Wambo Coal Environmental Management System

Air Quality and Greenhouse Gas Management Plan

[AQGHGMP]

Document Control

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Approvals

APPROVED	Name Troy Favell	Position Manager: Environment & Community	Signed	Date

Revisions

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1.0 Introduction

The Wambo Mining Complex (WMC) is owned and operated by Wambo Coal Pty Limited (WCPL). The WMC is an open cut and underground mining operation located approximately 15 kilometres (km) west of Singleton near the town of Warkworth, New South Wales (NSW).

WCPL was granted Development Consent (DA 305-7-2003) in February 2004. The approved development (refer **Figure 1** for location) is for an estimated life of mine for 21 years extracting a Run-Of-Mine (ROM) coal production up to 14.7 Million tonnes per annum (Mtpa). Development of the North Wambo Underground Mine (the Underground) commenced in November 2005 with longwall operations commencing in October 2007.

Coal from the open cut and underground operations is washed at the Coal Handling and Preparation Plant (CHPP) and product coal is then transported by direct rail from WCPL to the Port of Newcastle.

As part of their Development Consent (DC) conditions, WCPL are required to implement an Air Quality and Greenhouse Gas Management Plan (AQGHGMP) for the WMC.

This AQGHGMP has been prepared in accordance with Schedule 4, Condition 5C of the DC as follows:

> *The Applicant shall prepare and implement a detailed Air Quality & Greenhouse Gas Management Plan for the Wambo Mining Complex to the satisfaction of the Director-General.*

The specific details of Condition 5C are given in **Section 1.1** below.

Figure 1: Regional location of WCPL

1.1 OBJECTIVES OF THE MANAGEMENT PLAN

The AQGHGMP requirements are detailed in Schedule 4, Condition 5C of the DC. An outline of these requirements and the section of the AQGHGMP that addresses these requirements are outlined in **Table 1** below.

Table 1: AQGHGMP Requirements

Management Plan Requirements	Section of this Report
Description of measures to be implemented to ensure best management practice is employed, air quality impacts from the Wambo Mining Complex are minimised during adverse meteorological conditions and extraordinary events and compliance with the relevant conditions of the Development Consent.	5.0 Table 14, 7.00, 8.00 Table 19
Description of the proposed air quality management system.	5.0 and 6.0
Include a risk/response matrix to codify mine operational responses to varying levels of risk resulting from weather conditions and specific mining activities.	8.3.2
Include commitments to provide summary reports and specific briefing at CCC meetings on issues arising from air quality monitoring.	11.5
Include an air quality monitoring program that: • Uses a combination of real-time monitors and supplementary monitors to evaluate the performance of the development. • Adequately supports to proactive and reactive air quality management system. • Includes $PM_{2.5}$ monitoring. • Includes monitoring of occupied development-related residences and residences on air quality-affected land listed in Table 1, subject to the agreement of the tenant. • Evaluated and report on the effectiveness of the air quality management system. • Includes a protocol for determining any exceedances of the relevant conditions in this consent. • Include a protocol that has been prepared in consultation with the owners of nearby mines (HVO South, HVO North and Mount Thorley Warkworth mines) to minimise the cumulative air quality impacts of these mines and the Wambo Mining Complex	7.0

Further AQGHGMP requirements are outlined in Schedule 6, Condition 4 of the DC. An outline of these requirements and the section of the AQGHGMP that addresses these requirements are outlined in **Table 1** below.

Table 2: Further AQGHGMP Requirements

Management Plan Requirements	Section of this Report
Detailed baseline data.	3.2 and 4.2
A description of the relevant statutory requirements (including any relevant consent, licence of lease conditions).	2.0
A description of any relevant limits of performance measures/criteria.	2.0

A description of the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the project or any management measures.	5.0 and 6.0
A description of the measures that would be implemented to comply with the relevant statutory requirements, limits or performance measures/criteria.	5.0 and 6.0
A program to monitor and report on the impacts and environmental performance of the Wambo Mining Complex.	7.0 and 11.0
A program to monitor and report on the effectiveness of any management measures.	7.0 and 11.0
A contingency plan to manage and unpredicted impacts and their consequences.	8.2
A program to investigate and implement ways to improve the environmental performance of the Wambo Mining Complex over time.	5.0 and 6.0
A protocol for managing and reporting any incidents.	11.1
A protocol for managing and reporting any complaints.	9.0
A protocol for managing and reporting any non-compliance with statutory requirements.	8.2 and 11.1
A protocol for managing and reporting any exceedances of the impact assessment criteria and/or performance criteria.	8.2 and 11.1
A protocol for periodic review of the plan.	11.7

Specific requirements for greenhouse gas issues are listed in Schedule 4, Condition 3 and Schedule 4, Condition 87 of the DC and are listed in **Table 3** below.

Table 3: Specific Greenhouse Gas Requirements

Management Plan Requirements	Section of this Report
The applicant shall implement all reasonable and feasible measures to minimise the release of greenhouse gas emissions from the Wambo Mining Complex to the satisfaction of the Director-General.	5.1
For the life of the development the Applicant shall: • Monitor the greenhouse gas emissions generated by the development • Investigate ways to reduce greenhouse gas emissions generated by the development. • Report on greenhouse gas monitoring and abatement measures in the Annual Review to the satisfaction of the Director-General.	5.1, 7.4 and 11.3

2.0 Air Quality Criteria and Applicable Legislation

This management plan complies with the following legislation and standards:

- The Protection of the Environment Operations (Clean Air) Regulations 2010.
- The Approved Methods for the Sampling and Analysis of Air Pollutants in NSW guideline (**NSW EPA, 2005**) (hereafter referred to as 'Approved Methods').

The operation of the mine must comply with conditions of air quality assessment criteria (Schedule 4, Condition 4 of the DC). WCPL will ensure that all reasonable and feasible avoidance and mitigation measures are employed so that particulate matter emissions generated by the WMC do not exceed the criteria listed in **Table 4**, **Table 5** and **Table 6** at any residence on privately owned land, or on more than 25 percent of any privately owned land.

Table 4: Long term impact assessment criteria for particulate matter

Pollutant	Averaging Period	[d]Criterion
Total suspended particulate (TSP) matter	Annual	[a]90 µg/m^3
Particulate matter < 10 µm (PM_{10})	Annual	[a]30 µg/m^3

Table 5: Short-term criteria for particulate matter

Pollutant	Averaging Period	[d]Criterion
Particulate matter < 10 µm (PM_{10})	24 hour	[a]50 µg/m^3

Table 6: Long term impact assessment criteria for deposited dust

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

Notes to Tables 4- 6:
[a] Total impact (i.e. incremental increase in concentrations due to the project plus background concentrations due to all other sources).
[b] Incremental impact (i.e. incremental increase in concentrations due to the project on its own).
[c] Deposited dust is to be assessed as insoluble solids as defined by Standards Australia, AS/NZS 3580.10.1:2003: Methods for Sampling and Analysis of Ambient Air - Determination of Particulate Matter - Deposited Matter - Gravimetric Method.
[d] Excludes extraordinary events such as bushfires, prescribed burning, dust storms, sea fog, fire incidents, illegal activities or any other activity agreed by the Director-General.

2.1 LAND ACQUISITION CRITERIA

Schedule 4, Condition 5 of the DC provides air quality acquisition criteria. If particulate matter emissions generated by the WMC exceed the criteria in **Table 4**, **Table 5** and **Table 6** at any residence on privately-owned land, or on more than 25 percent of an privately owned land, then upon written request for acquisition from the landowner, WCPL shall acquire the land in accordance with the procedures in Schedule 5, Conditions 9 to 11 of the DC. These procedures are further described in **Attachment A.** The land acquisition criteria are presented in **Table 7**, **Table 8** and **Table 9** below.

Table 7: Long term land acquisition criteria for particulate matter

Pollutant	Averaging Period	[d]Criterion
Total suspended particulate (TSP) matter	Annual	[a]90 µg/m^3
Particulate matter < 10 µm (PM_{10})	Annual	[a]30 µg/m^3

Table 8: Short term land acquisition criteria for particulate matter

Pollutant	Averaging Period	[ad]Criterion
Particulate matter < 10 µm (PM_{10})	24 hour	[a]150 µg/m^3
Particulate matter < 10 µm (PM_{10})	24 hour	[b]50 µg/m^3

Table 9: Long term land acquisition criteria for deposited dust

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

Notes to Tables 7- 9:
[a] Total impact (i.e. incremental increase in concentrations due to the project plus background concentrations due to all other sources).
[b] Incremental impact (i.e. incremental increase in concentrations due to the project on its own).
[c] Deposited dust is to be assessed as insoluble solids as defined by Standards Australia, AS/NZS 3580.10.1:2003: Methods for Sampling and Analysis of Ambient Air - Determination of Particulate Matter - Deposited Matter - Gravimetric Method.
[d] Excludes extraordinary events such as bushfires, prescribed burning, dust storms, sea fog, fire incidents, illegal activities or any other activity agreed by the Director-General.

Schedule 4, Condition 1 lists seven private landowners eligible for acquisition upon submitting a written request to WCPL. These landowners are as follows:

- 2 – Lambkin
- 19A & B – Kelly
- 22 – Henderson (now owned by Glencore/Xstrata)
- 23A & B – Kannar
- 31A, B, C & D – Fisher
- 51 – Hawkes (now owned by Rio Tinto)
- 56 – Haynes

*Note: The Skinner property has been purchased by Wambo Coal Pty Ltd and has been removed from this list.

2.2 COMPLIANCE – PROJECT SPECIFIC DUST CONTRIBUTION

Schedule 4 of the Wambo Development Consent (DA 305-7-2003) sets Air Quality Impact Assessment criteria for PM_{10} sized dust generated by the development. The protocol described in this document relates to the collection, interpretation and reporting of data generated by the four real-time Tapered Element Oscillating Microbalances (TEOMs) in the continuous dust (PM_{10}) network at the WMC.

The assessment for cumulative purposes utilise 24 hour average values calculated directly from the TEOM monitors, without quantitative correction for non-mining sources. Regional dust events will be obvious from comparative results of the upwind and downwind TEOM monitors.

