

Tomingley Gold Operations

Blast Management Plan



TABLE OF REVISIONS

Revision Number	Revision Date	Prepared by	Approved by	Comments
Revision 1	28 October 2013	Kym Mosey	Sean Buxton	Submitted for
				Consultation
Revision 2	3 February 2014	Kym Mosey	Sean Buxton	Submission for
				approval following
Devision 0	05 5-1		On an Duratan	consultation
Revision 3	25 February 2015	Mark Williams	Sean Buxton	Annual review
Revision 4	24 February 2015	Mark Williams	Sean Buxton	Annual review
Revision 5	11 May 2016	Mark Williams	Sean Buxton	Update to including WY1 Blasting
Revision 6	15 September 2016	Mark Williams	Sean Buxton	Update following MOD 3 approval
Revision 7	21 November 2021	Jenna Lehmann	Jason Hughes	Update following
Revision 7	14 July 2022	lenna Lehmann	lason Hughes	
			bason nagres	
				BEL on
				RELOI
				Opdate fallowing MOD
				6 approval
Revision 7	1 September 2022	Jenna Lehmann	Jason Hughes	Further update
				to address DPE
				RFI on
				Revision 7



Contents

1	INTRODUCTION AND SCOPE	4
2	DEFINITIONS	4
3	LEGISLATIVE REQUIREMENTS 3.1 Legislative Framework and Approval	5
4	KEY OBJECTIVES AND TARGETS	5
5	CONSULTATION	5
6		 ۲
-		0
7	OPERATIONAL MANAGEMENT OF BLASTING ACTIVITIES	6
	7.1 Licence Conditions	6
	7.1.2 Blasting Hours	
	7.1.3 Blasting Frequency	7
	7.2 Blast Design	7
	7.3 Blast Area Security	8
_	7.4 Codes of practice and compliance with the codes	8
8	MONITORING	8
	8.1 Vibration & Overpressure Monitoring	9
•		
9	ROLES AND RESPONSIBILITIES	11
10	RECORDING AND REPORTING	12
	10.1 Internal reporting	12
	10.2 External reporting	
	10.2.1 Annual Review	
	10.2.2 Access to information	
	10.4 Evaluation of Compliance	12
	10.4.1 Incident Notification, Reporting and Response	13
	10.4.2 Non-Compliance Notification	
	10.4.3 Investigation	
	10.4.4 Actions	12
	10.4.4 Actions	
11	10.4.4 Actions COMPLAINTS RESPONSE	13 13
11 12	10.4.4 Actions COMPLAINTS RESPONSE PROPERTY INSPECTIONS	13 13 14
11 12	10.4.4 Actions COMPLAINTS RESPONSE PROPERTY INSPECTIONS 12.1 Property Investigations	13 13 14 14
11 12 13	10.4.4 Actions COMPLAINTS RESPONSE PROPERTY INSPECTIONS 12.1 Property Investigations MANAGEMENT PLAN REVIEW/ UPDATE	13 13 14 14 14
11 12 13 DO	10.4.4 Actions COMPLAINTS RESPONSE PROPERTY INSPECTIONS 12.1 Property Investigations MANAGEMENT PLAN REVIEW/ UPDATE CUMENT INFORMATION	13 13 14 14 14 14 18
11 12 13 DO	10.4.4 Actions	13 13 14 14 14 14 18 18



1 Introduction and Scope

This Blast Management Plan applies to all open cut and underground mining activities undertaken by Tomingley Gold Mine and describes the measures to be undertaken or implemented to manage impacts from blasting. It will be used by Tomingley Gold Operations (TGO) personnel as the first point of reference for blast management during the project.

(TGO) is a wholly owned subsidiary of Alkane, located near the village of Tomingley, approximately 50km southwest of Dubbo and 18km north of Peak Hill in Central Western New South Wales.

Project approval was granted in July 2012 with the mining lease issued in 2013. The gold processing plant was commissioned in January 2014 and has been operating at the design capacity of 1Mtpa since late May 2014. The four open cut pits at TGO are Wyoming One (completed 2019), Wyoming Three (completed 2015), Caloma One (actively mined) and Caloma Two (completed 2019) totalling 6,271,000 tonnes of ore averaging 1.95g/t gold.

Underground mining development commenced in 2019 from the base of Wyoming One open cut.

