AIR QUALITY & GREENHOUSE GAS MANAGEMENT PLAN

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3	1	Revised following relocation of TEOM3	MCCM	MCCM	February 2020
4	1	Alignment of EPL 20221 variation	MCCM	MCCM	June 2022

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1.0 INTRODUCTION

Maules Creek Coal Pty Ltd (MCC) is required to prepare an Air Quality and Greenhouse Gas Management Plan (AQGHGMP) for the Maules Creek Coal Mine (MCCM) in accordance with Project Approval (PA) 10_0138 (the approval) Schedule 3, Condition 34. The MCCM involves the development of a 21 year open cut coal mining operation and associated infrastructure (see Figure 1).

1.1 Background

The ownership of the Project currently lies with the Maules Creek Coal Joint Venture (MCCJV), 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).

The Project is an open-cut coal mine located on the northwest slopes and plains of NSW in the Gunnedah Coal basin.

Land-use in the local area is a combination of agricultural operations and open cut mining, with rural residential holdings mainly located to the north and west of the Project. The Project Boundary is situated on land largely occupied by the Leard State Forest (which has historically been predominantly utilised for forestry, recreation and more recently mining related activities). Various coal mines exist within close proximity to the Project including Boggabri Coal Mine, Tarrawonga Coal Mine and Goonbri Exploration Lease located to the southeast of the Project Boundary.

There are a number of isolated rural residences associated with the surrounding farms within the vicinity of the Project, as well as the Fairfax Public School located in the Maules Creek Village (see Figure 1Figure 1). The surrounding terrain is gently undulating in the north, with steeper slopes emerging near ridgelines towards the central portion of the Project. Much of the higher ground and steeper slopes retain moderately dense woodland cover, which forms part of the National Parks and State Forests occurring within the region.

MCC submitted a Project Application to the NSW Department of Planning and Environment (DP&E) (formerly Department of Planning and Infrastructure (DP&I)) in August 2010 for a new Project Approval under Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act) to enable the construction and operation of the MCCM. The application was supported by an Environmental Assessment (EA). PA 10_0138 (the approval) was granted on 23 October 2012 by the Planning Assessment Commission under delegation of the then Minister for Planning and Infrastructure.

The environmental approvals for the MCCM allow for the construction and operation of an open cut coal mine up to 2034. In particular, the approvals allow for the following aspects and activities:

- Open cut mining operation extracting up to 13 million tonnes per annum (Mtpa) of run-of-mine (ROM) coal to the Templemore Seam;
- Open cut mining fleet including excavator / shovels and fleet of haul trucks, dozers, graders and water carts utilising up to 470 permanent employees;
- Coal Handling and Preparation Plant (CHPP) with a throughput capacity of 13 Mtpa ROM coal;
- Tailings Drying Area;
- Rail spur, rail loop, associated load out facility and connection to the Werris Creek to Mungindi Railway Line;
- Water Management infrastructure including a water pipeline, pumping station and associated infrastructure for access to water from the Namoi River;

- Supporting power and communications infrastructure;
- Explosive magazine and storage areas;
- Mine Access Road; and
- Administration, workshop and related facilities.

A general layout of the Project is shown in Figure 1.

A modification application was submitted in April 2013 seeking approval for the construction and operation of a 132 kilovolt (kV) transmission line, a 132 kV Switch Station and minor realignment of the CHPP, and associated facilities. As a result, the Project Approval was modified in July 2013.

A second modification application was lodged in February 2014 to adjust the location of the raw water pipeline and associated pump station. As a result, the Project Approval was modified on 10 March 2014.

A third modification application was approved in 2017 modifying employee transport condition related to bus use.

A fourth modification to PA 10_0138 was lodged in September 2017 to remove sound power specific conditioning. This modification has been withdrawn.

A fifth modification to PA 10_0138 was approved on 20 December 2019 to allow for the continued use of the Olivedene pipeline and associated infrastructure to convey water to the MCCM to meet operational water demands.

A sixth modification to PA 10_0138 was also approved on 20 December 2019 to allow for the use of the Roma and Brighton water supply pipeline and associated infrastructure to convey water to the MCCM to meet operational demands.

A seventh modification to PA_10_0138 was approved on 24 August 2021 to allow for the extension of the Northern Emplacement footprint, and an increase to the maximum height of a section of the Northern Emplacement by 1 meter, incorporating macro and micro relief.

A eight modification to PA_10_0138 was approved on 19 January 2022. This allows for the use of mobile coal sizing equipment in the existing ROM coal stockpile area and the open cut pit, mobile rock crushing equipment in the Northern Emplacement Area, and disposal of used heavy vehicle tyres in waste rock emplacement areas.

Construction of the MCCM commenced in December 2013 and was substantially completed in 2015. The operations phase of the MCCM commenced in June 2014, and coal was first transported from the MCCM via the rail spur in December 2014.

1.2 Scope

This AQGHGMP has been prepared in accordance with the requirements of the approval. The aim of this plan is to manage project specific and cumulative air quality and greenhouse gas emission impacts associated with the construction and operational phases of the Project. This AQGHGMP is a requirement of Schedule 3, Condition 34 of the approval.

1.3 Objectives

The purpose of this document is to:

- Address the requirements of the approval, in particular Schedule 3, Condition 34 “Air Quality and Greenhouse Gas Management Plan”;
- Ensure that all relevant statutory requirements in relation to air quality and GHG emissions are met during the operation of the Project;
- Provide Preventative Air Quality Management Measures to be implemented on a daily basis;
- Outline the Corrective Air Quality Management Measures implemented in the event of elevated dust levels from the operations;
- Ensure that air quality monitoring is utilised proactively and reactively to ensure compliance with the relevant criteria;
- Describe the Predictive and Real-Time Air Quality Management System and Cumulative Air Quality Management Strategy;
- Outline the roles and responsibilities for air quality and GHG management onsite; and
- Outline the reporting requirements.

