Maules Creek Coal Mine Air Quality and Greenhouse Gas Management Plan

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Contents

1 Introduction

1.1 Overview of Approved Operations

The Maules Creek Coal Mine (MCCM) is an open cut mining operation located approximately 20km north-east of Boggabri within the Narrabri Local Government Area, in New South Wales.

The mine is owned by a joint venture which is 75% owned by Aston Coal 2 Pty Limited (a company 100% owned by Whitehaven Coal), 15% owned by Itochu Coal Resources Australia Maules Creek Pty Ltd (ICRA MC) and 10% owned by J-Power Australia (J-Power) (hereto referred to as MCCJV). The Mine is operated by Maules Creek Coal Pty Ltd (MCC), a wholly owned subsidiary of Whitehaven Coal (WHC) on behalf of MCCJV.

The MCCM commenced operations in 2015 and has approval to mine 13 million tonnes per annum of run-of-mine (ROM) coal via conventional open cut mining methods until 2034. Product coal is transported by rail via the Werris Creek to Mungindi railway line to the Port of Newcastle for export. The operation of a mine has potential to impact air quality within and beyond the boundaries of the mine site. Approved activities generate fugitive dust and other airborne emissions including carbon monoxide (CO), sulphur dioxide (SO_2) and nitrogen dioxide (NO_2) from sources including diesel powered equipment and vehicle exhausts, blasting, spontaneous combustion and CHPP operation.

MCCM operates under Project Approval (PA) 10_0138 (granted 22 January 2013), inclusive of multiple modifications since this date. Further details on each modification can be found in the 'Definition' section of Project Approval (PA) 10_0138.

A full project description, including history of operations, current operating approach and mining methods is outlined within the MCCM Project Environmental Assessment and previous Annual Environmental Management Reports/Annual Reviews (AEMR/Annual Review) for the site. These documents can be found on the Whitehaven Coal website.

1.2 Baseline Data

1.2.1 Climate

An automatic weather station (AWS) was installed on the western edge of the Project Boundary on 14 May 2010 in accordance with AM-2, Guide for measurement of horizontal wind for air quality applications (AS 2923-1987 or AS/NZS 3580.14-2014). The AWS measures rainfall averaged over an hour and temperature (at 2m and 10m), wind speed, wind direction, sigma theta[1] and solar radiation averaged over a 15-minute interval.

1.2.2 Dust

Baseline air quality monitoring for the MCCM commenced in 2010 with detailed baseline data available in the MCCM Project Environmental Assessment.

A network of three dust deposition gauges were installed in August 2010. Depositional dust levels sampled during 2010 were well below the Department of Environment, Climate Change and Water's (DECCW's) criteria of 4 g/m^2/month (pae holmes, 2011). The annual average pre-construction dust deposition monitoring data is presented in Figure 1.

[1] Sigma theta is used to calculate the stability class and inversion strength in accordance with the NSW Industrial Noise Policy (EPA, 2017) (as required by condition 35(b)).

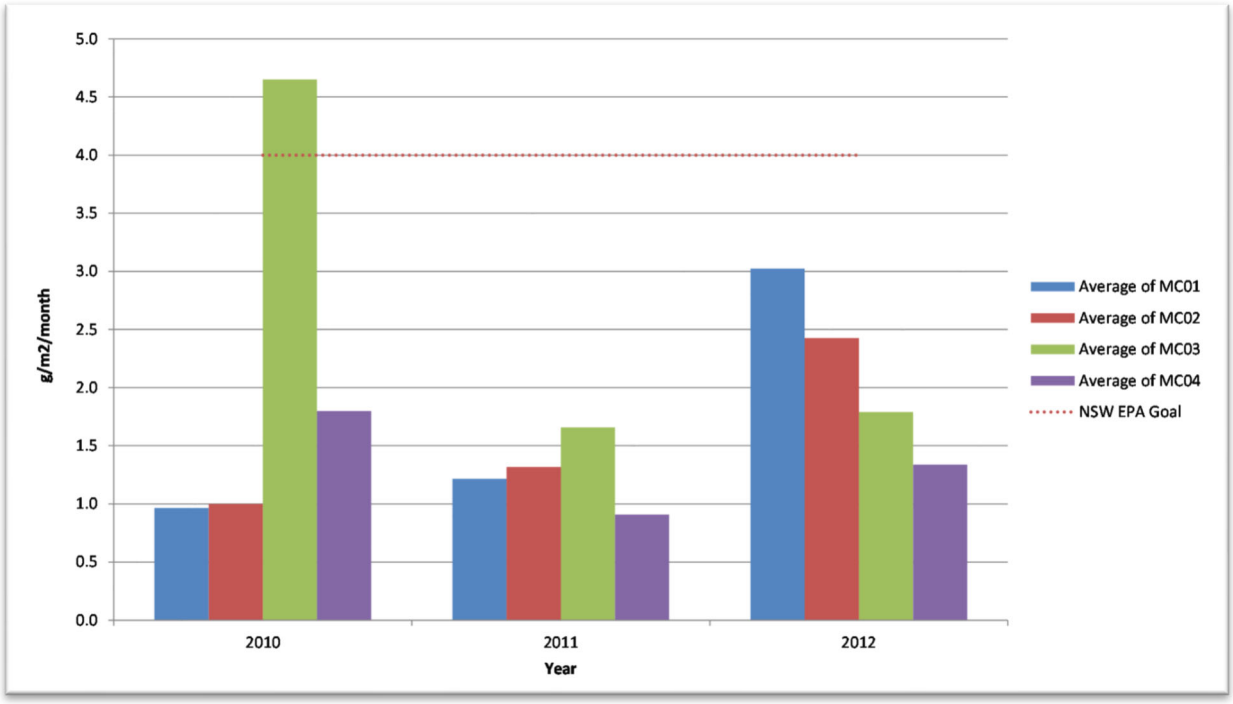

Figure 1 – Dust deposition monitoring

A PM_{10} High Volume Air Sampler (HVAS) commenced monitoring in October 2010, running on a one day in six cycle. The annual average PM_{10} for the period from October to December 2011 was 9µg/m^3. The annual average PM_{10} is shown in Table 1.

Table 1 – Annual average PM_{10} (HVAS)

Year	PM_{10} Concentration (µg/m^3)
2010	9.9
2011	13.2
2012	11.3
2013	16.2

A tapered element oscillating microbalance (TEOM) used to measure both PM_{10} and $PM_{2.5}$ was installed close to the Fairfax Public School, in Maules Creek Village in September 2011. The annual average $PM_{2.5}$ and PM_{10} concentration recorded by the TEOM are shown in Table 2.

Table 2 – Annual average $PM_{2.5}$ and PM_{10} (TEOM)

Year	$PM_{2.5}$ Concentration (µg/m^3)	PM_{10} Concentration (µg/m^3)
2011	3.7	7.4
2012	2.9	6.7
2013	2.0	5.7

1.2.3 Greenhouse gas

The main sources of GHG emissions at MCCM and considered in the AQGHGMP are:

- Fuel consumption (diesel) during mining operations (mine haulage fleet and heavy vehicle equipment, blasting fuel and generator use) – Scope 1; and
- Electricity usage in the CHPP (Scope 2).

Due to the nature of greenhouse gas monitoring, there is no baseline data available. A greenhouse gas assessment was undertaken in 2011 for MCCM that included a forecast of average greenhouse gas (GHG) emissions (Scope 1 and Scope 2) per year, of 247,733 tCOe- over the life of the mine.

