



**WAMBO COAL  
AIR QUALITY & GREENHOUSE GAS MANAGEMENT PLAN**

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## Document Control

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## Revisions

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4	Oct 2016	Major revision including updated format & revised monitoring program	Palaris & WCPL	SP	
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8	November 2020	Incorporation of DPIE comments	WCPL	WCPL	

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## 1.0 Introduction

### 1.1 Background

The Wambo Coal Mine (the Mine) is situated approximately 15 kilometres west of Singleton, near the village of Warkworth, New South Wales (NSW) (**Figure 1**). Wambo is owned and operated by Wambo Coal Pty Limited (WCPL), a subsidiary of Peabody Energy Australia Pty Limited (Peabody).

A range of open cut and underground mine operations have been conducted at WCPL since mining operations commenced in 1969. Mining under the current Development Consent (DA 305-7-2003) commenced in 2004 and permits both open cut, underground operations and associated activities to be conducted. The latest modification to DA305-7-2003 (Mod 16), approved by the Independent Planning Commission of NSW on 29 August 2019, requires development at Wambo to be undertaken in the following stages:

- Phase 1 - open cut mining operations at Wambo open cut mine, underground mining operations at Wambo underground mine and the operation of Wambo mine infrastructure (including minor upgrades to this infrastructure) within the brown operational area identified in Figure 2;
- Phase 2 - underground mining operations at Wambo underground mine, the operation of Wambo mine infrastructure within the green operational area identified in Figure 2 and associated surface development; and
- Phase 3 - following the cessation of underground mining operations that includes mine closure.

The operation of WCPL's rail and coal loading infrastructure is undertaken in accordance with DA177-8-2004. The latest modification to DA177-8-2004 (Modification 3) was approved by the Independent Planning Commission of NSW on 29 August 2019.

This management plan has been updated to reflect Wambo moving into Phase 2 operations, as described in DA305-7-2003 MOD 16. Phase 2 is scheduled to commence 1 December 2020. The approved run-of-mine (ROM) coal production rate for Wambo Underground Mine is 9.75 million tonnes per annum (Mtpa) and all product coal is transported from WCPL by rail.

A summary of the approved Wambo Coal Mine is provided in **Table 1**.

**Table 1: Summary of the Approved Wambo Coal Mine – Phase 2**

Component	Approved Wambo <sup>1</sup>
Life of Mine	38 years (from the date of the commencement of Development Consent [DA 305-7-2003]). 31 <sup>st</sup> August 2042.
Underground Mining	Underground mining of up to 9.75 Mtpa of ROM coal from the Whybrow, Wambo, Woodlands Hill and Arrowfield Seams Underground ROM coal reserves are estimated at 161.3 Mt
Subsidence commitments and management.	The subsidence performance measures listed in Conditions B1 and B4 of the Development Consent (DA 305-7-2003)
ROM Coal Production Rate	Up to 9.75 Mtpa of ROM coal
Waste Rock Management	Waste rock deposited in open cut voids and in waste rock emplacements adjacent open cut operations Overburden may be transferred to the United open cut mine for emplacement during Phase 2.

Component	Approved Wambo <sup>1</sup>
Coal Washing	Coal handling and preparation plant (CHPP) capable of processing approximately 1,800 tonnes per hour (tph)
Product Coal	Production of up to 11.3 Mtpa of thermal coal predominantly for export
CHPP Reject Management	Coarse rejects and tailings would be incorporated, encapsulated and/or capped within open cut voids in accordance with existing Wambo management practices
Water Supply	Make-up water demand to be met from runoff recovered from tailings storage areas, operational areas, dewatering, licensed extraction from Wollombi Brook and Hunter River
Mining Tenements	Coal Lease (CL) 365, CL374, CL397, Consolidated Coal Lease (CCL) 743, Mining Lease (ML) 1402, ML1572, ML1594, Authorisation (A) 444, Exploration Licence (EL) 7211

**Note:** <sup>1</sup> Development Consent DA 305-7-2003 (as modified August 2019)

## 1.2 Purpose

The purpose of this AQGGMP is to ensure that air quality impacts from the Mine are minimised to the extent required by DA305-7-2003, DA 177-8-2004 and Environment Protection Licence (EPL 529). This AQGGMP has been developed to:

- Describe the measures to be implemented to comply with the relevant air quality and greenhouse gas conditions;
- Describe the management strategies to be implemented to minimise air quality impacts during adverse meteorological conditions and extraordinary events;
- Describe the management strategies to be implemented to minimise the release of greenhouse gas emissions from the Mine;
- Describe the proposed air quality management system and monitoring program;
- Describe the greenhouse gas monitoring and reporting program;
- Describe contingency plans to manage any unpredicted impacts and their consequences, i.e. Trigger Action Response Plans (TARPs);
- Provide a protocol for managing and reporting any air quality related incidents, exceedances or non-compliances;
- Describe the interactions and coordination with neighbouring mines in particular the United Wambo open cut coal mine;
- Communicate with the local community and regulators regarding WCPL's air quality monitoring activities;
- Describe and assign responsibilities relating to air quality and greenhouse gas management at WCPL; and
- Describe how this AQGGMP will be reviewed and updated.

## 1.3 Scope

This AQGGMP applies to all activities undertaken within WCPL's mining authorisations and approved mining areas under Phase 2 of DA305-7-2003 (Figure 2) that may impact on air quality. This AQGGMP has been prepared to address the requirements detailed in WCPL's statutory approvals for air quality and greenhouse gas management and provides

management actions to be implemented to minimise WCPL's impact on the local community and environment.

This AQGGMP forms part of WCPL's Environmental Management System (EMS) and provides a consistent process for notification and reporting in accordance with the Pollution Incident Reporting Management Plan (PIRMP).

## 1.4 Statutory Requirements

This AQGGMP has been prepared to address the relevant conditions within DA305-7-2003 and DA177-8-2004 and the requirements of WCPL's Environment Protection Licence (EPL) 529 (**Appendix A**). This AQGGMP also complies with the following legislation and standards:

- The Protection of the Environment Operations (Clean Air) Regulations 2010; and
- The Approved Methods for the Sampling and Analysis of Air Pollutants in NSW Guideline (NSW EPA, 2007) ('Approved Methods').

### 1.4.1 Environmental Planning & Assessment Act 1979

WCPL received Development Consent (DA305-7-2003) in accordance with the *Environmental Planning & Assessment Act 1979* (EP&A Act) from the NSW Department of Planning Industry and Environment (DPIE), formerly NSW Department of Planning, on 4 February 2004. Conditions within DA305-7-2003, MOD 16 relevant to air quality and greenhouse gas are summarised in **Appendix A**.

DA177-8-2004 was granted on 16 December 2004 for the Wambo Rail Development. Conditions within DA177-8-2004, MOD 3 relevant to air quality and greenhouse gas are summarised in **Appendix A**.



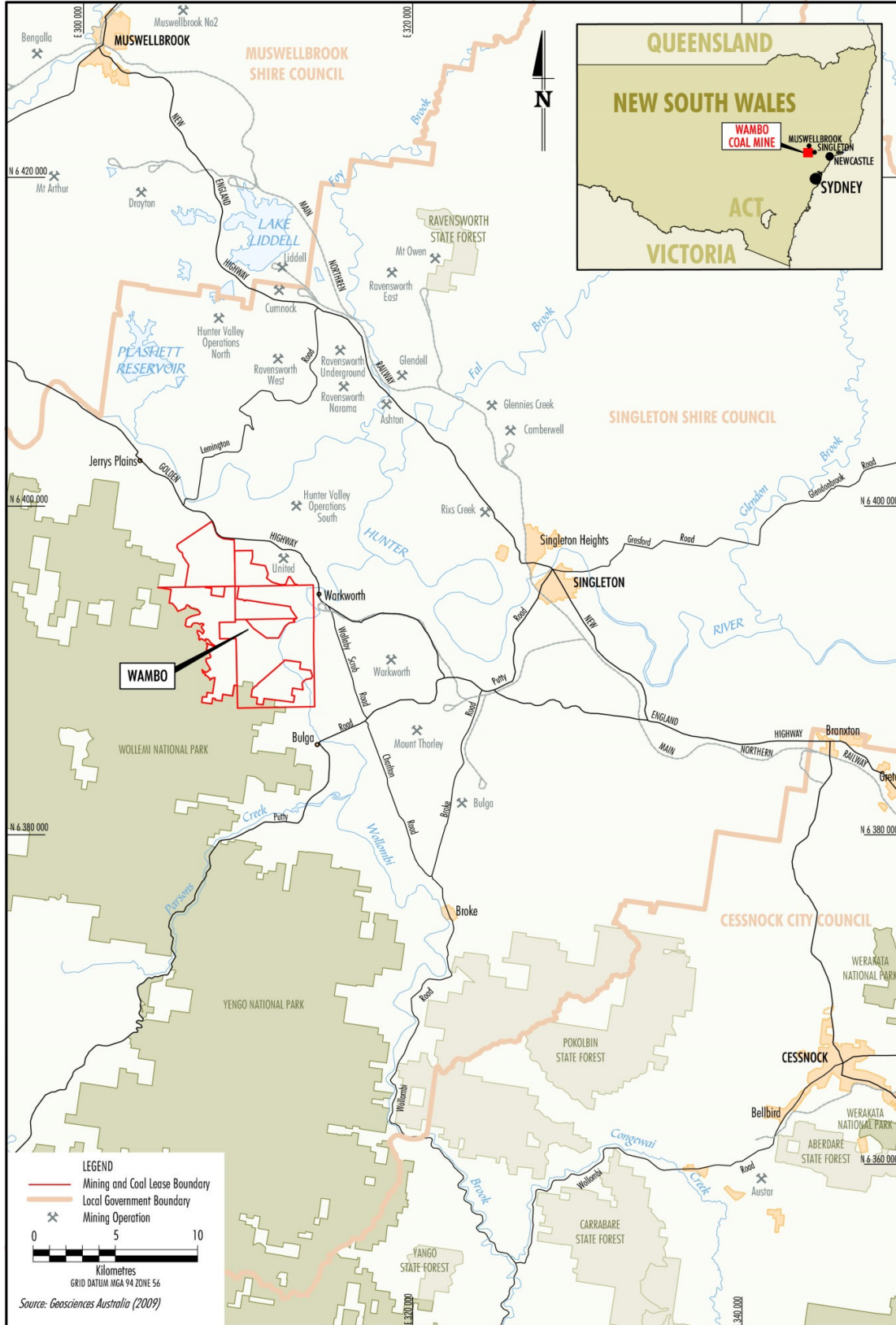


Figure 1: Wambo Coal Regional Location

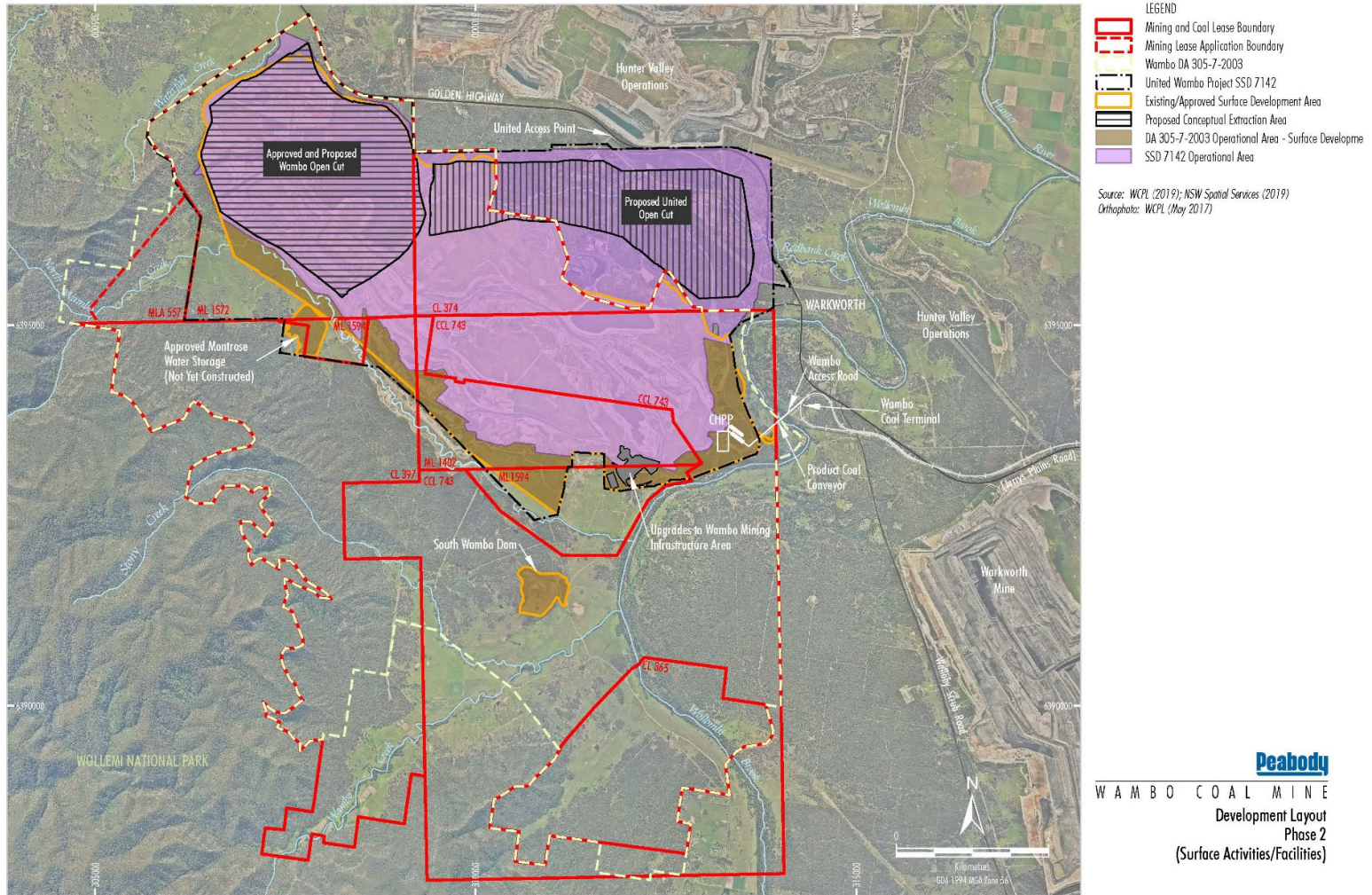


Figure 2: Approved Wambo Coal Mine Layout

#### 1.4.2 Protection of the Environment Operations Act 1997

WCPL operates under Environmental Protection Licence 529 (EPL 529), issued by the NSW Office of Environment & Heritage (OEH) under the authority of the *Protection of the Environment Operations Act 1997* (POEO Act). EPL 529 is administered by the NSW Environment Protection Authority (EPA). Conditions within EPL 529 relevant to air quality and greenhouse gas are summarised in **Appendix A**.

A Pollution Incident Response Management Plan (PIRMP) has been prepared by WCPL, as holder of EPL 529 in accordance with Part 5.7A of the POEO Act and Part 3A of the *Protection of the Environment Operations (General) Regulation 2009* (Regulation). For more information regarding WCPL's protocol for reporting environmental incidents refer to **Section 8.5**.

#### 1.5 Stakeholder Consultation

Condition B46(a) of DA305-7-2003, requires the AQGGMP to be prepared by a suitably qualified and experienced person. DPIE appointed Mr Shane Lakmaker as the suitably qualified expert in correspondence dated 28 May 2020.

Condition B46(b) of DA305-7-2003, requires the AQGGMP to be prepared in consultation with the EPA and submitted to the Planning Secretary for approval. In August 2020 the draft version of this AQGGMP (Version 7) was provided to both DPIE and the EPA for comment via the Major Projects Planning Portal. Comments received from DPIE 30 October 2020 and have been addressed in this version (Version 8) of the AQGGMP. No comments were received from the EPA. Version 8 was approved by DPIE 20 November 2020.

Correspondence in relation to the AQGGMP is attached as **Appendix B**.

#### 1.6 Summary of Commitments

A Summary of Commitments relating to this Plan is included in **Appendix C**.

## 2.0 Baseline Data

### 2.1 Upper Hunter Air Quality Monitoring Network (UHAQMN)

In October 2009, the NSW Government, in partnership with the Upper Hunter coal and power industries, announced the establishment of an air quality monitoring network in the Upper Hunter Valley i.e. the UHAQMN. The UHAQMN continuously measures dust particulates (i.e. particulate matter <math><10\mu\text{m}</math> in diameter or  $\text{PM}_{10}$ ) in the air at 14 sites throughout the region (**Figure 3**). Three of these sites also monitor particulate matter <math><2.5\mu\text{m}</math> in diameter or  $\text{PM}_{2.5}$ .

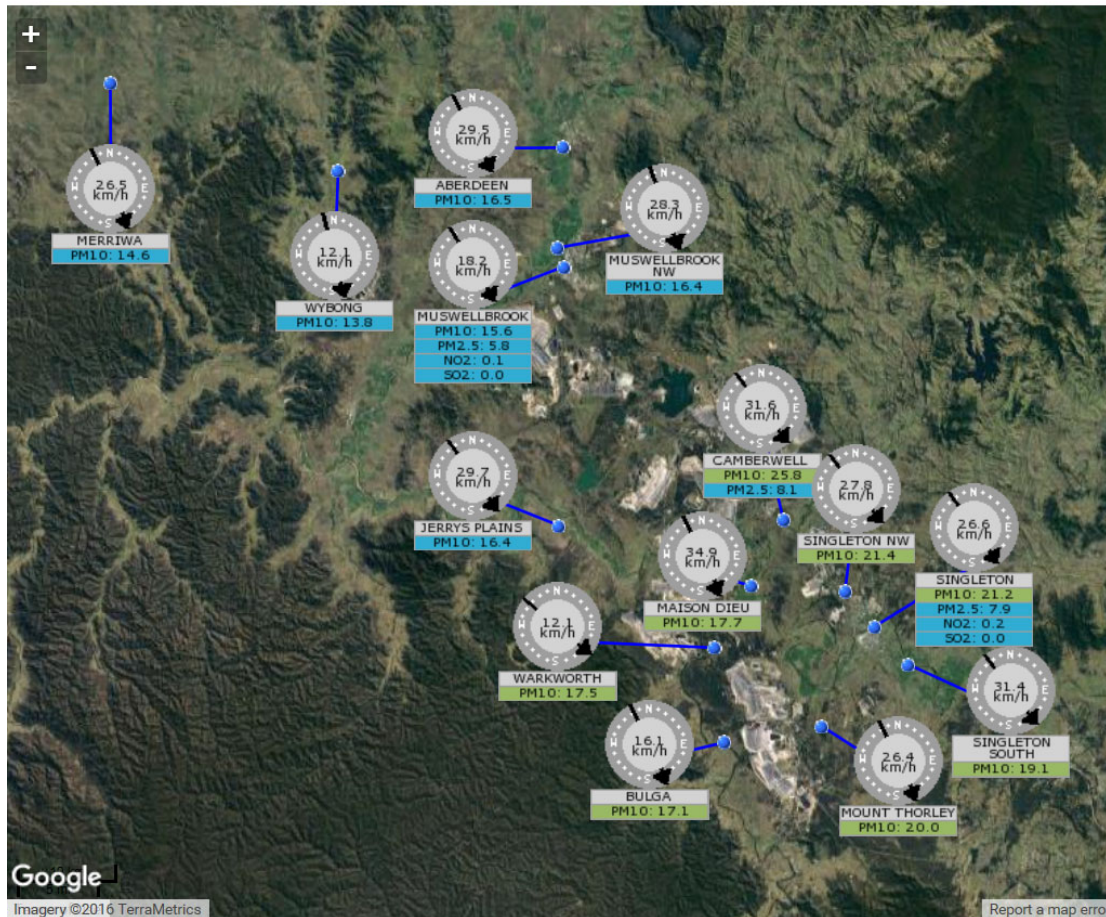


Figure 3: Upper Hunter Air Quality Monitoring Network

The 14-station network was completed in early 2012. Monitoring results are available on the OEH's website at <http://www.environment.nsw.gov.au/AQMS/aji.htm>. Historical results are also available at <http://www.environment.nsw.gov.au/AQMS/search.htm>.

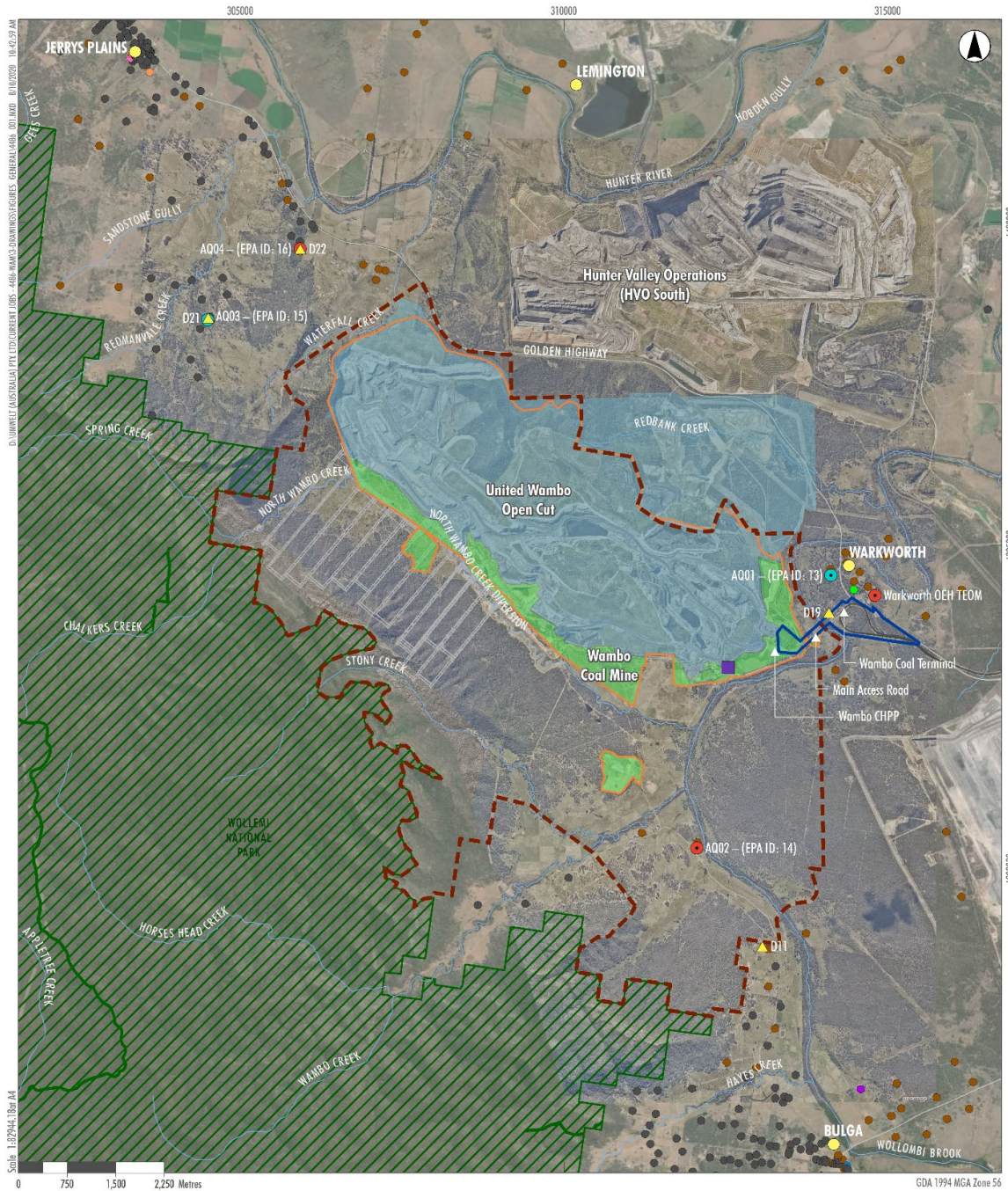
The closest  $\text{PM}_{10}$  monitoring sites to the Mine are Warkworth (East), Maison Dieu (North East) and Jerrys Plains (North West). The closest  $\text{PM}_{2.5}$  monitoring sites to the Mine are Camberwell (North East) and Singleton (East). Results for these monitoring sites are discussed in **Sections 2.2 and 2.3**.

