
| Date Printed:       | 12/04/2022         |

**WHC\_PLN\_ROC\_AIR QUALITY & GREENHOUSE GAS MANAGEMENT PLAN**

# **AIR QUALITY AND GREENHOUSE GAS MANAGEMENT PLAN**



**ROCGLLEN COAL MINE  
ENVIRONMENTAL  
MANAGEMENT SYSTEM**

|                     |                    |
|---------------------|--------------------|
| Document Owner:     | Operations Manager |
| Last Revision Date: | 03/2022            |
| Date Printed:       | 12/04/2022         |

**WHC\_PLN\_ROC\_AIR QUALITY & GREENHOUSE GAS MANAGEMENT PLAN**

| <b>Edition</b> | <b>Rev.</b> | <b>Comments</b>   | <b>Author</b> | <b>Authorised By</b> | <b>Date</b>    |
|----------------|-------------|---|---------------|----------------------|----------------|
| 1              | 0           | Initial document  | T Thompson    | C Burgess            | April 2008     |
| 1              | 1           | Amendment to Monitoring Locations   | T Thompson    | Danny Young          | January 2009   |
| 2              | 0           | 2011 Rocglen Extension Project Review   | C Thomas      | Danny Young          | December 2011  |
| 2              | 1           | 2011 Rocglen Extension Project Review Update  | D McGregor    | Danny Young          | September 2012 |
| 2              | 2           | PA10_0015 MOD 2   | M Woodhead    | Jill Johnson         | November 2015  |
| 2              | 3           | Revision following 2016 IEA   | M Whitten     | Jason Conomos        | October 2016   |
| 2              | 4           | Review following 2017 Annual Review   | E Clements    | Jason Conomos        | March 2018     |
| 2              | 5           | Amended Air Quality Controls and Management Protocols, Removed blast fume monitoring requirements from Table 1 and removed 'Costa Vale' HVAS monitoring location. Figure 2 updated. | O Hulbert     | Andrew Raal          | March 2022     |



**ROCGLLEN COAL MINE  
ENVIRONMENTAL  
MANAGEMENT SYSTEM**

|                     |                    |
|---------------------|--------------------|
| Document Owner:     | Operations Manager |
| Last Revision Date: | 03/2022            |
| Date Printed:       | 12/04/2022         |

**WHC\_PLN\_ROC\_AIR QUALITY & GREENHOUSE GAS MANAGEMENT PLAN**

**Contents**

|       |   |    |
|-------|---|----|
| 1     | INTRODUCTION .....  | 5  |
| 2     | AIR QUALITY IMPACT ASSESSMENT CRITERIA.....                   | 7  |
| 3     | AIR QUALITY CONTROLS AND MANAGEMENT PROCEDURES .....          | 9  |
| 4     | MONITORING AND REPORTING .....                                | 11 |
| 4.1   | Monitoring Program .....                                      | 11 |
| 4.1.1 | Parameters Measured .....                                     | 11 |
| 4.1.2 | Monitoring Locations.....                                     | 11 |
| 4.1.3 | Monitoring Frequency .....                                    | 14 |
| 4.1.4 | Monitoring Summary.....                                       | 14 |
| 4.2   | Monitoring Procedures, Data Recording and Reporting .....     | 15 |
| 4.2.1 | Monitoring Procedures.....                                    | 15 |
| 4.2.2 | Data Recording.....   | 15 |
| 4.2.3 | Data Reporting.....   | 16 |
| 5     | MANAGEMENT OF EXCEEDANCES, COMPLAINTS AND NON-COMPLIANCE..... | 16 |
| 5.1   | Air Quality Compliance Criteria Exceedance.....               | 16 |
| 5.2   | Complaints.....   | 18 |
| 5.3   | Non- Compliance .....   | 19 |
| 5.4   | Unpredicted Impact Protocol.....                              | 19 |
| 6     | GREENHOUSE GAS MANAGEMENT.....                                | 19 |
| 7     | DOCUMENT REVIEW AND CONTINUOUS IMPROVEMENT.....               | 20 |

**Tables**

|   |    |
|---|----|
| Table 1 - Air Quality Monitoring Summary.....               | 10 |
| Table 2 - Air Quality Monitoring Locations.....             | 14 |
| Table 3 - Air Quality Monitoring Program and Criteria ..... | 14 |
| Table 4 - Unpredicted Impact Protocol.....                  | 19 |

**Figures**

|          |                                       |    |
|----------|---------------------------------------|----|
| Figure 1 | Rocglen Coal Mine Location .....      | 6  |
| Figure 2 | Air Quality Monitoring Locations..... | 13 |



# ROCGLLEN COAL MINE ENVIRONMENTAL MANAGEMENT SYSTEM

Document Owner: Operations Manager

Last Revision Date: 03/2022

Date Printed: 12/04/2022

## WHC\_PLN\_ROC\_AIR QUALITY & GREENHOUSE GAS MANAGEMENT PLAN

### ACRONYMS USED THROUGHOUT THIS DOCUMENT

|                  |   |  |
|------------------|---|--|
| AQGGMP           | - | Air Quality & Greenhouse Gas Management Plan   |
| AR               | - | Annual Review (incorporates former Annual Environmental Management Report)                           |
| AS               | - | Australian Standard  |
| CCC              | - | Community Consultative Committee   |
| DP&E             | - | Department of Planning and Environment   |
| DRG              | - | NSW Department of Industry, Skills and Regional Development-<br>Division of Resources and Geoscience |
| EA               | - | Environmental Assessment   |
| EPA              | - | Environment Protection Authority   |
| EPL              | - | Environment Protection Licence   |
| GSC              | - | Gunnedah Shire Council   |
| HVAS             | - | High Volume Air Sampler  |
| ML               | - | Mining Lease   |
| NATA             | - | National Association of Testing Authorities  |
| OCE              | - | Open Cut Examiner  |
| PA               | - | Project Approval   |
| PM <sub>10</sub> | - | Particulate Matter with aerodynamic diameter less than 10µg  |
| PRP              | - | Pollution Reduction Program  |
| RCM              | - | Rocglen Coal Mine  |
| TARP             | - | Trigger Action Response Plan   |
| TEOM             | - | Tapered Element Oscillating Microbalance   |
| TSP              | - | Total Suspended Particulate Matter   |
| WCL              | - | Whitehaven Coal Limited  |