The AQGHGMP forms part of the MCCM Environmental Management Strategy (EMS). It will form the basis behind the management of air quality and GHG emissions at the MCCM operation.

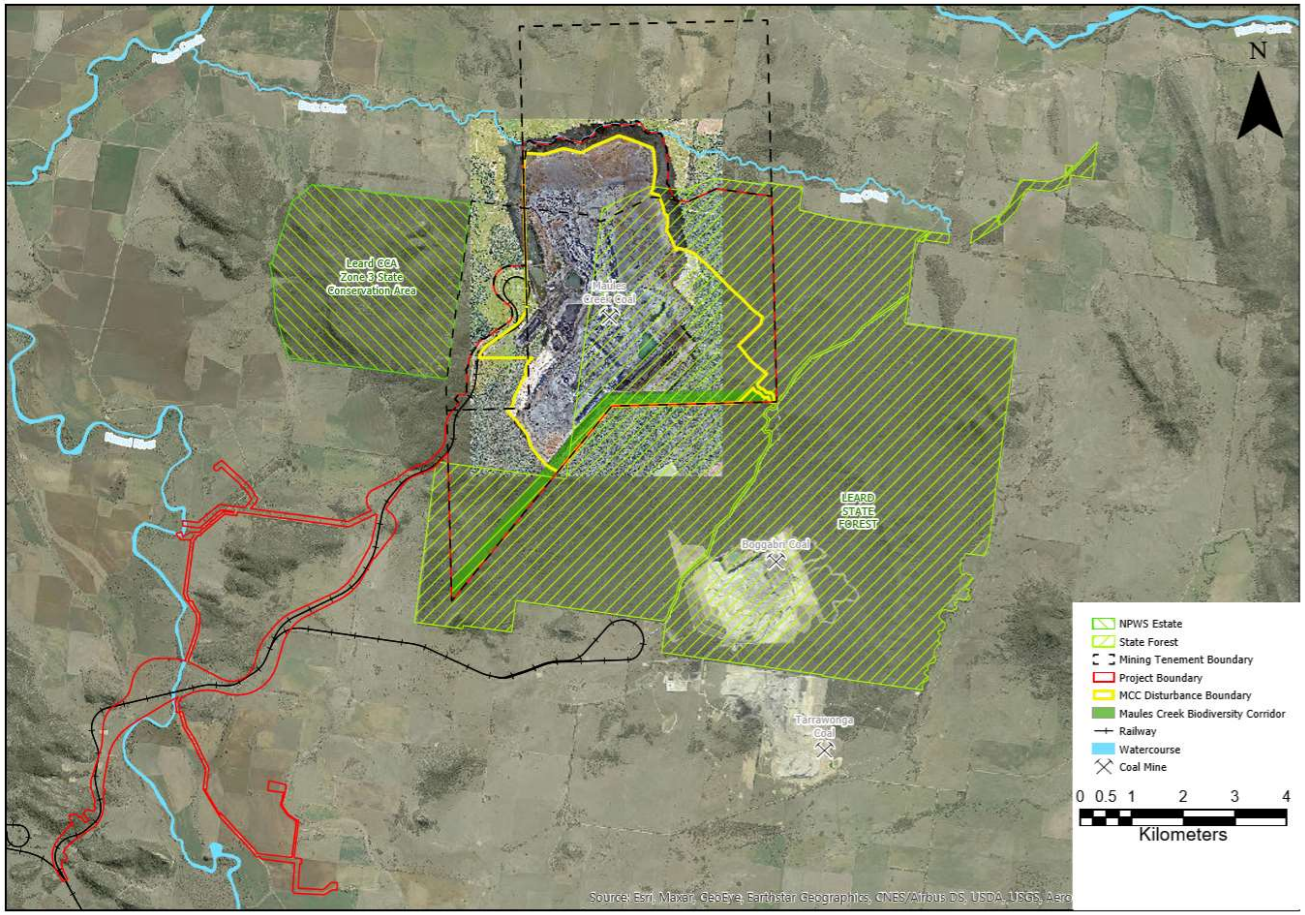

Figure 1 Project Layout

1.4 Baseline Data

An automatic weather station (AWS) was installed on the western edge of the Project Boundary on 14 May 2010, in accordance with the *Approved Methods for the Sampling and Analysis of Air Pollutants in NSW* guideline (NSW DEC 2005a), and in general accordance with condition 35 (a) of the approval. The monitoring site and instrumentation is in compliance with Australian Standard (AS) 2923 – 1987: "*Ambient Air Guide for the measurement of horizontal wind for air quality applications*". The parameters measured by the AWS are presented in **Table 1**.

Table 1: Weather Station Parameters

Parameter	Unit	Frequency	Averaging Period
Rainfall	mm	Continuous	1 hour
Temperature @ 2m	OC		15 Minute
Temperature @ 10m	OC		
Wind Speed @ 10 m	m/s		
Wind Direction @ 10 m	Degrees		
Sigma Theta	Degrees		
Solar Radiation	W/m2		

The AWS records sigma theta which can be subsequently used to derive stability class and inversion strength in accordance with the NSW Industrial Noise Policy (as required by condition 35 (b)).

On an annual basis, the most common winds are from the southeast and northwest quadrants. During summer and autumn winds from the southeast are dominant. During winter and spring, winds most commonly occur from the southeast and west-northwest.

Baseline air quality monitoring for the Maules Creek Coal Project commenced in 2010. A network of three dust deposition gauges (DDGs) was installed in August 2010 with an additional DDG installed in December 2010. The annual average dust deposition monitoring data is presented in **Table 2** prior to commencement of Project construction.

Baseline dust deposition monitoring is generally below the air quality goals. The exception is 2010 when MC03 recorded 4.6 g/m^2/month. The results presented for 2010 at MC03 are based on only 3 months of monitoring, and therefore not representative of a true annual average.