## 2.2 Particulate Matter (as PM<sub>10</sub>)

Concentrations of PM<sub>10</sub> have been monitored at seven locations by Tapered Element Oscillating Microbalance (TEOM) units:

- Warkworth (UHAQMN);
- Maison Dieu (UHAQMN);
- Jerrys Plains (UHAQMN);
- AQ01 – Coralie (WCPL);
- AQ02 – Caban (WCPL);
- AQ03 – Thelander (WCPL - private residence); and
- AQ04 – Muller (WCPL - private residence).

TEOM monitoring locations are shown on **Figure 3** and **Figure 4**. Each TEOM records PM<sub>10</sub> concentrations every 10 minutes to calculate a 24 hour average result.



**Peabody**  
**WAMBO COAL MINE**  
**Air Quality Monitoring Locations**

**Figure 4: Air Quality and Meteorological Monitoring Locations**

A summary of the PM<sub>10</sub> concentration data for each site for the period 2011 – 2019 is provided in **Table 2**. The results show that measured annual average PM<sub>10</sub> concentrations at all four WCPL TEOM locations are below the long term impact assessment criteria. (**Section 3.1**). The results for the period 2011 – 2019 are for the pre-Phase 2 Wambo Mining Complex operations, and are inclusive of both the Wambo Open Cut and Wambo Underground Mines.

**Table 2: Summary of Measured PM<sub>10</sub> Concentrations (2011-2019)<sup>1</sup>**

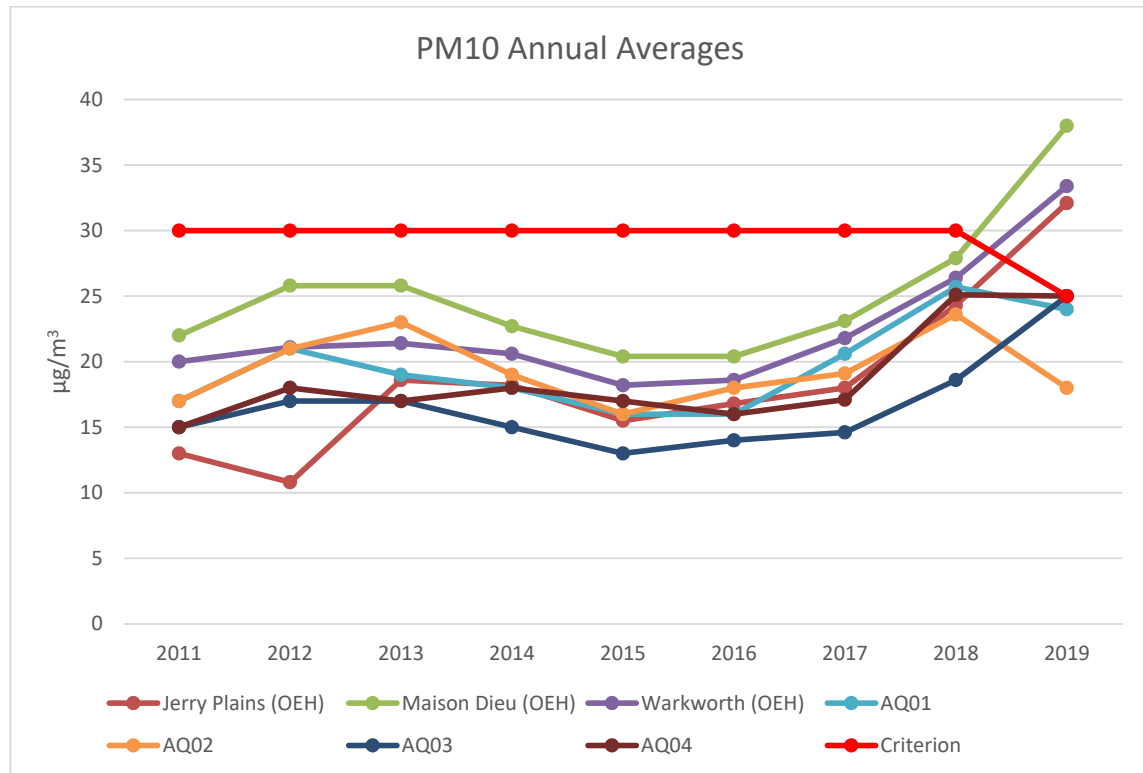
Year	Jerrys Plains (OEH) <sup>1</sup>	Maison Dieu (OEH) <sup>1</sup>	Warkworth (OEH) <sup>1</sup>	AQ01	AQ02	AQ03	AQ04	Criterion
Maximum 24 hour average in µg/m <sup>3</sup> . <sup>d</sup>								
2011 <sup>2</sup>	17	78	26	49	83	43	43	50 <sup>b</sup>
2012	44	88	50	47	76	47	45	
2013	63	84	65	65	97	71	65	
2014	64	64	68	55	70	51	56	
2015	70	77	68	52	55	43	71	
2016	43	48	42	49	49	39	44	
2017	50.5	78.9	50.7	66	52	39	49	
2018	201.4 <sup>d</sup>	191.6 <sup>d</sup>	162.4 <sup>d</sup>	151.9 <sup>d</sup>	163.5 <sup>d</sup>	143.8 <sup>d</sup>	125.0 <sup>d</sup>	
2019	226.7 <sup>d</sup>	446.1 <sup>d</sup>	181.5 <sup>d</sup>	59 <sup>c</sup>	54 <sup>c</sup>	64 <sup>c</sup>	73 <sup>c</sup>	
Number of days above 24 hour average criteria								
2011 <sup>2</sup>	0	8	0	0	2	0	0	-
2012	0	20	0	0	7	0	0	
2013	6	28	8	4	20	1	3	
2014	6	6	3	2	2	1	1	
2015	1	5	3	1	3	0	2	
2016	0	0	0	0	0	0	0	
2017	1	9	1	5	2	0	0	
2018	11	25	16	15	9	6	12	
2019	54 <sup>d</sup>	66 <sup>d</sup>	59 <sup>d</sup>	9 <sup>c</sup>	1 <sup>c</sup>	9 <sup>c</sup>	6 <sup>c</sup>	
Annual average <sup>d</sup>								
2011 <sup>2</sup>	13	22	20	17	17	15	15	30 <sup>3,a,c</sup>
2012	11	26	21	21	21	17	18	
2013	19	26	21	19	23	17	17	
2014	18	23	21	18	19	15	18	
2015	15	20	18	16	16	13	17	
2016	17	20	19	16	18	14	16	
2017	18.0	23.1	21.8	20.6	19.1	14.6	17.1	
2018	24.3	27.9	26.4	25.7	23.6	18.6	25.1	
2019	32.1 <sup>d</sup>	38.0 <sup>d</sup>	33.4 <sup>d</sup>	24 <sup>c</sup>	18 <sup>c</sup>	25 <sup>c</sup>	25 <sup>c</sup>	25 <sup>3,a,c</sup>

Notes:

1. Source: Office of Environment and Heritage
2. Statistic based on an incomplete year of data
3. Annual average criterion for PM<sub>10</sub> was reduced from 30µg/m<sup>3</sup> to 25µg/m<sup>3</sup> on the 29 August 2019 with the approval of Mod 16.
  - a. Total impact (i.e. incremental increase in concentrations due to the development plus background concentrations due to all other sources).
  - b. Incremental impact (i.e. incremental increase in concentrations due to the development plus background concentrations due to all other sources).
  - c. Excludes extraordinary events such as bushfires, prescribed burning, dust storms, fire incidents or any other activity agreed by the Planning Secretary.
  - d. Includes extraordinary events (Bushfire smoke, Dust storms, Fire incidents etc).

**Table 2** indicates that all sites recorded at least one day above the  $50\mu\text{g}/\text{m}^3$  criterion in the past five years. There is a seasonal variation in the air quality conditions, with most exceedances occurring in spring or summer. Analysis of many of these exceedances was undertaken as part of Wambo’s 2016 review of the air quality monitoring program (**Section 5.1**).

**Figure 5** shows the annual average  $\text{PM}_{10}$  concentrations from each TEOM monitoring site for data collected between 2011 and 2019. The EPA’s  $\text{PM}_{10}$  annual average air quality assessment criterion ( $30\mu\text{g}/\text{m}^3$ ) has also been shown on the graph.



**Figure 5: Measured 24 Hour Annual Average  $\text{PM}_{10}$  Concentrations (2011 – 2019)**

### 2.3 Particulate Matter (as $\text{PM}_{2.5}$ )

The closest air quality monitoring stations which record concentrations of  $\text{PM}_{2.5}$  with publicly available data are located at Singleton and Camberwell. These stations are operated by OEH and use Beta Attenuation Monitors (BAM) for the measurement of  $\text{PM}_{2.5}$ . Results for these monitoring sites (and Newcastle, for comparison) for the period 2011-2019 are summarised in **Table 3**. The results for the period 2011 – 2019 are for the pre-Phase 2 Wambo Mining Complex operations, and are inclusive of both the Wambo Open Cut and Wambo Underground Mines.



Table 3: UHAQMN Annual Average PM<sub>2.5</sub> Concentration (2011-2019)<sup>1</sup>

Year	Camberwell (OEH)	Singleton (OEH)	Newcastle (OEH)	Criterion	
Maximum 24 hour average in µg/m <sup>3</sup> <sup>a</sup>					
2011	23 <sup>2</sup>	22	-		
2012	20	20	-		
2013	30	23	-		
2014	32	29	21		
2015	24	25	28		
2016	21	28	66		
2017	24.7	29.6	18		
2018	22.6	19.2	20.2		
2019	80.0	69.3	95.5		25 <sup>4</sup>
Number of days above 24 hour average criteria <sup>a</sup>					
2011	0 <sup>2</sup>	0	-	-	
2012	0	0	-		
2013	1	0	-		
2014	1	1	0		
2015	0	0	1		
2016	0	2	1		
2017	1	1	0		
2018	0	0	0		
2019	24	22	26		
Annual average in µg/m <sup>3</sup> <sup>a</sup>					
2011	8.5 <sup>2</sup>	7.6	-	8 <sup>3</sup>	
2012	7.5	8.0	-		
2013	8.2	7.9	-		
2014	7.8	7.8	8.1		
2015	7.2	7.6	7.8		
2016	7.5	7.9	7.8		
2017	7.4	8.2	7.4		
2018	8.4	8.1	7.8		
2019	10.5	10.9	10.9		

Notes:

1. Source: Office of Environment and Heritage
  2. Partial dataset. Monitoring commenced at this location in late 2011.
  3. In 2019 the Annual average criterion of 8µg/m<sup>3</sup> was determined.
  4. In 2019 the Maximum 24 hour criterion of 25µg/m<sup>3</sup> was determined.
- <sup>a</sup>. Includes extraordinary events (Bushfire smoke, Dust storms, Fire incidents etc).

The Upper Hunter Fine Particle Characterisation Study (CSIRO Marine & Atmospheric Research, 2013) investigated the factors which contributed to elevated PM<sub>2.5</sub> concentrations in the Hunter Valley. This study identified a clear seasonal trend with higher PM<sub>2.5</sub> concentrations occurring in the cooler months, and predominantly due to wood smoke. Specifically, in Singleton, wood smoke accounted for an average of approximately 14% of the total PM, peaking at around 38% in winter.

## 2.4 Total Suspended Particulate Matter (as TSP)

Concentrations of TSP have been monitored at four locations by High Volume Samplers (HVAS) that were co-located with the TEOMs (**Section 2.2**):

- HV01 – Coralie (WCPL);
- HV02 – Caban (WCPL);
- HV03 – Thelander (WCPL - private residence); and
- HV04 – Muller (WCPL - private residence).

These HVAS units are no longer monitored as they have been replaced with real time PM10 TEOMs that are more representative of dust produced from mining operations.

A summary of the TSP concentration data for each site for the period 2011 – 2019 is provided in **Table 4**. The results show that measured annual average TSP concentrations at all four WCPL HVAS locations were below the long term impact assessment criteria of 90µg/m<sup>3</sup> (**Section 3.1**). The results for the period 2011 – 2019 are for the pre-Phase 2 Wambo Mining Complex operations, and are inclusive of both the Wambo Open Cut and Wambo Underground Mines.

**Table 4: Summary of Measured TSP Concentrations, Annual Average in µg/m<sup>3</sup> (2011-2019)<sup>1</sup>**

Year	HV01	HV02	HV03	HV04	Criterion
2011	56.7	48.8	49.0	41.0	90
2012	64.8	61.4	38.9	58.6	
2013	61.5	61.5	40.9	48.8	
2014	66.6	68.1	48.3	62.3	
2015	54.8	51.5	40.6	60.6	
2016	47.8	47.7	39.5	56.6	
2017	68.8	61.6	50.0	64.1	
2018	77.1	70.8	55.8	75.3	
2019 <sup>1</sup>	60.0	62.5	45.0	62.5	

<sup>1</sup> – TSP data derived from PM<sub>10</sub> data.

A study on co-located TSP and PM<sub>10</sub> monitors conducted in the Hunter Valley by the NSW Minerals Council (2010) indicated that dust generated from predominately coal mining sources has long-term average PM<sub>10</sub> concentrations that are approximately 40% of the corresponding TSP concentration (or equivalently, TSP concentrations are approximately 2.5 times PM<sub>10</sub> concentrations). This ratio was found to be reasonably accurate for long-term averages (e.g. annual averages).

The long-term average ratio of PM<sub>10</sub> to TSP over the four co-located monitoring sites at the Mine over a six year period was 33% (or equivalently, TSP concentrations are approximately 3 times PM<sub>10</sub> concentrations).

## 2.5 Dust Deposition

A summary of the dust deposition data for four dust deposition gauges (DDGs) for the period 2011 – 2019 is provided in **Table 5**. The results for the period 2011 – 2019 are for the pre-Phase 2 Wambo Mining Complex operations, and are inclusive of both the Wambo Open Cut and Wambo Underground Mines.

**Table 5: Dust Deposition Annual Averages (g/m<sup>2</sup>/month) (2011-2019)**

DDG	2011	2012	2013	2014	2015	2016	2017	2018	2019
D11	2.0	2.2	2.2	2.5	2.2	2.3	1.4	1.9	2.1
D19	2.5	2.9	3.1	2.9	3.1	2.5	2.3	3.0	3.8
D21	1.2	1.4	1.9	1.9	2.0	1.7	1.2	1.6	1.7
D22	1.2	1.4	2.0	2.2	2.0	2.2	2.4	2.5	3.7

Note: Throughout the period of sampling it was noted some of the dust gauges contained various sources of foreign material including bird droppings, insects, sticks and other organic matter when analysed. Contamination was assessed based on field observations, laboratory observations, and historical data and wind patterns. All monthly dust results deemed to be contaminated were excluded from the annual average.

## 2.6 Meteorological Conditions

WCPL owns and operates a meteorological station (WS1) which is located within the project boundary approximately 350 m east of the WCPL administration building (**Figure 4**).

Temperature varies throughout the year, with cooler conditions in winter and warmer conditions in summer. Annual rainfall (2011-2019) has ranged from 387mm in 2019 to 787mm in 2011 (**Table 6**).

**Table 6: Annual Rainfall (mm) (2011-2019)**

2011	2012	2013	2014	2015	2016	2017	2018	2019
787	430	635	559	738	721	442	536	387

**Figure 6** shows annual wind patterns for the period 2011 to 2015 for the Wambo meteorological monitoring station. It can be seen from these wind-roses that the most common winds in the area are from the south-southeast, southeast and west-northwest. This pattern of winds is common for many parts of the Hunter Valley and reflects the northwest-southeast alignment of the valley.



Figure 6: Annual Wind-Roses (2011 – 2015)

## 2.7 Greenhouse Gas Emissions

Greenhouse gas emissions from WCPL's mining activities are estimated and reported on an annual basis in accordance with National Greenhouse and Energy Reporting (NGER) requirements. These estimates are also included in WCPL's Annual Review (**Section 8.2**). A summary of the estimates for the period 2009/2010-2018/2019 is included in **Table 7**. The data for the period outlined in **Table 7** is including of pre-Phase 2 mining operations, inclusive of both the Wambo Open Cut and Wambo Underground mines.

**Table 7: Greenhouse Gas Energy and Emissions Estimates (2009/2010-2018/2019)**

Parameter	Scope 1 Emissions (tonnes CO <sub>2</sub> -e)	Scope 2 Emissions (tonnes CO <sub>2</sub> -e)	Energy Consumed Total (Gigajoules, GJ)	Energy Produced (Gigajoules, GJ)
2009/2010	814,520	30,300	1,066,519	133,085,133
2010/2011	970,781	36,356	1,620,613	153,369,531
2011/2012	975,989	77,752	2,142,916	149,925,148
2012/2013	769,254	77,411	1,881,237	124,431,258
2013/2014	795,032	79,869	2,081,909	132,267,726
2014/2015	915,520	78,576	1,724,379	124,801,226
2015/2016	851,928	73,506	1,744,452	129,458,754
2016/2017	959,968	63,435	1,671,270	161,361,086
2017/2018	856,704	64,185	1,653,850	125,271,717
2018/2019	696,955	63,213	1,773,348	128,248,377

### 3.0 Air Quality Compliance Requirements

Air quality compliance requirements are detailed in WCPL's DA's and EPL. Requirements relate to air quality assessment criteria, the emission of odour and greenhouse gas from the Mine, cumulative impacts and the implementation of Pollution Reduction Programs in accordance with EPL 529.

#### 3.1 Air Quality 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 do not exceed the criteria listed in **Table 8** at any residence on privately owned land, or on more than 25 percent of any privately owned land.

**Table 8: Air Quality Impact Assessment Criteria**

Pollutant	Averaging Period	Criterion	<sup>e</sup> Purpose
Total Suspended Particulate (TSP) Matter	Annual	<sup>a, d</sup> 90 µg/m <sup>3</sup>	Compliance
Particulate Matter <10µm (PM <sub>10</sub> )	Annual	<sup>a, d, f</sup> 25 µg/m <sup>3</sup>	Compliance
	24 hour	<sup>b</sup> 50 µg/m <sup>3</sup>	Compliance
Particulate Matter <2.5µm (PM <sub>2.5</sub> )	Annual	<sup>a, d, f</sup> 8 µg/m <sup>3</sup>	Compliance
	24 hour	<sup>b, f</sup> 25 µg/m <sup>3</sup>	Compliance

Notes:

- Total impact (i.e. incremental increase in concentrations due to the development plus background concentrations due to all other sources).
- Incremental impact (i.e. incremental increase in concentrations due to the development on its own).
- Deposited dust is to be assessed as insoluble solids as defined by Standards Australia, AS/NZS 3580.10.1:2003: Methods for Sampling and Analysis of Ambient Air - Determination of Particulate Matter - Deposited Matter - Gravimetric Method.
- Excludes extraordinary events such as bushfires, prescribed burning, dust storms, sea fog, fire incidents or any other activity agreed by the Secretary.
- Upon written request for acquisition from the landowner listed in Part C, Condition C1 of DA305-7-2003 (refer **Appendix A**), WCPL shall acquire the land in accordance with the procedures in Part C, Conditions C10 to C11 of DA305-7-2003.
- Criterion changed or included with the approval of Modification 16 of DA305-7-2003

#### 3.2 Land Acquisition

Condition C1 of DA305-7-2003 requires WCPL to acquire property R019 (as identified in Appendix 4 of DA305-7-2003), upon receiving a written request for acquisition from the owner of land.

This property was purchased 15 May 2019 by United Wambo and therefore WCPL will not be acquiring this property.

### 3.3 Mine Owned Land

WCPL will ensure that particulate matter emissions generated by the Mine do not exceed the criteria in **Table 8** at any occupied residence on any mine-owned land (including land owned by adjacent mines) unless:

- The tenants and landowner have been notified of health risks in accordance with the notification requirements under Schedule 5 of DA305-7-2003 and outlined in the WA-ENV-PRO-508.1 Landholder Notification Procedure (**Appendix D**);
- The tenant on land owned by WCPL can terminate their tenancy agreement without penalty, subject to giving reasonable notice, and WCPL uses its best endeavours to provide assistance with relocation and sourcing of alternative accommodation;
- 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 and landowner (where owned by another mine other than WCPL);
- Particulate matter air quality monitoring is undertaken to inform the tenant and landowner of potential health risks; and
- Monitoring data is presented to the tenant in an appropriate format, for a medical practitioner to assist the tenant in making an informed decision on the health risks associated with occupying the property, to the satisfaction of the Secretary of DPIE.

### 3.4 Cumulative Impacts

WCPL will co-ordinate air quality management at the Wambo Underground Mine with the air quality management at nearby mines (HVO South, HVO North, Mount Thorley Warkworth and UWJV mines). During periods when high regional dust levels trigger dust alarms, Wambo will make changes to operations, where possible, to reduce the cumulative impacts of dust emissions.

If the real time monitor records a trigger level 3 as per **Table 17** (Risk/Response Matrix for 24hr PM<sub>10</sub> Concentrations) in **Section 6.1.2**, then, upon investigation and validation of the alarm criteria and source of propagation, WCPL will provide notification to the above operations outlining WCPL actions to minimise cumulative air quality impacts on neighbouring mines.

### 3.5 Fume and Odour

WCPL will ensure that no offensive fume or odours, as defined under the POEO Act, are emitted from the Wambo Underground Mine. This is achieved through the implementation of WCPL's Spontaneous Combustion Management Plans (prepared under the *Work Health and Safety (Mines and Petroleum Sites) Regulation 2014*) and Waste Management Plan (an internal management plan that has not been reviewed by DPIE).

### 3.6 Greenhouse Gas Emissions

WCPL will implement all reasonable and feasible measures to minimise the release of greenhouse gas emissions from the Wambo Underground Mine (**Section 4.2**).

WCPL will also:

- Monitor the greenhouse gas emissions generated by the development (**Section 5.3**);
- Investigate ways to reduce greenhouse gas emissions generated by the development (**Section 4.2**); and

- Report on greenhouse gas monitoring and abatement measures in the Annual Review (**Section 8.2**).

### 3.7 Pollution Reduction Programs

In 2010, the NSW EPA commissioned a detailed review of particulate matter emissions from coal mining operations in the Greater Metropolitan Region (GMR) of NSW. The study was completed in 2011 and is known as the NSW Coal Mining Benchmarking Study: International Best Practice Measures to Prevent and/or minimise Emissions of Particulate Matter from Coal Mining (hereafter ‘the Best Practice report’) (Katestone, 2011).

Following on from key recommendations in the study, the NSW EPA introduced Pollution Reduction Programs (PRPs) which required coal mines in NSW to provide a report examining in detail the potential measures which could be employed to further reduce particulate emissions from the mine. A part of WCPL’s PRP was to complete a site audit to identify the current dust control measures and best practice measures implemented on-site. A summary of these dust management measures are outlined in **Section 4.1.4**.

