WAMBO COAL
BLAST MANAGEMENT PLAN

Document No. WA-ENV-MNP-507
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Document Control

Document No.	WA-ENV-MNP-507
Title	Blast Management Plan
General Description	Blasting and Fume Management at WCPL
Document Owner	Environment & Community Manager

Revisions

Rev No	Date	Description	By	Checked	Signature
0	July 2005	Original Draft	Hansen Consulting	JT/TS	
1	Sept 2005	Revision	WCPL	JT	
2	Dec 2008	Revision	WCPL	RP	
3	May 2013	Revision	WCPL	TF	
4	Feb 2014	Revision	WCPL	TF	
5	Oct 2015	Revision	WCPL, Palaris	SP	
6	Nov 2015	Update to address DP&E comments on Rev 5	WCPL, Palaris	SP	
7	July 2017	Update to include the Road Closure Management Procedure	WCPL	SP	
8	December 2017	Update to include new Peabody logo, Notification Procedure for Blasting within 500m of Private Property and Road Occupancy Licence renewal.	WCPL	SP	
9	April 2019	Renewal of Road Occupancy Licence and Crown Lands Access Agreement. No changes to content.	WCPL	ND	
10	November 2019	Updated to address changes to DA305-7-2003 (Mod 16), DA177-8-2004 (Mod 3) and EPL 529 (19/7/19 version)	WCPL	Jeff Hanlon WCPL	
11	March 2020	Update of BM05 blast monitor location	WCPL	Jeff Hanlon WCPL	

CONTENTS

Tables

Figures

LIST OF APPENDICES

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 (DA305-7-2003) 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 Coal Mine 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 green operational area identified in Figure 1 of Appendix 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 of Appendix 2 and associated surface development
- 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 DA177-8-2204. The latest modification to DA177-8-2004 (Mod 3) was approved by the Independent Planning Commission of NSW on 29 August 2019.

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, in accordance with the development consents. A summary of the approved Wambo Coal Mine is provided in **Table 1**.

Table 1: Summary of the Approved Wambo Coal Mine

Component	Approved Wambo Coal Mine[1]
Open Cut Mining	Phase 1 – A maximum of 8 Mt of ROM coal may be extracted from the Wambo open cut mine in a calendar year
	Phase 2 – ROM coal from the Wambo open cut mine may be received, processed and/or stockpiled onsite. No open cut mining may take place during Phase 2.
	Open cut mining operations under current approved MOP
Underground Mining	Phase 1 and 2 - A maximum of 9.75 Mt of ROM coal may be extracted from the Wambo underground mine in a calendar year
	Underground mining operations within the approved mine plan until 31 August 2042
Subsidence commitments and management.	The subsidence performance measures listed in Conditions B1-B10 of the Development Consent (DA305-7-2003).

Component	Approved Wambo Coal Mine[1]
ROM Coal Production Rate	Up to 14.7 Mt of ROM coal from the Wambo Mining Complex and United Wambo open cut coal mine in a calendar year
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.
Coal Washing	Coal handling and preparation plant (CHPP) capable of processing approximately 1,800 tonnes per hour (tph)
Coal transportation	A maximum of 15 Mt of coal transported from the United Wambo Mining Complex in a calendar year
	A maximum of 8 laden trains may leave site in any 24hr period
	Coal transportation may be carried out until 31 August 2042.
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
	Coal rejects may be transferred to the United open cut mine for emplacement during Phase 2.
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: [1] Development Consents DA305-7-2003 and DA177-8-2004 (as modified August 2019)

In accordance with Condition B38 of DA305-7-2003, WCPL are required to prepare a Blast Management Plan (BMP). In accordance with WCPL's continuous improvement and review processes and Condition D6 of DA305-7-2003, a review of the BMP has been undertaken to ensure that blasting activities at the Mine continue to be undertaken in a manner that ensures compliance and reduces impacts on the local community. This review has been undertaken by suitably qualified and experienced persons in consultation with the EPA (refer to **Appendix A**).

1.2 Purpose

The purpose of this BMP is to ensure that WCPL blast related impacts, including ground vibration, overpressure, fume and dust are minimised on the local community, infrastructure and heritage sites to the extent required by DA305-7-2003 and Environmental Protection Licence (EPL 529). This BMP has been developed to:

- Describe the measures to be implemented to comply with the relevant blast conditions;
- Describe the blast management strategies used to manage impacts from blasting;
- Provide a blast monitoring protocol for evaluating compliance with the blast criteria;
- Describe WCPL's Blast Fume Management Strategy (**Appendix B**);
- Provide a protocol for managing and reporting any blast related incidents, exceedances or non-compliances;
- Communicate with the local community and regulators regarding WCPL's blasting activities;

- Describe and assign responsibilities relating to blast management at WCPL;
- Describe the road closure management procedure for blasting within 500 metres of the Golden Highway (**Appendix D**); and
- Describe how this BMP will be reviewed and updated.

1.3 Scope

This BMP applies to all blasting activities undertaken within WCPL's mining authorisations and approved mining areas (**Figure 2**). This BMP has been prepared to manage blast related impacts including overpressure, ground vibration, dust, and blast fume in accordance with the Blast Fume Management Strategy. This BMP forms part of WCPL's Environmental Management System (EMS) and provides a consistent process for notification and reporting in accordance with the Pollution Incident Response Management Plan (PIRMP).