The Project includes a processing plant with associated residue storage facilities (RSF).

The Blast Management Plan sits under the overarching Environmental Management Strategy for the project and with other Environmental Management Plans, forms the basis for environmental management at TGO.

This management plan applies to:

- All personnel working on the Tomingley Gold Project Mining Lease (ML),
- All personnel with a pit permit and open pit mining area specific induction,
- Technical and operational personnel involved in blasting operations, and
- The general public in latent capacity.

Term	Definition
Action Limit	A limit set by TGO to assist in the management of noise levels and provide an opportunity to take action to prevent the level exceeding regulated benchmarks
Person in Charge	The most senior TGO person at the Tomingley Gold Mine at the time
ALARP	As low as reasonably practical
Blast Exclusion	Distance of clearance from the blast area to minimize risk of injury or damage from flyrock
BMP	Blast Management Plan
dBLpeak	Noise is measured in units called decibels (dB). There are several scales for describing noise, the appropriate scale for blast overpressure being the "Linear" scale (L). This is the raw or un-weighted noise level across the whole frequency spectrum. The peak noise level is reported against criteria and is the time weighting function
Council	Narromine Shire Council
DPE	Department of Planning and Environment
OEH	Office of Environment and Heritage
RR	Resources Regulator (formerly Department of Industry Resources and Energy, NSW DIR&E)
EPA	Environmental Protection Authority, NSW
Flyrock	Rock including stemming aggregate that is propelled outside of the blast area through the air or along the ground as a result of blasting
Overpressure	The air blast pressure wave associated with blasting. It is measured in dBLpeak.
Peak Particle Velocity (PPV)	The peak particle velocity (PPV) is the measure of ground vibration in mm/s.
Vibration	The oscillating movement of the ground due to blasting.
TfNSW	Transport for NSW (formerly Roads & Maritime Services, RMS)

2 Definitions



Term	Definition
SI	SI ("Still Isothermal") refers to calm weather conditions (i.e. The absence of any wind or temperature gradients).
SSDS	Security Sensitive Dangerous Substance
TGO	Tomingley Gold Operations
Temperature Inversion	A positive temperature gradient. A meteorological condition where atmospheric temperature increases with altitude.
$(\sigma\theta)$ sigma-theta	The standard deviation of horizontal wind fluctuation. This is often used to estimate atmospheric stability classes, which in turn provides an estimate of the temperature gradients.

3 Legislative Requirements

3.1 Legislative Framework and Approval

TGO was granted project approval by the now Department of Planning and Environment (DPE) on 24th July 2012. TGO operate under Project Approval (PA) 09_0155. This PA extends until 31 December 2025 with the most recent modification (MOD 6) approved in May 2021.

The PA requires the preparation of a Blast Management Plan (this plan) as detailed in Schedule 3, Condition 14.

The Proponent shall prepare and implement a Blast Management Plan for the project to the satisfaction of the Secretary. This plan must:

- (a) be prepared in consultation with EPA, TfNSW and Council, and submitted to the Secretary for approval prior to undertaking any blasting in conjunction with mining operations on-site;
- (b) describe the blast mitigation measures that would be implemented to ensure compliance with conditions 7-13 of this schedule; and
- (c) include a blast monitoring program to evaluate the performance of the project.

Conditions 7-13 are addressed in more detail in the Plan.

TGO operate under Environmental Protection Licence 20169 (EPL 20169) issued by the NSW Environment Protection Authority. This licence outlines blast limit criteria for specific receivers (consistent with the PA granted by the DPE).

4 Key Objectives and Targets

The aim of this document is to provide guidance to all personnel associated with blasting operations on site. It is intended to be used as an overall framework to plan works and mitigate the risks associated with blasting at TGO, specifically those risks of an environmental nature. The objectives of this BMP are to:

- Detail the controls implemented to minimise blasting impacts on site;
- Protect the safety of people and livestock in the surrounding areas;
- Protect public and private infrastructure/ property in the surrounding area;
- Establish a blast monitoring system to assess the blast and vibration impacts on surrounding receivers;
- Provide a blast protocol that assists with compliance to consent conditions;
- Manage any community concerns in a timely and effective manner: and
- Detail the procedure for reporting exceedances of the blast criteria to relevant stakeholders.