In addition to the site audit, WCPL was also required to submit a number of reports to the EPA to address the PRP conditions in EPL 529. These reports included:

- Coal Mine Pollution Reduction Program Condition U3 Assessment (Pacific Environment Ltd, 2014a);
- Wambo Coal Mine PRP U3: Monitoring Results – Wheel Generated Dust (Pacific Environment Ltd, 2014b);
- Supporting Study for Wambo Mines Pollution Reduction Program U2: Coal Mine Wind Erosion of Exposed land Assessment (Pacific Environment Ltd, 2015); and
- Wambo Coal Mine: Monitoring Results – Wheel Generated Dust (Pacific Environment Ltd, 2016).



## 4.0 Mitigation and Management Measures

### 4.1 Air Quality Mitigation and Management Measures

A range of air quality mitigation and management measures will be implemented by WCPL to minimise off-site odour, fume and dust emissions from the Mine. These measures are based on current procedures developed at the Mine and industry best practice measures.

The measures described in this section relate to WCPL's approved mining operations during Phase 2 of DA305-7-2003 i.e. underground mining operations, coal handling and train loading operations and surface disturbance activities.

#### 4.1.1 Predictive Meteorological Forecasting

WCPL has implemented a predictive meteorological forecasting module for the Mine. This module, together with WCPL's real-time air quality monitoring system, guides site operational personnel and planners in the day to day planning of mining operations and implementation of both proactive and reactive air quality mitigation measures.

The Environment and Community Manager (E&C Manager), and Mine Supervisors receive detailed 7 day meteorological forecasts from Weatherzone. The meteorological forecasts are reviewed for upcoming predicted temperatures and wind speeds that may trigger operational responses, in particular:

- predicted temperatures above 30°C or 35°C; and/or
- predicted wind speeds above 6 m/s (~22 km/h) or 8 m/s (~29 km/h).

In addition to the predictive forecasts, actual measured temperature and wind speeds from the WCPL meteorological station (WS1) are monitored to identify if operational responses may be required. SMS alarm notification messages are sent to the E&C Manager when the wind or temperature triggers are exceeded.

The Underground Mining Superintendents and CHPP Superintendent are responsible for communicating meteorological forecasts to relevant operation unit managers in Pre-Start-Information (PSI) sessions.

#### 4.1.2 Proactive Air Quality Management Protocol

WCPL has developed a Proactive Air Quality Management Protocol to facilitate the day-to-day management of dust emissions from WCPL's activities. Dust mitigation measures will be actively carried out as a standard operating procedure utilising techniques outlined in **Section 4.1.4**. The implementation of the Proactive Air Quality Management Protocol will be the responsibility of the Environment and Community Manager (E&C Manager) and relevant mining operations managers and supervisors as required.

The Proactive Air Quality Management Protocol comprises four stages:

1. Source Identification;
2. Management Strategy;

3. Implementation; and
4. Review.

The Proactive Air Quality Management Protocol is summarised in **Table 9**.

**Table 9: Proactive Air Quality Management Protocol**

Stage	Description
Source Identification	<p>This stage involves the identification of mining, development or construction activities with the potential for excessive dust generation. Consideration is given to the following:</p> <ul style="list-style-type: none"> <li>• Methods and types of plant and equipment that will be used.</li> <li>• Timing of the activity.</li> <li>• Location of the activity (including surrounding topography and land-use).</li> <li>• The result of recent monitoring data.</li> <li>• Prevailing climatic conditions.</li> </ul> <p>The outcomes of the above process will determine whether there is the potential for exceedances of criteria and therefore if it is necessary to implement the management strategy phase.</p>
Management Strategy	<p>This stage involves the determination of either proactive or reactive dust control management measures that may be utilised to minimise air quality emissions, based on the results of the identification stage. Standard proactive management measures that will be implemented at the Mine are outlined in <b>Section 4.1.4</b>.</p>
Implementation	<p>This stage involves implementation of the dust control and management measures chosen in the management strategy process. The relevant mining operations manager will be responsible for the timely implementation of the selected measures.</p>
Review	<p>The final stage is the review of dust control and management measures. These will be assessed by comparing the results of the air quality monitoring program (<b>Section 5.0</b>) with the air quality criteria (<b>Section 3.1</b>). Where necessary, the management strategy phase of the protocol will be reviewed.</p>

#### 4.1.3 Reactive Air Quality Management Protocol

WCPL has developed a Reactive Air Quality Management Protocol that will be implemented should any exceedances of the air quality assessment criteria be experienced and/or if unexpected adverse or extraordinary meteorological events are experienced at the Mine.

The Reactive Air Quality Management Protocol comprises four stages:

1. Determination of an Air Quality Exceedance;
2. Management of an Air Quality Exceedance;
3. Implementation of Air Quality Mitigation and Management Measures; and
4. Review of Air Quality Mitigation and Management Measures Employed.

The Reactive Air Quality Management Protocol is summarised in **Table 10**.

**Table 10: Reactive Air Quality Management Protocol**

Stage	Description
Determination of an Air Quality Exceedance	<p>In the event of an exceedance of the air quality criteria presented in <b>Section 3.1</b> an assessment will be conducted to determine the validity of the exceedance by:</p> <ul style="list-style-type: none"> <li>• Investigating if any potential contamination of sample may have occurred and if the monitoring results are validated.</li> <li>• Investigating the timing of the exceedance(s).</li> <li>• Investigating the general location of the exceedance(s).</li> </ul>

Stage	Description
Determination of an Air Quality Exceedance (Cont.)	<ul style="list-style-type: none"> <li>• Investigating the potential contributing factors (e.g. can the exceedance be attributed directly to the Mine). This will include consideration of:               <ul style="list-style-type: none"> <li>○ The methods and type of equipment or plant being used by the Mine at the time of the exceedance(s) and proximity to the locations at which the exceedance(s) was recorded.</li> <li>○ The location of non-WCPL mining activities including operations at the UWJV Open Cut Mine or agricultural activities and proximity to the locations at which the exceedance(s) was recorded.</li> <li>○ Comparing the upwind, downwind and regional monitoring data for the same period.</li> </ul> </li> <li>• Investigating the meteorological data for the relevant period to determine dominant wind direction, average wind speeds, percentage calm conditions (&lt; 0.5 m/s) and significant periods of moderate winds (&gt; 5.4 m/s).</li> <li>• In the case of adverse weather conditions and/or extraordinary events, the following reactive responses are implemented where appropriate;               <ul style="list-style-type: none"> <li>○ Review and assess PM<sub>10</sub> real-time dust levels from monitoring network</li> <li>○ Review and assess regional Upper Hunter Air Quality Monitoring network</li> <li>○ Review and assess upwind and downwind monitor results to determine possible contribution and or emission source in relation to mining operations</li> <li>○ Conduct a visual inspection of operations and assess visually any potential offsite impact</li> <li>○ Discontinue or modify operational activities in areas where increased potential emissions are possible due to adverse and/or extraordinary meteorological conditions</li> <li>○ Ensure availability of water carts and prioritise and direct to areas of immediate concern</li> <li>○ Automated wind triggers will be activated via the predictive weather forecasting module when winds reach 8m/s requiring visual inspection by operational personnel. If identification of unacceptable visible dust is detected, operations are to be modified accordingly</li> <li>○ Immediate reactive mitigating measures may also include reviewing Coal Handling Preparation Plant operations</li> <li>○ Review predictive meteorological forecasting module for verification and assist in planning proactive and reactive responses</li> <li>○ If predictive forecasting module confirms continuing adverse meteorological conditions, scheduling of amended activities or working locations during these unfavourable conditions is to be investigated</li> </ul> </li> </ul> <p>The real time air quality management system will provide a data repository for all data required for the compliance evaluation, including monitoring data, meteorological data and activity and operational response logs.</p> <p>Based on the above assessment, if the exceedance is determined to be due to WCPL's operations, the Environmental and Community Manager (or delegate) will determine appropriate management strategies in consultation with relevant mining operations personnel. These will be in addition to those implemented as part of normal operations (including modifications to operation methodologies, if necessary) to reduce air quality emissions. Any validated exceedances of criteria attributed to WCPL mining activities will be reported to the relevant landowner(s) (<b>Section 4.3.1</b>), DPIE compliance officers, the Wambo/United Community Consultative Committee (CCC) and the EPA as outlined in <b>Section 8.5</b>.</p>
Management of an Air Quality Exceedance	<p>The management strategy determining the air quality mitigation and management measures that will be adopted will be based on the results of the air quality monitoring assessment stage of the protocol. Air quality mitigation and management measures are presented in <b>Section 4.1.4</b>. This stage will be conducted in consultation with the relevant mining operation managers.</p> <p>Air quality mitigation and management measures will be selected with consideration of:</p> <ul style="list-style-type: none"> <li>• The location of the exceedance of the criteria and the proximity to the Mine's activities.</li> <li>• Possible reasons for the exceedance of the criteria (including consideration of meteorological factors).</li> <li>• The likely effectiveness and feasibility of the mitigation/management measures.</li> </ul>

Stage	Description
Implementation of Air Quality Mitigation and Management Measures	This stage of the protocol involves the implementation of the air quality mitigation and management measures selected in the management strategy process. The relevant mining operations manager will be responsible for the timely implementation of the selected measures.
Review of Air Quality Mitigation and Management Measures Employed	<p>The effectiveness of the adopted measures will be assessed against the relevant criteria (<b>Section 3.1</b>). The management strategy phase of the protocol will be revisited as required.</p> <p>In addition, the Environmental and Community Manager (or delegate) will note any trends in the monitoring data that may emerge in regards to particular operating scenarios or meteorological conditions.</p> <p>The outcomes of the Reactive Air Quality Management Protocol will be reported in the Annual Review (<b>Section 8.2</b>).</p>

#### 4.1.3.1 Procedures for Dealing with Landowners

Schedule 5 of DA305-7-2003 details additional procedures to be implemented for air quality management, including:

- Notifying landowners of an exceedance of the air quality impact assessment criteria (as outlined in the WA-ENV-PRO-508.1 Landholder Notification Procedure in **Appendix D**);
- A landowners right to an Independent Review of the air pollution impacts on his/her dwelling and the requirements of that Independent Review (triggered by a formal request by a landowner); and
- Details of the Land Acquisition process (triggered by a formal request by a landowner, noting there is only one non-resource company owned dwelling with acquisition upon request rights).

The specific conditions of Schedule 5 (of DA305-7-2003) are provided in **Appendix A**.

#### 4.1.4 Dust Management Measures

A summary of the dust management measures employed at the Mine are outlined in **Table 11**.

**Table 11: Dust Management Practices Employed at the Mine**

Action	Timing	Proactive / Reactive Response	Performance Indicator	Responsibility for Implementation
Induction training	Ongoing as required	Proactive	WCPL employees and contractors receive training	E&C Manager
Continually review road management practices (e.g. speed limits and dust suppression) throughout production period to manage emissions	Ongoing	Proactive / Reactive	Road management is effective in reducing dust impacts	Underground Mining Superintendents/ E&C Manager
Review water cart management – Maintenance Schedule – ensure maintenance works are scheduled in periods of least demand	Ongoing	Proactive	Water cart management is effective in reducing dust impacts	Underground Mining Superintendents
Modification of operations in unfavourable weather conditions in accordance with <b>Section 6.1</b>	Daily	Proactive	No exceedances of dust criteria and no complaints from nearby residents due to WCPL operations	Underground Mining Superintendents
Reduce speed limits from 60 km/h to 40 km/h in accordance with prevailing conditions (temperatures above 35°C and/or wind speeds above 8 m/s and/or sustained visible dust on unsealed roads observed above tray height)	Daily	Proactive / Reactive	No exceedances of dust criteria and no complaints from nearby residents due to WCPL operations	Underground Mining Superintendents / All Operations Personnel
Rehabilitation of disturbed land within the earliest possible timeframe Temporary stabilisation or revegetation of areas not yet available for final rehabilitation	Each new phase of operation and as reported in the Mining Operations Plan	Proactive	Disturbed land revegetated or stabilised where appropriate	E&C Manager
Minimising disturbed areas through mine planning and Life of Mine (LOM) planning processes	Each new phase of operation	Proactive	Disturbed land revegetated where appropriate	Technical Services Superintendent / E&C Manager
Revegetation of topsoil stockpiles as new stockpiles are created	Each new phase of operation	Proactive	Disturbed land revegetated where appropriate	E&C Manager

Action	Timing	Proactive / Reactive Response	Performance Indicator	Responsibility for Implementation
Underground access road watering (increasing where temperatures are above 35°C and/or wind speeds are above 8 m/s and/or sustained visible dust on unsealed roads is observed above tray height)	Daily	Proactive / Reactive	No exceedances of dust criteria and no complaints from nearby residents due to WCPL operations	Underground Mining Superintendents
Use of additional water trucks as required around the CHPP, Administration and auxiliary access roads where sustained visible dust on unsealed roads is observed	As required	Proactive / Reactive	No exceedances of dust criteria and no complaints from nearby residents due to WCPL operations	CHPP Manager
Operation of sufficient truck fill points for underground and CHPP access roads.	Daily	Proactive	Water carts are operating effectively in reducing dust impacts	Underground Mining Superintendents / CHPP Manager
Water sprays on ROM dump hopper and stockpiles	Daily	Proactive	No exceedances of dust criteria and no complaints from nearby residents due to WCPL operations	CHPP Manager
Cleaning up coal spillage at CHPP	Daily	Proactive / Reactive	No exceedances of dust criteria and no complaints from nearby residents due to WCPL operations	CHPP Manager
Minimise dust emissions from coal transportation by rail through: <ul style="list-style-type: none"> <li>- inherent moisture content (~10%)</li> <li>- volumetric loading from an overhead bin with a telescopic chute</li> <li>- partial enclosure of the loading point</li> <li>- use of a profiler to manage overloading</li> </ul>	Ongoing	Proactive	No exceedances of dust criteria and no complaints from nearby residents due to WCPL operations	CHPP Manager
Constructing minor roads used regularly for access so as to minimise dust generation (using well-compacted select material) and watering as required	As construction is required	Proactive	Water/dust suppression techniques applied	E&C Manager

Action	Timing	Proactive / Reactive Response	Performance Indicator	Responsibility for Implementation
Review dust impacts of construction activities during the Surface Disturbance Process using the Proactive Air Quality Management Protocol ( <b>Table 9</b> ) and implement the following measures: <ul style="list-style-type: none"> <li>- minimise areas of disturbance</li> <li>- minimise vehicle access to soil stockpiles (if relevant)</li> <li>- minimise drop heights (if relevant)</li> <li>- construct any access roads so as to minimise dust generation (using well-compacted select material)</li> <li>- use dust suppression where required to minimise visible off-site air pollution or meet the dust criteria</li> </ul>	As construction is required	Proactive	No exceedances of dust criteria and no complaints from nearby residents due to WCPL operations	Senior Environmental Advisor / Environmental Advisor
One trailer mounted field camera for real-time monitoring footage. The camera will typically monitor visible dust in the South Bates Pit and operations will be modified by mining supervisors to reduce dust (e.g. reduced speed and/or additional dust suppression).	As required	Proactive / Reactive	Operating conditions	E&C Manager  Underground Mining Superintendents
Review and summarise monitoring data on a monthly basis and during periods of extraordinary meteorological events	Monthly	Proactive / Reactive	Summary in Annual Review / As needed	Senior Environmental Advisor / Environmental Advisor
Review and assess PM <sub>10</sub> monitoring network and UHAQMN during periods of extraordinary meteorological events and/or as a response to trigger alarms being activated	As required	Reactive	As required	Senior Environmental Advisor / Environmental Advisor
Conduct off-site visual inspections to verify any potential offsite amenity impacts	As required	Reactive	No visible impact on offsite receivers due to WCPL operations	Senior Environmental Advisor / Environmental Advisor

Action	Timing	Proactive / Reactive Response	Performance Indicator	Responsibility for Implementation
Discontinue or modify operational activities in areas where increased potential off-site emissions are possible due to adverse and/or extraordinary meteorological conditions	As required	Reactive	No visible emissions from area are recorded due to WCPL operations	Underground Mining Superintendents
Automated wind triggers activated via predictive weather forecasting module when winds reach 8m/s requiring visual inspection by operational personnel	As required	Proactive / Reactive	No visible impact from operations – management of operations in controlling potential emission is effective	Senior Environmental Advisor / Environmental Advisor
Review predictive meteorological forecasting module daily for verification of meteorological conditions and assist in planning both proactive and reactive management strategies	Daily	Proactive / Reactive	Predictive model confirms meteorological conditions – management actions implemented where required	Senior Environmental Advisor / Environmental Advisor
Pre-Start-Information (PSI) sessions to highlight current and predicted meteorological conditions and possible effects on operations	As required	Proactive / Reactive	Predictive model confirms meteorological conditions – management actions implemented where required	Underground Mining Superintendents / CHPP Manager
Document operational changes due to dust management as they are made throughout shift.	As required	Reactive	All operational changes made due to dust monitoring and visual inspections have been documented	Underground Mining Superintendents / CHPP Manager
Any dust complaint for the WCPL underground operation or CHPP will trigger an inspection of the operations by a supervisor who will assess dust emissions.	Complaints	Reactive	Operations have been inspected and documented for each dust complaint triggered by WCPL operations.	E&C Manager



## 4.2 Greenhouse Gas Mitigation and Management Measures

The main sources of greenhouse gases generated by the Mine are:

- Methane liberated during mining of coal;
- Fugitive emissions from coal once mined;
- Fuel combustion associated with the use of plant and equipment;
- Indirect emissions associated with electricity use; and
- Indirect emissions associated with the transport of product coal.

Greenhouse gas management for the Mine will focus on emissions management and reductions associated with these sources. All reasonable and feasible measures to minimise the release of greenhouse gas emissions from the site will be implemented. A summary of the measures used to manage and minimise greenhouse gas emissions at the Mine are listed in **Table 12**.

It is noted that WCPL does not currently utilise pre or post gas drainage methods, which would liberate high concentrations of methane from the underground workings. If the opportunity arises to conduct flaring as a potential way to reduce greenhouse gas emissions from the mine, this will be assessed at the time.

**Section 5.3** presents details of monitoring that will take place to measure greenhouse gas emissions.

**Table 12: Greenhouse Gas Management Practices Employed at the Mine**

Action	Timing	Performance Indicator	Responsibility for Implementation
Consider ways to reduce energy consumption during project planning phases and consider practicality of more energy efficient alternatives	As new phases of planning begin	Energy use is reduced	Peabody Energy Australia
Participation in the Federal Government's Energy Efficiency Opportunities (EEO) program which included a review of energy usage and identified areas for potential energy efficiency improvement	Current and ongoing	Identify areas for potential energy efficiency improvement	Peabody Energy Australia
Participation in NGERs reporting	Current and ongoing	Identify areas for potential energy efficiency improvement	Peabody Energy Australia
Regular scheduled maintenance of equipment and plant	Ongoing	Energy efficiency is maximised	Maintenance Planner Scheduler
Enterprise-wide strategy for managing methane emissions	Unknown	Implementation of strategy and reduction in greenhouse gas emissions and energy use	Peabody Energy Australia

Action	Timing	Performance Indicator	Responsibility for Implementation
Real-time gas (methane and carbon dioxide), temperature, pressure and volumetric flow rate monitoring at the ventilation shafts to allow accurate measurement of ventilation to allow further feasibility assessment of reuse options	Ongoing	Data collected to 90% completeness	Ventilation Officer
Completed longwall panels will be sealed, to reduce methane emissions from the goaf.	Ongoing – at completion of each panel	Completed longwall goafs sealed	Ventilation Officer
Ensure maintenance, calibration and record keeping is undertaken on the main ventilation shaft and fans to allow calculation of greenhouse gas emissions.	Monthly	Report annually	Ventilation Officer
Maintain records of monthly electricity use and monthly ROM coal production to allow calculation of greenhouse gas emissions	Monthly	Report annually	Commercial Manager
Avoid idle running of conveyors	Daily	Energy efficiency is maximised	CHPP Manager/ Underground Mine Manager
Turn off unnecessary lighting around the mine site	Daily	Energy efficiency is maximised	All Personnel

### 4.3 Training and Communication

General training on the aspects of the AQGGMP will be provided to all employees and contractors through the WCPL site induction process.

Regular workforce communication days and toolbox talks allow for discussion of the objectives and requirements of this and any other relevant Plans.

Additional training will be provided to Employees and Contractors based on the Training Needs Analysis. This training will be targeted to provide employees and contractors with specific skills and knowledge to enable them to manage air quality in accordance with this Management Plan and corresponding procedures. This training will include a familiarisation of statutory requirements, implementation of this Plan, understanding the current air quality monitoring network, and the implementation of air quality mitigation measures.

## 5.0 Air Quality and Greenhouse Gas Monitoring Program

### 5.1 Monitoring Program Review

In July 2016 the DP&E requested that WCPL review its air quality monitoring program and identify potentially redundant air quality monitoring, following the establishment of the UHAQMN and discussions between the DP&E and EPA regarding rationalisation of the existing dust monitoring network within the Hunter Valley airshed. EPA's optimisation proposal involves airshed monitoring upstream and downstream of mine sites. DP&E supports this proposal provided that the conditions of approval for individual mine sites continue to be met.

On 13 September 2016 WCPL received correspondence from the NSW EPA detailing their proposal for changes to the air quality monitoring requirements for coal mines in the Hunter Valley. The proposal included the following key features:

- Emission rather than receiver monitoring i.e. monitoring at the Mine's operational boundary not at receiver locations;
- Focus on continuous monitoring i.e. removal of monthly dust deposition and 6-daily total suspended solids monitoring; and
- Focus on predominant wind directions i.e. locating monitoring equipment in the north-west or south-west directions to match predominant winds.

A draft EPL variation was also issued for review. The revised EPL included the following changes:

- Condition P1.1 - Removal of monitoring points 5 (dust deposition), 6 (TSP) and 8 (PM<sub>10</sub>) and addition of monitoring points 13, 14, 15 and 16 (PM<sub>10</sub>, to enable continuous monitoring of upwind and downwind PM<sub>10</sub> concentrations);
- Condition M2.2 – Removal of monitoring points 5, 6 and 8 and addition of monitoring points 13, 14, 15 and 16;
- Condition M4 – Weather monitoring station is now licensed monitoring point 17 and includes standard parameters and sampling methods; and
- Condition M9.4 – Addition of a condition requiring monitoring data to be recorded in ten minute intervals.

WCPL responded to the draft EPL variation on 19 October 2016. A copy of all relevant correspondence is included in **Appendix B**.

In September 2016 WCPL engaged Jacobs to undertake a review of WCPL's current PM<sub>10</sub> air quality monitoring network to ensure that the number and location of WCPL's PM<sub>10</sub> monitors (**Figure 4**) are appropriate to allow for the determination of WCPL's contribution to off-site air quality (Jacobs, 2016). As part of the review monitoring data from 31 Dec 2011 - 31 Dec 2015 was analysed and each exceedance of the 24 hour PM<sub>10</sub> criteria recorded during that period was investigated. The outcome of the analysis suggested that the existing PM<sub>10</sub> monitors provide adequate coverage to allow for clear explanation of exceedances and no changes to the current PM<sub>10</sub> monitoring locations would be required.

In response to comments from DP&E, dust deposition gauges have been included in the monitoring program for the purposes of the Development Consent requirements only. A protocol has been developed to determine TSP concentrations and exceedances of the TSP criteria.