**ROCGLLEN COAL MINE  
ENVIRONMENTAL  
MANAGEMENT SYSTEM**

|                     |                    |
|---------------------|--------------------|
| Document Owner:     | Operations Manager |
| Last Revision Date: | 03/2022            |
| Date Printed:       | 12/04/2022         |

**WHC\_PLN\_ROC\_AIR QUALITY & GREENHOUSE GAS MANAGEMENT PLAN**

**1 INTRODUCTION**

The Rocglen Coal Mine (RCM) is located approximately 28km north of Gunnedah, and 10km west of the Canyon Coal Mine (formerly Whitehaven) (Figure 1). The mine site covers an area of approximately 460 hectares within Mining Lease (ML 1620) and Mining Lease (ML 1662).

The mine was initially approved on the 15<sup>th</sup> April 2008 under Project Approval (PA) 06\_0198 with a minor modification granted in May 2010 to address highwall stability issues. Whitehaven submitted a Project Application, and accompanying Environmental Assessment (EA), under Part 3A of the *Environmental Planning and Assessment Act 1979* in March 2011. PA 10\_0015 was issued on the 27<sup>th</sup> September 2011 and allows for additional extraction of up to 5 million tonnes of coal at a maximum recovery rate of 1.5 million tonnes per annum.

A minor modification was approved in November 2014 relating to Coal Transport, a second modification was approved in August 2015 allowing changes to coal reject haulage to the site, and a third modification was approved in February 2017 to allow increased coal haulage during calendar year 2017.

It is recognised that the operation of the mine has the potential to impact on the air quality within and beyond the boundaries of the mine site. In order to manage the potential impacts on local air quality, and in compliance with Schedule 3, Condition 17 of PA 10\_0015, as modified, this Air Quality & Greenhouse Gas Management Plan (AQGGMP) has been developed.

The AQGGMP has been prepared with reference to relevant legislation, approvals and guidelines, follows the management plan requirements specified in Schedule 5 Condition 2 of PA 10\_0015 and is consistent with the following documents:

- Rocglen Coal Mine Extension Project EA February 2011 (“Extension EA”) – specifically Section 7.2; and
- Rocglen Coal Mine Extension EA – Appendix C Air Quality Impact Assessment (PAE Holmes 2011).

The RCM Extension EA and Annual Reviews (ARs) for the site should be referred to for baseline data.





# ROCGLLEN COAL MINE ENVIRONMENTAL MANAGEMENT SYSTEM

|                     |                    |
|---------------------|--------------------|
| Document Owner:     | Operations Manager |
| Last Revision Date: | 03/2022            |
| Date Printed:       | 12/04/2022         |