5 Consultation

The revision and distribution of this plan has occurred as follows:

- Narromine Shire Council Revision 1 of this plan was submitted to NSC on 29th October 2013.
- NSW Office of Environment and Heritage Revision 1 of this plan was submitted to OEH on 29th October 2013.



- NSW Roads and Maritime Services Revision 1 of this plan was submitted to RMS on 29th October 2013. Further correspondence was issued to RMS on the 17th December 2013. Telephone discussions were had with RMS on 24 January 2014 and 28th January 2014. Revision 2 was created following confirmation RMS is agreeable to temporary road closures whilst blast trials are conducted or if a risk assessment can be carried out to demonstrate road closures are unnecessary, rather than locking in temporary road closures for the life of mine. Note: Revision 2 relates to RMS matters only no changes were made in relation to any other matter.
- Revision 6 was referred to the EPA, RMS, OEH and Narromine Shire Council on 29th November 2016. All
 agencies confirmed that they had no additional comment on the document. No response was received from NSC.
 Revision 6 was approved by DPE on 23rd December 2016.
- Revision 7 was submitted for consultation via the DPE Major Projects portal in December 2021 with responses received from the NSW EPA and Narromine Shire Council on the 21st and 27th December 2021.

6 Risk Assessment

TGO has developed the blast management process following a formal risk assessment assessing PA Schedule 3 Section 13 Operating Conditions (regarding blasting). TGO use the controls identified in the risk assessment to mitigate potential adverse effects in the surrounding area. The complete risk assessment is reviewed in conjunction with this plan.

7 Operational Management of Blasting Activities

7.1 Licence Conditions

Schedule 3, Condition 13 of the PA stipulates:

"During operation of the project, the Proponent shall:
(a) implement best management practice to:

(i) protect the safety of people and livestock in the surrounding area;
(ii) protect public or private infrastructure/ property in the surrounding area from any damage, including the Newell Highway; and
(iii) minimise the dust and fume emissions from any blasting;

(b) minimise the frequency and duration of any road closures, and avoid road closures during peak traffic periods; and
(c) operate a suitable system to enable the public to get up-to-date information on the proposed blasting schedule on site, to the satisfaction of the Secretary."

To comply with this Condition, all blasting activities conducted by TGO are guided by the following principles;

- 1. Safety and community first; and
- 2. Most practical blast strategy.

Multiple blast techniques may be utilised by TGO during the development and mining phase of both its open pits and underground areas. All blasting activities are to be performed in accordance with this Blast Management Plan.

7.1.1 Blasting Criteria

TGO monitor and report on compliance with the blast criteria as stipulated in PA 09_0155 Schedule 3, Condition 7 Blasting, and Condition L5 Blasting from EPL 20169. The Blast criteria is summarised in Table 1 below and TGO are required to ensure that blasting on the site does not cause exceedances of the criteria in Table 1.

Blasts are designed to remain below the criteria in Table 1 to protect surrounding public and private infrastructure/ property from any damage.



Table 1- Blasting Criteria (PA & EPL Summary)

Location	Airblast Overpressure (dB(Lin Peak))	Ground Vibration (mm/s)	Allowable Exceedance
Posidoneo on privatoly	120	10	0%
owned land	115	5	5% of total blasts over any 12 month period
All Public Infrastructure	-	50, or alternatively, a specific limit determined to the satisfaction of the Secretary by the structural design methodology in AS 2187.2-2006, or its latest version	0%
RSF 1 and RSF 2 embankments		49	0%

However, apart from the limit on RSF1 and RSF2 embankments, these criteria do not apply if the Proponent has a written agreement with the relevant landowner and has advised the Department in writing of the terms of this agreement.

7.1.2 Blasting Hours

To effectively manage blast disturbance TGO operate to conditions stipulated in the PA and EPL. These conditions differentiate between surface (pit) and underground. In December 2018 TGO were granted approval by the Secretary to carry out underground blasting 24 hours per day. Approval letter attached as Appendix 2.

- PA Schedule 3, Condition 8 is consistent with EPL Limit Condition L5.5 which refers to surface blasting and states: *"The Proponent shall only carry out blasting on site between 9:00am and 5:00pm Monday to Saturday, inclusive. No blasting is allowed on Sundays, public holidays or at any other time without the written approval of the Secretary."*
- TGO operate in line with the blast hours for underground as stipulated in EPL Limit Condition L5.6 *"Underground blasting at the premises is permitted at anytime"*

7.1.3 Blasting Frequency

PA and EPL conditions regarding surface blast frequency are consistent with the following limits:

"The Proponent may carry out a maximum of three blasts per day for mining operations on the site, unless an additional blast is required following a blast misfire.