In August 2019 Wambo received approval of Modification 16. This Modification was assessed and approved concurrently with the United Wambo Joint Venture Project. The air quality monitoring program has been reviewed in light of Modification 16. The only change to the air quality monitoring program is the inclusion of two PM<sub>2.5</sub> real time monitors located to the east and west of the mine. These monitors are consistent with the United Wambo Air Quality and Green House Gas Management Plan and have been installed during Phase 1 of the project.

During Phase 2 operations, under a modification to EPL 529, monitor AQ01 will be relocated to the 'Kelly' residence.

## 5.2 Air Quality Monitoring Program

WCPL's Air Quality Monitoring Program includes dust deposition, total suspended particulate (TSP), continuous monitoring of PM<sub>10</sub> and PM<sub>2.5</sub> concentrations and onsite meteorological monitoring. Data from the UHAQMN will also be incorporated into the monitoring program to allow for the assessment of WCPL's compliance with the air quality impact assessment criteria (**Section 3.1**).

### 5.2.1 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* (DEC, 2007). The station has been sited in accordance with sampling method AM-1 i.e. AS 2922-1987 Ambient Air – Guide for the Siting of Sampling Units. The location of the station is identified on **Figure 4**.

The meteorological station is routinely calibrated and maintained by appropriately accredited technicians. Meteorological monitoring will be undertaken in accordance with Condition M4 of EPL 529, as summarised in **Table 13**.

Table 13: Meteorological Monitoring

Parameter	Sampling Method <sup>1</sup>	Units of Measure	Averaging Period <sup>2</sup>	Frequency
Rainfall	AM-4	mm	1 hour	Continuous
Wind Speed at 10 metres	AM-2 & AM-4	m/s	15 minutes	Continuous
Wind Direction at 10 metres	AM-2 & AM-4	Degrees	15 minutes	Continuous
Temperature at 2 metres and 10 metres	AM-4	Celsius	15 minutes	Continuous
Sigma Theta (at 10 metres)	AM-2 & AM-4	Degrees	15 minutes	Continuous
Total Solar Radiation (at 10 metres)	AM-4	Watts/m <sup>2</sup>	15 minutes	Continuous

Notes:

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

### 5.2.2 PM<sub>10</sub> Monitoring

Four real-time TEOMs monitor PM<sub>10</sub> concentrations at WCPL. WCPL will also monitor PM<sub>10</sub> concentrations at OEH's Warkworth UHAQMN location. Monitoring locations for PM<sub>10</sub> are shown in **Table 14** and **Figure 4**.

Table 14: Air Quality and Meteorological Monitoring Sites

Monitoring Site	Parameter	Owner	Easting	Northing	Justification
AQ01 – Kelly (EPA ID: 13)	PM <sub>10</sub>	UWJV	314129	6394541	Located to the north-east of the Mine. Direction to WCPL’s mining activities – between 200-280 degrees from true north i.e. downwind monitor when wind from north west, upwind monitor when wind is from the south east.
AQ02 – Caban (EPA ID: 14)	PM <sub>10</sub>	WCPL	312055	6390321	Located to the south east of the Mine. Direction to WCPL’s mining activities – between 320-10 degrees from true north i.e. downwind monitor when wind from north west, upwind monitor when wind is from the south east.
AQ03 – Thelander (EPA ID: 15)	PM <sub>10</sub>	WCPL	304502	6398490	Located to the north west of the Mine. Direction to WCPL’s mining activities – between 110-140 degrees from true north i.e. downwind monitor when wind from south east, upwind monitor when wind is from the north west.
AQ04 – Muller (EPA ID: 16)	PM <sub>10</sub>	WCPL	305928	6399587	Located to the north west of the Mine. Direction to WCPL’s mining activities – between 130-180 degrees from true north i.e. downwind monitor when wind from south east, upwind monitor when wind is from the north west.
AQ05 – Kelly	PM <sub>2.5</sub>	WCPL	314129	6394541	Located in same location as AQ01 monitor
AQ06 – Thelander	PM <sub>2.5</sub>	WCPL	304502	6398490	Located in same location as AQ03 monitor
Warkworth	PM <sub>10</sub>	OEH	314810	6394230	Located to the east of the Mine in the village of Warkworth.
D11	DDG	WCPL	313066	6388799	Located to the south east of the Mine.
D19	DDG	WCPL	314096	6393963	Located to the east of the Mine.
D21	DDG	WCPL	304510	6398522	Located to the north west of the Mine.
D22	DDG	WCPL	305932	6399586	Located to the north west of the Mine.
WS1 (EPA ID: 17)	Weather	WCPL	312536	6393108	EPL Meteorological Station

The TEOM monitors are sited in accordance with AM-1 i.e. AS 2922-1987 Ambient Air – Guide for the Siting of Sampling Units.

WCPL’s TEOMs will be operated in accordance with AS3580.9.8 – 2002, Method for Sampling and Analysis of Ambient Air – Determination of Suspended Particulate Matter – PM<sub>10</sub> Continuous Direct Mass Method using a Tapered Element Oscillating Microbalance Analyser. Each TEOM measures PM<sub>10</sub> concentrations every 10 minutes to calculate a 24 hour average result.

### 5.2.3 PM<sub>2.5</sub> Monitoring

Modification 16 included the introduction of PM<sub>2.5</sub> air quality criteria to the Wambo Development Consent. Table 6 of DA305-7-2003 outline both 24hour and Annual PM<sub>2.5</sub> air

quality criteria.

The regional UHAQMN includes a Beta Attenuation Monitor (BAM) monitoring real-time 24 hour average PM<sub>2.5</sub> concentrations at Singleton. This station is the closest to the Mine and is located approximately 18 km to the east (**Figure 3**).

It is noted that PM<sub>2.5</sub> concentrations do not vary as much as PM<sub>10</sub> concentrations as they are smaller in size and therefore remain longer in the air and over space. This makes PM<sub>2.5</sub> monitoring typically more regional and homogenous spatially.

Two PM<sub>2.5</sub> monitors have been installed on the north-eastern and north-western sides of the operation and have been sited to reflect the dominant wind directions and sensitive receivers. Data from these units will be monitored in real time and stored electronically. This data will be used as per the Mine's PM<sub>10</sub> data, to inform mitigation measures and management protocols as outlined in **Section 4.0**.

#### **5.2.4 Dust Deposition Monitoring**

Four dust deposition gauges will monitor dust deposition levels surrounding the Mine (**Table 14** and **Figure 4**). These dust deposition gauges will be located near the closest receivers to the north-west (D21 and D22), to the east (D19) and to the south-east (D11).

Each dust deposition gauge will monitor insoluble soils and ash residue on a monthly basis. The dust deposition gauges will operate in accordance with AS3580.10.1:2003 Methods for Sampling and Analysis of Ambient Air and National Association of Testing Authorities (NATA) requirements.

#### **5.2.5 TSP Matter Monitoring**

Annual average TSP concentrations will be estimated from PM<sub>10</sub> monitoring data based on the relationship that 33% of TSP is PM<sub>10</sub> (**Section 2.4**).

#### **5.2.6 Targeted Dust Deposition, TSP Matter and PM<sub>10</sub> Monitoring**

If required, additional targeted monitoring of dust deposition, TSP matter or PM<sub>10</sub> will be undertaken in response to a landholder or community complaint. Details of this monitoring, including location of monitoring equipment and duration and frequency of monitoring, will be determined in consultation with the complainant, WCPL's air quality monitoring consultants and OEH (if required).

In accordance with Part B Condition 44 (c) of DA305-7-2003, WCPL will also undertake targeted monitoring of occupied mine-owned residences and residences on air quality affected land, as required, and subject to the agreement of the tenant.

Results of this targeted monitoring will be compared to the air quality impact assessment criteria, where relevant, (**Section 3.1**) to determine WCPL's compliance with the conditions of consent. All results will be reported in the Annual Review.

#### **5.2.7 Remote Camera Monitoring**

WCPL has a trailer mounted remote field camera to capture real time footage of operating conditions on the mine site. The camera transmits live feed to assist where possible with the identification of changing meteorological and operational conditions and thus enhance real-time response to the implementation of controls if and where required.

The camera is solar powered and can be moved around the site depending on operational needs and risk.

### 5.3 Greenhouse Gas Monitoring

Greenhouse gas monitoring throughout the year will be undertaken primarily through the monitoring of the main ventilation stream at the ventilation shaft site, but also other parameters that lead to greenhouse gas emissions, including, diesel use, oil and grease use, ROM coal mined and electricity use for Scope 1 and 2 emissions.

Monitoring will be undertaken in accordance with the requirements of the *National Greenhouse and Energy Reporting Act 2007* (NGER Act) and the *National Greenhouse and Energy Reporting Regulations 2008*.

As a result of reporting under the NGER Act, corporate emissions data will be made publicly available via the Department of Environment and Energy website: [www.environment.gov.au](http://www.environment.gov.au).

**Table 15** lists the greenhouse gas related monitoring that will be completed at the Mine.

**Table 15: Greenhouse Gas Monitoring**

Parameter	Monitoring Point	Frequency of Monitoring	Emissions Calculated	Comments
Methane	Main ventilation shaft	Real-time continuous	Emission factor to convert from tonnes to CH <sub>4</sub> to tonnes of CO <sub>2</sub> -e	Includes real-time, continuous monitoring of temperature, pressure and volumetric flow to accurately calculate emissions
Carbon Dioxide	Main ventilation shaft	Real-time continuous	Tonnes of CO <sub>2</sub> -e	
Diesel Use	Calculated from invoices	Annually	Emission factor to convert kL use to tonnes of CO <sub>2</sub> -e	Reported from invoices. <i>Opening Stock</i> and <i>Deliveries</i> minus <i>Closing Stock</i> equals usage
Oil Use	Calculated from invoices	Annually	Emission factor to convert kL use to tonnes of CO <sub>2</sub> -e	
Grease Use	Calculated from invoices	Annually	Emission factor to convert kL use to tonnes of CO <sub>2</sub> -e	
Electricity Use	Calculated from invoices	Annually	Emission factor to convert kWh use to tonnes of CO <sub>2</sub> -e	Usage on invoice is from metered records in kWh
ROM Coal Production	Calculated from weight metre and survey	Monthly	Fugitive emissions factor based on ROM production	Final annual production in tonnes taken from annual coal royalty return

### 5.4 Monitoring Records

Monitoring records will be maintained in accordance with Condition M1 of EPL 529 i.e.

- In a legible form, or in a form that can readily be reduced to a legible form;
- Kept for at least 4 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 who asks to see them.

The following records must be kept in respect of any samples required to be collected for the purposes of EPL 529:

- 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.

## 5.5 Data Handling

Data collected from the air quality monitoring stations will be handled in accordance with the procedures described in **Table 16**.

**Table 16: Data Handling Methodology**

Parameter	Procedure
Meteorology	<ul style="list-style-type: none"> <li>• Summary data obtained from the monitoring instrumentation daily.</li> <li>• Data entered into an electronic database (or similar) for analysis and tracking.</li> </ul>
PM <sub>10</sub>	<ul style="list-style-type: none"> <li>• Summary data obtained from the TEOMs daily.</li> <li>• Data entered into an electronic database (or similar) for comparison with relevant air quality criteria (<b>Section 3.1</b>).</li> <li>• Data compared with relevant criteria and any exceedances noted and investigated.</li> </ul>
PM <sub>2.5</sub>	<ul style="list-style-type: none"> <li>• Summary data obtained from PM<sub>2.5</sub> units daily.</li> <li>• Summary data obtained from the Singleton based monitoring station of the UHAQMN daily</li> <li>• Data entered into an electronic database (or similar) for analysis and tracking.</li> <li>• Data compared with relevant criteria and any exceedances noted and investigated.</li> </ul>
TSP	<ul style="list-style-type: none"> <li>• PM<sub>10</sub> Data used to infer TSP levels using a multiplier of 2.5 to the PM<sub>10</sub> level. Data entered into an electronic database (or similar) for comparison with relevant air quality criteria (<b>Section 3.1</b>).</li> <li>• Data compared with relevant criteria and any exceedances noted and investigated.</li> </ul>
Dust Deposition	<ul style="list-style-type: none"> <li>• Samples retrieved from the monitoring instrumentation on a monthly basis.</li> <li>• Samples sent to a laboratory for analysis.</li> <li>• Data entered into an electronic database (or similar) .</li> <li>• Data compared with previous results to identify long term trends.</li> </ul>

## 5.6 Evaluation of Compliance

Compliance with the air quality assessment criteria (**Section 3.1**) will be assessed using the monitoring program described in **Section 5.2**.

Monitoring results above the air quality assessment criteria (**Section 3.1**) are not exceedances until the results have been verified and assessed as valid.



An assessment will be conducted to determine the validity of the exceedance by investigating:

- the timing of the exceedance(s);
- the general location of the exceedance(s).
- if any potential contamination of sample(s) may have occurred;
- if there were any extraordinary events (e.g. bushfires, prescribed burning, dust storms, sea fog, fire incidents or any other extraordinary activity or event);
- the methods and type of equipment being used by the Mine at the time of the exceedance(s) and proximity to the locations at which the exceedance(s) was recorded;
- the location of non-WCPL mining activities, agricultural activities and/or other land use activities and proximity to the locations at which the exceedance(s) was recorded;
- meteorological data for the relevant period to determine dominant wind direction, average wind speeds, percentage calm conditions (< 0.5 m/s) and significant periods of moderate winds (> 5.4 m/s);
- the proximity of privately owned residences from monitors and whether a negotiated agreement has been entered into in relation to the impact;
- upwind, downwind and regional monitoring data for the same period; and
- the operation of the monitor (e.g. providing reliable data and in calibration).

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

Compliance with 24 hour PM<sub>10</sub> air quality impact assessment criteria (**Section 3.1**) will be determined based on 24 hour rolling averages from each of the PM<sub>10</sub> monitors which are reviewed on a regular basis by the Environmental Advisor.

PM<sub>10</sub> data from the TEOMs will be assessed monthly by the Senior Environmental Advisor / Environmental Advisor on the rolling annual average against the annual average PM<sub>10</sub> air quality impact assessment criteria, in **Section 3.1**.

Compliance with annual average TSP air quality impact assessment criteria (**Section 3.1**) will be assessed monthly by the Senior Environmental Advisor / Environmental Advisor based on the rolling annual average of PM<sub>10</sub> and adopting the relationship that TSP concentrations are approximately 2.5 times PM<sub>10</sub> concentrations (**Section 2.4**).

During Phase 1, the Wambo open cut operations generated the majority of dust emissions from the Wambo complex. During Phase 2, the open cut operations will be managed by the UWJV. Any non-compliances against the air quality impact assessment criteria in **Section 3.1** will be assessed in consultation with the UWJV Environment and Community team to determine WCPL contribution to the non compliance.

## 6.0 Adaptive Management

WCPL will assess and manage project-related risks to ensure that there are no exceedances of the criteria and/or performance measures in **Section 3.0**.

If an exceedance or breach of the criteria and/or performance measures occurs, WCPL will:

- Take all reasonable and feasible steps to ensure that the exceedance ceases and does not recur;
- Consider all reasonable and feasible options for remediation (where relevant) and submit a report to the DPIE describing those options and any preferred remediation measures or other course of action; and
- Implement remediation measures as directed by the Secretary of DPIE.

### 6.1 Contingency Plan to Manage Unpredicted Impacts

WCPL has developed a contingency plan to manage any unpredicted air quality impacts associated with the Mine. This contingency plan includes a Trigger Level and SMS Alarm System and Risk/Response Matrix.

#### 6.1.1 Trigger Level and SMS Alarm System

The Mine currently operates a reactive alarm system which utilises a SMS Alarm Function to alert Operational Supervisors and the Environmental team members of a possible exceedance of PM<sub>10</sub> criteria. The SMS Alarms are based on 10-minute average PM<sub>10</sub> concentration measured in µg/m<sup>3</sup>. The 10-minute average data is filtered for wind direction to minimise the potential for non Wambo activities being the source of the alarm. The alarm is active 24 hours per day.

The reactive alarm for episodic dust events is set to trigger when any **two consecutive 10-minute average readings of >100 µg/m<sup>3</sup>** are reached. This alarm is a trigger for operational and environmental staff to increase surveillance of the operation and to alter or suspend surface operations as required.

Directly relevant to this alarm function is the ability to monitor real-time PM<sub>10</sub> and weather trends via a web-based link to the monitors.

In the event that a dust trigger level is reached, meteorological data such as wind direction and speed may be accessed from the on-site meteorological station to assist in determining the source of the high concentrations. The response to any such events will be determined based on the proactive/reactive protocols outlined in **Sections 4.1.2 and 4.1.3**.

WCPL can then keep a log of such events to determine whether there are any patterns over time and if there is a continuous connection between a specific meteorological condition and mining activities at a particular time or location on-site.

An external web page of continuous PM<sub>10</sub> and meteorological data is maintained. This is currently updated every 5 minutes and is available for operational performance monitoring and immediate complaint investigation. This function allows data trending from short to long periods.

A standard daily run chart of 10-minute average PM<sub>10</sub> concentrations, along with co-incident meteorological conditions, is received by email at 7:00am daily for the preceding 24 hour period. The chart includes a 24 hour rolling average trend line. In addition to the daily chart, a spread sheet of raw data is received for further analysis. Visual inspection of charts or spread sheets is carried out each morning by site Environmental staff to identify potential exceedances of assessment criteria for further investigation.

### 6.1.2 Risk/Response Matrix

**Table 17** presents the risk/response matrix designed for the Mine. The matrix provides specific trigger levels ranging in severity and the corresponding consequence or response relating to the risk of the trigger level being reached. High risk level responses include determining the source of high concentrations as well as the meteorological conditions at the corresponding time that the trigger level was reached and then adopting appropriate strategies dependent upon the underlying risk and hazard. Details of the responses are outlined in **Sections 4.1.2** and **4.1.3**.

It is noted that this matrix is specifically currently designed for 24 hour average PM<sub>10</sub> concentrations as WCPL operate four real-time TEOMs at the site. However, this matrix may be adapted to any metric in the future as the need arises.

**Table 17: Risk/Response Matrix for 24 hour PM<sub>10</sub> Concentrations**

Trigger	Description	Response
<b>Normal State</b> - Monitored 24 hour concentrations are below 30 µg/m <sup>3</sup> - Wind Speeds < 4m/s Temperature <30°C	Reasonable expected conditions in day-to-day operations.	No action required. Routine dust management continued.
<b>Level 1 Triggers</b> - Monitored 24 hour concentrations are below 30 µg/m <sup>3</sup> – change in weather conditions and/or Wind speeds >6m/s and Temperature >30°C*	Change from normal indicating a potential risk.	Requires assessment of monitored data. Confirm all proactive mitigation measures are being implemented ( <b>Table 11</b> ). Mining operations to monitor operating conditions and prepare operations to mitigate against potential excessive dust propagation and exceedance of criteria in line with the Proactive Air Quality Management Protocol.
<b>Level 2 Triggers</b> – 2 consecutive 10 min readings > 100 µg/m <sup>3</sup> and/or Wind speeds >8m/s and Temperature >35°C*	High risk of dust related impacts occurring.	Confirm all proactive mitigation measures are being implemented ( <b>Table 11</b> ). Meteorological data and mining operations assessed to determine/validate trigger results and identify potential sources of emissions ( <b>Section 5.7</b> ). Visual inspection by operational personnel to ascertain if there are visible off-site impacts. Mining operations modified as required, such as reduced speed limits, additional dust suppression/haul road watering( <b>Table 11</b> ).

Trigger	Description	Response
<p><b>Level 3 Triggers</b> – 24 hour concentration exceeding the impact assessment criterion of 50 µg/m<sup>3</sup></p>	<p>Level above air quality impact assessment criterion.</p>	<p>Confirm all proactive mitigation measures are being implemented (<b>Table 11</b>).</p> <p>Meteorological data and mining operations assessed to determine/validate trigger results and identify potential sources of emissions (<b>Section 5.7</b>).</p> <p>Visual inspection by operational personnel to ascertain if there are visible off-site impacts.</p> <p>Speed limits reduced.</p> <p>Further modification of mining operations, such as additional dust suppression/access road watering(<b>Table 11</b>).</p> <p>If the elevated levels do not comply with Condition B42 of the Development Consent report the event in accordance with <b>Section 8.5</b>.</p>

\*Wind speed & temperature descriptors will be used as trigger levels in the predictive meteorological forecasting module (**Section 4.1.1**), with SMS alarm notifications messages sent to relevant operational personnel.

## 7.0 Community Complaint Response

All air quality related community complaints received by WCPL will be recorded within the Community Complaints Register. The E&C Manager will investigate the complaint, which will include, where requested, contacting the complainant within 24 hours to discuss the complaint. A review of the effectiveness of the corrective or preventative actions will be conducted within a month of the complaint and the relevant work procedures updated if required.

Preliminary investigations will commence as soon as practicable upon receipt of a complaint to establish if WCPL underground operations or CHPP is responsible. All efforts will be made to determine the likely causes contributing to the complainant's concerns using information such as the climatic conditions at the time of the air quality complaint, the nature of activities taking place and recent monitoring results.

WCPL will attempt to address the complainant's concerns such that a mutually acceptable outcome is achieved. If a mutually beneficial outcome cannot be reached, WCPL may refer the matter to the Planning Secretary for resolution.

In the event that an exceedance of the air quality criteria is detected, any affected landowner and/or tenant will be notified within seven days of the confirmation of the exceedance in accordance with Condition C5 of DA 305-7-2003.

Details of all community complaints will be included in the Monthly Environment Monitoring Report. WCPL will retain a copy of the Community Complaints Register for at least four years. The E&C Manager will ensure the latest Community Complaints Register is posted on the WCPL website.

WCPL will liaise with the UWJV regarding air quality related complaints. If a complaint is received by WCPL that relates to open cut operations at the UWJV Mine, the complaint details will be provided to the UWJV Environment and Community team.

## 8.0 Review and Reporting

### 8.1 Review

The performance of the air quality and greenhouse gas monitoring and management programs outlined in the AQGGMP is to be reviewed annually by the E&C Manager. A complete review of the AQGGMP will occur:

- Every two years;
- When there are changes to consent or licence conditions relating to air quality or greenhouse gas management or monitoring;
- Following significant air quality related incidents at WCPL;
- Following an independent environmental audit which requires AQGGMP review; or
- If there is a relevant change in technology, practice or legislation.

The revised AQGGMP will be re-submitted to the Secretary for approval as required by Condition D7 of DA305-7-2003.

### 8.2 Annual Review

Prior to 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:

- 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
- 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 EA;
- Identify any non-compliance over the last year, and describe what actions were (or are being) taken to ensure compliance
- Identify any trends in the monitoring data over the life of the Project
- Identify any discrepancies between the predicted and actual impacts of the Project, and analyse the potential cause of any significant discrepancies; and
- Describe what measures will be implemented over the next year to improve the environmental performance of the Project.

### 8.3 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 529 reporting period.

The Annual Return for the reporting period will be supplied to the EPA no 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.

## 8.4 Website Updates

As required by Schedule 2, Condition D15 of DA305-7-2003, WCPL will provide access to information via the WCPL website which is located at:

<https://www.peabodyenergy.com/Operations/Australia-Mining/New-South-Wales-Mining/Wambo-Approvals,-Plans-Reports>

information on the website will be updated regularly and will include:

- the documents listed in condition A2(c) of DA305-7-2003;
- all current statutory approvals for the development;
- all approved strategies, plans and programs required under the conditions of this consent;
- detailed plans for the Phases of the development;
- minutes of CCC meetings;
- regular reporting on the environmental performance of the development in accordance with the reporting requirements in any plans or programs approved 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 summary of the current phase and progress of the development;
- contact details to enquire about the development or to make a complaint;
- a complaints register, updated monthly;
- the Annual Reviews of the development;
- audit reports prepared as part of any Independent Environmental Audit of the development and the Applicant's response to the recommendations in any audit report; and
- any other matter required by the Planning Secretary.