## WHC\_PLN\_ROC\_AIR QUALITY & GREENHOUSE GAS MANAGEMENT PLAN

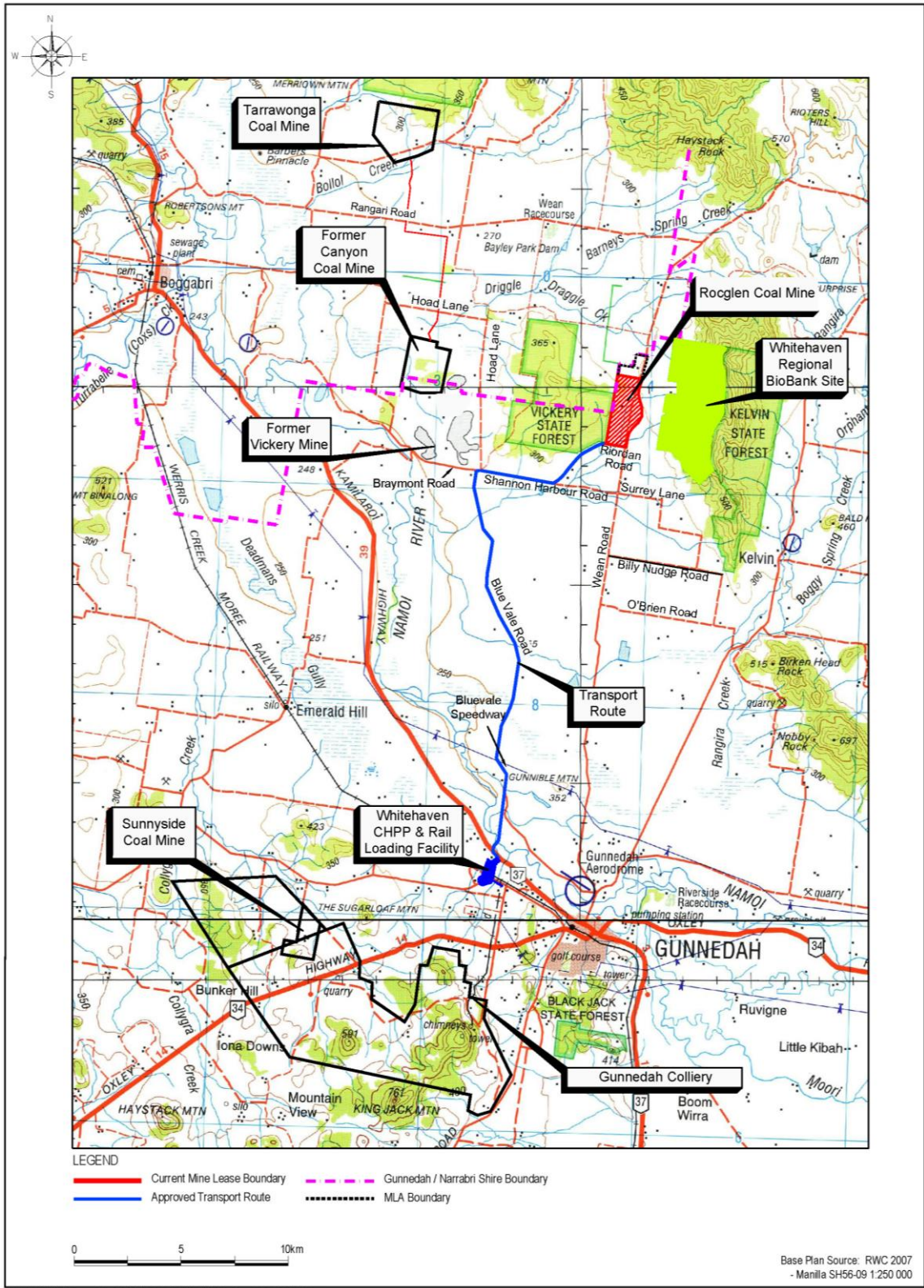


Figure 1 Rocglen Coal Mine Location



# ROCGLLEN COAL MINE ENVIRONMENTAL MANAGEMENT SYSTEM

|                     |                    |
|---------------------|--------------------|
| Document Owner:     | Operations Manager |
| Last Revision Date: | 03/2022            |
| Date Printed:       | 12/04/2022         |

## WHC\_PLN\_ROC\_AIR QUALITY & GREENHOUSE GAS MANAGEMENT PLAN

### 2 AIR QUALITY IMPACT ASSESSMENT CRITERIA

Air quality impact assessment criteria for the development were established in the Extension EA using relevant Environment Protection Authority (EPA) guidelines. These criteria have been incorporated in PA 10\_0015 Schedule 3, Condition 15 which states:

*The Proponent shall ensure that all reasonable and feasible avoidance and mitigation measures are employed so that the particulate emissions generated by the project do not exceed the criteria listed in Tables 4, 5 and 6 at any residence on privately-owned land or on more than 25 per cent of any privately owned-land.*

*Table 4: Long term criteria for particulate matter*

| Pollutant                                     | Averaging period | <sup>d</sup> Criterion            |
|---|------------------|-----------------------------------|
| Total suspended particulate (TSP) matter      | Annual           | <sup>a</sup> 90 µg/m <sup>3</sup> |
| Particulate matter <10 µm (PM <sub>10</sub> ) | Annual           | <sup>a</sup> 30 µg/m <sup>3</sup> |

*Table 5: Short term criterion for particulate matter*

| Pollutant                                     | Averaging period | <sup>d</sup> Criterion            |
|---|------------------|-----------------------------------|
| Particulate matter <10 µm (PM <sub>10</sub> ) | 24 hour          | <sup>a</sup> 50 µg/m <sup>3</sup> |

*Table 6: Long term criteria for deposited dust*

| Pollutant      | Averaging period | Maximum increase in deposited dust level | Maximum total deposited dust level     |
|----------------|------------------|--|--|
| Deposited dust | Annual           | <sup>b</sup> 2 g/m <sup>2</sup> /month   | <sup>a</sup> 4 g/m <sup>2</sup> /month |

Notes for Tables 4-6:

- <sup>a</sup> Total impact (i.e. incremental increase in concentrations due to the project plus background concentrations due to other sources);
- <sup>b</sup> Incremental impact (i.e. incremental increase in concentrations due to the project on its own)
- <sup>c</sup> Deposited dust is to be assessed as insoluble solids as defined by Standards Australia, AS/NZS 3580.10.1-2003: Methods for Sampling and Analysis of Ambient Air – Determination of Particulates – Deposited Matter – Gravimetric Method.
- <sup>d</sup> Excludes extraordinary events such as bushfires, prescribed burning, dust storms, sea fog, fire incidents, illegal activities or any other activity agree to by the Secretary in consultation with EPA.

The monitoring locations where the impact assessment criteria are assessed are specified in Environment Protection Licence (EPL) 12870, and as outlined in Section 4.1.2.

In addition to the above, the following approval conditions from Schedule 3 of PA 10\_0015 are relevant to air quality and greenhouse gas management:

13. *The Proponent shall ensure that no offensive odours, as defined under the POEO Act, are emitted from the site.*

14. *The Proponent shall implement all reasonable and feasible measures to minimise the release of greenhouse gas emissions from the site.*



**ROCGLLEN COAL MINE  
ENVIRONMENTAL  
MANAGEMENT SYSTEM**

|                     |                    |
|---------------------|--------------------|
| Document Owner:     | Operations Manager |
| Last Revision Date: | 03/2022            |
| Date Printed:       | 12/04/2022         |

**WHC\_PLN\_ROC\_AIR QUALITY & GREENHOUSE GAS MANAGEMENT PLAN**

16. *The Proponent shall:*

- (a) *implement best practice air quality management on site, including all reasonable and feasible measures to minimise odour, fume and dust emissions generated by the project, including those generated by any spontaneous combustion on site;*
- (b) *minimise any visible air pollution generated by the project;*
- (c) *minimise the surface disturbance on site; and*
- (d) *regularly assess the real-time air quality monitoring and meteorological forecasting data, and relocate, modify and/or stop operations on site to ensure compliance with the relevant conditions of this approval to the satisfaction of the Secretary.*

17. *The Proponent shall prepare and implement an Air Quality and Greenhouse Gas Management Plan for the project to the satisfaction of the Secretary. This plan must:*

- (a) *be prepared in consultation with EPA, and submitted to the Secretary for approval by the end of December 2011;*
- (b) *describe the measures that would be implemented to ensure compliance with the relevant conditions of this approval, including a real-time air quality management system that employs reactive and proactive mitigation measures; and*
- (c) *include an air quality monitoring program that:*
  - *uses a combination of real-time monitors, high volume samplers and dust deposition gauges to evaluate the performance of the project; and*
  - *includes a protocol for determining exceedances of the relevant conditions of this approval.*

18. *During the life of the Project, the Proponent shall ensure that there is a meteorological station operating in the vicinity of the site that:*

- (a) *complies with the requirements in the Approved Methods for Sampling Air Pollutants in NSW guideline; and*
- (b) *is capable of continuous real time measurement of temperature lapse rate in accordance with the NSW Industrial Noise Policy, or as otherwise agreed by EPA.*

The following condition from Schedule 2 of PA 10\_0015 MOD 2 is also relevant to air quality management measures on site:

11. *The Proponent shall ensure that all the plant and equipment used on site, or to transport coal from the site, is:*

- (a) *maintained in a proper and efficient condition; and*
- (b) *operated in a proper and efficient manner.*





# ROCGLLEN COAL MINE ENVIRONMENTAL MANAGEMENT SYSTEM

Document Owner: Operations Manager

Last Revision Date: 03/2022

Date Printed: 12/04/2022

## WHC\_PLN\_ROC\_AIR QUALITY & GREENHOUSE GAS MANAGEMENT PLAN

### 3 AIR QUALITY CONTROLS AND MANAGEMENT PROCEDURES

RCM adopts a range of design and operational procedures for the mine to ensure that the effectiveness of the air quality controls are optimised throughout all stages of the mine's development and operation.

