PEABODY ENERGY
AIR QUALITY MANAGEMENT PLAN

WI-ENV-MNP-0004

August 2020

Document Owner	Document Approver
Environmental Advisor	Environment and Community Manager

Version	Approval Date	Approver Name
6	August 2020	Kieren Bennetts

General Description of Changes from Previous Version

Document No.	Version	Date	Prepared/ Reviewed By	Distribution	Description of Change
WI-ENV-MNP-0004	1	16 May 2014	WCPL, Palaris, Resource Strategies	DP&E, OEH	New document number and format. Revised following approval of Mod 5 (PA 05-0021). Submitted to DP&E for re-approval in March 2016
WI-ENV-MNP-0004	2	October 2016	WCPL	DP&E	MOD 7
WI-ENV-MNP-0004	3	June 2017	WCPL & Todoroski Air Sciences	DP&E & EPA	Revision of AQMP to align with SSD-6764 as a result of the WEP.
WI-ENV-MNP-0004	4	May 2018	WCPL	DP&E & EPA	Revision of AQMP to revise notification protocols for landholders/tenants
WI-ENV-MNP-0004	5	September 2019	WCPL	DPIE & EPA	Revision of AQMP as required by IEA and AR. Updated to include revised disturbance footprint boundary in Pit 8
WI-ENV-MNP-0004	6	August 2020	WCPL	DPIE & EPA	Revision of AQMP to include ML1795 and update figures accordingly

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1 Introduction

The Wilpinjong Coal Mine ("the Mine") is owned and operated by Wilpinjong Coal Pty Limited (WCPL), a wholly owned subsidiary of Peabody Energy Australia Pty Ltd (PEA).

The Mine is an existing open cut coal mining operation situated approximately 40 kilometres (km) north-east of Mudgee, near the Village of Wollar, within the Mid-Western Regional Local Government Area, in central New South Wales (NSW) (**Figure 1**). The mine produces thermal coal products which are transported by rail to domestic customers for use in electricity generation and to port for export. Open cut mining operations are undertaken 24 hours per day, seven days per week.

PEA and its subsidiaries, WCPL and Peabody Pastoral Holdings Pty Ltd is a major landholder owning adjacent rural properties and land to the east and south-east of the mine. Land to the west of the mine is owned by adjacent mining companies, whilst the National Parks and Wildlife Service estate own significant land to the north and south-west of the Mine.

Private properties are located predominantly in and around the Wollar Village approximately 1.5 km to the east of the Mine, along Mogo Road to the north of the mine.

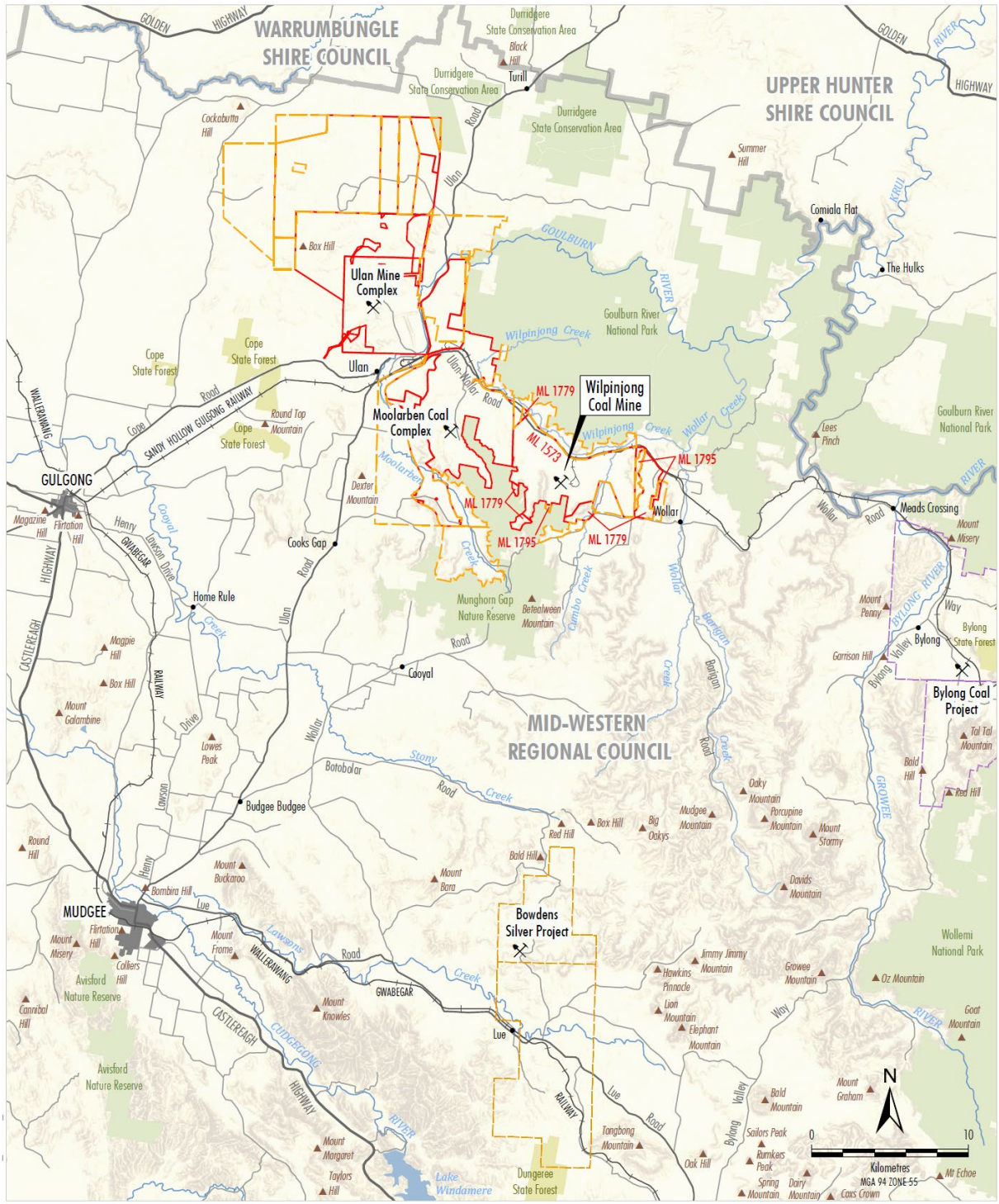
The Mine originally operated under Project Approval (PA 05-0021) that was granted by the Minister for Planning under Part 3A of the NSW *Environmental Planning and Assessment Act 1979* (EP&A Act) on 1 February 2006. The Air Quality Management Plan (AQMP) was previously developed in accordance with PA05-0021.

On 24 April 2017, WCPL was granted Development Consent (SSD-6764) for the Wilpinjong Extension Project (WEP) that provides for the continued operation of the Mine at rates of up to 16 million tonnes per annum (Mtpa) of run-of-mine (ROM) out to 2033, and access to approximately 800 hectares (ha) of open cut extensions. Development Consent (SSD-6764) has superseded the Project Approval (Project Approval 05-0021).[1]

Development Consent (SSD-6764) has superseded Project Approval PA 05-0021.

This AQMP has been prepared to satisfy the relevant conditions in Development Consent (SSD-6764). Where relevant, this AQMP builds on the relevant components of the existing/approved AQMP, including previous feedback from relevant government stakeholders. The AQMP (Version 5) was also reviewed in part by Todoroski Air Sciences.

[1] PA05-0021 was surrendered on the 28 April 2020 as required by Condition 9, Schedule 2 of SSD-6764.



LEGEND
- Mining Lease Boundary
- Exploration Licence Boundary
- Authorisation Boundary
- Local Government Boundary
- NSW State Forest
- National Park, Nature Reserve or State Conservation Area
- Coal Mining Operation

Source: WCPL (2019); Office of Environment & Heritage NSW (2019); NSW Land & Property Information (2017); NSW Dept of Industry (2019); Geoscience Australia (2011)

Peabody
WILPINJONG COAL MINE
Regional Location

Figure 1: Locality Plan

1.1 Definitions

Table 1 provides a list of definitions for particular terms and acronyms used throughout this AQMP.

Table 1: Explanation of Acronyms and Terms

Acronym / Phrase	Explanation
Air Quality Conditions	means the Air Quality Conditions specified in the Project Approval and EPL.
Air Quality Criteria	means the Air Quality Criteria from the Air Quality Conditions, as detailed in **Section 3**.
AQMS	means the compressive Air Quality Management System as shown in **Figure 8**.
CHPP	means Coal Handling Preparation Plant
CRO	Control Room Operator
Development Consent (SSD-6764)	Number SSD-6764 granted by the Minister for Planning under Part 4 of the EP&A Act on 24 April 2017
Director-General	means the Secretary of the Department of Planning and Environment
DP&E	Department of Planning and Environment
DPIE	Department of Planning, Industry and Environment (formally Department of Planning and Environment)
DRE	Department of Resources & Energy
EA	Environmental assessment
ECM	Environment and Community Manager.
EIS	Environmental Impact Statement.
EMS	Environmental Management System
EL	Exploration licences 6169 and 7091 granted by the Minister for Resources and Energy under the Mining Act 1992 on 3 March 2008 respectively. EL 6169 was renewed on 14 October 2013 and EL 7091 was renewed on 12 March 2013.
EPA	NSW Environment Protection Authority.
EP&A Act	*Environmental Planning and Assessment Act 1979*. The primary piece of legislation for the regulation of land use, planning and development within NSW.
EPL	Environment Protection License 12425. Granted by the EPA under the POEO Act.
Exceedance	For the purposes of this management plan an exceedance is deemed to have occurred when monitoring exceeds the Air Quality Criteria.
Management Plan	means this Air Quality Management Plan prepared by WCPL and as amended from time to time.
MCO	Moolarben Coal Pty Ltd
Minimise	means in this Management Plan to minimise dust from the Project to the extent required by the Project Approval and EPL.
ML	Mining Lease.
Mine	Wilpinjong Coal Mine
Mine Dust	Refer to dust emission types from mining activities in **Table 10**.
Mine Odour	For mining projects: odour from spontaneous combustion events.
Non-compliance	For the purposes of this management plan a non-compliance is deemed to have occurred where an exceedance is solely caused by particulate matter being generated from the Project.
OCE	means Open Cut Examiner
$PM_{2.5}$	Is a sub-component of Total Suspended Particulate (TSP) matter and refers to particulate matter (PM) with aerodynamic diameters of 2.5 micrometres (µm).
PM_{10}	is a sub-component of Total Suspended Particulate (TSP) matter and refers to particulate matter (PM) with aerodynamic diameters of 10 micrometres (µm).
Project	The development as described in the WEP EIS.
Private Receiver	Means a private receiver as identified at the locations identified in the Air Quality Conditions.
PEA	Peabody Energy Australia Pty Ltd.
POEO Act	*Protection of the Environment Operations Act 1997*.
WCPL	Wilpinjong Coal Pty Limited.
WEP	The Wilpinjong Extension Project (as described in the Environmental Impact Statement 2016).

Acronym / Phrase	Explanation
WCP	The Wilpinjong Coal Project as described in the WCP EIS (WCPL, 2006)
WEP	The Wilpinjong Extension Project as described in the WEP EIS (WCPL, 2016)
WCP EIS	The Wilpinjong Coal Project Environmental Impact Statement (WCPL, 2006)
WEP EIS	The Wilpinjong Extension Project Environmental Impact Statement (WCPL, 2016)
Secretary	Secretary of Department of Planning and Environment
TEOM	means Tapered Element Oscillating Microbalance
TSP	means Total Suspended Particulate, defined as the total mass of all particles suspended in air.
UCML	Ulan Coal Mines Limited (UCML)

1.2 Purpose

The purpose of this AQMP is to ensure that operational air quality impacts on the local community are minimised to the extent required by the Air Quality Conditions in Development Consent (SSD-6764). This AQMP has been developed to:

- Describe the measures to be implemented to comply with the Air Quality Conditions;
- Describe the air quality management and mitigation strategies used to manage and minimise mine dust;
- Describe the management and mitigation strategies used to manage and minimise mine odour;
- Provide an air quality monitoring protocol for evaluating compliance with the Air Quality Criteria;
- Provide a protocol for managing and reporting any air quality related exceedances or non-compliances to relevant government authorities and affected residents;
- Describe and assign responsibilities relating to air quality and greenhouse gas management at the Mine;
- Describe how this AQMP will be reviewed and updated; and
- Form part of the WCPL's Environmental Management System (EMS) and associated aspects and impacts register.

1.3 Scope

This AQMP has been prepared in accordance with the relevant air quality conditions in Development Consent (SSD-6764) to manage air quality impacts to Private Receivers from WCPL's open cut mining operations, coal processing and ancillary activities associated with operation of the Mine (**Appendix 1**).

1.4 Consultation

This AQMP has been prepared in consultation with the DPIE and NSW Environmental Protection Agency (EPA) (**Section 2.4**). Initial consultation with the DPIE and NSW Environmental Protection Agency (EPA) commenced on 23 May 2017. Initial consultation with NSW Health in relation to developing a notification protocol commenced on the 24 May 2017. Copies of correspondence during the development of this AQMP are included in **Appendix 2**.

On the 8 August 2019, WCPL commenced consultation with the DPIE to request a minor variation to increase the disturbance footprint and open cut boundary to Pit 8, arising from refinement to the Pit 8 detailed design. On the 23 August 2019, WCPL received approval from the DPIE that the proposed minor changes to the footprint area of Pit 8 are generally in accordance with the WEP and project approval. Accordingly, WCPL have updated all relevant management plans required by SSD-6764 to reflect this change, as discussed with the DPIE.

2 Statutory and Project Approval Requirements

This AQMP has been prepared to fulfil the requirements of Development Consent (SSD-6764) as shown in **Section 2.2** and Environmental Protection Licence No.12425 (EPL 12425) as shown in **Appendix 1**.

2.1 Project Approval and Licence Requirements

Table 2 summarises WCPL's current statutory approvals.

Table 2: WCPL's Current and Historical Statutory Approvals

Approval/Licence No.	Description	Date of Approval	Agency
SSD-6764	Project Approval	24 April 2017	DPIE
EPL 12425	EPL	19 June 2020*	EPA

Notes:* Date of last EPL Variation

PA05-0021 was surrendered on 28 April 2020 in accordance with Condition 9, Schedule 2 of Development Consent SSD-6764.

2.2 Specific Development Consent Requirements

This AQMP has been prepared in accordance with Conditions 16, 17, 18, 19, 20 and 21, Schedule 3 of Development Consent (SSD-6764). **Table 3** presents these requirements and indicates where they are addressed within this AQMP. Other statutory and Project Approval requirements are shown in **Appendix 1**.

Table 3 Development Consent Air Quality Requirements

<table>
<tr><th>Development Consent (SSD-6764) Condition</th><th>AQMP Section</th></tr>
<tr><td>Odour
16. The Applicant must ensure that no offensive odours are emitted from site, as defined under the POEO Act.</td><td>Section 5.2</td></tr>
<tr><td>Air Quality Criteria

17. The Applicant must ensure that all reasonable and feasible avoidance and mitigation measures are employed so that particulate matter emissions generated by the development do not cause exceedances of the criteria listed in Table 5 at any residence on privately-owned land.

Table 5: Air Quality Criteria
<table>
<tr><th>Pollutant</th><th>Averaging Period</th><th>[d] Criterion</th></tr>
<tr><td rowspan="2">Particulate matter < 10 µm (PM^{10})</td><td>Annual</td><td>[a] 30 µg/m^3</td></tr>
<tr><td>24 hour</td><td>[a] 50 µg/m^3</td></tr>
<tr><td>Total suspended particulate (TSP) matter</td><td>Annual</td><td>[a] 90 µg/m^3</td></tr>
<tr><td rowspan="2">[c] Deposited dust</td><td rowspan="2">Annual</td><td>[b] 2 g/m^2/month</td></tr>
<tr><td>[a] 4 g/m^2/month</td></tr>
</table>
Notes: [a] Total impact (i.e. incremental increases in concentrations due to the development plus background concentrations due to other sources). [b] Incremental impact (i.e. incremental increases in concentrations due to the development on its own). [c] Deposited dust is to be assessed as insoluble as defines by Standards Australia, AS/NZS 3580.10.1:2003; Methods for Sampling and Analysis Air –</td><td>Section 4.1</td></tr>
</table>

Development Consent (SSD-6764) Condition	AQMP Section
Determination of Particulate Matter – Deposited Matter – Gravimetric Method. [d] Excludes extraordinary events such as bushfires, prescribed burning, dust storms, fire incidents or any other activity agreed by the Secretary.	
Mine Owned Land 18. The Applicant shall ensure that all reasonable and feasible avoidance and mitigation measures are employed so that particulate matter emissions generated by the development do not cause exceedances of the criteria listed in Table 5 at any occupied residence on mine-owned land (including land owned by another mining company) unless: (a) the tenant and landowner (if the residence is owned by another mining company) have been notified of any health risks associated with such exceedances in accordance with the notification requirements under schedule 4 of this consent; (b) the tenant of any land owned by the Applicant can terminate their tenancy agreement without penalty at any time, subject to giving reasonable notice; (c) air mitigation measures such as air filters, a first flush roof water drainage system and/or air conditioning) are installed at the residence, if requested by the tenant or landowner (if the residence is owned by another mining company); (d) air quality monitoring is regularly undertaken to inform the tenant or landowner (if the residence is owned by another mining company) of particulate emissions in the vicinity of the residence; and (e) data from this monitoring is presented to the tenant and landowner in an appropriate format for a medical practitioner to assist the tenant and landowner in making informed decisions on the health risks associated with occupying the property.	Section 4.2 & Section 4.3
Operating Conditions *19.* The Applicant shall: (a) implement all reasonable and feasible measures to minimise the off-site odour, fume, spontaneous combustion and dust emissions of the development; (b) implement all reasonable and feasible measures to minimise the release of greenhouse gas emissions from the site; (c) minimise any visible air pollution generated by the development; (d) operate a comprehensive air quality management system that uses a combination of predictive meteorological forecasting and real-time air quality monitoring data to guide the day to day planning of mining operations and the implementation of both proactive and reactive air quality mitigation measures to ensure compliance with the relevant conditions of this consent; (e) minimise the air quality impacts of the development during adverse meteorological conditions and extraordinary events (see Note (d) above under Table 5); (f) co-ordinate the air quality management on site with the air quality management at the Moolarben and Ulan mines to minimise cumulative air quality impacts; (g) carry out regular monitoring to determine whether the development is complying with the relevant conditions of this consent.	Section 5.2 Section 5.3 Section 5.1 Section 5.4 & Section 6.3.4 & Section 6.4 Section 5.1 Section 5.5 Section 6.0
Air Quality Management Plan 20. Prior to carrying out any development under this consent, unless the Secretary agrees otherwise, the Applicant must prepare an Air Quality Management Plan for the development to the satisfaction of the Secretary. This plan must: (a) Be prepared in consultation with the EPA;	This AQMP Section 1.4 &

Development Consent (SSD-6764) Condition	AQMP Section
	Appendix 2
(b) Describe the measures that would be implemented to ensure compliance with the relevant air quality criteria and operating conditions of this consent;	Section 4.0 & Section 5.0 &
(c) Describe the air quality management system in detail;	Section 6.0 Section 6.3.4 & Section 6.4
(d) Include a protocol for notifying NSW Health and any affected residents of any exceedance of the air quality criteria;	Section 6.7.5
(e) Include a review of all air quality management measures against best practice guidelines;	Section 5.1
(f) Include an air quality monitoring program that: • Adequately supports the air quality management system; • Includes $PM_{2.5}$ monitoring in Wollar Village; • Evaluates and reports on the: - The effectives of the air quality management system; - Compliance with the air quality criteria; - Compliance with the air quality operating conditions; - Defines what constitutes an air quality incident, and includes a protocol for identifying and notifying the Department and relevant stakeholders of any air quality incidents; and	Section 6.0 Section 6.1 & Section 6.3.5 Section 6.7 Section 6.7.2 Section 6.7 Section 6.7.3
(g) Include a Spontaneous Combustion Management Plan that: • Identifies all areas (including stockpiles, waste emplacement, plies, seams and interburden) at risk of spontaneous combustion events; • Includes a protocol for ongoing monitoring and management of areas at risk of spontaneous combustions events; and • Includes a protocol for the management of on-site heating and spontaneous combustion events.	Appendix 3
21. The Applicant must implement the Approved Air Quality Management Plan for the development	This AQMP

2.3 General Management Plan Requirements

Condition 3, Schedule 5 of Development Consent (SSD-6764) outlines general management plan requirements that are applicable to the preparation of the AQMP. **Table 4** presents these requirements and indicates where they are addressed within this AQMP.