WCPL has made provision on its website for online and/or email comments by members of the community. Email enquiries can be made at [WamboCommunity@peabodyenergy.com](mailto:WamboCommunity@peabodyenergy.com).

## 8.5 Reportable Environmental Incidents or Exceedances

An 'incident' is a set of circumstances that causes or threatens to cause material harm to the environment; and/or breaches or exceeds the limits or performance measures/criteria in DA305-7-2003, DA177-8-2004 and/or EPL 529.

All reportable incidents will be reported via the EPA's Environmental Line on **131 555** by the E&C Manager or their delegate in accordance with WCPL's Pollution Incident Response Management Plan (PIRMP). Incidents will also be reported to [compliance@planning.nsw.gov.au](mailto:compliance@planning.nsw.gov.au).

In accordance with the PIRMP, WCPL must notify all relevant authorities (including EPA, DPIE and other 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 *POEO Act*.

If a non-compliance (exceedance) is determined following a review of monitoring results and an evaluation of compliance (as outlined in **Section 5.6**), WCPL will notify DPIE and the EPA within 7 days of becoming aware of the non-compliance.

In accordance with Conditions C5 and C6 of DA305-7-2003, as soon as practicable and no longer than 7 days after obtaining monitoring results showing an exceedance of air quality criterion WCPL will provide the details of the exceedance to any affected landowners, tenants and the CCC. WCPL will also provide to any affected land owners and tenants a copy of the NSW Health fact sheet entitled “Mine Dust and You” (NSW Health, 2017).

Within 7 days of the date of the incident, WCPL will provide the Secretary and any relevant agencies with a detailed report on the incident to include:

- the cause, time and duration of the event
- Where possible the type, volume and concentration of every pollutant discharged as a result of the event
- the name, address and business hours telephone number of employees or agents of the licensee who witnessed the event
- the name, address and business hours telephone number of every other person (of whom the licensee is aware) who witnessed the event, unless the licensee has been unable to obtain that information after making reasonable effort
- action taken by the licensee in relation to the event, including any follow-up contact with any complainants
- implement remediation measures as directed by the Secretary, to the satisfaction of the Secretary
- details of any measure taken or proposed to be taken to prevent or mitigate against a recurrence of such an event; and
- any other relevant matters.

## 8.6 Community Consultative Committee (CCC) Briefings

In accordance with, Condition A20 of DA305-7-2003, WCPL will operate a Community Consultative Committee (CCC) for the site. This CCC has been combined with the UWJV CCC. WCPL will provide summary reports and specific briefings at CCC meetings on issues arising from air quality monitoring, as and when required.



## 9.0 Responsibilities

**Table 18** below summarises responsibilities documented in the AQGGMP. Responsibilities may be delegated as required.

**Table 18: AQGGMP Responsibilities**

No	Task	Responsibility	Timing
1	Coordinate air quality and greenhouse gas monitoring program in accordance with <b>Section 5.0</b>	Senior Environmental Advisor	Ongoing
2	Assess air quality data against relevant criteria outlined in <b>Section 3.1</b>	E&C Manager	Ongoing
3	Manage exceedances of air quality criteria in accordance with the Reactive Air Quality Management Protocol ( <b>Section 4.1.3</b> )	E&C Manager	As required.
4	Implement the Proactive Air Quality and Greenhouse Gas Management Protocol ( <b>Section 4.1.2</b> )	E&C Manager and other relevant operation unit managers	Ongoing
5	Implement the Dust Management Measures detailed in <b>Table 11 (Section 4.1.4)</b>	Various (refer <b>Table 11</b> )	As required (refer <b>Table 11</b> )
6	Implement the Greenhouse Gas Management Practices detailed in <b>Table 12 (Section 4.2)</b>	Various (refer <b>Table 12</b> )	As required (refer <b>Table 12</b> )
7	Respond to air quality complaints in accordance with <b>Section 7.0</b>	E&C Manager	As required.
8	Organise for independent reviews of air quality impacts at private dwellings as required.	E&C Manager	As requested by landowners.
9	Annual Review to include air quality and greenhouse gas monitoring results, complaints, mitigation measures undertaken and a review of the monitoring undertaken	E&C Manager	Annually.
10	Regulator review to be undertaken of the AQGGMP	E&C Manager	As required.
11	Update the Wambo website to ensure air quality monitoring information is up to date	E&C Manager	As required

## 10.0 References

- CSIRO Marine & Atmospheric Research, 2013. Upper Hunter Fine Particle Characterisation Study. Final report, 17 September 2013. Prepared for Office of Environment and Heritage and NSW Department of Health. <http://www.environment.nsw.gov.au/resources/aqms/UHFPCSFinal.pdf>
- Development Consent (DA305-7-2003)
- Development Consent (DA177-8-2004)
- Environment Protection Licence (529)
- Environmental Planning and Assessment Act 1979
- Protection of the Environment Operations Act 1997
- Protection of the Environment Operations (Clean Air) Regulations 2010
- Protection of the Environment Operations (General) Regulation 2009 (Regulation)
- National Greenhouse and Energy Reporting Act 2007
- National Greenhouse and Energy Reporting Regulations 2008
- Department of Environment and Conservation (DEC), 2007. Approved Methods for the Sampling and Analysis of Air Pollutants in NSW
- Jacobs, 2016. Wambo Air Quality Monitoring Review – Letter Report, 12 October 2016.
- 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. Katestone Environmental Pty Ltd prepared for DECCW, 2011. <http://www.epa.nsw.gov.au/air/coalminingnsw.htm>
- NSW Minerals Council (2010) Technical Paper Particulate Matter and Mining Interim Report.
- Pacific Environment Ltd, 2014a. Coal Mine Pollution Reduction Program Condition U3 Assessment, 29 July 2014.
- Pacific Environment Ltd, 2014b. Wambo Coal Mine PRP U3: Monitoring Results – Wheel Generated Dust, 14 August 2014.
- Pacific Environment Ltd, 2015. Supporting Study for Wambo Mines Pollution Reduction Program U2: Coal Mine Wind Erosion of Exposed land Assessment, 4 June 2015
- Pacific Environment Ltd, 2016. Wambo Coal Mine: Monitoring Results – Wheel Generated Dust, 16 June 2016.
- Umwelt, 2016. United Wambo Open Cut Coal Mine Project Air Quality Impact Assessment.

## **APPENDIX A: AQGGMP Statutory Requirements**

Approval	Condition	Requirement	Section																
DA305-7-2003	A22	<p><b>EVIDENCE OF CONSULTATION</b></p> <p>Where conditions of this consent require consultation with an identified party, the Applicant must:</p> <ul style="list-style-type: none"> <li>(a) consult with the relevant party prior to submitting the subject document to the Planning Secretary for approval; and</li> <li>(b) provide details of the consultation undertaken to the Planning Secretary, including: <ul style="list-style-type: none"> <li>(i) the outcome of that consultation, matters resolved and unresolved; and</li> <li>(ii) details of any disagreement remaining between the party consulted and the Applicant and how the Applicant has addressed the matters not resolved.</li> </ul> </li> </ul>	Appendix B																
	B41	<p><b>Odour</b></p> <p>The Applicant must ensure that no offensive odours, as defined under the POEO Act, are emitted from the site.</p>	3.5																
	B42	<p><b>Air Quality Criteria</b></p> <p>The Applicant must ensure that all reasonable and feasible avoidance and mitigation measures are employed so that particulate matter emissions generated by the Wambo Mining Complex do not cause exceedances of the criteria listed in Table 6 at any residence on privately-owned land, excluding the land referred to in Table 11.</p> <p><i>Table 6 Air quality criteria</i></p> <table border="1"> <thead> <tr> <th>Pollutant</th> <th>Averaging Period</th> <th>Criterion</th> </tr> </thead> <tbody> <tr> <td rowspan="2">Particulate matter &lt;10µm (PM10)</td> <td>Annual</td> <td><sup>a, c</sup> 25 µg/m<sup>3</sup></td> </tr> <tr> <td>24 hour</td> <td><sup>b</sup> 50 µg/m<sup>3</sup></td> </tr> <tr> <td rowspan="2">Particulate matter &lt;2.5µm (PM<sub>2.5</sub>)</td> <td>Annual</td> <td><sup>a, c</sup> 8 µg/m<sup>3</sup></td> </tr> <tr> <td>24 hour</td> <td><sup>b</sup> 25 µg/m<sup>3</sup></td> </tr> <tr> <td>Total suspended particulate (TSP) matter</td> <td>Annual</td> <td><sup>a, c</sup> 90 µg/m<sup>3</sup></td> </tr> </tbody> </table> <p><sup>a</sup> Total impact (i.e. incremental increase in concentrations due to the development plus background concentrations due to all other sources).  <sup>b</sup> Incremental impact (i.e. incremental increase in concentrations due to the development on its own).  <sup>c</sup> Excludes extraordinary events such as bushfires, prescribed burning, dust storms, fire incidents or any other activity agreed by the Planning Secretary.</p>	Pollutant	Averaging Period	Criterion	Particulate matter <10µm (PM10)	Annual	<sup>a, c</sup> 25 µg/m <sup>3</sup>	24 hour	<sup>b</sup> 50 µg/m <sup>3</sup>	Particulate matter <2.5µm (PM <sub>2.5</sub> )	Annual	<sup>a, c</sup> 8 µg/m <sup>3</sup>	24 hour	<sup>b</sup> 25 µg/m <sup>3</sup>	Total suspended particulate (TSP) matter	Annual	<sup>a, c</sup> 90 µg/m <sup>3</sup>	3.1
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	24 hour	<sup>b</sup> 25 µg/m <sup>3</sup>																	
Total suspended particulate (TSP) matter	Annual	<sup>a, c</sup> 90 µg/m <sup>3</sup>																	
	B43	<p>The air quality criteria in Table 6 do not apply if the Applicant has an agreement with the owner/s of the relevant residence or land to exceed the air quality criteria, and the Applicant has advised the Department in writing of the terms of this agreement.</p>	Noted																

Approval	Condition	Requirement	Section
	B44	<p><b>Mine-owned Land</b></p> <p>Particulate matter emissions generated by the Wambo Mining Complex must not exceed the criteria listed in Table 6 at any occupied residence on mine-owned land (including land owned by another mining company) unless:</p> <ol style="list-style-type: none"> <li>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 PART C of this consent;</li> <li>b. the tenant of any land owned by the Applicant can terminate their tenancy agreement without penalty at any time, subject to giving 14 days' notice;</li> <li>c. air quality monitoring is regularly undertaken to inform the tenant and landowner (if the residence is owned by another mining company) of the likely particulate matter emissions at the residence; and</li> <li>d. 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.</li> </ol>	3.3
	B45.	<p><b>Air Quality Operating Conditions</b></p> <p>The Applicant must:</p> <ol style="list-style-type: none"> <li>(a) take all reasonable steps to:             <ol style="list-style-type: none"> <li>(i) minimise odour, fume, spontaneous combustion, greenhouse gas and particulate matter (including PM<sub>10</sub> and PM<sub>2.5</sub>) emissions of the development;</li> <li>(ii) minimise any visible off-site air pollution generated by the development (including methane flares); and</li> <li>(iii) minimise the extent of potential dust generating surfaces exposed on the site at any given point in time;</li> </ol> </li> <li>(b) operate an air quality management system commensurate with the risk of impact to ensure compliance with the relevant conditions of this consent;</li> <li>(c) minimise the air quality impacts of the development during adverse meteorological conditions and extraordinary events (see Note c to Table 6 above);</li> <li>(d) carry out regular air quality monitoring to determine whether the development is complying with the relevant conditions of this consent; and</li> <li>(e) regularly assess meteorological and air quality monitoring data, and modify operations on the site to ensure compliance with the relevant conditions of this consent.</li> </ol>	<p>3.4, 3.5, 4.1 and 4.2</p> <p>4.1</p> <p>Table 11</p> <p>Table 11</p> <p>5.2</p> <p>5.6 and 6.0</p>

Approval	Condition	Requirement	Section
	B46	<p><b>Air Quality Management Plan</b></p> <p>The Applicant must prepare an Air Quality and Greenhouse Gas Management Plan for the Wambo Mining Complex to the satisfaction of the Planning Secretary. This plan must:</p> <ul style="list-style-type: none"> <li>(a) be prepared by a suitably qualified and experienced person/s;</li> <li>(b) be prepared in consultation with the EPA;</li> <li>(c) describe the measures to be implemented to ensure: <ul style="list-style-type: none"> <li>(i) compliance with the air quality criteria and operating conditions in this consent;</li> <li>(ii) best practice management is being employed (including in respect of minimisation of greenhouse gas emissions from the site and energy efficiency); and</li> <li>(iii) the air quality impacts of the development are minimised during adverse meteorological conditions and extraordinary events;</li> </ul> </li> <li>(d) describe the air quality management system in detail; and</li> <li>(e) include an air quality monitoring program undertaken in accordance with the <i>Approved Methods for Sampling and Analysis of Air Pollutants in New South Wales</i> (DEC, 2007), that: <ul style="list-style-type: none"> <li>(i) uses monitors to evaluate the performance of the development against the air quality criteria in this consent and to guide day to day planning of operations;</li> <li>(ii) adequately supports the air quality management system; and</li> <li>(iii) includes a protocol for identifying any air quality-related exceedance, incident or non-compliance and for notifying the Department and relevant stakeholders of these events.</li> </ul> </li> </ul>	<p>This Plan</p> <p>Appendix B</p> <p>4.0 5.6</p> <p>4.1.4</p> <p>Table 11</p> <p>4.0 4.1 5.0</p> <p>5.6</p>
	B47	The Applicant must not commence Phase 2 until the Air Quality Management Plan is approved by the Planning Secretary.	Noted
	B48	The Applicant must implement the Air Quality Management Plan as approved by the Planning Secretary.	Noted
	B49	<p><b>Greenhouse Gas</b></p> <p>For the life of the development, the Applicant must:</p> <ul style="list-style-type: none"> <li>(a) monitor the greenhouse gas emissions generated by the development;</li> <li>(b) investigate ways to reduce greenhouse gas emissions generated by the development; and</li> <li>(c) report on greenhouse gas monitoring and abatement measures in the Annual Review, to the satisfaction of the Planning Secretary.</li> </ul>	<p>5.3</p> <p>4.2</p> <p>5.3 and 8.2</p>

Approval	Condition	Requirement	Section
	B50	<p><b>METEOROLOGICAL MONITORING</b></p> <p>For the life of the development, the Applicant must ensure there is a suitable meteorological station operating in the vicinity of the site that:</p> <ul style="list-style-type: none"> <li>(a) complies with the requirements in the <i>Approved Methods for Sampling and Analysis of Air Pollutants in New South Wales</i> (DEC, 2007);</li> <li>(b) is capable of continuous real-time measurement of wind speed, wind direction sigma theta and temperature; and</li> <li>(c) is capable of measuring meteorological conditions in accordance with the <i>NSW Industrial Noise Policy</i> (EPA, 2000), unless a suitable alternative is approved by the Planning Secretary following consultation with the EPA.</li> </ul>	5.2.1
	C1	<p><b>ACQUISITION UPON REQUEST</b></p> <p>Upon receiving a written request for acquisition from the owner of the privately-owned land<sup>a</sup> listed in Table 11, the Applicant must acquire the land in accordance with the procedures in conditions C10 to C17, inclusive.</p> <p><b>Table 11: Land subject to acquisition upon request</b></p> <div style="border: 1px solid black; padding: 2px; width: fit-content; margin: 10px auto;">R019</div> <p><sup>a</sup> The location of the land referred to in Table 11 is shown in Appendix 4.</p>	3.2
	C4	<p><b>NOTIFICATION OF LANDOWNERS/TENANTS</b></p> <p>Prior to entering into any tenancy agreement for any land owned by the Applicant that is predicted to experience exceedances of the recommended air quality and/or noise criteria, the Applicant must:</p> <ul style="list-style-type: none"> <li>(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 "<i>Mine Dust and You</i>" (NSW Health, 2017); and</li> <li>(b) advise the prospective tenants of the rights they would have under this consent, to the satisfaction of the Planning Secretary.</li> </ul>	3.3
	C5	<p><b>NOTIFICATION OF EXCEEDANCES</b></p> <p>As soon as practicable and no longer than 7 days after obtaining monitoring results showing an exceedance of any noise, blasting or air quality criterion in PART B of this consent, the Applicant must provide the details of the exceedance to any affected landowners, tenants and the CCC.</p>	8.5 and Appendix D
	C6	<p>For any exceedance of any air quality criterion in PART B of this consent, the Applicant must also provide to any affected land owners and tenants a copy of the NSW Health fact sheet entitled "<i>Mine Dust and You</i>" (NSW Health, 2017).</p>	3.3 and Appendix D

Approval	Condition	Requirement	Section
	C7	<p><b>INDEPENDENT REVIEW</b></p> <p>If a landowner considers the development to be exceeding any relevant air quality, noise or blasting criterion in PART B of this consent, they may ask the Planning Secretary in writing for an independent review of the impacts of the development on their residence or land.</p>	4.1.3.1
	C8	<p>If the Planning Secretary is not satisfied that an independent review is warranted, the Planning Secretary will notify the landowner in writing of that decision, and the reasons for that decision, within 21 days of the request for a review.</p>	4.1.3.1
	C9	<p>If the Planning Secretary is satisfied that an independent review is warranted, within 3 months, or other timeframe agreed by the Planning Secretary and the landowner, of the Planning Secretary's decision, the Applicant must:</p> <ul style="list-style-type: none"> <li>(a) commission a suitably qualified, experienced and independent person, whose appointment has been approved by the Planning Secretary, to: <ul style="list-style-type: none"> <li>(i) consult with the landowner to determine their concerns;</li> <li>(ii) conduct monitoring to determine whether the development is complying with the relevant criterion in PART B of this consent; and</li> <li>(iii) if the development is not complying with the relevant criterion, identify measures that could be implemented to ensure compliance with the relevant criterion;</li> </ul> </li> <li>(b) give the Planning Secretary and landowner a copy of the independent review; and</li> <li>(c) comply with any written requests made by the Planning Secretary to implement any findings of the review.</li> </ul>	4.1.3.1



Approval	Condition	Requirement	Section
	C10	<p><b>LAND ACQUISITION</b></p> <p>Within 3 months of receiving a written request for acquisition from a landowner with acquisition rights, the Applicant must make a binding written offer to the landowner based on:</p> <ul style="list-style-type: none"> <li>(a) the current market value of the landowner's interest in the land at the date of this written request, as if the land was unaffected by the development, having regard to the: <ul style="list-style-type: none"> <li>(i) existing and permissible use of the land, in accordance with the applicable planning instruments at the date of the written request; and</li> <li>(ii) presence of improvements on the land and/or any approved building or structure which has been physically commenced at the date of the landowner's written request, and is due to be completed subsequent to that date, but excluding any improvements that have resulted from the implementation of the additional noise and/or air quality mitigation measures in condition C2;</li> </ul> </li> <li>(b) the reasonable costs associated with: <ul style="list-style-type: none"> <li>(i) relocating within the Singleton local government area, or to any other local government area determined by the Planning Secretary; and</li> <li>(ii) obtaining independent legal advice and expert advice for determining the acquisition price of the land, and the terms upon which it is to be acquired; and</li> </ul> </li> <li>(c) reasonable compensation for any disturbance caused by the land acquisition process.</li> </ul>	4.1.3.1
	C11	<p>If, within 2 months of the binding written offer being made under condition C10, the Applicant and landowner cannot agree on the acquisition price of the land and/or the terms upon which the land is to be acquired, then either party may refer the matter to the Planning Secretary for resolution.</p>	4.1.3.1
	C12	<p>Upon receiving a request, under condition C11, the Planning Secretary will request the President of the NSW Division of the Australian Property Institute to appoint a qualified independent valuer to:</p> <ul style="list-style-type: none"> <li>(a) consider submissions from both parties;</li> <li>(b) determine a fair and reasonable acquisition price for the land and/or the terms upon which the land is to be acquired, having regard to the matters referred to in condition C10;</li> <li>(c) prepare a detailed report setting out the reasons for any determination; and</li> <li>(d) provide a copy of the report to both parties.</li> </ul>	4.1.3.1
	C13	<p>Within 14 days of receiving the independent valuer's report, the Applicant must make a binding written offer to the landowner to purchase the land at a price not less than the independent valuer's determination.</p>	4.1.3.1

Approval	Condition	Requirement	Section
	C14	However, if either party disputes the independent valuer's determination, then within 14 days of receiving the independent valuer's report, either party may refer the matter to the Planning Secretary for review. Any request for a review must be accompanied by a detailed report setting out the reasons why the party disputes the independent valuer's determination. Following consultation with the independent valuer and both parties, the Planning Secretary will determine a fair and reasonable acquisition price for the land, having regard to the matters referred to in condition C10, the independent valuer's report, the detailed report of the party that disputes the independent valuer's determination and any other relevant submissions.	4.1.3.1
	C15	Within 14 days of this determination, the Applicant must make a binding written offer to the landowner to purchase the land at a price not less than the Planning Secretary's determination.	4.1.3.1
	C16	If the landowner refuses to accept the Applicant's binding written offer under this condition within 6 months of the offer being made, then the Applicant's obligations to acquire the land shall cease, unless the Planning Secretary determines otherwise.	4.1.3.1
	C17	The Applicant must pay all reasonable costs associated with the land acquisition process described in conditions C10 to C16 inclusive, including the costs associated with obtaining Council approval for any plan of subdivision (where permissible), and registration of this plan at the Office of the Registrar-General.	4.1.3.1
	D4	<p><b>Adaptive Management</b></p> <p>The Applicant must assess and manage development-related risks to ensure that there are no exceedances of the criteria and performance measures in this consent. Any exceedance of these criteria or performance measures constitutes a breach of this consent and may be subject to penalty or offence provisions under the EP&amp;A Act or EP&amp;A Regulation.</p> <p>Where any exceedance of these criteria or performance measures has occurred, the Applicant must, at the earliest opportunity:</p> <ul style="list-style-type: none"> <li>(a) take all reasonable and feasible steps to ensure that the exceedance ceases and does not recur;</li> <li>(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</li> <li>(c) implement reasonable remediation measures as directed by the Planning Secretary.</li> </ul>	6.0

