

# MAC-ENC-MTP-015

## BLAST MANAGEMENT PLAN

### Document Owner

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General Manager

### Document Approver

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Production Overburden Manager

### Revision History

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1.1	March 2012	Amended following consultation with DP&I.
Final	14/11/2012	Approved by the Department of Planning and Infrastructure on 14/11/12
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4.0	08/03/2018	Amended for DPE Review
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## 1. Introduction

### 1.1. Context

Hunter Valley Energy Coal Pty Ltd operates the Mt Arthur Coal Mine Complex (Mt Arthur Coal) which consists of approved open cut and underground mining operations, a rail loop and associated rail loading facilities, in accordance with the Mt Arthur Coal Open Cut Consolidation Project Approval (09\_0062 MOD 1) dated 26 September 2014 (Project Approval), and the Environment Protection Licence No. 11457 (EPL). The operations are located in the Upper Hunter Valley, NSW approximately five kilometres south west of Muswellbrook.

To allow efficient recovery of the underlying coal Mt Arthur Coal must undertake blasting of mine overburden. Blasting activities generate vibration through the air (overpressure) and earth (ground vibration), along with the generation of dust and fume, which have the potential to adversely impact the community, surrounding structures and environment. To minimise these impacts and meet statutory obligations Mt Arthur Coal has established a Blast Management System (BMS) to control the design and implementation of blasting activities. The Blast Management Plan (BMP) describes these processes.

A full project description, including baseline data, history of operations, current operating philosophy and mining methods is provided in the Mining Operations Plan and the Mt Arthur Coal Open Cut Modification Environmental Assessment 2013.

### 1.2. Purpose

The purpose of this BMP is to provide an overview of; and direction to the systems, processes and documentation that have been established to:

- Facilitate the effective planning, implementation and monitoring of blasting activities at Mt Arthur Coal to ensure compliance with statutory approvals is maintained;
- Minimise adverse impacts of blasting activities on the nearby residences, the environment, heritage sites and public infrastructure; and
- Maintain an effective response mechanism to deal with exceedances and complaints.

### 1.3. Scope

The scope of this BMP applies to the relevant blasting and vibration impact assessment criteria, compliance procedures and operational controls relating to open cut blasting activities. Secondary clearing activities, such as clearing blockages in the coal hoppers are managed in accordance with *Clearing the Coal Hoppers* (MAC-PRD-PRO-096).

### 1.4. Responsibilities

The maintenance and update of this BMP is the responsibility of the HSE Superintendent. Implementation of blasting operational controls is the responsibility of the Drill and Blast Superintendent. Responsibilities with respect to management of additional blasting related activities are defined within this plan, position descriptions and referenced operational control documentation.

## 2. Planning

### 2.1. Management Systems

Mt Arthur Coal has well-established management systems that are aligned with the international management system standards ISO 14001 and ISO 45001. These management systems provide the systems and processes to support the planning, implementation, monitoring and review of the BMS that allow Mt Arthur Coal to achieve continual improvement in the performance of blasting activities. The management systems include internal technical procedures that are referenced within this BMP.

### 2.2. Risk Management

Mt Arthur Coal implements a comprehensive risk management system as documented in the *Risk Management Standard (NEC-STE-STD-016)* and *Risk Management Procedure (MAC-STE-PRO-005)*. Identified blasting risks and their associated control measures are documented in the site Risk Register and summarised in Section 3.1 of this document. Operational and project related changes that have the potential to materially alter the risk profile of blasting activities are managed through the Mt Arthur Coal *Management of Change Procedure (NEC-STE-PRO-030)*.

### 2.3. Legal Requirements

Requirements associated with blasting activities are defined within the following approvals:

- Mt Arthur Coal Mine Open Cut Consolidation Project Modification 1 (09\_0062 MOD 1); and
- Environmental Protection Licence EPL 11457.

Relevant conditions from these approvals are summarised in the Mt Arthur *Environment Compliance Register (MAC-STE-REG-013)*.

Open cut blasting activities are allowed between 8am and 5pm, Monday to Saturday inclusive. In addition, a maximum of 3 blasts a day are allowed (4 blasts a day on a maximum of 12 days a financial year), and 12 blasts a week averaged over a financial year. Offensive blast fume should not be emitted from the premises. Specific Impact Assessment Criteria defined in the Project Approval for airblast overpressure and vibration are defined in Table 1. These criteria do not apply where there is a written agreement with the relevant owner to exceed these criteria, and the Department of Planning and Environment (DPE) has been advised in writing of the terms of the agreement.