1.3 Purpose

The purpose of this Air Quality & Greenhouse Gas Management Plan (AQGGMP) is to provide an overview of, and direction to the systems, processes and documentation that have been established to:

- ensure compliance with operating conditions of all active approvals;
- minimise the impact of dust from mining activity on the environment and nearby residences;
- minimise the release of GHG emissions and prevent the emission of offensive odours; and
- evaluate and report on the effectiveness of the air quality management system; and maintain an effective response mechanism to deal with exceedances and complaints.

1.4 Scope

The scope of this Management Plan applies to all activities at MCCM, including mining, handling, transport and storage of coal that have the potential to impact air quality and greenhouse gases of the immediate and surrounding receiving environment.

The impacts of blasting on air quality are managed via the Blast Management Plan (WHC_PLN_MC_ BLAST MANAGEMENT PLAN) (BLMP). In addition, the health and safety of workers from air quality is included in the Air Quality, Dust and Other Airborne Contaminants Principal Hazard Management Plan (WHC-PLN-OC-MCC-Air Quality, Dust and Other Airborne Contaminants and WHC-PLN-OC-MCC-CHPP-Air Quality or Dust or Other Airborne Contaminants) and is therefore not included in this Management Plan.

1.5 Management Systems

MCCM, as a Whitehaven Coal operation, has well-established management systems. These management systems provide the framework to support the planning, implementation, monitoring and review to achieve continual improvement in air quality management. To minimise the air quality impacts of these activities a risk-based approach has been established, which includes mechanisms for predictive forecasting and air quality monitoring, providing feedback on the effectiveness of controls and enabling adaptive air quality management.

2 Legislative Requirements and Commitments

Requirements and commitments associated with air quality and GHG are defined within the following approvals:

- Maules Creek Coal Mine Project Approval (PA) 10_0138 (including modifications); and
- Environmental Protection Licence (EPL) 20221.

Standards, guidelines and additional legislation relevant to the preparation of this AQGHGMP and the management of emissions from MCCM are available in Section 11 References.

In accordance with the Project Approval, Maules Creek Coal Mine must ensure that all reasonable and feasible avoidance and mitigation measures are employed so that particulate matter emissions generated by the project do not cause exceedances of the criteria listed in Table 3 at any residence on privately-owned land or on more than 25% of any privately-owned land (unless otherwise approved) inclusive of those criteria related to land acquisition. This criteria also applies to any occupied residence on mine owned land, subject to the conditions outlined in Schedule 3, conditions 30 and 31 of PA 10_0138. If the quality emissions generated by MCCM activities exceed or contribute to an exceedance of the criteria in Table 3 at any residence on privately-owned land or on more than 25% of any privately-owned land, then, upon receiving a written request for acquisition from the landowner, MCC is required to acquire the land in accordance with the procedures outlined in the approval.

Table 3 – Maules Creek Coal Mine air quality and dust deposition criteria

Pollutant	Averaging period	Impact assessment		Land acquisition	
		[d]Criterion	Basis	[d]Criterion	Basis
TSP	Annual	[a]90µg/m^3	Cumulative	[a]90µg/m^3	Cumulative
PM_{10}	Annual	[a]30µg/m^3	Cumulative	[a]30µg/m^3	Cumulative
PM_{10}	24-hour	[a]50µg/m^3	Cumulative	[a]150µg/m^3	Cumulative
PM_{10}	24-hour	[b]50µg/m3	Cumulative	[b]50µg/m^3	Cumulative
[c]**Deposited Dust**	Annual	[b]2g/m^2/month	Incremental	[b]2g/m^2/month	Incremental
[c]**Deposited Dust**	Annual	[a]4g/m2/month	Cumulative	[a]4g/m^2/month	Cumulative

Notes to Table 3:

[a] Total impact (i.e. incremental increase in concentrations due to the project plus background concentrations due to all other sources)
[b] Incremental impact (i.e. incremental increase in concentrations due to the project on its own)
[c] 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 Particulate Matter - Deposited Matter - Gravimetric Method.
[d] Excludes extraordinary events such as bushfires, prescribed burning, dust storms, sea fog, fire incidents or any other activity agreed by the Secretary.

In accordance with Project Approval Schedule 3, condition 28, if the owner of any residence on land listed in Table 1 (PA 10_0138, Schedule 3) (on the basis of air quality) or Table 8 of PA 10_0138 provides a written request to MCC, MCC will implement additional air quality mitigation measures at the residence in consultation with the owner, the measures must be reasonable and feasible and directed towards reducing the air quality impacts of the MCCM operations.

In accordance with the Project Approval, MCCM shall implement all reasonable and feasible measures to minimise the release of GHG emissions from the site to the satisfaction of the Secretary. This AQGHGMP has been developed in accordance with the PA 10_0138 and other relevant conditions, as provided Appendix 1, Table 7 and Table 8.

2.1 Boggabri, Tarrawonga, Maules Creek (BTM) Complex Air Quality Management Strategy

The BTM Complex is an existing mining precinct centred within and around the Leard State Forest, approximately 15 km northeast of Boggabri in the Narrabri Shire local government area. The BTM Complex currently includes the existing MCCM in the northwest, the Boggabri Coal Mine (BCM) to the north and the Tarrawonga Coal Mine (TCM) to the south.

The purpose of the BTM Complex Air Quality Management strategy (AQMS) is to document the approach that mines within the Boggabri-Tarrawonga-Maules Creek Complex (BTM Complex) will take to monitor and manage cumulative air quality impacts. The approved AQMS for the Boggabri Mine, TCM and MCCM Complex (BTM Complex) includes details on:

- Shared monitoring network;
- Predictive and real-time air dispersion model;
- Configuring predictive and reactive triggers;
- Generating reports and alerts;
- Communication between mining operations relating to air quality triggers; and
- Process of identifying and apportioning the source/s and contribution/s to cumulative air impacts.

The implementation of any site management and/or corrective measures will be the responsibility of each operation as per their site's AQGHGMPs. A copy of the AQMS for BTM is publicly available on the Whitehaven Coal website.

3 Consultation and Communication

This Management Plan has been prepared in consultation with the NSW Environment Protection Authority (EPA) and the Department of Planning, Housing and Infrastructure (DPHI).

MCC undertook consultation and the required notification of landowners listed within Table 1 (PA 10_0138 Schedule 3) during the approval process, including those with acquisition rights.

Prior to entering into a tenancy agreement for land owned by MCC that is predicted to experience exceedances of the recommended noise and dust criteria, MCC will advise the prospective tenants of the potential health and amenity impacts associated with living on the land and provide a copy of the “Mine Dust and You” factsheet. MCC will advise the prospective tenants of the rights that they have under PA 10_0138. MCC will also request the prospective tenants to visit their medical practitioner to discuss the air quality monitoring data and predictions and the health impacts arising from that information.

Any tenancy agreement that MCC implement will be undertaken to the satisfaction of the Planning Secretary. Should monitoring results show that the relevant criteria listed in PA 10_0138 be exceeded, MCC will (as soon as practicable) notify the landholder(s) whose land which the monitoring has shown an exceedance in writing and provide regular monitoring results to these landholder(s) until MCC has demonstrated compliance of MCCM operations with the relevant criteria. MCC will send any affected landholder(s) a copy of the “Mine Dust and You” fact sheet and monitoring data in an appropriate format.