Approval	Condition	Requirement	Section
	D5	<p><b>Management Plan Requirements</b>            Management plans required under this consent must be prepared in accordance with relevant guidelines, and include where relevant:</p> <ul style="list-style-type: none"> <li>(a) summary of relevant background or baseline data;</li> <li>(b) details of:               <ul style="list-style-type: none"> <li>(i) the relevant statutory requirements (including any relevant approval, licence or lease conditions);</li> <li>(ii) any relevant limits or performance measures and criteria; and</li> <li>(iii) the specific indicators that are proposed to be used to judge the performance of, or guide the implementation of, the development or any management measures;</li> </ul> </li> <li>(c) any relevant commitments or recommendations identified in the documents listed in condition A2(c);</li> <li>(d) a description of the measures to be implemented to comply with the relevant statutory requirements, limits, or performance measures and criteria;</li> <li>(e) a program to monitor and report on the:               <ul style="list-style-type: none"> <li>(i) impacts and environmental performance of the development; and</li> <li>(ii) effectiveness of the management measures set out pursuant to paragraph (d);</li> </ul> </li> <li>(f) a contingency plan to manage any unpredicted impacts and their consequences and to ensure that ongoing impacts reduce to levels below relevant impact assessment criteria as quickly as possible;</li> <li>(g) a program to investigate and implement ways to improve the environmental performance of the development over time;</li> <li>(h) a protocol for managing and reporting any:               <ul style="list-style-type: none"> <li>(i) incident, non-compliance or exceedance of any impact assessment criterion and performance criterion);</li> <li>(ii) complaint; or</li> <li>(iii) failure to comply with other statutory requirements; and</li> </ul> </li> <li>(j) a protocol for periodic review of the plan.</li> </ul> <p><i>Note: The Planning Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans.</i></p>	2.0 1.4 3.1 4.1.4, 4.2 and 8.5 4.1 4.0 5.0, 6.0 and 8.0 8.0 6.1 8.2 8.5 7.0 8.5 8.1

Approval	Condition	Requirement	Section
	D6	<p><b>REVISION OF STRATEGIES, PLANS AND PROGRAMS</b></p> <p>Within 3 months of:</p> <ul style="list-style-type: none"> <li>(a) the submission of an incident report under condition D8;</li> <li>(b) the submission of an Annual Review under condition D10;</li> <li>(c) the submission of an Independent Environmental Audit under condition D11; or</li> <li>(d) the approval of any modification (excluding Modification 16) of the conditions of this consent,</li> </ul> <p>the suitability of existing strategies, plans and programs required under this consent must be reviewed by the Applicant.</p>	Noted
	D7	<p>If necessary, to either improve the environmental performance of the development, cater for a modification or comply with a direction, the strategies, plans and programs required under this consent must be revised, to the satisfaction of the Planning Secretary. Where revisions are required, the revised document must be submitted to the Planning Secretary for approval within six weeks of the review.</p> <p><i>Note: This is to ensure strategies, plans and programs are updated on a regular basis and to incorporate any recommended measures to improve the environmental performance of the development.</i></p>	Noted
	D8	<p><b>REPORTING AND AUDITING</b></p> <p><b>Incident Notification</b></p> <p>The Applicant must immediately notify the Department and any other relevant agencies immediately after it becomes aware of an incident. The notification must be in writing to <a href="mailto:compliance@planning.nsw.gov.au">compliance@planning.nsw.gov.au</a> and identify the development (including the development application number and name) and set out the location and nature of the incident.</p>	8.5
	D9	<p><b>Non-Compliance Notification</b></p> <p>Within seven days of becoming aware of a non-compliance, the Applicant must notify the Department of the non-compliance. The notification must be in writing to <a href="mailto:compliance@planning.nsw.gov.au">compliance@planning.nsw.gov.au</a> and identify the development (including the development application number and name), set out the condition of this consent that the development is non-compliant with, why it does not comply and the reasons for the non-compliance (if known) and what actions have been, or will be, undertaken to address the non-compliance.</p> <p><i>Note: A non-compliance which has been notified as an incident does not need to also be notified as a non-compliance.</i></p>	8.5

Approval	Condition	Requirement	Section
	D10	<p><b>Annual Review</b></p> <p>By the end of March each year or other timeframe agreed by the Planning Secretary, a report must be submitted to the Department reviewing the environmental performance of the development, to the satisfaction of the Planning Secretary. This review must:</p> <ul style="list-style-type: none"> <li>(a) describe the development (including any rehabilitation) that was carried out in the previous calendar year, and the development that is proposed to be carried out over the current calendar year;</li> <li>(b) include a comprehensive review of the monitoring results and complaints records of the development over the previous calendar year, including a comparison of these results against the:               <ul style="list-style-type: none"> <li>(i) relevant statutory requirements, limits or performance measures/criteria;</li> <li>(ii) requirements of any plan or program required under this consent;</li> <li>(iii) monitoring results of previous years; and</li> <li>(iv) relevant predictions in the documents listed in condition A2(c);</li> </ul> </li> <li>(c) identify any non-compliance or incident which occurred in the previous calendar year, and describe what actions were (or are being) taken to rectify the non-compliance and avoid reoccurrence;</li> <li>(d) evaluate and report on:               <ul style="list-style-type: none"> <li>(i) the effectiveness of the noise and air quality management systems; and</li> <li>(ii) compliance with the performance measures, criteria and operating conditions in this consent;</li> </ul> </li> <li>(e) identify any trends in the monitoring data over the life of the development;</li> <li>(f) identify any discrepancies between the predicted and actual impacts of the development, and analyse the potential cause of any significant discrepancies; and</li> <li>(g) describe what measures will be implemented over the next calendar year to improve the environmental performance of the development.</li> </ul>	8.2
	D13	<p><b>Monitoring and Environmental Audits</b></p> <p>Any condition of this consent that requires the carrying out of monitoring or an environmental audit, whether directly or by way of a plan, strategy or program, is taken to be a condition requiring monitoring or an environmental audit under Division 9.4 of Part 9 of the EP&amp;A Act. This includes conditions in respect of incident notification, reporting and response, non-compliance notification, compliance report and independent audit.</p> <p>For the purposes of this condition, as set out in the EP&amp;A Act, “monitoring” means monitoring of the development to provide data on compliance with the consent or on the environmental impact of the development, and an “environmental audit” means a periodic or particular documented evaluation of the development to provide information on compliance with the consent or the environmental management or impact of the development.</p>	Noted

Approval	Condition	Requirement	Section
	D14	Noise, blast and/or air quality monitoring under this consent may be undertaken at suitable representative monitoring locations instead of at privately-owned residences or other locations listed in Part B, providing that these representative monitoring locations are set out in the respective management plan/s.	Noted
	D15	<p><b>ACCESS TO INFORMATION</b></p> <p>Within three months of the determination of Modification 16, until the completion of all rehabilitation required under this consent, the Applicant must:</p> <ul style="list-style-type: none"> <li>(a) make the following information and documents (as they are obtained, approved or as otherwise stipulated within the conditions of this consent) publicly available on its website: <ul style="list-style-type: none"> <li>(i) the documents listed in condition A2(c);</li> <li>(ii) all current statutory approvals for the development;</li> <li>(iii) all approved strategies, plans and programs required under the conditions of this consent;</li> <li>(iv) detailed plans for the Phases of the development;</li> <li>(v) minutes of CCC meetings;</li> <li>(vi) regular reporting on the environmental performance of the development in accordance with the reporting requirements in any plans or programs approved under the conditions of this consent;</li> <li>(vii) 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;</li> <li>(viii) a summary of the current phase and progress of the development;</li> <li>(ix) contact details to enquire about the development or to make a complaint;</li> <li>(x) a complaints register, updated monthly;</li> <li>(xi) the Annual Reviews of the development;</li> <li>(xii) audit reports prepared as part of any Independent Environmental Audit of the development and the Applicant's response to the recommendations in any audit report; and</li> <li>(xiii) any other matter required by the Planning Secretary; and</li> </ul> </li> <li>(b) keep such information up to date, to the satisfaction of the Planning Secretary.</li> </ul>	8.4
DA177-8-2004	B2	<p><b>Odour</b></p> <p>The Applicant must ensure that no offensive odours, as defined under the POEO Act, are emitted from the site.</p>	Noted

Approval	Condition	Requirement	Section
	B3	<p><b>Air Quality Operating Conditions</b>            The Applicant must:</p> <ul style="list-style-type: none"> <li>(a) take all reasonable steps to:               <ul style="list-style-type: none"> <li>(i) minimise odour, fume, spontaneous combustion, greenhouse gas and particulate matter (including PM10 and PM2.5) emissions of the development;</li> <li>(ii) minimise any visible off-site air pollution generated by the development; and</li> <li>(iii) minimise the extent of potential dust generating surfaces exposed on the site at any given point in time;</li> </ul> </li> <li>(b) operate an air quality management system commensurate with the risk of impact to ensure compliance with the relevant conditions of this consent;</li> <li>(c) minimise the air quality impacts of the development during adverse meteorological conditions and extraordinary events; and</li> <li>(d) use all reasonable efforts to co-ordinate air quality management on the site with the air quality management at Wambo mine.</li> </ul>	<p>3.4, 3.5, 4.1 and 4.2</p> <p>Table 11</p> <p>Table 11</p>

Approval	Condition	Requirement	Section																					
EPL529	P1	<p><b>Location of Monitoring/discharge points and areas</b></p> <p>P1.1 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.</p> <table border="1" data-bbox="411 483 1635 1008"> <thead> <tr> <th data-bbox="411 483 541 537">EPA ID no.</th> <th data-bbox="541 483 789 537">Type of Monitoring Point</th> <th data-bbox="789 483 1635 537">Location Description</th> </tr> </thead> <tbody> <tr> <td data-bbox="411 537 541 659">13</td> <td data-bbox="541 537 789 659">Particulate Matter Monitoring</td> <td data-bbox="789 537 1635 659">Monitoring AQ01 at coordinates 314095 6393959 (Easting Northing) on plan titled "Wambo Mine Environment Protection Licence 529 Plan of Premises – Monitoring Sites" DWG 2160-2 dated 3/3/2017 EPA Ref DOC17/147944</td> </tr> <tr> <td data-bbox="411 659 541 773">14</td> <td data-bbox="541 659 789 773">Particulate Matter Monitoring</td> <td data-bbox="789 659 1635 773">Monitoring AQ02 at coordinates 312272 6390213 (Easting Northing) on plan titled "Wambo Mine Environment Protection Licence 529 Plan of Premises – Monitoring Sites" DWG 2160-2 dated 3/3/2017 EPA Ref DOC17/147944</td> </tr> <tr> <td data-bbox="411 773 541 886">15</td> <td data-bbox="541 773 789 886">Particulate Matter Monitoring</td> <td data-bbox="789 773 1635 886">Monitoring AQ03 at coordinates 304503 6398522 (Easting Northing) on plan titled "Wambo Mine Environment Protection Licence 529 Plan of Premises – Monitoring Sites" DWG 2160-2 dated 3/3/2017 EPA Ref DOC17/147944 .</td> </tr> <tr> <td data-bbox="411 886 541 1008">16</td> <td data-bbox="541 886 789 1008">Particulate Matter Monitoring</td> <td data-bbox="789 886 1635 1008">Monitoring AQ04 at coordinates 305927 6399587 (Easting Northing) on plan titled "Wambo Mine Environment Protection Licence 529 Plan of Premises – Monitoring Sites" DWG 2160-2 dated 3/3/2017 EPA Ref DOC17/147944.</td> </tr> </tbody> </table> <p>P1.4 The following point referred to in the table below is identified in this licence for the purposes of weather monitoring...</p> <table border="1" data-bbox="411 1065 1635 1239"> <thead> <tr> <th data-bbox="411 1065 541 1118">EPA ID no.</th> <th data-bbox="541 1065 789 1118">Type of Monitoring Point</th> <th data-bbox="789 1065 1635 1118">Location Description</th> </tr> </thead> <tbody> <tr> <td data-bbox="411 1118 541 1239">17</td> <td data-bbox="541 1118 789 1239">Meteorological Station</td> <td data-bbox="789 1118 1635 1239">Monitoring location identified as Weather Station identified as EPA17 at co-ordinates 312535 6393108 (Easting Northing) on plan titled "Wambo Mine Environment Protection Licence 529 Plan of Premises - Monitoring Sites" DWG 2160-2 dated 3/3/2017 EPA Ref DOC17/147944</td> </tr> </tbody> </table>	EPA ID no.	Type of Monitoring Point	Location Description	13	Particulate Matter Monitoring	Monitoring AQ01 at coordinates 314095 6393959 (Easting Northing) on plan titled "Wambo Mine Environment Protection Licence 529 Plan of Premises – Monitoring Sites" DWG 2160-2 dated 3/3/2017 EPA Ref DOC17/147944	14	Particulate Matter Monitoring	Monitoring AQ02 at coordinates 312272 6390213 (Easting Northing) on plan titled "Wambo Mine Environment Protection Licence 529 Plan of Premises – Monitoring Sites" DWG 2160-2 dated 3/3/2017 EPA Ref DOC17/147944	15	Particulate Matter Monitoring	Monitoring AQ03 at coordinates 304503 6398522 (Easting Northing) on plan titled "Wambo Mine Environment Protection Licence 529 Plan of Premises – Monitoring Sites" DWG 2160-2 dated 3/3/2017 EPA Ref DOC17/147944 .	16	Particulate Matter Monitoring	Monitoring AQ04 at coordinates 305927 6399587 (Easting Northing) on plan titled "Wambo Mine Environment Protection Licence 529 Plan of Premises – Monitoring Sites" DWG 2160-2 dated 3/3/2017 EPA Ref DOC17/147944.	EPA ID no.	Type of Monitoring Point	Location Description	17	Meteorological Station	Monitoring location identified as Weather Station identified as EPA17 at co-ordinates 312535 6393108 (Easting Northing) on plan titled "Wambo Mine Environment Protection Licence 529 Plan of Premises - Monitoring Sites" DWG 2160-2 dated 3/3/2017 EPA Ref DOC17/147944	5.2.1, 5.2.2 and Figure 4
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Approval	Condition	Requirement	Section								
	O3	<p><b>Dust</b>            O3.1 The premises must be maintained in a condition which minimises or prevents the emission of dust from the premises.            O3.2 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.</p>	4.1.4								
	M1	<p><b>Monitoring Records</b>            M1.1 The results of any monitoring required to be conducted by this licence or a load calculation protocol must be recorded and retained as set out in this condition.            M1.2 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.            M1.3 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.</p>	5.4								
	M2	<p><b>Requirement to monitor concentration of pollutants discharged</b>            M2.1 For each monitoring/discharge point or utilisation area specified below (by the 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:            M2.2 Air Monitoring Requirements  <b>Point 13, 14, 15, 16</b></p> <table border="1" data-bbox="411 1065 1671 1123"> <thead> <tr> <th data-bbox="411 1065 592 1094">Pollutant</th> <th data-bbox="592 1065 999 1094">Units of Measure</th> <th data-bbox="999 1065 1230 1094">Frequency</th> <th data-bbox="1230 1065 1671 1094">Sampling Method</th> </tr> </thead> <tbody> <tr> <td data-bbox="411 1094 592 1123">PM10</td> <td data-bbox="592 1094 999 1123">Micrograms per cubic metre</td> <td data-bbox="999 1094 1230 1123">Continuous</td> <td data-bbox="1230 1094 1671 1123">AM-22</td> </tr> </tbody> </table>	Pollutant	Units of Measure	Frequency	Sampling Method	PM10	Micrograms per cubic metre	Continuous	AM-22	5.2.2
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Approval	Condition	Requirement	Section																																								
	M3	<p><b>Testing Methods – Concentration Limits</b></p> <p>M3.1 Monitoring for the concentration of a pollutant emitted to the air required to be conducted by this licence must be done in accordance with:</p> <p>a) any methodology which is required by or under the Act to be used for the testing of the concentration of the pollutant; or</p> <p>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</p> <p>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.</p> <p><i>Note: The Protection of the Environment Operations (Clean Air) Regulation 2010 requires testing for certain purposes to be conducted in accordance with test methods contained in the publication "Approved Methods for the Sampling and Analysis of Air Pollutants in NSW".</i></p>	5.0																																								
	M4	<p><b>Weather Monitoring</b></p> <p>M4.1 At the point(s) identified below, the licensee must monitor (by sampling and obtaining results by analysis) the parameters specified in Column 1 of the table below, using the corresponding sampling method, units of measure, averaging period and sample at the frequency, specified opposite in the Columns 2, 3, 4 and 5 respectively.</p> <table border="1"> <thead> <tr> <th>Parameter</th> <th>Sampling Method</th> <th>Units of Measure</th> <th>Averaging Period</th> <th>Frequency</th> </tr> </thead> <tbody> <tr> <td>Rainfall</td> <td>AM-4</td> <td>millimetres</td> <td>1 hour</td> <td>Continuous</td> </tr> <tr> <td>Wind Speed at 10 metres</td> <td>AM-2 &amp; AM-4</td> <td>metres per second</td> <td>15 minutes</td> <td>Continuous</td> </tr> <tr> <td>Wind direction at 10 metres</td> <td>AM-2 &amp; AM-4</td> <td>Degrees</td> <td>15 minutes</td> <td>Continuous</td> </tr> <tr> <td>Temperature at 2 metres</td> <td>AM-4</td> <td>Celsius</td> <td>15 minutes</td> <td>Continuous</td> </tr> <tr> <td>Temperature at 10 metres</td> <td>AM-4</td> <td>Celsius</td> <td>15 minutes</td> <td>Continuous</td> </tr> <tr> <td>Sigma theta</td> <td>AM-2 &amp; AM-4</td> <td>Degrees</td> <td>15 minutes</td> <td>Continuous</td> </tr> <tr> <td>Total Solar Radiation</td> <td>AM-4</td> <td>Watts per square metre</td> <td>15 minutes</td> <td>Continuous</td> </tr> </tbody> </table>	Parameter	Sampling Method	Units of Measure	Averaging Period	Frequency	Rainfall	AM-4	millimetres	1 hour	Continuous	Wind Speed at 10 metres	AM-2 & AM-4	metres per second	15 minutes	Continuous	Wind direction at 10 metres	AM-2 & AM-4	Degrees	15 minutes	Continuous	Temperature at 2 metres	AM-4	Celsius	15 minutes	Continuous	Temperature at 10 metres	AM-4	Celsius	15 minutes	Continuous	Sigma theta	AM-2 & AM-4	Degrees	15 minutes	Continuous	Total Solar Radiation	AM-4	Watts per square metre	15 minutes	Continuous	5.2.1
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	M9	<p><b>Other monitoring and recording conditions</b></p> <p>M9.4 Requirement to Monitoring Particulate Matter</p> <p>The Licensee must record the average PM10 concentration at Monitoring Points 13, 14, 15 and 16 at intervals of 10 minutes. This data must be made available upon request by any EPA Authorised Officer who requests to see it.</p>	5.2.2																																								

## **APPENDIX B: Evidence of Consultation**



Nicole Dobbins  
Senior Environmental Advisor  
Peabody Australia  
PMB 1  
Singleton, NSW, 2330

20/11/2020

Dear Ms Dobbins

**Wambo Underground Mine (DA 305-7-2003)  
Wambo Mine Air Quality and Greenhouse Gas Management Plan**

I refer to the Wambo Mine Air Quality and Greenhouse Gas Management Plan (the plan), submitted in accordance with condition B46 of Schedule 2 of the project approval for the Wambo Underground Mine (DA 305-7-2003).

The Department has carefully reviewed the document and is satisfied that it adequately addresses the requirements of the relevant conditions for Phase 2 of the operations.

Accordingly, the Planning Secretary approves the plan (Revision 8, dated November 2020). The Department understands that Phase 2 of the operation will commence on 1 December 2020. Therefore, please continue to operate in accordance with the Air Quality and Greenhouse Gas Management Plan approved for Phase 1 until the commencement of Phase 2.

Please ensure that the approved plan is placed on the project website at your earliest convenience.

If you wish to discuss the matter further, please contact Sarah Clibborn on 88376095 or via email at [sarah.clibborn@planning.nsw.gov.au](mailto:sarah.clibborn@planning.nsw.gov.au).

Yours sincerely

A handwritten signature in black ink, appearing to read 'M Spratt'.

Matthew Spratt  
Director  
Resource Assessments (Coal & Quarries)

as nominee of the Planning Secretary



**Post Approval**

**Proponent Details**

**Personal Details**

Title	Ms
First Name	Nicole
Last name	Dobbins
Email	ndobbins@peabodyenergy.com
Phone	0265702209
Role/Position	Senior Environmental Advisor (Contract)
Address	100 Melbourne Street
	South Brisbane
	Queensland
	4101 AUS

**Company Details**

Applying as a company/business?

Yes

Company Name	WAMBO COAL PTY LIMITED
ABN	13000668057
Branch Name	

**Primary Contact**

Title	Mr
First Name	Peter
Last Name	Jaeger
Email	pjaeger@peabodyenergy.com
Phone	0265702206
Role/Position	Administrator

**Post Approval Details**

Project:

Wambo Mine - DA305-7-2003-I-PA-28

Name of Document

Air Quality Management Plan

Related matter

Management Plan or Strategy

Type of Document Lodgement

Revision to Existing Document

Description of the document and reason for submission / Overview of changes made to existing documents

Revision of Air Quality and Greenhouse Gas Management Plan to describe Phase 2 operations. Provided in draft for consultation.

**Applicable Conditions**

Schedule	Condition
2	B46

**Consultation through the Major Projects portal**

Consultation required as part of the preparation of the document?

Yes

Consultation made through the Department's portal

Yes

**Public Authority Consultation Details**

Public Authority Name	Public Authority Type
ENVIRONMENT PROTECTION AUTHORITY	Public Agency/Department

**Consultation Details**

Due Date

09/10/2020

**Message**

Please find attached Revision 7 of the Wambo Coal Air Quality and Greenhouse Gas Management Plan which is provided in draft for consultation.

**Attachments Provided for Public Authority Consultation**

File Name	Category
WCPL Air Quality Management Plan_V7_Draft Clean.pdf	Request Advice on Post Approval - Proponent
WCPL Air Quality Management Plan_V7_Draft Tracks.pdf	Request Advice on Post Approval - Proponent

**Attachment of Post Approval application**

File Name	Category
Air Quality Management Plan_V7_Draft Tracks.pdf	Revised Post Approval Document - Track Changes
Air Quality Management Plan_V7_Draft Clean.pdf	Post Approval Document



Nicole Dobbins  
Senior Environmental Advisor  
Wambo Coal Pty Ltd  
PMB 1  
Singleton NSW 2330

28/05/2020

Dear Ms Dobbins

**Wambo Coal Mine (DA 305-7-2003)  
Approval of Experts**

I refer to your correspondence of 23 April, requesting the Secretary's approval of suitably qualified persons to prepare the following environmental management plans for the Wambo Coal Mine (DA 305-7-2003):

- Air Quality and Greenhouse Gas Management Plan, required by condition B46; and
- Groundwater Management Plan required by condition B66(v).

The Department has reviewed the nominations and information you have provided and is satisfied that the following experts are suitably qualified and experienced:

- Shane Lakmaker (Jacobs) – Air Quality; and
- Claire Stephenson (SLR Consulting) – Groundwater.

I note that the Department recently approved the following experts to prepare the Wambo Extraction Plan for Longwalls 21 – 22:

- Dr Noel Merrick, (SLR Consulting) – Groundwater;
- Mr Rohan Lucas, (Alluvium) – Surface water;
- Mr Peter Kuskie, (South East Archaeology) – Aboriginal Cultural heritage; and
- Mr Martin Sullivan, (Eco Logical Australia) – Biodiversity.

The Department is satisfied that these experts are also suitably qualified and experienced to assist in the preparation of site environmental management plans in their field of expertise.

If you wish to discuss the matter further, please contact Melanie Hollis on 8217 2043.

Yours sincerely

A handwritten signature in black ink, appearing to read 'M Sprott'.