A PM_{10} High Volume Air Sampler (HVAS) commenced monitoring in October 2010, and run on a one day in six cycle. The annual average PM_{10} is shown in **Table** 2.

A TEOM was installed close to the Fairfax Public School, in Maules Creek Village in September 2011, used to measure both PM_{10} and $PM_{2.5}$. The annual average $PM_{2.5}$ and PM_{10} concentration recorded by the TEOM are shown in **Table 3**.

Table 2: Dust Deposition Monitoring

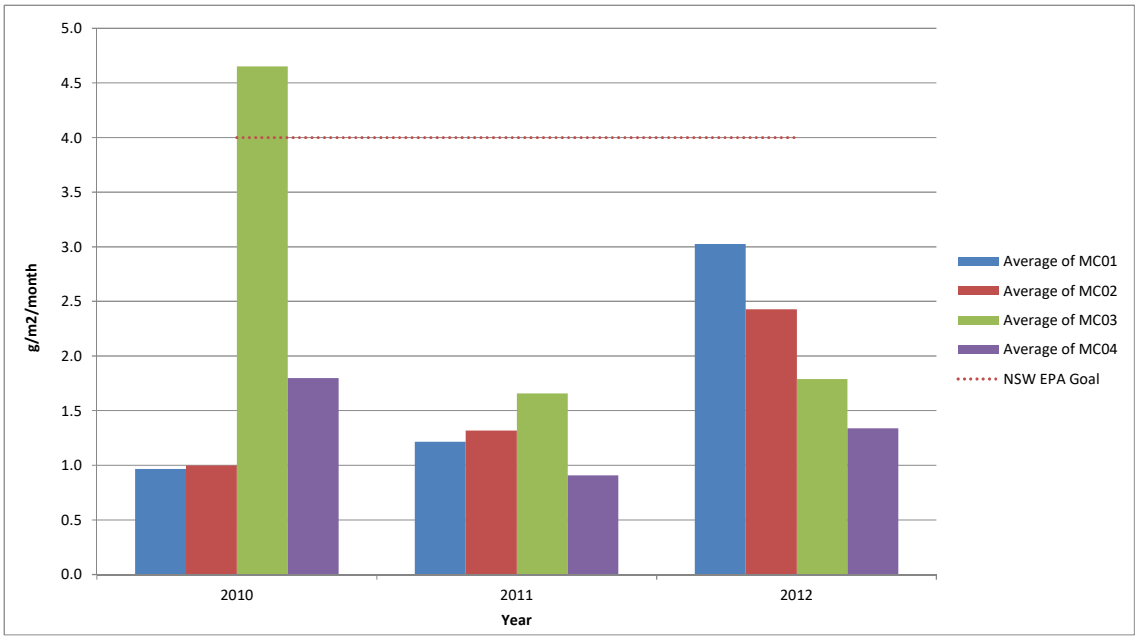

Table 2 Annual Average PM_{10} (HVAS)

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

Table 3: Annual Average $PM_{2.5}$ and PM_{10} (TEOM)

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

1.5 Structure of the Air Quality Management Plan

Key areas of the AQGHG are outlined in **Table 4**.

Table 4 Key Areas of his AQGHGMP

Key Information	Relevant Section
Approval Conditions and Compliance Criteria	Section 2.0
Air Quality Management Measures	Section 3.0
Predictive and Real-Time Air Quality Management System	Section 5.2
Blast Fume Management and Monitoring	Section 1.6.4
Monitoring Requirements	Section 5.0
GHG Emissions	Section 4.0
Reporting	Section 8.0
Roles and Responsibilities	Section 10.0

1.6 Sources of Emissions to Air

Dust emissions are generally considered in three separate size fractions. These are described as total suspended particulate matter (TSP), particulate matter with equivalent aerodynamic diameter 10 μm or less (PM_{10}) and particles with equivalent aerodynamic diameter of 2.5 μm or less ($PM_{2.5}$). Emissions of fugitive dust from mining activity will comprise of mostly coarse particle size fractions, in the PM_{10} and TSP range (SPCC, 1986).

1.6.1 Dust Emissions

The principal activities associated with mining operations that may generate dust emissions include:

- Construction activities;
- Vehicles travelling on unsealed local roads;
- Clearing of vegetation;
- Topsoil and subsoil stripping and stockpiling;
- Spreading topsoil on rehabilitation areas;
- Drilling and blasting to support mining activities;
- Loading and unloading of coal and overburden material during mining operations;
- Loading, transporting and unloading of coal by truck or conveyor;
- Operation of the CHPP, associated product coal stockpile and rail loadout facility;
- Movement of vehicles along haul routes and other areas, both paved and unpaved roads within the mine;
- Bulldozer and grader activity within the open cut, on haul roads, on overburden emplacements and during rehabilitation-related activities; and
- Wind erosion from all open disturbed surfaces and stockpiles.

The majority of these activities may occur 24 hours per day, with the exception of during shift changes / breaks. Wind erosion can occur at any time, however would generally be limited to periods of moderate to strong winds

although this is dependent on the material properties (i.e. type of material, moisture content and threshold friction velocity).

1.6.2 GHG Emissions

The main sources of GHG emissions that are under the control of MCCM and considered in the AQGHGMP are:

- Fuel consumption (diesel) during mining operations – Scope 1;
- Release of fugitive methane (CH_4) from the mining of coal seams – Scope 1; and
- Indirect emissions resulting from the MCCM's consumption and use of purchased electricity - Scope 2.

1.6.3 Spontaneous Combustion

Spontaneous combustion events have the potential to give rise to odour impacts. Spontaneous combustion is a low risk at MCCM with material identification and information obtained during the project life to date. Management and mitigation measures to reduce the potential for spontaneous combustion events include:

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

1.6.4 Blast Fume

In addition to the generation of dust emissions, blasting can generate oxides of nitrogen (NO_x) together with other gases as by-products of ammonium nitrate based explosives. NO_x 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.