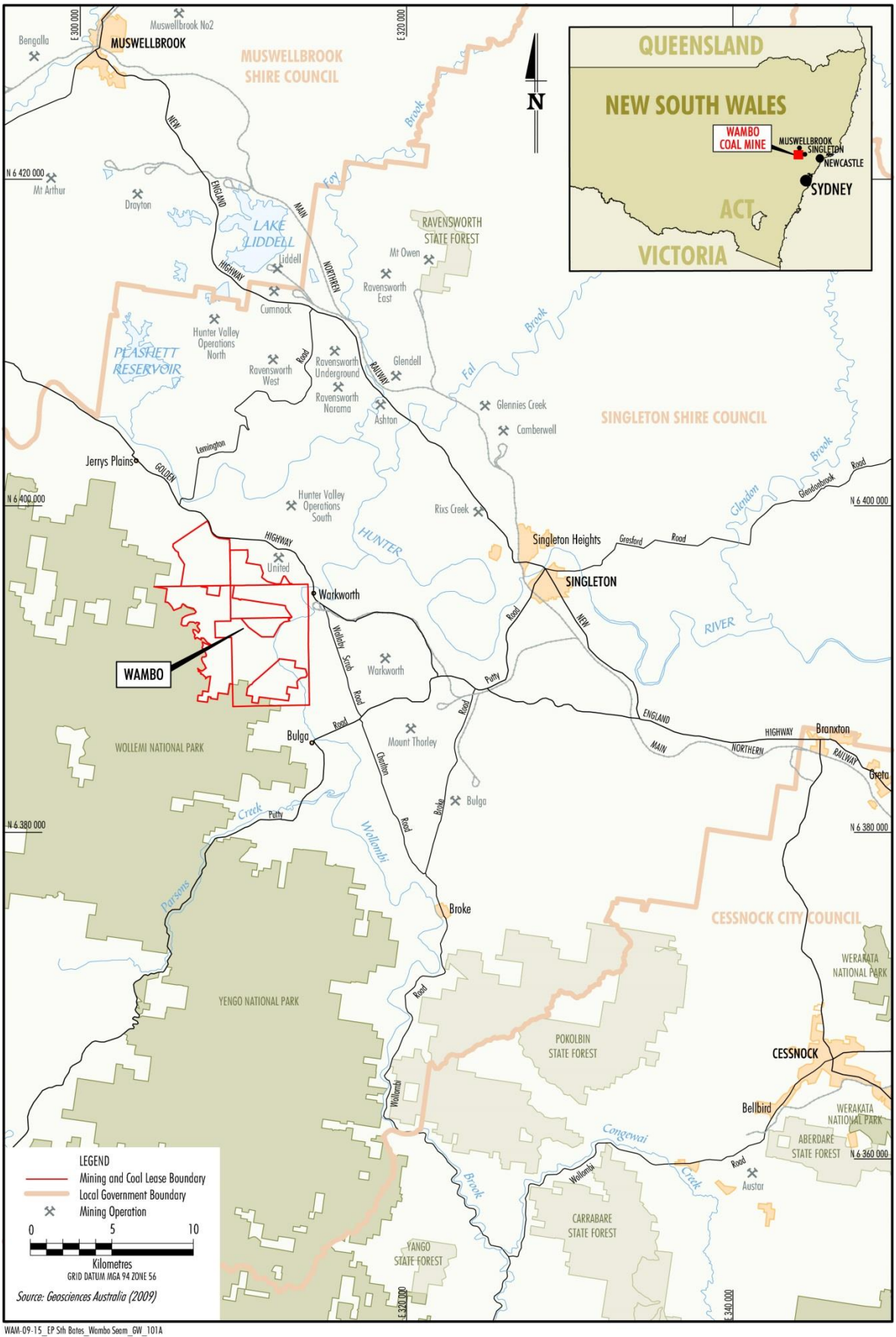

Figure 1: Wambo Coal Regional Location

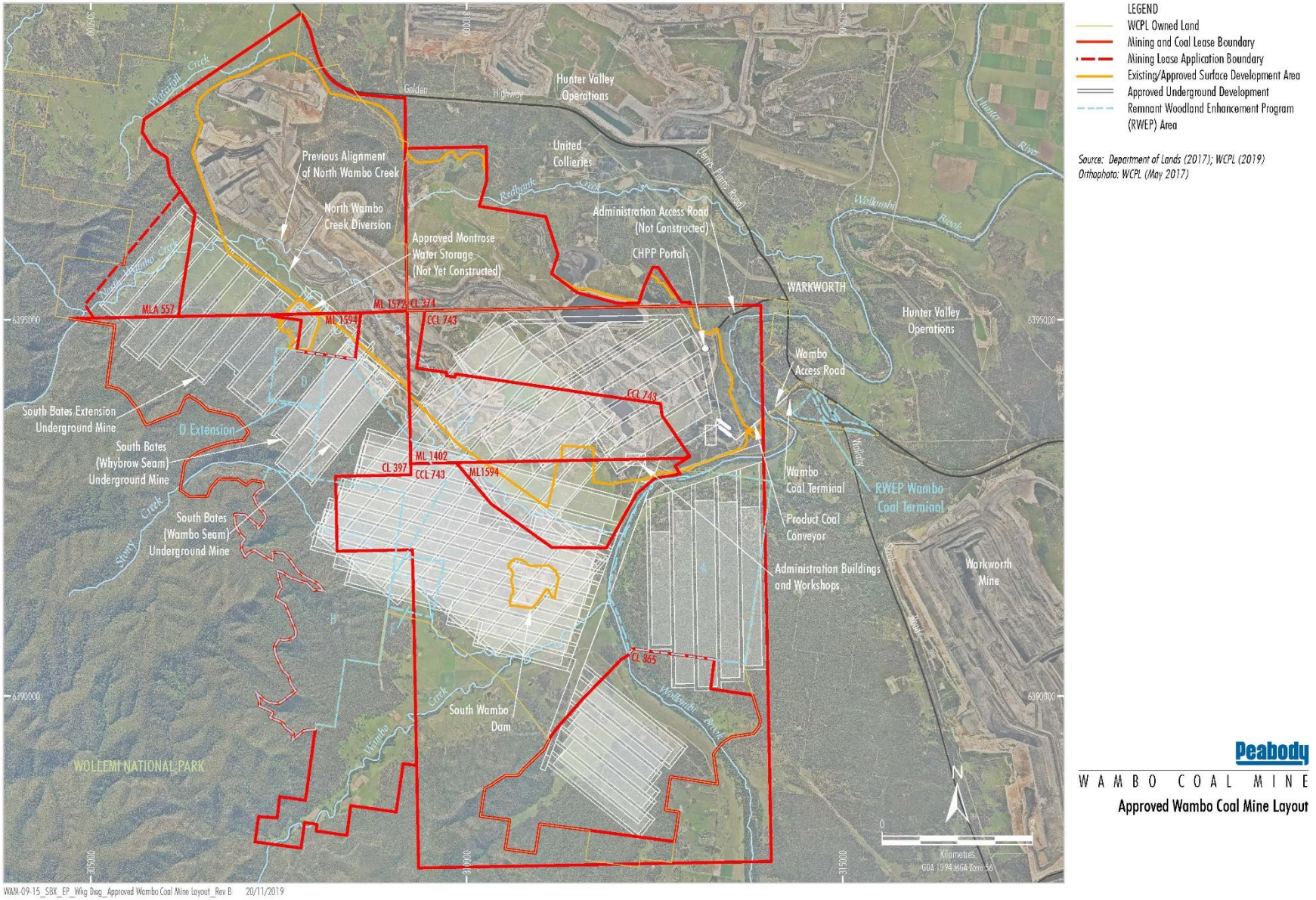

Figure 2: Approved Wambo Coal Mine Layout

1.4 Statutory Requirements

This BMP has been prepared to fulfil the requirements of DA305-7-2003 and EPL529, as well as commitments from the *United Wambo Open Cut Coal Mine Project Environmental Assessment* (Umwelt, 2016).

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 and Infrastructure (DP&I), on 4 February 2004. The most recent modification to DA305-7-2003 was granted by the Independent Planning Commission of NSW on 29 August 2019 (Mod 16). Conditions within the modified DA305-7-2003 regulate blasting activities undertaken at the Mine (**Table 2**).

In addition to the relevant conditions in DA305-7-2003, WCPL has also made a number of commitments relating to blasting in the following documents:

- *United Wambo Open Cut Coal Mine Project Environmental Impact Statement* (Umwelt, 2016); and
- *United Wambo Open Cut Coal Mine Project Blasting Impact Assessment* (Enviro Strata Consulting, 2016).

These commitments are summarised in **Table 3**.

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*. Conditions within EPL529 regulate blasting activities undertaken at the Mine (**Table 4**) EPL 529 is administered by the NSW Environmental Protection Authority (EPA).

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 *Protection of the Environment Operations Act* 1997 (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 please refer to **Section 9.5**.

Table 2: DA305-7-2003 Requirements for the BMP

<table>
<tr><th>Schedule/ Part</th><th>Condition</th><th>DA305-7-2003</th><th>BMP Section</th></tr>
<tr><td>B</td><td>B22</td><td>Blasting Criteria
The Applicant must ensure that blasting on the site does not cause exceedances of the Criteria in Table 5.

Table 5: Blasting criteria
<table>
<tr><th>Location</th><th>Airblast overpressure (dB(Lin Peak))</th><th>Ground vibration (mm/s)</th><th>Allowable exceedance</th></tr>
<tr><td rowspan="2">Residence on privately-owned land</td><td>120</td><td>10</td><td>0%</td></tr>
<tr><td>115</td><td>5</td><td>5% of the total number of blasts over a calendar year</td></tr>
<tr><td>Wambo Homestead</td><td>120</td><td>5</td><td>0%</td></tr>
<tr><td>All other heritage items</td><td>133</td><td>5</td><td>0%</td></tr>
<tr><td>Prescribed dams</td><td></td><td>50[1]</td><td>0%</td></tr>
<tr><td>Public roads</td><td></td><td>100</td><td>0%</td></tr>
<tr><td>All other public infrastructure</td><td></td><td>50[2]</td><td>0%</td></tr>
</table>
Notes:
1. Unless otherwise directed by the DSC.
2. Or a limit determined by the structural design methodology in AS2187.2-2006, or its latest version, or other alternative limit for public infrastructures, to the satisfaction of the Planning Secretary.</td><td>Sections 3.1 and 3.2</td></tr>
<tr><td>B</td><td>B23</td><td>The blasting criteria in Table 5 do not apply if the Applicant has an agreement with the owner/s of the relevant residence or infrastructure to exceed the blasting criteria, and the Applicant has advised the Department in writing of the terms of this agreement.</td><td>Section 3.2</td></tr>
<tr><td>B</td><td>B24</td><td>Blasting Hours
The Applicant must only carry out blasting on the site between 9 am and 5 pm (Monday to Saturday inclusive). No blasting is allowed on Sundays, public holidays or any other time without the prior written approval of the Planning Secretary.</td><td>Section 4.1</td></tr>
<tr><td>B</td><td>B25</td><td>Blasting Frequency
The Applicant may carry out a maximum of:</td><td>Section 4.2</td></tr>
</table>

Schedule/ Part	Condition	DA305-7-2003	BMP Section
		a) 3 single blast events[a] a day; and *b)* 15 single blast events[a] a week, averaged over a calendar year.	
B	B26	Condition B25 does not apply to single blast events[a] that generate ground vibration of 0.5 mm/s or less at any residence on privately-owned land, or to blast misfires or blasts required to ensure the safety of the mine, its workers or the general public. [a] *Within conditions B25 and B26, 'single blast event' means a blast which involves either a single detonation or a number of individual blasts fired in quick succession in a discrete area of the development. Should an additional blast be required after a blast misfire, this additional blast and the blast misfire are counted as a single blast event.*	Section 4.2
B	B27	**Property Investigations** If the owner of any privately-owned land within 2 km radius of the site or any other landowner where the Planning Secretary is satisfied an investigation is warranted, claims in writing that buildings or structures on their land have been damaged as a result of blasting on the site, then within 2 months of receiving this written claim the Applicant must: a) commission a suitably qualified, experienced and independent person, whose appointment is acceptable to both parties to investigate the claim; and b) give the landowner a copy of the property investigation report.	Section 5.3
B	B28	If this independent property investigation confirms the landowner's claim, and both parties agree with these findings, then the Applicant must repair the damage to the satisfaction of the Planning Secretary.	
B	B29	If there is a dispute over the selection of the suitably qualified, experienced and independent person, or the Applicant or the landowner disagrees with the findings of the independent property investigation, then either party may refer the matter to the Planning Secretary for resolution.	
B	B30	**Blast Operating Conditions** The Applicant must: a) take all reasonable steps to: i) ensure the safety of people and livestock from blasting impacts of the development; ii) protect public and private infrastructure and property in the vicinity of the site from blasting damage associated with the development; and iii) minimise the dust and fume emissions of any blasting;	Sections 4.3 and 5.0. See also Appendix B (Blast Fume Management Strategy) and Appendix D (Road Closure Management Procedure)

Schedule/ Part	Condition	DA305-7-2003	BMP Section
		b) ensure that blasting on the site does not damage heritage items, and develop specific measures to protect heritage items from any blasting damage associated with the development;	Section 5.10
		c) minimise the frequency and duration of any public road closures for blasting, and use all reasonable efforts to avoid road closures during peak traffic periods;	Section 4.3 and Appendix D
		d) operate a suitable system to enable interested members of the public to get up-to-date information on the proposed blasting schedule on the site and associated public road closures, including notification via SMS message of the blasting schedule and associated road closures for that day and any variations to that schedule and closures;	Section 5.2
		e) use all reasonable efforts to co-ordinate the timing of blasting at the site with nearby to minimise cumulative blasting impacts; and	Section 5.1
		f) carry out regular blast monitoring to determine whether the development is complying with the relevant conditions of this consent.	Section 6.0
B	B31	The Applicant must not carry out more than 1 blast a day within 500 metres of Wallaby Scrub Road or the Golden Highway.	Section 4.2
B	B32	The Applicant must not undertake blasting on the site within 500 metres of any public road or any land outside the site not owned by the Applicant, unless the blast generates ground vibration of 0.5 mm/s or less, or the Applicant has: a) a written agreement with the relevant infrastructure owner or landowner to allow blasting to be carried out closer to the public road or land, and the Applicant has advised the Department in writing of the terms of this agreement, or b) demonstrated, to the satisfaction of the Planning Secretary, that the blasting can be carried out closer to the public road or land without compromising the safety of people or livestock or damaging the road or other buildings and structures, and updated the Blast Management Plan to include specific mitigation measures to be implemented while blasting is being carried out within 500 metres of the road or land.	Section 4.3
B	B33	**Wambo Homestead** Ground vibration and air blast levels are to be monitored, using a monitoring station established within the Wambo Homestead Complex, and recorded for each blast conducted by the Applicant within 2 km of the Wambo Homestead Complex.	Sections 5.10.2 and 6.2
B	B34	The Applicant must appoint a structural engineer with expertise and experience in vibration and blast monitoring to examine all monitoring records from the Wambo Homestead Complex blast monitoring station. The appointment of the structural engineer is to be approved in writing by the Heritage Branch.	Section 5.10.2