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 blasts required to ensure the safety of the site or its workers."

Note: for the purpose of this condition, a blast refers to a single blast event, which may involve a number of individual blasts fired in quick succession in a discrete area of the site.

7.2 Blast Design

TGO conducts blasting operations in both Open Cut and Underground Mining environments.

The open cut blasting methods may include the following:

- Production Blasting The loading, tie-in and firing of bulk explosives into planned drill holes.
- Secondary Blasting The loading with packaged or bulk explosives into drilled holes and firing of toe and oversized rock.
- Presplit Blasting The loading of specific packaged explosives, tie in trunkline and firing of planned drill holes that are top stemmed with sand for overpressure reduction.

The underground blasting methods can be categorized into the following:



- Development Firings The firing of development rounds using non-electric detonators
- Production Firing The firing of larger production shots using either electronic or non-electric detonators.
- Secondary Firing The firing of oversized material retrieved from stopes to create more manageable sized ore using non-electric detonators.

Optimum blast parameters have been developed using a combination of test blasting with temporary road closure, and reviewing recorded results for each blast while considering the blast method and prevailing weather conditions.

By following this approach in conjunction with the adoption of improved blasting products and methods, it is anticipated that blast emission criteria can be met without imposing any significant constraints on the blast design throughout the operations of TGO. By using appropriate blast design coupled with exclusion zones as discussed in section 7.3, TGO will be able to manage any potential impacts of fly rock on nearby residents, public infrastructure and surrounding livestock.

Weather forecast monitoring for excessive wind conditions and adverse wind direction will be undertaken prior to each blast. If risk of elevated dust contamination is determined blasting will be postponed to a time with favorable weather conditions.

Monitoring and calibration of the explosive manufacturing unit ensures explosive mixing is in the correct proportions which in turn ensures that noxious fuming is kept to a minimum. TGO predominantly use emulsion based explosive products to minimize the effects of wet holes on Ammonium Nitrate to reduce the potential for fuming.

7.3 Blast Area Security

All underground firings will be initiated from the surface. All personnel will be removed from the blast area prior to firing and verified using the Underground Tag Board system.

All open pit firings have a 450m exclusion zone to protect the safety of people and livestock in the surrounding area. Having a 450m exclusion zone automatically protects surrounding livestock as the closest agricultural land is beyond the exclusion zone. Prior to blasting all personnel are removed from the exclusion zone until the area has been assessed and deemed safe to return. When the Newell Highway is within the exclusion zone temporary road closures are implemented in accordance with TfNSW requirements. Road closures are typically less than 15 minutes to minimize interference with traffic flow. Blast times in the open pit are scheduled for early afternoon, this avoids peak traffic times where commuters are beginning/ending their workdays/ schooldays.

Clearances and ground inspections pre and post firing along with positive radio communications assist TGO in minimizing road closure times.

TGO operate a blast notification board located on the entry road into the mine site. This board acts as a secondary notification to employees and is a primary notification to visitors prior to entry onto site. The 24/7 complaints/ community enquiry line (02 6865 6116) operated by TGO can provide up-to-date information to the public regarding the proposed blast schedule.

7.4 Codes of practice and compliance with the codes

Blast monitoring at TGO will be undertaken in accordance with all relevant Australian Standards and OEH policies. At the time of writing this document these include:

- Australian Standard AS 2187.2: Storage, Transport and use Use of explosives; and
- Australian and New Zealand Environment and Conservation Council (ANZECC) Technical Basis for Guidelines to minimise Annoyance due to Blasting Overpressure and Ground Vibration.

Blasting operations will be conducted in accordance with the DPE and EPA legislation as well as all TGO's operational and safe work procedures for blasting, shot firing and explosives. The Environment Protection Licence and Project Approval set maximum limits for overpressure and vibration at locations adjacent to the mine, which includes private residences and public works. The exposure limits at any noise sensitive location are described in Table 1.