**Table 1. Blasting Impact Assessment Criteria**

<b>Location</b>	<b>Airblast overpressure (dB(Lin Peak))</b>	<b>Ground vibration (mm/s)</b>	<b>Allowable exceedance</b>
Residence on privately owned land	120	10	0%
	115	5	5% of the total number of blasts in a financial year
Public infrastructure	-	50	0%

### 2.4. Consultation and Communication

This BMP has been prepared in consultation with DPE. In addition Mt Arthur Coal has extensive consultation and communication processes, including:

- A comprehensive community engagement program which includes a Community Consultative Committee (CCC).
- Consultation and communication with the operators of neighbouring mines regarding future blasting schedules to ensure that blasts are coordinated and cumulative impacts minimised.
- Consultation with Muswellbrook Shire Council (MSC) and the NSW Roads and Maritime Services (RMS) (formerly NSW Roads and Traffic Authority (RTA)) to address the management of public road closures during any blasting (see Section 3.2).
- A publicly available blasting schedule (via the MSC blasting portal) and direct contact with certain residents and businesses listed on the Blast Notification Phone and Email List as requested.
- Ongoing consultation with major infrastructure operators.
- A community response line (1800 882 044) enables members of the community to contact Mt Arthur Coal community personnel directly to discuss concerns with blasting.
- Regular reporting on the environmental performance of the project on the BHP Mt Arthur Coal website.
- Publicly available project approvals, environmental and other related documentation (annual reports, complaints register, CCC minutes etc.) via the BHP Mt Arthur Coal website.

### 3. Blast Mitigation Measures

#### 3.1. Overview of Operational Controls

Blast management procedures have been established and implemented at Mt Arthur Coal to:

- Protect the safety of people and livestock in the area surrounding the blasting operations;
- Protect public and private infrastructure/property from blasting damage;
- Minimise dust and fume emissions, air blast overpressure, ground vibration levels and flyrock;
- Ensure blasting does not damage heritage sites, including Edinglassie, Rous Lench and Balmoral;
- Co-ordinate the timing of blasts at Drayton and Bengalla coal mines to minimise potential cumulative blasting impacts; and
- Enable the general public and surrounding landowners and tenants to get up-to-date information on the proposed blasting schedule via active participation in the MSC online blasting portal.

Specific controls are required when blasting within the Blasting Control Area (Figure 1), due to the proximity of public infrastructure, heritage sites and private residences. Operational controls include scheduling, spatial buffers and blast design controls defined within this plan and the following documentation:

- *Pre-Blasting Approval Procedure (MAC-PRD-PRO-106)* – Defines the process for conducting a pre-blast environmental assessment with consideration given to meteorological conditions and use of initiation systems that minimise adverse blast fume and dust impacts.
- *Drill and Blast Design Standard (MAC-PRD-STD-014)* – Defines blast design rules for minimising impacts; including, ensuring sufficient overburden is present to prevent blowouts and blast anomalies and use of suitable quality stemming material and adequate stemming lengths to ensure maximum confinement of explosive charges to minimise flyrock and overpressure.
- *Blast Sleep Time Management Plan (MAC-PRD-MTP-003)* – Specifies requirements for minimising excessive blast sleep times to reduce the likelihood of blast fume generation.
- *Blast Fume Predictive Model* – This model is used to predict the expected path and dispersion of fume from a blast based on factors, including but not limited to, meteorological and ground conditions, shot design, shot sleep time, explosives selection and on-bench practices.
- *Blast Permit (MAC-PRD-FRM-009)* – A Blast Permit requires completion and approval for all blasts and is informed by the proposed blast details, fume risk potential and predictive fume model.
- *Blast Clearance and Communication Procedure (MAC-PRD-PRO-031)* – This procedure defines requirements for securing the blast zone.

## 4. Management of Road Closures

Requirements for the management of blasting within 500 m of any public road or any land outside the site not owned by Mt Arthur Coal are defined within the *Blasting within 500 Metres of Public Roads procedure (MAC-PRD-PRO-043)*. In addition, a *Road Closure Management Plan (RCMP) (MAC-ENC-MTP-024)* has been prepared in consultation with MSC and the NSW RMS that provides a framework to coordinate safe and efficient road closures when blasting occurs within 500m of Denman Road or Edderton Road. The primary objectives of the RCMP are to:

- Minimise potential impacts on roads users, local residents and businesses by minimising the duration of closures and avoiding peak traffic periods as far as practicable;
- Communicate with relevant stakeholders, including the public, in advance of any road closures; and
- Coordinate with neighbouring mines to minimise the cumulative effect of road closures.