MCCM has extensive consultation and communication processes, including but not limited to:

- A comprehensive community engagement program which includes a Community Consultative Committee (CCC);
- Regular engagement via the BTM mine complex for co-ordination of air quality management at the respective mines to minimise cumulative air quality impacts;
- Ongoing consultation with relevant government agencies including the EPA;
- A community response line (1800 942 836) which enables members of the community to contact environment and community staff directly to discuss concerns with air quality; and,
- Publicly available project approvals, environmental and other related documentation (annual reports, complaints register, CCC minutes) via the Whitehaven Coal website (https://whitehavencoal.com.au/our-business/our-assets/maules-creek-mine/).

4 Risk Management

MCCM implements a comprehensive risk management system as documented in the Whitehaven Coal HSE Risk Management Standard (WHC-STD-HSE Risk Management) and the Whitehaven Coal HSE Risk Management Procedure (WHC-PRO-HSE Risk Management). Air quality and GHG risks and their associated control measures are documented in the Maules Creek Coal Broadbrush Risk Assessment; the control measures are summarised in section 5 of this Management Plan. Operational and project related changes that have the potential to materially alter the air quality or GHG risk profile are managed through the Whitehaven Coal Management of Change Standard (WHC-STD-Management of Change).

5 Control Measures

5.1 Overview of operation controls

PA 10_0138 requires MCCM to implement reasonable and foreseeable avoidance and mitigation measures regarding dust or particulate matter emissions. Key operational control measures are included in Table 4.

Table 4 – Key air quality control measures

Risk	Source	Corrective/ Preventative	Mitigation Measures	Timing
Dust exceeds criteria	Hauling on Unsealed Road	P	Use of wet suppression and / or chemical suppressant	Daily
		P	Optimisation of fleet to reduce vehicle travel kilometres where possible	As required
		P	Haul roads clearly marked, and vehicles restricted to these areas	As required
		P	All trafficked areas are maintained. Grader speed reduction when working and routes watered	Daily
		C	Visual dust from haul trucks regularly assessed	Daily
		P	Shuttle bus at shift change for operational staff	Daily
		P	Relocate overburden emplacement operations away from elevated levels as part of any assessment of operations and activities	As required
	Wind Erosion on Exposed Areas & Overburden Emplacements	P	Minimise pre-strip and disturbed areas by delineating areas for stripping	As required
		C	Assess topsoil stripping during high winds generating dust and stop or slow loading rate – ensure watered haul routes	As required
		P	Permanent rehabilitation in line with Mine Operations Plan (MOP) targets Topsoil stockpiles sown when in place for longer than 6 months	As required
	Wind Erosion and Maintenance - Coal Stockpiles	P	Limit vehicle access to material stockpiles and other exposed areas	As required

Risk	Source	Corrective/ Preventative	Mitigation Measures	Timing
		C/P	Water sprays on product stockpiles	As required
		C/P	Use of watercarts on ROM pad	As required
		C/P	Identify temporary rehabilitation opportunities	As required
	Bulldozers on Overburden	P	Minimise travel speeds and distance where possible. Assess location of operation	As required
		P	Modify the use of equipment during adverse weather conditions, including reviewing avoidance of operations on exposed areas during high dust periods	As required
	Blasting and drilling	P	Reschedule blast to avoid adverse weather conditions where required	Daily
		C	Dust suppression while drilling - water sprays / dust curtains	As required
		P	Care taken not to disturb drill cuttings	As required
		C/P	Water truck available	As required
	Loading and dumping overburden	P	Minimise loading height	Daily
		C	Modify the use of equipment in adverse weather conditions	As required
	Loading and dumping ROM coal	C	Bypass ROM stockpiles and direct dump to hopper (product dependent)	As required
		P	Minimise loading height	Daily
		C/P	Water sprays on Run of Mine (ROM) bin	Daily
		P	Three sided and roofed enclosure of ROM bin	As required
	Conveyors and transfers	C/P	Application of water at transfers	As required
		P	Transfer point covers	As required
		P	Belt cleaning and spillage minimisation	As required
	Stacking and reclaiming product coal	P	Variable height stack	As required

Risk	Source	Corrective/ Preventative	Mitigation Measures	Timing
		C/P	Water sprays on product stockpiles	As required
	Train load out and transportation	P	Volumetric loading from overhead silo	Daily
		P	Maintain a consistent profile	Daily
		P	Telescoping chute	Daily
		P	Loading area enclosed	Daily
		P	Profiling to manage overloading/underl oading wagons. Limit load size to ensure coal is below sidewalls	Daily
	Diesel exhaust from mining equipment	P	Trucks and plant on-site will be well maintained.	As required
		C	Registered road vehicles with smoky exhausts more than 10 seconds will be maintained	As required
		P	Unnecessary idling for trucks and plant will be avoided	Daily
		P	Optimisation of fleet to reduce kilometres travelled by where possible	As required
Excessive odour	Spontaneous combustion	C/P	Identification of potential self-heating coal seams	As required
		C/P	Placement of inert material over areas where known self-heating seams would otherwise be exposed.	As required
Excessive release of oxides of nitrogen and other gases	Blasting fumes	C/P	Implementation of MCCM Blast Management Plan	As required
Excessive GHG emissions	GHG from fuel burn from mining equipment – Scope 1	P	Consideration of the fuel efficiency of all mobile and fixed equipment during procurement	As required
		P	Ensure dump trucks are fully loaded for each load prior to hauling	As required
		P	Optimisation of fleet to reduce kilometres equipment travel where possible	As required
	Indirect emissions resulting from consumption of purchased electricity – Scope 2	P	Consideration of the energy efficiency of all new major electrical equipment during procurement	As required

Risk	Source	Corrective/ Preventative	Mitigation Measures	Timing
		P	Use of variable speed drives on pumps and conveyors in the CHPP	As required
		P	Avoid idle running of conveyors in the CHPP	As required
		P	Turn off unnecessary lighting around the mine consistent with safety requirements	As required

5.2 Key operational control procedures

Key operational control procedures supporting the above air quality management measures as a result of mining activity include:

5.2.1 Principal Hazard Management Plan Air Quality, Dust and Other Airborne Contaminants

This plan describes the systems in place to manage air quality, dust and other airborne contaminants. It is aligned to the requirements of Work Health Safety (Mines and Petroleum Sites) Regulation 2022. It covers plant and equipment standards regarding ventilation, the dust trigger/action/response plan (TARP) used to respond to operational dust issues, dust related personal protective equipment (PPE), controls for dust generated from operation of mobile equipment (excavation, loading, hauling, dumping and stockpiling), blasting dust and fume controls, diesel particulate emissions, welding fumes, high pressure cleaning and abrasive blasting and naturally occurring gases in the mining environment (e.g. methane and hydrogen sulphide, confined space work and chemical vapours and mists). It also covers air sampling and monitoring.

5.2.2 Principal Hazard Management Plan Air Quality, Dust and Other Airborne Contaminants – CHPP

This plan covers hazards relating to air quality, dust and other airborne contaminants generated from operation of the Coal Handling Preparation Plant (CHPP). It covers the suppression of coal dust around the CHPP including the automatic suppression systems, water carts, blasting control, operation of mobile equipment and vehicles, diesel particulates, hazardous chemicals, fumes and substances, asbestos, indoor air quality, biological contaminants, PPE, monitoring and training.