The controls have been selected largely based on their proven effectiveness at both RCM and other similar mines.

#### **Vegetation Clearing and Soil Stripping**

- Mine is in final rehabilitation, there is no further clearing or stripping

#### **Drilling and Blasting Activities**

- Drilling and blasting activities are no longer carried out on site. Works undertaken will be limited to rehabilitation.

#### **Overburden Ripping and Placement**

- Remaining earthworks are limited to bulk dozer push of overburden, spreading subsoil and topsoil

#### **Crushing and Screening**

- Production has now ceased for the RCM, Crusher has been removed off site

#### **Internal Transport**

- As required, internal roads will be watered, with emphasis on those subject to frequent trafficking.
- The Site Supervisor or Operations Manager is responsible for ensuring site speed limits are adhered to by operational personnel.
- All internal roads will be clearly defined to control their locations.
- As roads within the Project Site become obsolete, they will be ripped and revegetated.

All operators on site have the responsibility of reviewing the dust generation from their activities, and will contact the water cart direct, or their supervisor for action on dust control. Overall management responsibility for ensuring operators follow this protocol rests with the Operations Manager.

#### **External Transport**



**ROCGLLEN COAL MINE  
ENVIRONMENTAL  
MANAGEMENT SYSTEM**

|                     |                    |
|---------------------|--------------------|
| Document Owner:     | Operations Manager |
| Last Revision Date: | 03/2022            |
| Date Printed:       | 12/04/2022         |

**WHC\_PLN\_ROC\_AIR QUALITY & GREENHOUSE GAS MANAGEMENT PLAN**

Haulage movements of ROM coal and receipt of coal rejects ceased in 2019.

**Rehabilitation**

- Whitehaven will adopt a progressive approach to the rehabilitation of disturbed areas within the mine site to ensure that, where practicable, completed mining and overburden emplacement areas are quickly shaped, top-dressed and vegetated to provide a stable landform.

A TARP has been developed based on PRP findings using adverse weather criteria, with an investigation level alarm set to trigger with sustained wind speeds of 6m/s for six consecutive 5 minute periods, and an action alarm set to trigger with sustained wind speeds of 8m/s for six consecutive 5 minute periods.

As per Schedule 3, Condition 16 d) of PA 10\_0015, RCM undertakes real time air quality monitoring via a Tapered Element Oscillating Microbalance (TEOM) monitor (PM<sub>10</sub>) that provides information in real time as to the dust levels in the vicinity of the Project. The data provided from this TEOM is used to inform air quality conditions in the area and if additional works are required on site for dust prevention or mitigation. In addition, meteorological forecasts are taken into consideration when planning operations on site.

**Table 1 - Air Quality Monitoring Summary**

| Type   | Frequency                           | Responsibility                               | Comments   |
|--|-------------------------------------|--|--|
| Dust observations  | Daily                               | All site personnel                           | Inspection of site conditions, either on site, or with the utilisation of an onsite camera; and communications with Site Supervisor/Operations Manager for additional dust management controls |
| Dust control   | Continuous during operational hours | Operations Manager/OCE                       | Providing adequate dust control during operations  |
| Real time dust management                                  | Real time                           | OCE/Operations Manager/Environmental Officer | Review TEOM results and coordinate appropriate response to maintain compliance   |
| PM <sub>10</sub> High Volume Air Sampler (HVAS) monitoring | Every 6 days                        | Environmental Officer                        | Coordinate collection of HVAS samples and review results.  |
| Deposited dust monitoring                                  | Monthly                             | Environmental Officer                        | Coordinate collection of dust gauges and review of results   |
| Operational changes to comply                              | Continuous                          | Operations Manager/Site Supervisor           | Respond to dust levels by modifying activities at site to achieve compliance   |



**ROCGLLEN COAL MINE  
ENVIRONMENTAL  
MANAGEMENT SYSTEM**

|                     |                    |
|---------------------|--------------------|
| Document Owner:     | Operations Manager |
| Last Revision Date: | 03/2022            |
| Date Printed:       | 12/04/2022         |

**WHC\_PLN\_ROC\_AIR QUALITY & GREENHOUSE GAS MANAGEMENT PLAN**

| Type   | Frequency | Responsibility        | Comments  |
|--|-----------|-----------------------|---|
| Exceedances/complaints and routine reporting | Daily     | Environmental Officer | Provide appropriate advice/response to any exceedance or complaint and undertake routine reporting requirements |

**4 MONITORING AND REPORTING**

This section outlines the monitoring and reporting requirements to measure the impacts and environmental performance of the mine, and the effectiveness of air quality management measures.

**4.1 Monitoring Program**

4.1.1 Parameters Measured

Activities on the mine site will emit dust in various forms, namely total suspended particulate matter (TSP), particulate matter with aerodynamic diameters less than 10µm (PM<sub>10</sub>), and deposited dust (which is assessed as insoluble solids as defined in Australian Standard AS 3580.10.1-2003 Methods for Sampling and Analysis of Ambient Air - Determination of Particulates - Deposited Matter - Gravimetric Method).