Compliance with project specific criteria will be demonstrated by subtracting the result from the upwind monitor from the result record at the relevant downwind monitors. This may require recalculating the 24 hour average based on smaller time increments than 24 hours to compensate for wind shifts across the period. This recalculation will only be necessary where the daily average is greater than 50 µg/m^3 or the annual average is greater than 30 µg/m^3. Assessment of compliance with PM_{10} criteria will include consideration of meteorological

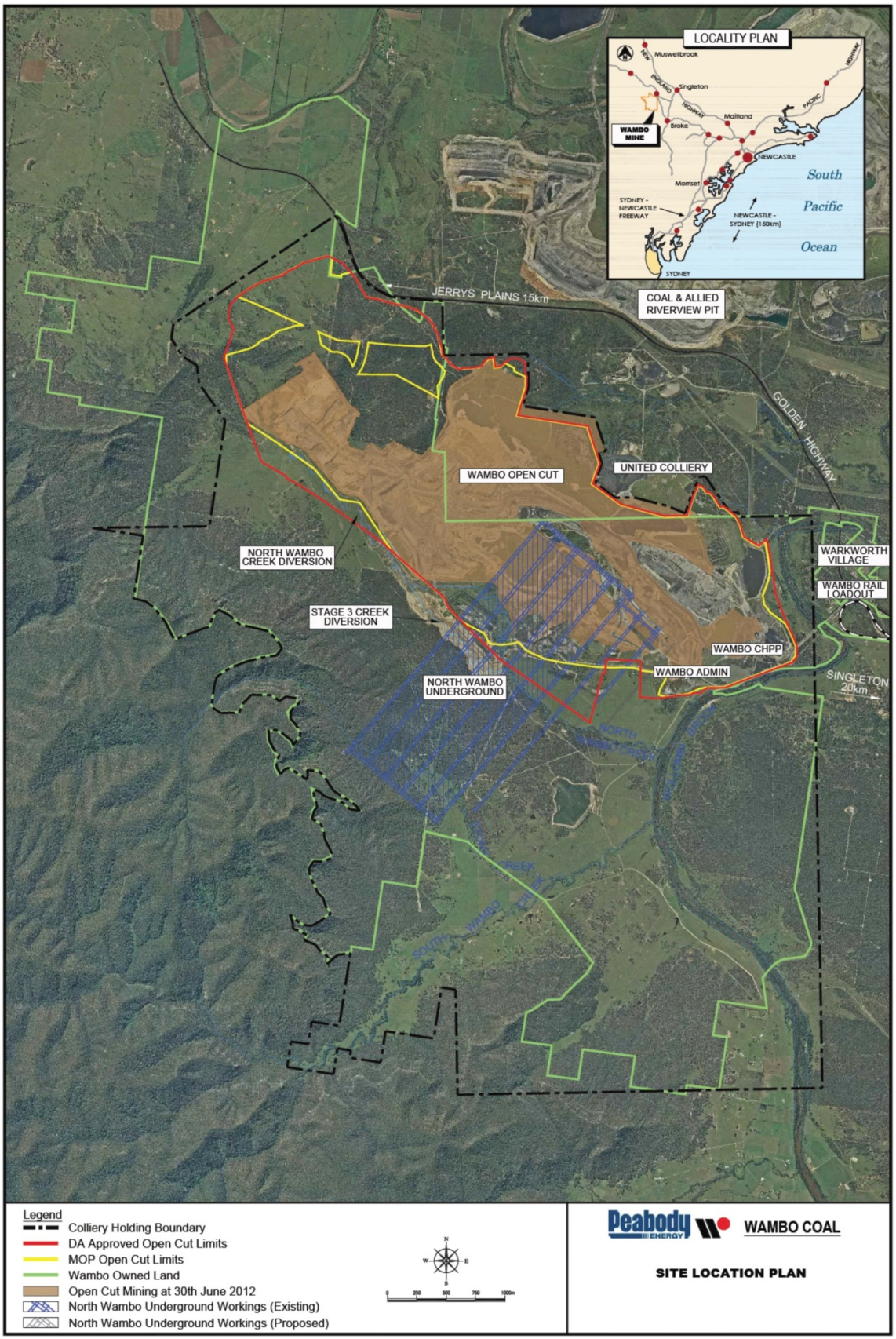
conditions and results from the High Volume Air Sampler (HVAS) network. Further detail on the WMC's monitoring program is outlined in **Section 7.0**.

3.0 Project Overview

Key aspects of the WMC are:

- Open-cut and Underground mining operations extracting up to 14.7 million tonnes of coal per annum.
- Removal of topsoil, overburden and ROM coal using typical extraction and drilling/blasting methods and emplacement to stockpiles or direct transportation via haul trucks to the CHPP.
- Three stages of crushing and screening of ROM coal at the CHPP to produce product coal.
- Transportation of product coal by direct rail from the WMC to the Port of Newcastle.
- Administration, workshop and related facilities.

Figure 2 provides a layout of the WMC.



Source: Wambo Coal Pty Limited AEMR 2011-2012 (**Peabody, 2012**).

Figure 2: Wambo Mining Complex Site Layout

3.1 SOURCES OF EMISSIONS TO AIR

3.1.1 Dust Emissions

Variations in visible and measured dust levels in the vicinity of the WMC are generated by a range of activities including mining activities, agriculture and regional vehicular traffic on paved and unpaved roads. Air emissions include particles that are derived primarily from the mechanical disturbance of soils, overburden and coal as well as a relatively small contribution from particles from diesel exhausts (i.e. from activities where diesel powered equipment is used).

Potential sources of significant dust emissions include:

- Areas disturbed by mining activity, including overburden emplacement areas and other portions of the mine site exposed to wind.
- Coal and waste rock handling and stockpiling activities (including loading and unloading, spreading and shaping of waste).
- Movement of vehicles on unsealed roads for both haulage of coal and waste rock and general mining activities.
- Topsoil stripping and stockpiling.
- Drilling and blasting.
- Crushing, screening and preparation of product coal.

3.1.2 Greenhouse Gas Emissions

The processes listed in **Section 3.1.1** above will also result in the generation of greenhouse gas emissions. The main sources of greenhouse gases generated by the WMC are identified as follows:

- 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.
- Indirect emissions associated with the transport of product coal.

3.1.3 Spontaneous Combustion

Measures will be put in place to ensure, as far as practicable, that no offensive odours, as defined under the PoEO Act, are emitted from the WMC. Spontaneous combustion events have the potential to give rise to odour impacts. A Spontaneous Combustion Management Plan is in place and in operation at the CHPP. The plan outlines management and mitigation measures to reduce the potential for spontaneous combustion events, including but not limited to the:

- Identification of potential self-heating coal seams

- Keeping discrete piles separate where possible
- Avoid building stockpiles by coning. Coning increases the surface area and tends to encourage size segregation of the coal
- Follow the FIFO (first in first out) principle where possible

It is noted that there were no spontaneous combustion incidents at the underground operations during the 2011/2012 AEMR reporting period or at the location of the CHPP.

WCPL will as a matter of operations continue to monitor for signs of spontaneous combustion.

3.1.4 Blast Fume

Blasting activities will be required at the WMC for the purposes of:

- Extraction of overburden material from the open cut.
- Excavation blasting to develop drift access to coal seams for underground mining.

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

Blast fume management is outlined in **Section 5.1** and is addressed further in the WMC Blast Monitoring Program which incorporates the Blast Management Plan and Blast Fume Strategy Plan.

3.2 AIR QUALITY IMPACT ASSESSMENTS

In 1991, Pacific Environment[1] completed an Air Quality Impact Assessment (AQIA) for an extension to the WMC (**NHA, 1991a**). A supplementary AQIA was also completed to include the North Wambo Creek Open Cut (**NHA, 1991b**). Both assessments concluded that the WMC would comply with the relevant air quality impact assessment criteria at the nearest privately-owned residences.

Pacific Environment completed an AQIA (**HAS, 2003**) for the WMC for inclusion in the *Wambo Development Project Environmental Impact Statement* (the EIS) in 2003 (**WCPL, 2003**). The AQIA assessed the potential cumulative air quality impacts associated with the project. A total of 28 residences were predicted to experience cumulative dust deposition, TSP or PM_{10} concentrations above the relevant impact assessment criteria during the life of the mine. Eighteen of these residences were owned by other mining companies or by WCPL.

The most recent AQIA completed for the WMC was completed by Pacific Environment in 2011. The assessment consisted of an air quality review of the proposed modification to Wambo referred to as the Montrose East Underground Mine Modification. The Modification included the development of three longwall panels in the Whybrow seam accessed directly from the approved open-cut highwall. The modification would include a minor reduction to the extent of approved open-cut operations but would not include alterations to the approved open-cut mining methods, production rates, mine fleet or waste rock management practices (**PAEHolmes, 2011**).

The review included an assessment of the existing environment including local wind patterns and ambient air quality, emissions estimation for proposed mining activities and a comparison to emissions estimated in previous AQIAs. The review found that estimated dust emissions for the Modification would only be in the order of 0.3% more than that predicted in the 2003 AQIA. In addition, the review found that due to the proposed reduction in the extent of open-cut operations, there is expected to be an overall decrease in dust emissions as a result of the Modification and that it was unlikely that the Modification would result in any additional adverse air quality impacts at nearest private residences (**PAEHolmes, 2011**).

[1] Pacific Environment has previously been known as Nigel Holmes & Associates, Holmes Air Sciences and PAEHolmes.