5.2.3 WHC-TARP-OC-MCC-Dust

This TARP covers the operational dust associated with the operation of mobile equipment (haul trucks, dozers, excavators, loaders and drills). It is referenced in the Principal Hazard Management Plan Air Quality, Dust and Other Airborne Contaminants.

5.2.4 WHC-CHK-OC-MCC-OCE Daily Inspections Checklist Mining

This checklist is a daily inspection form for the handover between shift supervisors. It covers several risks including dust management and where there are dust concerns, remedial actions are proposed.

5.2.5 WHC-CHK-OC-MCC-Operations Inspection Checklist

This checklist is the inspection form for the Manager of Mining Engineering. It covers a number of risks including dust management. It focuses on the effectiveness of water trucks. If there are issues with the effectiveness of the water trucks actions can be included to control the issue.

5.2.6 WHC-PLN-OC-MCC-Spontaneous Combustion

This plan provides a system for managing spontaneous combustion within the MCCM by identifying at risk materials, providing a suite of control measures to prevent and manage outbreaks of spontaneous combustion.

5.2.7 WHC-PLN-OC-MCC-CHPP-Spontaneous Combustion

This plan provides a system for managing spontaneous combustion at the CHPP by identifying at risk materials, providing a suite of control measures to prevent and manage outbreaks of spontaneous combustion.

5.3 Trigger Action Response Plan

5.3.1 Predictive and Real Time TARP

A TARP has been developed to be used in combination with the real time PM_{10} monitoring sites and the site meteorological weather station. Triggers are set to alert the operation when real time air quality readings reach a set limit. This alert triggers additional operational responses such as relocate, modify, and/or suspend operations to ensure compliance with the relevant conditions and criteria of PA 10_0138 and EPL20221. The Risk Response Matrix outlines the trigger levels and the operational responses when a certain trigger level has been reached, this is provided in Figure 4.

5.3.2 Visual Dust TARP

Visual inspection of dust will be conducted at all times by personnel at MCCM to determine whether visible dust levels are within appropriate levels, or if further mitigation is required. A TARP has been developed for the site which provides visual dust trigger indicators, (normal, level 1 and level 2), and sets out the corresponding response/actions if the trigger is reached. This is provided in Appendix 4: Dust Trigger Action Response Plan.

5.4 Greenhouse Gas Management

The main sources of GHG emissions at MCCM and considered in the AQGHGMP are:

- Scope 1 emissions - Fuel consumption (diesel) during mining operations (mine haulage fleet and heavy vehicle equipment, blasting fuel and generator use); and
- Scope 2 - Electricity usage in the CHPP.

From October 2022 WHC offset Scope 2 emissions by purchasing 100% carbon neutral electricity across all operations.

The GHG management for the Project will focus on emissions management and reductions associated with diesel consumption and electricity efficiency.

MCCM conducts regular reviews and monitors GHG emissions through an internal purpose-built tracking system. Further detail on this can be found in Whitehaven Sustainability report published annually.

Whitehaven's FY30 net Scope 1 emissions intensity reduction target is aligned with the Safeguard Mechanism emissions intensity reduction obligation that is applicable to Maules Creek mine. Maules Creek mine emissions intensity is currently within the required emissions intensity targets for FY30. Whitehaven look to reduce Scope 1 emissions by implementing site-based initiatives where suitable technology abatement solutions are feasible

5.4.1 Scope 1 emissions – Diesel Use

Scope 1 emissions from diesel use during operations will be minimised as follows:

- consideration of the fuel efficiency of all mobile and fixed equipment during procurement;
- ensure dump trucks are fully loaded for each load prior to hauling to maximise productivity and efficiency with regard to the amount of fuel used per unit of material moved;

- optimisation of fleet and haulage routes to ensure efficiency of equipment travel where possible; and
- Investigate biodiesel use and where possible source from local and sustainable agricultural resources.

WHC is investigating technologies to reduce mine haulage fleet diesel emissions in the short to medium term and are engaging with original equipment manufacturer (OEM) suppliers in relation to their low-carbon truck technology development pathways. Based on this engagement, WHC do not anticipate low-carbon truck electrified solutions suitable for our open cut mines to be commercially available before 2030.

5.4.2 Scope 2 emissions – Electricity

Scope 2 emissions from electricity use during operations will be minimised as follows:

- Consideration of the energy efficiency of all new major electrical equipment during procurement;
- Use of variable speed drives on pumps and conveyors in the CHPP;
- Avoiding idle running of conveyors in the CHPP; and
- Turning off unnecessary lighting around the mine site consistent with safety requirements.

5.5 Odour Management

It is a requirement of the Project Approval that no offensive odours are emitted from the site, as defined under the Protection of the Environment Operations Act 1997 (NSW). The primary potential sources of odour at Maules Creek Coal Mine are spontaneous combustion and blast fume.

5.5.1 Spontaneous Combustion

Spontaneous combustion has been identified as having the potential to impact odour at a low risk at MCCM. Management and mitigation measures to reduce the potential for spontaneous combustion events onsite include:

- Identification of potential self-heating coal seams; and
- Placement of inert material over areas where known self-heating seams would otherwise be exposed.

5.5.2 Blast fume

In addition to the generation of dust emissions, blasting can generate oxides of nitrogen (NOx) together with other gases as by-products of ammonium nitrate based explosives. NOx fumes generated during blasting can manifest as yellow to dark red clouds, the colour depending on the concentration of the gas.

The management of fume generation from blasting activities is described in the approved MCCM Blast Management Plan, with the potential for cumulative blast impacts described in the approved BTM Blast Management Strategy. The MCCM Blast Management Plan, which includes a Blast Fume Management Procedure, provides detailed management measures related to:

- Blast design;
- Drill and blast practices;
- Fume control;
- Blast scheduling;
- Cumulative blast management; and
- Blast monitoring, notification, complaint response, reporting and roles and responsibilities.

6 Air Quality Monitoring

6.1 Monitoring Program

The MCCM air quality monitoring network has been established with consideration to the following objectives:

- To assess operational compliance with the criteria outlined in the approval;

- To integrate with the predictive and real-time dust management system; and
- To form part of a cumulative air quality monitoring network for BTM Complex AQMS.

Monitoring is conducted in accordance with relevant standards as outlined in Approved Methods for the Modelling and Assessment of Air Pollutants in NSW (EPA, 2022). All statutory monitoring locations will conform to the requirements of AS 3580.1.1:2007 Methods for sampling and analysis of ambient air – Part 1.1: Guide to siting air monitoring equipment (Standards Australia, 2007), subject to local site constraints. The effectiveness of the monitoring program will be evaluated each year upon the review of this plan as per the requirements of section 10.1.2 and reported on each year in the annual review.

Note that direct monitoring of total suspended particles (TSP) is not conducted as the TSP values are determined by multiplying measured PM_{10} values by a factor of 2. This approach was accepted by the then DPE for all Whitehaven sites in a letter dated 5th August 2011.