8 Monitoring



8.1 Vibration & Overpressure Monitoring

TGO's blast monitoring system is comprised of a centralised server and remote 'Dynamate' monitors situated in near proximity to the blast site. GPRS or 4G mobile technology enables communications between monitors and the Dynamaster server. Data is continuously logged 24/7. When a blast occurs, the network automatically requests data from each of the monitors. Captured overpressure and ground vibration data is uploaded to the Dynamaster database. The captured data which includes 1KHz waveforms and peak values are stored on the central server and can be accessed via the Dynamaster website by any internet able device shortly after the blast has occurred.

TGO's blast monitoring network consists of four fixed blast monitors. Air blast overpressure and ground vibration are recorded at each monitor. **Figure 1** below details the location of each monitor.

The two monitors (Tomingley Village and Hart's Cottage) have been positioned at the nearest noise sensitive locations to site. The Underpass monitor is positioned adjacent to the Newell Highway, TGO's nearest public infrastructure. As required in PA modification 5 the Residue Storage Facility monitor was installed to monitor ground vibration on the RFS embankments.

Continuous monitoring is conducted to determine compliance with the limits outlined in the PA and EPL. Monitoring instrumentation will be maintained and calibrated by an accredited service provider.

Figure 1 – Blast/Vibration Monitoring Locations





8.2 Monitoring Records

The Dynamaster website contains the results uploaded from the monitors when an event has been triggered. The peak overpressure and peak ground vibration results are stored on the website and waveform graphs can be viewed.

Daily operational and event checks are completed by the company TGO commissioned to monitor blasts to ensure maximum data capture rates are maintained. This includes overnight download tests, checking the monitor connection throughout the day and battery/solar power checks.

Triggered events are reviewed and validated by TGO's Environment and Community Department to ensure complete blast capture. Results are communicated to relevant personnel and external stakeholders where required.

The Blast Controller shall ensure the following information has been recorded by the monitoring systems for each blast:

 Blast noise overpressure (dBLpeak) and peak particle velocity (ppv, mm/s) in a radial, vertical and transverse direction.



- License limits, where appropriate in the event of an exceedance.
- Wind speed and direction in the event of an exceedance.

In accordance with EPL conditions and as per TGO document control procedures, monitoring records will be maintained on site for at least four years. All records can be downloaded from the monitoring system at any time.

9 Roles and Responsibilities

Table 2 details the Roles and Responsibilities of TGO personnel with respect to the implementation of this plan.

Table 2 – Roles and Responsibilities

Role	Responsibilities		
TGO General Manager	Provide adequate resources for the implementation of the BMP		
TGO Environment and Community Manager / Environmental Coordinator	 Undertake airblast overpressure and ground vibration monitoring Review data and determine management actions as appropriate. Ensure actions are taken to prevent exceedance of Project Approval conditions and actions are implemented following an investigation. Fixed monitoring equipment is correctly installed and operational. Maintenance and calibration of equipment occurs as required to ensure equipment reliability. Assist the Mine Engineers with investigations of blasting exceedances, incidents or complaints; Provide adequate and timely response to community complaints and ensure requirements of the Complaints Procedure are completed. Make reports as per the TGO Standard: Corporate Incidents as required. Ensure all internal and externals reporting requirements are met. Make reports to the EPA as required. Co-ordinate and manage records and reporting of blast monitoring results. 		
TGO Opencut Manager/ Superintendent / Shotfirer	 Notify Site, relevant contractors and Workcontrol Forbes via email in advance of any temporary road closures and upcoming blasts Authorise the implementation of specific management measures to minimise blast impacts in accordance with this BMP 		
TGO Underground Manager/ Underground superintendents / shift supervisors	 Authorise the implementation of specific management measures to minimise blast impacts in accordance with this BMP 		
TGO Shotfirer	 Record results of sites blast monitors in the Blast Vibration and Overpressure Monitoring Log. File all electronic results from development blasting vibration and overpressure monitoring in the Blasting Vibration and Overpressure Log and maintain this information on file for a period of not less than 4 years. Report monitoring results to the Underground Foreman/Manager. Regularly review blast design parameters on the basis of blast monitoring records Assess and record weather conditions prior to blasting Advise the relevant personnel of weekly blasting schedule. 		
TGO Mine Engineers (Open cut / underground)	 Advise the relevant personnel of weekly blasting schedule. Design and undertake blasts to comply with the requirements of this BMP. Maintain records for blasts initiated. Assist the Environmental Manager with investigations into blast exceedances, incidents or complaints. 		
TGO Opencut/Shot- Firer	 Ensure charging practices are following the provided blasting design Ensure the blast is loaded with the correct quantity and quality of explosive and stemmed in accordance with the blast design Advise relevant personnel of daily blasting schedule. Notify the Mining Engineer of any factors that may lead to non-compliance with this BMP. Load and fire blasts in accordance with design supplied by the Mining Engineer. Ensure the underground mine has been cleared before blasting. 		