Table 4 General Management Plan Requirements

Development Consent (SSD-6764) Condition	AQMP Section
Management Plan Requirements	
3. The Applicant must ensure that the management plans required under this consent are prepared in accordance with any relevant guidelines, and include:	
(a) detailed baseline data;	Section 3.0
(b) a description of:	
• the relevant statutory requirements (including any relevant approval, licence or lease conditions);	Section 2.0
• any relevant limits or performance measures/criteria;	Section 4.0
• the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the development or any management measures;	Section 7.0
(c) a description of the measures that would be implemented to comply with the relevant statutory requirements, limits, or performance measures/criteria;	Section 5.0

Development Consent (SSD-6764) Condition		AQMP Section
(d)	a program to monitor and report on the:	Sections 6, 8 and 9
	• impacts and environmental performance of the development;	
	• effectiveness of any management measures (see c above);	
(e)	a contingency plan to manage any unpredicted impacts and their consequences;	Section 7.0
(f)	a program to investigate and implement ways to improve the environmental performance of the development over time;	Sections 6.4 and 9.0
(g)	a protocol for managing and reporting any:	
	• incidents	Section 9.1
	• complaints	Section 8.0
	• non-compliances with statutory requirements; and	Section 9.1
	• exceedances of the criteria and/or performance criteria; and	Section 9.1
(h)	a protocol for periodic review of the plan.	Section 10

2.4 Specific Guidance from Regulatory Agencies

The approved AQMP[2] was prepared in consultation with the EPA, as required by Condition 20, Schedule 3 of the previous Project Approval for the Wilpinjong Coal Mine (Project Approval 05-0021).

Consultation was also undertaken with a variety of regulators throughout the assessment and approval of the Wilpinjong Extension Project. A number of additional, specific requirements and commitments for this AQMP that arose from this consultation programme were subsequently reflected in Condition 20, Schedule 3 of Development Consent (SSD-6764).

Initial consultation with the DPIE and the EPA commenced on 23 May 2017. Initial consultation with NSW Health in relation to developing a notification protocol commenced on the 24 May 2017. Further consultation with NSW Health on the 30 May 2017, confirmed the Pollution Incident Response Management Plan (PRIMP) reporting protocol to notify the NSW department of Health. Copies of all relevant consultation are provided in **Appendix 2** of this AQMP.

WCPL received official notification from the EPA (**Appendix 2**) on the 22 June 2017 in regard to the various management plans required under Development Consent (SSD-6764) for their consideration. WCPL also met with the EPA on the 19 June 2017 to discuss in detail the preparation of these required management plans. The EPA had no further comment for this AQMP.

2.5 Relevant Legislation and Policies

The legislation, guidelines and standards considered during the preparation of this Management Plan include:

- *Environmental Planning and Assessment Act 1979 (EP&A Act);*
- *Protection of the Environment Operations Act 1997 (POEO Act);*
- *Protection of the Environment Operations (General) Regulation 2009;*
- *Protection of the Environment Operations (Clean Air) Regulation 2010;*
- *National Environment Protection (Ambient Air Quality) Measure 2016;*
- *Department of Environment and Conservation (DEC) Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales (DEC, 2007);*

[2] Latest Version 4 Approved by the DPIE on 8 September 2018

- *Standards Australia AS 3580.1.1:2007: Methods for sampling and analysis of ambient air - Guide to siting air monitoring equipment;*
- *Standards Australia AS/NZ 3580.10.1-2003 - Methods for sampling and analysis of ambient air - Determination of particulate matter - Deposited matter - Gravimetric method;*
- *Standards Australia AS 3580.9.6:2003 - Methods for sampling and analysis of ambient air - Determination of suspended particulate matter - PM10 high volume sampler with size-selective inlet - Gravimetric method;*
- *Standards Australia AS/NZS 3580.9.7:2009 - Methods for sampling and analysis of ambient air - Determination of suspended particulate matter - Dichotomous sampler (PM10, coarse PM and PM2.5) - Gravimetric method;*
- *Standards Australia AS 3580.9.8-2008 - Methods for sampling and analysis of ambient air - Determination of suspended particulate matter – PM10 continuous direct mass method using a tapered element oscillating microbalance analyser; and*
- *Australian Standard AS2923 – 1987 (Guide for measurement of horizontal wind for air quality applications).*

2.5.1 Environmental Planning and Assessment Act 1979

The Wilpinjong Coal Project was granted Project Approval by the Minister for Planning on 1 February 2006 pursuant to the s75J of the EP&A Act.

The Wilpinjong Extension Project (the WEP) was granted Development Consent (SSD-6764) by the Minster for Planning under Part 4 of the EP&A Act on 24 April 2017. Refer to **Section 2.1** that describes the surrender of Project Approval PA05-0021.

Development Consent (SSD-6764) stipulates the required air quality criteria that WCPL must comply with and sets out the core requirements of this AQMP. This AQMP has been prepared to fulfil the requirements of Development Consent (SSD-6764).

2.5.2 Protection of the Environment Operations Act 1997

The EPA issued EPL 12425 on 8 February 2006 under the POEO Act. The EPL permits dust generation activities to occur across the site, subject to the EPL conditions. In consultation with the EPA, the EPL will be modified (as required) to reflect the Development Consent (SSD-6764) conditions as they relate to air quality.

3 Baseline Data

Comprehensive background air quality surveys to characterise and quantify the pre-mine air shed were conducted in 2004 and 2005. The measurement methodology and analysis procedures are described in the Wilpinjong Coal Project Environmental Impact Statement (EIS) (WCPL, 2006), which is available on the Peabody Energy website.

The main sources of particulate matter in the wider area of WCPL include active mining, quarries, agricultural activities, emissions from local anthropogenic activities (such as motor vehicle exhaust, dust from unsealed roads and domestic wood heaters) and various other rural activities. The Wilpinjong Extension Project – Environmental Impact Statement (EIS, 2016) reviewed the ambient dust monitoring data collected between 2012 and 2014 to characterise the existing background levels of the surrounding area. The EIS 2016 is available on the Peabody Energy Website.

3.1 Dust Deposition

The baseline dust monitoring network at the Mine was installed in May 2004 and included six dust deposition gauges (DG1 to DG6) located in the vicinity of the mine. DG1, DG3 and DG6 have since been decommissioned as the nearby dwellings are now mine owned and not occupied. DG2, as referred to in the EIS, was renamed as DG7; however DG7 has since been decommissioned. The locations of the remaining dust deposition gauges (DG4 – Robinson property and DG5 – Wollar Village) are shown on **Figure 8** and **Figure 9**.

The average dust deposition rate from 2004 to 2005 (prior to the commencement of construction at the Mine) was 1.3 g/m^2/month, with all sites (DG1 to DG6) recording dust deposition levels below the EPA's amenity criteria for total dust deposition from all sources of 4 g/m^2/month. Based on this, it has been assumed that the annual average background dust deposition rate in the Wilpinjong area was approximately 1.3 g/m^2/month.

Figure 2 shows the actual dust deposition results for DG4 and DG5 for the period 2005 to 2014, compared with the average background dust deposition rate in 2004 and 2005 (1.3 g/m^2/month) and the annual dust deposition criteria (4 g/m^2/month). **Figure 2** shows a decrease in deposited dust in early 2011. This change coincides with an increase in the mining rate and a change in land management practices i.e. reduced livestock on surrounding properties. This change in land practices may have contributed to the decrease in deposited dust.

Figure 8 shows the location of the dust deposition gauge monitoring network. It is observed that many of the gauges are generally located in close proximity to the mine or receptor locations. These locations are likely to show the highest levels of deposited dust in the area due to their close proximity to dust sources such as mining activity and traffic on unsealed roads and driveways (Todoroski, 2015).

Table 6 shows the annual average dust deposition levels at each gauge between 2012 and 2014. The majority of dust gauges recorded annual average insoluble deposition levels below the criterion of 4g/m^2/month, with the exception of DG12 during 2012, which is located within the mining lease area (**Figure 8**) (Todoroski, 2015).

Figure 2: Dust Deposition – Actual versus Average Baseline (DG4 and DG5)

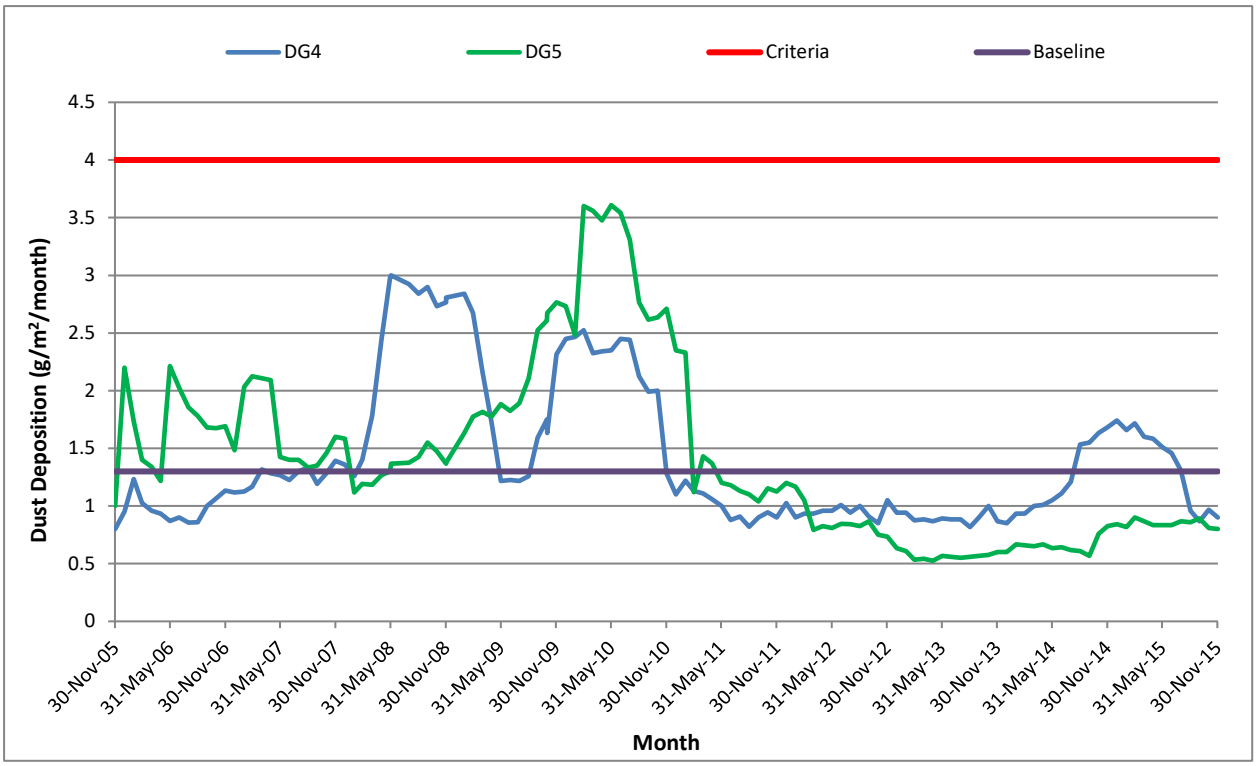


Table 5: Annual average dust deposition 2012-2014 (g/m²/month)

Year	Annual Average										
	DG4	DG5	DG7	DG8	DG10	DG11	DG12	DG13	DG14	DG15	Criteria
2012	1.1	0.7	1.5	1.0	1.2	1.4	6.5	2.4	2.2	-	4
2013	0.9	0.6	-	1.4	2.0	2.0	3.3	1.9	1.0	0.9	4
2014	1.7	0.8	-	1.5	3.3	1.3	3.3	2.8	1.4	0.9	4

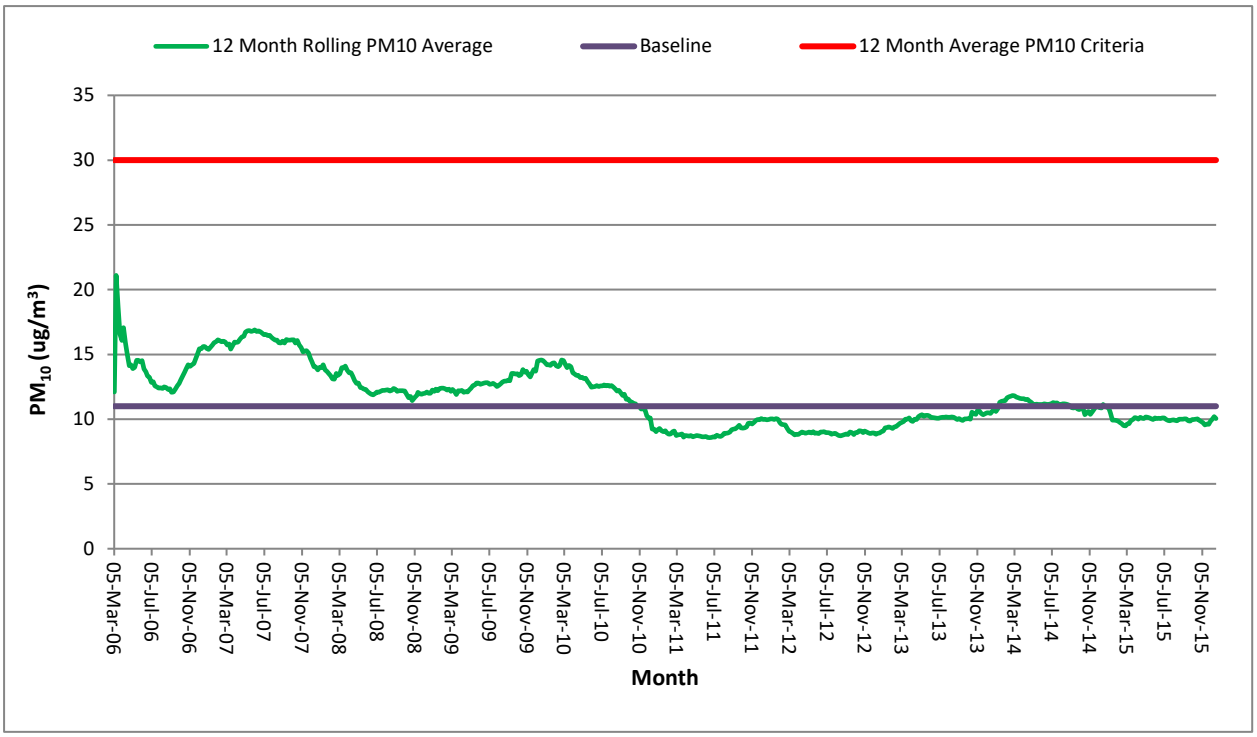
Note: DG5 is the dust gauge located in closest proximity to receivers in Wollar (and is located between the mine and Wollar). This gauge shows low levels of deposited dust, which are below the applicable criteria in all years.

3.2 PM_{10}

A PM_{10} high volume sampler was installed at Wollar (HV1) in June 2004 to assess local suspended particulate levels (**Figure 6**). For the period June 2004 to October 2005 (prior to the commencement of construction at the Mine) the 24 hour average PM_{10} concentration range at HV1 was between 0.5 µg/m³ and 45.2 µg/m³ with an average of 11 µg/m³ (Holmes Air Sciences, 2005). Based on this, it has been assumed that the annual average PM_{10} background concentration in the Wilpinjong area was approximately 11 µg/m³.

Figure 3 shows the actual 12 month rolling average PM_{10} for HV1 for the period 2006 to 2014, compared with the state annual average background PM_{10} concentration (11 µg/m³) in 2004 and 2005 (baseline) and the 12 month average PM_{10} criteria (30 µg/m³). **Figure 3** shows a decrease in PM_{10} in early 2011. This change coincides with an increase in the mining rate and a change in land management practices i.e. reduced livestock on surrounding properties. This change in land practices may have contributed to the decrease in PM_{10}.

Figure 3: Actual versus Average Baseline PM10 (HV1)



A summary of the results from the HVAS monitoring stations operated by WCPL and MCO available during 2012 to 2014 is presented in **Table 7** and **Figure 4**. The monitoring results in **Table 7** indicate that annual average PM_{10} levels at these monitors are below the criteria of 30µg/m³ and are comparable to the annual average TEOM monitoring results for the same periods (Todoroski, 2015).

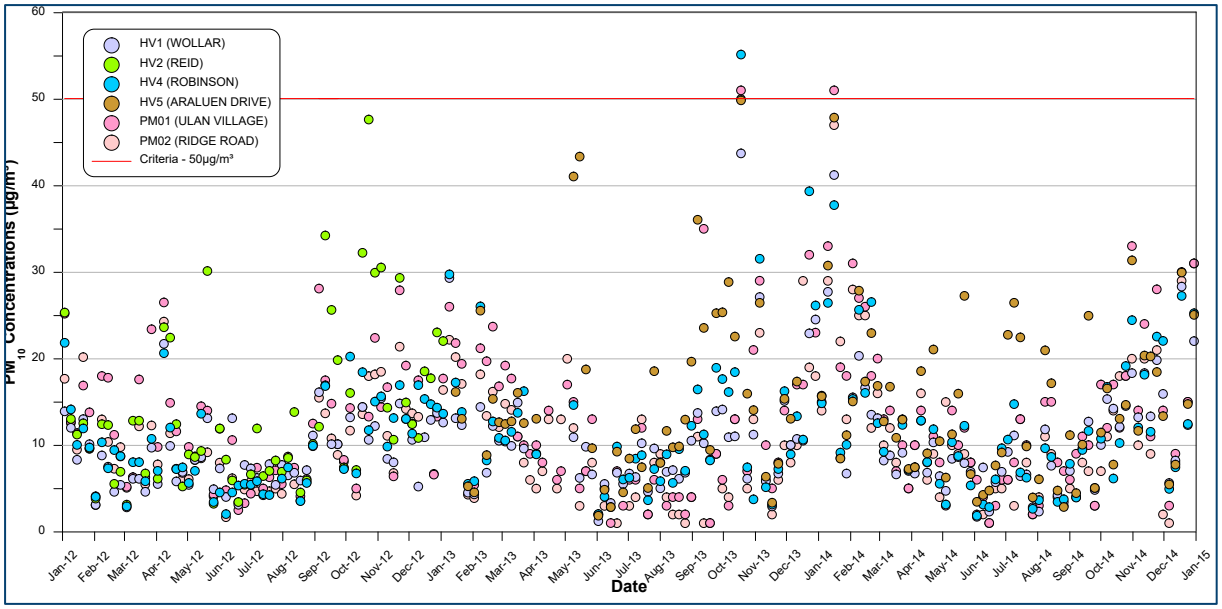
Table 6 : PM_{10} levels from HVAS monitoring 2012 - 2014 (µg/m³)

	Annual average							Maximum 24 hour average						
Year	HV 1	HV 2[1]	HV 4	HV 5[2]	PM01	PM02	Criteria	HV 1	HV 2[1]	HV 4	HV 5[2]	PM01[3]	PM02[3]	Criteria
2012	9.0	13.6	9.8	-	11.8	9.6	30	21.7	47.6	21.8	-	28.1	24.3	50
2013	10.8	-	12.8	15.7	12.2	10.0	30	43.7	22.0	55.1	49.8	51.0	50.0	50
2014	10.9	-	11.7	14.6	13.8	11.7	30	41.2	-	37.7	47.8	51.0	47.0	50

Notes: [1] Data available till January 2013 [2] Data available from January 2013

Figure 4 indicates that there was only one period in 2013 when the recorded levels were above the 24 hour average PM_{10} criterion level. This occurred on 18 October 2013 at the HV 4 and PM01 stations. This event corresponds with the elevated levels recorded at the TEOM monitors that were due to bushfires. In 2014, the PM01 monitor recorded levels above the 24 hour average PM_{10} criterion on 16 January, corresponding with elevated levels recorded at the TEOM monitors attributable to bushfires (Todoroski, 2015).