1.6.5 Vehicle Emissions

Vehicle exhaust emissions from equipment operated on site will result in emissions from diesel exhaust, including fine particulate matter ($PM_{2.5}$), oxides of nitrogen (NOx), carbon monoxide (CO), sulphur dioxide (SO_2) and organic compounds.

2.0 STATUTORY REQUIREMENTS AND COMMITMENTS

This AQGHGMP has been prepared to fulfil the requirements of relevant legislation, approval conditions, Environment Protection Licence (EPL) conditions, EA commitments, and, relevant standards and guidelines.

2.1 Relevant Legislation

The *Protection of the Environment Operations Act 1997* (POEO Act) is the principal piece of legislation governing air quality emissions in NSW. The POEO Act requires an EPL be held for mining operations such as MCCM and EPL 20221 was granted in 2013 for operations on site. The air quality and greenhouse gas management conditions, criteria and monitoring requirements from EPL 20221 are generally consistent with those in the approval (see **Section 2.2**).

2.1.1 Environment Protection Licence

From time to time the Environment Protection Authority (EPA) may modify the MCCM EPL to include Special Conditions, Pollution Reduction Programs and Environment Improvement Programs. Responses to these special conditions will be provided to the EPA in accordance with MCCM EPL requirements and relevant management plans will be updated as required.

2.2 Project Approval Conditions

2.2.1 Air Quality Criteria

The approval requires that all reasonable and feasible avoidance and mitigation measures are employed at MCCM so that particulate matter emissions generated by the project do not exceed the relevant criteria listed in **Table 5** and **Table 6** at any residence on privately-owned land or on more than 25 percent of any privately-owned land unless accept under the applicable project approval conditions. The criteria are also applicable at any occupied residence on mine owned land, subject to the conditions outlined in Schedule 3, Conditions 30 - 31 of the approval.

If the air quality emissions generated by MCCM activities exceed or contribute to an exceedance of the criteria in **Table 5** and **Table 6** at any residence on privately-owned land or on more than 25 percent 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 and described in **Section 3.5**.

Table 5 Air Quality Criteria (Particulate Matter)

Pollutant	Averaging period	[d] Criterion
Long Term Criteria		
Total suspended particulate (TSP) matter	Annual	[a] 90 µg/m^3
Particulate matter <10 µm (PM_{10})	Annual	[a] 30 µg/m^3
Short Term Criteria		
Particulate matter <10 µm (PM_{10})	24 hour	[a] 50 µg/m^3

Table 6 Air Quality Criteria (Long Term, Deposited Dust)

Pollutant	Averaging period	Maximum increase in deposited dust level	Maximum total deposited dust level
[c] Deposited dust	Annual	[b] 2 g/m^2/month	[a] 4 g/m^2/month

*Notes to **Table 5** and **Table 6;***
[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.

2.2.2 Air Quality and Greenhouse Gas Management Plan

An approval condition for the Project requires an AQGHGMP to be prepared for MCCM operations. This AQGHGMP has been developed in accordance with the Schedule 3, Condition 34 of the approval and other relevant conditions, as provided below in **Table 7** and **Table 8**.

Table 7 Air Quality and Greenhouse Gas Management Requirements

Approval Condition	Relevant section of this AQGHGMP
Operating Conditions	
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 3.0**
(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 5.0**
(c) manage $PM_{2.5}$ levels in accordance with any requirements of the EPL;	**Section 5.0**
(d) minimise the air quality impacts of the project during adverse meteorological conditions and extraordinary events;	**Section 3.0**
(e) minimise any visible off-site air pollution;	**Section 3.0**
(f) minimise the surface disturbance of the site generated by the project; and	**Section 3.0**
(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 3.3**
Air Quality and Greenhouse Gas Management Plan	
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	**Section 2.4**
(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 3.0**
(c) describe the proposed air quality management system	**Section 5.0**

Approval Condition	Relevant section of this AQGHGMP
(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**
(e) include commitments to provide summary reports and specific briefings at CCC meetings on issues arising from air quality monitoring	**Section 8.4**
(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 5.0**
(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 (ie 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 3.3**

Table 8 PA 10_0138 General Requirements

Approval Condition	Relevant Section of this AQGHGMP
Schedule 3 Condition 26. Control of offensive odour	**Section 3.0**
Schedule 3 Condition 27. Minimising Greenhouse Gas emissions	**Section 4.0**
Schedule 3 Condition 28. Additional air quality mitigation on request	**Section 3.4**
Schedule 3 Condition 35. Meteorological Monitoring	**Section 1.4**
Schedule 4 Condition 1-3. Notification of Landowners/Tenants	**Section 3.5**
Schedule 5 Condition 13. Online reporting	**Section 8.0**

2.3 Relevant Standards & Guidelines

Standards and guidelines relevant to the preparation this AQGHGMP and the management of emissions from MCCM include the following:

- *Approved methods for the sampling and analysis of air pollutants in NSW*.
- *Meteorological Monitoring Guidance for Regulatory Modelling Applications* (USEPA 454/R-99-005);
- *AS/NZS 3580.10.1:2003 Methods for sampling and analysis of ambient air - Determination of particulate matter - Deposited matter - Gravimetric method*;
- *AS/NZS 3580.9.6:2003 Methods for sampling and analysis of ambient air – Determination of suspended particulate Matter – PM_{10} - high volume air sampler with size selective inlet – gravimetric method*;
- *AS/NZS 3580.9.8 – 2008 Methods for sampling and analysis of ambient air*; and
- *National Environmental Protection Measure for Ambient Air Quality*.

2.4 Regulatory Consultation

As required under the approval, the AQGHGMP was prepared in consultation with the NSW Environment Protection Authority (EPA) and Department of Planning and Environment (DPE).