Role	Responsibilities
	• Ensure the 450m blast zone is clear prior to open cut blasts in the Caloma 1 pit and appropriate traffic control measures are in place on the Newell Highway.

10 Recording and Reporting

10.1 Internal reporting

The Mine Engineer shall report the monitoring results to the Environment and Community Manager in the event of an exceedance. The report is to identify whether it was a routine or trial blast.

The Environment and Community Manager will report to the General Manager the results and investigations of any complaints and/or any exceedances of the blast overpressure or vibration assessment criteria.

If a non-compliance with the blast impact assessment criteria is identified, an internal report detailing the circumstances of the non-compliance and resulting actions will be submitted to the General Manager.

10.2 External reporting

Any non-compliance with the limits listed in Table 1 shall be reported to the EPA pollution line on 131 555 and DPE by the Environmental Department following a discussion with the Mine Engineer / General Manager. All non-compliances are reported in the Statement of Compliance for submittal to the EPA as part of the Annual Return and the Annual Review prepared for the DPE.

The Blasting Vibration and Overpressure Log shall be made available to an Officer of the EPA or DPE upon request.

Any non-compliance recorded at the vehicular underpass on the Newell Highway shall be reported to TfNSW.

Monthly monitoring and in particular any non-compliance recorded at the RSF shall be reported to Dams Safety NSW in accordance with the RSF Monitoring Management Plan.

10.2.1 Annual Review

By the end of March each year, TGO must submit a report to the DPE reviewing the environmental performance of the project, to the satisfaction of the Secretary. The review includes the conditions stipulated in Schedule 5 Condition 4 of the PA. A copy of the Annual Review will be submitted to Narromine Shire Council (NSC) and relevant agencies and made available to the TGO Community Consultative Committee (CCC) and any interested person upon request.

10.2.2 Access to Information

Until the completion of all rehabilitation required under PA 09_0155, TGO will make available to the public any relevant blast information, and compliance with regulatory requirements. Information is made publicly available on the TGO website, and that information is kept up to date to the satisfaction of the Secretary.

Copies of the Annual Review are submitted to NSC and relevant agencies and made available to the Community Consultative Committee (CCC) and any interested person upon request.

10.3 Independent Environmental Audit

As required under Schedule 5, Condition 8 through to 9A of PA 09_0155, TGO must commission an Independent Environmental Audit within one year of mining operations commencement, and every three years thereafter, unless the Secretary directs otherwise. The initial audit was completed in June 2015 with subsequent audits being completed in August 2018 and May 2021.

10.4 Evaluation of Compliance



10.4.1 Incident Notification, Reporting and Response

Blast incidents will be reported to The Secretary in writing via the Major Projects website immediately after the Proponent becomes aware of an incident. In accordance with Schedule 5 Condition 7, the notification must identify the development (including the application number and the name of the development if it has one) and set out the location and nature of the incident. Subsequent notification requirements must be given, and reports submitted in accordance with the requirements set out in Appendix 9 of PA 09_0155.

10.4.2 Non-Compliance Notification

Blast non-compliances will be reported to The Secretary in writing via the Major Projects website within seven days after the Proponent becomes aware of any non-compliance. A non-compliance notification must identify the development and the application number for it, set out the condition of approval that the development is non-compliant with, the way in which it does not comply and the reasons for the non-compliance (if known) and what actions have been, or will be, undertaken to address the non-compliance.

Note: A non-compliance which has been notified as an incident does not need to also be notified as a non-compliance.

If monitoring records show levels above the nominated Blasting Criteria the following action will be undertaken.