Figure 4 HVAS 24-hour average PM_{10} concentrations 2012 - 2014



3.3 TSP

A TSP high volume sampler was installed at Slate Gully in June 2004 to assess local suspended particulate levels. The average TSP concentration (24 hour average) at Wollar for the period June 2004 to February 2005 (prior to the commencement of construction at the Mine) was 28 µg/m^3. Based on this, it has been assumed that the annual average TSP background concentration in the Wilpinjong area was approximately 28 µg/m^3.

Figure 4 shows the actual 12 month rolling average TSP for HV3 for the period 2006 to 2014, compared with the annual average background TSP concentration (28µg/m^3) and the 12 month average criteria (90µg/m^3). **Figure 4** shows a slight decrease in TSP in early 2011. This change coincides with an increase in the mining rate and a change in land management practices i.e. reduced livestock on surrounding properties. This change in land practices may have contributed to the decrease in TSP at that time. More recently the TSP level has gradually increased as operations in Pit 3 have moved closer to this monitor. It is noted that this TSP monitor is not located near any Private Receiver and is used solely as a management tool.

The available monitoring data collected between 2012 and 2014 is summarised in **Table 8** and **Figure 6**.

The monitoring data summarised in **Table 8** indicates that the annual average TSP concentrations for the HV3 monitoring station were well below the criterion of 90µg/m³. **Figure 6** shows that the 24-hour average concentrations are low and are typically less than half of the respective annual average criteria (Todoroski, 2015).

Figure 5: Actual versus Annual Average Baseline (HV3)

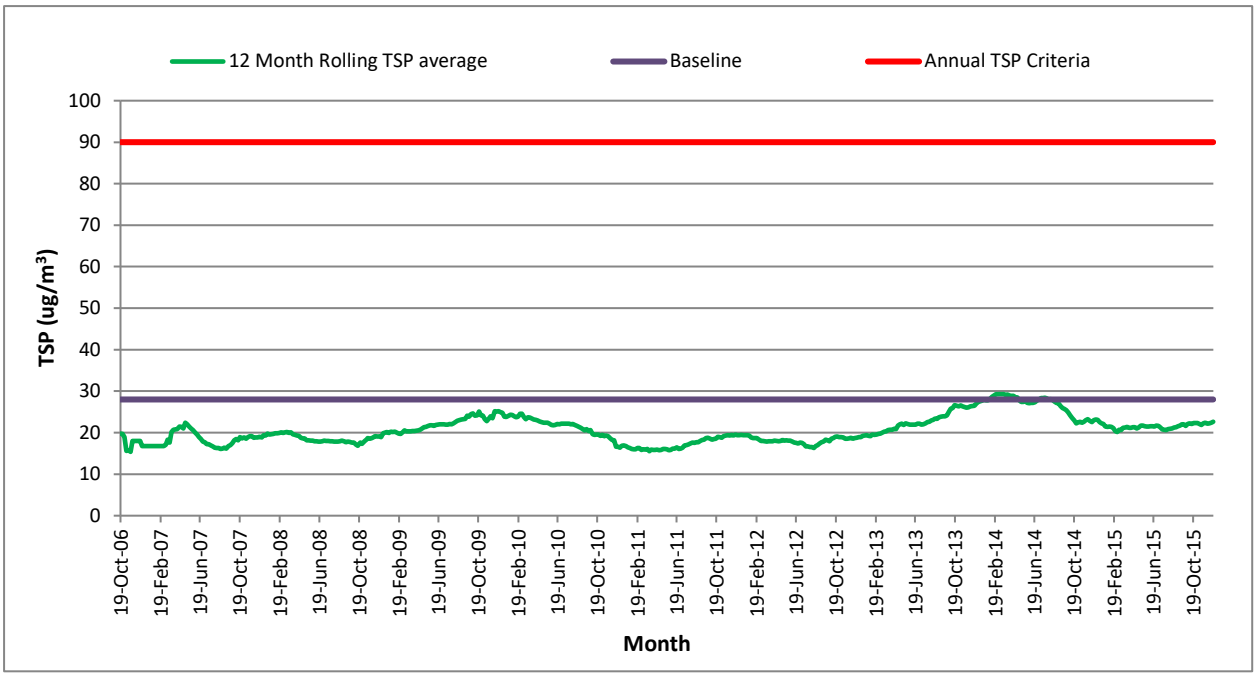
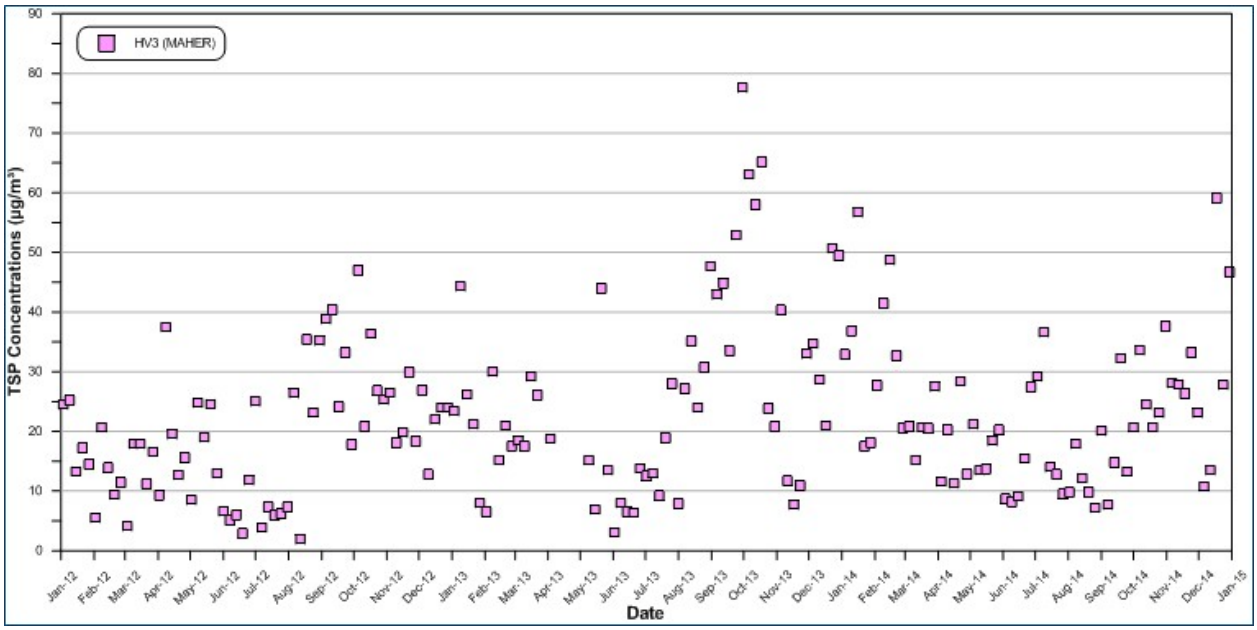


Table 7: TSP levels from HVAS monitoring (µg/m³) 2012-2014

Year	Annual Average	
	HV 3	Criteria
2012	18.9	90
2013	27.5	90
2014	22.7	90

Figure 6 : HVAS 24-hour average TSP concentrations 2012-2014

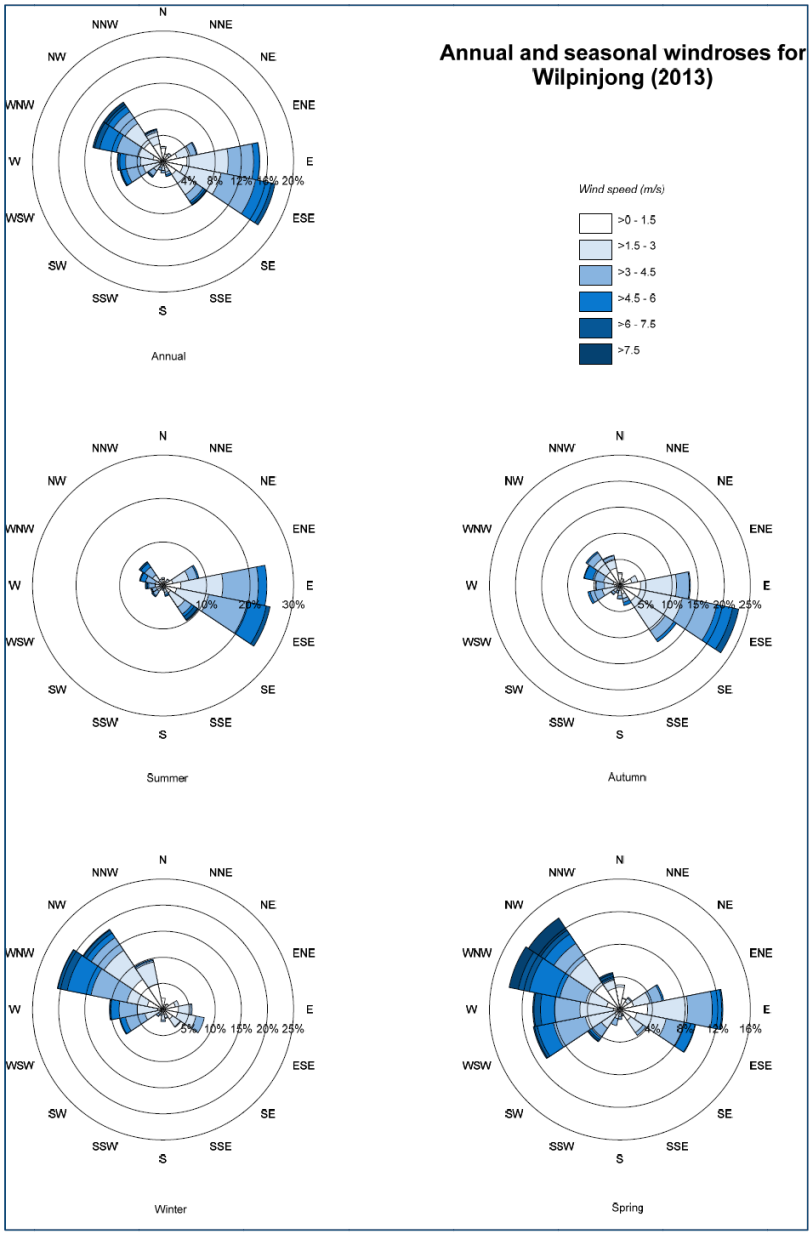


3.4 Meteorological Conditions

A meteorological station was installed at the Mine in May 2004 to assess local meteorological conditions including wind speed and direction. WCPL operates a 10m meteorological station to assist with the environmental management of site operations. In addition, WCPL also operates a 60 metre temperature inversion tower to monitor temperature lapse rates.

Wind roses for the Mine area indicate that relatively strong winds from the west are dominant during winter and while they are also common during spring, spring exhibits an almost equal distribution of easterly and westerly winds. The wind roses also indicate that winds from the east and east south-east are more common during summer and autumn, respectively (**Figure 7**).

Figure 7: Annual and Seasonal Wind Roses (2013)



4 Air Quality Compliance Requirements

In addition to meeting the specific performance criteria established under Development Consent (SSD-6764), WCPL will implement all reasonable and feasible measures to prevent and/or minimise any material harm to the environment that may result from the construction, operation, or rehabilitation of the Mine.

4.1 Air Quality Impact Assessment Criteria

WCPL will ensure that all reasonable and feasible avoidance and mitigation measures are employed so that particulate matter emissions generated by the Mine are minimised to the extent required by Development Consent (SSD-6764) and EPL 12425 and which do not cause exceedances of the Air Quality Criteria[3] listed in **Table 8** at any occupied residence on privately-owned or mine-owned land[4].

Table 8: Air Quality Impact Assessment Criteria[4]

Location	Pollutant	Averaging Period	[d] Criterion
Any occupied residence on private or mine-owned land	Particulate matter < 10 µm (PM_{10})	Annual	[a] 30 µg/m^3
		24 hour	[a] 50 µg/m^3
	Total suspended particulate (TSP) matter	Annual	[a] 90 µg/m^3
	[c] Deposited dust	Annual	[b] 2 g/m^2/month
			[a] 4 g/m^2/month

Notes: [a] Total impact (i.e. incremental increases in concentrations due to the development plus background concentrations due to other sources). [b] Incremental impact (i.e. incremental increases in concentrations due to the development on its own). [c] Deposited dust is to be assessed as insoluble as defines by Standards Australia, *AS/NZS 3580.10.1:2003; Methods for Sampling and Analysis Air – Determination of Particulate Matter – Deposited Matter – Gravimetric Method.* [d] Excludes extraordinary events such as bushfires, prescribed burning, dust storms, fire incidents or any other activity agreed by the Secretary.

4.2 Standards for $PM_{2.5}$

At the time of preparing the assessment for this Project, the NSW EPA did not have criteria for $PM_{2.5}$ and hence the National Environment Protection (Ambient Air Quality) Measures (NEPM) $PM_{2.5}$ criteria were used in the assessment. There are no specific $PM_{2.5}$ criteria included in the Development Consent. In January 2017, the NSW EPA adopted the $PM_{2.5}$ criteria per the NEPM standard for $PM_{2.5}$ is described in Schedule 2 of NEPM.

Table 9: Standard for $PM_{2.5}$ Concentrations

Pollutant	Averaging Period	Standard
Particulate matter < 2.5 µm ($PM_{2.5}$)	Annual	8 µg/m^3
	24 hour	25 µg/m^3

[3] Condition 17, Schedule 3 of Development Consent (SSD-6764) *Table 5: Air quality criteria*

[4] Including land owned by another mining company. Exceptions associated with mine-owned land are listed in Condition 18, Schedule 3 of the Development Consent (SSD-6764) (**Section 4.4**) & (**Appendix 1**).

WCPL air monitoring program includes $PM_{2.5}$ monitoring in the Village of Wollar which commenced on 27 December 2017. (**Section 6.3**).

The results from the $PM_{2.5}$ monitoring program will be:

- Analysed for ongoing air quality model validation and comparative purposes;
- Record $PM_{2.5}$ data in the Village of Wollar to establish if there is any correlation between the Mine's activities when under applicable prevailing meteorological conditions; and
- The results of the $PM_{2.5}$ monitoring and assessment of the data will be provided in the Annual Review (**Section 9.2**).

Note: As described in the WEP EIS, the great majority of the mass of particles generated from WCPL activities are due to abrasion or crushing of rock and coal and general disturbance of dusty material. These particulates will generally be larger than 2.5µm, as sub-2.5µm particles are usually through combustion processes including combustible engines and wood fired smoke for example. Therefore, the emissions of $PM_{2.5}$ occurring from mining activities are small in comparison to the total dust emissions and in practice the concentrations of $PM_{2.5}$ in the vicinity of the mining dust sources are likely to be low.

Since the commencement of monitoring for $PM_{2.5}$ in the Village of Wollar, WCPL air quality specialist has reviewed and analysed the $PM_{2.5}$ monitoring data (**Appendix 4**). This review has concluded there is no correlation between the Mine's activities and historical $PM_{2.5}$ results in the Village of Wollar. As a result of this review, WCPL do not propose real-time response triggers for $PM_{2.5}$ monitoring at this stage.

However, this $PM_{2.5}$ assessment will be undertaken annually by WCPL's air quality monitoring specialist to ensure if there is a correlation between the Mine's activities and historical $PM_{2.5}$ results in the Village of Wollar, then appropriate triggers are identified and implemented in this AQMP. Any changes required to this AQMP as a result of $PM_{2.5}$ monitoring will be undertaken in accordance with **Section 10.0** and summarised in the Annual Review.

4.3 Mine Owned Land

WCPL will ensure that all reasonable and feasible avoidance and mitigation measures are employed so that particulate matter emissions generated by the Mine do not cause exceedances of the Air Quality Criteria listed in **Table 8** at any occupied residence on mine-owned land (including land owned by another mining company), unless:

- The tenant and landowner (if the residence is owned by another mining company) have been notified of any health risks associated with such exceedances in accordance with the notification requirements under Schedule 4 of Development Consent (SSD-6764);
- The tenant of any land owned by WCPL can terminate their tenancy agreement without penalty at any time, subject to giving reasonable notice;
- Air mitigation measures such as air filters, a first flush roof water drainage system and/or air conditioning) are installed at the residence, if requested by the tenant or landowner (if the residence is owned by another mining company);
- Air quality monitoring is regularly undertaken to inform the tenant or landowner (if the residence is owned by another mining company) of particulate emissions in the vicinity of the residence; and
- Data from this monitoring is presented to the tenant and landowner in an appropriate format for a medical practitioner to assist the tenant and landowner in making informed decisions on the health risks associated with occupying the property.

4.4 Pollution Reduction Program

In June 2011, NSW Office of Environment and Heritage (OEH) published the document NSW Coal Mining Benchmarking Study: International Best Practice Measures to Prevent and/or Minimise Emissions of Particulate Matter from Coal Mining (Katestone Environmental Pty Ltd, 2011). As an outcome of this report, OEH now requires an Air Quality Pollution Reduction Program (PRP) to be included in the EPL for each coal mine in NSW.

The PRP requires WCPL to conduct a site-specific best management practice, and to prepare a report on the practicability of implementing measures to reduce emissions of particulate matter (PM). The report must include the following:

- The identification, quantification and justification of the measures that are currently being used to reduce PM emissions;
- The identification, quantification and justification of additional best practice measures that could be used to minimise PM emissions;
- An evaluation of the practicability of implementing the best practice measures; and
- A proposed timeframe for implementing all practicable best practice measures.

WCPL's PRP report, "Wilpinjong Coal Mine Pollution Reduction Program – Assessment and Best Practice", was prepared by PAE Holmes (PAE Holmes, 2012) and includes best practice measures for management of hauling on unsealed roads and wind erosion of active stockpiles, exposed areas and overburden.

EPL 12425 imposes a number of conditions on WCPL in relation to the PRP (**Appendix 1**), including:

- Achieving a dust control efficiency of 80% or more on all active haul roads;
- Altering or ceasing the use of equipment on overburden and the loading and dumping of overburden during adverse weather conditions to minimise the generation of PM;
- Submitting reports to the EPA by 15 August 2014 which document the results of actions taken in accordance with the above conditions; and
- Submitting a report to the EPA by 15 August 2014 which documents the investigation and trial of best practice measures for controlling PM from the use of equipment on overburden and the loading and dumping of overburden.

The reports addressing the above PRP conditions are available on the Peabody Energy website.

5 Air Quality Management and Control Measures

WCPL will maintain and operate all machinery and plant used on site in a proper and efficient manner in order, to minimise dust generation. WCPL will implement all reasonable and practical measures to minimise the generation of mine related dust, odour and greenhouse gas emissions, as outlined in this section.

5.1 Dust Management

WCPL will implement dust management measures (**Table 10**) consistent with those applied during the air quality modelling in the WEP EIS (Todoroski, 2015). Air quality management measures at the Mine are generally consistent with best practice dust controls identified in the NSW Coal Mining Benchmarking Study (Katestone Environmental Pty Ltd, 2011).