There are a number of controls that will be implemented to mitigate potential impacts. These controls are included in detail in the *Road Closure Management Plan (MAC-ENC-MTP-024)* and include;

- Road closure protocols and periods
- Signage
- Traffic control personnel
- Notification of road closures
- Emergency services notification and access
- Fly rock management
- Road repairs

### 4.1. Road Closure Protocol and Period

Road closures will occur prior to every blast within 500 metres of a public road. Closures will occur just prior to the blast, and reopening will occur only after a thorough safety inspection has been completed. Closures will occur at strategic locations along Denman Road and Edderton Road that are highly visible to oncoming traffic and will seek to minimise potential impacts on road users accessing local properties and side roads (eg. Bengalla mine access road and Edderton Road). Closure locations will take into consideration the accumulated traffic volume so as where possible, normal traffic access to these side roads is not compromised. Closure locations will also allow for an appropriate stand-off distance for potential flyrock and fume from the blast. Specific locations of the closure points will be determined in consultation with the RMS during preparation of the Traffic Control Plan. Although Mt Arthur Coal will endeavour to minimise the duration of closures, public safety is the primary objective and will not be compromised by efforts to reduce closure duration. Road closures will be scheduled to avoid peak traffic periods as far as practicable and will generally occur Monday-Friday between the hours of 10am-12pm.

### 4.2. Signage

Permanent signs will be erected on both approaches to the road closure points. These signs will be approved by the RMS and will be displayed at least 48 hours in advance, with the date and time of the next blast, the anticipated delay and a contact telephone number for public enquiries. Signs will comply with AS 1743-2001, Road Signs Specifications and be erected in accordance with RMS Traffic Control Plan 47.

### 4.3. Traffic Control Personnel

Personnel appropriately trained and qualified in traffic control (as per requirements of the RMS) will be located at relevant locations to stop traffic prior to a blast. All personnel will utilise relevant communication devices and road closure equipment.

### 4.4. Notification of Road Closures

Notification of forthcoming road closures will generally be undertaken using existing blast notification channels. That is, the blast schedule will be mailed out on a weekly basis to residences on the effected stretch of Denman and Edderton Roads. The blast schedule will also be posted on the Mt Arthur Coal webpage on a weekly basis. Specific notifications will be issued to affected residents on the morning of the blast via telephone or face-to-face communications. Notifications will also be issued on a weekly basis to local emergency services, MSC and neighboring mines. Notification of forthcoming road closures will also be provided to the local community through appropriate local media channels. Specific inquiries in relation to road closures can also be made by calling the Mt Arthur Coal Community Response Line on 1800 882 044, 24 hours a day, 7 days a week. Mt Arthur Coal will communicate scheduled road closures with neighboring mines so that road closures can be coordinated to minimise cumulative effects. All affected residents driveways within a road closure area will be closed by traffic control and managed as part of the road closure. Prior notification to all residents with driveways that will be affected by a road closure will be provided.

### 4.5. Emergency Services Notification and Access

Emergency services including Muswellbrook Fire Brigade, Rural Fire Service, Ambulance Service, Police and State Emergency Service will be advised of planned road closures, including proposed times, at least seven days in advance by mail/newsletter/electronic notification as determined in consultation with each authority. Local emergency services will also be notified of a planned road closure on the morning of the blast. In the event that emergency services vehicles require immediate access through the closed road, road closure personnel will immediately communicate with blasting personnel to ensure a safe thoroughfare is provided for emergency services vehicles. Where possible, and with the safety of all persons being maintained, blasting will be postponed until emergency services have passed safely.

### 4.6. Fly Rock Management

On completion of a blast, closed roads will be subjected to a thorough safety inspection. If fly rock or other debris has been emitted onto the road during the blast, a clean-up crew will immediately remove the material prior to the declaration of a safe thoroughfare. Where required, a grader will be made available for immediate clean-up of large debris. Manning and equipment will be used as required to ensure this occurs in a safe and efficient manner that does not affect the surface of the road. Once the road has been inspected and declared safe, road closure personnel will reopen the road to through traffic.

### 4.7. Road Repairs

Although not anticipated, any road damage incurred from blasting activities will be immediately reported to the RMS and MSC and appropriate traffic management and remediation works will be undertaken. Remediation works will be undertaken by qualified road repair personnel in consultation with MSC. All repairs will be undertaken in a timely manner so as to minimise disruptions to public thoroughfare.