Schedule/ Part	Condition	DA305-7-2003	BMP Section
B	B35	The structural engineer is to report to the Applicant on the monitoring results each month for blasting within 2 km of the Wambo Homestead Complex and 6 monthly for the remainder of open cut mining operations and make recommendations to ensure the conservation and prevention of damage to the significant heritage structures. Copies of these reports are to be forwarded to the Heritage Branch.	Section 5.10.2
B	B36	The structural engineer is to inspect the Wambo Homestead Complex structures annually and as soon as practical, but no later than 3 days after blast monitoring which exceeds the criteria in Table 5. During the period between blast monitoring being recorded which exceeds the criteria in Table 5 and the engineer's inspection, ground vibration from blasting is to be limited to a level which will prevent further blasting damage. The structural engineer is to advise the Applicant and the Heritage Branch of any action required to repair the damage.	Section 5.10.2
B	B37	The structural engineer is to make an assessment of whether blasting within 2km of the Wambo Homestead Complex is to cease or be managed in order to stabilise or repair the damage, and so advise the Applicant and the Heritage Branch. If blasting has been required to cease, it is not to resume until the damage has been stabilised or repaired, and the written approval for resumption has been issued by the Heritage Branch.	Section 5.10.2
B	B38	**Blast Management Plan** The Applicant must prepare a Blast Management Plan for the development to the satisfaction of the Planning Secretary. This plan must: a) be prepared by a suitably qualified and experienced person/s;	Section 1.1 and Appendix A
		a) be prepared in consultation with the EPA;	Section 1.1 and Appendix A
		b) describe the measures that would be implemented to ensure compliance with the blasting criteria and conditions of this consent;	Section 5.0
		c) include a Blast Fume Management Strategy for: i) minimising blast fume emissions; ii) rating and recording blast fume events; and iii) reporting significant blast fume events to the Department;	Appendix B
		d) include a Road Closure Management Plan for any blasting within 500 metres of a public road, that has been prepared in consultation with relevant roads authorities and includes provisions for: i) minimising the duration of closures, both on a per event basis and weekly basis; ii) avoiding peak traffic periods as far as reasonable; and iii) co-ordinating closures with nearby mines to minimise the cumulative effect of road closures;	Appendix D
		e) identify any agreed alternative ground vibration limits for public or private infrastructure in the vicinity of the site (if relevant);	Not relevant

Schedule/ Part	Condition	DA305-7-2003	BMP Section
		f) include a strategy to manage potential blast interactions with nearby mines;	Section 5.1
		g) include a strategy to monitor, mitigate and manage the effects of blasting on heritage items, particularly the Wambo Homestead; and	Sections 5.10.2 and 6.0
		h) include a monitoring program for evaluating and reporting on compliance with the relevant conditions of this consent.	Sections 6.0 & 9.0
B	B39	The Applicant must submit the Blast Management Plan to the Planning Secretary for approval within three months of the determination of Modification 16.	This Plan
B	B40	The Applicant must implement the Blast Management Plan as approved by the Planning Secretary.	This Plan
C	C5	**Notification of Exceedances** 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 9.5
C	C7	**Independent Review** If a landowner considers the development to be exceeding any relevant air quality, noise or blasting criterion in Part B of this consent, then they may ask the Planning Secretary in writing for an independent review of the impacts of the development on their residence or land	Section 5.3
C	C8	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.	
C	C9	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: a) Commission a suitably qualified, experienced and independent person, whose appointment has been approved by the Planning Secretary, to: i) consult with the landowner to determine their concerns; ii) conduct monitoring to determine whether the development is complying with the relevant criterion in Part B of this consent; and iii) if the development is not complying with the relevant criterion, identify measures that could be implemented to ensure compliance with the relevant criterion; b) give the Planning Secretary and landowner a copy of the independent review; and **c)** comply with any written requests made by the Planning Secretary to implement any findings of the review.	
D	D4	**Adaptive Management** 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	Section 7.0

Schedule/ Part	Condition	DA305-7-2003	BMP Section
		constitutes a breach of this consent and may be subject to penalty or offence provisions under the EP&A Act or EP&A Regulation. Where any exceedance of these criteria or performance measures has occurred, the Applicant must, at the earliest opportunity: a) take all reasonable and feasible steps to ensure that the exceedance ceases and does not recur; b) consider all reasonable and feasible options for remediation (where relevant) and submit a report to the Department describing those options and any preferred remediation measures or other course of action; and **c)** implement reasonable remediation measures as directed by the Planning Secretary.	
D	**D5**	**Management Plan Requirements** Management plans required under this consent must be prepared in accordance with relevant guidelines, and include where relevant: a) summary or relevant background or baseline data; b) details of: i) the relevant statutory requirements (including any relevant approval, licence or lease conditions); ii) any relevant limits or performance measures and criteria; and iii) the specific performance indicators that are proposed to be used to judge the performance of, or guide the implementation of, the development or any management measures; c) any relevant commitments or recommendations identified in the documents listed in condition A2(c); d) a description of the measures to be implemented to comply with the relevant statutory requirements, limits, or performance measures and criteria; e) a program to monitor and report on the: i) impacts and environmental performance of the development; ii) effectiveness of the management measures set out pursuant to paragraph (d); 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; g) a program to investigate and implement ways to improve the environmental performance of the development over time; h) a protocol for managing and reporting any: i) incident, non-compliance or exceedance of any impact assessment criterion and performance criterion; ii) complaint; or iii) failure to comply with other statutory requirements; and	**Section 2.0** Section 1.4 Section 3.0 Section 3.3 Section 1.4.1 Sections 5.0 & 6.0 Sections 6.0 & 9.0 Section 7.1 Section 9.2 Sections 9.5 & 6.6 Section 8.0 Section 7.2

Schedule/ Part	Condition	DA305-7-2003	BMP Section
		i) a protocol for periodic review of the plan. Note: The Planning Secretary may waive some of these requirements if they are unnecessary or unwarranted for particular management plans.	Section 9.1
D	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.	Section 6.0

Table 3: Blasting Commitments from DA305-7-2003 Mod 16 Environmental Assessment

EA	Reference	Commitment	BMP Section
DA305-7-2003 Mod 16	EA, Appendix 10, Section 3	To avoid any combined impacts of blasting on the adjacent community no simultaneous blasting from the two open cut pits (Wambo Open Cut and United Open Cut) is to be undertaken.	Section 5.13.1
	EA, Appendix 10, Section 8	Periodic monitoring of infrastructure, including the transmission towers and Golden Highway will be required when blasting within a 500 metre radius of the Wambo Open Cut.	Section 6.2
		The Pre-Blast Assessment Protocol will be updated to address the United Open Cut. This protocol will be updated on a regular basis, in line with the advancement of the Wambo and United Open Cut pits.	Section 5.4
		Hunter Valley Gliding Club and Warkworth Shooting Complex will be informed of upcoming blasts.	Section 5.2.1

Table 4: EPL 529 Requirements for the BMP

<table>
<tr><th>Section</th><th>EPL 529</th><th>BMP Section</th></tr>
<tr><td>P1 Location of monitoring/discharge points and areas</td><td>P1.4 The following points referred to in the table below are identified in this licence for the purposes of weather and/or noise monitoring and/or setting limits for the emission of noise from the premises.
<table>
<tr><th>EPA ID No.</th><th>Type of monitoring point</th><th>Location description</th></tr>
<tr><td>10</td><td>Air blast overpressure and ground vibration peak particle velocity monitoring</td><td>Monitoring location identified as BM02 (Figure 3)</td></tr>
<tr><td>11</td><td>Air blast overpressure and ground vibration peak particle velocity monitoring</td><td>Monitoring location identified as BM05 (Figure 3)</td></tr>
<tr><td>12</td><td>Air blast overpressure and ground vibration peak particle velocity monitoring</td><td>Monitoring location identified as BM07 (Figure 3)</td></tr>
</table></td><td>Section 6.2</td></tr>
<tr><td rowspan="5">L5 Blasting</td><td>L5.1 Blasting in or on the premises must only be carried out between 0900 hours and 1700 hours, Monday to Saturday. Blasting in or on the premises must not take place on Sundays or Public Holidays without the prior approval of the EPA.</td><td>Section 4.1</td></tr>
<tr><td>.2 The airblast overpressure level from blasting operations in or on the premises must not exceed 115dB (Lin Peak) for more than 5% of the total number of blasts during each reporting period; at either monitoring point 10, 11 or 12 in Condition P1.4.</td><td>Section 3.1</td></tr>
<tr><td>L5.3 The airblast overpressure level from blasting operations in or on the premises must not exceed 120dB (Lin Peak) at any time; at either monitoring point 10, 11 or 12 in Condition P1.4.</td><td>Section 3.1</td></tr>
<tr><td>L5.4 The ground vibration peak particle velocity from blasting operations carried out in or on the premises must not exceed 5mm/sec for more than 5% of the total number of blasts during each reporting period; at either monitoring point 10, 11 or 12 in Condition P1.4.</td><td>Section 3.2</td></tr>
<tr><td>L5.5 The ground vibration peak particle velocity from blasting operations carried out in or on the premises must not exceed 10mm/sec at any time; at monitoring points 10, 11 or 12 in Condition P1.4.</td><td>Section 3.2</td></tr>
</table>

<table>
<tr><th>Section</th><th>EPL 529</th><th>BMP Section</th></tr>
<tr><td></td><td>L5.6 Offensive blast fume must not be emitted from the premises.

Definition:

Offensive blast fume means post-blast gases from the detonation of explosives at the premises that by reason of their nature, duration, character or quality, or the time at which they are emitted, or any other circumstances:
1. are harmful (or likely to be harmful to) a person that is outside the premises from which it is emitted, or
2. interferes unreasonably with (or is likely to interfere unreasonably with) the comfort or repose of a person who is outside the premises from which it is emitted.</td><td>Section 5.5 and Appendix B</td></tr>
<tr><td>M8</td><td>Blasting
To determine compliance with conditions L5.2, L5.3, L5.4 and L5.5:
a) Airblast overpressure and ground vibration levels must be measured and electronically recorded for monitoring points 10, 11 and 12 for the parameters specified in Column 1 of the table below; and
b) The licensee must use the units of measure, sampling method, and sample at the frequency specified opposite in the other columns.
<table><tr><th>Parameters</th><th>Units of Measure</th><th>Frequency</th><th>Sampling Method</th></tr><tr><td>Airblast Overpressure</td><td>Decibels (Linear Peak)</td><td>All Blasts</td><td>Australian Standard AS 2187.2-2006</td></tr><tr><td>Ground Vibration Peak Particle Velocity</td><td>millimetres/second</td><td>All Blasts</td><td>Australian Standard AS 2187.2-2006</td></tr></table></td><td>Section 6.0</td></tr>
</table>

1.5 Stakeholder Consultation

As required by Condition B38 of DA305-7-2003, WCPL must prepare the BMP for the Mine in consultation with the EPA and to the satisfaction of the Planning Secretary. This BMP (including all appendices) has been reviewed and updated in consultation with the EPA and NSW Department of Planning and Environment (DPIE). Evidence of this consultation is provided in **Appendix A.**

Previous reviews of the BMP included additional mitigation measures proposed by WCPL (in consultation with the EPA) regarding management and response of blast fume events, including:

- Implementation of a Blast Fume Incident Notification Procedure (**Section 5.2.2**); and
- Use of a mobile weather station (**Section 6.1.1**).

The Road Closure Management Procedure for blasting within 500m of the Golden Highway was prepared in consultation with the RMS and Singleton Shire Council (**Appendix D**).