Section 2 presented the concentration, or deposition rate (in the case of deposited dust), thresholds that must not be exceeded at any residence on, or on more than 25 percent of, any privately-owned land. Monitoring implemented to ensure compliance with these criteria includes monitoring of dust deposition rates and PM<sub>10</sub> concentrations at residences surrounding the mine site. No direct monitoring of TSP is proposed as PM<sub>10</sub> concentrations are considered of greater significance given its synergies with health-related issues, however indirect calculation of TSP will be made from PM<sub>10</sub> measurements, using a previously determined relationship factor of 2, to determine compliance with Schedule 3 Condition 15 Table 4 of PA 10\_0015.

A record of site activities undertaken and meteorological records during the period of recording will also be retained.

4.1.2 Monitoring Locations

**Error! Reference source not found.** presents the locations of the dust deposition gauges, and location of the HVAS and TEOM for measuring PM<sub>10</sub> concentrations, as specified in Condition P1.1 of EPL 12870. The locations have been selected taking into account local meteorological conditions, the proximity of surrounding residences and the locations of likely dust emission sources from the mine site. Table 2 presents a summary of the air quality monitoring sites.

The TEOM was installed in addition to the deposited dust gauge network and a single HVAS unit, and as recommended in the Extension EA Air Quality Impact Assessment (PAE Holmes



**ROCGLLEN COAL MINE  
ENVIRONMENTAL  
MANAGEMENT SYSTEM**

|                     |                    |
|---------------------|--------------------|
| Document Owner:     | Operations Manager |
| Last Revision Date: | 03/2022            |
| Date Printed:       | 12/04/2022         |

**WHC\_PLN\_ROC\_AIR QUALITY & GREENHOUSE GAS MANAGEMENT PLAN**

2011), the TEOM was installed at the “Roseberry” residence in close proximity to one of the pre-existing HVAS units.

An alert system from the TEOM is established that provides site with adequate response time to address any site related dust generation activities. An initial trigger level is set at 40µg/m<sup>3</sup> for the PM<sub>10</sub> 24hr maximum. This trigger initiates a response from the site to review existing weather conditions and confirm if site operations are contributing to elevated PM<sub>10</sub> levels. In the event that conditions at site are deemed to be a contributing factor to elevated PM<sub>10</sub> levels, actions to modify activities will be undertaken and the impact on PM<sub>10</sub> levels assessed. Site will maintain an active log of identified PM<sub>10</sub> levels triggering a response and the actions initiated to reduce dust levels.

In the event that PM<sub>10</sub> levels are determined to be high as a consequence of ambient or other sources, by confirmation from surrounding PM<sub>10</sub> networks, the activity log will identify this source, with no specific requirement for Rocglen operations to cease activity. All activities at the Rocglen site will continue to be undertaken with due regard to dust generation, and appropriate dust controls implemented to maintain minor contribution to the overall air shed.

The real time air quality monitoring provides RCM with additional information on which to make operational decisions on a day to day basis. The results of real time air quality data, coupled with prevailing weather conditions provides site management with appropriate tools to determine causes of elevated dust results, and make changes to site operations accordingly. This management tool reduces the overall potential for RCM to exceed operational air quality criteria on an annual average and 24hr basis through the provision of alerts and active management on site, where dust contributions are related to site activities. Exceedances in 24hr or annual average results may still occur due to regional and/or other dust sources; however, the data available in real time, coupled with weather station information will provide the relevant information to assess contributing sources and appropriate response at a site level.

The weather station was relocated to the Northern overburden dump in October 2021. A soil moisture probe added to weather station for environmental monitoring of soil moisture. The deposited dust gauge BD2 previously located at the “Glenroc” property has been replaced by the monitor BD2a, located at the “Penryn” property north of the site. The “Penryn” property falls within the axis of prevailing winds and would provide valid results.





# ROCGLLEN COAL MINE ENVIRONMENTAL MANAGEMENT SYSTEM

|                     |                    |
|---------------------|--------------------|
| Document Owner:     | Operations Manager |
| Last Revision Date: | 03/2022            |
| Date Printed:       | 12/04/2022         |