3.0 AIR QUALITY MANAGEMENT MEASURES

3.1 Objectives and Performance Indicators

The key objectives and performance indicators for this AQGHGMP are generally in accordance with the operating conditions of the approval (see **Section 2.2**). A summary of these objectives and performance indicators are presented below in **Table 9**.

Table 9 AQGHG Objectives and Performance Indicators

Objectives	Requirement	Performance Indicator	Target
Implement best management practice to minimise the off-site odour, fume and dust emissions of the project	No offensive odours emitted from the site.	Number of odour complaints received.	Zero complaints
	No exceedance of the air quality criteria listed in the Approval.	Air quality monitoring data does not exceed impact assessment criteria.[1]	Zero exceedances of criteria
	No exceedance of the land acquisition criteria listed in the Approval.	Air quality monitoring data does not exceed land acquisition criteria.	Zero exceedances of criteria
	Management measures in AQGHGMP are in line with established best management practices.	Dust management measures in place.	Dust management measures meet best practice or actions in place to address.
	Minimise air quality complaints from the community.	Number of air quality complaints from the community.	Decrease number of complaints received over time.
	Minimise visible off-site air pollution	Number of air quality complaints from the community. Monitoring results attributable to MCCM.	Decrease number of complaints received over time.
	Minimise the surface disturbance	Actual surface disturbance in accordance with Mining Operations Plan (MOP).	No disturbance in addition to the areas identified in the approval and in the MOP.

Objectives	Requirement	Performance Indicator	Target
	Air quality management system includes predictive meteorological forecasting, predictive air dispersion modelling and real time air quality monitoring to guide day to day operations.	Operations planned and/or modified based on the predictive modelling and reactive monitoring.	Zero exceedances of criteria
Minimise air quality impacts of the project during adverse meteorological conditions and extraordinary events.	Air quality management system includes a risk/response matrix to modify activities as risk increases from weather conditions	Operations modified during adverse weather conditions	Zero exceedances of criteria
Implement all reasonable and feasible measures to minimise the release of greenhouse gas emissions.	Minimise release of greenhouse gas emissions.	Annual energy usage and reported emissions.	Energy use in line with operational requirements

Note: [1] Does not apply to land in Table 1 of the approval and for mine owned land where Condition 31 are applied.

3.2 Management Measures

The air quality management measures employed for the Project are based on the recommendations of the *NSW Coal Mining Benchmarking Study: International Best Practice Measures to Prevent and/or Minimise Emissions of Particulate Matter from Coal Mining* (Donnelly et al., 2011) (the Best Practice Report), a study that was commissioned by the NSW EPA.

A summary of the EPA best practice measures (BPM), as documented within the Best Practice Report, are provided in **Appendix C**, and compared with the measures applied for the Project.

A Best Practice Dust Benchmarking Study was undertaken by an independent consultant during 2016. The Study included a review of management activities in comparison to the Best Practice Report (Donnelly et al., 2011). Overall, a number of best practice management measures were noted with additional recommendations regarding adverse weather and dozer operations, and loading and unloading trucks.

MCCM have also completed a number of Pollution Reduction Programs required under EPL 20221, including assessment and management controls of wheel generated dust. Reports are publically available on the Whitehaven Coal website.

Actions completed following the Study included a further investigate loading and unloading material and dust management measures, revisions to this AQGHGMP and the Blast Management Plan, implementation of the BTM Air Quality Management Strategy, and measures to assist dust management from drills. All actions have been completed.

Preventative dust management measures employed at the Project are outlined in **Table 10,** with corrective measures outlined in. Preventative measures aim to minimise environmental impact by integrating controls and systems into the mining activities. Corrective measures aim to minimise environmental impact by instigating an appropriate operational response to visual inspections and/or when alerts are triggered by real-time dust management system (refer **Table 11**).

In addition to the Preventative and Corrective measures listed in **Table 10** and **Table 11**, the Project also uses a predictive air quality management system to guide the day to day planning of mining operations, this is discussed further in Section 3.3 and 5.2. The predictive, preventative and corrective measures will help ensure any visible off-site dust generated by the Project is minimised to the greatest possible extent, in accordance with Schedule 3, Condition 33 (e) of the approval.

Table 10 Dust Emissions – Preventative Management Measures

Mining Activity	Management Action	Responsibility*	Timing
Hauling on Unsealed Road	Use of wet suppression and / or chemical suppressant	Operations Manager	Daily
	Optimisation of fleet to reduce vehicle travel kilometres where possible	Technical Services Superintendent	Ongoing
	Haul roads clearly marked and vehicles restricted to these areas	Operations Manager	Ongoing
	All trafficked areas are maintained. Grader speed reduction when working and routes watered.	Operations Manager	Daily
	Visual dust from haul trucks regularly assessed	Operations Manager	Daily
	Shuttle bus at shift change for operational staff	Operations Manager	Daily
Wind Erosion on Exposed Areas & Overburden Emplacements	Minimise pre-strip and disturbed areas by delineating areas for stripping	Operations Manager	As required
	Assess topsoil stripping during high winds generating dust and stop or slow loading rate – ensure watered haul routes.	Operations Manager	As required
	Permanent rehabilitation in line with MOP targets. Topsoil stockpiles sown when in place for longer than 6 months.	Operations Manager	Ongoing
Wind Erosion and Maintenance - Coal Stockpiles	Water sprays on product stockpiles	Manager CHPP	As required
	Use of watercarts on ROM pad	Operations Manager	As required
Bulldozers on Overburden	Minimise travel speeds and distance where possible. Assess location of operation.	Production Superintendent	Ongoing
	Modify the use of equipment during adverse weather conditions, including reviewing avoidance of operations on exposed areas during high dust periods.	Production Superintendent	As required
Blasting and drilling	Reschedule blast to avoid adverse weather conditions where required	Drill & Blast Superintendent	Daily
	Dust suppression while drilling - water sprays / dust curtains	Drill operators	Ongoing
	Care taken not to disturb drill cuttings	Drill operators	Ongoing
	Water truck available	Drill operators	As required
Loading and dumping overburden	Minimise loading height	Operators	Daily
	Modify the use of equipment in adverse weather conditions	Production Superintendent	As required
Loading and dumping ROM coal	Bypass ROM stockpiles and direct dump to hopper (product dependent)	Production Superintendent	Ongoing
	Minimise loading height	Operators	Daily
	Water sprays on ROM bin	Manager CHPP	Daily
	Three sided and roofed enclosure of ROM bin	Manager CHPP	Ongoing
Conveyors and transfers	Application of water at transfers	Manager CHPP	As required
	Transfer point covers	Manager CHPP	Ongoing
	Belt cleaning and spillage minimisation	Manager CHPP	As required
Stacking and reclaiming	Variable height stack	Manager CHPP	Ongoing