4.0 Existing Environment

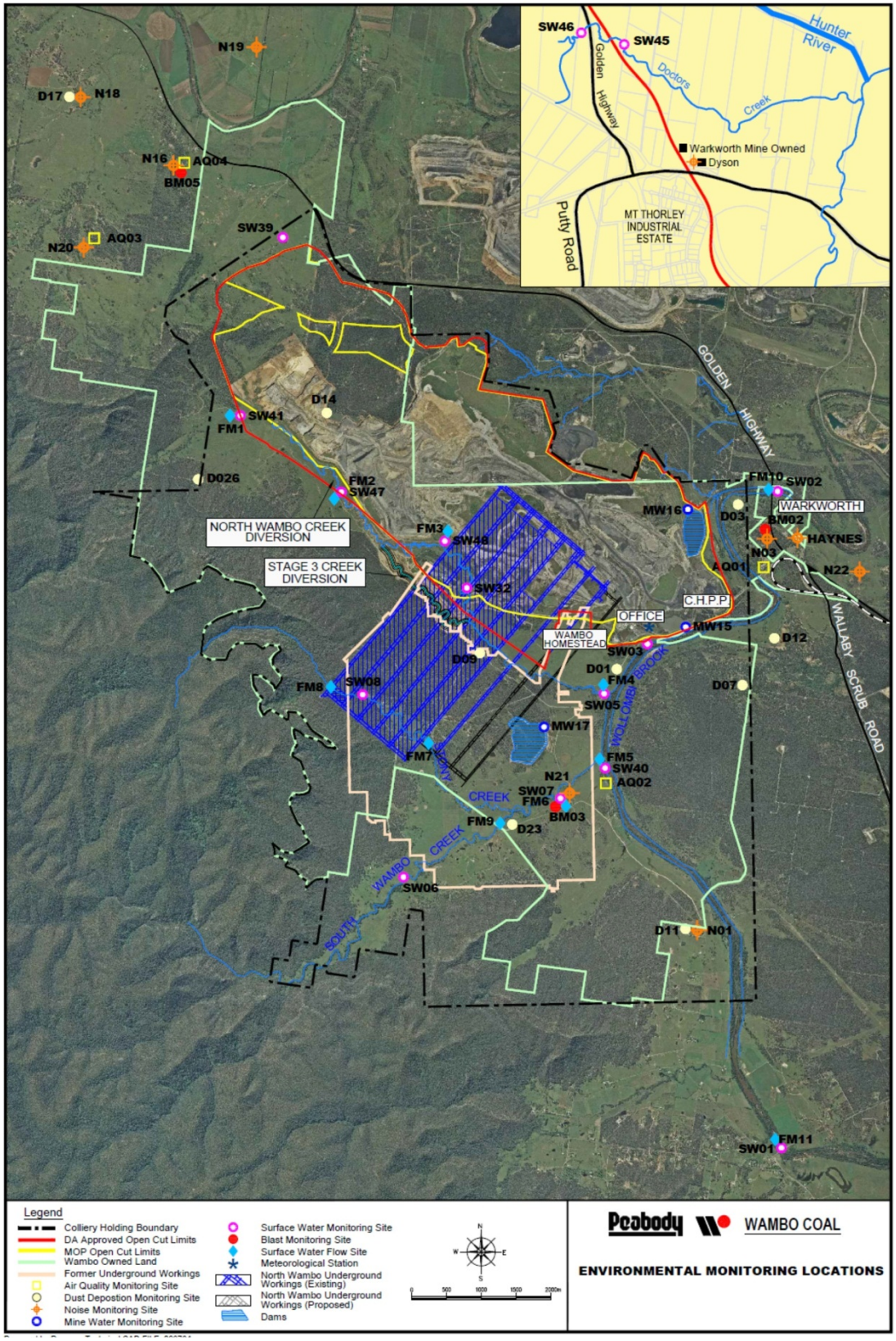
4.1 AIR QUALITY MONITORING STATIONS

In accordance with Schedule 4, Conditions 5(b), 5(c) and 10 of the DC, WCLP maintain an air quality monitoring program consisting of the following:

- One meteorological monitoring station.
- Four High Volume Air Samplers (HVAS) measuring TSP.
- Four real-time Tapered Element Oscillating Microbalance (TEOM) monitors measuring PM_{10} on a continuous basis.
- Sixteen depositional dust gauges.

It is noted that Schedule 4, Conditions 5(b) and 5(c) of the DC state that the WMC's monitoring program that includes $PM_{2.5}$ monitoring. This requirement is discussed in further detail in **Section 7.0**.

Figure 3 presents the locations of the air quality monitoring stations as listed above.



Source: Wambo Coal Pty Limited AEMR 2011-2012 (**Peabody, 2012**).

Figure 3: Wambo Mining Complex Environmental Monitoring Locations

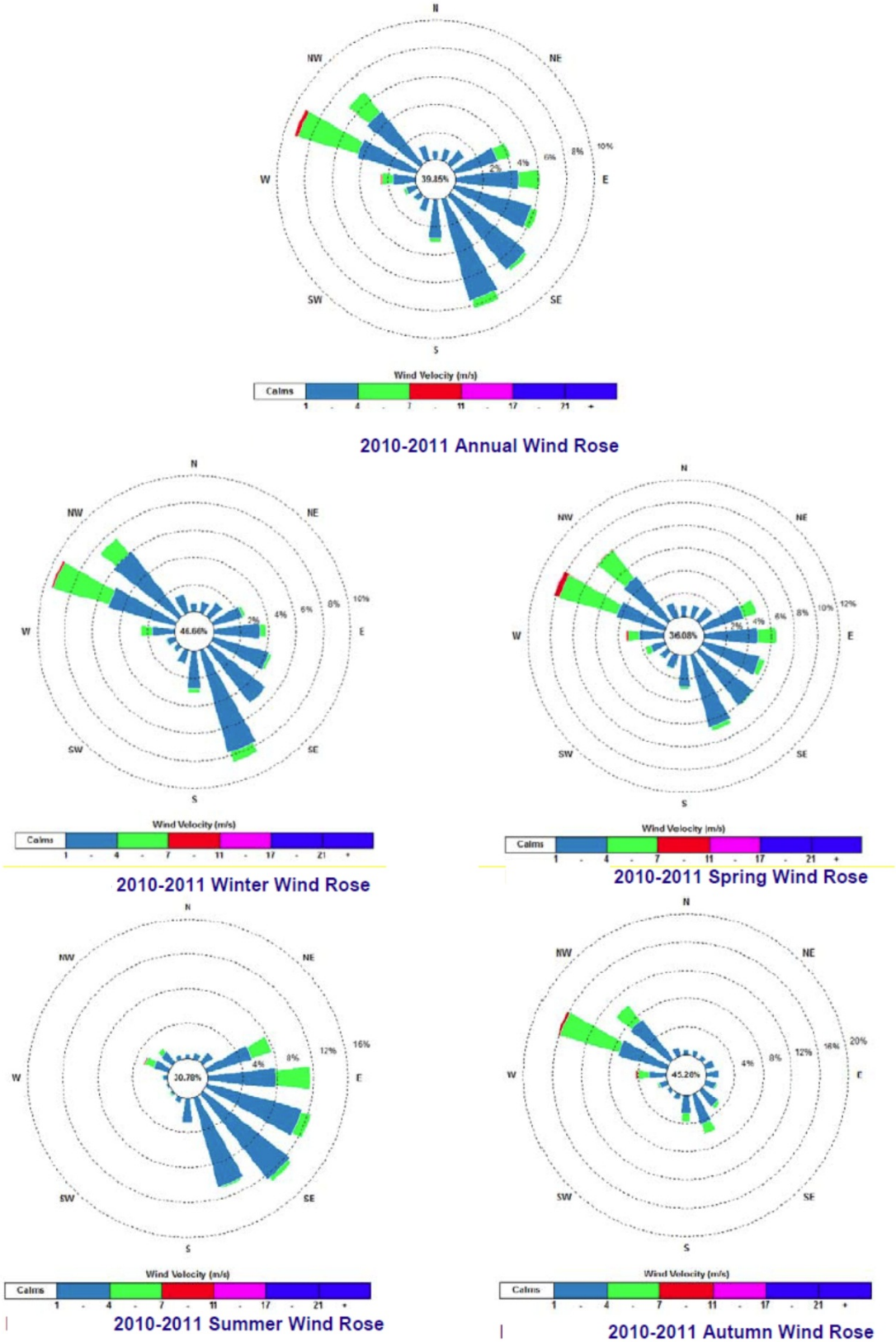
4.2 EXISTING ENVIRONMENT

4.2.1 Meteorological Data

WCPL owns and operates a meteorological station which is located within the project boundary approximately 350 m east of the WCPL administration building (see **Figure 3**).

Annual and seasonal windroses have been created from data collected at the WCPL meteorological station for financial year 2011. These windroses are presented in **Figure 4**.

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



Source: Wambo Coal Pty Limited AEMR 2011-2012 (**Peabody, 2012**).

Figure 4: Annual and Seasonal Windroses for the Wambo Mining Complex 2010/2011

4.2.2 Ambient Air Quality Data

As discussed in **Section 4.1**, WCPL operate an Air Quality Monitoring Program consisting of four HVAS measuring TSP, four TEOMs measuring PM_{10} and sixteen dust depositional gauges.

The following sections provide a brief summary of ambient air quality data collected at WCPL.

4.2.2.1 Measured TSP Concentrations

TSP is monitored at four locations at WCPL (see **Figure 3**) as listed below. The HVASs measure TSP concentrations for 24-hour periods on a one day in six run cycle.

- HV01 – Coralie
- HV02 – Wambo Road
- HV03 – Thelander*
- HV04 – Muller*

***Private Residence**

The 2011/2012 Annual Environmental Management Report (AEMR) (**Peabody, 2012**) provides a summary of the annual average TSP concentrations recorded at the above four sites over the past three financial years. These are summarised in **Table 10** below.

Table 10: Annual Average TSP Concentrations Measured at WCPL (µg/m^3)

Monitoring Site	2009/2010	2010/2011	2011/2012
HV01	55	60	53
HV02	56	48	50
HV03	44	55	32
HV04	44	37	46

Source: Wambo Coal Pty Limited AEMR 2011-2012 (**Peabody, 2012**).

Table 10 shows that measured annual average TSP concentrations at all four HVAS locations are below the impact assessment criteria of 90 µg/m^3 as specified in **Section 2.0** of this report.

4.2.2.2 Measured PM_{10} Concentrations

Four real-time TEOMs monitor PM_{10} concentrations at WCPL (see **Figure 3**) as listed below. Each TEOM measures PM_{10} concentrations every 15 minutes to calculate a 24 hour average result.

- AQ01 – Coralie
- AQ02 – Wambo Road
- AQ03 – Thelander*
- AQ04 – Muller*

***Private Residence**

The 2011/2012 Annual Environmental Management Report (AEMR) (**Peabody, 2012**) provides a summary of the annual average PM_{10} concentrations recorded at the above four sites over the past three financial years. These are summarised in **Table 11** below.

Table 11: Annual Average PM_{10} Concentrations Measured at WCPL (µg/m^3)

Monitoring Site	2009/2010	2010/2011	2011/2012
AQ01	20	16	18
AQ02	20	16	17
AQ03	18	16	15
AQ04	19	16	16

Source: Wambo Coal Pty Limited AEMR 2011-2012 (**Peabody, 2012**).