## WHC\_PLN\_ROC\_AIR QUALITY & GREENHOUSE GAS MANAGEMENT PLAN

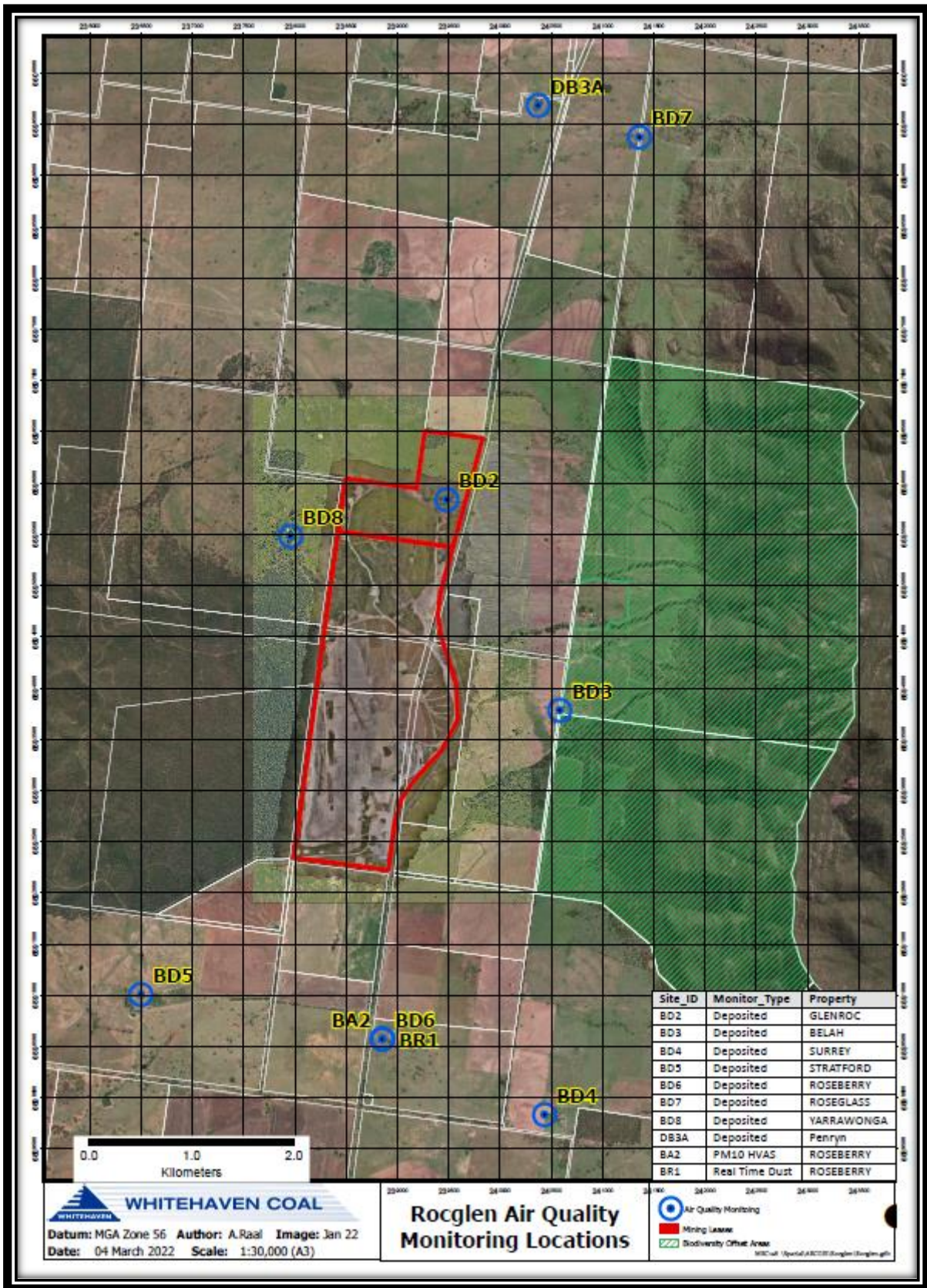


Figure 2 Air Quality Monitoring Locations





**ROCGLLEN COAL MINE  
ENVIRONMENTAL  
MANAGEMENT SYSTEM**

|                     |                    |
|---------------------|--------------------|
| Document Owner:     | Operations Manager |
| Last Revision Date: | 03/2022            |
| Date Printed:       | 12/04/2022         |

**WHC\_PLN\_ROC\_AIR QUALITY & GREENHOUSE GAS MANAGEMENT PLAN**

**Table 2 - Air Quality Monitoring Locations**

| Reference* | EPL ID # | Easting | Northing | Residence/Property | Deposited Dust | PM <sub>10</sub> | PM <sub>10</sub> – real time |
|------------|----------|---------|----------|--------------------|----------------|------------------|------------------------------|
| BA2        | 10       | 238938  | 6590465  | “Roseberry”        |                | ✓                |                              |
| BD2a       | N/A      | 240342  | 6599702  | “Penryn”           | ✓              |                  |                              |
| BD3        | N/A      | 240582  | 6593782  | “Belah”            | ✓              |                  |                              |
| BD4        | 4        | 240048  | 6589967  | “Surrey”           | ✓              |                  |                              |
| BD5        | N/A      | 236498  | 6591008  | “Stratford”        | ✓              |                  |                              |
| BD6        | 6        | 238862  | 6590500  | “Roseberry”        | ✓              |                  |                              |
| BD7        | 7        | 241363  | 6599433  | “Roseglass”        | ✓              |                  |                              |
| BD8        | N/A      | 237958  | 6595481  | “Yarrowonga”       | ✓              |                  |                              |
| BR1        | 17       | 238938  | 6590483  | “Roseberry”        |                |                  | ✓                            |

\* See Figure 2

**4.1.3 Monitoring Frequency**

The monitoring frequency, as specified in Condition M2.1 of EPL 12870, for deposited dust and PM<sub>10</sub> is as follows:

- Deposited dust – continuous
- PM<sub>10</sub> – every 6 days (in accordance with the EPA schedule for PM<sub>10</sub> monitoring)
- PM<sub>10</sub> – real time

**4.1.4 Monitoring Summary**

Table 3 summarises all relevant information for the air quality monitoring.

**Table 3 - Air Quality Monitoring Program and Criteria**

| Purpose                | Location                           | Parameter to be Analysed                  | Criteria (Annual Average)   | Frequency/Timing of Monitoring   |
|------------------------|------------------------------------|---|---|----------------------------------|
| Air quality monitoring | BD2a, BD3, BD4, BD5, BD6, BD7, BD8 | Dust Deposition (g/m <sup>2</sup> /month) | 4.0g/m <sup>2</sup> /month  | Continuous (monthly)             |
|                        | BA2                                | Particulate Matter <10µg/m <sup>3</sup>   | Annual Average - 30 µg/m <sup>3</sup><br>24 hour maximum - 50 µg/m <sup>3</sup> | Once every 6 days (EPA schedule) |
|                        | BR1                                | Particulate Matter <10µg/m <sup>3</sup>   | Annual Average - 30 µg/m <sup>3</sup><br>24 hour maximum - 50 µg/m <sup>3</sup> | Real time                        |



# ROCGLLEN COAL MINE ENVIRONMENTAL MANAGEMENT SYSTEM

|                     |                    |
|---------------------|--------------------|
| Document Owner:     | Operations Manager |
| Last Revision Date: | 03/2022            |
| Date Printed:       | 12/04/2022         |

## WHC\_PLN\_ROC\_AIR QUALITY & GREENHOUSE GAS MANAGEMENT PLAN

### 4.2 Monitoring Procedures, Data Recording and Reporting

#### 4.2.1 Monitoring Procedures

Monitoring will be undertaken according to the DEC (2006) document *Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales 2006*. Specifically, monitoring will be conducted in accordance with the following Australian Standards:

- AS/NZS 3580.1.1:2007 “*Methods for sampling and analysis of ambient air – Guide to siting air monitoring equipment*”.
- AS / NZS 3580.9.6 – 2003 “*Methods for sampling and analysis of ambient air – Determination of suspended particulate matter PM<sub>10</sub> high volume sampler with size-selective inlet – Gravimetric Method*”.
- AS 3580.10.1-2003 “*Methods for Sampling and Analysis of Ambient Air - Determination of Particulates - Deposited Matter - Gravimetric Method*” (NSW DEC Method AM-19).
- AS 3580.9.8-2001 “*Methods for the Sampling and Analysis of Ambient Air*” (NSW DEC Method AM-22).
- AS/NZS 3580.9.8-2008 *Methods for sampling and analysis of ambient air – Determination of suspended particulate matter – PM10 continuous direct mass method using a tapered element oscillating microbalance analyser*.