The Notification Procedure for Blasting within 500m of private property (**Appendix E**) was prepared in consultation with:

- NSW Crown Lands;
- Hunter Local Land Services (LLS);
- Glencore (United); and
- Hunter Valley Operations (HVO).

Version 10 of the BMP was provided to the EPA and DPIE 28 November 2019. Mr Jeff Hanlon was endorsed as the suitably qualified blast expert 9 December 2019. The BMP was approved 18 February 2020 (**Appendix A**).

2.0 Baseline Data

WCPL has been monitoring airblast overpressure and ground vibration around the Mine since February 2004. Monitoring locations are shown in **Figure 3 (Section 6.2)**. In the preparation of this review of the BMP, the airblast overpressure and ground vibration results for the period February 2004 to December 2018 were collated. A summary of the results and WCPL's performance against respective blasting criteria is presented below.

2.1 Air Blast Overpressure

Table 5 summarises the review of blast overpressure results for the period 2007/2008 through to the end of the 2018 calendar year.

Table 5: Review of Blast Overpressure Results from June 2007 to end 2018

Period	No. Blasts for Period	Monitoring Location	Criteria		Results	
			>115(dBL)	>120(dBL)	Overpressure (dBL)	
			5%	0%	Ave	Max
2007/2008	109	BM02	1.8%	0%	105.0	115.2
		BM05	0.9%	0%	109.4	117.8
2008/2009	98	BM02	1.0%	1.0%	101.9	120.3
		BM05	0%	0%	107.6	115.0
2009/2010	62	BM02	0%	0%	96.9	107.0
		BM05	0%	0%	102.4	113.6
2010/2011	68	BM02	0%	0%	99.0	107.5
		BM05	1.5%	1.5%	100.7	124.4
2011/2012	76	BM02	0%	0%	99.5	111.0
		BM05	1.3%	0%	102.6	118.5
2012/2013	70	BM02	2.9%	1.4%	99.9	120.6
		BM05	0%	0%	103.5	114.6
		BM07	1.4%	0%	103.3	115.2
2013/2014	73	BM02	0%	0%	98.4	109.5
		BM05	0%	0%	103.2	114.4
		BM07	0%	0%	101.8	111.5
2015	78	BM02	0%	0%	101.3	113.1
		BM05	0%	0%	102.5	113.0
		BM07	0%	0%	102.5	112.4
2016	106	BM02	0.9%	0%	96.4	118.6
		BM05	1.9%	0%	103.7	115.8
		BM07	0.9%	0%	99.8	115.7
2017	96	BM02	2.1%	0%	99.9	119.3
		BM05	3.2%	0%	104.2	118.5
		BM07	0%	0%	92.4	110.5
2018	96	BM02	1.0%	0%	97.5	117.0
		BM05	2.1%	0%	104.4	116.5
		BM07	0%	0%	98.5	111.4

Since February 2004 a total of 1391 blasts have been undertaken across the Mine. There have been no exceedances of the 5% allowable over the 115dBL of the total number of blasts during a twelve-month period/calendar year.

There have been 24 results over 115dBL or approximately 1.7% of all blasts since February 2004. The results over 115dBL included;

- BM02 (Kelly) has recorded 9 results
- BM05 (Muller) has recorded 13 results; and
- BM07 (Thelander) has recorded 2 results.

WCPL has recorded a total of four blasts which exceeded the 0% limit for blasts exceeding the 120dBL. This represents approximately 0.3% of all blasts since February 2004. The results over 120dBL included;

- BM02 (Kelly) has recorded two results; and
- BM05 (Muller) has recorded one result.

There has not been an overpressure result greater than 115dBL recorded by WCPL external blast monitoring units at a private residence since the 2012/2013 reporting period.

2.2 Ground Vibration

Table 6 summarises the review of ground vibration results for the period 2007/2008 through to the end of the 2018 calendar year.

Table 6: Review of Ground Vibration Results from June 2007 to end 2018

Period	No. Blast for Period	Monitoring Location	>5mm/s 5%	>10mm/s 0%	Vibration (mm/s) Ave	Vibration (mm/s) Max
2007/2008	109	BM02	0%	0%	0.40	0.90
		BM05	0%	0%	0.52	1.34
2008/2009	98	BM02	0%	0%	0.44	0.97
		BM05	0%	0%	0.40	0.95
2009/2010	62	BM02	0%	0%	0.24	0.38
		BM05	0%	0%	0.40	1.02
2010/2011	68	BM02	0%	0%	0.57	1.74
		BM05	0%	0%	0.51	2.92
2011/2012	76	BM02	0%	0%	0.21	0.72
		BM05	0%	0%	0.35	1.03
2012/2013	70	BM02	0%	0%	0.16	0.55
		BM05	0%	0%	0.48	1.38
		BM07	0%	0%	0.55	1.40
2013/2014	73	BM02	0%	0%	0.15	0.53
		BM05	0%	0%	0.40	1.83
		BM07	0%	0%	0.39	1.86
2015	78	BM02	0%	0%	0.16	0.65
		BM05	0%	0%	0.38	1.37
		BM07	0%	0%	0.43	1.44
2016	106	BM02	0%	0%	0.15	1.79
		BM05	0%	0%	0.43	1.43
		BM07	0%	0%	0.41	1.84

Period	No. Blast for Period	Monitoring Location	>5mm/s 5%	>10mm/s 0%	Vibration (mm/s) Ave	Max
2017	96	BM02	0%	0%	0.2	2.09
		BM05	0%	0%	0.56	2.75
		BM07	0%	0%	0.47	1.87
2018	96	BM02	0%	0%	0.06	0.19
		BM05	0%	0%	0.41	1.77
		BM07	0%	0%	0.39	1.97

There has not been an exceedance for either the >5mm/s and >10mm/s ground vibration limits recorded by WCPL external blast monitoring units at a private residence since DA305-7-2003 was granted.

2.3 Blast Fume

Since blast fume monitoring commenced on 2 July 2012, 95% of all blasts at WCPL have been assessed based on their blast fume ranking (**Table 7**). A total of 99% of all blasts have been assessed as Category 2 or below. One Category 4 blast fume event occurred in 2012.

Table 7: Blast Fume Rankings Results from July 2012 to End 2018

Year	NOx Fume Ranking 0	1	2	3	4	5	Total No of blasts monitored
2012	67%	15%	12%	4%	1%	0%	67
2013	85%	5%	6%	3%	0%	0%	62
2014	85%	11%	3%	1%	0%	0%	75
2015	81%	18%	3%	0%	0%	0%	79
2016^	89%	8%	3%	1%	0%	0%	36
2017	81%	18%	0%	1%	0%	0%	114
2018	71%	24%	4%	0%	0%	0%	90
Average %	**80%**	**14%**	**4%**	**1%**	**0%**	**0%**	**523**

^ 106 blasts recorded however fume ranking results only available for 36 blasts

3.0 Blast Criteria

3.1 Airblast Overpressure Criteria

Table 8 describes WCPL's airblast overpressure criteria from DA305-7-2003 and EPL 529.

Table 8: Airblast Overpressure Assessment Criteria

Location	Airblast Overpressure Level (dBLin Peak)	Allowable Exceedance
Residence on privately-owned land	115	5% of the total number of blasts over a calendar year
	120	0%
Wambo Homestead	120	0%
All other heritage items	133	0%

3.2 Vibration Criteria

Table 9 describes WCPL's ground vibration criteria from the DA305-7-2003 and EPL 529.

Table 9: Ground Vibration Assessment Criteria

Location	Peak Particle Velocity (mm/s)	Allowable Exceedance
Residence on privately-owned land	5	5% of the total number of blasts over a period of 12 months
	10	0%
Wambo Homestead	5	0%
All other heritage items	5	0%
Prescribed dams[1]	50	0%
Public roads	100	0%
All other public infrastructure[2]	50	0%

1. Unless otherwise directed by the DSC
2. Or a limit determined by the structural design methodology in AS2187.2-2006, or its latest version, or other alternative limit for public infrastructure, to the satisfaction of the Planning Secretary.

The blasting criteria in **Table 9** do not apply if WCPL has an agreement with the owner/s of the relevant residence or infrastructure to exceed the blasting criteria, and WCPL has advised the DPIE in writing of the terms of this agreement. WCPL currently does not have any alternate criteria for residences or infrastructure. If required, WCPL will review the BMP should the need arise for alternate ground vibration limits.

3.3 Performance Indicators

The following performance indicators will be used to judge the performance of the Mine:

- 100% compliance with the Blast Criteria in **Table 8** and **Table 9;**
- No 'Rating 3' fume events leaving the Approved Surface Development Area (Project Area (**Figure 2**) or closed portion of a public road; and
- No 'Rating 4' or 'Rating 5' fume events.

Section 7.1 details the contingency measures to be implemented to manage any unpredicted impacts. **Section 9.5** details the reporting that will be undertaken by WCPL if the above performance indicators are not met.

4.0 Blasting Restrictions

4.1 Blasting Hours

WCPL will only carry out blasting activities between 9am and 5pm, Monday to Saturday inclusive.

No blasting will be carried out on Sundays, public holidays, or at any other time without the prior written approval of the EPA and Planning Secretary.

4.2 Blasting Frequency

WCPL will comply with the following blast frequency[1] restrictions:

- A maximum of 3 single blast events[2] a day; and
- A maximum of 15 single blast events[3] a week, averaged over a calendar year.

WCPL will not carry out more than 1 blast a day within 500 metres of Wallaby Scrub Road or the Golden Highway.

4.3 Blasting Within 500m of Public Roads or Private Land

WCPL will not undertake blasting within 500 metres of any public road or any land outside the site that is not owned by WCPL, unless the blast generates ground vibration of 0.5 mm/s or less, or WCPL has:

- a written agreement with the relevant infrastructure or landowner to allow blasting to be carried out closer to the public road or land, and WCPL has advised the Department in writing of the terms of this agreement, or
- demonstrated to the satisfaction of the Planning Secretary that the blasting can be carried out closer to the public road or land without compromising the safety of people or livestock or damaging the road or buildings and structures, and updated the BMP to include the specific mitigation measures to be implemented while blasting is being carried out within 500 metres of the road or land.

WCPL has developed a Road Closure Management Procedure for implementation when blasting causes the temporary closure of the Golden Highway (**Appendix D**). This procedure was approved by the RMS and Singleton Council in June 2017 and includes measures to minimise the frequency and duration of any public road closures for blasting, including during peak traffic periods.

WCPL has also developed a notification procedure when blasting is undertaken within 500 metres of a private property. This procedure is included in **Appendix E.**

[1] This condition does not apply to blasts that generate ground vibration of 0.5 mm/s or less at any residence on privately-owned land, or to blast misfires or blasts required to ensure the safety of the mine, its workers or the general public.