10.4.3 Investigation

Where the blast limit has been reached or exceeded the Mine Engineer shall:

- Check wind conditions and monitoring records 15 minutes prior and post blasting and determine if the elevated result was due to wind activity.
- Where it is determined that wind conditions caused the elevated result, record this information in the Blasting Vibration and Overpressure Log and provide a report to the relevant Mine Manager (Open cut / Underground).

Where it is determined that wind or weather conditions did not cause the elevated result, the Mine Engineer in consultation with the Mine Superintendent will:

- Undertake an investigation immediately into the firing and blast conditions.
- Check blasting pattern and adherence to blasting procedures. Identify and document any non-compliance or deviations authorized or not.
- Check that all mitigation measures were employed and identify and document any non-compliance or deviations authorised or not.
- In consultation with the Mine Manager, determine and implement action to prevent a recurrence.

10.4.4 Actions

The following actions, or their combination, shall be undertaken to prevent exceedance of blasting criteria:

- (i) Adoption of conservative powder factors to minimise vibration and overpressure.
- (ii) Mindful blast firing sequence with offset control line delays to reduce maximum instantaneous charge and minimise vibration.
- (iii) Assessing and recording weather conditions prior to blasting
- (iv) Adjusting or rescheduling blasting if weather conditions are not favourable.

11 Complaints Response

TGO operate a 24hr 7 day Complaints and Community Information Line (**02 6865 6116**). The purpose of this line is to receive complaints from members of the public. In addition to this line, complaints can be lodged by email at tomingleygold@alkane.com.au or by visiting the site office.

Where there has been a complaint with respect to blasting the following action will be taken:



- Record the complaint, in the complaints register and publish online on the Alkane Webpage.
- Notify the Environment and Community Manager / environmental department;
- Take immediate action to address the issue, firstly by investigating the nature and validity of the complaint. Depending on the seriousness of the issue this may include:
 - Modifying procedures,
 - Installing mitigation, and/or
 - Stopping related activities.

The Environment and Community Manager shall monitor the implementation of these actions until their completion and then close out the Complaints Register.

12 Property Inspections

As required in Schedule 3, Condition 10 of the PA, TGO wrote to all land owners within a 2km radius of the mining pits (where blasting will be undertaken) and invited them to have a Pre-Blasting Structural Survey of their home and any structures located within their property.

20 landowners responded, taking up the opportunity to have their property surveyed.

Over 19th and 20th September 2013 Calare Civil Consulting Engineers of Bathurst undertook the Pre-Blasting Structural Surveys of the properties. The purpose of these inspections is to establish baseline conditions and identify measures that should be implemented to minimize potential blasting impacts.

Calare Civil Consulting Engineers produced Property Condition Reports and these were provided to the land owner as well as TGO.

12.1 Property Investigations

If the owner of any privately-owned land claims that buildings and/or structures on their land have been damaged as a result of blasting, then within one month of receiving this claim TGO will investigate the matter in accordance with Schedule 3, Condition 12 of the project approval.

13 Management Plan Review/ Update

The revision of strategies, plans and programs is completed in accordance with PA Schedule 5 Condition 5.

Within three months, unless the Secretary agrees otherwise, of:

- (a) the submission of an annual review under condition 4 above;
- (b) the submission of an incident report under conditions 7 or 7A below;
- (c) the submission of an audit report under conditions 8 to 9A below; and
- (d) the approval of any modification to the conditions of this approval; or
- (e) a direction of the Secretary under condition 2 of Schedule 2;

the Proponent must review and, if necessary, revise the studies, strategies or plans required under the conditions of approval to the satisfaction of the Secretary.

Where this review leads to revisions in any such document, then within 4 weeks of the review the revised document must be submitted to the Secretary for approval, unless otherwise agreed with the Secretary.

Note: This is to ensure the strategies, plans and programs are updated on a regular basis, and incorporate any recommended measures to improve the environmental performance of the development.

The updating of this plan will be in accordance with PA 09_0155, Schedule 5 Condition 11 & 12.

To ensure the studies, strategies and plans for the project are updated on a regular basis and incorporate any required measures to improve the environmental performance of the project, the Proponent may submit revised studies, strategies or plans required for the development under the conditions of approval at any time. With the agreement of the Secretary,



the Proponent may also submit any study, strategy or plan required under the conditions of this approval on a staged basis.

The Secretary may approve a revised strategy or plan required under the conditions of approval, or the staged submission of these documents, at any time. With the approval of the Secretary, the Proponent may prepare the revised or staged strategy or plan without undertaking consultation with all parties nominated under the applicable condition in this approval.