6.1.1 Particulate Matter

The types of monitoring instruments used are included below;

- A High Volume Air Sampler (HVAS) is used to measure PM_{10} concentrations in the ambient air. HVAS monitoring is conducted approximately every 6 days for a 24-hour monitoring period. A NATA accredited analytical laboratory then conducts gravimetric analysis of the filter papers to determine the PM_{10} level. The High Volume Air Sampler (HVAS 1) is located about 6.5kms to the west of the mine, adjacent to the Namoi River (Appendix 1: Air quality monitoring locations
-). The PA 10_0138 criteria that apply for the HVAS for particulate matter are defined for TSP and PM_{10} in Table 3 and are referred to as long term (annual average) and short-term (24-hour average) criteria.
- Real-time particulate monitoring is conducted using TEOMs which measure PM_{10} and $PM_{2.5}$ concentrations. Three TEOM units (TEOM1-3), currently able to measure PM_{10} and $PM_{2.5}$. TEOMs 1 and 3 are compliance points that provide continuous monitoring of PM_{10} levels in accordance with EPL20221 and are used to access compliance against the PA 10_0138 criteria in Table 3. TEOM 2 is not a compliance monitor and is used by MCC for internal management purposes only.
- An e-sampler is a light scattering aerosol monitor that can be used to continuously measure concentrations of particulates. The samplers operate on solar power and can be relocated as required. The e-samplers are used for upwind/ downwind calculations to evaluate the likely dust contributions of the operations in the BTM Complex. The location of these 'e-samplers' will move periodically as BTM Complex mining operations progress. The monitors are for management purposes and not to assess compliance as they inform predictive assessments together with not remaining in fixed locations.

Table 5 – Air monitoring locations

Monitor*	Easting	Northing	Residence/Proper	Parameter	Frequency
DDG1	231883.034	6616159.974	Mine Owned	Deposited dust	**30 days (+/- 2 days)**
DDG2	224781.975	6623200.007	Fairfax Public School	Deposited dust	**30 days (+/- 2 days)**
DDG3	222436.001	6619085.995	Mine Owned	Deposited dust	**30 days (+/- 2 days)**
DDG4	217646.023	6612499.969	Mine owned residence	Deposited dust	**30 days (+/- 2 days)**
TEOM 1	225309	6623038	Property	PM10, 2.5	**Continuous**
TEOM 2	222470.777753	6619083.73809	Internal mine use	PM10, 2.5	**Continuous**
TEOM 3	219789	6622711	Residence	PM10, 2.5	**Continuous**

Monitor*	Easting	Northing	Residence/Proper	Parameter	Frequency
HVAS 1	217378	6612462	Mine Owned	PM10	**Every 6 days**

*** See Figure 2**

****In addition the BTM complex has real-time PM_{10} monitors (i.e. E-samplers or equivalent) to assist with cumulative air quality predictive modelling. These monitors are for management purposes and not to assess compliance as they inform predictive assessment together with not remaining in fixed locations are mobile units and location may change as required. TEOM 1 forms part of the BTM complex network.**

6.1.2 Deposited Dust

Particles larger than 50 µm are measured as deposited dust. The EPA expresses dust deposition criteria in terms of an acceptable increase in dust deposition over the existing background deposition levels to represent both an incremental (project alone) and cumulative criterion. The long-term (annual average) criteria for depositional dust, that apply to MCCM, are provided in Table 3. Dust deposition gauges are exposed for 30 days (+/- 2 days) and analysed for insoluble solids and ash residue. Monitoring for depositional dust is conducted to comply with AS 3580.10.1-2003 Determination of particulates – Deposited Matter – Gravimetric Method (Standards Australia, 2003). MCC have four depositional dust gauges (DDG1 – DDG4).

6.1.3 Predictive and Real Time Monitoring

MCCM has implemented a comprehensive air quality management system on site that uses a combination of predictive meteorological forecasting, predictive and real time air dispersion modelling and real-time air quality monitoring data to guide the day to day planning of mining operations. This web based management system is utilised by both operational and environmental support staff to assist in the management of air quality impacts from the project.

The predictive modelling system provides:

- Daily forecast reports providing information on temperature inversions, wind conditions, dust risk, and recommended control actions;
- Graphical representation of the forecasted meteorology and real-time monitoring data via the system's web interface;
- Capability to analyse and confirm the likely source(s) of dust and path(s) that the dust has travelled, and;
- Incorporated real time air quality and meteorological monitoring data.

6.1.4 Greenhouse Gas Emissions

MCCM forms part of the WHC's National Greenhouse and Energy Reporting Scheme (NGERS) reporting requirements. Under NGERS requirements, emissions and energy consumption must be measured and reported on an annual basis, allowing major sources and trends in emissions/energy consumption to be identified.

Each financial year, WHC's NGER data are independently assured. During this assurance process the MCCM GHG emissions data collection, record keeping, and verification are audited to ensure compliance with Section 19 of the *National Greenhouse and Energy Reporting Act 2007*. Additionally, reporting also occurs by MCCM under the Safeguard Mechanism scheme, coordinated by the Clean Energy Regulator.

GHG emissions and performance for each calendar year will be reported within the MCCM Annual Review. This will include reporting on any new energy savings projects that have been implemented by MCCM or are planned to be implemented in the following year.

7 Responsibilities

Table 6 – Roles and responsibilities

Role	Responsibility
General Manager – Maules Creek	• Ensure required resources and support to implement the management plan
HSEC Manager or delegate	• Authorise the AQGHGMP and future amendments • Ensure induction and training relevant to the AQGHGMP • Management and maintenance of monitoring network • Regulatory notification and engagement • Reporting and data review • System maintenance and development • Specific dust management responsibilities outlined in Table 4
Operations Manager & Technical Services team	• Accountability for dust management performance by operations and controls implemented • Optimisation of mining fleet to ensure efficiency and reduce vehicle travel distance • Mine plans to enable update the predictive model • Operational modifications to triggers and alarms • Overseeing implementation of dust management measures • Assist in mine technical detail for stakeholder enquiries • Specific dust management responsibilities outlined in Table 4
CHPP Manager	• Ensure management of dust from CHPP product stockpiles and coal transfer points • Speed restrictions of equipment within CHPP area • Ensure dust management responsibilities outlined in Table 4
External Relations Manager	• Provide response to stakeholder and community enquiries.
All personnel	• Adhere to the relevant requirements of this AQGHGMP • Modify activities to reduce dust levels • Specific dust management responsibilities outlined in Table 4

8 Data Quality Assurance

- Real-time data (TEOM and E-Sampler) is accessed by a web interface that provides notifications when a dust trigger level is reached. Additional quality checks are undertaken when a dust trigger alert is reached. Validations on the daily TEOM averages are undertaken by an external contractor.
- Depositional dust samples are analysed monthly by a National Association of Testing Authorities accredited laboratory to determine the mass deposition rate of insoluble solids, ash, combustible matter, soluble solids and total solids from ambient air.
- Monitoring equipment is maintained and calibrated in accordance with manufacturer's specifications and relevant standards.
- Random audits of operating responses to real time air quality management systems are undertaken as required.

9 Compliance obligations

9.1 Protocol for determining exceedances

Where monitoring results are above the air quality criteria listed in Table 3, the results will be reported as per section 9.3 and an investigation will be conducted to validate the monitoring result. This investigation will seek to validate the monitoring result for an exceedance which includes estimating the contribution from MCCM mining activities and the recording of the reasonable and feasible mitigation measures implemented.