[2] A single blast event' means a blast which involves either a single detonation or a number of individual blasts fired in quick succession in a discrete area of the development. Should an additional blast be required after a blast misfire, this additional blast and the blast misfire are counted as a single blast event.

5.0 Blast Management and Control Measures

WCPL will implement best practice blast management procedures to minimise blast overpressure, ground vibration, flyrock, fume, and dust and odour impacts. In addition, the management measures will be undertaken to minimise impacts to Aboriginal heritage and European heritage sites for the duration of the Project. Blast management procedures will be implemented, including:

- Training all relevant personnel on environmental obligations and safe handling of explosives;
- Inspections and preparation of proposed blast areas to ensure all soft, loose or blast damaged material is removed prior to drilling;
- Designing blasts to ensure that ground vibration and airblast overpressure limits are met, and there is no damage to life or property from flyrock, including consideration of wind speed, direction and other meteorological factors prior to blasting to minimise impacts on neighbours;
- Notification of blasting times to Private Receivers and maintenance of a free-call Blasting Information Line;
- Use of adequate stemming, a delay detonation system, and careful drilling and hole loading to ensure that the required blast design is implemented;
- Pre-blast assessment of weather conditions and the potential for fume generation (Fume Incident Notification Procedure (**Appendix C**));
- Monitoring of blasts at the closest private residences (or within a representative location) to determine whether airblast and ground vibration limits are met;
- Completion of the Blast Controller Checklist;
- Review of monitoring results and modification of the blast design, if necessary;
- Documentation of the date and time of the blast, location of blast holes and quantity of explosive used in each blast;
- Maintain all plant and equipment in a proper and efficient condition;
- Operate all plant and equipment in a proper and efficient manner; and
- Periodic review of blast management practices to evaluate performance and identify responsive action, if required.

5.1 Cumulative impacts

To prevent cumulative blasting impacts with surrounding mines, WCPL includes the Drill & Blast Supervisors from Bulga Operations, Mount Thorley Operations, Warkworth Operations, and Hunter Valley Operations on all blast email notifications. These notifications will be extended to the Drill & Blast Supervisor at the United Open Cut mine when it commences blasting, to ensure there are no simultaneous blasts undertaken at the two mines.

In the event of a blast event being rescheduled, further e-mail notification is made alerting neighbouring mining operations of the change.

5.2 Public Notification

5.2.1 Pre-blast notification

WCPL operate a Blasting Hotline and SMS message service[3] to enable the public to get up-to-date information on blasting operations at the Mine. The Drill and Blast (D&B) Superintendent (or delegated authority), updates the Blasting Hotline 24hrs prior to the scheduled blast event. If a blast event is rescheduled, a revised schedule is posted. The contact details for the blasting hotline are:

- **24hr Blasting Information Line: (02) 8250 5205**

WCPL operate a Community Enquiries Line and email address to enable the public to either make an enquiry or register a complaint regarding WCPL operations. The contact details for the Community Enquiries Line and email address are:

- **24hr Community Enquiries Line: (02) 6570 2245**
- **E-mail Enquiries** – wambocommunity@peabodyenergy.com

WCPL undertake the following notifications on an annual basis:

- Advertise both the Community Enquiries Line and Blasting Information Line in local newspapers; and
- Notify the occupants of any land within 2km of the site of the Community Enquiries Line and Blasting Information Line.

5.2.2 Fume Incident Notification

In the event that a blast fume event has been identified (as a result of a WCPL blast event) and having the potential to leave the Project Area towards the direction of adjacent neighbouring properties, the Environment and Community (E&C) Manager (or delegate) will initiate the WCPL Fume Incident Notification Procedure (**Appendix C**).

The E&C Manager (or delegate) will notify affected landholders of a potential fume event approaching their property and to proceed with measures to avoid potential exposure to the blast fume. Current contact details for landholders who may potentially be impacted by a blast fume event at the Mine are detailed in Section 3.4 of WCPL's Fume Incident Notification Procedure (**Appendix C**).

In the event the WCPL Fume Incident Notification Procedure is initiated, the E&C Manager will proceed with correspondence to those affected neighbours and government authorities in accordance with **Section 7.0** and **Section 9.5** of this BMP.

[3] WCPL provide a blast SMS notification service to members of the community who have registered for the service, as well as to representatives from the nearby Hunter Valley Gliding Club and Warkworth Shooting Complex. The SMS message with blasting details is sent out the day before the scheduled blast event.

5.3 Property Investigations and Independent Review

If the owner of any privately-owned land within a 2 km radius of the site (or any other landowner where the Planning Secretary is satisfied that an investigation is warranted) claims in writing that buildings or structures on their land have been damaged as a result of blasting on the site, then within 2 months of receiving this written claim WCPL will:

- commission a suitably qualified, experienced and independent person, whose appointment is acceptable to both parties, to investigate the claim; and
- give the landowner a copy of the property investigation report.

If this independent investigation confirms the landowner's claim, and both parties agree with these findings, then WCPL will repair the damages to the satisfaction of the Planning Secretary.

If there is a dispute over the selection of the suitably qualified, experienced and independent person or if WCPL or the landowner disagrees with the findings of the independent property investigation, then either party may refer the matter to the Planning Secretary for resolution.

5.4 Pre-Blast Meteorological Assessment

WCPL will only proceed with a scheduled blast event if suitable meteorological conditions exist to minimise the potential for blast generated dust and fume to impact neighbouring properties, and these conditions remain favourable up to the time of firing. Data for the pre-blast meteorological assessment is taken from a range of meteorological monitoring locations, as discussed in **Section 6.1**.

A pre-blast assessment of weather conditions and the potential for fume generation is completed before firing each blast. Meteorological readings are taken and assessed to ensure favourable direction of drift of dust (and any potential fume). Wind direction is physically checked by the release of helium balloons. Readings are recorded on form WA-ENV-FRM-507.3 Blast Checklist.

Where conditions are determined to be unfavourable, the blast will be delayed, postponed or cancelled until favourable meteorological are observed.

There may be circumstances in which a blast event needs to be fired in less than ideal weather conditions. Failure to initiate blasts may indeed increase the potential for fume generation and/or occupational health and safety risks to personnel and community members. In these specific and rare circumstances, the final decision making process will be elevated to the General Manager (or in their absence, to the delegated authority) with relevant input from the D&B Engineer, D&B Superintendent and E&C Manager. The General Manager (or delegate) must approve the blast in writing by signing the appropriate section on the Blast Checklist.

5.5 Fume Management

WCPL have prepared and implemented a Blast Fume Management Strategy (BFMS) in accordance with correspondence received from Department of Planning and Environment outlining the general requirements under Stage 2 of the fume minimisation measures (*Elements of a Blast Fume Management Strategy)*. The purpose of the BFMS is to provide fume minimisation measures at WCPL for all surface blasting activities. A copy of the approved BFMS is provided in **Appendix B.**

5.6 Blast Design

Blast design is considered critical in the hierarchy of control measures when considering mitigating blast impacts. The D&B Engineer is responsible for every blast design at WCPL. The following are important blast control measures considered by the D&B Engineer when preparing a blast design, including but not limited to:

Review Historical Blast Results

- The D&B Engineer as part of the blast planning and design process, is to review past blast data to identify and develop appropriate design and mitigation strategies from historical blast events.

Survey Control

- Initial blast designs are produced using recent survey and/or 3D geological modelling technology with specialised mining computer software e.g. Vulcan by Maptek, to define the limits and location of the blast pattern.

Bulk Explosives

- Where water is found to be present, the blastholes will be loaded with a suitable water resistant product as per the manufacturer's recommendations.

Stemming Height

- The D&B Engineer will design the shot with adequate stemming to minimise the chance of flyrock and overpressure, based on the results from previous blasts.

Stemming Material

- Quality aggregate will be used to stem blast holes to provide enhanced confinement over traditional drill cuttings) to prevent explosive ejection.

Face Burden

- Blast holes shall be designed to provide adequate burden to prevent face blow out and thus reduce the possibility of flyrock and airblast overpressure. Where necessary face surveying (laser profiling) techniques may be employed to measure overburden between the blast face and blast holes to ensure sufficient burden is present to prevent blowouts and blast anomalies.

Blast Hole Length/Depth

- This is initially determined from the geological model of the coal seams at WCPL. Holes are drilled from the floor of the coal seam through the interburden to the top of next coal seam. Where the length of the blast hole is deemed to be excessive and there is a risk of exceeding the maximum instantaneous charge (MIC) required to comply with site environmental conditions, the blast shall be redesigned. The D&B Engineer will assess the viability of options such as reducing the depth of the blast by drilling to a chosen reduced level (RL), reducing the diameter of the blasthole or reducing the MIC by deck loading the blasthole with an appropriate in-hole delay.

5.7 Blast Planning

There are several important steps undertaken at WCPL to ensure blast design is implemented correctly in the field to minimise blast impacts. The D&B Superintendent is responsible for carrying out the correct procedures when implementing each blast design at WCPL. The following are essential steps overseen by the D&B Superintendent when preparing a blast. They include, but are not limited to:

Drill Preparation

- The area for the proposed drill pattern is cleaned and then inspected by the D&B Superintendent prior to the setting out of the drill pattern.

Drill Pattern Set Out

- WCPL survey department are provided with the coordinates of the designed drill pattern and this is set out in the field using GPS technology and traditional survey techniques. GPS units are attached to each drilling unit to accurately drill the blast pattern as per design.

Drill Blast Holes

- Daily records are kept by the Drill Operators or Blast Contractors documenting hole depths and anomalies in the predicted geology. This information is then utilised by the D&B Engineer to ensure the holes are not over drilled, thus reducing the possibility of coal damage and overloading of holes with bulk blasting product.

Survey Control

- Where planned face holes are unable to be set out in the correct location the surveyors provide the adjusted positions back to the D&B Engineer to modify the design.

Blast Hole Dipping

- The shot crew dips the holes to test their depth and identify for the possible presence of water. This information is then used by the D&B Engineer to calculate the explosive quantities per hole and make any modifications as required. Where any trace of water is recorded a suitable water resistant bulk explosive is assigned to the hole/s to minimise the generation of fume.
- Where possible holes that have a small amount of standing water at the bottom of the hole are sealed off with a gas bag just above the water level to isolate the explosives from the water.
- Where holes are found to have a substantial amount of water, a dewatering unit will be employed to purge the water from the holes. A check is then made to ensure the holes are not refilling with water before filling with bulk explosives.

Blast Loading

- Field data is used by the D&B Engineer to produce ‘load sheets’ which stipulate the type and quantity of the explosives and length of stemming to be placed in each hole to achieve the designed powder factor. The load sheets are created on the field tablets or printed off and used by the shot crew to load each hole specific to the requirements of the load sheet. Specially constructed mobile manufacturing units (MMU’s) are used by the Blasting Contractor to ensure the correct mix of product is achieved and correct stemming height is obtained.
- Where possible blasts are designed to ensure the prompt loading of drill holes and subsequent firing of the shot to minimise ‘sleep time’ and exposure to moisture.