Table 11 shows that measured annual average PM_{10} concentrations at all four TEOM locations are below the impact assessment criteria of 30 µg/m^3. The 2011/2012 AEMR notes that there were no exceedances of the PM_{10} 24 hour impact assessment criterion of 50 µg/m^3 in the 2011/2012 reporting year however, there were two exceedances in 2010/2011 and seven recorded in 2009/2010.

The two exceedances recorded in 2010/2011 were found to be the result of wind directions being from the WMC activities and towards the direction of the monitors where exceedances were recorded (**Peabody, 2010**).

The exceedances recorded in 2009/2010 were also investigated. It was found that five of the exceedances were due to regional dust events and one event was attributed to hazard reduction burning. The final exceedance was due to an unknown source but it has been established that mining activities at the WMP was not the cause of this exceedance due to the prevailing north westerly winds at the time of the exceedance (**Peabody, 2012**).

4.2.2.3 Measured Dust Deposition Levels

Sixteen dust deposition gauges have recorded dust deposition levels at the WMC (see **Figure 3**). Each dust deposition gauge monitors insoluble soils and ash residue on a monthly basis.

The 2011/2012 AEMR (**Peabody, 2012**) noted that D14 was located directly to the west of open-cut mining activities and within the footprint of the disturbance area. This gauge was removed to allow land preparation activities to continue in accordance with the mining plan. The total number of dust deposition gauges at the site is now 15.

The 2011/2012 Annual Environmental Management Report (AEMR) (**Peabody, 2012**) provides a summary of the annual average dust deposition levels recorded at the sixteen sites over the past three financial years. These are summarised in **Table 11** below.

Table 12: Annual Average Dust Deposition (Insoluble Solids) Levels Measured at WCPL (g/m^2/month)

Monitoring Site	2009/2010	2010/2011	2011/2012

D01	**10.4**	3.6	**18.1**
D03	2.8	3.0	2.4
D07	**5.2**	**6.2**	**4.6**
D09	2.7	**4.4**	3.7
D11	3.3	1.8	2.2
D12	**4.6**	3.8	3.0
D14	**8.5**	**9.3**	-
D17	1.8	1.3	1.3
D19	3.3	2.6	2.9
D20	1.9	1.4	1.4
D21	1.5	1.1	1.4
D22	1.6	1.2	1.4
D23	3.7	2.1	2.1
D24	1.6	1.6	1.1
D25	2.3	1.7	2.2
D26	1.8	1.3	1.3

Source: Wambo Coal Pty Limited AEMR 2011-2012 (**Peabody, 2012**).
Note: A **bold** value indicates a reading over the impact assessment criterion.

Table 12 shows that over the past three financial years, there have been exceedances of the dust deposition impact assessment criterion of 4 g/m^2/month at dust gauges D01, D07, D09, D12, and D14. It is noted that dust gauges D01 and D07 are located within the WMC boundary and also near internal unsealed roads and therefore are likely to be strongly influenced by mining activities at WCPL (see **Figure 3**).

4.2.3 Estimated Greenhouse Gas Emissions

A summary of the National Greenhouse and Energy Reporting (NGER) report is provided in the 2011/2012 AEMR (**Peabody, 2012**). A summary of the greenhouse gas emissions and energy consumed from the 2010/2011 reporting period are provided below.

Table 13: Greenhouse Gas Energy and Emissions Estimates for 2010/2011

Parameter	Value	Units
Scope 1 Emissions	970,791	tonnes CO_2-e
Scope 2 Emissions	36,356	tonnes CO_2-e
Energy Consumed	1,620,613	Gigajoules (GJ)
Energy Produced	153,369,531	Gigajoules (GJ)

Source: Wambo Coal Pty Limited AEMR 2011-2012 (**Peabody, 2012**).

5.0 Air Quality Mitigation and Management Measures

A range of air quality mitigation and management measures will be implemented by WCPL. These measures are based on current procedures developed at the WMC and industry best practice measures.

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 that mine. Following on from this report a range of PRP's have been issued against the EPL License 529 for WCPL. WCPL is proceeding with implementing relevant practices to comply with these PRP requirements.

A part of WCPL's PRP was to complete a site audit to identify the current dust control measures and Best Practice Measures (BPM) implemented on-site. A summary of the preventative dust management measures employed at the WCPL are outlined in **Table 14**.

Table 14: Current Dust Management Practices Employed at the Wambo Mining Complex

Action	Timing	Proactive / Reactive Response	Performance Indicator	Responsibility for Implementation
Induction training	Ongoing as required	Proactive	WCPL employees and contractors receive training	Manager: Environment & Community
Continually review road management practices throughout production period to manage emissions	Ongoing	Proactive / Reactive	Road management is effective in reducing dust impacts	Open Cut Manager / Open Cut Operations Manager / Manager Environment 7 Community
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	Open Cut Operations Manager
Modification of operations (including blasting) in unfavourable weather conditions	Daily	Proactive	No exceedances of dust criteria and no complaints from nearby residents	Manager Environemnt & Community / Open Cut Manager / General Manager
Reduce speed limits from 60 km/h to 40 km/h in accordance with prevailing conditions	Daily	Proactive / Reactive	No exceedances of dust criteria and no complaints from nearby residents	Manager of Mining
Rehabilitation of disturbed land within the earliest possible timeframe	Each new phase of operation	Proactive	Disturbed land revegetated where appropriate	Manager: Environment & Community
Minimising disturbed areas through mine planning and LOM planning processes	Each new phase of operation	Proactive	Disturbed land revegetated where appropriate	Open Cut Manager / Open Cut Operations Manager
Revegetation of topsoil stockpiles as new stockpiles are created	Each new phase of operation	Proactive	Disturbed land revegetated where appropriate	Manager: Environment & Community
Wet dust suppression and dust skirts on drills	Daily	Proactive / Reactive	No exceedances of dust criteria and no complaints from nearby residents	Open Cut Operations Manager
Blast hole stemming	Daily		No exceedances of dust criteria and no complaints from nearby residents	Drill and Blast Superintendent
Haul road watering	Daily	Proactive / Reactive	No exceedances of dust criteria and no complaints from nearby residents	Open Cut Operations Manager
Use of additional water trucks as required around the CHPP, Administration and auxiliary access roads as required	As required	Proactive / Reactive	No exceedances of dust criteria and no complaints from nearby residents	CHPP Manager
Operation of four water truck fill points	Daily	Proactive	Water carts are operating effectively in reducing dust impacts	Technical Services Manager
Water sprays on ROM dump hopper and stockpiles	Daily	Proactive	No exceedances of dust criteria and no complaints from nearby residents	CHPP Manager
Cleaning up coal spillage at CHPP	Daily	Proactive / Reactive	No exceedances of dust criteria and no complaints from nearby residents	CHPP Manager
Minimise and clearly define the number of active haul roads	Ongoing as required	Proactive	The mine plan is operating effectively in reducing dust impacts	Open Cut Operations 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	Open Cut Operations Manager / Technical Services Manager
Two remote field cameras installed for real-time monitoring footage located in the Montrose and South Bates Open cut pits (To be implemented by 31 May 2014)	As required	Proactive / Reactive	Operating conditions	Environment and Community Manager
Review and summarise monitoring data on a monthly basis and during periods of extraordinary meteorological events	Monthly	Proactive / Reactive	Summary in annual AEMR / As needed	Snr Environmental Advisor / Environment & Community Coordinator
Review and assess PM10 monitoring network and Upper Hunter Air Quality Monitoring network during periods of extraordinary meteorological events and/or as a response to trigger alarms being activated	As required	Reactive	As required	Snr Environmental Advisor / Environment & Community Coordinator
Conduct off-site visual inspections to verify any potential offsite amenity impacts	As required	Reactive	No visible impact on offsite receivers	Snr Environmental Advisor / Environment & Community Coordinator
Discontinue or modify operational activities in areas where increased potential emissions are possible due to adverse and/or extraordinary meteorological conditions	As required	Reactive	No visible emissions from area are recorded	Open Cut Manager /Open Cut Operations Manager
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	Open Cut Manager /Open Cut Operations Manager
Review predictive meteorological forecasting module on a daily basis 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	Open Cut Manager /Open Cut Operations Manager / Environment and Community Manager / Blasting Superintendent
Pre-Start-Information (PSI) sessions to highlight current and predicted meteorological conditions and possible effects on operations	Twice Daily	Proactive / Reactive	Predictive model confirms meteorological conditions – management actions implemented where required	Open Cut Manager /Open Cut Operations Manager /
Develop Wambo Coal Environmental Guide (Educational Handbook) for all site personnel and deliver training package during 2014	Annual	Proactive	Roll out of Environmental Educational Handbook and Training Package	Environment and Community Manager

5.1 BLAST FUME MANAGEMENT

WCPL manages blast flume through use of their Blast Monitoring Program designed specifically for the project site. Schedule 4, Condition 20 of the DC outlines the specific requirements of the Blast Management Plan. WCPL's Blast Monitoring Plan incorporates the Blast Management Plan and Blast Fume Strategy Plan. Both documents include specific air quality details on:

- The blasting criteria including air blast overpressure and vibration.
- Blast planning.
- Blast monitoring.
- A procedure for exceedances including reporting and management strategy.
- A procedure for complaints response.
- A procedure for reporting and review.
- Responsibilities.

WCPL will ensure that blast fumes are managed using industry best practice techniques as outlined in the Blast Management Plan and Blast Fume Strategy some of which are listed below;

- Formulation of explosive products to an appropriate oxygen balance to reduce the likelihood of fumes.
- Reviewing geological conditions in the formulation of blast designs.
- Reviewing ground conditions (e.g. presence of clay or loose/broken ground).
- Minimising the time between drilling and loading, and loading and shooting of the blast.
- Education and Training.
- Drill report assessment.
- Hole monitoring prior to loading.
- Explosive selection.
- Explosive loading procedures, including primer placement.

- Hole loading sequence.
- Hole stemming.
- Sleep time.
- Exclusion zone determination.
- Management zone determination.
- Blast guard posting.
- PPE including personnel monitors.
- Changes to conditions after explosives loading.
- Post blast gases identification, rating and reporting.
- Meteorology.
- Emergency response.
- Communications with neighbours and other potentially impacted parties.

6.0 Greenhouse Gas Mitigation and Management Measures

The main sources of greenhouse gases generated by the WMC are listed below. Therefore, greenhouse gas management for the WMC will focus on emissions management and reductions associated with:

- 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.
- Indirect emissions associated with the transport of product coal.