The air quality management system will be used to analyse and provide information on potential dust sources including:

- Investigate if any potential contamination of sample may have occurred and if the monitoring results are valid;
- Investigate the meteorological data for the relevant period;
- Compare the upwind, downwind and regional monitoring data for the same period;
- Obtain operations activity logs for the day of elevated levels to determine what activities were occurring and characterise the activities based on being wind speed independent, wind speed dependent or wind erosion sources; and
- On the basis of wind speed, direction and the upwind and downwind results, determine the likelihood of the site causing or contributing to elevated levels above the approval criteria.

Where it is determined MCCM contributed to the air quality monitoring results exceeding approval criteria, a report will be provided to the relevant agencies.

Landowners affected by an exceedance of air quality criteria will be notified as soon as practical following receipt of results in accordance Schedule 4 Condition 4 PA 10_0138.

9.2 Non-compliance Notification

A written report on a non-compliance with required contents will be provided to the DPHI via the major projects website within 7 days of becoming aware of the non-compliance (or as otherwise directed by the DPHI) as per the requirements of Schedule 5 Condition 8A and 8B, PA 10_0138.

9.3 Incident Notification

In accordance with Schedule 5 Condition 8 PA 10_0138 and under Section 148 of the *Protection of the Environment Operations Act 1997* (POEO Act) the Secretary of DPE and representatives of all relevant regulatory agencies will be informed of any incident that;

- has caused, or threatens to cause, material harm to the environment; and
- breaches or exceeds the limits or performance measures/criteria in this approval.

A notification will be provided to the DPHI immediately after becoming aware of an incident via the major project's website. A written report on the incident will be provided to the DPHI via the major project's website within 7 days and a detailed report with 30 days of becoming aware of the incident (or as otherwise directed by the DPHI) as per the requirements of Appendix 9, PA 10_0138. If a non-compliance has been notified to the DPHI as an incident, it does not also need to be notified as a non-compliance. Reporting to additional regulatory authorities will be executed to meet legal obligations.

9.4 Complaint Handling

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

- a publicly advertised telephone complaints line will be in place to receive complaints;
- initial response is provided where practical within 24 hours of receipt of a complaint;

- an investigation will be initiated as per for an exceedance (section 9.1); and
- all details regarding the complaint including investigation outcomes and follow up actions will be documented in a complaints register.

Where a complaint is received from the public regarding air quality an investigation into activities occurring at the time with reference to meteorological conditions, dust levels measured by monitoring equipment and operational activities will be carried out. Where the investigation can identify the activity, modification to the activity will occur.

A copy of the complaints register will be updated monthly on the MCCM website. A summary of complaints received every 12 months will be included in the Annual Review

10 Reporting and Review

10.1 Reporting

10.1.1 Regular monitoring reports on webpage

In accordance with Schedule 5 Condition 13 of PA 10_0138, the following reports are updated as per requirements and available on the WHC website, including:

- Daily weather forecasts for the week;
- Daily non-validated air quality monitoring data;
- Operational responses to weather and dust levels;
- Monthly reporting results as per the BTM AQMS; and
- Summary reports available on a monthly basis required under the EPL.

MCCM also provide data from the Maules Creek monitoring station to the NSW EPA as part of Namoi air quality monitoring project the which is published on the EPA website detailing daily air quality information.

10.1.2 Compliance Reporting

An overview of any non-compliances or incidents received during the reporting year are included in MCCM's annual review. Refer to section 10.1.4 for further detail on the annual review.

10.1.3 CCC Reporting

A Community Consultative Committee (CCC) has been established and will continue to be operated for the duration of operations on site. Regular briefings to the CCC will be provided, including a summary of results from the MCCM air quality monitoring network.

10.1.4 Annual Review

By the end of March each year, MCC will review the environmental performance of MCCM (including air quality) for the previous calendar year. The air quality component of the Annual Review includes the required detail as per the DPHI Annual Review Guideline (2015). The Annual Review will be sent to the relevant regulatory agencies for review and made publicly available on the WHC website.

10.2 Review

This Management Plan and the BTM Complex AQMS will be reviewed and evaluated to assess its adequacy and effectiveness, to the satisfaction of the Secretary (in consultation with relevant government agencies) in accordance with Condition 4 and 5 of Schedule 5 of the Project Approval PA 10_0138. This requires that this is undertaken within 3 months of:

a) The submission of the annual review;

b) The submission of an incident report;

c) The submission of an audit; or

d) Any modifications to the conditions of the Approval.

If necessary, the Management Plan and the BTM Complex AQMS will be revised to incorporate any recommended measures to improve the environmental performance of MCCM resulting from audits, community complaints (section 9.4) and incident investigation findings (section 9.3). In addition, the review process will include ongoing evaluation of operational modifications, alternative methodologies and new technologies that become available for their potential to lessen air quality impacts.

10.3 Independent Audit

In accordance with Schedule 5 Condition 10 PA 10_0138 and an Independent Environmental Audit (IEA) of MCCM was initially undertaken in 2014 and additional IEAs have been and will continue to be undertaken every 3 years thereafter. The IEA includes a review of the air quality performance of MCCM, assess compliance with the requirements in this plan, and implementation of air quality management measures.

11 References

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Version Control

Revision	Description	Author	Authorised by	Date
1	Draft for Consultation	R. Kellaghan (PAEHolmes)	Daniel Martin	November 2012
1.1	Revised Draft	R. Kellaghan (PAEHolmes)	Craig Simmons	April 2013
1.1	Final	R. Kellaghan	Daniel Martin	November 2013
1.2	Final Revision 1.2	R. Kellaghan	Daniel Martin	March 2014
2	Revised following approval of AQMS	MCCM	MCCM	July 2017
2.1	Revision following agency response	MCCM	MCCM	2018
3	Revised following relocation of TEOM3	MCCM	MCCM	February 2020
4	Alignment of EPL 20221 variation	MCCM	MCCM	June 2022
5	Modification 9, AR and IEA	MCCM	MCCM	September 2024
6	Updated management plan template	Symmetry HSE	MCCM	December 2024