The additional dust management measures identified as being practicable by the WEP EIS (Todoroski, 2015) will be implemented. **Table 10** lists the mine activities that generate dust and the associated management and mitigation measures which will be used to manage potential air quality impacts where relevant.

Table 10: Air Quality Mitigation and Management Measures

Emission Type	Area/Activity	Management Measure
Wind Blown Particulate Matter Sources	Areas disturbed by mining	• Only the minimum area necessary for mining is disturbed. • Exposed areas are reshaped, topsoiled and revegetated as soon as practicable.
	Waste rock emplacements	• Progressive rehabilitation (i.e. reshaping, topsoil placement and revegetation) of waste rock emplacements continues throughout the life of the Wilpinjong Coal Mine.
	Coal handling areas	• Coal handling areas are kept in a moist state using water carts or alternative means to minimise wind-blown and traffic generated dust. • Water sprays on CHPP feed. • Water sprays used when tipping raw coal.
	Coal stockpiles	• Water sprays on clean coal stockpile discharges.
Mining Generated Particulate Matter Sources	Haul road dust	• All roads and trafficked areas are watered using water carts to minimise the generation of dust as required. • Obsolete roads are ripped and revegetated.
	Light vehicle roads	• Development of light vehicle roads is limited and the locations of these are clearly defined. • Regularly used light vehicle roads are watered. • Obsolete roads are ripped and revegetated.
	Topsoil stripping	• Access tracks used for topsoil stripping during the loading and unloading cycle are watered. • Stripping occurs during favourable wind conditions.
	Topsoil stockpiling	• Long-term topsoil stockpiles are revegetated with a cover crop.
	Drilling	• Air pollution control equipment are operated and maintained on all drilling rigs.
	Blasting	• Wind conditions are assessed prior to blasting and blasts are postponed if wind speed and direction are above trigger limits in the Blast Management Plan. • Adequate stemming is used at all times. • Holes are dipped for water to determine controls to minimise blast fumes. • Where water is identified, explosive product is 'bottom loaded' to displace water or a gas bag used for water less than 500 mm. • Where significant water is identified a wet-hole product is used. • Water is decanted from blast holes.
All	All	• Real-time air quality monitoring is undertaken and used as a guide to the implementation of the above management measures to maintain compliance with air quality criteria.

Real-time air quality monitoring (**Section 6.3.4**) will be used to guide the implementation of the above management measures to maintain compliance with the Air Quality Criteria in **Table 8**.

5.2 Odour Management

WCPL will ensure that no offensive odours are emitted from the Mine. Spontaneous combustion events have the potential to cause odours associated with the oxidation and self-heating of coal and other carbonaceous material. WCPL have identified and implemented spontaneous combustion management measures, which are detailed in WCPL's Spontaneous Combustion Management Plan (SCMP).

WCPL have prepared and implemented a standalone SCMP, as required by Development Consent (SSD-6764). The latest version of the SCMP is provided in **Appendix 3** of this AQMP.

As a result of historical community concern related to odour from spontaneous combustion and to address Special Condition E1 of the EPL, WCPL has extensively measured ambient concentrations of the following pollutants:

- Oxides of Nitrogen (NOx);
- Sulfur Dioxide (SO2);
- Hydrogen Sulfide (H2S);
- Polycyclic Aromatic Hydrocarbons (PAHs); and
- Volatile Organic Compounds (VOCs), in the local area.

These pollutants are typically generated during spontaneous combustion events. Monitoring was completed at two locations (Wollar Village and Cooks Gap) between March 2013 and June 2014 (monitoring period). The measured concentrations of each pollutant during the monitoring period were well below relevant assessment criteria.

A report tilted: *Ambient Air Monitoring Report – Wilpinjong Coal*, which details and discusses the monitoring results, is available on the Peabody Energy website.

WCPL had a temporary ambient air quality monitoring station in the Village of Wollar as a key management measure[5] to monitor specified pollutants for spontaneous combustion, during the removal of Keylah Dump. The removal of Keylah Dump was completed during 2017. Monitoring of the specified pollutants for spontaneous combustion in the Village of Wollar was discontinued in January 2018.

The mine's sewerage treatment plant has a low potential to emit odours from the mine. The plant is maintained on a weekly basis, with faults responded to by WCPL as soon as practicable.

5.3 Greenhouse Gas Management

WCPL will implement all reasonable and feasible measures to minimise the release of greenhouse gas (GHG) emissions from the Mine.

Scope 1 and Scope 2 GHG emission sources identified for the Mine include on-site combustion of diesel fuel, petrol fuel, petroleum-based greases and oils, explosives, emissions of methane from the exposed coal seam, gaseous fuels and on-site consumption of electricity (Todoroski, 2015).

The conservative estimate annual average GHG emissions over the life of the Mine is expected 0.13Mt CO_2-e (Scope 1 and Scope 2), approximately 0.02% of the Australia GHG emissions for the 2013 and 2014 period (Todoroski, 2015).

[5] Require under Special Condition 9, E1 Spontaneous Combustion Air Monitoring within EPL 12425.

GHG emissions at the Mine are minimised through the efficient use of diesel by the mobile fleet. Diesel use is minimised by:

- Optimising the design of haul roads to minimise the distance travelled between the pit and the CHPP;
- Minimising the re-handling of material (i.e. coal, overburden and topsoil); and
- Maintaining the fleet in good operating order.

In addition to the diesel minimisation strategies above, WCPL has also implemented a number of mining efficiency improvement projects, including:

- Optimisation of dozer pushing i.e. increasing the amount of material moved by dozers;
- Increasing the bucket size on excavators to move more material with each bucket load; and
- Introduction of new, more efficient equipment to site e.g. mobile equipment fleet upgrade;

Other potential mitigation and management measures to reduce GHG emissions that may be considered by WCPL include:

- Investigate areas to minimise electricity consumption of site;
- Conduct a review of alternate energy sources;
- Provide energy and awareness programs for staff and contractors; and
- Minimise the production of waste generate on-site.

WCPL's greenhouse gas emissions are reported and tracked each year in the Annual Review (**Section 9.2**), which is prepared in accordance with Condition 4 of Schedule 5 of the Development Consent (SSD-6764).

An exploration drilling program has also been undertaken across the Mine to test methane levels in the coal seams. The results of this program confirm that the Mine is a low gas pit.

5.4 Meteorological Forecasting

WCPL have been monitoring and assessing air quality and meteorological conditions around the Mine since 2004 (**Section 3.0**). As a result, WCPL have developed a thorough understanding of the ambient air environment around the Mine, and the meteorological conditions that can lead to dust compliance issues.

WCPL have engaged a third-party provider (i.e. WeatherZone) to provide a daily weather forecasting service to assist operations in the prediction of likely adverse meteorological conditions that have the potential to exacerbate dust generation from the Mine.

A daily report containing meteorological forecast information is issued via email to key operational personnel ("notification"). Where adverse meteorological conditions are forecast the notification will alert these personnel that the Air Quality Management System (AQMS) may need to be implemented in the next 24-hour period.

The use of predictive weather forecasting to effectively manage operational conditions is a newly developing technology. WCPL will continue to investigate the implementation of such technology at the Mine for both noise and air quality management.

5.5 Cumulative Air Quality Management

In conjunction with the owners of the nearby Moolarben Coal Operations (MCO) and Ulan Coal Mines Pty Limited (UCMPL), WCPL will continue to cooperate in an effort to minimise the cumulative air quality

impacts on the surrounding community. WCPL have entered into data sharing arrangements with MCO and UCMPL (**Section 6.5**), and frequently consult with the neighbouring mine operations to assist in cumulative impact management. This includes:

- Coordinating shift changes on site with the shift changes of MCO and UCMPL to minimise the potential cumulative traffic impacts of shift changes of the three mines; and
- Coordinate the timing of blasting on site with the timing of blasting of MCO and UCMPL to minimise the potential cumulative blasting impacts of the three mines.

5.6 Continuous Improvement

WCPL will continue to review and identify practical, effective and efficient management controls to reduce mine-related dust emissions. As an example, WCPL investigated a dust suppressant product for application on light vehicle (LV) roads in order to reduce dust emissions.

The trial of dust suppressant chemicals on LV roads was undertaken from December 2016 to February 2017. WCPL were able to conclude that use of the dust suppressant chemical onsite was not either practical or economically beneficial, with respect to effectively managing mine related dust emissions against current management measures. Where other such opportunities are identified and implemented by WCPL, their effectiveness will be reported in the Annual Review (AR) (**Section 9.2**).

6 Air Quality Monitoring Program

An air quality monitoring program has been developed to quantify potential air quality impacts and to facilitate the evaluation of air quality control measures. The monitoring program involves regular dust deposition, TSP, PM_{10} and $PM_{2.5}$ monitoring at a number of key sampling sites. Meteorological monitoring is also conducted as described in **Section 6.2**.

6.1 Monitoring Locations

WCPL undertake air quality monitoring at the locations detailed in **Table 11** and shown on **Figure 8** and **Figure 9.** In addition to the TEOMs identified in **Table 11**, WCPL also has access to data from the TEOMs operated by MCO.

Should circumstances change where monitoring locations are required for relocation, WCPL may amend the air quality monitoring locations shown in **Table 11** with consideration to the above criteria in **Table 8**. WCPL will update this AQMP accordingly, in consultation with the EPA and DPIE as required.

6.2 Meteorological Monitoring

WCPL maintains a continuous on-site meteorological monitoring station that complies with the requirements of the *Approved Methods for the Sampling and Analysis of Air Pollutants in New South Wales* guideline (DEC, 2007). The location of this meteorological monitoring station is shown on **Figure 8**.

The meteorological station is routinely calibrated by appropriately accredited technicians.

The following parameters are monitored:

- Rainfall;
- Relative humidity;
- Temperature – measured at 2, 10 and 60 m above ground level;
- Wind speed – horizontal and vertical;
- Wind direction – measured at 10 m above ground level;
- Sigma theta;
- Pasquil stability classification;
- Solar radiation; and
- Temperature lapse rate.

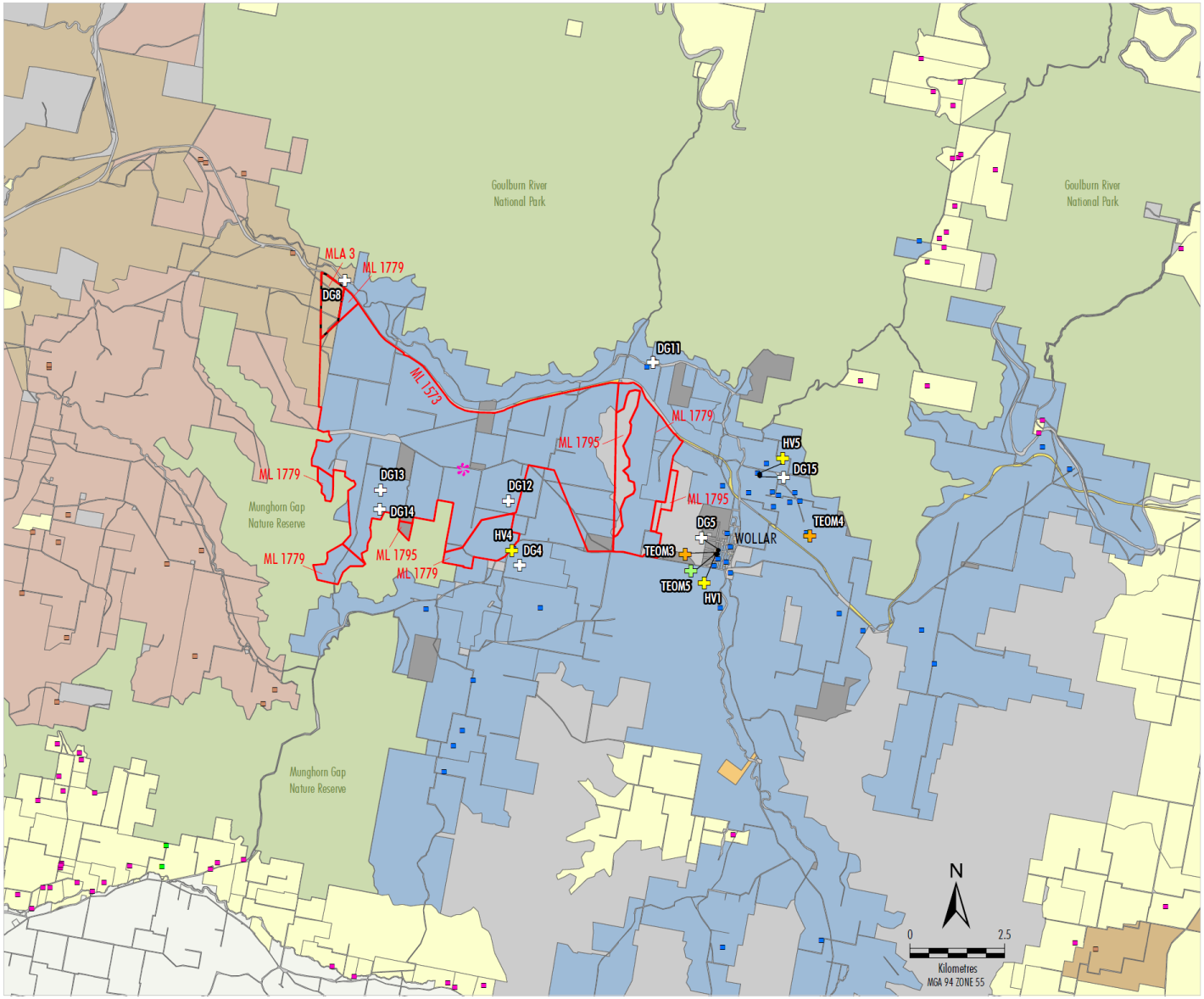
Meteorological forecasting will be undertaken as specified in **Section 5.4**.

Table 11: Air Quality Monitoring Locations

Site	Type	Purpose	EPL ID.	Frequency	Easting[1]	Northing[1]	Justification/Location Description
DG4	Deposited Dust	Compliance	No.3	Monthly	772110	6415573	Adjacent to Mine-owned dwelling (Robinson)
DG5	Deposited Dust	Compliance	No.4	Monthly	777338	6415957	Adjacent to Mine-owned land to the south-east of the Mine
DG8	Deposited Dust	Compliance	No.6	Monthly	767515	6423063	Mine-owned land north-west of the Mining Lease (ML)
DG11	Deposited Dust	Compliance	No.9	Monthly	775623	6420902	Mine-owned land adjacent to Wilpinjong Creek
DG12	Deposited Dust	Management	NA	Monthly	771818	6417257	Aboriginal rock art site 72
DG13	Deposited Dust	Management	NA	Monthly	768460	6417558	Aboriginal rock art site 153
DG14	Deposited Dust	Management	NA	Monthly	768435	6417035	Aboriginal rock art site 152
DG15	Deposited Dust	Compliance	No.26	Monthly	778430	6417919	Located to nearest non-mine owned residence to the east of the Mine
HV1	PM_{10}	Compliance	No.13	Every 6 days	777317	6415862	Located to nearest non-mine owned residence to the south-east of the Mine
HV4	PM_{10}	Compliance	No.20	Every 6 days	771903	6415955	Adjacent to Mine-owned dwelling (Robinson)
HV5	PM_{10}	Compliance	No.27	Every 6 days	778435	6417970	Located to nearest non-mine owned residence to the east of the Mine
TEOM3	PM_{10}	Compliance	No.25	Continuous	777281	6415876	Located to nearest non-mine owned residence to the south-east of the Mine in the Village of Wollar
TEOM4	PM_{10}	Compliance	No.28	Continuous	779774	6416348	Located to nearest non-mine owned residence to the east of the Mine
TEOM 5	$PM_{2.5}$	Compliance	No. 29	Continuous	777281	6415876	Located to nearest non-mine owned residence to the South-East of the Mine in the Village of Wollar

Notes: [1] Coordinate System MGA94, Zone 55.

Figure 8: Air Quality Monitoring Locations



LEGEND

- Mining Lease Boundary
- Mining Lease Application Boundary
- Peabody Energy
- Bylong Coal Project
- Moolarben Coal Mine
- Ulan Coal Mine
- Crown Land (Special Lease/Licence)
- Crown Land
- TransGrid
- Railway Land
- Relevant Private Landholder
- Other Land (Ownership not identified)
- National Parks and Wildlife Service
- Peabody Energy Dwelling
- Ulan/Moolarben Dwelling
- Private Dwelling
- Community Building

Air Quality Monitoring Sites

- Static Dust Gauge
- High Volume Air Sampler
- Real-time $PM_{2.5}$
- Real-time PM_{10}
- Meteorological Station

Source: WCPL (2020); NSW Spatial Services (2020)

Peabody

WILPINJONG COAL MINE

Air Quality Monitoring Locations

Figure 8

Figure 9: Air Quality Monitoring Locations – Wollar

LEGEND

- Peabody Energy
- Crown Land (Special Lease/Licence)
- Crown Land
- Railway Land
- Relevant Private Landholder
- 1 Landholder Reference Number
- Peabody Energy Dwelling
- Community Building
- Private Dwelling

Special Lease/Licence Holder

Noise Monitoring Sites
- Attended Noise
- Real-time Noise

Blasting Monitoring Sites
- Fixed Blast

Air Quality Monitoring Sites
- Static Dust Gauge
- High Volume Air Sampler
- Real-time $PM_{2.5}$
- Real-time PM_{10}

Source: WCPL (2020); NSW Spatial Services (2020)

Peabody
WILPINJONG COAL MINE
Wollar Environmental Monitoring Sites

Figure 9

6.3 Air Quality Monitoring

WCPL have developed and maintain an air quality monitoring network near both private and mine owned receivers at: (i) Wollar Village; (ii) Araluen Road; (iii) and Cumbo Valley (**Figure 8 & 9**). The monitoring network utilises depositional dust gauges, High Volume Air Samplers (HVAS) and real-time PM_{10} monitors to determine compliance against the Air Quality Criteria detailed in **Table 8**. Real-time monitoring of $PM_{2.5}$ results will also guide the Mine's operations to achieve the air quality criteria as outlined in in **Table 8** and **Section 4.2**.

6.3.1 Dust Deposition

Dust deposition will be monitored at nine locations around the Mine (**Table 11**, **Figure 8** and **Figure 9**). Gauges are sampled monthly (30+/- 2 days) for ash content and insoluble solids (g/m^2/month) in accordance with Australian Standard/New Zealand Standard (AS/NZS) *3580.10.1-2003 Methods for sampling and analysis of ambient air - Determination of particulate matter - Deposited matter - Gravimetric method*.

6.3.2 High Volume Air Samplers - PM_{10}

The air quality monitoring network comprises three HVAS that monitor PM_{10} concentrations for compliance (**Table 11, Figure 8** and **Figure 9**). These monitors require the exchange of filter papers over a six-day continuous cycle and gravimetric analysis by a NATA registered laboratory to determine the concentration of PM_{10} or TSP. The HVAS is programmed to operate for a period of 24 hours every six days so that no particular day of the week is biased.

All maintenance and calibration are conducted in accordance with *AS/NZS 3580.9.7:2009 Methods for sampling and analysis of ambient air - Determination of suspended particulate matter - Dichotomous sampler (PM_{10}, coarse PM and $PM_{2.5}$) - Gravimetric method*.

6.3.3 High Volume Air Samplers - TSP

WCPL maintains one HVAS (HV3) to monitor TSP for management purposes only (**Table 11, Figure 8** and **Figure 9**).

6.3.4 Real-time - PM_{10}

WCPL has established a comprehensive Air Quality Management System (AQMS) (**Figure 8**) to proactively manage operational air quality impacts on the surrounding community. The AQMS also provides real-time data regarding the current status of compliance.