Matthew Sprott  
Director  
Resource Assessments (Coal & Quarries)  
as nominee of the Secretary

**Comments from DPIE on Version 7 of the AQGGMP (dated 30 October 2020)**

Comment	Consideration of Comment
<p>Condition B45(i) of DA305-7-2003 (Mod16) states that information regarding odour, fume, spontaneous combustion and greenhouse gas is located in section 4.1, however, information regarding odour is located in section 3.4, fume is not addressed (noted that the blast fume section has been deleted), spontaneous combustion is addressed in section 3.4, and greenhouse gas is addressed in sections 3.5 and 4.2. Please amend accordingly.</p>	<p>The Table in Appendix A has been corrected. Reference to fume has been added to section 3.4.</p>
<p>Condition B45(ii) refers to minimising visible off-site air pollution including methane flares, and information regarding this is stated as being in section 4.1. Information regarding methane flaring is located in section 4.2. Please add reference accordingly.</p>	<p>The Table in Appendix A has been corrected</p>
<p>Condition B46(a) requires that the AQGGMP be prepared by a suitably qualified and experienced person/s. There is no reference made to this throughout the AQGGMP. Please address this condition.</p>	<p>Section 1.5 has been revised to include the appointment of Mr Shane Lakmaker as the suitably qualified, experienced expert (see also Appendix A).</p>
<p>Condition B46(b) requires that the AQGGMP be prepared in consultation with the EPA. There is no evidence of this consultation included in the AQGGMP. Please include copies of this correspondence.</p>	<p>Section 1.5 Stakeholder Consultation has been revised. A copy of the draft AQGGMP V7 was provided to the EPA via the Major Projects Planning Portal. A copy of the receipt is included in Appendix B.</p>
<p>Condition C1 refers to acquisition upon request for R019. The table in Appendix A states that information regarding this property can be found in section 3.1. This reference is incorrect, and there is no mention of this property in the AQGGMP. Please address.</p>	<p>Reference to Land Acquisition of property R019 is included in Section 3.2.</p>
<p>Condition D8 refers to incident notification. This information is outlined in section 8.5, however there is no reference to the email address for notification (<a href="mailto:compliance@planning.nsw.gov.au">compliance@planning.nsw.gov.au</a>). Please include this information.</p>	<p>Email address has been included in Section 8.5.</p>
<p>Reference is made to DP&amp;E in section 8.5. Please update to DPIE.</p>	<p>Corrected.</p>
<p>Condition D9 refers to non-compliance notification, and the table in Appendix A notes that this information is located in section 8.5. There is</p>	<p>Corrected. Notification of non-compliances has been included in Section 8.5.</p>



no reference to the email address for notification ( <a href="mailto:compliance@planning.nsw.gov.au">compliance@planning.nsw.gov.au</a> ), and no reference to non-compliances. Please amend accordingly.	
Condition D15(iv) is not satisfied. There is no reference made in section 8.4 to provision of detailed plans for the Phases of the development. Please amend.	Section 8.4 has been updated to include all requirements listed in Condition D15 (i) to (xiii)
Condition D15(vi) is not satisfied. There is no reference made in section 8.4 to provision of regular reporting on environmental performance. Please amend.	
Condition D15(vii) is not satisfied. There is no reference made in section 8.4 to provision of monitoring results. Please amend.	
Condition D15(viii) is not satisfied. There is no reference made in section 8.4 to provision of a summary of the current Phase of the development. Please amend.	
Condition D15(ix) is not satisfied. There is no reference made in section 8.4 to provision of contact details for enquiries and complaints. Please amend.	
Condition B3 of DA177-8-2004 – see comments for condition B45 of DA305-7-2003 (Mod16)	The Table in Appendix A has been corrected.
Section 2.6 provides information regarding seasonal wind patterns for 2014. Why was this year chosen specifically and an average of all years data not used?	It is not known why 2014 data was chosen. 2014 wind roses have been replaced with roses for the period 2011 to 2015, copied from the most recent EIS.
In the final sentence of section 2.7, replace “including of” with “inclusive of” or “includes”.	Complete

Summary of Consideration of Comments Received on the AQGGMP from DPE 5 July 2017

Comment	Consideration of Comment
<b>Department of Planning and Environment – 5 July 2017</b>	
There is no statement within this AQGGMP, or appended correspondence, to demonstrate that this plan has been submitted to the EPA for review.	This plan will be provided to the EPA for review in August 2017.
<p>More detail is required on the predictive “meteorological forecasting and real-time dispersion modelling module” to allow an assessment of whether best management practice is being employed, especially with regards to proactive management of air quality. Further information required includes, but is not limited to:</p> <ul style="list-style-type: none"> <li>• Description of how the predictive meteorological forecasting and real-time air dispersion modelling data is made available;</li> <li>• Who predictive meteorological forecasting and real-time air dispersion modelling data is made available to (that is, roles and responsibilities);</li> <li>• Details of the forecasted meteorological triggers for specific actions; and</li> <li>• Any “early warning” triggers.</li> </ul>	Additional detail has been included in Section 4.1.1.
The AQGGMP should also describe best management practices to manage dust sources (for example temporary vegetation prior to final rehabilitation).	Table 11 has been revised to reflect that WCPL undertakes temporary stabilisation or revegetation of areas not yet available for final rehabilitation.
The Proactive Air Quality Management Protocol requires more detail to demonstrate that the site is ensuring that air quality impacts are minimised. See comments above regarding employment of best management practice.	<p>The Proactive Air Quality Management Protocol in Table 9 has been revised to clarify that standard proactive management measures that will be implemented at the Mine are outlined in Section 4.1.4 (Table 11).</p> <p>Table 11 has been revised to describe additional proactive management measures.</p>
Also, review and revise the language describing proactive air quality management so it is clear what will be done, why, when it is going to be done, and who is going to do it. For example, “consideration” of “prevailing climatic conditions” is not clear.	The language in Table 11 has been reviewed and revised to make it more specific.
Schedule 4 Condition 15 requires the Applicant “to ensure any visible air pollution generated by the development is assessed regularly, and that operations are modified, and/or stopped as required to minimise air quality impacts on privately owned land”. Please the requirements of this condition are addressed in the relevant section of the AQGGMP.	Table 11 has been revised to further describe the responses to visible dust generation observed on the field cameras.

Comment	Consideration of Comment
<p>Schedule 4 Condition 4 describes long term impact assessment criteria for deposited dust and Total suspended particulate (TSP) matter. Schedule 4 Condition 5C(f) requires a protocol for determining any exceedances of the relevant conditions in this consent to be included in the Air Quality and Greenhouse Gas Management Plan.</p>	<p>A new section has been included (Section 5.7) that describes the process for determining exceedances of the air quality impact assessment criteria, including criteria in relation to TSP and dust deposition.</p>
<p>Schedule 4, Condition 5B(a) requires “best practice coal loading and profiling and other measures to minimise dust emissions from coal transportation by rail”. Coal loading and profiling and other measures to minimise dust emissions from coal transportation by rail are not addressed in this AQGGMP.</p>	<p>Table 11 has been revised to describe the measures implemented by WCPL to reduce dust emissions from coal transportation by rail.</p>
<p>The triggers and responses described in Table 15 do not relate specific mining activities to triggers for a high risk of dust impacts, or responses (i.e. specific mining activities that would need to be modified/halted to reduce risks). The “responses” in particular require more detail to demonstrate that risk of exceedance and air quality impacts are being minimised.</p>	<p>Table 15 has been revised to be more specific about the responses to Level 2 and 3 triggers.</p>
<p>Schedule 4 Condition 5 describes long term acquisition criteria for deposited dust and Total suspended particulate (TSP) matter. Schedule 4 Condition 5C(f) requires a protocol for determining any exceedances of the relevant conditions in this consent to be included in the Air Quality and Greenhouse Gas Management Plan.</p>	<p>A new section has been included (Section 5.7) that describes the process for determining exceedances of the air quality impact assessment criteria, including criteria in relation to TSP and dust deposition.</p>
<p>This AQGGMP should be updated to reflect October 2016 modification. For example, revise Table 1 to be consistent with October 2016 modification: “The Applicant may carry out mining operations at the Wambo Mining Complex until 1 March 2032”.</p>	<p>The AQGGMP has been revised to incorporate MOD 12 (for example, Table 1 and Figure 2).</p>
<p>The South Wambo Underground Mine Modification Environmental Assessment Appendix I Air Quality and Greenhouse Gas Review (Appendix to the April 2016 Mod 12 EA) states that “To minimise dust generation and the potential for off-site impacts during the construction activities, appropriate operational and physical mitigation measures would be implemented in accordance with the Air Quality and Greenhouse Gas Management Plan”. However, this AQGGMP does not describe any specific dust generation minimisation measures for construction activities. Ensure specific dust generation minimisation measures for construction activities are addressed.</p>	<p>Table 11 has been revised to describe dust management practices that would be employed for construction activities.</p>
<p>Wambo Coal’s online reporting as described in Section 8.4.1 does not appear to be compliant with the requirements of Schedule 6 Condition 13 of DA305-7-2003. The Northern Region Compliance team has been notified of this issue.</p>	<p>WCPL is continuously working to improve its online reporting systems to the satisfaction of the Secretary.</p>

Comment	Consideration of Comment
<p>Requirements of Schedule 5 Conditions 1 to 11 regarding landholder notifications etc are not adequately addressed in Section 4.1.3.1. Section 4.1.3.1 only refers to these conditions but does not describe measures to ensure the requirements of these conditions are met.</p>	<p>The Landholder Notification Procedure previously approved by Department of Infrastructure, Planning and Natural Resources has been revised and included in Appendix D.</p> <p>Sections 4.1.3.1 and 7.0 have been revised to refer to Appendix D.</p>
<p>References to internal procedures (e.g. Spontaneous Combustion Management Plans and Waste Management Plan) must be caveated with a statement of assurance, such as 'Internal procedures have not been reviewed by DPE. WCPL takes responsibility for ensuring these procedures are in accordance with this management plan and generally in accordance with the development consent.</p>	<p>Section 3.4 of the AQGGMP has been revised to address this comment.</p>
<p>Review and revise the AQGGMP to ensure the language of the management plan is clear about what will be done, why, when it is going to be done, and who is going to do it.</p>	<p>The AQGGMP has been reviewed, and commitments updated to be more specific.</p>
<p>Some of the hyperlinked cross references are incorrect.</p>	<p>All hyperlinks have been reviewed.</p> <p>The link to WCPL's website has been revised with a contemporary link.</p>
<p>Reporting of incidents to DPE in Section 8.5 requires clarification. "Incidents" require definition and the timeframe for reporting to DPE needs to be clarified.</p>	<p>A definition of 'incident' has been included in Section 8.5 that is consistent with DA305-7-2003 and DA177-8-2004.</p> <p>Incidents causing or threatening material harm to the environment will be reported to DP&amp;E immediately after WCPL becomes aware</p> <p>For all other incidents that do not cause or threaten material harm to the environment associated with the Project, WCPL will notify the Secretary as soon as practicable after WCPL becomes aware of the incident. The exact timing would depend on the nature of the incident. A detailed report would be provided within 7 days (as described in Section 8.5).</p>

## **APPENDIX C: AQGGMP Summary of Commitments**

## Air Quality and Greenhouse Gas Management Plan – Summary of Commitments

Note: The list of commitments in this appendix is in addition to those explicitly required by Development Consent and EPL conditions.

Section	Commitment	Timing
3.2	<p>WCPL will ensure that particulate matter emissions generated by the Mine do not exceed the criteria in Table 8 at any occupied residence on any mine-owned land (including land owned by adjacent mines) unless:</p> <ul style="list-style-type: none"> <li>- The tenants and landowner have been notified of health risks in accordance with the notification requirements under Schedule 5 of DA305-7-2003 and outlined in the WAENV- PRO-508.1 Landholder Notification Procedure (Appendix D);</li> <li>- The tenant on land owned by WCPL can terminate their tenancy agreement without penalty, subject to giving reasonable notice, and WCPL uses its best endeavours to provide assistance with relocation and sourcing of alternative accommodation;</li> <li>- 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 and landowner (where owned by another mine other than WCPL);</li> <li>- Particulate matter air quality monitoring is undertaken to inform the tenant and landowner of potential health risks; and Monitoring data is presented to the tenant in an appropriate format, for a medical practitioner to assist the tenant in making an informed decision on the health risks associated with occupying the property, to the satisfaction of the Secretary of DP&amp;E</li> </ul>	Ongoing
3.3	WCPL will coordinate air quality management at the Wambo Mining Complex with the air quality management at nearby mines (HVO South, HVO North and Mount Thorley Warkworth mines).	Ongoing
3.4	WCPL will ensure that no offensive odours, as defined under the POEO Act, are emitted from the Wambo Mining Complex. This is achieved through the implementation of WCPL's Spontaneous Combustion Management Plans (prepared under the Work Health and Safety (Mines and Petroleum Sites) Regulation 2014) and Waste Management Plan (an internal management plan that has not been reviewed by DP&E).	Ongoing
3.5	WCPL will implement all reasonable and feasible measures to minimise the release of greenhouse gas emissions from the Wambo Mining Complex (Section 4.2).	Ongoing
	<p>WCPL will also:</p> <ul style="list-style-type: none"> <li>· Monitor the greenhouse gas emissions generated by the development (Section 5.3);</li> <li>· Investigate ways to reduce greenhouse gas emissions generated by the development (Section 4.2); and</li> <li>· Report on greenhouse gas monitoring and abatement measures in the Annual Review (Section 8.2).</li> </ul>	Ongoing (see below)
4.1.1	WCPL will implement a predictive meteorological forecasting and real-time air dispersion modelling module for the Mine.	Ongoing

Section	Commitment	Timing
4.1.2	WCPL will implement a Proactive Air Quality Management Protocol, as summarised in Table 9. The implementation of the Proactive Air Quality Management Protocol will be the responsibility of the Environment and Community Manager (E&C Manager) and relevant mining operations managers and supervisors as required	Ongoing
4.1.3	WCPL will implement a Reactive Air Quality Management Protocol (Table 10) should any exceedances of the air quality assessment criteria be experienced and/or if unexpected adverse or extraordinary meteorological events are experienced at the Mine	As required
4.1.4	WCPL will implement the dust management measures detailed in Table 11.	As per Table 11
4.2	WCPL will implement the greenhouse gas management measures detailed in Table 12.	As per Table 12
5.2.1 & 5.6	WCPL will continuously monitor meteorological conditions at the mine in accordance with the monitoring program described in Table 13. This includes monitoring rainfall, wind speed and direction (at 10 metres), temperature (at 2 and 10 metres), sigma theta and total solar radiation at the on-site meteorological monitoring station.	Continuously
	The meteorological station will be routinely calibrated and maintained by appropriately accredited technicians	Annually
	Summary data will be obtained from the monitoring instrumentation daily. Data will be entered into an electronic database (or similar) for analysis and tracking.	Daily
5.2.2 & 5.6	WCPL will continuously monitor PM10 via TEOM at the following sites (AQ01, AQ02, AQ03 & AQ04).	Continuously
	Summary data will be obtained from the monitoring instrumentation daily. Data will be entered into an electronic database (or similar) for comparison with relevant air quality criteria.	Daily
	TEOMs will be operated in accordance with AS3580.9.8 – 2002, Method for Sampling and Analysis of Ambient Air – Determination of Suspended Particulate Matter – PM10 Continuous Direct Mass Method using a Tapered Element Oscillating Microbalance Analyser. Each TEOM measures PM10 concentrations every 10 minutes to calculate a 24 hour average result.	Continuously
5.2.3 & 5.6	WCPL will use PM2.5 monitoring data obtained from the Singleton based monitoring station of the Upper Hunter Air Quality Monitoring Network as part of the mine's air quality monitoring program. Summary data is received daily and entered into an electronic database (or similar). This data will be used as per the Mine's PM10 data, to inform mitigation measures and management protocols.	Daily
5.2.4 & 5.6	WCPL will continuously monitor dust deposition at 4 sites: D11, D19, D21 & D22.	Continuously
	Dust deposition gauges will be operated in accordance with AS3580.10.1:2003 Methods for Sampling and Analysis of Ambient Air and National Association of Testing Authorities (NATA) requirements.	Continuously

Section	Commitment	Timing
	<p>Samples will be retrieved from the monitors on a monthly basis and sent to a laboratory for analysis for insoluble soils and ash residue. Data will be entered into an electronic database (or similar) and compared with relevant criteria.</p> <p>Exceedances will be noted and investigated.</p>	<p>Monthly</p> <p>As required</p>
5.2.5 & 5.6	Annual average TSP concentrations will be estimated from PM10 monitoring data based on the relationship that 33% of TSP is PM10.	Ongoing
5.2.6	<p>If required, additional targeted monitoring of dust deposition, TSP matter or PM10 will be undertaken in response to a landholder or community complaint. Details of this monitoring, including location of monitoring equipment and duration and frequency of monitoring, will be determined in consultation with the complainant, WCPL's air quality monitoring consultants and OEHL (if required).</p> <p>WCPL will also undertake targeted monitoring of occupied mine-owned residences and residences on air quality affected land listed in Schedule 4, Condition 1 of DA305-7-2003, as required, and subject to the agreement of the tenant.</p> <p>Results of this targeted monitoring will be compared to the air quality impact assessment criteria to determine WCPL's compliance with the conditions of consent. All results will be reported in the Annual Review.</p>	If/As required
5.2.7	WCPL will continue to operate a remote field camera to capture real time footage of operating conditions.	Ongoing
5.2.8	<p>WCPL will monitor real-time air quality monitoring network stations located in the vicinity of neighbouring mines (HVO South, HVO North and Mount Thorley Warkworth Mines).</p> <p>If the real time monitor records a trigger level 3 as per Table 17, then, upon investigation and validation of the alarm criteria and source of propagation, WCPL will provide notification to the above operations outlining WCPL actions to minimise cumulative air quality impacts on neighbouring mines.</p>	<p>Ongoing</p> <p>As required</p>
5.3	<p>WCPL will undertake greenhouse gas monitoring in accordance with the requirements of the National Greenhouse and Energy Reporting Act 2007 (NGER Act) and the National Greenhouse and Energy Reporting Regulations 2008.</p> <p>WCPL will continuously monitor methane and carbon dioxide from the main vent shaft.</p> <p>WCPL will calculate greenhouse gas emissions for diesel, oil, grease and electricity use annually, using invoices.</p> <p>WCPL will calculate emissions based on monthly ROM production, using weight metre and survey data. Final annual production in tonnes will be taken from Wambo's annual coal royalty return.</p> <p>Emissions data will be made publicly available via the Department of Environment and Energy website: <a href="http://www.environment.gov.au">www.environment.gov.au</a>.</p>	<p>Ongoing</p> <p>Continuously</p> <p>Annually (31 Dec)</p> <p>Annually (31 Dec)</p> <p>Annually</p>
5.5	Monitoring data will be maintained in accordance with Condition M1 of EPL 529	Ongoing



Section	Commitment	Timing
5.7	WCPL will review data from the air quality monitoring program on a monthly basis. WCPL will calculate the rolling annual average for dust deposition, PM10 and TSP and compare to air quality impact assessment criteria. Any exceedances will be noted and investigated.	Monthly
6	If an exceedance or breach of the criteria and/or performance measures occurs, WCPL will: <ul style="list-style-type: none"> <li>· Take all reasonable and feasible steps to ensure that the exceedance ceases and does not recur;</li> <li>· Consider all reasonable and feasible options for remediation (where relevant) and submit a report to the DP&amp;E describing those options and any preferred remediation measures or other course of action; and</li> <li>· Implement remediation measures as directed by the Secretary of DP&amp;E.</li> </ul>	As required
6.1.2	WCPL will implement the required responses in Table 17 (Risk/Response matrix for 24 hour PM10 Concentrations) in the event of a Level 1, 2 or 3 trigger.	As per Table 17
7	All air quality related community complaints received by WCPL will be recorded within the Community Complaints Register	As required
	The E&C Manager will investigate the complaint, which will include, where possible, contacting the complainant within 24 hours to discuss the complaint	Within 24hrs of a complaint
	A review of the effectiveness of the corrective or preventative actions will be conducted within a month of the complaint and the relevant work procedures updated if required.	Within 1 month of a complaint
	Preliminary investigations will commence as soon as practicable upon receipt of a complaint to establish if WCPL is responsible. All efforts will be made to determine the likely causes contributing to the complainants concerns using information such as the climatic conditions at the time of the complaint, the nature of activities taking place and recent monitoring results	As soon as practicable upon receipt of a complaint
	WCPL will attempt to address the complainants concerns such that a mutually acceptable outcome is achieved. However, if required, the Independent Dispute Resolution Process would be referred to (Appendix C).	As required
	If exceedances of the air quality criteria are detected, any affected landowner and/or tenant will be notified within fourteen days of the confirmation of the exceedance in accordance with the WA-ENV_PRO-508.1 Landholder Notification Procedure in Appendix D.	Within 14 days of confirmation of the exceedance
	Details of all community complaints will be included in the Monthly Environment Monitoring Report.	Monthly
	WCPL will retain a copy of the Community Complaints Register for at least four years.	For at least 4 years from the date of the complaint
	The E&C Manager will ensure the latest Community Complaints Register is posted on the WCPL website	Monthly

Section	Commitment	Timing
8.1	WCPL will review the performance of the air quality and greenhouse gas monitoring and management programs outlined in the AQGGMP annually.	Annually (31 Dec)
8.2	WCPL will undertake a complete review of the AQGGMP: <ul style="list-style-type: none"> <li>- Every two years;</li> <li>- When there are changes to consent or licence conditions relating to air quality or greenhouse gas management or monitoring;</li> <li>- Following significant air quality related incidents at WCPL;</li> <li>- Following an independent environmental audit which requires AQGGMP review; or</li> <li>- If there is a relevant change in technology, practice or legislation</li> </ul> The revised AQGGMP will be re-submitted to the Secretary for approval as required by Condition 20, Schedule 4 of DA305-7-2003.	Every 2 years or as required (refer Section 8.1)
8.2	Prior to the end of March each year, WCPL will review the environmental performance of the Mine and submit an Annual Review report to the DP&E. The Annual Review will be prepared in accordance to Project Approval Requirements.	Annually (by 31 March)
	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 529 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 (1 January - 31 December).	Annually (by 28 Feb)
	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.	For at least 4 years from the date of submission
8.4	A comprehensive summary of the air quality and greenhouse monitoring results will be made publicly available at WCPL's website. Information on the website will be updated regularly as required by DA305-7-2003. 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).	Monthly
8.4.1	WCPL will make the following information publicly available on its website, on a daily basis and in a clearly understandable form: <ul style="list-style-type: none"> <li>· Daily weather forecasts for the coming week;</li> <li>· Proposed operational responses to these weather forecasts;</li> <li>· Real-time air quality monitoring data (subject to any necessary caveats); and</li> <li>· Any operational responses that were taken in response to the air quality monitoring data.</li> </ul>	Daily
	WCPL will make provision on its website for the provision of online and/or email comments by members of the community regarding this information	Ongoing
8.5	All reportable incidents (that are causing or threatening material harm to the environment) will be reported via the EPA's Environmental Line on 131 555 by the E&C Manager in accordance with WCPL's Pollution Incident Response Management Plan (PIRMP).	Immediately after becoming aware of the incident

Section	Commitment	Timing
	For all other incidents that do not cause or threaten material harm to the environment associated with the Mine, WCPL will notify the Secretary and any other relevant agencies as soon as practicable after WCPL becomes aware of the incident	As soon as practicable after becoming aware of the incident
	Within 7 days of the date of the incident, WCPL will provide the Secretary and any relevant agencies with a detailed report on the incident.	Within 7 days of the date of the incident
8.6	WCPL will provide summary reports and specific briefings at CCC meetings on issues arising from air quality monitoring.	As and when required

## **APPENDIX D: Landholder Notification Procedure**

# **WAMBO COAL LANDHOLDER NOTIFICATION PROCEDURE**

Document No. WA-ENV-PRO-508.1  
August 2020

## Document Control

<b>Document No.</b>	WA-ENV-PRO-508.1
<b>Title</b>	Landholder Notification Procedure
<b>General Description</b>	Procedure for requirements under Conditions C4–C6 of DA 305-7-2003 and C2 of DA 177-8-2004
<b>Document Owner</b>	Environment & Community Manager

## Revisions

Rev No	Date	Description	By	Checked	Signature
0	July 2005	Original Draft	Resource Strategies	JT/TS	
1	August 2005	Final Draft	Resource Strategies	JT/TS	
2	June 2008	Revision 1	Sarah Bailey	SB	
3	July 2017	Major revision including updated formatting	WCPL	SP	
4	April 2020	Review to incorporate DA 305-7-2003 and DA177-8-2004 changes	WCPL	PJ	
5	August 2020	Review to reflect Phase 2	WCPL	PJ	

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## 1.0 Introduction

### 1.1 Background

The Wambo Coal Mine (the Mine) is situated approximately 15 kilometres west of Singleton, near the village of Warkworth, New South Wales (**Figure 1**). Wambo is owned and operated by Wambo Coal Pty Limited (WCPL), a subsidiary of Peabody Energy Australia Pty Limited.