Appendix 1: Air quality monitoring locations

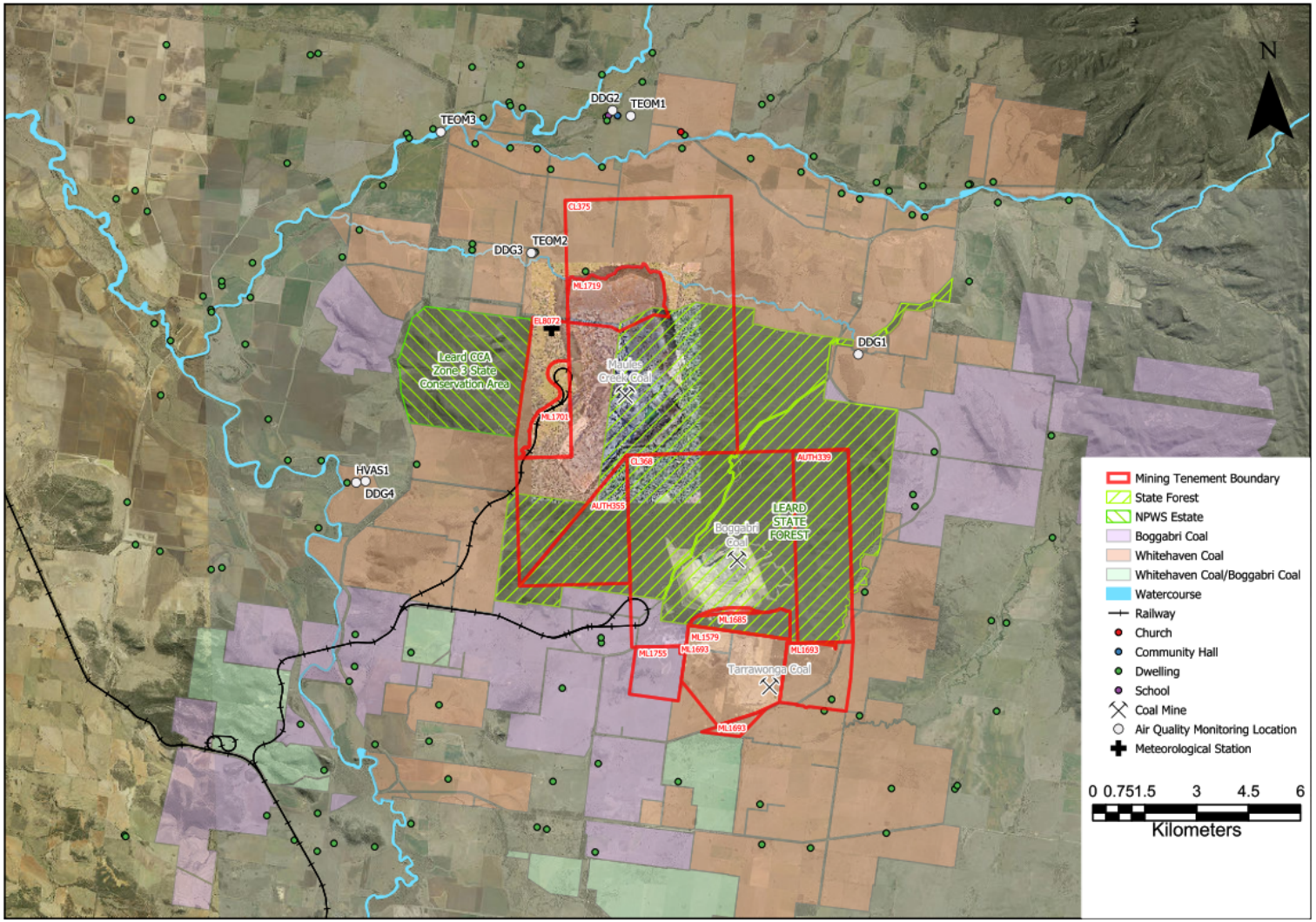


Figure 2 – Air quality monitoring locations

Appendix 2: Project approval conditions

Table 7 – PA 10_0138 Air quality and greenhouse gas management requirements

Approval Condition	Relevant section of this AQGHGMP
Operating Conditions	
Schedule 3 Condition 33. The Proponent shall: (a) implement best management practice to minimise the off-site odour, fume and dust emissions of the project, including best practice coal loading and profiling and other measures to minimise dust emissions from coal transportation by rail;	**Section 5**
(b) operate a comprehensive air quality management system on site that uses a combination of predictive meteorological forecasting, predictive and real time air dispersion modelling and real-time air quality monitoring data to guide the day-to-day planning of mining operations and implementation of both proactive and reactive air quality mitigation measures (such as relocate, modify, and/or suspend operations) to ensure compliance with the relevant conditions of this approval;	**Section 5.3, 6**
(c) manage $PM_{2.5}$ levels in accordance with any requirements of the EPL;	**Section 5.3, 6**
(d) minimise the air quality impacts of the project during adverse meteorological conditions and extraordinary events;	**Section 5.3, 6**
(e) minimise any visible off-site air pollution;	**Section 5, 6**
(f) minimise the surface disturbance of the site generated by the project; and	**Section 5, 6**
(g) co-ordinate the air quality management on site with the air quality management at other mines within the Leard Forest Mining Precinct to minimise the cumulative air quality impacts of the mines, to the satisfaction of the Planning Secretary.	**Section 2.1, 3, 6, 10.1**
Air Quality and Greenhouse Gas Management Plan	
Schedule 3 Condition 34. The Proponent shall prepare and implement an Air Quality and Greenhouse Gas Management Plan for the project to the satisfaction of the Planning Secretary. This plan must: (a) be prepared in consultation with the EPA and be submitted to the Planning Secretary for approval prior to the commencement of construction	**This Plan and Section 3**
(b) describe the measures that would be implemented to ensure: • best management practice is being employed; • the air quality impacts of the project are minimised during adverse meteorological conditions and extraordinary events; and • compliance with the relevant conditions of this consent.	**Section 5 and 6**
(c) describe the proposed air quality management system	**This Plan**
(d) include a risk/response matrix to codify mine operational responses to varying levels of risk resulting from weather conditions and specific mining activities	**Section 5.2, 5.3, Appendix 3: Risk Response Matrix, Appendix 4: Dust Trigger Action Response Plan**
(e) include commitments to provide summary reports and specific briefings at CCC meetings on issues arising from air quality monitoring	**Section 10.1**
(f) include an air quality monitoring program that: • uses a combination of real-time monitors and supplementary monitors to evaluate the performance of the project; • includes $PM_{2.5}$ monitoring; • includes a trigger response/reactive management protocol to be used in combination with the real time PM_{10} monitoring sites and the site meteorological weather station; • includes monitoring of occupied project-related residences and residences on air-affected land listed in Table 1 and Table 8 [of PA 10_0138], subject to the agreement of the tenant and/or landowner; • evaluates and reports on the effectiveness of the air quality management system; • includes sufficient random audit of operational responses to the real time air quality management system to determine the ongoing effectiveness of these responses in maintaining the project within the within the relevant criteria in this Schedule and the requirements of conditions 29 and 30 above; and • includes a protocol for determining any exceedances of the relevant conditions in this approval; and	**Section 6** **Section 6** **Section 5.3** **Section 6** **Section 10** **Section 10** **Section 9**

Approval Condition	Relevant section of this AQGHGMP
(g) includes a Leard Forest Mining Precinct Air Quality Management Strategy that has been prepared in consultation with other coal mines in the Precinct to minimise the cumulative air quality impacts of all mines within the Precinct, that includes: • systems and processes to ensure that all mines are managed to achieve their air quality criteria; • a shared environmental monitoring network and data sharing protocol; • control monitoring site(s) to provide real time data on background air quality levels (i.**e.** not influenced by mining from the Leard Forest Mining Precinct and representative of regional air quality); • a shared predictive and real time air dispersion model covering the Leard Forest Mining Precinct to be used for assessment of cumulative impacts, optimising location of the shared real time monitoring network, validation of air predictions and optimising mitigation measures; and • procedures for identifying and apportioning the source/s and contribution/s to cumulative air impacts for both mines and other sources, using the air quality and meteorological monitoring network and appropriate investigative tools such as modelling of post incident plume dispersion, dual synchronised monitors and chemical methods of source apportionment (where possible).	**Section 2.1, 3, 6, 10.1**