Blast Tie Up

- The D&B Engineer in consultation with the D&B Superintendent and Shot Firer creates a 'Tie Up Plan' detailing the method for connecting and firing the shot. A paper plan is produced and given to the Shot Firer who implements the Tie Up in the field.
- Upon completion of the Tie Up and subsequent checking process, the Shot Firer in conjunction with the D&B Supervisor carries out the Pre Blast Checklist prior to detonating the shot.

Fume Assessment

- A pre-shot fume assessment is to be undertaken by the designated Shot-Firer and the D&B Engineer and Blast Controller.

5.8 Blast Exclusion Zones

An appropriate exclusion zone for personnel will be established around each blast site prior to firing a blast. The exclusion zone will be established beyond the expected range of any fly rock with an additional safety margin. The establishment of this zone will minimise the risk of any injuries to people or livestock due to fly rock;

Any unusual level of fly rock generated by blasting, with the potential to cause a safety risk will be noted for each blast. This information will be used to continually re-assess the adequacy of blast design controls in reducing the generation of fly rock. The information will also be used to re-assess the size of the safety exclusion zone established for people and livestock in the vicinity of a blast; and

If fume or dust potential generation is identified, the D&B Superintendent may choose to extend the exclusion zone downwind from the blast to minimise the chance of exposure to personnel.

5.9 Flyrock Management

To ensure WCPL reduce the potential for flyrock generation, the following key mitigation measures will be implemented, including, but not limited to:

- Implement appropriate blast exclusion zones for each blast event. The blast exclusion zone considers the expected range of any fly rock with an additional safety margin that reduces the risk for damage to WCPL owned property, equipment or other infrastructure from flyrock;
- In addition, WCPL landholdings are security patrolled, fenced, sign posted and also provide a sufficient buffer between neighbouring private landholders and their livestock from WCPL blasting activities;
- All designs will clearly identify hole inclination to avoid the possibility of reduced face burden, thus avoiding the potential for flyrock incidents; and
- Any unusual level of fly rock generated by blasting, with the potential to cause a safety risk, will be noted for each blast. This information will be used to continually re-assess the adequacy of blast design controls in reducing the generation of fly rock. The information will also be used to re-assess the size of the safety exclusion zone established for people and livestock in the vicinity of a blast.

5.10 Heritage Sites

5.10.1 Aboriginal Cultural Heritage

A survey and assessment of Aboriginal cultural heritage within the Project Area was conducted during the 2003 Environmental Impact Statement (2003 EIS). No blasting related impacts to Aboriginal heritage were predicted as a result of the Mine's operations.

Disturbance of Aboriginal heritage artefacts located within the Project Area are subject to a Section 90 Permit issued under the *National Parks & Wildlife Act 1976.* An Aboriginal Heritage Impact Permit (AHIP) No. 2222 has been issued to WCPL under the *National Parks & Wildlife Act 1976*, expiring on the 1 March 2025.

Should further Aboriginal cultural heritage artefacts be found, which are not subject to AHIP No. 2222 and determined at risk of impact from blasting activities, then a further assessment will be undertaken in consultation with WCPL archaeological specialists.

5.10.2 Wambo Homestead

WCPL currently monitors and reports on potential ground vibration impacts on the Wambo Homestead Complex (WHC). The following mitigation measures are implemented:

- Monitoring is undertaken at the WHC for all blasts within 2km of the Complex;
- A suitably qualified and experienced structural engineer, with expertise in vibration and blast monitoring has been appointed to examine all monitoring records from the WHC blast monitoring station. The appointment of the structural engineer was approved in writing by the Director of the Heritage Branch (formally the NSW Heritage Office) in November 2005 (**Appendix A**);
- The structural engineer reports to WCPL on the monitoring results each month for blasting within 2km of the WHC and 6 monthly for the remainder of the Mine. Recommendations are made to ensure ongoing conservation and damage prevention. Copies of these reports are forwarded to the Heritage Branch;
- The structural engineer will inspect the WHC structures annually and as soon as practical, but no later than 3 days after blasting monitoring which exceeds the ground vibration level of 5mm/s. During the period between blast monitoring being recorded which exceeds the 5mm/s criteria and the engineer's inspection, ground vibration from blasting will be limited to a level which will prevent further blasting damage. The structural engineer will advise WCPL and the Heritage Branch of any action required to repair the damage; and
- The structural engineer will make an assessment of whether blasting within 2km of the WHC is to cease or be managed in order to stabilise or repair the damage, and advise WCPL and the Heritage Branch. If blasting has been required to cease, it will not resume until the damage has been stabilised or repaired, and written approval for resumption has been received by the Heritage Branch.

6.0 Blast Monitoring Program

WCPL's Blast Monitoring Program includes monitoring of airblast overpressure and ground vibration for all blasts at locations as close as reasonably practical to the nearest private receivers. Monitoring will also be undertaken at relevant public infrastructure, Aboriginal heritage sites and the Wambo Homestead Complex (**Table 10** and **Figure 3**).

The objective of the monitoring program is to obtain assurance that amenity overpressure and vibration limits are being achieved at Private Receivers and that damage criteria are being achieved for public infrastructure, Aboriginal heritage sites and the Wambo Homestead Complex.

6.1 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 location of this meteorological monitoring station is identified on **Figure 3**.

The meteorological station is routinely calibrated and maintained by appropriately accredited technicians. The following parameters are monitored:

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

WCPL also maintain 4 remote weather stations for environmental management purposes which are available for use in the pre-blast meteorological assessment.

6.1.1 Mobile Weather Station

WCPL also maintains a mobile weather station to provide localised weather readings for blast events at the northern end of the Mine. This weather station will remain available while blasting occurs at the northern end of the Mine. These readings will be used in addition to the weather readings taken from the meteorological station approved under the EPL 529. Meteorological data from both weather stations will be used during the Pre-Blast Meteorological Assessment to assess dust and fume risks associated with each blast.

6.2 Blast Monitoring Locations

Monitoring locations for overpressure and ground vibration are shown in **Table 10** and **Figure 3.**

Table 10: Blast Monitoring Sites

Location	Site ID	Purpose	Easting	Northing	Justification
Wambo Homestead	BM01	Structural	311524	6393232	Data used to assess damage in accordance with *Australian Standard AS 2187.2-1993 "Explosives – Storage Transport and Use" for Sensitive and Heritage Structures*
Kelly (Warkworth Village)	BM02	Compliance	314116	6394560	Representative of public roads and infrastructure in Warkworth.
Harris (Wambo Road)	BM03	Performance	311155	6390609	Performance based monitoring on WCPL owned land to the south of the Mine
Muller (Jerrys Plains)	BM05	Compliance	305984	6399794	Representative of the nearest sensitive receiver to north of the Mine
Thelander (Jerrys Plains)	BM07	Compliance	304496	6398655	Representative of the nearest sensitive receiver to north west of the Mine

Periodic monitoring of infrastructure, including the transmission towers and Golden Highway, will be required when blasting is within a 500 metre radius of the Wambo Open Cut. This monitoring will be undertaken in consultation with infrastructure owners, as required. Results of this monitoring will be compared to the blast criteria in **Section 3.0** and reported in accordance with **Section 9.0**.

6.3 Methodology

Instrumentation used to measure and record the airblast overpressure and ground vibration levels will meet the requirements of *Australian Standard AS 2187.2-2006 (Explosives – Storage, Transport and Use - Use of Explosives).*

Monitoring equipment used on-site will typically include a geophone (e.g. standard 4.5 hertz geophone with a range of up to ± 556 mm/s) and microphone (e.g. with a range of between 80 to 140 decibels). The monitoring equipment will display the due date of upcoming calibration. Calibration of the monitoring units will be undertaken in accordance with manufacturer's specifications.

All blasts will be video recorded to enable a post blast assessment of potential dust and fume impacts.

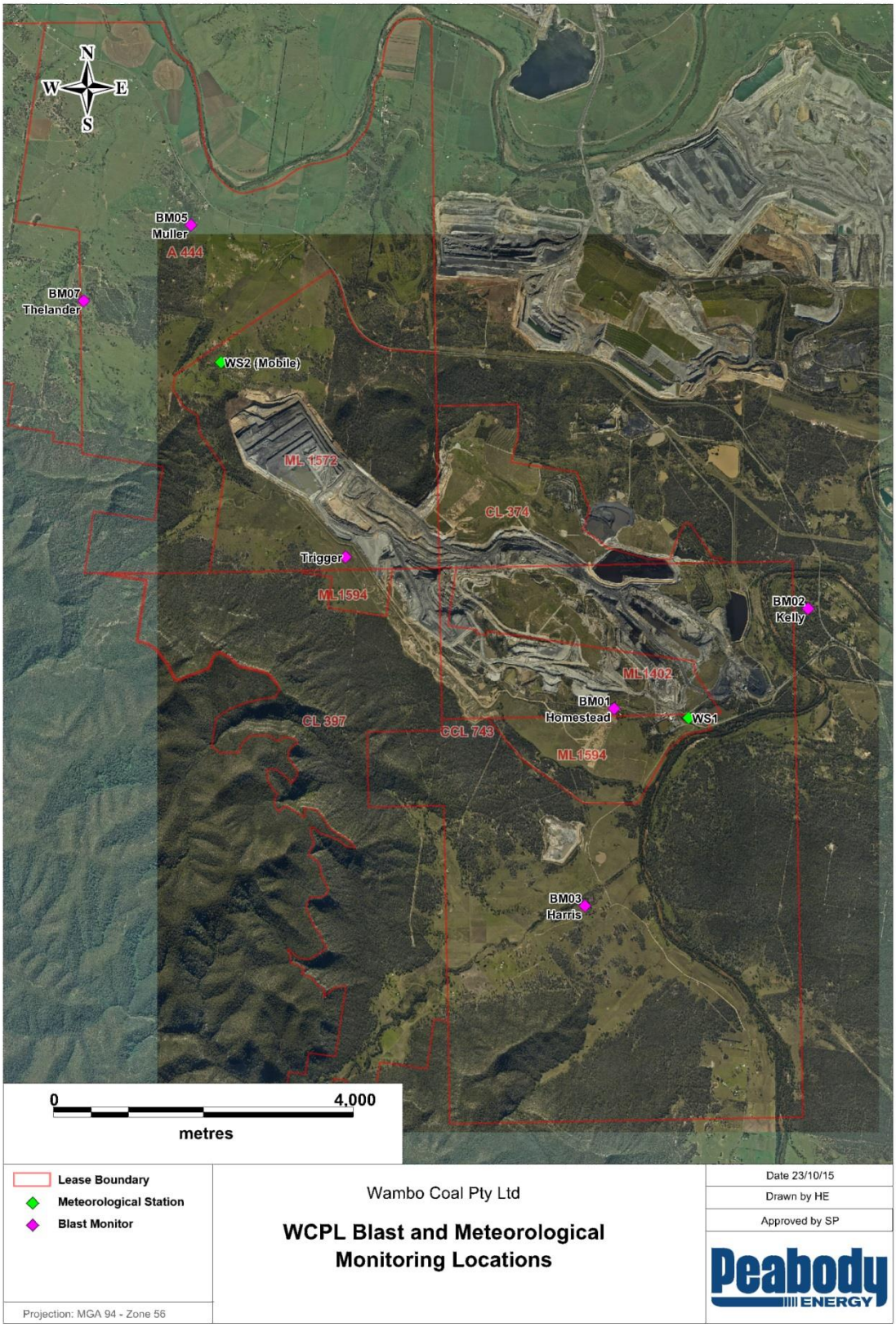

Figure 3: Blast Monitoring Locations

6.4 Data Collection

WCPL utilise both permanent fixed and temporary roaming blast monitoring units to collect relevant blast monitoring data. Fixed units utilise a radio transmitter to enable instantaneous transfer of data to relevant personnel. This data can be immediately accessed to enable an initial compliance assessment. Data from the roaming units is collected and stored within the unit and is available for download upon return to the office. All blast monitoring data is retained in a consolidated data base maintained by WCPL Environmental Department.