A range of open cut and underground mine operations have been conducted at WCPL since mining operations commenced in 1969. Mining under the current Development Consent (DA 305-7-2003) commenced in 2004 and permits both open cut, underground operations and associated activities to be conducted. The approved run-of-mine (ROM) coal production rate is 14.7 million tonnes per annum and all product coal is transported from WCPL by rail.

### 1.2 Purpose and Scope

This Landholder Notification Procedure (LNP) has been prepared to outline the procedures that will be undertaken to comply with the Condition C4 to C6 of Schedule 2 DA305-7-2003 and Condition C2, Schedule 2 of DA177-8-2004.

This Landholder Notification Procedure forms part of WCPL's Environmental Management System (EMS).

This procedure is applicable to WCPL during Phase 2 of the project.

### 1.3 Statutory Requirements

WCPL received Development Consent (DA305-7-2003) in accordance with the *Environmental Planning & Assessment Act 1979* (EP&A Act) on 4 February 2004.

Modification 16 of DA305-7-2003 was approved 29 August 2019. Conditions within DA305-7-2003 relevant to landholder notifications at the Mine are summarised in **Table 1**.

WCPL received Development Consent (DA177-8-2004) in accordance with the EP&A Act on 16 December 2004. Modification 3 of DA177-8-2004 was approved 29 August 2019. Conditions within DA177-8-2004 relevant to landholder notifications at the Mine are summarised in Table 1.

**Table 1: Development Consent Requirements for Landholder Notifications**

Schedule	Condition	Requirements	LNP Section
DA305-7-2003			
<b>NOTIFICATION OF EXCEEDANCES</b>			
2	C5	As soon as practicable and no longer than 7 days after obtaining monitoring results showing an exceedance of any noise, blasting or air quality criterion in PART B of this consent, the Applicant must provide the details of the exceedance to any affected landowners, tenants and the CCC.	Section 3.3



2	C6	For any exceedance of any air quality criterion in PART B of this consent, the Applicant must also provide to any affected land owners and tenants a copy of the NSW Health fact sheet entitled " <i>Mine Dust and You</i> " (NSW Health, 2017).	Section 1.4, Section 3.1 and Attachment 1
<b>DA177-8-2004</b>			
2	C2	<p>Prior to entering into any tenancy agreement for any land owned by the Applicant that is predicted to experience exceedances of the recommended air quality and/or noise criteria, the Applicant must:</p> <ul style="list-style-type: none"> <li>(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 "<i>Mine Dust and You</i>" (NSW Health, 2017); and</li> <li>(b) advise the prospective tenants of the rights they would have under this consent, to the satisfaction of the Planning Secretary.</li> </ul>	Section 3.1, Section 3.2, Attachment 1

## 1.4 Consultation

Version 1 of this LNP was prepared in consultation with the Department of Environment and Conservation and NSW Health in August and September 2005. The Department of Infrastructure, Planning and Natural Resources (now Department of Planning and Environment, DP&E) approved the LNP in September 2005.

This version of the LNP (Version 4) has been prepared in accordance with DA305-7-2003 (Modification 16) and DA177-8-2004 (Modification 3) to contemporise the notification procedures and to include reference to the NSW Health fact sheet entitled "*Mine Dust and You*".

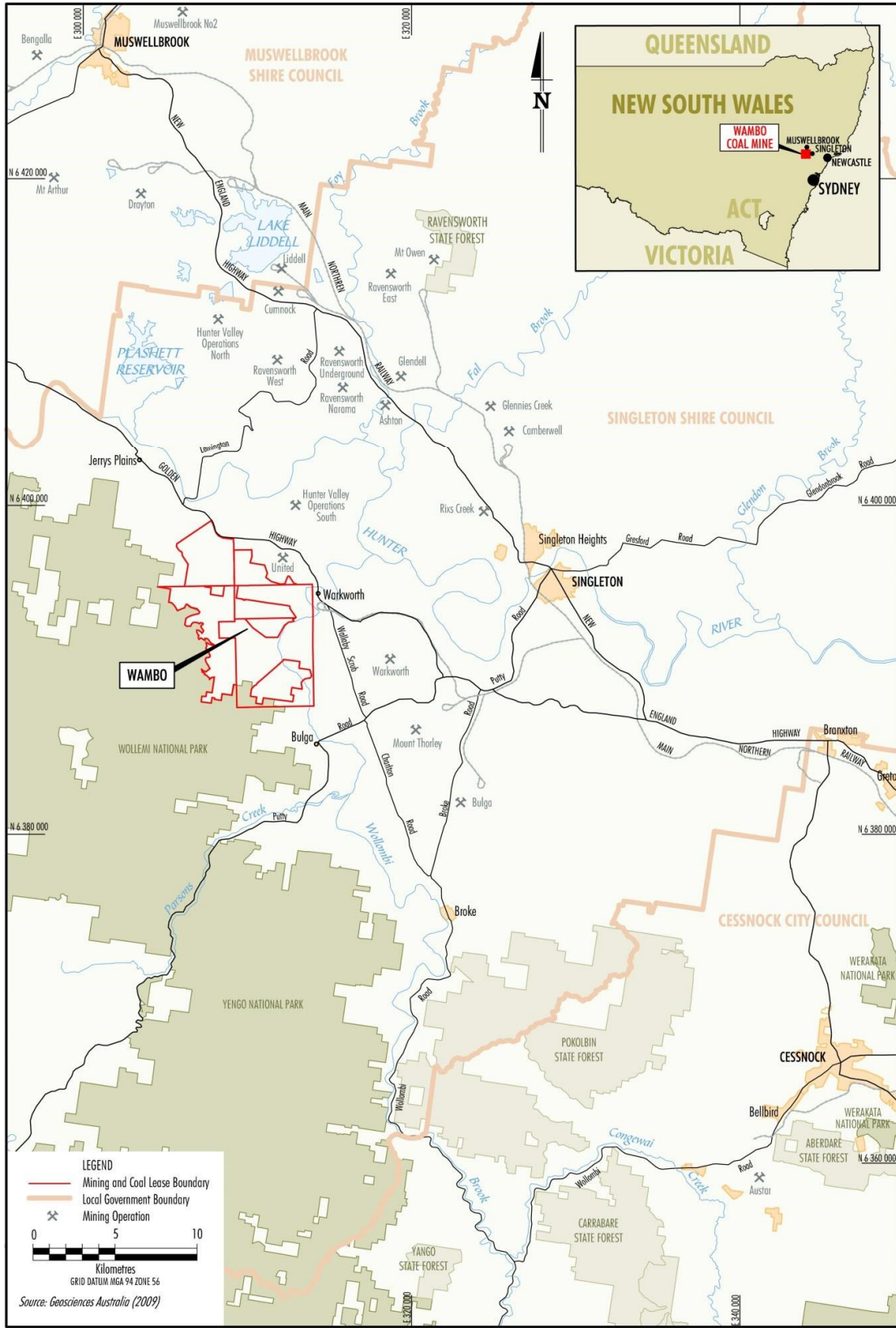


Figure 1: Wambo Coal Regional Location

## 2.0 Relevant Criteria

### 2.1 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 do not exceed the criteria listed in **Table 2** at any residence on privately owned land, or on more than 25 percent of any privately owned land.

**Table 2: Air Quality Impact Assessment Criteria**

Pollutant	Averaging Period	<sup>d</sup> Criterion	<sup>e</sup> Purpose
Total Suspended Particulate (TSP) Matter	Annual	<sup>a,d</sup> 90 µg/m <sup>3</sup>	Compliance
Particulate Matter <10µm (PM <sub>10</sub> )	Annual	<sup>a,d,f</sup> 25 µg/m <sup>3</sup>	Compliance
	24 hour	<sup>b</sup> 50 µg/m <sup>3</sup>	Compliance
Particulate Matter <2.5µm (PM <sub>2.5</sub> )	Annual	<sup>a, d, f</sup> 8 µg/m <sup>3</sup>	Compliance
	24 hour	<sup>b, f</sup> 25 µg/m <sup>3</sup>	Compliance

Notes:

- Total impact (i.e. incremental increase in concentrations due to the development plus background concentrations due to all other sources).
- Incremental impact (i.e. incremental increase in concentrations due to the development on its own).
- Deposited dust is to be assessed as insoluble solids as defined by Standards Australia, AS/NZS 3580.10.1:2003: Methods for Sampling and Analysis of Ambient Air - Determination of Particulate Matter - Deposited Matter - Gravimetric Method.
- Excludes extraordinary events such as bushfires, prescribed burning, dust storms, sea fog, fire incidents or any other activity agreed by the Secretary.
- Upon written request for acquisition from the landowner listed in Schedule 4, Part C, Condition C1 of DA305-7-2003, WCPL shall acquire the land in accordance with the procedures in Part C, Conditions C10 to C11 of DA305-7-2003.
- Criterion changed or included with the approval of Modification 16 of DA305-7-2003

### 2.2 Noise Impact Assessment Criteria

Condition B12, Schedule 42 of DA305-7-2003 WCPL must not exceed the noise impact assessment criteria. These noise impact assessment criteria are provided in **Table 3** (and detailed in the following notes):

**Table 3: Noise Impact Assessment Criteria dBA (for Phase 2 and Phase 3)**

Noise Assessment Area	Noise Assessment Location	Day <sup>#</sup> L <sub>Aeq</sub> (15 minute)	Evening <sup>#</sup> L <sub>Aeq</sub> (15 minute)	Night <sup>#</sup> L <sub>A1</sub> (15 minute)	Night <sup>#</sup> L <sub>A1</sub> (1 minute)
Area 1 – North Bulga	R003	38	38	38	48
	R007 and R379	37	37	37	47
	All other privately owned residents	35	35	35	45
Area 2 –	R025	39	39	39	49

Noise Assessment Area	Noise Assessment Location	Day <sup>#</sup> L <sub>Aeq</sub> (15 minute)	Evening <sup>#</sup> L <sub>Aeq</sub> (15 minute)	Night <sup>#</sup> L <sub>A1</sub> (15 minute)	Night <sup>#</sup> L <sub>A1</sub> (1 minute)
South Wambo	R035a	37	37	37	47
	All other privately owned residents	35	35	35	45
Area 3 – Warkworth Village	R019	59	59	59	69
	All other privately owned residents	44	44	43	53
All other areas	All other privately owned residents	35	35	35	45

**Note:** Noise generated at Wambo Mining Complex is to be measured in accordance with the relevant requirements and exemptions (including certain meteorological conditions) of the INP.

<sup>#</sup> Day is defined as the period from 7am to 6pm Monday to Saturday and 8am to 6pm Sundays and Public Holidays; Evening is defined as the period from 6pm to 10pm; Night is defined as the period from 10pm to 7am Monday to Saturday and 10pm to 8am Sundays and Public Holidays.

<sup>^</sup> For more information on the numbering and identification of properties, see Appendix 4 of DA 305-7-2003.

### 3.0 Notification of Landowners

#### 3.1 Initial Notification

During November 2005, WCPL provided the landowners and tenants outlined in **Table 4** with a fact sheet developed by Holmes Air Sciences Pty Ltd that addressed the following:

- air quality impacts likely to occur at the residence during the operational life of the Mine; and
- likely health and amenity impacts associated with exposure to particulate matter.

**Table 4: Properties that Received Notifications in November 2005**

Dwellings
8B to 8H Warkworth Mining Limited <sup>1</sup>
11B to 11F and 21A Coal and Allied <sup>1</sup>
19A and 19B Kelly <sup>#</sup>
20 Jerrys Plains Coal Terminal <sup>1</sup>
22 Henderson <sup>1#</sup>
23A and 23B Kannar <sup>1#</sup>
31A and 31B WCPL-owned <sup>2</sup>
31C and 31D WCPL-owned <sup>1,2</sup>
40 Muller <sup>1#</sup>
51 C.M. Hawkes Pty Ltd <sup>#</sup>
56 Haynes <sup>1#</sup>
WD to WF WCPL-owned <sup>1</sup>
Private Vacant Land
14 Keys <sup>1#</sup>
23 Kannar <sup>1#</sup>
55 Burley <sup>1</sup>
Other
St Phillips Church <sup>1</sup>
215 Newcastle Gliding Club <sup>1</sup>

Source: Holmes Air Sciences (2003).

<sup>1</sup> Exceedance predicted due to cumulative effects with other mines and background levels.

<sup>2</sup> Formerly Owned by C.M. Fisher.

# These dwellings are now owned by mining companies (or their subsidiaries).

### 3.2 Notification of Future Tenants

The procedure outlined in this section will apply:

- to land owned by WCPL that is predicted to experience exceedances of the air quality criteria in **Section 2.0 (Table 4)**; and
- during the operational life of the mine.

Prior to entering into any future tenancy agreement, WCPL will 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” (**Attachment 1**).

Annual monitoring data will be made available through the Annual Review (**Section 5.0**).

### 3.3 Notification of an Exceedance

In accordance with Condition C5, Schedule 2 of DA305-7-2003 and Condition C24, Schedule 2 of DA177-8-2004, in the event that blasting, air quality and/or noise monitoring detects an exceedance of the relevant criteria (**Section 2**) at a property other than those listed in **Table 4**, the relevant landowner and/or tenant and the Community Consultative Committee (CCC) will be provided with the relevant monitoring results as soon as practicable and no longer than 7 days after WCPL obtains the monitoring results.

Where the exceedance relates to particulate matter, the landowner and/or tenant will also be provided with a copy of the NSW Health fact sheet entitled “Mine Dust and You”, unless it is has been previously provided in the preceding 12 months (**Attachment 1**).

## 4.0 Responsibilities

**Table 5** below summarises responsibilities documented in the LNP, and should be read in conjunction with this document. Responsibilities may be delegated as required.

**Table 5: Landholder Notification Procedure Responsibilities**

No	Task	Responsibility	Timing
1	Initial notification to properties where an exceedance is expected	Environment and Community Manager	Complete
2	Notification of future tenants in accordance with Section 3.2	Environment and Community Manager	As required
3	Notification to properties other than those in Table 4 where monitoring indicates an exceedance	Environment and Community Manager	As soon as practicable and no longer than 7 days after obtaining monitoring results

## 5.0 Reporting and Review

Prior to the end of March each year, WCPL will review the environmental performance of the Mine and submit an Annual Review report to the DP&E. This report will:

- 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
- Include a comprehensive review of the air quality and noise 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 EA;
- Identify any non-compliance over the last year, and describe what actions were (or are being) taken to ensure compliance
- Identify any trends in the monitoring data over the life of the Project
- Identify any discrepancies between the predicted and actual impacts of the Project, and analyse the potential cause of any significant discrepancies; and
- Describe what measures will be implemented over the next year to improve the environmental performance of the Project.

The Annual Review and a comprehensive summary of air quality and noise monitoring results will be made publicly available at WCPL's website:

<https://www.peabodyenergy.com/Operations/Australia-Mining/New-South-WalesMining/Wambo-Approvals,-Plans-Reports>

Information on the website will be updated regularly as required by DA305-7-2003.

ATTACHMENT 1

FACT SHEET

<http://www.health.nsw.gov.au/environment/factsheets/Pages/mine-dust.aspx>



## Mine dust and you

**People living near mine sites often ask about the effects of dust emissions in the air as a result of mining activities.**

Last updated: 04 May 2017

### What is this fact sheet?

People living near mine sites often ask about the effects of dust emissions in the air as a result of mining activities. This fact sheet has been prepared to explain the type of dust that is generated from mine sites and the potential risks from mine dust to health.

### What is particulate matter?

Commonly called "dust," scientists and regulators refer to the term particulate matter (or PM) to describe the range of particles that exists in the air we breathe.

PM exists naturally in the atmosphere, eg sea-salt spray and pollens. PM can be increased due to human activities such as vehicle exhaust, industrial processes, power stations, mining, farming and wood heaters, or smoke from bushfires.

Exposure to PM can be associated with health and amenity impacts. The likely risk of these impacts depends on a range of factors including the size, structure and composition of the PM and the general health of the person.

### Sizes of particulate matter

Just as the size of balls we can see ranges from marbles to basketballs, PM can be thought of as microscopic balls of varying sizes. Instead of measuring PM in centimetres as we do with balls, scientists use micrometres (sometimes called "microns") to measure the diameter of particles. A micrometre is one-millionth of a metre and its symbol is  $\mu\text{m}$ .

For environmental health purposes, particles are usually described by their size:

Particle size	Description
TSP	Total Suspended Particulate Matter (TSP) refers to the total of all particles suspended in the air. Even the largest of these particles is barely half the width of a human hair.
"larger than" PM10	A subset of TSP, and refers to all particles of size 10 $\mu\text{m}$ in diameter and greater.
PM10	Also a subset of TSP, and includes all particles smaller than 10 $\mu\text{m}$ in diameter (smaller than 1/7th of a hair width). Particles in the size range 2.5 $\mu\text{m}$ to 10 $\mu\text{m}$ in diameter are referred to as coarse particles (PM 2.5-10).
PM 2.5	A subset of both PM10 and TSP categories and refers to all particles less than 2.5 $\mu\text{m}$ in diameter. PM2.5 is referred to as fine particles and is mainly produced from combustion processes such as vehicle exhaust.

Particles levels in air are measured by the weight (micrograms) of particles per cubic metre of air ( $\mu\text{g}/\text{m}^3$ ). One ( $\mu\text{g}/\text{m}^3$ ) equals one millionth of a gram in a cubic metre of air. TSP can also be measured as the weight of dust falling on a given area over time ("dust deposition").

## Particulate matter from mining

The vast majority of dust from mining activities consists of coarse particles (around 40 per cent) and particles larger than PM<sub>10</sub>, generated from natural activities such mechanical disturbance of rock and soil materials by dragline or shovel, bulldozing, blasting, and vehicles on dirt roads. Particles are also generated when wind blows over bare ground and different types of stockpiles. These larger particles can have amenity impacts as well as health impacts.

Fine particles from vehicle exhausts and mobile equipment are also produced at mine sites, though they only account for about 5 per cent of the particles emitted during the mining process. Fine particles produced at mine sites are mainly from vehicle and mobile equipment exhausts.

## Potential health impacts from PM

The human body's respiratory system has a number of defence mechanisms to protect against the harmful effects of PM. PM is often trapped in sticky mucus on the walls of the airways and can be removed by cilia, small hair-like objects which line the surface of the airways. This mucus can then be swallowed or coughed up.

PM exposure can lead to a variety of health effects. For example, numerous studies link particle levels to increased hospital admissions and emergency room visits and even to death from heart or lung diseases. Both long (over years) and short term (hours or days) particle exposure have been linked to health problems.

Generally, it is thought that fine particles below 2.5  $\mu\text{m}$  in diameter may be of a greater health concern than larger particles as they can reach the air sacs deep in the lungs. However, coarse particles (PM 2.5-10) could also be associated with adverse health effects.

People who may be more susceptible to the health effects of fine and coarse particles are:

- infants, children and adolescents
- elderly
- people with respiratory conditions such as asthma, bronchitis and emphysema
- people with heart disease
- people with diabetes.

If health effects arise from exposure to coarse particles, such as from mining activities, the symptoms are likely to be:

- cough
- wheeze, or worsening of asthma
- increased need for medications (e.g. puffers, antibiotics)
- increased breathlessness.

Some recent research suggests that heart problems, such as angina and heart attacks may also be associated with coarse particle pollution.

High levels of TSP may also cause coughing, sneezing or sore eyes.

## Potential amenity impacts

Amenity impacts from dust are usually associated with coarse particles and particles larger than PM<sub>10</sub>. The

impact of dust from a nearby mine on local amenity depends on the distance from the mine site and climatic conditions such as wind.

Concerns about amenity from mine site dust often relate to "visibility" of dust plumes and dust sources. Visible dust is usually due to short-term episodes of high emissions, such as from blasting.

Other amenity impacts include dust depositing on fabrics (such as washing) or on house roofs, and the transport of dust from roofs to water tanks, during rain. NSW Health's Rainwater Tanks brochure provides advice on how to maintain water tanks for safe drinking. Strategies to reduce dust in water tanks include first flush devices and desludging.

## Government regulations

In New South Wales, outdoor air quality is governed by both State and Commonwealth regulations. The National Environmental Protection Measure (Air NEPM) provides air quality standards that are applied in cities and large towns across Australia. NEPM standards apply to average concentrations across a region.

The NSW Environment Protection Authority (NSW EPA) also has regulatory criteria for assessing ambient air quality. Although consistent with the Air NEPM, these criteria are more comprehensive. NSW EPA Impact Assessment Criteria are used to assess PM in localised areas, close to the mine itself.

The standards imposed by the regulatory authorities take into account what we know about health effects on people with asthma, lung conditions, and heart disease. PM standards and criteria are set to control short (daily) and long term (average) levels. The table below summarises the relevant air quality standards and criteria for mines.

Table 1 - Air Quality Standards and Criteria for Particulate Matter

Pollutant and averaging period	Concentration Standard ( $\mu\text{g}/\text{m}^3$ )	Agency
TSP - 1 year	90	NSW EPA Criterion
PM10 - 1 day	50	NSW EPA Criterion and NEPM Standard
PM10 - 1 year	25	NSW EPA Criterion and NEPM Standard
PM2.5 - 1 day	25	NSW EPA Criterion and NEPM Standard
PM2.5 - 1 year	8	NSW EPA Criterion and NEPM Standard
Dust deposition - 1 year	4 grams/ $\text{m}^2$ /month (maximum total)	NSW EPA Criterion
Dust deposition - 1 year	2 grams/ $\text{m}^2$ /month (maximum increase)	NSW EPA Criterion

## How can you avoid mine dust?

Provided that mines are operated with proper dust controls it is unlikely that healthy adult residents would suffer any serious health effects from the expected exposure to particulate matter.

If you notice that dust levels are high, try to keep your windows and doors closed. People who have asthma or lung conditions should avoid outdoor activities at these times. An air-conditioner can reduce PM levels inside, but it is important to regularly clean the intake filter.

Residents experiencing the health symptoms outlined in this fact sheet should see their local doctor. For further information about potential health effects from PM see the related link on Air Pollution.

## Related links

- [Air Pollution](#)
- [Air quality](#)
- [Air quality index fact sheet](#)
- [Bushfire smoke fact sheet](#)
- [Dust storms fact sheet](#)
- [Rainwater tanks brochure](#)

In NSW you can call 1300 066 055 to talk to your NSW Public Health Unit

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