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 WMC are listed in **Table 15** below.

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, as such, flaring is not currently a potential way to reduce greenhouse gas emissions from the mine.

Section 7.4 presents details of monitoring that will take place to measure greenhouse gas emissions.

Table 15: Greenhouse Gas Management Practices Employed at the Wambo Mining Complex

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 Manager
Enterprise-wide strategy for managing methane emissions	Unknown	Implementation of strategy and reduction in greenhouse gas emissions and energy use	Peabody Energy Australia
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
Whenever possible direct loading of coal haulage trucks will be undertaken in preference of stockpiling and reclaiming.	All hours of operation	Direct loading will be undertaken from the product coal bin	Open Cut Operations Manager
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	Mine Accountant
Avoid idle running of conveyors	Daily	Energy efficiency is maximised	Manager of Mining
Turn off unnecessary lighting around the mine site	Daily	Energy efficiency is maximised	Manager of Mining

7.0 Air Quality Monitoring Program

As discussed in **Section 4.1**, WCPL operates a monitoring program in accordance with Schedule 4, Conditions 5 and 10, consisting of the following. Details of the monitoring equipment are detailed further in the sections below.

- One meteorological monitoring station.
- Four HVASs measuring TSP.
- Four real-time TEOMs monitors measuring PM_{10} on a continuous basis.
- Sixteen depositional dust gauges.

7.1 METEROLOGICAL MONITORING

WCPL owns and operates a meteorological station in accordance with the Australian Standard (AS2923 – 1987 "*Ambient Air Guide for the measurement of horizontal wind for air quality applications*"). As required under Schedule 4, Condition 10 of the DC, the meteorological station records the following parameters:

- Lapse rate
- Rainfall
- Sigma Theta
- Temperature at 2 and 10 m
- Total solar radiation
- Wind direction at 10 m
- Wind speed at 10 m

See **Figure 3** for the location of the metrological station.

7.2 AMBIENT AIR QUALITY MONITORING

Table 16 outlines the parameters that are monitored at each station, the instrumentation that is installed and key monitoring specifications.

7.2.1 TSP Monitoring (HVAS)

TSP is monitored at four locations at WCPL (see **Figure 3**). The HVASs measure TSP concentrations for 24-hour periods on a one day in six run cycle.

The HVAS monitors are operated in accordance with *AS2724.3 – 1984 – Determination of total suspended particulates (TSP) – High volume sampler gravimetric method.*

7.2.2 PM_{10} Monitoring (TEOM)

Four real-time TEOMs monitor PM_{10} concentrations at WCPL (see **Figure 3**). Each TEOM measures PM_{10} concentrations every 15 minutes to calculate a 24 hour average result.
The TEOM monitors are operated in accordance with *AS3580.9.8 – 2002, Method for Sampling and Analysis of Ambient Air – Determination of Suspended Particulate Matter – PM_{10} Continuous Direct Mass Method using a Tapered Element Oscillating Microbalance Analyser.*

7.2.3 Dust Deposition Monitoring

Sixteen dust deposition gauges monitor dust deposition levels at WCPL (see **Figure 3**). Each dust deposition gauge monitors insoluble soils and ash residue on a monthly basis.

The dust deposition gauges operate in accordance with *AS3580.10.1:2003 Methods for Sampling and Analysis of Ambient Air and national Association of Testing Authorities (NATA)* requirements.

7.2.4 Monitor Siting

The instrumentation has been sighted in accordance with AM-1 (EPA, 2001). This requires that AS 2922-1987 *Ambient Air – Guide to the Siting of Sampling Units* is used when siting the instrumentation.

7.2.5 Supplementary Monitoring

WCPL is committed to the installation of two remote field cameras which are to be located in an appropriate location in the Montrose open cut pit and in the South Bates open cut pit to capture real time footage of operating conditions. Cameras will transmit 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 locations of the cameras will be dependent upon existing telecommunications infrastructure and logistical practicalities of the operation. The two field cameras will be installed and functional by **May 31, 2014**

7.2.6 Cumulative Impact Protocol

In accordance with Schedule 4 condition 5c(g) 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).

If the real time monitor records a trigger level 3 as per ***Table 19*** (Risk/Response Matrix for 24hr PM10 Concentrations), 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.

7.3 ADDITIONAL MONITORING REQUIREMENTS

Schedule 4, Condition 5C (f) of the DC states that the air quality monitoring program implemented at the WMC is to include $PM_{2.5}$ monitoring.

The regional Upper Hunter Air Quality Monitoring Network (UHAQMN) includes a Beta Attenuation Monitor (BAM) monitoring real-time 24-hour average $PM_{2.5}$ concentrations at Singleton. This station is the closest to the WMC and is located approximately 18 km to the east.

It is noted that $PM_{2.5}$ concentrations do not vary as much as PM_{10} concentrations as they are smaller in size and therefore remain longer in the air and over space. This makes $PM_{2.5}$ monitoring more regional and homogenous spatially. For this reason, the $PM_{2.5}$ monitoring at the UHAQMN's Singleton site is deemed representative of $PM_{2.5}$ concentrations in the region surrounding the WMC. Data from this site will be used as input into Wambo's management program and annual reporting. This data will be used as per the site's PM_{10} data, to inform mitigation measures and management protocols as outlined in **Section 8.0**.

7.4 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 (**NGER, 2008**).

As a result of reporting under the NGER Act, emissions data will be made available publically via the Department of Climate Change and Energy Efficiency website: www.climatechange.gov.au.

Table 17 lists the greenhouse gas related monitoring that will be completed at the WMC.

Table 16: Air Quality Monitoring Stations

Pollutant	Instrumentation	Site	Easting	Northing	Units of Measure	Averaging Period	Frequency	Sampling Method[1]
Dust Deposition	Standard Dust Gauge	D01	312019	6392475	g/m^2/ month	Month, annual	Continuous	AM-19
		D03	313713	6394691				
		D07	313845	6392270				
		D09	310325	6392507				
		D11	313066	6388799				
		D12	314130	6393057				
		D14	307620	6396233				
		D17	304444	6400650				
		D19	314096	6393963				
		D20	312058	6390319				
		D21	304510	6398522				
		D22	305932	6399586				
		D23	310888	6390425				
		D24	303058	6398543				
		D25	304685	6399050				
		D26	306190	6395211				
TSP	Hi-volume Sampler	AQ01(HV01)	314100	6393958	$\mu g/m^3$	24 hour, annual	1 day in 6	AM-15
		AQ02(HV02)	312057	6390322				
		AQ03(HV03)	304503	6398518				
		AQ04(HV04)	305931	6399585				
PM_{10}	Tapered Element Oscillating Microbalance Analyser[2]	AQ01(PM01)	314097	6393962	$\mu g/m^3$	24 hour, annual	Continuous	AS3580.9.8-2001[3]
		AQ02(PM02)	312055	6390321				
		AQ03(PM03)	304494	6398518				
		AQ04(PM04)	305928	6399587				

[1]NSW Environment Protection Authority (2001) *Approved Methods for the Sampling and Analysis of Air Pollutants in NSW*.

[2]Or any other method that is approved by the DEC and the Director-General.

[3]Australian Standard 3580.9.8-2002 *Method for Sampling and Analysis of Ambient Air – Determination of Suspended Particulate Matter – PM_{10} Continuous Direct Mass Method using a Tapered Element Oscillating Microbalance Analyser*.

Table 17: 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_4 to tonnes of CO_2-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_2-e	
Diesel Use	Calculated from invoices	Annually	Emission factor to convert kL use to tonnes of CO_2-e	Reported from invoices. *Opening Stock* and *Deliveries* minus *Closing Stock* equals usage
Oil Use	Calculated from invoices	Annually	Emission factor to convert kL use to tonnes of CO_2-e	
Grease Use	Calculated from invoices	Annually	Emission factor to convert kL use to tonnes of CO_2-e	
Electricity Use	Calculated from invoices	Annually	Emission factor to convert kWh use to tonnes of CO_2-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

7.5 BLAST MONITORING

Monitoring requirements for blasting is outlined in the Blast Monitoring Plan for the WMC. The Program includes specific air quality details on:

- The blasting criteria including air blast overpressure and vibration.
- Blast planning.
- Blast monitoring.
- A procedure for exceedances including reporting and management strategy.
- A procedure for complaints response.
- A procedure for reporting and review.
- Responsibilities.

Blasting will be conducted for open cut mining operations between 9 am and 5 pm, Monday to Saturday as specified in Development Consent Schedule 4, Condition 13 and Wambo's Environment Protection Licence 529 (EPL). No open cut blasting will be conducted on Sundays or public holidays, unless prior written approval has been received from the EPA.

Where required, blasting at the WMC will be co-ordinated with blasting at surrounding mines to minimise the cumulative impacts of blasting in the region as required in Development Consent Schedule 4, Condition 17.

WCPL will advise all landowners within 2 km of the blast site location that they are entitled to a property inspection prior to the commencement of blasting activities as per Schedule 4, Condition 15 of the DC.

7.6 DATA HANDLING PROCEDURE

Data from the air quality monitoring stations as listed in **Section 4.1,** will be handled as described in **Table 18.**

Table 18: Data Handling Methodology

Monitoring Parameter	Procedure
PM_{10}	• Summary data obtained from the monitoring instrumentation on a daily basis. • Data entered into an electronic database (or similar) for comparison with relevant air quality criteria. • Data compared with relevant criteria and any exceedances noted and investigated.
$PM_{2.5}$	• Summary data obtained from the monitoring instrumentation on a daily basis from the Singleton based monitoring station of the Upper Hunter Air Quality Monitoring Network • Data entered into an electronic database (or similar) for analysis and tracking
TSP	• Samples retrieved from the monitoring instrumentation on a six day cycle. • Samples sent to a laboratory for analysis. • Data entered into an electronic database (or similar) for comparison with relevant air quality criteria. • Data compared with relevant criteria and any exceedances noted and investigated.
Dust Deposition	• Samples retrieved from the monitoring instrumentation on a monthly basis. • Samples sent to a laboratory for analysis. • Data entered into an electronic database (or similar) for comparison with relevant air quality criteria. • Data compared with relevant criteria and any exceedances noted and investigated.