The AQMS includes a network of three real-time TEOM stations to the East of the Mine (**Table 11, Figure 8** and **Figure 9**). The TEOMs are used to monitor PM_{10} concentrations in accordance with *AS 3580.9.8-2008 Determination of suspended particulate matter – PM_{10} continuous direct mass method using a tapered element oscillating microbalance analyser*. WCPL also has access to the real-time data from Moolarben Coal Operations' (MCO) TEOM2 (located to the North West of the Mine) through a data sharing agreement (**Section 6.5**).

The TEOMs record fifteen-minute instantaneous (i.e. real-time) PM_{10} concentrations and rolling 24 hour average PM_{10} concentrations. Data from the TEOMs is used as an operational air quality management tool with real-time response triggers (**Section 6.4**) used to notify relevant Mine personnel (**Section 6.4**) of when dust levels are approaching the Air Quality Criteria (**Table 8**).

All maintenance and calibration of the TEOM units is undertaken in accordance with the requirements of *Australian Standard 3580.9.8-2001: Determination of suspended particulate matter – PM_{10} continuous direct mass method using a tapered element oscillating microbalance analyser.*

6.3.5 Real-time – $PM_{2.5}$

In addition to real-time PM_{10} monitoring, WCPL have installed and operate a real-time $PM_{2.5}$ air quality monitor (adjacent to TEOM 3) in the Village of Wollar. The $PM_{2.5}$ air quality monitor was commissioned in December 2017.

The new TEOM records instantaneous (i.e. real-time) $PM_{2.5}$ concentrations and rolling 24-hour average $PM_{2.5}$ concentrations. Data from the TEOM will be used as an operational air quality management tool as described in **Section 4.2** and identify any trends in the ambient $PM_{2.5}$ levels and gauge the potential influence of the mine on the Village of Wollar. No $PM_{2.5}$ trigger values have been applied for responses in **Table 12,** for the reasons described in **Section 4.2**.

6.4 Real Time Response Protocol

WCPL's TEOMs (PM_{10}) send out an alert SMS message and/or email to the OCE and Environmental Department if the real-time PM_{10} concentrations reach the relevant real-time response triggers described in **Table 12**. If an alert is received from a TEOM, the Standard Protocol described below is implemented to determine the source of the dust and implement management measures to ensure compliance with the Air Quality Criteria.

The Standard Protocol involves the following steps:

1) Source Identification – identification of the mining activities with the most potential for excessive dust generation;
2) Management Strategy – determination of dust control and management measures that will be utilised to minimise air quality emissions. This may include modifying operations or shutting down equipment or increased dust suppression activities by water carts;
3) Implementation – implement the chosen dust control and management measures, generally effective immediately once the strategy is determined; and
4) Review – compare the results of the air quality monitoring program with the Air Quality Criteria.

Additional air quality control measures (**Section 5.1**) will be implemented in accordance with the action plan described in **Table 12** and shown in **Figure 10**. The PM_{10} triggers are subject to change and will be reviewed and updated with ongoing monitoring results and operational experience.

Table 12: Real-Time Response Triggers

No.	Trigger	Action Plan	Responsibility
1	24 hour rolling average PM_{10} reading **>35µg/m³** at TEOM03 or TEOM04	1. Review meteorological and TEOM data (including TEOM01 data) for the immediate period leading up to the high readings and document in the Control Room Operators (Dispatch Operator) notebook.	Dispatch Operator* and OCE
		2. Identify major sources of dust in the pit. 3. Employ Dust Management Methods 4. Create a priority list of all equipment including contractors, in order of dust creation 5. Determine if dust is being created by outside sources	Dispatch Operator
		6. Monitor changes in PM_{10} - if instantaneous PM_{10} levels continue to be elevated, make operational changes as appropriate e.g. dumping in protected locations, shutting down equipment (**Section 5.1**) 7. Monitor changes in PM_{10} ○ if falling, stagger start-up of equipment, ○ if rising, continue to shut down equipment until PM_{10} levels fall below triggers than monitor and commence staggered start-up	Dispatch Operator, OCE and CHPP Manager
		8. Continue monitoring changes in PM_{10} and document all actions and observations in Dispatch Operator notebook	Dispatch Operator
		9. Review data and response	Environment and Community Manager (or delegate)
2	24 hour rolling average PM_{10} reading **>45µg/m³** at TEOM03 or TEOM04	1. Actions as per Trigger 1.	Dispatch Operator and OCE
		2. Shut down all operations excluding train load out and monitor changes in PM_{10}	Dispatch Operator, OCE and CHPP Manager
		3. Check the regional dust data and record findings in Dispatch Operator notebook	Dispatch Operator
		4. Monitor changes in PM_{10} ○ when 24 hour rolling PM_{10} falls below Trigger 1, stagger start-up of equipment	Dispatch Operator, OCE and CHPP Manager
		5. Continue monitoring changes in PM_{10} and document all actions and observations in Dispatch Operator notebook	Dispatch Operator
		6. Review data and response	Environment and Community Manager (or delegate)

Note: * For the purposes of **Figure 10**, CRO has the same meaning as Dispatch Operator.

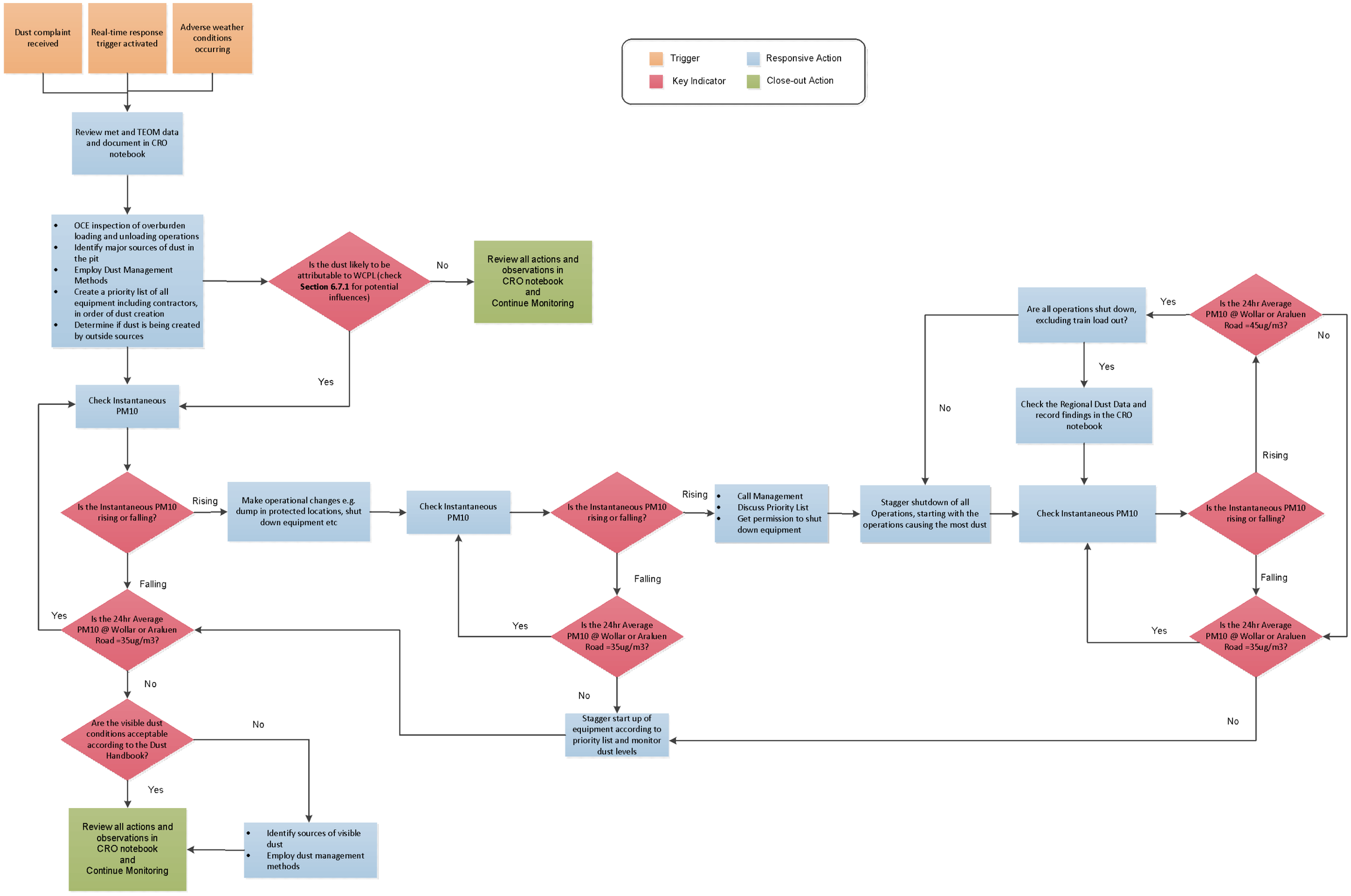


Figure 10: Air Quality Management System

6.5 Data Sharing

WCPL has a data sharing agreement with neighbouring MCO and UCMPL. This agreement allows WCPL access to data from air quality monitoring equipment and weather stations owned and operated by these other mines. This data can be used to assist in the investigation of air quality incidents and in the general management of dust onsite.

WCPL has committed to working cooperatively with neighbouring mines to develop an air quality monitoring system which is representative of the closest sensitive receivers to maintain compliance with the relevant air quality criteria.

6.6 Monitoring Records

WCPL will ensure that all air quality monitoring records are maintained as follows.

- In a legible form, or in a form that can readily be reduced to a legible form;
- Kept for at least four years after the monitoring or event to which they relate took place; and
- Produced in a legible form to any authorised officer of the EPA and DPIE who asks to see them.

WCPL will record and maintain the following air quality monitoring details:

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

6.7 Evaluation of Compliance

Monitoring results above the Air Quality Criteria (**Table 8**) are not exceedances until the results have been verified and assessed as valid in accordance with the process outlined in **Section 6.7.1**.

6.7.1 Assessment of Data Validity

Where monitoring indicates an exceedance of the Air Quality Criteria it is necessary to establish if the exceedance was a non-compliance by assessing whether the monitoring was influenced by one of the following factors:

- Extreme events, such as:
    - Bushfires;
    - Prescribed burning;
    - Dust storms;
    - Fire incidents;
    - Illegal activities;
    - Other activities agreed by the Secretary of DPIE and EPA;
- Irregular activities near monitoring sites such as:
    - Exposed areas of soil around the monitoring site;
    - Adjacent land use activities;
    - Contamination from bird droppings, insects, etc.; and
- Reasonableness of data (e.g. is the equipment operating properly, providing reliable data and in calibration?).

A non-compliance is deemed to have occurred where an exceedance is solely caused by particulate matter being generated from the Mine.

6.7.2 Compliance with Dust Deposition and TSP Impact Assessment Criteria

Dust deposition and HVAS TSP data is assessed monthly on the rolling annual average. Any recorded result above the Air Quality Criteria in **Table 8** will be assessed with reference to meteorological conditions, sampling results and operational activities (**Section 6.7.1**). The Compliance Review and Evaluation Process in **Figure 11** will be followed.

6.7.3 Compliance with PM_{10} Impact Assessment Criteria

HVAS

HVAS PM_{10} data is assessed monthly on the 24-hour average. Any recorded result above the Air Quality Criteria in **Table 8** will be assessed with reference to meteorological conditions, sampling results and operational activities (**Section 6.7.1**). The Compliance Review and Evaluation Process in **Figure 11** will be followed.

TEOM

TEOM data (24 hour rolling average) is monitored on a regular basis by the Dispatch Operator. WCPL will implement the AQMS in response to the triggers established in **Table 12** and the process shown in **Figure 10**.

If during the validation process a non-compliance is deemed to have occurred where an exceedance is solely caused by particulate matter being generated from the Mine (**Section 6.7.1**), then notifications to affected landholders and/or tenants will be initiated by WCPL in accordance with **Figure 11.**

Alternatively, if during the validation process a non-compliance is deemed to have occurred where an exceedance is not solely caused by particulate matter being generated from the Mine, for example as a result of extreme events and/or irregular activities as identified in **Section 6.7.1**, then notifications to affected landholders and/or tenants will be not be initiated.

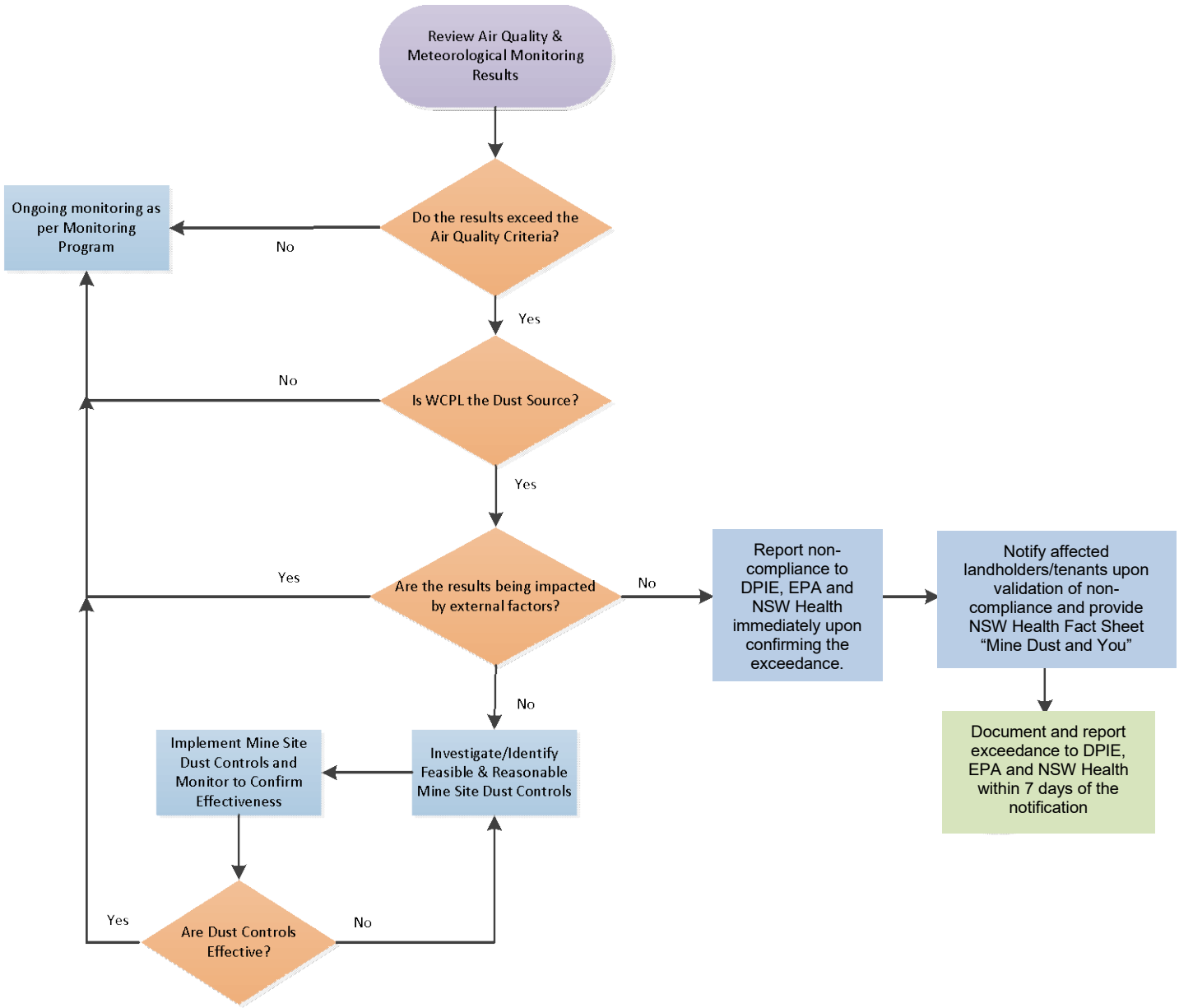


Figure 11: Compliance Review and Evaluation Process

6.7.4 Response to Exceedance

Where any exceedance of the Air Quality Criteria has occurred, WCPL will:

- Take all reasonable and feasible steps to ensure that the exceedance ceases and does not recur, including relocating, modifying and/or stopping mining operations to minimise air quality impacts on privately owned land;
- Notify DPIE and relevant agencies including NSW Health immediately, upon confirming the exceedance in accordance with **Figure 11**;
- Undertake an assessment within 24 hours of identifying the exceedance to determine the cause;
- If the exceedance is determined to be a non-compliance to implement the steps in **Section 6.7.5**; and
- Within seven days of notifying the DPIE, EPA and NSW Health of the exceedance, to provide both with a report on the details of the exceedance (**Section 9.1**).

6.7.5 Response to Non-Compliance Protocol

Where any non-compliance of the Air Quality Criteria has occurred, WCPL will:

- Determine and implement appropriate management strategies in consultation with the Mining Manager and/or CHPP Manager (**Section 5.1**) to prevent re-occurrence;
- Within seven days of notifying the DPIE, EPA and NSW Health of the exceedance, to provide each with a report on the details of the non-compliance (**Section 9.1**);
- Notify affected landowners/tenants in writing of the validated non-compliance and provide regular monitoring results to each affected landowner/tenant until the project is again complying with the Air Quality Criteria in **Table 8**;
- Provide a copy of the NSW Health fact sheet entitled "Mine Dust and You[6] (as may be updated from time to time); and
- Implement remediation measures as directed by the Secretary.

The effectiveness of the adopted measures will be assessed against the Air Quality Criteria in **Table 8** and reported in the Annual Review (**Section 9.2**).

[6] Last updated Thursday 4 May 2017 http://www.health.nsw.gov.au/environment/factsheets/Pages/mine-dust.aspx

7 CONTINGENCY PLAN TO MANAGE UNPREDICTED IMPACTS

A detailed dust dispersion model was developed for the air quality impact assessment for the WEP (Todoroski 2015). To assess the potential for air quality impacts associated with the WEP, five indicative mine plan years were selected to represent a range of potential impacts over the life of the Mine.

The Mine years selected included those with the likely highest contribution to dust levels at sensitive receiver locations. The air dispersion modelling with the CALPUFF modelling suite was utilised in conjunction with estimated emission rates for the air pollutants generated by the various mining activities at the Mine.

WCPL has a good understanding of the ambient air environment surrounding the Mine and has established a comprehensive AQMS (**Figure 8** and **Figure 9**) to monitor and respond to air quality management issues. In the event that unpredicted air quality impacts occur as a result of mining activities at the Mine, WCPL will:

- Review the current AQMS (controls and monitoring), to ensure it is effective and criteria is being met;
- Develop and implement additional dust management or mitigation measures;
- Undertake follow-up air quality monitoring to assess the effectiveness of the additional measures; and
- Report any exceedances and non-compliances in accordance with **Section 9.1**.

8 Complaints Response Protocol

WCPL operates a **Community Hotline (1300 606 625)** for the purpose of receiving complaints from members of the public in relation to mining activities at the Mine. The hotline number is advertised on the WCPL Website.

WCPL has developed a Complaint Response Protocol to reply to community concerns that relate to air quality and other matters.

Response to an air quality complaint will include:

1. Accurately recording all relevant details regarding the complaint in a Complaints Register, including:
    - The date and time of the complaint;
    - The method by which the complaint was made;
    - Any personal details of the complainant which were provided by the complainant or, if no such details were provided, a note to that effect;
    - The nature of the complaint;
    - The action taken by the licensee in relation to the complaint, including any follow-up contact with the complainant; and;
    - If no action was taken by the licensee, the reasons why no action was taken;
2. Undertaking investigations into the likely cause of the complaint using relevant information including meteorological conditions, mining activities occurring and air quality monitoring results at the time of the complaint;
3. Assessing and implementing additional air quality control measures, if required; and
4. Monitoring and assessing the effectiveness of the additional controls.

In the event of a complaint where PM_{10} levels are demonstrated to be below the Air Quality Criteria, every effort will be made to make the complainant fully aware of the monitoring and reporting procedures used at WCPL.