Notes:

• While any study, strategy or plan may be submitted on a progressive basis, the Proponent must ensure that the existing operations on site are covered by suitable studies, strategies or plans at all times.

• If the submission of any study, strategy or plan is to be staged, then the relevant study, strategy or plan must clearly describe the specific stage to which the study, strategy or plan applies, the relationship of this stage to any future stages, and the trigger for updating the study, strategy or plan.



Appendix 1 TGO Blast Logging Template

		1					
Bla	ast Monitoring Made Eas	¢y_∕∳⊢ Pi	ast Events 🔻	Capture Events	 System 	stem Status 🔻	Settings 🔻
Ca	ptured Eve	ents - Ta	ble View				
Εv	ent Search						
	Hide Events	Export E	Events	Change Search	Filters		
						J	
					(5	4 6040	
		2 3	4		(Pag	e 1 of 64)	
Events							
V	Event Code 🕶	Category	Description	Da	te/Time	!	Trigger Source
	TMG08U	Valid Shot		20	16-01-09	12:57:49	Underpass
	TMG08T	Valid Shot	CL1-200-303	20	15-12-23	3 13:09:44	Underpass
	TMG085	Valid Shot	CL1-185-004	/008/010 20	15-12-23	3 12:58:43	Underpass
	TMG08R	Valid Shot	CL1-185-007	/009 20	15-12-14	12:59:33	Underpass
	TMG08Q	Valid Shot	CL1-205-304	20	15-12-10	12:58:43	Underpass
14		2 2			(Pag	o 1 of 64)	

Captures for TMG08S

Station Name	•	Status	Max AB (dBL)	Max R (mm/s)
Underpass 🦻	🖄 🌆 🔄	Full Wave		0.84
Harper	🖄 🦾 🖻	Full Wave	96.1	0.41
Tomingley Village	🖄 🦾 🖻	Full Wave	97.5	0.65
Harts Cottage	🖄 🦾 🖻	Full Wave	103.3	0.42
Residue Dam	🖄 🚣 🗐	Full Wave		0.15



Appendix 2 Underground Blasting Hours Approval Letter



 Planning Services

 Resource Assessments

 Contact:
 Leesa Johnston

 Phone:
 0282896861

 Email:
 teesa johnston@planning.nsw.gov.au

Mr Mark Williams Environment and Community Manager PO Box 59 Peak Hill NSW 2869

By Email: MWilliams@alkane.com.au

Dear Mr Williams

Tomingley Gold Project (PA 09_0155) Underground Blasting Hours

I refer to your letter dated 7 November 2018, requesting the Secretary's approval to carry out underground blasting 24 hours per day at the Tomingley Gold Mine (Project Approval 09_0155).

The Department has consulted with the Environment Protection Authority who has advised the Department that it does not object to the proposed underground blasting hours.

Accordingly, the Secretary approves your request to carry out underground blasting 24 hours per day at the Tomingly Gold Mine.

Please note that this letter does not approve above ground blasting outside of the hours in Condition 8 of Project Approval PA 09_0155.

If you wish to discuss the matter further, please contact Leesa Johnston on 02 82896861.

Yours sincerely

19/12/18

Steve O'Donoghue A/Director Resource and Energy Assessments

Department of Planning & Environment 320 Street Sydney NSW 2009 (GPO Box 39 Sydney NSW 2001 | www.planning.nsw.gov.au



Revision History

Revision	Date	Changes	Changed By	Pages Affected
2.0	3/2/14	Policy complete	Kym Mosey	All
3.0	25/2/15	TGO employees list, RMS contact information, Management of Fly Rock and road closures	Mark Williams	Pages 5, 8,9
4.0	24/2/16	TGO employee list, RMS contact Information, management of fly rock and road closures, responsible persons.	Mark Williams	Pages 3,5,8,9,15,16,20.
5.0	11/5/16	Update WY 1 alert system and table of responsibility Wy1 Schedule preparation and distribution	Mark Williams	Pages 8 and15
6.0	15/9/16	Update to suit MOD 3 – Caloma 2	Mark Williams	Pages 7,8,9,13,15,16
7.0	21/10/21	Update following approval of Mod 5	David Pritchard	All pages