6.5 Evaluation of Performance

All blast monitoring results, video recordings of the blast and visual assessments made by relevant WCPL personnel, will be evaluated following the blast to determine compliance with the blast criteria and performance indicators in **Section 3.0**, and to determine whether the best practice measures in **Section 5.0** have been successful.

WCPL will be deemed in non-compliance when airblast overpressure and ground vibration results exceed the blast criteria in **Table 8** and **Table 9** at site BM07 that is representative of privately owned residences in the Redmanvale Rd area. Any levels recorded exceeding blast criteria (120 dBLin Peak and 10mm/s ground vibration) at the BM05 Muller monitor will be further investigated to determine compliance. Levels recorded at this monitor will be used to model compliance at surrounding residences that are privately owned. BM02 will be used to assess compliance of public roads and infrastructure outlined Table 9.

WCPL will record an incident where a ‘Rating 3’ blast fume vent is observed leaving the Project Area or closed portion of a public road, or in the event of a ‘Rating 4’ or ‘Rating 5’ fume event.

If a blast fume event is observed leaving the Project Area towards a sensitive receiver location, the Fume Incident Notification Procedure (**Appendix C**) will be initiated in accordance with **Section 5.2.2.**

Notification of reportable incidents to the relevant government authorities will be undertaken in accordance with **Section 9.5**.

6.6 Mitigation Strategies to Prevent Reoccurrences

In the event of a reportable environmental incident, all corrective actions identified through an investigation process will be implemented to mitigate the potential for a reoccurrence. Blasting mitigation and corrective management measures will consider:

- Proximity of future blast activities to sensitive receivers;
- Appropriate meteorological conditions;
- A review of the Pre-Blast Decision Procedure; and
- A review of blast design and planning protocols.

7.0 Adaptive Management

7.1 Contingency Plan to Manage Unpredicted Impacts

Blasting controls (**Section 5.0**) and monitoring (**Section 6.0**) have been implemented to minimise blast related impacts and monitor for fume events, ground vibration and airblast overpressure at neighbouring properties and other sensitive locations.

In the event that unpredicted impacts occur as a result of blasting activities at the Mine, WCPL will:

- Initiate the Fume Incident Notification Procedure when a fume event is observed leaving the Project Area in the direction of adjacent neighbouring properties;
- Implement the Fume Incident Notification Procedure (**Section 5.2.2**) to clarify the immediate post-incident responsibilities in regards to a blast fume event leaving the Project Area;
- Review the current blast controls and monitoring, to ensure it is effective and Blast Criteria is being met;
    - If the system is effective and Blast Criteria is being met, continue implementation of blast controls and monitoring;
- If the system is not effective and Blast Criteria is being exceeded, undertake reporting in accordance with **Section 9.0**;
- Develop and implement additional blast management or mitigation measures in consultation with the affected landowners; and
- Undertake follow-up blast monitoring to assess the effectiveness of the additional measures.

WCPL have identified several applicable blasting scenarios that pose a potential risk to achieving the outcomes of the BMP. A Trigger Action Response Plan (TARP) as provided by **Table 11** provides contingency measures, responsibilities and management for unforeseen impacts as a result of blasting activities.

7.2 Failure to Comply with Other Statutory Requirements

Statutory requirements relating to this BMP are summarised in **Section 1.4**. These requirements include compliance with DA305-7-2003 and EPL 529 as well as commitments made in the Environmental Assessment for the United Wambo Open Cut Coal Mine Project (Umwelt, 2016).

WCPL monitors compliance with these statutory requirements on an ongoing basis, including during regular reviews and reporting of blast monitoring data and as part of Annual Environmental Reviews and compliance audits (e.g. Independent Environmental Audits).

In the event that WCPL identifies a failure to comply with a statutory requirement (other than those relating to unpredicted impacts – refer **Section 7.1**), WCPL will:

- Undertake an investigation into the failure;
- Identify suitable strategies or actions to be implemented to address the failure (and avoid a recurrence of the failure); and
- Report the non-compliance in accordance with the requirements of DA305-7-2003 and EPL 529.

Table 11: BMP Trigger Action Response Plan

TARP Code	BMP 'Achieved'	BMP 'Not Achieved'
Unpredicted Impact: Generation of excessive fume		
Trigger	• No detectable blast fume	• Any blast fume verified leaving the Project Area in the direction of adjacent neighbouring properties • Blast fume verified **Level 3** or above and/or leaving Project Area
Action	• No immediate action required other than monitor fume for changes	• Implement the Blast Fume Management Strategy (**Appendix B**) • Implement Fume Incident Notification Procedure • Implement PIRMP • Record incident as required by **Section 9.0**
Response	• Implement mitigation strategies to prevent reoccurrence after completion of investigation	
Responsible Persons	• E&C Manager • D&B Engineer	
Unpredicted Impact: Exceedance of blast specific criteria		
Trigger	• Blast monitoring reports confirm blast specific criteria were achieved at: - Private Residences - Wambo Homestead Complex (WHC)	• Blast monitoring reports confirm specific criteria was exceeded at: - A Private Residence (**Table 8** and **Table 9**); and - Confirms results are in the reportable range (**Section 9.0**); and/or • Ground vibration and air blast levels at the WHC exceed the assessment criteria (**Table 8** and **Table 9**).
Action	• No immediate action required	• Report exceedances over 120dBL and 10mm/s at residences on privately-owned land, as required by **Section 9.0** and in accordance with the **PIRMP** • Initiate property investigations or independent reviews at the formal request of property owner/s in accordance with **Section 5.3** • E&C Manager to engage WCPL approved structural engineer to inspect the WHC structures as soon as practical, but no later than 3 business days after blast monitoring results (**Section 5.10.2)** • Advise if action is required to repair damage to WHC in consultation with Heritage Branch

TARP Code	BMP 'Achieved'	BMP 'Not Achieved'
		• Record incident as required by **Section 9.0**
Response	• Implement mitigation strategies to prevent reoccurrence after completion of investigation	
Responsible Persons	• E&C Manager • D&B Engineer	
Unpredicted Impact: Failure of Blasting Mitigation Measures		
Trigger	• Project specific blast criteria achieved and other blast mitigation measures working to control fly rock and dust generation in accordance with BMP	• Project specific blast criteria achieved however other mitigation measures did not adequately control fly rock and/or excessive dust generation in accordance with BMP
Action	• No immediate action required	• Implement **PIRMP** if dust poses threatening material harm to the environment or community • Record incident as required by **Section 9.0**
Response	• Implement mitigation strategies to prevent reoccurrence after completion of investigation	
Responsible Persons	• E&C Manager • D&B Engineer	

8.0 Community Complaint Response

All blasting related community complaints received by WCPL will be recorded within the Community Complaints Register. The E&C Manager or their delegate will investigate the complaint, which will include, where possible, 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 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 blast, 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 exceedances of the blasting criteria are detected, any affected landowner or tenant will be notified within 7 days of the confirmation of the exceedance. Details of exceedances will also be provided to the CCC, in accordance with Condition C5 of DA305-7-2003.

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.

9.0 Review and Reporting

9.1 Review

The performance of the blast monitoring and management programs outlined in the BMP is to be reviewed annually by the E&C Manager and the D&B Engineer or their delegates. A complete review of the BMP will occur:

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

The revised BMP will be re-submitted to the Planning Secretary for approval as required by Conditions B38 and D7 of DA305-7-2003.

9.2 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 previous calendar year, and the development that is proposed to be carried out over the current calendar year;
- 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:
    - Relevant statutory requirements, limits or performance measures/criteria;
    - Requirements of this BMP (including appendices);
    - Monitoring results of previous years; and
    - Relevant predictions in the EA;
- Identify any non-compliance which occurred in the previous calendar year, and describe what actions were (or are being) taken to rectify the non-compliance and avoid recurrence;
- Evaluate and report on:
    - The effectiveness of the noise and air quality management systems; and
    - compliance with the performance measures, criteria and operating conditions of the consent;
- 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; and
- Describe what measures will be implemented over the next calendar year to improve the environmental performance of the development.

9.3 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.

WCPL will include the results of all blast monitoring required by EPL 529 as a Blast Monitoring Report within the Annual Return. The Blast Monitoring Report will include the following information relating to each blast carried out within the premises during the reporting period covered by the Annual Return:

- The date and time of each blast;
- The location of each blast on the premises;
- The blast monitoring results (airblast overpressure and ground vibration) and at each blast monitoring location; and
- An explanation for any missing blast monitoring results.

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

9.4 Website Updates

A comprehensive summary of the blast monitoring results will be made publicly available at WCPL's website:

http://www.peabodyenergy.com/content/404/australia-mining/new-south-wales/wambo-mine)

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

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

- Current statutory approvals;
- Approved strategies, plans or programs required under the DA305-7-2003;
- A community complaints register;
- Minutes of Community Consultative Committee (CCC) meetings;
- Annual Reviews;
- A copy of any Independent Audits and WCPL's response to any recommendations in any audit; and
- Any other matter required by the Secretary.

9.5 Reportable Environmental Incidents

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).