8.0 Air Quality Management Protocols

Air quality monitoring will be carried out as described in **Section 7.0**. The results of the air quality monitoring program will be assessed against the air quality criteria identified in **Section 2.0**. The Air Quality Management Protocol will be implemented by the Environmental and Community Manager (or delegate).

8.1 PROACTIVE AIR QUALITY AND GREENHOUSE GAS MANAGEMENT PROTOCOL

In accordance with Section 5B(b) WCPL is required to :

> "*operate a comprehensive air quality management system at the Wambo Mine Complex that uses a* ***combination of predictive meteorological forecasting, predictive and real-time air dispersion modelling*** *and real-time air quality monitoring data to guide day to day planning of mining operations and implementation of both proactive and ractive air quality mitigation measures to ensure compliance with the relevant conditions of this consent"*

In accordance with the above, WCPL is currently in the final stages of developing a predictive meteorological forecasting and real-time air dispersion modelling module with an external party (WeatherZone) to be rolled out to site operational personnel and planners. Due to the complexity surrounding such a system, the module is not at the time of submission fully operational. WCPL is committed to implementing this module and will provide NSW Department of Planning and Infrastructure officers an updated progress report by the ***5.00pm 28 February 2014***.

The objective of the Proactive Air Quality and Greenhouse Gas Management Protocol is to facilitate the day-to-day management of dust emissions from the WMC activities. Dust and greenhouse gas mitigation measures will be actively carried out as a standard operating procedure utilising techniques outlined in **Section 5.0** and **Section 6.0**. The implementation of the Proactive Air Quality and Greenhouse Gas Protocol will be the responsibility of the Environment and Community Manager (or delegate) and relevant mining operations managers and supervisors as required.

The Proactive Air Quality and Greenhouse Gas Protocol will comprise the following four steps:

1. Source Identification
2. Management Strategy
3. Implementation
4. Review

8.1.1 Source Identification

The first step of the protocol involves identification of the mining activities with the potential for excessive dust generation. Consideration will be given to the following:

- Methods and types of equipment that will be used.
- Timing of the activity.
- Location of the activity (including surrounding topography and land-use).
- The result of recent monitoring data.
- Prevailing climatic conditions.

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.

8.1.2 Management Strategy

The management strategy component involves 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. These management measures are outlined and presented in **Table 14** in **Section 5.0**.

8.1.3 Implementation

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.

8.1.4 Review

An important component of the protocol is the review of dust control and management measures. These will be assessed by comparing the results of the air quality monitoring program detailed in **Section 7.0** with the air quality criteria outlined in **Section 2.0**. Where necessary, the management strategy phase of the protocol will be reviewed.

8.2 REACTIVE AIR QUALITY MANAGEMENT PROTOCOL

The following sections outline the reactive management protocol that will be carried out should any exceedances of the air quality assessment criteria be experienced and or if unexpected adverse or extraordinary meteorological events experienced by operations.

8.2.1 Determining Air Quality Exceedances

In the event of an exceedance of the air quality criteria presented in **Section 2.0** an assessment will be conducted to determine the validity of the exceedance by:

- Investigate if any potential contamination of sample may have occurred and if the monitoring results are validated.
- Investigate the timing of the exceedance(s).
- Investigate the general location of the exceedance(s).
- Investigate the potential contributing factors (e.g. can the exceedance be attributed directly to the WMC). This will include consideration of:
    - The methods and type of equipment being used by the WMC 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 or agricultural activities and proximity to the locations at which the exceedance(s) was recorded.
    - Compare the upwind, downwind and regional monitoring data for the same period.
- Investigate the 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**).
- In the case of adverse weather conditions and/or extraordinary events, the following reactive responses are implemented where appropriate;
    - Review and assess PM_{10} real-time dust levels from monitoring network
    - Review and assess regional Upper Hunter Air Quality Monitoring network
    - Review and assess upwind and downwind monitor results to determine possible contribution and or emission source in relation to mining operations
    - Conduct a visual inspection of operations and assess visually any potential offsite impact
    - Discontinue or modify operational activities in areas where increased potential emission are possible due to adverse and/or extraordinary meteorological conditions
    - Ensure availability of Water carts and prioritise and direct to areas of immediate concern

- 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

- Immediate reactive mitigating measures may also include reviewing the elevation and wind exposure of mining and dumping locations, and where feasible, relocate operations to lower and/or sheltered locations

- Review predictive meteorological forecasting module for verification and assist in planning proactive and reactive responses

- If predictive forecasting module confirms continuing adverse meteorological conditions, scheduling of amended working hours or working locations during these unfavourable conditions is to be investigated

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.

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), DoP compliance officers, the Wambo Community Consultative Committee (CCC) and the EPA as outlined in **Section 11.1**.

8.2.2 Managing Exceedances

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 **Section 5.0**. This stage will be conducted in consultation with the relevant mining operation managers.

Air quality mitigation and management measures will be selected with consideration of:

- The location of the exceedance of the criteria and the proximity to the WMC's activities.

- Possible reasons for the exceedance of the criteria (including consideration of meteorological factors).

- The likely effectiveness and feasibility of the mitigation/management measures.

8.2.3 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.

8.2.4 Review of Air Quality Mitigation and Management Measures Employed

The effectiveness of the adopted measures will be assessed against the relevant criteria identified in **Section 2.0**. The management strategy phase of the protocol will be revisited as required.

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.

The outcomes of the Air Quality Management protocol will be reported in the AEMR.

8.2.5 Procedures for Dealing with Landowners

Schedule 5, Conditions 1 through 11 identify three steps for dealing with landowners if an exceedance of the air quality impact assessment criteria is deemed either as a result of dispersion modelling or monitored results. These three steps are as follows:

- Notify landowners
- Independent review
- Land Acquisition

The specific conditions of each of these three steps are given in **Attachment A**.

8.3 TRIGGER LEVELS AND RISK/RESPONSE MATRIX

8.3.1 Trigger Level and SMS Alarm System

The WMC currently operates a reactive alarm system which utilises a SMS Alarm Function to signal to alert the Open Cut Examiner (OCE), Open Cut Operations Manager and Environmental team members of a possible exceedance of PM_{10} criteria. The SMS Alarms are based on 15-minute average PM_{10} concentration measured in µg/m³. The 15-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 15-minute average readings of >100 µg/m³ are reached***. This alarm is a trigger for

operational and environmental staff to increase surveillance of the operation and to alter or suspend operations as required.

Directly relevant to this alarm function is the ability to monitor real-time PM_{10} 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 **Section 8.1** and **Section 8.2**.

WCPL are able to 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_{10} 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 15-minute average PM_{10} 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.

8.3.2 Risk/Response Matrix

Schedule 4, Condition 5C (d) states that the AQGHGMP must include a risk/response matrix to codify mine operational responses to varying levels of risk results from weather conditions and specific mining activities.

Table 19 presents the risk/response matrix designed for the WMC. 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 dependendent upon the underlying risk and hazard. Details of the responses are outlined in **Section 5.0** and **Section 8.0**.

It is noted that this matrix is specifically currently designed for 24 hour average PM_{10} 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 19: Risk/Response Matrix for 24 hour PM_{10} Concentrations

Trigger	Description	Response
Normal State - Monitored 24 hour concentrations are below 30 µg/m^3 - Wind Speeds < 4m/s Temperature <30^{0}C	Reasonable expected conditions in day-to-day operations.	No action required. Routine dust management continued.
Level 1 Triggers - Monitored 24 hour concentrations are below 30 µg/m^3 – change in weather conditions and/or Wind speeds >6m/s and Temperature >30^{0}C*	Change from normal indicating a potential risk.	Requires assessment of monitored data. Open Cut Operations to monitor operating conditions and prepare operations to mitigate against potential excessive dust propagation and exceedance of criteria in line with the Proactive Protocol.
Level 2 Triggers - 2 consecutive 15 min readings > 100 µg/m^3 and/or Wind speeds >8m/s and Temperature >35^{0}C*	High risk of dust related impacts occurring.	Review current mitigation measures that have been previously implemented in accordance with the Proactive Protocol. Meteorological data and mining operations assessed to determine/validate trigger results. Mining operations modified as required.
Level 3 Triggers - 24h concentration exceeding the impact assessment criterion of 50 µg/m^3	Exceedance of the impact assessment criterion.	Further mitigation measures identified and implemented in accordance with the Reactive Protocol. Meteorological data and mining operations assessed to determine/validate trigger results. Mining operations modified as required.

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

9.0 Complaints Response Protocol

In accordance with Schedule 6, Consent Condition 4 (g), the AQGHGMP will detail the procedures for managing and reporting complaints in relation to air quality.

The objective of the Complaint Response Protocol is to facilitate prompt and comprehensive responses to community concerns that relate to air quality. The Protocol will be the responsibility of the Environment and Community Manager (or delegate).

9.1 ASSESSMENT

Preliminary investigations will commence within 2 normal working days of the complaint receipt to determine likely causes of the complaint using information regarding prevailing meteorological conditions, the nature of mining activities taking place and recent air quality monitoring results.

The preliminary investigation will be used to identify and validate the air quality results. Once validation has been confirmed as WCPL being the source of emissions, WCPL will develop specific mitigation measures specifically aligned to activities identified as being the source of the complaint.

9.2 IMPLEMENTATION OF MITIGATION MEASURES

Those mitigation measures developed as a result of the assessment will be implemented by the Environment and Community Manager (or delegate) and the relevant mining operation managers.

Following implementation, monitoring will further assess the effectiveness of the additional dust control measures. The results of this process will be reported to Department of

Planning and Infrastructure (DP&I) and the Community Consultative Community (CCC) as described in Section 11.5.

9.3 MANGEMENT OF COMPLAINTS WHERE THE AIR QUALITY IMPACT ASSESSMENT CRITERIA ARE EXCEEDED

In the event of a complaint, where dust levels are demonstrated to be above the relevant criteria (Section 2.0) the resolution process will be one of informed discussion involving the complainant and the Environmental and Community Manager (or delegate). The complainant will be made fully aware of the monitoring and reporting procedures used at the WMC.

Every effort will be made to ensure that concerns are addressed in a manner that results in a mutually acceptable outcome. In the event that a landowner considers that the WMC is exceeding air quality criteria at their property, the landowner may request an independent review of the air quality impacts at the dwelling. The independent review process is **Section 11.6.2**.