In the event of a complaint where PM_{10} levels are demonstrated to be above the Air Quality Criteria, WCPL will advise the complainant of the exceedance.

Records of all complaints will be kept for at least four years after the complaint was made. Records will be produced to any authorised officer of the EPA and DPIE who asks to see them.

The Complaints Register will be uploaded to the WCPL website and updated monthly.

9 Reporting

The following external reporting will be undertaken by WCPL in accordance with the conditions of the Development Consent (SSD-6764), EPL 12425 and Mining Leases:

- Exceedance and non-compliances /Incident reporting;
- Annual Review;
- Independent Environmental Audit;
- EPL Annual Return; and
- Website updates.

A copy of this AQMP will be provided on request and made publicly available at the Mine and on the WCPL website.

9.1 Exceedance/Non-Compliance /Incident Reporting

Exceedances and non-compliances of the Air Quality Criteria in **Table 8** will be reported to DPIE, EPA and NSW Health[7] immediately upon confirming the exceedance (**Figure 11**). As soon as practicable, WCPL will notify affected landowners in writing of validated exceedances (**Section 6.7**) and provide regular monitoring results to each affected landowner and/or tenant, until the project is again complying with the relevant criteria.

Within seven days of the date of an exceedance or non-compliance, WCPL will provide a detailed report to the DPIE, EPA and NSW Health that:

1. Describes the date, time, and nature of the exceedance or non-compliance;
2. Identifies the cause (or likely cause) of the exceedance or non-compliance;
3. Describes what action has been taken to date to remedy the non-compliance; and
4. Describes the proposed measures to address the non-compliance.

9.2 Annual Review

At the end of March each year, WCPL will review the environmental performance of the Mine and submit an Annual Review report to the DPIE. This report will:

a) Describe the development (including any rehabilitation) that was carried out in the past year, and the development that is proposed to be carried out over the next year;
b) Include a comprehensive review of the monitoring results and complaints records of the project over the past year, which includes a comparison of these results against the:
    - Relevant statutory requirements, limits or performance measures/criteria;
    - Monitoring results of previous years; and
    - Relevant predictions in the EIS[8];
c) Identifying any exceedance over the last year, and describe what was the extrinsic cause(s);
d) Identify any non-compliance over the last year, and describe what actions were (or are being) taken to ensure compliance;
e) Identify any trends in the monitoring data over the life of the project;

[7] All notifications to NSW Health in accordance with PIRMP.
[8] EIS 2015 for the Wilpinjong Extension Project (WEP)

f) Identify any discrepancies between the predicted and actual impacts of the project, and analyse the potential cause of any significant discrepancies; and
g) Describe what measures will be implemented over the next year to improve the environmental performance of the project.

A copy of the Annual Review will be made publicly available on the WCPL website.

9.3 Independent Environmental Audit

Within a year of commencing development under (SSD-6764), and every three years thereafter (unless the Secretary directs otherwise) WCPL will commission an Independent Environmental Audit (IEA) of the Mine. This audit will:

a) Be conducted by a suitably qualified, experienced and independent team of experts whose appointment has been endorsed by the Secretary;
b) Include consultation with the relevant agencies;
c) Assess the environmental performance of the project and assess whether it is complying with the requirements in this approval and any relevant EPL or Mining Lease (including any assessment, plan or program required under these approvals);
d) Review the adequacy of strategies, plans or programs required under the abovementioned approvals;
e) Recommend appropriate measures or actions to improve the environmental performance of the project, and/or any assessment, plan or program required under the abovementioned approvals; and
f) Be conducted and reported to the satisfaction of the Secretary.

Within three months of commissioning this audit, or as otherwise agreed by the Secretary, WCPL will submit a copy of the audit report to the Secretary, together with its response to any recommendation contained in the audit report and a timetable for the implementation of these recommendations as required. WCPL must implement these recommendations, to the satisfaction of the Secretary.

A copy of the audit report (and WCPL's response to any recommendations) will be made publicly available on the WCPL website.

9.4 EPL Reporting

WCPL will prepare and submit an Annual Return comprising a certified Statement of Compliance and a signed Monitoring and Complaints Summary to the EPA at the end of each EPL reporting period.

The Annual Return for the reporting period will be supplied to the EPA by registered post not later than 60 days after the end of each reporting period. WCPL will retain a copy of the Annual Return for a period of at least four years after the Annual return was due to be supplied to the EPA.

9.5 Website Updates

A comprehensive summary of the air quality monitoring results will be made publicly available at WCPL and on its website and will be updated every three months.

WCPL will also ensure that any information relevant to air quality and greenhouse gas management is uploaded to the website (and kept up to date). This includes:

- Current statutory approvals;
- Approved strategies, plans or programs required under Development Consent (SSD-6764);
- A complaints register (updated monthly);

- Minutes of Community Consultative Committee (CCC) meetings;
- The last five Annual Reviews;
- A copy of any IEAs and WCPL's response to any recommendations in any audit; and
- Any other matter required by the Secretary.

10 Review

Within three months of the submission of:

a) The Annual Review;
b) An air quality incident (exceedance) report;
c) An Independent Environmental Audit;
d) The approval of any modification to the conditions of this consent; and
e) A direction of the Secretary.

WCPL will review, and if necessary revise, this AQMP to the satisfaction of the Secretary.

WCPL will also review, and if necessary revise, this AQMP when there are changes to the EPL (relating to air quality or greenhouse gas) and in response to a relevant change in technology, legislation, operations or Pollution Reduction Programs.

Where the review of the AQMP leads to a revision, then within 4 weeks of the review the revised AQMP will be submitted to the Secretary for approval, unless otherwise agrees with the Secretary.

10.1 Independent Review Procedure

If a Private Receiver considers the Mine to be exceeding the Air Quality Criteria in **Table 8**, then he/she may ask the Secretary in writing for an independent review of the impacts of the Mine on his/her land.

If the Secretary is satisfied that an independent review is warranted, then within two months of the Secretary's decision, WCPL will:

a) Commission a suitably qualified, experienced and independent expert, whose appointment has been approved by the Secretary, to:
    - Consult with the landowner to determine his/her concerns;
    - Conduct monitoring to determine whether the Mine is complying with the Air Quality Criteria in **Table 8**; and
    - If the Mine is not complying with these criteria then:
        - Determine if more than one mine is responsible for the exceedance, and if so, the relative share of each mine regarding impact on the land;
        - Identify the measures that could be implemented to ensure compliance with the relevant Air Quality Criteria; and
b) Give the Secretary and landowner a copy of the independent review.

11 Responsibilities

Table 13: Management Plan Responsibilities

Responsibility	Task	Timing
General Manager	Ensure that adequate resources are available to effectively implement requirements of this AQMP	During budget planning
	Recommend the acquisition of dust affected properties	As required
Environmental and Community Manager	Notify DPIE, EPA and NSW Health of any exceedance and non-compliance of the Air Quality Criteria	As soon as practicable and within 24 hours and report within 7 days.
	Ensure that all dust related complaints are responded to in accordance with the Complaints Response Protocol	Following a complaint
	Ensure that all regulatory reporting is undertaken in relation to this AQMP	As required
	Coordinate relevant reviews of this AQMP in accordance with **Section 10.0**	As required
	Ensure that all employees and contractors are given adequate training in environmental awareness, legal responsibilities, and dust control methods	Within 3 months of approval of this Management Plan, and as required
	Amend air quality monitoring locations in consultation with DPIE and EPA and amend AQMP	As required
	Initiate response to exceedance of criteria in accordance with **Section 6.7**	At the earliest opportunity following an exceedance
	Implement contingency plan in the event of unpredicted impacts (**Section 7.0**)	As required
	Respond to requests for acquisition and dust mitigation from affected landowners where required	Upon receiving written request
	Negotiate and organise additional dust mitigation measures for affected landowners	Upon receiving written request
	Negotiate with landowners affected by dust regarding possible acquisition or entering into written agreements	As required
	Notify affected landowners and tenants as required by **Section 4.2**	As required
	Commission a suitably qualified, experienced and independent expert to undertake an independent review of mine impacts on affected landowners, if requested by the Director-General, as per **Section 10.1**	When requested by the Secretary
	Review and identify practical, effective and efficient dust controls to reduce Mine dust. Where such opportunities are identified and implemented, their effectiveness will be reported in the Annual Review	As required
	Where cumulative dust impacts are identified coordinate dust management at the Mine with the dust management at UCML and MCO	As required
Environmental	Maintain the comprehensive air quality management system (AQMS)	As required

Responsibility	Task	Timing
Coordinator	Relocate temporary air quality monitors to investigate dust levels and community complaints	As required
	Ensure monitoring is undertaken in accordance with the Air Quality Monitoring Program as outlined in **Section 6.0**	As required
	Prepare all statutory reports relating to this AQMP	As required
	Report on Continuous Improvement opportunities in the Annual Review when identified.	Annually (Annual Review)
	Update the WCPL website as per **Section 9.5**	As required
	Regularly review air quality monitoring data to ensure compliance with relevant Air Quality Criteria	As required
	Review the performance of the air quality monitoring program and effectiveness of this AQMP	As required
	Ensure all records relating to this AQMP are managed in accordance with the EPL	As required
Maintenance Manager	Maintain all machinery and plant used on site in a proper and efficient manner in order, to minimise dust generation	In accordance with manufacturer's requirements
OCE and CHPP Manager	Respond to dust triggers and implement on-site dust control measures (as per **Section 5.1**)	In accordance with the AQMS and **Section 5.1**
	Alter or relocate operational activities to achieve compliance with the Air Quality Criteria of the AQMS	In accordance with the AQMS
Dispatch Operator	Respond to dust triggers and advise the OCE	In accordance with the AQMS
	Monitor weather conditions to assist in identifying and predicting adverse weather conditions	Daily
All employees and contractors	Operate all machinery and plant used on site in a proper and efficient manner in order, to minimise dust generation	As required

12 References

Environment Australia 1998, *Best Practice Environmental Management in Mining: Dust Control. Department of the Environment*

DEC 2007, Approved Methods for the Sampling and Analysis of Air Pollutants in NSW

Holmes Air Sciences 2005, *Air Quality Impact Assessment Wilpinjong Coal Project*

Katestone Environmental Pty Ltd 2011, *NSW Coal Mining Benchmarking Study: International Best Practice Measures to Prevent and/or Minimise Emissions of Particulate Matter from Coal Mining. Prepared for Office of Environment and Heritage. June 2011*

NSW Minerals Council 2000, Technical Paper – Particulate Matter and Mining Interim Report

PAE Holmes 2010, Air Quality Impact Assessment Wilpinjong Coal Mine Modification

PAE Holmes 2012, *Wilpinjong Coal Mine Pollution Reduction Program – Assessment and Best Practice*

Standards Australia 2003, *AS/NZ 3580.10.1-2003 - Methods for sampling and analysis of ambient air - Determination of particulate matter - Deposited matter - Gravimetric method*

Standards Australia 2003, *AS 3580.9.6:2003 - Methods for sampling and analysis of ambient air - Determination of suspended particulate matter - PM_{10} high volume sampler with size-selective inlet - Gravimetric method*

Standards Australia 2007, *AS 3580.1.1:2007: Methods for sampling and analysis of ambient air - Guide to siting air monitoring equipment*

Standards Australia 2009, *AS/NZS 3580.9.7:2009 - Methods for sampling and analysis of ambient air - Determination of suspended particulate matter - Dichotomous sampler (PM_{10}, coarse PM and $PM_{2.5}$) - Gravimetric method*

Standards Australia 2008, *AS 3580.9.8-2008 - Methods for sampling and analysis of ambient air - Determination of suspended particulate matter – PM_{10} continuous direct mass method using a tapered element oscillating microbalance analyser*

Todoroski Air Sciences 2013, *Air Quality Impact Assessment Wilpinjong Coal Mine Modification*

WCPL 2006, *Wilpinjong Coal Project Environmental Impact Statement*

WCPL 2010, *Wilpinjong Coal Mine Environmental Monitoring Results Summary March 2010 to August 2010*

WCPL 2013, *Wilpinjong Coal Mine Environmental Assessment*

Wilpinjong Extension Project - Environmental Impact Statement (January 2016)

Wilpinjong Coal AQMP Advice, Todoroski Air Sciences (August 2019)

Appendix 1: Air Quality Management Plan Requirements

Schedule 2 of Development Consent (SSD-6764)

Consent/Licence	Condition	Requirement	Section
Development Consent	Schedule 2 Condition 1	In addition to meeting the specific performance criteria established under this consent, the Applicant must implement all reasonable and feasible measures to prevent and/or minimise any material harm to the environment that may result from the construction, operation, or rehabilitation of the development.	4.0
Development Consent	Schedule 2 Condition 2	The Applicant must carry out the development: (a) generally in accordance with the EIS and the Wilpinjong Coal Project EIS; and (b) in accordance with the conditions of this consent. *Note: The general layout of the development is shown in Appendix 2.*	2.0
Development Consent	Schedule 2 Condition 3	If there is any inconsistency between documents listed in condition 2(a) above, the most recent document shall prevail to the extent of the inconsistency. However, the conditions of this consent shall prevail to the extent of any inconsistency.	2.1
Development Consent	Schedule 2 Condition 4	The Applicant must comply with any reasonable requirement/s of the Secretary arising from the Department's assessment of: (a) any strategies, plans, programs, reviews, reports, audits or correspondence that are submitted in accordance with this consent (including any stages of these documents); b) any reviews, reports or audits commissioned by the Department regarding compliance with this consent; and (c) the implementation of any actions or measures contained in these documents.	10.0
Development Consent	Schedule 2 Condition 9	Within 6 months of the commencement of development under this consent, or as otherwise agreed by the Secretary, the Applicant must surrender the existing project approval (MP 05-0021) for the Wilpinjong Coal Project in accordance with Section 8P of the EP&A Regulation. Following the commencement of development under this consent, and prior to the surrender of the project approval (MP 05-0021), the conditions of this consent shall prevail to the extent of any inconsistency with the conditions of MP 05-0021. *Notes:* □• *Any existing management and monitoring plans/strategies/programs/protocols/committees under the existing approval for the Wilpinjong Coal Project will continue to apply until the approval of the comparable plan/strategy/program/protocol/committee under this consent.* □• *This requirement does not extend to the surrender of construction and occupation certificates for existing and proposed building works under Part 4A of the EP&A Act. Surrender of a consent should not be understood as implying that works legally constructed under a valid consent can no longer be legally maintained or used.*	2.0

Schedule 3 of Development Consent (SSD-6764)

Consent/Licence	Condition	Requirement	Section
Development Consent	Schedule 3 Condition 22	For the life of the development, the Applicant must ensure that there is a meteorological station operating in the vicinity of the site that: (a) complies with the requirements in *Approved Methods for Sampling of Air Pollutants in New South Wales* guideline; and (b) is capable of continuous real-time measurement of temperature inversions in accordance with the *NSW Industrial Noise Policy,* unless a suitable alternative is approved by the Secretary following consultation with the EPA.	6.2

Schedule 4 of Development Consent (SSD-6764)

Consent/Licence	Condition	Requirement	Section
Development Consent	Schedule 4 Condition 1	Within 1 month of the date of this consent, the Applicant must: (a) notify in writing the owners of: • the residences listed in Table 1 of schedule 3 that they have the right to require the Applicant to acquire their land at any stage during the development; • any residence on the land listed in Table 2 of schedule 3 that they have the right to request the Applicant to ask for additional noise mitigation measures to be installed at their residence at any stage during the development; and • any privately-owned land within 2 kilometres of the approved open cut mining pit/s that they are entitled to ask for an inspection to establish the baseline condition of any buildings or structures on their land, or to have a previous property inspection report updated; (b) notify the tenants of any mine-owned land of their rights under this consent; and (c) send a copy of the NSW Health fact sheet entitled "Mine Dust and You" (as may be updated from time to time) to the owners and/or existing tenants of any land (including mine-owned land) where the predictions in the EIS identify that dust emissions generated by the development are likely to be greater than the relevant air quality criteria in schedule 3 at any time during the life of the development.	4.3
Development Consent	Schedule 4 Condition 2	Prior to entering into any tenancy agreement for any land owned by the Applicant that is predicted to experience exceedances of the recommended dust and/or noise criteria, the Applicant must: (a) advise the prospective tenants of the potential health and amenity impacts associated with living on the land, and give them a copy of the NSW Health fact sheet entitled "Mine Dust and You" (as may be updated from time to time); and (b) advise the prospective tenants of the rights they would have under this consent, to the satisfaction of the Secretary	4.3

Consent/Licence	Condition	Requirement	Section
Development Consent	Schedule 4 Condition 3	As soon as practicable after obtaining monitoring results showing: (a) an exceedance of any relevant criteria in schedule 3, the Applicant must notify affected landowners in writing of the exceedance, and provide regular monitoring results to each affected landowner until the development is again complying with the relevant criteria; and (b) an exceedance of the relevant air quality criteria in schedule 3, the Applicant must send a copy of the NSW Health fact sheet entitled "Mine Dust and You" (as may be updated from time to time) to the affected landowners and/or existing tenants of the land (including the tenants of any mine-owned land).	9.1
Development Consent	Schedule 4 Condition 4	If an owner of privately-owned land considers the development to be exceeding the relevant criteria in schedule 3, then he/she may ask the Secretary in writing for an independent review of the impacts of the development on his/her land. If the Secretary is satisfied that an independent review is warranted, then within 2 months of the Secretary's decision the Applicant must: (a) commission a suitably qualified, experienced and independent person, whose appointment has been approved by the Secretary, to: • consult with the landowner to determine his/her concerns; • conduct monitoring to determine whether the development is complying with the relevant criteria in schedule 3; and • if the development is not complying with these criteria, then identify the measures that could be implemented to ensure compliance with the relevant criteria; and (b) give the Secretary and landowner a copy of the independent review. N*ote: Where the independent review finds that the development is not complying with applicable criteria, the Department may take enforcement action under the EP&A Act to ensure compliance with the consent.*	10.1

Schedule 5 of Development Consent (SSD-6764)

Consent/Licence	Condition	Requirement	Section
Development Consent	Schedule 5 Condition 2	The Applicant must assess and manage development-related risks to ensure that there are no exceedances of the criteria and/or performance measures in schedule 3. Any exceedance of these criteria and/or performance measures constitutes a breach of this consent and may be subject to penalty or offence provisions under the EP&A Act or EP&A Regulation. Where any exceedance of these criteria and/or performance measures has occurred, the Applicant must, at the earliest opportunity: (a) take all reasonable and feasible steps to ensure that the exceedance ceases and does not recur; (b) consider all reasonable and feasible options for remediation (where relevant) and submit a report to the Department describing those options and any preferred remediation measures or other course of action; and (c) implement reasonable remediation measures as directed by the Secretary.	6.7.4