In accordance with the PIRMP, WCPL will notify all relevant authorities of incidents causing or threatening material harm to the environment immediately after the person becomes aware of the incident in accordance with the requirements of *Part 5.7* of the *POEO Act*, for example:

- **Fume generation**: The reporting of fume events is discussed in the Blast Fume Management Strategy (**Appendix B**) (Section 3.3 Reporting of Significant Blast Fume Events);
- **Exceedence of blast specific criteria**: All blast overpressures exceeding 120dBL and ground vibration levels exceeding 10mm/s recorded at any external blast monitor located at a private residence will be notified as soon as practicable to relevant authorities. Internal investigations will be undertaken when blast overpressures exceed 115dBL or ground vibration levels exceed 5mm/s. At blast monitors that are located on mine owned land and record levels in exceedance of blast specific criteria, modelling will be used to determine compliance at residences on privately owned land; and
- **Public Safety & Infrastructure Damage**: A blast event that causes damage to public infrastructure, poses a risk to safety of people or livestock in the surrounding area.

For all other incidents that do not cause threatening material harm to the environment associated with the development, WCPL will notify the Planning Secretary and any other relevant agencies as soon as practicable after WCPL becomes aware of the incident.

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

- 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 Planning 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.

10.0 Responsibilities

Table 12 below summarises responsibilities documented in the BMP. Responsibilities may be delegated as required.

Table 12: BMP Responsibilities

No	Task	Responsibility	Timing
1	Overpressure and vibration limits as specified in development consent to be met	Open Cut Manager/ D&B Engineer	For each blast event
2	Blasting to be conducted between the hours of 9am to 5pm, Monday to Saturday only	Open Cut Manager/ D&B Engineer	For each blast event
3	No blasting on Sundays or public holidays without the prior written approval of the EPA and the Planning Secretary	Open Cut Manager/ D&B Engineer	As required
4	Where practical, blasting activities will be co-ordinated with surrounding mines to minimise cumulative impacts	D&B Supervisor/ D&B Engineer	As required
5	Airblast overpressure and ground vibration will be monitored at the monitoring locations for each blast event	E&C Manager	For each blast event
6	The Fume Incident Notification Procedure will be implemented	E&C Manager	As required
7	Exceedances of overpressure and/or vibration to be managed in accordance with **Section 7.0**	E&C Manager	As required
8	Blasting Complaints to be responded to in accordance with **Section 8.0**	E&C Manager	As required
9	Annual Review to include blast monitoring results, complaints, mitigation measures undertaken and a review of the monitoring undertaken	E&C Manager	Annually
10	Regulator consultation and review to be undertaken of the BMP	E&C Manager	As required
11	Implementation of blast mitigation measures in accordance with **Section 5.0**	D&B Engineer/ E&C Manager	As required
12	Prepare investigation reports and implementation of corrective actions in accordance with **Section 7.0** and **Section 9.0**	E&C Manager/Open Cut Manager/ D&B Engineer/	As required
13	Implementation of the Road Closure Management Procedure when blasting is within 500m of the Golden Highway (**Appendix D**)	D&B Engineer/ E&C Manager	As required

11.0 References

- Development Consent (DA305-7-2003)
- Wambo Development Project Environmental Impact Statement (EIS), July 2003
- Resource Strategies Pty Ltd (2003) Wambo Coal Mine Project Environmental Impact Statement. Report prepared for Wambo Coal Pty Ltd
- Umwelt (2016). United Wambo Open Cut Coal Mine Project Environmental Impact Statement
- Umwelt (2017). United Wambo Open Cut Coal Mine Project Response to Submissions (Part A), March 2017
- Enviro Strata Consulting (2016). United Wambo Open Cut Coal Mine Project Blasting Impact Assessment, Report No. UM-1505-230516
- Wambo Environment Protection Licence (529)
- Standards Australia (2006) Australian Standard (AS) 2187.2-2006: Explosives – Storage and Use – Use of explosives
- Work Health and Safety (Mines and Petroleum Sites) Act 2013
- Work Health and Safety (Mines and Petroleum Sites) Regs 2014
- Work Health and Safety Act 2011
- Work Health and Safety Regulations 2017
- Explosives Act 2003
- Explosives Regulations 2013
- AS 2187.1 - 1998: Explosives – Storage, Transport and Use, Part 1 - Storage
- AS 2187.2 – 2006: Explosives – Storage, Transport and Use, Part 2 – Use of Explosives
- AS 2187.0 –1983: Storage transport and use – Terminology
- Australian Explosives Industry and Safety Group Inc (2011) Code of Practice; Prevention and Management of Blast Generated NOx Gases in Surface Blasting

APPENDIX A
CORRESPONDENCE WITH REGULATORY AGENCIES

Planning, Industry & Environment

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

18/02/2020

Dear Ms Dobbins

Wambo Coal Mine (DA 305-7-2003)
Blast Management Plan

I refer to the revised Blast Management Plan dated November 2019, submitted in accordance with conditions B38 and B39 of Schedule 2 of the approval for the Wambo Coal Mine (DA 305-7-2003).

The Department has carefully reviewed the document and is satisfied that it adequately addresses the relevant requirements of the approval.

Accordingly, the Secretary has approved the Wambo Blast Management Plan (Revision 10, dated November 2020). Please ensure that the approved plan is placed on your website at the earliest convenience.

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

Yours sincerely

Matthew Sprott
A/Director
Resource Assessments (Coal & Quarries)

as nominee of the Planning Secretary

Contact: Scott Brooks
Phone: 6575 3401
Fax: 6575 3415
Email: scott.brooks@planning.nsw.gov.au
Our ref: 305-7-2003

The General Manager
Wambo Mine
PMB 1
SINGLETON NSW 2330

Attention: Steve Peart

Dear Steve

Wambo Coal – Approval of Blast Management Plan

Thank you for forwarding the Wambo Blast Management Plan and the Blast Fume Management Strategy and notification procedure as required under project approval DA 305-7-2003 for the Department's consideration.

The Department has reviewed these plans, and relevant attachments, and is satisfied that they generally address the requirements set out in the relevant conditions of the project approval. Consequently, I would like to advise you that the Secretary has approved the plan.

This Plan comes into force on the 30th November 2015 and remains in force until replaced by any future updated approved Plans.

Could you please forward finalised copies of the above plan (preferably in PDF format with a copy of this approval letter appended) for the Department's records by the end of November 2015.

If you require further information or clarification in this matter please contact Scott Brooks on 6575 3401 or by email to scott.brooks@planning.nsw.gov.au.

Yours sincerely

Scott Brooks
Investigations (Lead), Compliance
27-11-2015
As Nominee for the Secretary, Planning & Environment

From: Scott.Brooks@planning.nsw.gov.au [mailto:Scott.Brooks@planning.nsw.gov.au]
Sent: Wednesday, 18 November 2015 12:12 PM
To: Peart, Steven D
Subject: Wambo Blast Management Plan_Rev.5_DRAFT.docx

Steve,
Please find attached a copy of the Wambo Blast Management Plan with comment.

Scott

DP&E comments on Wambo BMP summarised in the table below

Section	DP&E Comment
5.2.2 Fume Incident Notification	What is the registration process? Details of the Fume Incident Notification System will need to be provided as discussed.
5.4 Property Investigations	All references to the DG should be changed to Secretary
5.5 Pre-Blast Meteorological Assessment	Where is the weather assessed. You will need to outline the sources of the info for the assessment.
	Most mines use a blast permissions page. Whilst this plan may not need the exact permissions list, as it can vary from time to time, we need to know it exists so we can check against it, should an incident occur.
5.11.2 Wambo Homestead	This is ambiguous. Monitoring is undertaken at the WHC for blasts within 2km of the Complex.
6.1 Meteorological Monitoring	Do we now have a weather station at the north end of the Montrose pit? If so it should be stated that it will be available for all blasts.
9.1 Review	Can be 3 years
	Should also refer to Condition 6 Schedule 6.
9.5 Reportable Environmental Incidents	Whilst we do not need to be advised, you should conduct an internal investigation if the blast is over 115dBL

From: Scott.Brooks@planning.nsw.gov.au [mailto:Scott.Brooks@planning.nsw.gov.au]
Sent: Thursday, 19 November 2015 7:53 AM
To: Peart, Steven D
Subject: Wambo Blast Fume Management Strategy_Rev.2_DRAFT.docx

Steve,
Please find attached blast fume management strategy comments.

Scott

DP&E comments on Wambo BFMS summarised in the table below

Section	DP&E Comment
2.3 Blast Fume Factors and Management Strategies	Most mines now choose a suitable blast day based on weather and schedule back from this time to know when to start loading.

Section	DP&E Comment
	You may want to look at the Mt Arthur coal fume management plan, as it has a number of actions found to be successful.
5.0 Emergency Response	Is this the same as the Fume Incident Notification System described in the Blast Management Plan. If so the names should be aligned.
	This section should include the community advice covered in the Blast Plan.
6.0 Audit/Review	To be consistent with our notification requirements this should say 4 or greater

WAMBO COAL PTY LIMITED

ABN 13 000 668 057

JERRY'S PLAINS ROAD, WARKWORTH, VIA SINGLETON NSW 2330
PMB 1 SINGLETON NSW 2330
TELEPHONE: 02 6570 2200
FAX: 02 6570 2290

12 July 2005

The Director-General
Department of Infrastructure Planning & Natural Resources
PO Box 3927
SYDNEY NSW 2001

Attention: Mr David Kitto

Dear Mr Kitto,

WAMBO COAL PTY LIMITED BLAST MONITORING PROGRAM

Pursuant to Development Consent (DA305-7-2003) dated February 2004, Wambo Coal Pty Limited (WCPL) are required to develop a Blast Monitoring Program approved by the Director-General of the Department of Infrastructure Planning and Natural Resources (DIPNR).

The specific requirement for the Monitoring Program is contained in Schedule 4, Conditions 18 and 19, of the above development consent, which state:

> *"18. The Applicant shall monitor the airblast overpressure and ground vibration impacts of the development at a minimum of four locations around the site.*
>
> *19. Before carrying out any development, the Applicant shall prepare a Blast Monitoring Program for the development, in consultation with Department of Environment and Conservation, and to the satisfaction of the Director-General."*

Please find attached the "Wambo Coal Pty Limited Blast Monitoring Program" dated July 2005 for your consideration.

I look forward to receiving your approval of the attached Monitoring Program at your earliest convenience. If you wish to discuss any aspects of the BMP further, please do not hesitate to contact me on 02 6570 2206.

Yours faithfully
WAMBO COAL PTY LIMITED

Tony Sutherland
Technical Services Manager

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APPENDIX B
BLAST FUME MANAGEMENT STRATEGY

APPENDIX C
FUME INCIDENT NOTIFICATION PROCEDURE

APPENDIX D
ROAD CLOSURE MANAGEMENT PROCEDURE

APPENDIX E
NOTIFICATION PROCEDURE FOR BLASTING WITHIN 500M OF PRIVATE PROPERTY

APPENDIX F
SUMMARY OF COMMITMENTS

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