Mining Activity	Management Action	Responsibility*	Timing
product coal	Water sprays on product stockpiles	Manager CHPP	As required
Train load out and transportation	Volumetric loading from overhead silo	Manager CHPP	Daily
	Maintain a consistent profile	Manager CHPP	Daily
	Telescoping chute	Manager CHPP	Daily
	Loading area enclosed	Manager CHPP	Daily
	Profiling to manage overloading/underloading wagons. Limit load size to ensure coal is below sidewalls.	Manager CHPP	Daily
Diesel exhaust from mining equipment	Trucks and plant on-site will be well maintained. Registered road vehicles with smoky exhausts more than 10 seconds will be maintained.	Maintenance Superintendent	Ongoing
	Unnecessary idling for trucks and plant will be avoided	Operations Manager	Daily
	Optimisation of fleet to reduce kilometres travelled by where possible	Technical Services Superintendent	Ongoing

[1] Or delegated alternative

Table 11 Dust Emissions – Corrective Measures

Timing/Trigger	Measure	Responsibility
Visible dust from haul roads	Visually monitor dust from haul roads and allocate water carts to areas of dust generation from mine equipment.	All personnel
Winds >6m/s and Air Quality Monitoring Triggers	Refer air quality monitoring triggers including Relocate overburden emplacement operations away from elevated levels as part of any assessment of operations and activities. Review blasting conditions as per the Blast Management Plan.	Operations Manager
Dust emissions are above the height of drill rig floor	Ensure water application is applied during drilling. Identify material type.	Drill Operators
Excessive dust generation from exposed material stockpiles or other exposed areas	Limited vehicle access to these areas Operations modified after review. Water application where possible. Identify temporary rehabilitation opportunities dependent on mine progression.	Operations Manager
Excessive/prolonged generation of exhaust fumes	Ensure equipment is maintained to manufacturer or industry specifications. Turn equipment engines off when not required.	Maintenance Manager
Air quality complaints received from the public	Investigation into activities occurring at the time with reference to meteorological conditions, dust levels measured by monitoring equipment and operational activities. Where the investigation can identify the activity, modification to the activity will occur.	External Relations Manager

3.3 Cumulative Air Quality Management in the Leard Forest Mining Precinct

The approval requires MCC to 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 and develop a Leard Forest Mining Precinct Air Quality Management Strategy (AQMS).

The approved AQMS for the Boggabri Mine, Tarrawonga Mine 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

- 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 is publically available on the Whitehaven Coal website and is also provided in **Appendix B**.

3.4 Additional Air Quality Mitigation upon Request

In accordance with Project Approval Schedule 3, condition 28, if the owner of any residence on land listed in Table 1 (Project Approval Schedule 3) (on the basis of air quality) or Table 8 of the approval 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.

3.5 Notification of Landholders or Tenants

MCC undertook consultation and the required notification of land owners listed within Table 1 (Project Approval Schedule 3) during the approval process including those with acquisition rights.

MCC has sent a copy of the NSW Health fact sheet entitled "Mine Dust and You" to the owners and/or existing tenants of land (including mine owned land) where the predictions within the EA identified that dust emissions generated by the Project are likely to be greater than the relevant air quality criteria.

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 the Project Approval. 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 the Project Approval 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.

4.0 GREENHOUSE GAS MANAGEMENT

The GHG management for the Project will focus on emissions management and reductions associated with:

- Electricity usage in the CHPP; and
- Diesel consumption by mining vehicles and plant.

4.1 Electricity

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.

4.2 Diesel Consumption

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 to reduce kilometres equipment travel where possible; and
- Investigate biodiesel use and where possible source from local and sustainable agricultural resources.

4.3 Reporting

Ongoing monitoring and management of GHG emissions and energy consumption at MCCM will be achieved through participation in the Commonwealth Government's National Greenhouse and Energy Reporting Scheme (NGERS). Under NGERS requirements, relevant sources of GHG 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. 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 MCC or are planned to be implemented in the following year.

5.0 AIR QUALITY MONITORING PROGRAM

5.1 Monitoring Network

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.

Alternate monitoring locations to those currently identified in this section may be subject to further negotiation and agreement with the Landowner for access, revision within the EPL, installation and monitoring of the equipment.

The MCCM air quality monitoring network is shown on **Figure 2** and consists of:

- Three TEOM units (TEOM1-3), currently able to measure PM_{10} and $PM_{2.5}$;
- TEOM 1 and TEOM 3 provides continuous monitoring of PM_{10} levels in accordance with EPL20221;
- TEOM 1 and TEOM 3 are used to assess compliance against PA Schedule 3, Conditions 29, 30 and 32;
- Exceedances of criteria and or performance measures for TEOM 1 and TEOM 3 are to be managed, notified and reported on in accordance with PA Schedule 5 Conditions 2, 4, 8 and 9;
- Monitoring results will be reported on the Maules Creek website in accordance with PA Schedule 5 Condition 13;
- TEOM 2 is used by MCC for internal management purposes only;
- One HVAS (HVAS 1), measuring PM_{10} and TSP for compliance purposes. PM_{10} levels are measured at the HVAS 1 on a twenty-four hour basis and collected every six days. TSP levels are inferred from the measured PM_{10} data;
- Four depositional dust gauges (DDG1 – DDG4). Depositional dust readings are collected from these monitors on a monthly basis for compliance purposes.