Table 8 – PA 10_0138 General requirements

Approval Condition	Relevant Section of this AQGHGMP
Schedule 3 Condition 26. Odour	**Table 4**
Schedule 3 Condition 27. Greenhouse Gas emissions	**Table 4**
Schedule 3 Condition 28. Additional Air Quality Mitigation Upon Request	**Section 2**
Schedule 3 Condition 29 Air Quality Criteria	**Section 2**
Schedule 3 Condition 30 Mine-Specific Air Quality Criteria	**Section 2**
Schedule 3 Condition 31 Mine-owned Land	**Section 2, 3, 6, 10.1**
Schedule 3 Condition 32 Air Quality Acquisition Criteria	**Section 2**
Schedule 3 Condition 35. Meteorological Monitoring	**Section 2.1, 3, 6, 10.1**
Schedule 4 Condition 1-3. Notification of Landowners/Tenants	**Section 9.4**
Schedule 5 Condition 13. Online reporting	**Section 10.1.1, 10.1.2**

Appendix 3: Risk Response Matrix

	Matrix		
	Level 1 – Information	Level 2 – Investigation	Level 3 – Action
Predictive and Real Time Triggers	Monitoring results below triggers	1-hour average PM10 above 100µg/m3 (hourly wind speed >6m/s)	Consecutive 1-hour average PM10 above 150µg/m3 (hourly wind speed >10m/s)
	Risk Response & Actions		
Activity	Ongoing controls / observation	Review / identify / control	Modify
Hauling on Unsealed Roads	Use of wet suppression and/or chemical suppressant. Optimisation of fleet to reduce kilometres travelled. Vehicles restricted to designated roads. Vehicle speed restrictions in place. Maintenance of trafficable areas. Maximum second gear while grading Visual dust from haul roads regularly assessed.	Visually monitor dust from haul roads and allocate water carts to areas of dust generation. Plan for operational changes.	Water and suppression application maintained and all available water carts in operation. Truck speeds reduced. Ancillary machinery speed and operation modified or stopped.
Wind Erosion on Exposed Areas & Overburden Emplacements	Minimise pre-strip and disturbed areas. Vegetative cover on long term topsoil stockpiles Progressive vegetation on final shaped topsoiled dumps. Limit vehicle access to areas.	Review operations. Modify operations on exposed areas.	Watering of active dump travel routes and topsoil stripping. Modify activities on exposed areas.
Loading and Dumping of Overburden	Minimise loading height. Awareness of material type.	Review operations. Identify specific sources & locations of dust generation. Identify topographic location of operating equipment. Assess loading height and rate.	Implement mitigation options such as low loading and slowed loading rate. Utilise lower RL's for dumping. Water application by water cart of loading area.
Loading and dumping of Coal	Minimise dump height. Bypass ROM stockpiles and direct to hopper where possible. Water sprays active on ROM bin (coal moisture dependent). Three sided and roofed enclosure of ROM bin. Water cart route includes ROM circuit	Identify dust sources & prepare for modification activities.	Modify loading and dumping activity.
Bulldozers on overburden dumps	Minimise travel speeds and distance travelled. Assess location of operation.	Identify dust generation source. Prepare mitigation options. Review dump operations. Plan for relocation of dozers with haulage circuit.	Relocate dozers from elevated/high risk areas. Modify dozer activities on overburden.
Blasting and Drilling	Blast scheduling to avoid unfavourable weather conditions. Use of water sprays for dust suppression while drilling. Minimise disturbance of drill cuttings.	Refer TARP of Blast Management Plan for blasting limits Identify dust levels if above drill deck. Identify material type.	Avoid blasting. Modify drilling activities. Water application to drill areas.
Wind erosion of coal stockpiles	Water sprays on product stockpiles.	Plan for increased watering rates on product stockpiles.	Increased water application rates. Modify stockpile loading height.
Conveyors and Transfer	Application of water at transfers. Transfer point covers. Belt cleaning and spillage minimisation.	Identify dust source locations.	Increased water application rates. Modify throughput.
Stacking and Reclaiming product coal	Variable stacking height. Water sprays on stacker point tip and product stockpiles. Inherent product moisture	Identify locations of dust generation. Plan for operational changes.	Modify stacking and/or reclaiming activities.
Train load out and transport	Maintain a consistent load size and profile in wagon. Loading train wagon within enclosure.	Identify any dust sources from loading.	Adjust rate of loading

Figure 3 – Risk response matrix

Appendix 4: Dust Trigger Action Response Plan

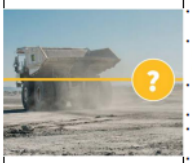
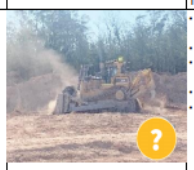
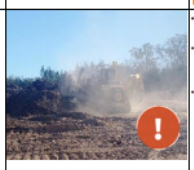
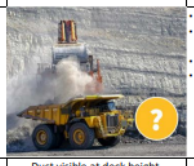
	Normal State		Level 2 Triggers		Level 3 Triggers	
Work Area/ Equipment	**Trigger**	**Action/Response**	**Trigger**	**Action/Response**	**Trigger**	**Action/Response**
Haul Trucks/ Haul Roads	Dust below wheel height. 	• Continue work/ tasks as normal. • Maintain dust suppression activities. • Continue to monitor operation. Water carts: • to be manned as required. Services to be planned for night shifts. • Zone watering techniques to be applied where possible.	Dust above wheel height, but below tray height. 	• Truck Operator to reduce speed & notify water cart operators for additional dust suppression requirements. • Limit Grading activities. • Consolidate haul roads and dumps in use and reduce haul distance if possible • Shut non-essential roads. IF Water Carts have Minor Breakdown/s (duration of less than 10% of the shift): • They should be hot-seated during crib breaks. • limit grading activities. • Consolidate haul roads and dumps in use. Reduce haul distance if possible. • Shut non-essential roads. This is Weather dependent.	Dust above tray height. 	• Truck Operator to notify Mining Supervisor and STOP work. • Mining Supervisor to call for additional dust suppression. • Work to resume once water cart operator has advised roadway is adequately watered. IF Water Carts have Major Breakdown/s (50% or more of carts unavailable over shift): • Water cart operators to inform supervisor if they cannot control dust. • Work to resume once water cart operator has advised roadway is adequately watered. This is Weather dependent.
Dozers/ Dumps		• Continue work/tasks as normal • Continue to monitor operation.		• Dozer Operator/ Supervisor to limit activity to leeward side of area. • Reduce drop height of materials. • Cease non-essential activities and operations in wind exposed areas. • Limit travel speeds. • Water work areas.		• Consider limiting dumping to paddock dumping only. • Dozer operators to notify Mining Supervisor and STOP where paddock dump unavailable. • Work to resume only when controls are sufficient or weather conditions permit.
Loaders/ Excavators		• Continue work/ tasks as normal. • Continue to monitor operation.		• Limit tramming or pushing distances. • Limit number of operations being conducted. • Increase watering of area. • Change material type.		• Loader/ Excavator operator to notify Mining Supervisor and STOP work. • Only recommence work with supervisor approval or if weather conditions permit. • Change material type.
Drills	No visible dust below deck height. 	• Continue work/ tasks as normal. • Monitor dust suppression activities. • Continue to monitor operations	Dust visible at deck height. Sporadic event. 	• Drill Operators to ensure dust suppression system functioning correctly. • Mining Supervisor monitor conditions. • Assess impact of weather conditions and modify operations as required.	Persistent emissions of dust above deck height. 	• Drill operator STOP operations. • Dust suppression system checked for operational and maintenance requirements. • Only recommence work if the dust suppression system is operable, site preparation is adequate and weather conditions permit.

Figure 4 – Dust TARP