## 5. Blast Fume Management Strategy

Mt Arthur Coal's blast fume management strategy has been developed to ensure nitrogen oxide (NO<sub>x</sub>) causes and mitigation measures were assessed in conjunction with the Australian Explosives Industry and Safety Group (AEISG) Code of Practice for Prevention and Management of Blast Generated NO<sub>x</sub> Gases in Surface Blasting (the AEISG Code). This strategy provides an overview of the controls used to mitigate fume impacts. As quoted in the AEISG Code, "It should be understood that, given the complexity of the problem and the inherent variability in the blasting environment, NO<sub>x</sub> events may still occur even after prevention and mitigating actions have been put in place." Fume and dust are normally occurring by-products of any blasting operation. The quantities of each produced from a blast are determined by a large number of variables, some of which are better understood than others. The AEISG suggests fume generating conditions might be a result from one or many of the following conditions:

1. Explosive formulation and quality assurance.
2. Geological conditions.
3. Blast Design.
4. Explosive product selection.
5. On-bench practices.
6. Contamination of explosive in the blast-hole.

The objective is to take a pro-active approach that will assist in keeping fume generated from blasts to a low level. This pro-active approach requires considering the impacts that each decision throughout the whole process has on the potential to generate post blast fume in each shot. Therefore through the assessment of causes and mitigating measures required to reduce to the generation of blast fume, the following fume management strategy outlined in Figure 2. The blasting process in relation to fume management is split up into three main areas:

1. Pre-loading – Pro-active
2. On bench practices – Pro-active and Re-active (depending on the actions taken)
3. Post-blast – Re-active.

Through the development of the strategy and in reference to the AEISG Code of Practice there are 9 areas that need to be focused on in mitigating fume for all blasts. These 9 areas are summarised below.

### 5.1. Horizon Risk

A common control to mitigate the cause of fume is to understand geology of each shot and design (timing and explosive product) to ensure adequate relief in weak/soft strata. To improve this understanding a blast horizon risk is determined for the strata that has been blasted at Mt Arthur Coal. The understanding of horizon risk is maintained and enhanced using historical data (fume data captured since July 2012).

### 5.2. Shot Design

Shot design is largely dictated by dig design. The primary focus is to provide the optimal breakage of the rock to enable the material to be loaded out safely and efficiently. Shot depth is determined by either the target coal seam, the dig design or the maximum capacity of the drills.



### 5.3. Sleep Time

Sleep time is defined on site as the time between loading the first explosive into the shot and the firing date measured in days. Mt Arthur Coal targets a maximum sleep time of 14 days and in any event, aligned with the explosive manufacturer's recommendation. Manufacturers determine sleep time based on factors other than fume creation; however it is generally accepted that an increase in sleep time causes an increase in fume creation. Once the shot is loaded, blasting will occur as promptly as possible subject to favourable weather conditions.

### 5.4. Explosive Quality

The quality of the explosive supplied to site is managed within the Explosives Supply contract in place at the time. The contract also details audit requirements and frequencies of inspections.

### 5.5. Explosive Selection

Outlined in the AEISG Code of Practice and the cause and control matrix in Appendix A, a key contributor to post blast fume generation is the mismatch between explosive product and hole/ground conditions. The site uses the standard explosives available being ANFO, Heavy ANFO and emulsion. The initiating explosives used on site are those recommended by the manufacturer. The only change made to these items is when there is a need to use electronic detonation to provide for better vibration control.

### 5.6. On-Bench Practices

Throughout the loading and firing processes of a blast there are a number of factors and consideration that need to be addressed in order to ensure that the risks around blast fume generation are controlled. These typical factors include the follow:

1. Bench and Hole Conditions;
2. Weather Protection;
3. On Bench Quality Assurance of Selected Explosives;
4. Loading Sequencing; and
5. Loading Practices.

### 5.7. Blast Initiation

Once the blast has been loaded and stemmed, the next step in the process is to initiate the blast. Blasts are designed to ensure fume and dust remains onsite within the controlled blast exclusion zone, which therefore minimises impact on site personnel, surrounding neighbours and the local community. Therefore once the shot is charged, the intent will be for the blast to be fired during favourable weather conditions. Post 14 days minimising the generation of fume is prioritised due to associated safety risk and blast initiation during less favourable weather conditions must be approved by the General Manager where forecasts do not suggest improvement.

### 5.8. Reporting and Documenting

As a requirement on site, all blasts will be filmed and the records kept on site. Where the shot produces fume with a rating of 3 or higher, the video record will continue to capture the progression of the fume cloud tacking both its creation and dispersion and its direction of travel.