In addition to the above, through the AQMS the BTM complex has installed portable real-time PM_{10} monitors (i.e. e-samplers or equivalent) to assist with cumulative air quality predictive modelling from the BTM Complex. These portable monitoring devices will be placed at appropriate locations close to mining operations. 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. The use of these portable real-time monitors is discussed in the AQMS provide in **Appendix B**.

The above monitoring suite is one tool to assist in the management of operations and monitoring dust levels from all sources, including non-mining activities. Please refer to the Risk Response Matrix in **Appendix D**.

5.2 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.

A Trigger Action Response Plan (TARP) has been developed to be used in combination with the real time PM10 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 the MCCM approval. The Risk Response Matrix outlines the trigger levels and the operational responses when a certain trigger level has been reached, this is provided in Appendix D.

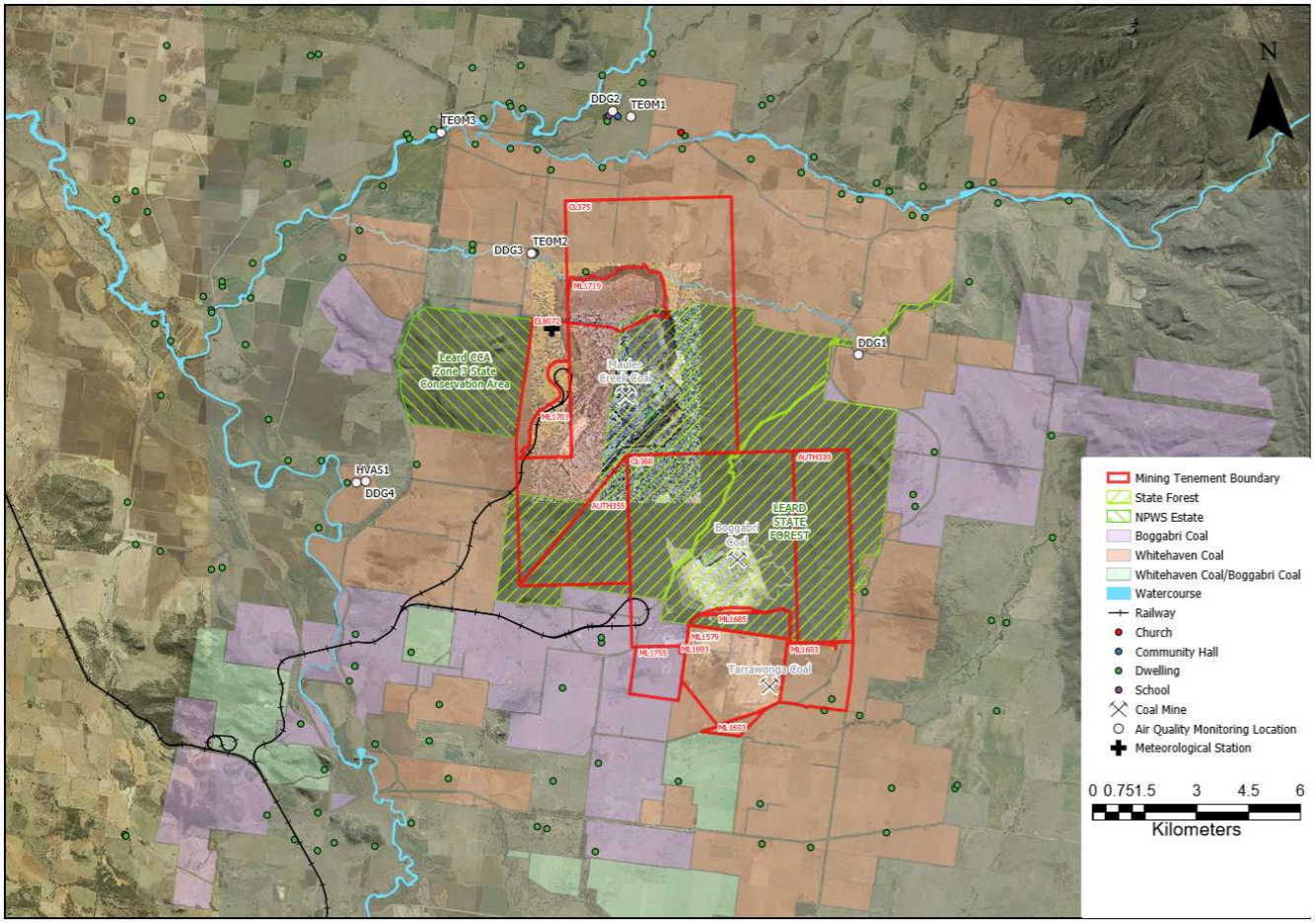

Figure 2 MCCM Air Quality Monitoring Network

6.0 PROTOCOL FOR DETERMINING EXCEEDANCES

The following section outlines how compliance against the approval Impact Assessment Criteria for 24-hour PM_{10} and annual average PM_{10}, TSP and dust deposition will be evaluated and reported.

Where monitoring results are below the levels indicated for the approval Impact Assessment Criterion, no further action is required and results are reported with no additional analysis.

Where monitoring results are above the air quality criteria in the approval, an analysis will be done at the earliest opportunity to determine if MCCM exceeded the criteria or contributed to an exceedance of the criteria. 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 elevated level day to determine what activities were occurring and characterise the activities based on being wind speed independent, wind speed dependent or wind erosion sources.
- 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, the relevant agencies will be notified.