10.0 Roles and Responsibilities

In addition to the specific responsibilities for dust and greenhouse gas management outlined in **Section 5.0** and **Section 6.0**, general roles and responsibilities for the implementation of the AQGHGMP are presented in **Table 20**.

Table 20: Roles and Responsibilities

Task	Responsibility	Timing
Monitoring of air quality in accordance with **Section 7.0**.	Environmental and Community Manager	Ongoing
Assessment of air quality data against relevant criteria outlined in **Section 2.0**.	Environmental and Community Manager	Ongoing
Exceedances of air quality criteria to be managed in accordance with the Reactive Air Quality Management Protocol in accordance with **Section 8.2.**	Environmental and Community Manager	As required.
Implementation of the Proactive Air Quality and Greenhouse Gas Management Protocol in accordance with **Section 8.1.**	Environmental and Community Manager and other relevant operation unit managers	Ongoing
Air quality complaints to be responded to and recorded in accordance with the Complaints Response Protocol in **Section 9.0**.	Environmental and Community Manager	As required.
Organise for independent reviews of air quality impacts at private dwellings in accordance with the Complaints Response Protocol.	Environmental and Community Manager	As requested by landowners.
AEMR to include air quality results, complaints, mitigation measures undertaken and a review of the performance of monitoring and measures undertaken in accordance with **Section 11.0**.	Environmental and Community Manager	Annually.
Regular review of the AQGHGMP to be completed in	Environmental and	As required.

Task	Responsibility	Timing
accordance with **Section 11.0**.	Community Manager	

11.0 Reporting and Review

11.1 INCIDENT REPORTING

In accordance with Schedule 6, Condition 10 of the DC, WCPL will notify at the earliest opportunity, the Director-General and any other relevant agencies of any incident that has caused, or threatens to cause, material harm to the environment. Within 7 days of the date of the incident, WCPL shall provide the Director-General and any relevant agencies with a detailed report on the incident, and such further reports as may be requested.

11.2 ACCESS TO INFORMATION

In accordance with Schedule 6, Condition 12 of the DC, WCPL shall make copies of the following publically available on its website:

- The documents referred to in Condition 2 of Schedule 3 of the DC.
- All current statutory consents for the development.
- All approved strategies, plans and programs required under the conditions of this consent.
- A comprehensive summary of the monitoring results of the development, reported in accordance with the specifications in any conditions of this consent, or any approved plans and programs.
- A complaints register, updated on a monthly basis.
- Minutes of the CCC meetings.
- The annual reviews of the development.
- Any independent environmental audit of the development, and WPCL's response to the recommendations in any audit.
- Any other matter required by the Director-General

The above information must be kept up-to-date to the satisfaction of the Director-General.

Full validated summary reports will be made available on a monthly basis.

A copy of this AQGHGMP will be made available to the CCC. In addition, a copy will be made available for viewing to members of the public through the WCPL administration by calling Wambo Coal Community Enquiries line on (02) 657 02245 or via email on wambocommunity@peabodyenergy.com

11.2.1 Online Reporting

In accordance with Schedule 6 Condition 12 of the DC, WCPL will make the following information for the WMC publically available on its website, on a daily basis and in a clearly understandable form:

- Daily weather forecasts for the coming week.
- Proposed operational responses to these weather forecasts.
- Real-time air quality monitoring data (subject to any necessary caveats).
- Any operational responses that were taken in response to the air quality monitoring data.

WCPL must make provision on its website for the provision of online and/or email comments by members of the community regarding this information to the satisfaction of the Director-General.

11.3 ANNUAL REVIEW AND AEMR REPORTING

In accordance with Schedule 6, Condition 5 of the DC, WCPL will by the end of March each year, prepare an Annual Environmental Management Report (AEMR) document which will:

- Describe the development (including any rehabilitation) that was carried out in the previous financial year, and the development that is proposed to be carried out over the current financial year.
- Include a comprehensive review of the monitoring results and complaints records of the development over the previous year, which includes a comparison of these records against:
    - The relevant statutory requirements, limits of performance measures/criteria.
    - The monitoring results of previous years.
    - The relevant predictions in the EIS.
- Identify any non-compliance over the previous financial 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 development.
- Identify any discrepancies between the predicted and actual impacts of the development, and analyse the potential cause of any significant discrepancies.

- Describe what measures will be implemented over the current financial year to improve the environmental performance of the development.

The AEMR will be sent to the relevant agencies for review and comment and be forwarded to the Wambo Coal CCC and be available online for public access.

11.4 ASSESSMENT REPORTS

Monthly monitoring reports will be produced for compilation of the Annual Environmental Management Report (AEMR). This will include monthly wind roses to assist with interpretation. The monthly monitoring reports will also include details on any non-compliances recorded during the period.

Compliance is to be demonstrated by the average 24 hour project specific and cumulative results and the annual average at the monitoring locations.

11.5 COMMUNITY CONSULTATIVE COMMITTEE

A CCC must be operated for the duration of the project. Regular briefings to the CCC would be provided, including a summary of results from all air quality monitoring for the project. Schedule 6, Conditions 8 and 9 outline the detailed requirements of the CCC which outline how the CCC should function.

11.6 AUDITING

11.6.1 Internal Audit

Internal audits of this document and all other Environmental Management System documents are to be completed every three years. The audit would assess the air quality performance of the project, assess compliance with the requirements in this plan, and whether the Proponent is implementing best air quality management. Improvements from the audit are to be incorporated in the site action database to ensure the actions are assigned to the relevant people and completed.

11.6.2 External Audit

External audits will be conducted utilising external specialists and will consider the document and related documents. External auditors shall be determined based on skills and experience and upon what is to be accomplished. External audits will be periodically at a frequency determined by the site General Manager, or in response to significant environmental incidents for which a systems failure has been determined as a contributor to the incident.

An Independent Environmental Audit will be undertaken every three years (or as otherwise directed by the Director-General). In accordance with Schedule 6, Condition 7 of the DC, the audit must:

- Be conducted by a suitable qualified, experienced and independent team of experts whose appointment has been endorsed by the Director-General.
- Include consultation with the relevant agencies.
- Assess the environmental performance of the development and assess whether it is complying with the requirements in the DC and any relevant EPL or Mining Lease (including any assessment, plan or program required under these consents/approvals.
- Review the adequacy of strategies, plans or programs required under the abovementioned consents/approvals.
- Recommend appropriate measures or actions to improve the environmental performance of the development, and/or any assessment, plan or program required under the abovementioned consents.
- Within six weeks of the completion of the audit, or as otherwise agreed by the Director-General, a copy of the audit shall be submitted to the Director-General, together with its responses to any recommendations contained in the audit report.

11.7 REVIEW

Within 3 months of the submission of an annual review, incident report, audit or any modification to the conditions of this approval, the AQGHGMP would be reviewed and if necessary revised.

The AQGHGMP shall be reviewed by the Environmental and Community Manager and relevant site personnel:

- On a bi-annual basis.
- When there are changes to consent or licence conditions relating to air quality.
- Following significant incidents at the WMC relating to air quality.
- Following the conduct of an independent environmental audit under Schedule 6, Condition 6 of the DC.
- If there is a relevant change in technology or legislation.

12.0 References

AS/NZS 3580.1.1:2007

"Methods for sampling and analysis of ambient air - Guide to siting air monitoring equipment".

AS/NZS 3580.9.6:2003

"Methods for sampling and analysis of ambient air - Determination of suspended particulate matter - PM(sub)10 high volume sampler with size-selective inlet - Gravimetric method".

AS/NZS 3580.10.1:2003

"Methods for sampling and analysis of ambient air - Determination of particulate matter - Deposited matter - Gravimetric method".

Australian Explosives Industry and Safety Group Inc. (2011).

"Code of Practice: Prevention and Management of Blast Generated NOx Gases in Surface Blasting".

Holmes Air Sciences (HAS) (2003)

"Air Quality Impact Assessment: Wambo Development Project" Prepared by Holmes Air Sciences for Wambo Coal Pty Ltd, April 2003.

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

NGER, 2008

National Greenhouse and Energy Reporting (Measurement) Determination

NHA (Nigel Holmes & Associates) (1991a)

"Draft Air Quality Assessment for Proposed Extension to Wambo Mine Near Warkworth". Prepared by Nigel Holmes & Associates for Environsciences Pty Ltd, dated by 14 January 1991.

NHA (Nigel Holmes & Associates) (1991b)

"Supplementary Air Quality and Noise Assessment Proposed North Wambo Creek Open Cut Near Warkworth". Prepared by Nigel Holmes & Associates for Environsciences Pty Ltd, dated 9 July 1991.

NSW EPA, 2005

"*Approved methods for the sampling and analysis of air pollutants in NSW*" New South Wales EPA 59-61 Goulburn Street, Sydney, NSW August 2005.

PAEHolmes (2011)

"Wambo – Montrose East Underground Mine Modification – Air Quality Review" Prepared by PAEHolmes for Wambo Coal Pty Ltd, February 2011.

Peabody (2012)

"Wambo Coal Pty Limited Annual Environmental Management Report 2011 – 2012" Prepared by Peabody Energy Australia Pty Ltd for Wambo Coal Pty Ltd, August 2012

SLR (2012)
" Wambo Coal Site Specific Particulate Matter Control Best Practice Assessment" Prepared by SLR Consulting Australia Pty Ltd for Wambo Coal Pty Ltd, June 2012.

WCPL (Wambo Coal Pty Ltd) (2003)
"Wambo Development Project Environmental Impact Statement", July 2003.

ATTACHMENT 1
SCHEDULE 5 CONSENT CONDITIONS 1 TO 11
ADDITIONAL PROCEDURES FOR AIR QUALITY AND NOISE MANAGEMENT

SCHEDULE 5
ADDITIONAL PROCEDURES FOR AIR QUALITY & NOISE MANAGEMENT

Notify Landowners

1. If the air dispersion and/or noise model predictions in the documents listed in condition 2 of schedule 3 identify that the air pollution and/or noise generated by the development are likely to be greater than the air quality and/or noise impact assessment criteria in conditions 2 and 6 of schedule 4, then the Applicant shall notify the relevant landowners and/or existing or future tenants (including tenants of mine-owned properties) accordingly before it carries out any development.

2. If the results of the air quality and/or noise monitoring required in schedule 4 identify that the air pollution and/or noise generated by the development are greater than the air quality and/or noise impact assessment criteria in schedule 4, then the Applicant shall notify the relevant landowners and/or existing or future tenants (including tenants of mine-owned properties) as soon as practicable after identifying the exceedence.