Consent/Licence	Condition	Requirement	Section
Development Consent	Schedule 5 Condition 4	By the end of March each year, the Applicant must submit a review of the environmental performance of the development for the previous calendar year to the satisfaction of the Secretary. This review must: (a) describe the development (including any rehabilitation) that was carried out in the past year, and the development that is proposed to be carried out over the next year; (b) include a comprehensive review of the monitoring results and complaints records of the development over the past year, which includes a comparison of these results against the: • relevant statutory requirements, limits or performance measures/criteria; • monitoring results of previous years; and • relevant predictions in the EIS; (c) identify any non-compliance over the last year, and describe what actions were (or are being) taken to ensure compliance; (d) identify any trends in the monitoring data over the life of the development; (e) identify any discrepancies between the predicted and actual impacts of the development, and analyse the potential cause of any significant discrepancies; and (f) describe what measures will be implemented over the next year to improve the environmental performance of the development. Note: The "Post Approval Requirements for State Significant Developments - Annual Review Guideline 2015, NSW Government, October 2015" (or its latest version) provides a reporting framework to integrate the reporting requirements of the Annual Review required by the Department under the development consent and the Annual Environment Management Report (AEMR) required under the Mining Lease.	9.2
Development Consent	Schedule 5 Condition 5	Within 3 months of: (a) the submission of an annual review under condition 4 above; (b) the submission of an incident report under condition 8 below; (c) the submission of an audit under condition 10 below; and (d) the approval of any modification to the conditions of this consent; or (e) a direction of the Secretary under condition 4 of schedule 2; the Applicant must review, and if necessary revise, the strategies, plans, and programs required under this consent to the satisfaction of the Secretary. Where this review leads to revisions in any such document, then within 4 weeks of the review the revised document must be submitted to the Secretary for approval, unless otherwise agreed with the Secretary. *Note: This is to ensure the strategies, plans and programs are updated on a regular basis, and incorporate any recommended measures to improve the environmental performance of the development.*	10.0
Development Consent	Schedule 5 Condition 6	To ensure the strategies, plans and programs are updated on a regular basis, and incorporate any recommended measures to improve the environmental performance of the development, the Applicant may submit revised strategies, plans or programs required under this consent at any time. With the agreement of the Secretary, the Applicant may also submit any strategy, plan or program required by this consent on a staged basis.	10.0

Consent/Licence	Condition	Requirement	Section
		The Secretary may approve a revised strategy, plan or program required under this consent, or the staged submission of any of these documents, at any time. With the agreement of the Secretary, the Applicant may prepare the revised or staged strategy, plan or program without undertaking consultation with all parties nominated under the applicable condition in this consent. Notes: • *While any strategy, plan or program may be submitted on a progressive basis, the Applicant will need to ensure that the existing operations on site are covered by suitable strategies, plans or programs at all times.* • *If the submission of any strategy, plan or program is to be staged, then the relevant strategy, plan or program must clearly describe the specific stage to which the strategy, plan or program applies, the relationship of this stage to any future stages, and the trigger for updating the strategy, plan or program.* • *For the avoidance of doubt, existing approved management plans, strategies or monitoring programs for the Wilpinjong Coal Project will continue to apply until the approval of a similar plan, strategy or program under this consent (see condition 9 of schedule 2).*	
Development Consent	Schedule 5 Condition 8	The Applicant must immediately notify the Secretary and any other relevant agencies of any incident. Within 7 days of the date of the incident, the Applicant must provide the Secretary and any relevant agencies with a detailed report on the incident, and such further reports as may be requested.	9.1
Development Consent	Schedule 5 Condition 9	The Applicant must provide regular reporting on the environmental performance of the development on its website, in accordance with the reporting arrangements in any plans or programs approved under the conditions of this consent.	9.5
Development Consent	Schedule 5 Condition 10	Within a year of commencing development under this consent, and every 3 years thereafter, unless the Secretary directs otherwise, the Applicant must commission and pay the full cost of an Independent Environmental Audit of the development. This audit must: (a) be conducted by a suitably qualified lead auditor and suitably qualified, experienced and independent team of experts in any field specified by the Secretary, whose appointment has been endorsed by the Secretary; (b) include consultation with the relevant agencies; (c) assess the environmental performance of the development and assess whether it is complying with the requirements in this consent and any relevant EPL or Mining Lease (including any assessment, plan or program required under these approvals); (d) review the adequacy of strategies, plans or programs required under the abovementioned approvals; e) recommend appropriate measures or actions to improve the environmental performance of the development, and/or any strategy, plan or program required under the abovementioned approvals; and (f) be conducted and reported to the satisfaction of the Secretary. *Note: The "Post Approval Requirements for State Significant Developments - Independent Audit Guideline, NSW Government, October 2015" (or its latest version) provides an audit and reporting framework for the independent audit that will guide compliance with this condition.*	9.3

Consent/Licence	Condition	Requirement	Section
Development Consent	Schedule 5 Condition 11	Within 3 months of commissioning this audit, or as otherwise agreed by the Secretary, the Applicant must submit a copy of the audit report to the Secretary, together with its response to any recommendations contained in the audit report, and a timetable for the implementation of these recommendations as required. The Applicant must implement these recommendations, to the satisfaction of the Secretary.	9.3
Development Consent	Schedule 5 Condition 11	From the commencement of development under this consent, the Applicant shall: (a) Make copies of the following information publicly available on its website: • the EIS; • current statutory approvals for the development; • approved strategies, plans or programs required under the conditions of this consent; • a comprehensive summary of the monitoring results of the development, reported in accordance with the specifications in any conditions of this consent, or any approved plans and programs; • a complaints register, which is to be updated monthly; • minutes of CCC meetings; • the last five annual reviews; • any independent environmental audit, and the Applicant's response to the recommendations in any audit; • any other matter required by the Secretary; and (b) keep this information up to date.	9.5

Environmental Protection Licence - EPL 12425

<table>
<tr><th>Consent/Licence</th><th>Condition</th><th>Requirement</th><th>Section</th></tr>
<tr><td>EPL 12425</td><td>P1.1</td><td>The following points referred to in the table below are identified in this licence for the purposes of monitoring and/or the setting of limits for the emission of pollutants to the air from the point.

Air
<table>
<tr><th>EPA identification no.</th><th>Type of Monitoring Point</th><th>Type of Discharge Point</th><th>Location Description</th></tr>
<tr><td>3</td><td>Dust Monitoring</td><td></td><td>DG4: Mine owned location - old Robinson's property approximately 2.5 km south east of CHPP, as indicated on Figure 2 licence variation application additional information received by the EPA 26.11.12</td></tr>
<tr><td>4</td><td>Dust Monitoring</td><td></td><td>DG5: Wollar - adjacent to St Laurence O'Toole Catholic Church, as indicated on Figure 2 licence variation application additional information received by the EPA on 26.11.12</td></tr>
<tr><td>6</td><td>Dust Monitoring</td><td></td><td>DG8: Mine owned location - Mittaville Nth property boundary with Ulan Coal mine owned land as indicated on Figure 2 licence variation application additional information received by the EPA 26.11.12</td></tr>
<tr><td>9</td><td>Dust Monitoring</td><td></td><td>DG11: Mine owned location - adjacent to Wilpinjong Creek north east of mine project area, as indicated on Figure 2 licence variation application additional information received by the EPA 26.11.12</td></tr>
<tr><td>10</td><td>Dust Monitoring</td><td></td><td>DG12: Mine owned location - Aboriginal rock art site 72, as indicated on Figure 2 licence variation application additional information received by the EPA 26.11.12</td></tr>
<tr><td>11</td><td>Dust Monitoring</td><td></td><td>DG13: Mine owned location - Aboriginal rock art site 153, as indicated on Figure 2 licence variation application additional information received by the EPA 26.11.12</td></tr>
<tr><td>12</td><td>Dust Monitoring</td><td></td><td>DG14: Mine owned location - Aboriginal rock art site 152, as indicated on Figure 2 licence variation application additional information received by the EPA 26.11.12</td></tr>
</table></td><td>6.1</td></tr>
</table>

Consent/Licence	Condition	Requirement	Section
		13 Dust Monitoring — PM10 - HV1: Wollar - adjacent to St Laurence O'Toole Catholic Church as indicated in Figure 2 licence variation application additional information received by the EPA 26.11.12 20 Dust Monitoring — PM10 - HV4: Mine owned location - old Robinsons property approximately 2.5km south east of CHPP, as indicated on Figure 2 licence variation application additional information received by the EPA 26.11.12 21 Meteorological weather monitoring — Meteorological weather station(s) indicated on Figure 2 licence variation application additional information received by the EPA 26.11.12 25 Dust monitoring — TEOM 3: Wollar - adjacent to St Laurence O'Toole Catholic Church, as indicated on Figure 2 licence variation application additional information received by the EPA 26.11.12 26 Dust monitoring — DG15: Mine owned location - adjacent to propert number 1-30 (mine owned property) on Araluen Rd as indicated on Figure 2 licence variation application additional information received by the EPA 26.11.12 27 Dust monitoring — PM10 - HV5: Araluen Rd - mine owned location adjacent to property number 1-30 (mine owned property) on Araluen Rd as indicated in Figure 2 licence variation application additional information received by the EPA 26.11.12 28 Dust monitoring — TEOM 4: Araluen Rd - Mine owned location - adjacent to property number 1-30 (mine owned property) on Araluen Rd as indicated on Figure 2 of the licence variation application additional information received by the EPA 26.11.12	
EPL 12425	L2.1	For each monitoring/discharge point or utilisation area specified in the table\s below (by a point number), the concentration of a pollutant discharged at that point, or applied to that area, must not exceed the concentration limits specified for that pollutant in the table.	4.1
EPL 12425	L2.4	Air Concentration Limits	

<table>
<tr><th>Consent/Licence</th><th>Condition</th><th>Requirement</th><th>Section</th></tr>
<tr><td></td><td></td><td>POINT 4
<table>
<tr><th>Pollutant</th><th>Units of measure</th><th>100 percentile concentration limit</th><th>Reference conditions</th><th>Oxygen correction</th><th>Averaging period</th></tr>
<tr><td>Particulates - Deposited Matter</td><td>grams per square metre per month</td><td>4.0</td><td></td><td></td><td>Annual</td></tr>
</table>
Note: Deposited matter is assessed as insoluble solids as defined by AS 3580.10.1-2003 (AM-19)</td><td></td></tr>
<tr><td>EPL 12425</td><td>O3.1</td><td>All operations and activities occurring at the premises must be carried out in a manner that will minimise the emission of dust from the premises.</td><td>5.1</td></tr>
<tr><td>EPL 12425</td><td>O3.2</td><td>All trafficable areas, coal storage areas and vehicle manoeuvring areas in or on the premises must be maintained, at all times, in a condition that will minimise the generation, or emission from the premises, of wind-blown or traffic generated dust.</td><td>5.1</td></tr>
<tr><td>EPL 12425</td><td>M1.2</td><td>All records required to be kept by this licence must be:
a) in a legible form, or in a form that can readily be reduced to a legible form;
b) kept for at least 4 years after the monitoring or event to which they relate took place; and
c) produced in a legible form to any authorised officer of the EPA who asks to see them.</td><td>6.6</td></tr>
<tr><td>EPL 12425</td><td>M1.3</td><td>The following records must be kept in respect of any samples required to be collected for the purposes of this licence:
a) the date(s) on which the sample was taken;
b) the time(s) at which the sample was collected;
c) the point at which the sample was taken; and
d) the name of the person who collected the sample.</td><td>6.6</td></tr>
<tr><td>EPL 12425</td><td>M2.1</td><td>For each monitoring/discharge point or utilisation area specified below (by a point number), the licensee must monitor (by sampling and obtaining results by analysis) the concentration of each pollutant specified in Column 1. The licensee must use the sampling method, units of measure, and sample at the frequency, specified opposite in the other columns:</td><td>6.1 and 6.3</td></tr>
<tr><td>EPL 12425</td><td>M2.2</td><td>Air Monitoring Requirements
POINT 3,4,6,9,26
<table>
<tr><th>Pollutant</th><th>Units of measure</th><th>Frequency</th><th>Sampling Method</th></tr>
<tr><td>Particulates - Deposited Matter</td><td>grams per square metre per month</td><td>Monthly</td><td>AM-19</td></tr>
</table>
POINT 12,10,11</td><td>6.1 and 6.3</td></tr>
</table>

<table>
<tr><th>Consent/Licence</th><th>Condition</th><th>Requirement</th><th>Section</th></tr>
<tr><td></td><td></td><td>
<table>
<tr><th>Pollutant</th><th>Units of measure</th><th>Frequency</th><th>Sampling Method</th></tr>
<tr><td>Particulates - Deposited Matter</td><td>milligrams per cubic metre</td><td>Special Frequency 1</td><td>AM-19</td></tr>
</table>
POINT 13,20,27
<table>
<tr><th>Pollutant</th><th>Units of measure</th><th>Frequency</th><th>Sampling Method</th></tr>
<tr><td>PM10</td><td>micrograms per cubic metre</td><td>Every 6 days</td><td>AM-18</td></tr>
</table>
POINT 25,28
<table>
<tr><th>Pollutant</th><th>Units of measure</th><th>Frequency</th><th>Sampling Method</th></tr>
<tr><td>PM10</td><td>milligrams per cubic metre</td><td>Continuous</td><td>AM-22</td></tr>
</table>
</td><td></td></tr>
<tr><td>EPL 12425</td><td>M2.3</td><td>For the purposes of the table(s) above Special Frequency 1 means the collection of dust deposition samples (monthly) when mining is within 1 km of Aboriginal rock art sites.</td><td>6.1</td></tr>
<tr><td>EPL 12425</td><td>M3.1</td><td>Monitoring for the concentration of a pollutant emitted to the air required to be conducted by this licence must be done in accordance with:
(a) any methodology which is required by or under the Act to be used for the testing of the concentration of the pollutant; or
(b) if no such requirement is imposed by or under the Act, any methodology which a condition of this licence requires to be used for that testing; or
(c) if no such requirement is imposed by or under the Act or by a condition of this licence, any methodology approved in writing by the EPA for the purposes of that testing prior to the testing taking place.</td><td>6.3</td></tr>
<tr><td>EPL 12425</td><td>M4.1</td><td>The meteorological weather station must be maintained so as to be capable of continuously monitoring the parameters specified in condition M4.2.</td><td>6.2</td></tr>
<tr><td>EPL 12425</td><td>M4.2</td><td>For each monitoring point specified in the table below the licensee must monitor (by sampling and obtaining results by analysis) the parameters specified in Column 1. The licensee must use the sampling method, units of measure, averaging period and sample at the frequency specified opposite in the other columns.
Point 21</td><td>6.2</td></tr>
</table>

<table>
<tr><th>Consent/Licence</th><th>Condition</th><th>Requirement</th><th>Section</th></tr>
<tr><td></td><td></td><td>
<table>
<tr><th>Parameter</th><th>Unit of Measure</th><th>Frequency</th><th>Averaging Period</th><th>Sampling Method</th></tr>
<tr><td>Air temperature</td><td>Degress celsius</td><td>Continuous</td><td>1 hour</td><td>AM-4</td></tr>
<tr><td>Wind direction</td><td>Degrees</td><td>Continuous</td><td>15 minute</td><td>AM-2 & AM-4</td></tr>
<tr><td>Wind speed</td><td>m/s</td><td>Continuous</td><td>15 minute</td><td>AM-2 & AM-4</td></tr>
<tr><td>Temperature lapse rate</td><td>Degrees</td><td>Continuous</td><td>15 minute</td><td>Part E2 & E4 of the Nsw Industrial Noise Policy</td></tr>
<tr><td>Rainfall</td><td>mm</td><td>Continuous</td><td>24 hour</td><td>AM-4</td></tr>
<tr><td>Relative humidity</td><td>%</td><td>Continuous</td><td>1 hour</td><td>AM-4</td></tr>
</table>
</td><td></td></tr>
<tr><td>EPL 12425</td><td>M5.1</td><td>The licensee must keep a legible record of all complaints made to the licensee or any employee or agent of the licensee in relation to pollution arising from any activity to which this licence applies.</td><td>8.0</td></tr>
<tr><td>EPL 12425</td><td>M5.2</td><td>The record must include details of the following:
a) the date and time of the complaint;
b) the method by which the complaint was made;
c) any personal details of the complainant which were provided by the complainant or, if no such details were provided, a note to that effect;
d) the nature of the complaint;
e) the action taken by the licensee in relation to the complaint, including any follow-up contact with the complainant; and
f) if no action was taken by the licensee, the reasons why no action was taken.</td><td>8.0</td></tr>
<tr><td>EPL 12425</td><td>M5.3</td><td>The record of a complaint must be kept for at least 4 years after the complaint was made.</td><td>8.0</td></tr>
<tr><td>EPL 12425</td><td>M5.4</td><td>The record must be produced to any authorised officer of the EPA who asks to see them.</td><td>8.0</td></tr>
<tr><td>EPL 12425</td><td>M6.1</td><td>The licensee must operate during its operating hours a telephone complaints line for the purpose of receiving any complaints from members of the public in relation to activities conducted at the premises or by the vehicle or mobile plant, unless otherwise specified in the licence.</td><td>8</td></tr>
<tr><td>EPL 12425</td><td>M6.2</td><td>The licensee must notify the public of the complaints line telephone number and the fact that it is a complaints line so that the impacted community knows how to make a complaint.</td><td>8.0</td></tr>
<tr><td>EPL 12425</td><td>R1.1</td><td>The licensee must complete and supply to the EPA an Annual Return in the approved form comprising:
a) a Statement of Compliance; and
b) a Monitoring and Complaints Summary.

At the end of each reporting period, the EPA will provide to the licensee a copy of the form that must be completed and returned to the EPA.</td><td>9.4</td></tr>
<tr><td>EPL 12425</td><td>R1.2</td><td>An Annual Return must be prepared in respect of each reporting period, except as provided below.</td><td>9.4</td></tr>
<tr><td>EPL 12425</td><td>R1.5</td><td>The Annual Return for the reporting period must be supplied to the EPA by registered post not later than 60 days after the end of each reporting period or in the case of a transferring licence not later than 60 days after the date the transfer was granted (the 'due date').</td><td>9.4</td></tr>
</table>

Consent/Licence	Condition	Requirement	Section
EPL 12425	R1.6	The licensee must retain a copy of the Annual Return supplied to the EPA for a period of at least 4 years after the Annual Return was due to be supplied to the EPA	9.4
EPL 12425	R1.7	Within the Annual Return, the Statement of Compliance must be certified and the Monitoring and Complaints Summary must be signed by: a) the licence holder; or b) by a person approved in writing by the EPA to sign on behalf of the licence holder.	9.4
EPL 12425	R2.1	Notifications must be made by telephoning the Environment Line service on 131 555.	9.1
EPL 12425	R2.2	The licensee must provide written details of the notification to the EPA within 7 days of the date on which the incident occurred. Note: The licensee or its employees must notify all relevant authorities of incidents causing or threatening material harm to the environment immediately after the person becomes aware of the incident in accordance with the requirements of Part 5.7 of the Act.	9.1
EPL 12455	E1.1 & E1.2	The licensee must undertake continuous monitoring of the following pollutants at the Barigan Street, Wollar air monitoring	6.0

Appendix 2: Management Plan Consultation

Peabody

NSW GOVERNMENT | Planning, Industry & Environment

Mr Ian Flood
Manager – Project Development and Approvals
Peabody Australia
1434 Ulan-Wollar Road
WILPINJONG NSW 2850

Via email: iflood@peabodyenergy.com

Dear Mr Flood

Wilpinjong Coal Mine (SSD-6764)
Management Plan Review

I refer to your emails dated 27 September 2019 and 17 April 2020 submitting revised management plans for the Wilpinjong Coal Mine (SSD-6764), including the:

- Aboriginal and Cultural Heritage Management Plan (condition 47 of Schedule 3, version 6 dated September 2019);
- Air Quality Management Plan (condition 20 of Schedule 3, version 5 dated September 2019);
- Biodiversity Management Plan (condition 42 of Schedule 3, version 6 dated September 2019);
- Blast Management Plan (condition 14 of Schedule 3, version 6 dated September 2019);
- Environmental Management Strategy (condition 1 of Schedule 5, version 6 dated September 2019);
- Historical Heritage Management Plan (condition 49 of Schedule 3, version 3 dated September 2019); and
- Noise Management Plan (condition 5 of Schedule 3, version 4 dated September 2019).

The Department has reviewed the above plans and is satisfied that they meet the requirements of the relevant conditions of consent. Accordingly, the Secretary has approved these plans.

I also refer to the revised Water Management Plan which was submitted on 17 April 2020. The Department notes that substantial changes have been made to the site water balance component of this plan.

As such, the Department requests that this plan be submitted through the Major Projects portal for review by the Department and relevant agencies.