A feedback loop on the fume created from blasting will be available in the reporting structure. Should excessive fume be created, an investigation into the generation of the fume will be undertaken and the resulting casual factors will be fed into future designs that match the criteria of the offending blast.

## 5.9. Training

All Mt Arthur Coal employees are given general awareness information on blast fume in the Mt Arthur Coal generic site induction. Training for relevant personnel will be undertaken to ensure adequate knowledge of blast fume generation, impacts and mitigation measures.

## 6. Blast Monitoring Program

### 6.1. Blast Monitoring System

The Mt Arthur Coal Blast Monitoring System covers the monitoring of both airblast overpressure and ground vibration from open cast blasting operations. Airblast overpressure is measured in dB (Linear Peak) and ground vibration is measured in peak particle velocity (mm/s). Project Approval Blast Assessment Criteria are defined in Table 1 of this BMP.

Mt Arthur Coal has an approved web-based blast monitoring system that provides real time vibration and overpressure data from six permanently positioned blast monitoring units. In addition, portable attended monitoring units may be deployed to assist in monitoring at relevant locations surrounding the operation.

### 6.2. Blast Monitoring Methodology

All aspects of blast monitoring shall be conducted in accordance with the Project Approval and EPL. Blast monitors are calibrated in accordance with AS 2187.2 – 2006.

### 6.3. Blast Monitoring Locations

Blast monitoring locations are identified in Figure 1. In the event that monitoring locations require changing to align with management needs, government requirements or to accommodate the progression of mining the Mt Arthur Coal Management of Change process shall be followed.

Monitoring site BP08 is designated for internal use only to provide indicative measure of blasting impacts for management of historic heritage. Data from this monitoring location may not be included in statutory reporting.

### 6.4. Public Infrastructure

Public infrastructure to be monitored is lineal and hence the point which experiences peak vibration will differ for every blast; therefore, Mt Arthur Coal utilise data from calibrated monitors to calculate the level of vibration using the criteria below.

Monitoring of ground vibration at public infrastructure is proposed under the following scenarios:

1. Blasting in Roxburgh Pit within 500m of 11kV feeder to Mount Arthur and Mount Arthur infrastructure.
2. Blasting in Windmill pit within 300m of 66kV twin feeder, optic fibre line along Denman Road and Denman Road.

The peak vibration experienced by the infrastructure will be calculated using the following:

- The ground vibration from the nearest monitor to the blast (monitored in accordance with the approved Mt Arthur Coal Blast Monitoring Program), typically BP08 for Denman Road Infrastructure and BP09 for 11kV powerline to Mount Arthur and Mount Arthur infrastructure.
- The relevant distances from the blast to the monitor and nearest distance from the blast to the public infrastructure.
- The Mt Arthur Coal Site law:

- a. Macleans Pit  
 $PPV = (K * ((Distance\ to\ Monitoring\ point / SQRT(MIC)))^n)$   
K=3349  
N=-1.873
- b. Windmill Pit  
 $PPV = (K * ((Distance\ to\ Monitoring\ point / SQRT(MIC)))^n)$   
K=594.7  
N=-1.381
- c. Calool, Roxburgh and Huon Pits  
 $PPV = (K * ((Distance\ to\ Monitoring\ point / SQRT(MIC)))^n)$   
K=594.7  
N=-1.381

For the avoidance of calibration and repeatability issues, Mt Arthur Coal does not propose to measure the actual vibration at the closest infrastructure point for every blast. This would require a new monitoring location for every blast installed to relevant standards.

## 7. Response Procedures

### 7.1. Exceedance Protocol

In situations where the blast results are identified as exceeding the impact assessment criteria, exceedance protocols will be implemented in accordance with the Mt Arthur Coal *Environmental Management Strategy (MAC-ENC-MTP-041)*. Blasting consultants may be engaged to provide expert analysis and interpretation of blasting results as part of an investigation into an exceedance of impact assessment criteria.

### 7.2. Incident Notification

In the event that any blast monitoring results exceed the impact assessment criteria, where the blast waveform falls within the expected time of arrival, Mt Arthur Coal shall notify the DPE Compliance Office in Singleton, the Office of Environment and Heritage and any other relevant agencies in accordance with Condition R4.1 of the EPL and Schedule 5, Condition 7 of the Project Approval.

In the event that any blast monitoring results exceed the individual agreement for public infrastructure, relevant agreement holders (Ausgrid, Telstra and RMS) will be notified in accordance with the agreements.