#### 4.2.2 Data Recording

Once each month, for each deposited dust monitoring location, the glass container used to capture the deposited dust will be removed, replaced and sent to a NATA accredited laboratory for analysis. For the HVAS, the pre-weighed filter will be removed, replaced and sent to a NATA accredited laboratory for analysis.

Condition M1.3 of EPL 12870 requires the following records to be kept:

- The date(s) on which the sample was taken;
- The time(s) at which the sample was collected;
- The point at which the sample was taken; and
- The name of the person who collected the sample.

In addition to these requirements, any notable activities or conditions at or around the monitoring location should be noted at the time of sample collection. Site activities that could impact on air quality results as well as any relevant regional conditions (e.g. bushfires, dust storms) should be noted when they occur.

Data obtained from the real-time air quality monitor will be available in real time, as well as through daily reporting from the monitoring unit to selected personnel. Key personnel for the provision of daily reports will be the Operations Manager for the Rocglen site and the Environmental Officer. In addition to daily reports, the monitor will be downloaded at regular intervals with data available on an archival basis.



# ROCGLLEN COAL MINE ENVIRONMENTAL MANAGEMENT SYSTEM

|                     |                    |
|---------------------|--------------------|
| Document Owner:     | Operations Manager |
| Last Revision Date: | 03/2022            |
| Date Printed:       | 12/04/2022         |

## WHC\_PLN\_ROC\_AIR QUALITY & GREENHOUSE GAS MANAGEMENT PLAN

### 4.2.3 Data Reporting

A summary of air quality monitoring results will be reported internally on a monthly basis as well as to the Community Consultative Committee (CCC) via the Environment Monitoring Report. This report will be uploaded onto the Company website.

Each year, the results of the air quality monitoring program will be summarised and presented in the AR. Reporting will also include an analysis of the monitoring results against the exceedance criteria, previous monitoring results, and predictions made in the EA.

Dust monitoring results will be issued to the EPA via the Annual Return for EPL 12870 and presented monthly on the Company website (for EPL licenced monitoring locations).

Reporting requirements for exceedances, complaints, and non-compliances are specified in Section 5.

## 5 MANAGEMENT OF EXCEEDANCES, COMPLAINTS AND NON-COMPLIANCE

### 5.1 Air Quality Compliance Criteria Exceedance

On identification of an exceedance of the air quality compliance criteria presented in Section 2, that is determined to be mine related, the following response protocol is to be followed. It is noted that the response to an exceedance will vary depending on whether it is an exceedance of dust deposition or PM<sub>10</sub>.

#### 1. **Confirmation of Exceedance**

The analysing laboratory will be contacted to ensure no error has been made in storing, analysing or recording the sample or result. Should this investigation conclude the treatment, analysis and result recording for the sample are satisfactory, RCM will proceed to response point 2.

#### 2. **Notification (of exceedance)**

Monthly dust deposition exceedance (4g/m<sup>2</sup>/month): It should be noted that the criteria for dust deposition is an annual average value and therefore a dust deposition value of >4g/m<sup>2</sup> for any given month is not strictly an exceedance, rather an indication that should there be no change to dust generating or suppression activities there is a high probability of an exceedance once the annual average is calculated. Notification is therefore not required.

Exceedance of 24 hour PM<sub>10</sub> criteria (50µg/m<sup>3</sup>): In the event that the PM<sub>10</sub> level recorded by the HVAS unit for a single 24 hour period exceeds 50µg/m<sup>3</sup>, and is deemed to be mine related, the EPA and DP&E will be notified as to the nature of the exceedance(s) and all relevant records of activities and weather conditions during the 24 hour period. A single exceedance may be considered anomalous, however repeated exceedances will require the preparation of a corrective action plan.



# ROCGLLEN COAL MINE ENVIRONMENTAL MANAGEMENT SYSTEM

Document Owner: Operations Manager

Last Revision Date: 03/2022

Date Printed: 12/04/2022

## WHC\_PLN\_ROC\_AIR QUALITY & GREENHOUSE GAS MANAGEMENT PLAN

Annual average exceedance of dust deposition ( $4\text{g}/\text{m}^2/\text{month}$ ) or  $\text{PM}_{10}$  ( $30\mu\text{g}/\text{m}^3$ ): In the event that the annual average dust deposition recorded at any off-site monitoring location exceeds  $4\text{g}/\text{m}^2/\text{month}$ , or  $\text{PM}_{10}$  level recorded from the HVAS unit exceeds  $30\mu\text{g}/\text{m}^3$ , the EPA and DP&E will be notified as to the nature of the exceedance(s). If it is determined that mine related activities have caused the exceedance in annual average criteria, a corrective action plan will be developed in consultation with the EPA and DP&E to address air quality improvements and ensure future compliance with the annual average criteria.

. In the event of an exceedance in 24 hour  $\text{PM}_{10}$  criteria (from the HVAS unit), deemed to be mine related, or the annual average  $\text{PM}_{10}$  (from the HVAS unit) or annual dust deposition criteria specified in Schedule 4, Condition 2 of PA 10\_0015 requires RCM to notify the affected landowner of an air quality criteria exceedance, and provide regular monitoring results to each of these parties until the project is complying with relevant criteria again. The NSW Health fact sheet "Mine Dust and You" must be provided to the affected landholders/tenants (including tenants of any mine-owned land).

### **3. Corrective Action Plan**

RCM will prepare a corrective action plan to reduce dust generation, and thereby reduce dust deposition and/or  $\text{PM}_{10}$  concentrations around the mine site, and return the operation to compliance. Preparation of the plan may require the assistance of a specialist air quality consultant. Details on the preparation of the corrective action plan will be included in the relevant AR and EPL Annual Return and be provided to the EPA prior to implementation.