7.0 COMPLAINTS HANDLING

Any complaint received relating to any air quality issues will be managed in accordance with the Maules Creek Coal Complaint Handling and Response processes as outlined in the MCCM EMS.

8.0 REPORTING

8.1 Online Reporting

In accordance with Schedule 5 Condition 13, daily updates are provided on the WHC website, including:

- Daily weather forecasts for the week.
- Real-time (daily non-validated air quality monitoring data) from the TEOM 1 and TEOM 3 monitoring sites.
- Operational responses to noise and dust levels.
- Monthly reporting results as per the BTM AQMS.
- Summary reports available on a monthly basis required under the EPL.

Provision is also made on the website for the community to submit comments to Whitehaven Coal.

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

8.2 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 DPE Annual Review Guideline (2015). The Annual Review will be sent to the relevant regulatory agencies for review and made publically available on the WHC website.

8.3 Incident Reporting / Affected Residences

In accordance with Schedule 5 Condition 8 of the approval and under Section 148 of the *Protection of the Environment Operations Act 1997* (POEO Act) the Secretary of DP&E 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, at the earliest opportunity. For other incidents, notification of the Secretary and any other relevant agencies as soon as practicable after becoming aware of the incident and the provision of a report within seven days.

In accordance with Schedule 4 Condition 3 of the approval, any affected private landowner will also be notified and provided with a summary of the relevant monitoring data.

8.4 Community Consultation

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.

8.5 Auditing

Under the approval, an Independent Environmental Audit (IEA) of MCCM was undertaken in 2018 and additional IEAs are required to be undertaken every 3 years. 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.

9.0 REVISION

This AQGHGMP will be reviewed and if necessary revised, within 3 months of the submission of an;

- Annual Review as required under the approval,
- Incident Report as required under the approval,
- An Independent Environmental Audit as required under the approval, or
- Any modification to the conditions of the approval.

10.0 ROLES AND RESPONSIBILITIES

In addition to the specific responsibilities for dust management outlined in **Table 7**, general roles and responsibilities for the implementation of the AQGHGMP are presented in **Table 12**.

Table 12 Roles and Responsibilities

Role	Responsibilities
General Manager – Maules Creek	• Ensure required resources and support to implement the management plan.
HSEC Manager	• 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 7**
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 7**.
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 7.**
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 7**.

11.0 REFERENCES

AS/NZS 3580.1.1:2007 *"Methods for sampling and analysis of ambient air - Guide to siting air monitoring equipment"*.

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Donnelly, S.J., Balch, A., Wiebe, A., Shaw, N., Welchman, S., Schloss, A., Castillo, E., Henville, K., Vernon, A., Planner, J. (2011). *"NSW Coal Mining Benchmarking Study: International Best Practice Measures to Prevent and / or Minimise Emissions of Particulate Matter from Coal Mining"* Prepared by Katestone Environmental Pty Ltd for Office of Environment and Heritage June 2011.

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NEPC (1998) "*National Environmental Protection Measure for Ambient Air Quality*". National Environment Protection Council Service Corporation, Level 5, 81 Flinders Street, Adelaide SA 5000.

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PAEHolmes (2012) *"Report: Cumulative Air Quality Management Protocol"* Prepared for Boggabri Coal Pty Ltd, Tarrawonga Coal Pty Ltd and Maules Creek Project by PAEHolmes, July 2012.

SPCC (1986) *"Particle size distributions in dust from open cut coal mines in the Hunter Valley"*, Report Number 10636-002-71, Prepared for the State Pollution Control Commission of NSW (now EPA) by Dames & Moore, 41 McLaren Street, North Sydney, NSW 2060.

12.0 TERMS AND ABBREVIATIONS

Approved Methods	Approved Methods for the Sampling and Analysis of Air Pollutants in NSW
AQGHGMP	Air Quality and Greenhouse Gas Management Plan
AQMS	Air Quality Management System
AWS	Automatic weather station
BPM	Best Practice Measures
Best Practice Determination / Report	NSW Coal Mining Benchmarking Study: International Best Practice Measures to Prevent and/or Minimise Emissions of Particulate Matter from Coal Mining
BTM Complex	Boggabri Coal Mine, Tarrawonga Coal Mine and Maules Creek Coal Mine
CCC	Community Consultation Committee
CHPP	Coal Handling and Preparation Plant
CH_4	Methane
DDG	Dust Deposition Gauge
DPE	Department of Planning and Environment
EEO	Energy Efficiency Opportunities
EPA	Environment Protection Agency
EPL	Environment Protection Licence
GHG	Greenhouse Gas
GLC/s	Ground level concentration/s
HVAS	High Volume Air Sampler
km/hr	Kilometers per hour
MCC	Maules Creek Coal Pty Limited
MCCM	Maules Creek Coal Mine
Mtpa	Million Tonnes Per Annum
NGERS	National Greenhouse and Energy Report Scheme
NO_x	Oxides of nitrogen
NSW	New South Wales
$PM_{2.5}$	Particulate matter with equivalent aerodynamic diameter 2.5 microns or less
PM_{10}	Particulate matter with equivalent aerodynamic diameter 10 microns or less
The approval	Project Approval (PA) 10_0138 (as modified)
The Project	Maules Creek Coal Project
ROM Coal	Run of Mine Coal
TEOM	Tapered Element Oscillating Microbalance
TSP	total suspended particulate matter
VKT	Vehicle Kilometers Travelled
WHC	Whitehaven Coal Limited

Appendix A
Land Ownership

(Please see Figure 2)

Appendix B
BTM Air Quality Management Strategy

Appendix C
Comparison with EPA Best Practice

A comparison to EPA Best Practice was undertaken. Please refer to the Katestone Dust Benchmarking Study available via the EPA website accessible via https://www.epa.nsw.gov.au/your-environment/air/regional-air-quality/namoi-air-quality-monitoring-project/maules-creek-monitoring-station/mauls-creek-coal-mine-dust-study

Appendix D 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