3. Before carrying out any development, the Applicant shall develop a procedure in consultation with EPA and NSW Health and approved by the Director-General, for notifying landowners and tenants referred to in condition 1. This procedure must ensure that:
   (a) all existing and future tenants are advised in writing about:
      - 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;
   (b) the written advice in (a) is based on current air quality monitoring data, dispersion modelling results, research and literature; and
   (c) there is an ongoing process for providing current air quality monitoring data, dispersion modelling results, research and literature to the tenants.

Independent Review

4. If a landowner considers the development to be exceeding the air quality and/or noise impact assessment criteria listed in schedule 4 at his/her dwelling, or at any proposed dwelling on his/her vacant land, then he/she may ask the Applicant for an independent review of the air pollution and/or noise impacts of the development on his/her dwelling, or proposed dwelling.

   If the Director-General is satisfied that an independent review is warranted, the Applicant shall:
   (a) consult with the landowner to determine his/her concerns; and
   (b) commission a suitably qualified person – whose appointment has been approved by the Director-General – to conduct air quality and/or noise monitoring at the relevant dwelling to determine whether the development is complying with the relevant impact assessment criteria, and identify the source(s) and scale of any air quality and/or noise impact at the dwelling, and the development's contribution to this impact.

   Within 14 days of receiving the results of this independent review, the Applicant shall give a copy of these results to the Director-General and landowner.

5. If the independent review (referred to in condition 4) determines that the development is complying with the relevant impact assessment criteria listed in schedule 4 at the dwelling, then the Applicant may discontinue the independent review with the approval of the Director-General.

6. If the independent review (referred to in condition 4) determines that the development is not complying with the relevant impact assessment criteria listed in schedule 4 at the dwelling, and that the development is primarily responsible for this non-compliance, then the Applicant shall:
   (a) take all practicable measures, in consultation with the landowner, to ensure that the development complies with the relevant impact assessment criteria; and conduct further air quality and/or noise monitoring at the dwelling to determine whether these measures ensure compliance; or
   (b) secure a written agreement with the landowner to allow exceedances of the air quality and/or noise impact assessment criteria listed in schedule 4.

   If the additional monitoring referred to above subsequently determines that the development is complying with the relevant impact assessment criteria listed in schedule 4 at the dwelling, then the Applicant may discontinue the independent review with the approval of the Director-General.

   If the measures referred to in (a) do not ensure compliance with the air quality and/or noise land acquisition criteria listed in schedule 4 at the dwelling, and the Applicant cannot secure a written agreement with the landowner to allow exceedances of the air quality and/or noise impact assessment criteria listed in schedule 4, then the Applicant shall, upon receiving a written request

from the landowner, acquire all or part of the landowner's land in accordance with the procedures in conditions 9-11 below.

7. If the independent review determines that the development is not complying with the air quality and/or noise impact assessment criteria listed in schedule 4 at the dwelling, but that several mines are responsible for this non-compliance, then the Applicant shall, with the agreement of the landowner and other mine(s) prepare and implement a Cumulative Air Quality and/or Noise Impact Management Plan for the land to the satisfaction of the Director-General. This plan must provide the joint approach to be adopted by the Applicant and other mine(s) to manage cumulative air quality and/or noise impacts at the landowner's dwelling, and the acquisition of any land.

   If the Applicant is unable to finalise an agreement with the landowner and/or other mine(s), and/or prepare a Cumulative Air Quality and Noise Impact Management Plan, then the Applicant or landowner may refer the matter to the Director-General for resolution.

   If the matter cannot be resolved within 21 days, the Director-General shall refer the matter to an Independent Dispute Resolution Process.

   If, following the Independent Dispute Resolution Process, the Director-General decides that the Applicant shall acquire all or part of the landowner's land, then the Applicant shall acquire this land in accordance with the procedures in conditions 9-11 below.

8. If the landowner disputes the results of the independent review (referred to in condition 4), either the Applicant or the landowner may refer the matter to the Director-General for resolution.

   If the matter cannot be resolved within 21 days, the Director-General shall refer the matter to an Independent Dispute Resolution Process.

Land Acquisition

9. Within 6 months of receiving a written request from the landowner, the Applicant shall pay the landowner:
   (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 the subject of the DA, having regard to the:
      - existing and permissible use of the land, in accordance with the applicable planning instruments at the date of the written request; and
      - 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;

   (b) the reasonable costs associated with:
      - relocating within the Singleton local government area, or to any other local government area determined by the Director-General;
      - obtaining legal advice and expert advice for determining the acquisition price of the land, and the terms upon which it is required; and

   (c) reasonable compensation for any disturbance caused by the land acquisition process.

   However, if within 6 months of receiving this written request, 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 Director-General for resolution.

   Upon receiving such a request, the Director-General shall request the President of the NSW Division of the Australian Property Institute to appoint a qualified independent valuer or Fellow of the Institute, to consider submissions from both parties, and determine a fair and reasonable acquisition price for the land, and/or terms upon which the land is to be acquired.

   If either party disputes the independent valuer's determination, then the independent valuer must refer the matter back to the Director-General.

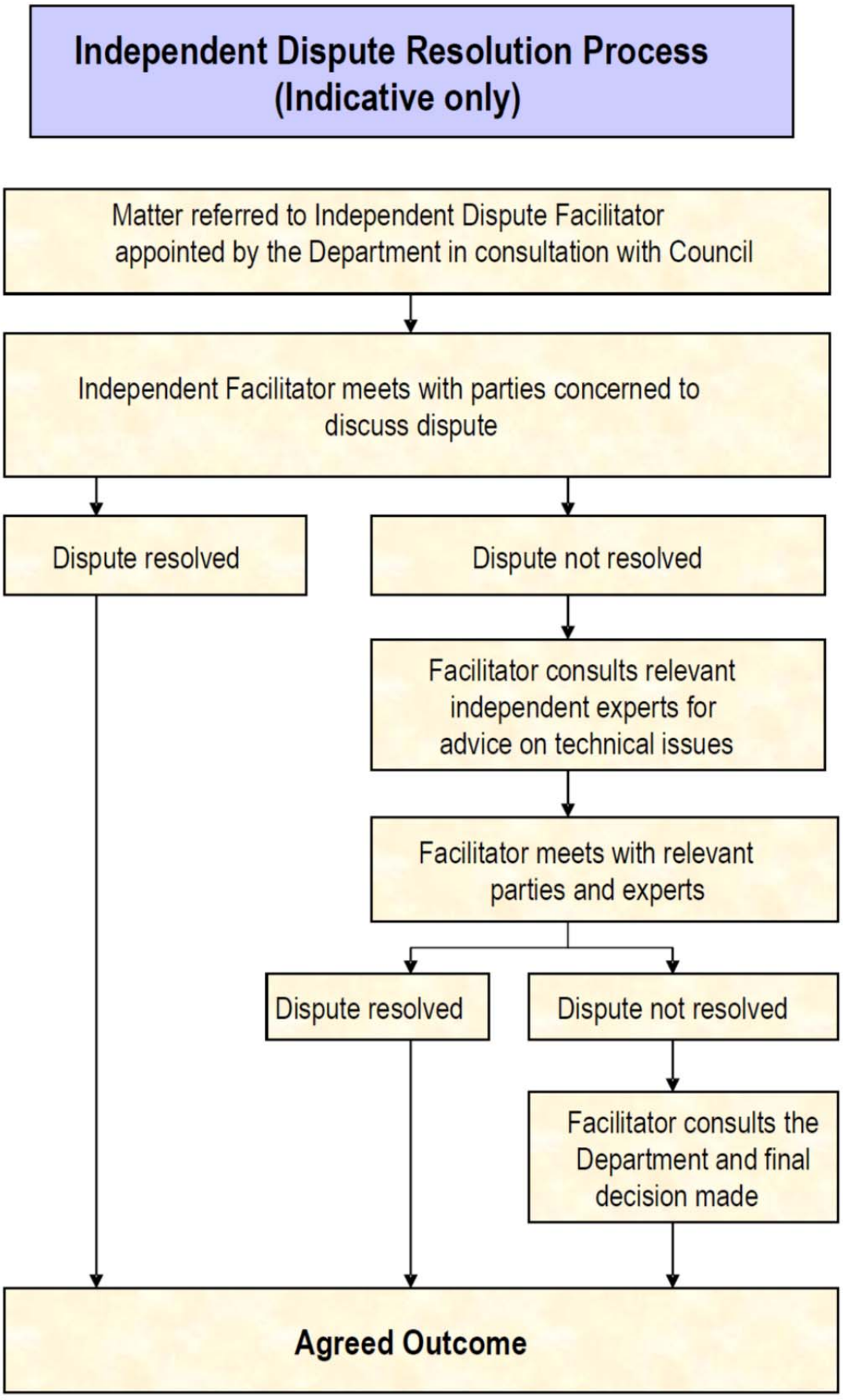
   Upon receiving such a referral, the Director-General shall appoint a panel to determine a fair and reasonable acquisition price for the land, and/or the terms upon which the land is to be acquired, comprising the:
   (i) appointed independent valuer,
   (ii) Director-General or nominee, and
   (iii) President of the Law Society of NSW or nominee.

   Within 14 days of receiving the panel's determination, the Applicant shall make a written offer to purchase the land at a price not less than the panel's determination.

If the landowner refuses to accept this offer within 6 months of the date of the Applicant's offer, the Applicant's obligations to acquire the land shall cease, unless otherwise agreed by the Director-General.

10. The Applicant shall bear the costs of any valuation or survey assessment requested by the independent valuer, panel, or the Director-General and the costs of determination referred to in Condition 9.

11. If the Applicant and landowner agree that only part of the land should be acquired, then the Applicant shall pay all reasonable costs associated with obtaining Council approval for any plan of subdivision, and registration of the plan at the Office of the Registrar-General.


Independent Dispute Resolution Process
(Indicative only)
Matter referred to Independent Dispute Facilitator appointed by the Department in consultation with Council
Independent Facilitator meets with parties concerned to discuss dispute
Dispute resolved
Dispute not resolved
Facilitator consults relevant independent experts for advice on technical issues
Facilitator meets with relevant parties and experts
Dispute resolved
Dispute not resolved
Facilitator consults the Department and final decision made
Agreed Outcome