### **4. Re-assessment**

Dust Deposition: In the event the annual average dust deposition level is exceeded in any calendar year, particular attention will be paid during the following 12 months to achieve compliance. The corrective action plan discussed above will be the main control designed to lower the annual average dust deposition level.

In the event that the annual average does not comply in a second year, a revised corrective action plan will be required, this time requiring the input of a specialist air quality consultant.

$\text{PM}_{10}$ : Compliance with  $\text{PM}_{10}$  concentration compliance criteria for the HVAS unit will be reassessed following the completion of the corrective action plan. In the event that a repeated non-compliant result is recorded, a revised corrective action plan will be implemented, this time requiring the input of a specialist air quality consultant.

### **5. Notification (of compliance)**

RCM will notify EPA and other relevant government agencies and local stakeholders of the return to compliance following the re-assessment process.



# ROCGLLEN COAL MINE ENVIRONMENTAL MANAGEMENT SYSTEM

Document Owner: Operations Manager

Last Revision Date: 03/2022

Date Printed: 12/04/2022

## WHC\_PLN\_ROC\_AIR QUALITY & GREENHOUSE GAS MANAGEMENT PLAN

### 6. *Independent Review*

If an owner of privately-owned land considers the mine to be exceeding air quality criteria, they may ask the Secretary in writing for an independent review of the impacts on their land. Schedule 4, Conditions 3 and 4 of PA 10\_0015 specify the independent review process.

### 7. *Reporting*

The recorded exceedance, corrective actions, and reassessment will be reported to the CCC and included in the relevant years AR.

### 5.2 Complaints

Whilst all endeavours will be made by RCM to avoid adverse air quality impacts on local landowners / residents, it is acknowledged that from time to time such impacts may occur. In order to ensure an appropriate and consistent level of reporting, response and follow-up to any complaints is adopted by RCM, the following complaints management protocol will be followed:

- A publicly advertised telephone complaints line [1800WHAVEN \(1800 942836\)](tel:1800WHAVEN) .
- Each complaint received will be recorded on a Complaints Register, which will include the following details:
  - The date and time of complaint.
  - Any personal details the complainant wishes to provide or if no such details are provided a note to that effect.
  - The nature of the incident that led to the complaint, including the time of the dispersal and its duration.
  - The action taken by RCM in relation to the complaint, including any follow-up contact with the complainant.
  - If no action was taken by RCM, the reason why no action was taken.
- The Environmental Officer will be responsible for ensuring that an initial response is provided within 24 hours of receipt of a complaint (except in the event of complaints recorded when the mine is not operational).
- Data from the site weather station will be obtained for the time applicable to the complaint for use in determination of cause and identification of future remedial actions.
- Additional measures will be undertaken as required to address the complaint. This may include visiting the complainant, or inviting the complainant to the mine site.
- Once the identified measures are undertaken, the Environmental Officer will sign off on the relevant complaint within the Complaints Register.





# ROCGLLEN COAL MINE ENVIRONMENTAL MANAGEMENT SYSTEM

|                     |                    |
|---------------------|--------------------|
| Document Owner:     | Operations Manager |
| Last Revision Date: | 03/2022            |
| Date Printed:       | 12/04/2022         |

## WHC\_PLN\_ROC\_AIR QUALITY & GREENHOUSE GAS MANAGEMENT PLAN

- If necessary, follow-up monitoring will take place to confirm the source of the complaint is adequately mitigated.
- A copy of the Complaints Register will be kept by RCM, displayed on the Whitehaven Coal website, and made available to the CCC and the complainant (on request). A summary of complaints received every 12 months will be provided in the AR.

Based on the nature of individual complaints, specific contingency measures may be implemented to the (reasonable) satisfaction of the complainant. The Environmental Officer retains responsibility to ensure that complaints received are properly recorded and addressed appropriately.

### 5.3 Non- Compliance

With the exception of air quality criteria exceedances (as discussed in Section 5.1), non-compliances relating to air quality would most likely relate to issues with monitoring such as monitor interference/malfunction. All non-compliances will be detailed in the EPL Annual Return and AR.

### 5.4 Unpredicted Impact Protocol

In the event that unpredicted or unforeseen air quality impacts are identified, the following protocol (Table 4) will be adopted.

**Table 4 - Unpredicted Impact Protocol**

| Step | Procedure   |
|------|---|
| 1    | Review the unpredicted impact including consideration of: <ul style="list-style-type: none"><li>• Any relevant monitoring data; and</li><li>• Current mine activities as well as activities in the vicinity of the issue.</li></ul> |
| 2    | Commission an investigation by an appropriate specialist into the unpredicted impact, if considered appropriate.  |
| 3    | Develop appropriate ameliorative measures based on the results of the above investigations, in consultation with relevant government departments.   |
| 4    | Implement additional monitoring, where relevant, to measure the effectiveness of the improvement measures.  |

## 6 GREENHOUSE GAS MANAGEMENT

RCM forms part of the Whitehaven Group's National Greenhouse and Energy Reporting Scheme (NGERS) reporting requirements. The schemes legislated objectives are to:

- Inform policy-making and the Australian public,
- Meet Australia's international reporting obligations,
- Provide a single national reporting framework for energy and emissions reporting.



**ROCGLLEN COAL MINE  
ENVIRONMENTAL  
MANAGEMENT SYSTEM**

|                     |                    |
|---------------------|--------------------|
| Document Owner:     | Operations Manager |
| Last Revision Date: | 03/2022            |
| Date Printed:       | 12/04/2022         |

**WHC\_PLN\_ROC\_AIR QUALITY & GREENHOUSE GAS MANAGEMENT PLAN**

**7 DOCUMENT REVIEW AND CONTINUOUS IMPROVEMENT**

This document will be reviewed in accordance with the requirements of Condition 4 Schedule 5 of PA 10\_0015. RCM will investigate and implement ways to improve the environmental performance of the project over time. This will be achieved by keeping abreast of best practice in the industry for air quality controls and reporting on outcomes of air quality monitoring annually in the AR.