Mt Arthur Coal will conduct investigations to ascertain the cause of any exceedances and will prepare a detailed report outlining the results of the investigation. A report will be provided to the DPE and any other relevant agencies within 7 days.

Mt Arthur Coal will implement recommendations resulting from investigations in order to minimise or prevent any future blast exceedances.

### 7.3. Complaint Handling

All complaints received regarding operational blast activities will be responded to in accordance with Mt Arthur Coal *Community Complaints Handling, Response and Reporting procedure (MAC-ENC-PRO-042)*.

This procedure details Mt Arthur Coal's obligations in regards to receiving, handling, responding to, and recording details of all community complaints. Mt Arthur Coal records all community complaints in the site event management database.

#### 7.4. Property Inspections and Property Investigations

Property inspections have been undertaken on privately-owned land within 3 kilometres of any approved open-cut mining pit when Mt Arthur Coal has received a written request. Independent property investigations will be undertaken if any landholder within 3 kilometres of any approved open-cut mining pit or any other landholder nominated by the Secretary, claims that buildings and / or structures on their land have been damaged as a result of blasting at the project. If the independent property investigation confirms the landowners claim, and both parties agree, the proponent shall repair the property to the satisfaction of the secretary. If there is any dispute, either party may refer the matter to the Secretary for resolution.

### 8. Data Analysis and Review

#### 8.1. Data Analysis

Following completion of blasting, blast results are reviewed for compliance against the impact assessment criteria for ground vibration and air overpressure defined in Project Approval (see Table 1). The reporting and notification of blast results that exceed the blast impact criteria shall be undertaken in accordance with the *Community Complaints Handling, Response and Reporting procedure (MAC-ENC-PRO-042)*.

The percentage of blasts exceeding impact assessment criteria will be calculated at each monitoring location against the total number of blasts on a rolling twelve month basis.

#### 8.2. Annual Reporting

Mt Arthur Coal will report on the performance of the Blast Monitoring Program in the Annual Review, in accordance with Schedule 5, Condition 3 of the Project Approval; and will be submitted to the CCC and made available for public information at the MSC office and Mt Arthur Coal's website. The Annual Review will include:

- Blast monitoring results and comparison to performance criteria;
- Blast related complaints and the follow up management/mitigation measures undertaken to avoid recurrence;
- Exceedances of the performance criteria and follow up management/mitigation measures undertaken in the event of any confirmed exceedance of performance criteria to rectify and avoid recurrence; and
- Review of the performance of management/mitigation measures and the monitoring program.

#### 8.3. Review

This BMP and associated monitoring program will be reviewed to assess their adequacy and effectiveness, to the satisfaction of the Secretary in accordance with Condition 4 of Schedule 5 of the Project Approval. If necessary the BMP will be revised to incorporate any recommended measures to improve the environmental performance of the project.

In addition, the review process will include ongoing evaluation operational modifications, alternative blasting methodologies and new technologies that become available for their potential to lessen impacts from blasting.

## 9. References

### 9.1. External Documents

Environmental Protection Licence 11457.

Mt Arthur Coal Open Cut Consolidation Project Approval 09\_0062 MOD 1 (dated 26 September 2014).

Resource Strategies (2013), Mt Arthur Coal Open Cut Modification Environmental Assessment. Prepared for Hunter Valley Energy Coal Pty Ltd.

### 9.2. Mt Arthur Coal Internal Documents

*MAC-ENC-MTP-041 Environmental Management Strategy*

*MAC-PRD-STD-014 Drill and Blast Design Standard*

*MAC-ENC-PRO-042 Community Complaints Handling, Response and Reporting Procedure*