If you have any questions, please contact Jack Turner on 02 9995 5387 or Jack.Turner@planning.nsw.gov.au

Yours sincerely

19/6/20

Stephen O'Donoghue
Director
Resource Assessments
as nominee of the Secretary

SF17/8470

Mr Blair Jackson
General Manager
Wilpinjong Coal Mine
Locked Bag 2005
MUDGEE NSW 2850

Attention: Kieren Bennetts

22 June 2017

Dear Mr Jackson

Wilpinjong Coal Mine - Revised Management Plans

I refer to the various revised management plans for the Wilpinjong Cola Mine (the Mine) received by the Environment Protection Authority (EPA) on 1 June 2017.

Thank you for forwarding the draft air, blast, noise and water management plans to the EPA. The EPA encourages the development of Environmental Management Plans/Programs to ensure that proponents have determined how they will meet their statutory obligations and environmental objectives as specified by any Project/Development Approval and/or the conditions of an environment protection licence. Please note the EPA does not review these plans/programs (unless in circumstances deemed necessary) as the role of the EPA is to set conditions/criteria for environmental protection and management, not to be directly involved in the development of strategies to comply with such conditions/criteria. As such the EPA will not be reviewing or endorsing the Plans.

As a management tool, such plans should assist the Mine in meeting their commitment to statutory compliance and wider environmental management and where appropriate should be integrated with other operational or management plans. The EPA recommends that such plans be audited to an industry standard or certified to the ISO 14001 standard (if applicable) as part of any overall environmental management system.

Should you have any further enquiries in relation to this matter please contact Ms Sheridan Ledger at the Central West (Bathurst) Office of the EPA by telephoning (02) 6332 7608.

Yours sincerely

DARRYL CLIFT
Head Central West Unit
Environment Protection Authority

PO Box 1388 Bathurst NSW 2795
Level 2 203-209 Russell St Bathurst
Tel: (02) 6332 7600 Fax: (02) 6332 7630
ABN 43 692 285 758
www.epa.nsw.gov.au

Peabody

NSW GOVERNMENT | Planning & Environment

Planning Services
Resource Assessments
Contact: Matthew Riley
Phone: 9274 6339
Email: matthew.riley@planning.nsw.gov.au

Mr Kieren Bennetts
Environment and Community Manager
Wilpinjong Coal
Locked Bag 2005
Mudgee NSW 2850

Dear Mr Bennetts

Wilpinjong Coal Mine (05_0021)
Management Plans

I refer to the revised management plans submitted to the Department following approval of the recent modification application for the Wilpinjong Coal Project (05_0021).

The Department has reviewed the management plans and is satisfied that the following plans are adequate:

- Noise Management Plan;
- Blast Management Plan;
- Air Quality Management Plan;
- Site Water Management Plan;
- Biodiversity Management Plan;
- Aboriginal Cultural Heritage Management Plan;
- Waste Management Plan;
- Spontaneous Combustion Management Plan; and
- Environmental Management Strategy.

Consequently, the Secretary approves the above mentioned plans.

If you wish to discuss the matter further, please contact Matthew Riley on 9274 6339.

Yours sincerely

Mike Young
Director
Resource Assessments
As nominee of the Secretary

20/3/17.

Department of Planning & Environment
Level 22, 320 Street Sydney NSW 2000 | GPO Box 39 Sydney NSW 2001 | **www.planning.nsw.gov.au**

Peabody

NSW GOVERNMENT | Planning & Environment

Contact: Chris Schultz
Phone: 02 4224 9478
Fax: 02 4224 9470
Email: Christopher.Schultz@planning.nsw.gov.au

Mr Kieren Bennetts
Environment and Community Manager
Wilpinjong Coal Mine
Locked Bag 2005
MUDGEE NSW 2850

Dear Mr Bennetts,

Wilpinjong Coal Mine (PA 05_0021)
Approval of Management Plans

I refer to the following Management Plans required under Project Approval 05_0021 (the approval), submitted to the Department for consideration:

- Air Quality Management Plan – Document No. WI-ENV-MNP-004 dated March 2016 Version 1; and
- Biodiversity Management Plan – Document No. WI-ENV-MNP-008 dated December 2015 Version 2.

The Department has reviewed the plans and is satisfied that they generally address the requirements set out in the relevant conditions of the approval. Accordingly the Secretary has approved the management plans.

Please ensure a copy of these management plans is placed on your website in accordance with Schedule 5, Condition 11 of the approval within one month of the date of this letter.

Should you wish to discuss the above matter, please contact Chris Schultz, Senior Compliance Officer, on 02 4224 9478 or Christopher.Schultz@planning.nsw.gov.au.

Yours sincerely

5/4/16

Katrina O'Reilly
Team Leader Compliance Southern Region
as nominee of the Secretary

Department of Planning & Environment
L2, 84 Crown Street Wollongong NSW 2500 | PO Box 5475 Wollongong NSW 2520 | T 02 4224 9478 | F 02 4224 9470 | www.planning.nsw.gov.au

Peabody

NSW GOVERNMENT | Planning & Environment

Resource and Energy Assessments
Contact: Stephen Shoesmith
Phone: (02) 9274 6164
Email: stephen.shoesmith@planning.nsw.gov.au

Mr Kieren Bennetts
Manager, Environment and Community
Wilpinjong Coal Mine

Via Email to: kbennetts@peabodyenergy.com

Dear Mr Flood

Wilpinjong Coal Mine (SSD_6764)
Approval – Environmental Management Plans

I refer to your email dated 29 June 2018, seeking the Secretary's review and approval of the Air Quality Management Plan (AQMP) and the Surface Water Management Plan (SWMP) for the Wilpinjong Coal Mine (SSD_6764).

The Department has reviewed the revised version of the AQMP (Version 3) and SWMP (Version 4) and is satisfied that they address the requirements of Conditions 20 and 30(d)iii, Schedule 3 of the Wilpinjong Development Consent (SSD_6764.)

Accordingly, the Secretary approves the revised AQMP and SWMP. Please ensure that a copy of the approved plans is placed on your website as soon as possible.

If you require further information, please contact Stephen Shoesmith on (02) 9274 6164 or by email to stephen.shoesmith@planning.nsw.gov.au.

Yours sincerely

6/7/18

Steve O'Donoghue
A/Director
Resource and Energy Assessments
as nominee of the Secretary

Appendix 3: Spontaneous Combustion Management Plan

Appendix 4: Wilpinjong Coal AQMP Advice

TODOROSKI AIR SCIENCES
Suite 2B, 14 Glen Street Eastwood, NSW 2122
Phone: 02 9874 2123
Fax: 02 9874 2125
Email: info@airsciences.com.au
Web: www.airsciences.com.au
ACN: 151 202 765 | ABN: 74 955 076 914

29 August 2019

James Heesterman
Environmental Coordinator
Peabody Energy
Via email: JHeesterman@peabodyenergy.com

RE: Wilpinjong Coal AQMP Advice

Thank you for engaging Todoroski Air Sciences (TAS) to provide advice regarding the update of the Wilpinjong Coal Air Quality Management Plan (AQMP). TAS has prepared this brief letter for internal use in response to queries from Peabody Energy (PE) received via email correspondence dated 27 May 2019, and subsequent discussions.

TAS has undertaken a review of the available TEOM and meteorological data for the past four years (2015 to 2018) to inform the advice provided below.

Relocation of TEOM 4

It is understood that PE is proposing to relocate TEOM 4 from Araluen Road to Araluen Lane due to concerns regarding wheel generated dust from the road potentially skewing the data. **Figure 1** indicates the current TEOM 4 location. Araluen Road is located approximately 125m north of TEOM 4.

Analysis of data

Figure 2 presents hourly pollution roses for TEOMs 2, 3 and 4 for the 2015 to 2018 period.

Generally the pollution roses indicate the highest levels of PM_{10} originate from the direction of the mine, however all monitors show a small number of elevated levels from the north. The highest PM_{10} levels measured at all monitors from the north appear to relate to a period of elevated dust between 14/12/2018 to 16/12/2018. It has been noted by PE that generally elevated 24-hour levels measured at the TEOM monitors were associated with regional dust events.

A review of the available data indicate that the majority of elevated levels recorded at TEOM 4 were under calm or very low wind speed conditions. Wind directions can be highly variable and unreliable under low wind speed conditions. Poor dispersion also occurs under such conditions which may impact the PM_{10} levels recorded at the other monitors. Under such conditions, traffic along the road has a higher potential to impact the dust level measured at TEOM 4, regardless of the recorded wind direction at the time.

Elevated levels of PM_{10} at TEOM 4 compared with TEOMs 2 and 3 most commonly occurred between 6am and 8am, and 7pm and 9pm and appear to be associated with morning and evening vehicle movements or possibly domestic wood heaters. Analysis of the data indicate that traffic along Araluen Road or other local sources may impact the short-term PM_{10} concentrations recorded at TEOM 4 on occasion (ranging from one to three percent of the time per year).

Relocation options

Figure 3 presents four potential sites along Araluen Lane to relocate the TEOM 4 monitor. It has been advised that the potential locations would have the necessary mains power available.

It is considered that locations 1 and 2 may face similar issues related to potential impacts from the road as it is at a similar distance from the road as the current TEOM 4 location. Location 4 appears to have a cattle track along the fence line, which is along the axis to the mine and thus it may make it difficult to differentiate local dust and mine dust.

We consider that location 3 is the most suitable site for the relocation. In order to avoid potential wood smoke from the nearby residence interfering with readings when the wind blows from the direction of the mine, it is recommended that the monitor location be moved a little further south along the fence line, as indicated in the figure (i.e. approximately 45m north of the fence corner).

The relocation of TEOM 4 from Araluen Road to the above location may assist to minimise potential short term impacts from the road on the measured PM_{10} levels. However it is noted that the land is especially bare and dusty at present. The monitoring standard sets out that the monitor should be positioned 2 to 5m above ground level. We suggest having the intake near to the upper end of the range e.g. 4 to 5m, as this will minimise the intake of highly localised dust from the adjacent bare ground surfaces.

$PM_{2.5}$ triggers

It is understood that PE are planning to incorporate a trigger action response plan (TARP) with trigger values into the AQMP for $PM_{2.5}$ monitoring management systems.

TAS has reviewed the available PM_{10} and $PM_{2.5}$ TEOM monitoring data. $PM_{2.5}$ data are measured at the TEOM 3 monitor and were only available for the 2018 period. The data presented in **Figure 2** do not indicate there is a tangible impact from the mine on $PM_{2.5}$ levels. As such it is considered that there is no need to incorporate $PM_{2.5}$ triggers into the AQMP at this time.

Additional advice

It is the opinion of TAS that the strength and frequency of temperature inversion occurrence appears to be especially high. The available data were analysed in terms of season, hour of day and inversion strength. The frequency of temperature inversion is presented in **Table 1** to

Table 4. While the seasonal, daily etc. trends in the calculated temperature inversions are generally reasonable it is possible that there may be some bias or error in the data which skew up the inversion strength and frequency.

The following suggestions may help to ascertain if the data are OK:

- Calibrate the existing upper and lower temperature sensors side by side for a range of temperatures;

- Use an approx. 1m arm to mount the sensor away from the tower.
- Consider using a pair of calibrated temperature probes specifically designed for this purpose, (e.g. Vector T302).

Please feel free to contact us if you would like to clarify any aspect of this letter.

Yours faithfully,
Todoroski Air Sciences

Aleks Todoroski

Figure 1: TEOM 4 existing location

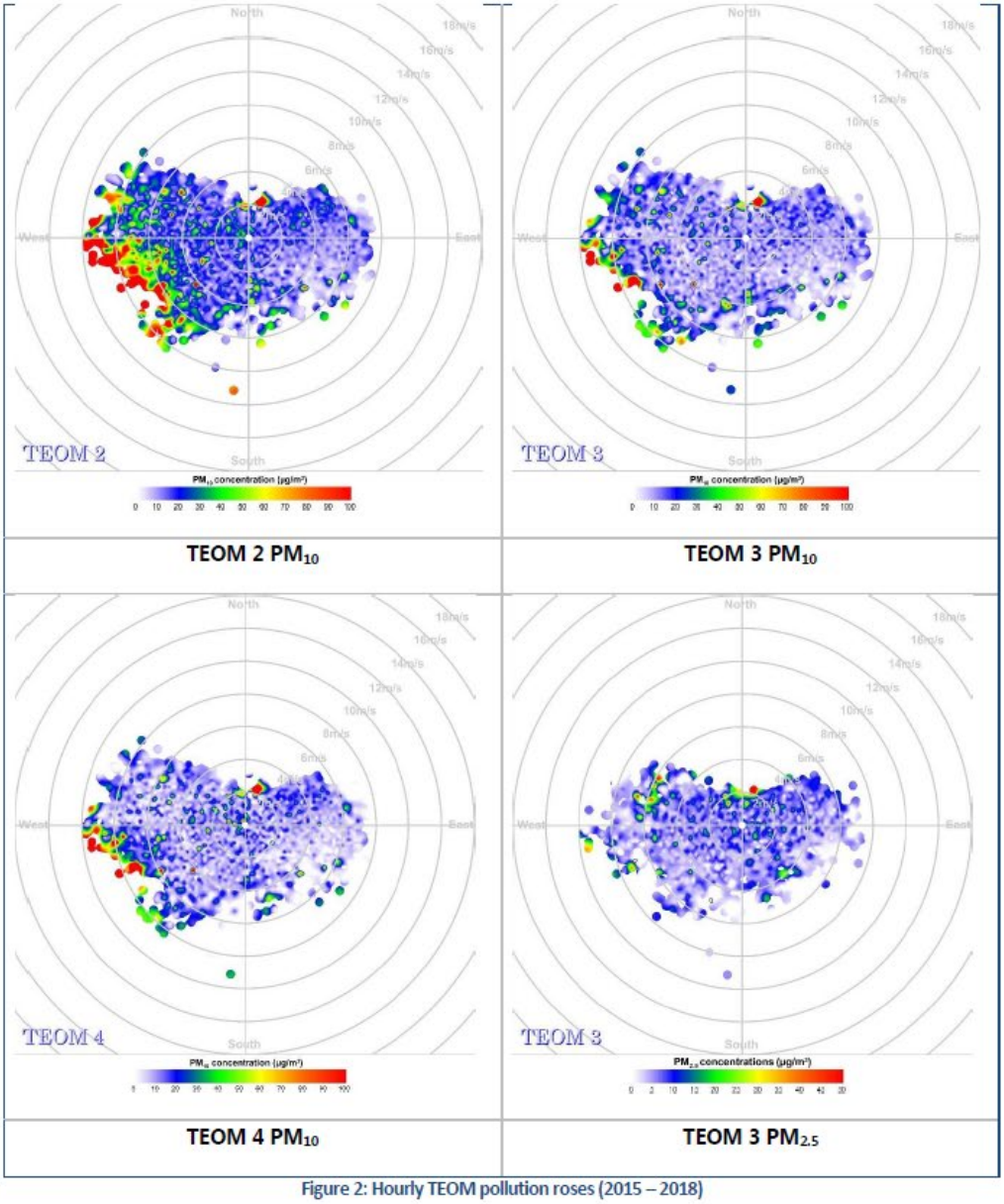


Figure 2: Hourly TEOM pollution roses (2015 – 2018)

Figure 3: TEOM 4 potential locations

Table 1: Frequency of temperature inversions (all)

Hour	Annual	Summer	Autumn	Winter	Spring
0	69%	52%	71%	85%	70%
1	70%	54%	74%	85%	70%
2	72%	58%	75%	85%	70%
3	72%	60%	75%	84%	71%
4	73%	61%	76%	83%	74%
5	74%	62%	77%	84%	73%
6	66%	55%	72%	77%	60%
7	46%	27%	57%	75%	25%
8	17%	7%	16%	39%	5%
9	4%	3%	1%	12%	1%
10	1%	3%	0%	3%	1%
11	1%	3%	0%	1%	1%
12	1%	2%	0%	1%	1%
13	1%	3%	0%	1%	2%
14	2%	4%	0%	1%	3%
15	3%	5%	1%	2%	3%
16	7%	8%	4%	13%	4%
17	26%	9%	27%	57%	14%
18	38%	10%	42%	73%	30%
19	51%	23%	55%	78%	51%
20	61%	44%	61%	80%	59%
21	63%	45%	63%	83%	63%
22	65%	47%	67%	84%	65%
23	67%	49%	68%	84%	68%

Table 2: Frequency of weak temperature inversions (lapse rate <2°C/100m)

Hour	Annual	Summer	Autumn	Winter	Spring
0	20%	20%	19%	18%	23%
1	20%	21%	20%	17%	20%
2	20%	24%	19%	17%	20%
3	22%	26%	21%	19%	21%
4	23%	26%	25%	17%	23%
5	23%	27%	25%	18%	23%
6	23%	26%	25%	17%	22%
7	22%	18%	29%	22%	16%
8	12%	7%	13%	24%	4%
9	4%	3%	1%	10%	1%
10	1%	2%	0%	2%	1%
11	1%	2%	0%	0%	1%
12	1%	2%	0%	1%	1%
13	1%	3%	0%	1%	2%
14	2%	3%	0%	1%	2%
15	2%	4%	1%	2%	3%
16	6%	5%	3%	12%	4%
17	18%	6%	17%	36%	12%
18	18%	7%	19%	27%	20%
19	23%	17%	23%	23%	29%
20	23%	24%	21%	20%	27%
21	21%	21%	18%	20%	27%
22	21%	21%	21%	18%	23%
23	20%	20%	20%	17%	23%

Table 3: Frequency of moderate temperature inversions (lapse rate ≥2°C and <6°C /100m)

Hour	Annual	Summer	Autumn	Winter	Spring
0	35%	21%	41%	44%	34%
1	38%	22%	45%	47%	38%
2	41%	25%	49%	49%	38%
3	41%	27%	48%	50%	40%
4	42%	29%	47%	51%	43%
5	43%	30%	48%	51%	43%
6	37%	26%	42%	48%	33%
7	21%	8%	26%	41%	8%
8	4%	0%	3%	13%	0%
9	1%	0%	0%	2%	0%
10	0%	0%	0%	1%	0%
11	0%	0%	0%	0%	0%
12	0%	0%	0%	0%	0%
13	0%	0%	0%	0%	0%
14	0%	1%	0%	0%	0%
15	0%	1%	0%	0%	0%
16	1%	3%	0%	1%	0%
17	8%	3%	9%	20%	2%
18	15%	3%	18%	34%	7%
19	19%	5%	23%	34%	15%
20	24%	14%	28%	34%	21%
21	27%	16%	31%	38%	22%
22	29%	17%	32%	39%	26%
23	32%	20%	37%	42%	28%

Table 4: Frequency of strong temperature inversions (lapse rate ≥6°C/100m)

Hour	Annual	Summer	Autumn	Winter	Spring
0	14%	10%	11%	22%	14%
1	13%	10%	8%	21%	13%
2	11%	9%	6%	19%	12%
3	9%	7%	6%	15%	10%
4	8%	6%	4%	15%	8%
5	8%	5%	5%	14%	7%
6	6%	3%	5%	13%	4%
7	3%	0%	2%	11%	1%
8	0%	0%	0%	2%	0%
9	0%	0%	0%	0%	0%
10	0%	0%	0%	0%	0%
11	0%	0%	0%	0%	0%
12	0%	0%	0%	0%	0%
13	0%	0%	0%	0%	0%
14	0%	0%	0%	0%	0%
15	0%	0%	0%	0%	0%
16	0%	0%	0%	0%	0%
17	0%	0%	1%	1%	0%
18	5%	0%	5%	11%	3%
19	9%	1%	9%	21%	7%
20	14%	6%	12%	25%	12%
21	15%	9%	13%	26%	14%
22	16%	9%	14%	26%	16%
23	15%	9%	11%	25%	17%