*MAC-ENC-MTP-024 Road Closure Management Plan*

*MAC-PRD-PRO-043 Blasting within 500m of Public Roads Procedure*

*MAC-PRD-PRO-031 Blast Clearance and Communication*

*MAC-PRD-PRO-106 Pre-Blasting Approval Procedure*

*MAC-PRD-PRO-096 Clearing the Coal Hoppers*

*NEC-STE-PRO-030 Management of Change Procedure*

*NEC-STE-STD-016 Risk Management Standard*

*MAC-STE-PRO-005 Risk Management Procedure*

*MAC-STE-REG-013 Environment Compliance Register*

### 9.3. Figures

*Figure 1: Blast Monitoring Locations and Control Zones*

*Figure 1: Blast Fume Management Strategy*

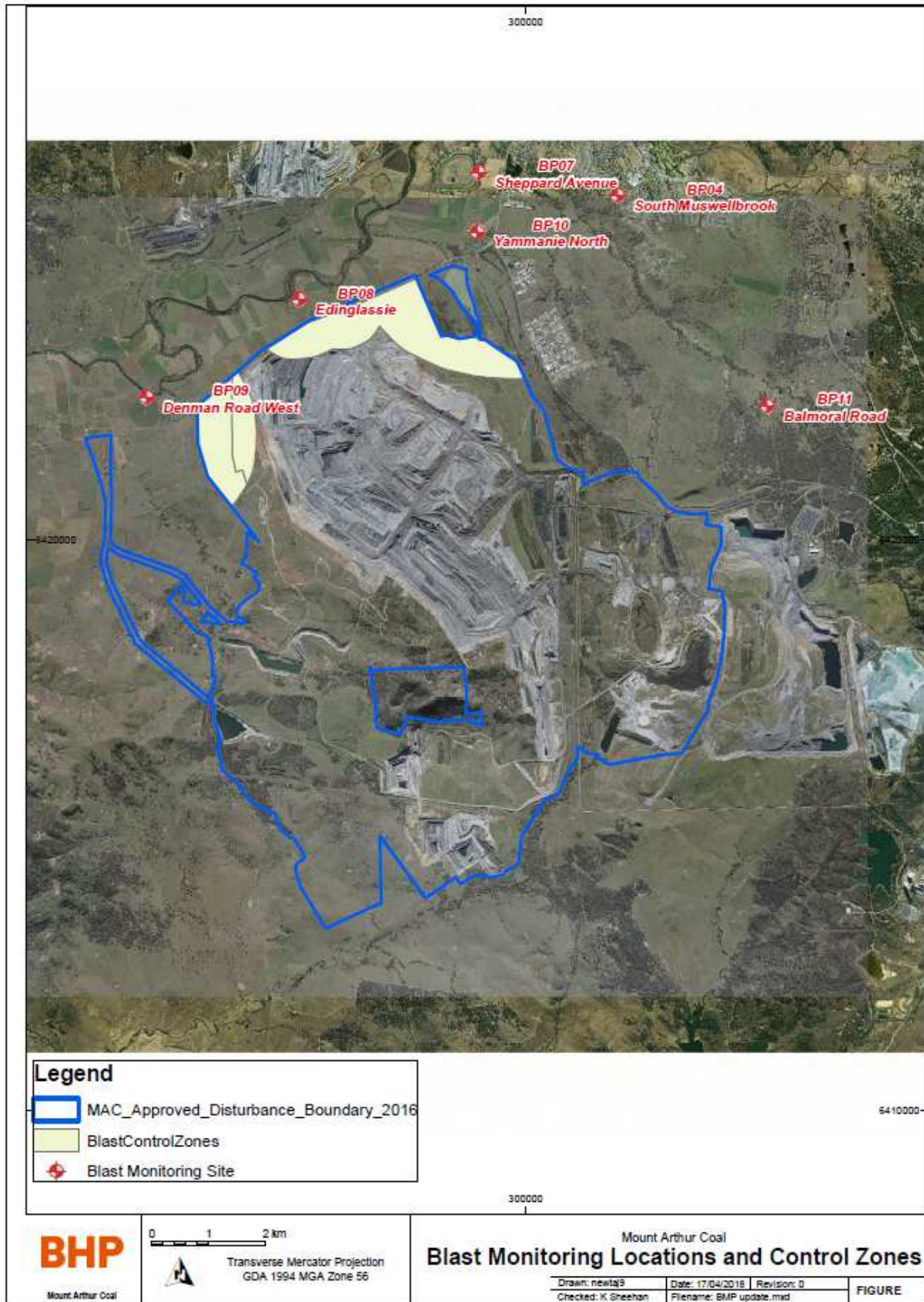


Figure 2: Blast Monitoring Locations and Control Zones

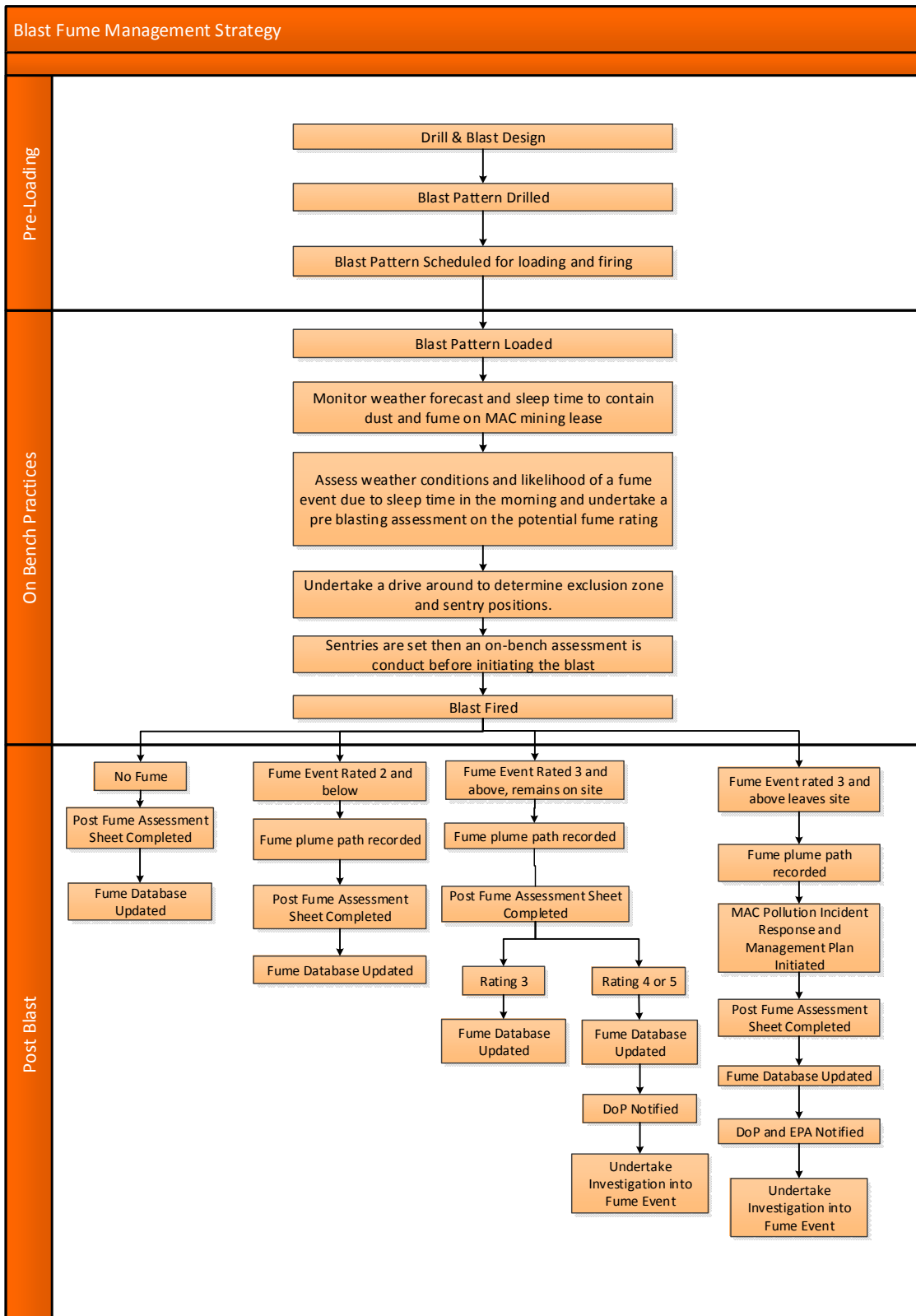


Figure 3: Blast Fume Management Strategy



Resource Assessments  
Planning Services  
Contact: Melissa Anderson  
Phone: 02 8275 1392  
Email: [melissa.anderson@planning.nsw.gov.au](mailto:melissa.anderson@planning.nsw.gov.au)

Kris Sheehan  
Health, Safety and Environment Superintendent  
Mt Arthur Coal  
Private Mail Bag No. 8  
MUSWELLBROOK NSW 2333

Dear Kris

**Mount Arthur Coal Mine – Open Cut Consolidation Project (PA 09\_0062 MOD 1)  
Approval of Blast Management Plan**

I refer to your email of 23 April 2018, submitting the revised Blast Management Plan, as required under condition 17 of Schedule 3 of the Mount Arthur Coal Mine Project's approval.

The Department has carefully reviewed the plan and finds that it meets the requirements of the condition, and as such the Secretary has approved the revised plan.

Please place a final (untracked) version of the plan on your website at your earliest convenience.

If you have any enquiries about this matter, please contact Melissa Anderson at the details above.

Yours sincerely

Howard Reed 7.6.18  
Director  
Resource Assessments  
as nominee of the Secretary