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Via email: RTT@ecodev.vic.gov.au

Dear Ms McRae

GUIDELINE FOR A MINE OR QUARRY THAT REQUIRES BLASTING: CONSULTATION DRAFT

Thank you for the opportunity to comment on Guideline for a mine or quarry that requires blasting: Consultation draft (Draft Guideline). Thank you also for arranging the meeting on 21 January 2021 to discuss CMPA concerns with the Draft Guideline, it was much appreciated.

CMPA Members have long recognised the need to control the risks associated with explosives blasting and have:

- Held CMPA Blasting Workshop 2012;
- Established the CMPA Expert Working Group in 2013 to develop a Blast Management Plan Template: Conundrum Holdings, Holcim Australia, Impact Drill & Blast, Maxam Australia Pty Ltd, Orica;
- Released the Blast Management Plan Template Issue 2 (April 2015) (note reviewed by ERR and WorkSafe) together with the CMPA's Shot Firer's Report Book aims to meet the requirements set out in Section 130 of the *Dangerous Goods (Explosives) Regulations 2011* and Appendix 2 of *AS 2187.2-2006* Explosives - Storage and Use - Use of *E*xplosives;
- Held a Blast Management Workshop May 2018 to review the CMPA Blast Management Plan Template (note CMPA policy is to review Guidelines every 3 years);
- Established the CMPA Expert Working Group (2018): Conundrum Holdings, Holcim Australia, Hamilton's Blasting Services, Orica;

- Published CMPA Blast Management Plan Template Issue 3 (September 2020) reviewed by ERR and WorkSafe (note that a PDF version is made freely available to the community on www.cmpavic.asn.au), revised CMPA's Shot Firer's Report Book and revised CMPA's Magazine Management Book aims to meet the requirements set out in Section 130 of the *Dangerous Goods (Explosives) Regulations 2011* and Appendix 2 of *AS 2187.2-2006* Explosives - Storage and Use - Use of *E*xplosives.

General Comments

These comments have been developed with input from CMPA Members and Terrock who CMPA would like to thank for their extensive input. Conversations have been held with ERR regarding the necessity of having a Blast Management Plan that meets the needs of the quarry operator. Separate approaches to blasting for WorkSafe, ERR and the Quarry Manager as implied by ERR is unacceptable to CMPA Members due to the confusion of having to refer to 3 documents thereby increasing risk.

The CMPA Blast Management Plan Template Issue 3 (September 2020) aims to meet the requirements set out in Section 130 of the *Dangerous Goods (Explosives) Regulations 2011* and Appendix 2 of *AS 2187.2-2006* Explosives - Storage and Use - Use of *E*xplosives unlike the Draft Guideline proposed by ERR or WorkSafe's Guideline which only incorporates selected clauses of the Australian Standard, *AS 2187.2-2006*.

The Draft Guideline has automatically put virtually every hard rock quarry in Victoria into the high risk category.

Sites may propose to subcontract blasting operations. How would this be managed should the subcontractor change or introduce new methods and technology? e.g., a change from Orica to Maxam. Would this require a work plan variation?

Changes to 1A or 1B in the Draft Guideline will result in a work plan variation. The Draft Guideline inadvertently places restrictions on operations that will not make adjustments due to the difficulty in red tape of a work plan variation which may result in best practices not being utilised.

Specific comments (writing in italics is quoted from the Draft Guideline**)**
Page 3, last para
"*WorkSafe Victoria has additional blast management requirements derived from 'AS 2187.2: Explosives - Storage and use. Part 2: Use of explosives*'"
ERR persistence in excluding WorkSafe requirements from this document and others that ERR has prepared may lead to confusion.

Page 4, 1st para
"For the purpose of this guideline, a blasting engineer is a person with a tertiary qualification in mining engineering (or a closely related discipline) and at least 2 years' experience designing/supervising quarry and or mine blasting operations. Note: A shotfirer certificate alone is not sufficient."
The definition should describe the requirements for a person who has the qualifications and experience to competently design and supervise quarry or mine blasting operations. The definition in the draft guideline does not cover competent persons such as those who have completed a Certificate 4, Diploma, and/or Advanced Diploma in Surface Operations.

Page 4, 2nd para

"Earth Resources Regulation considers the blasting information that is required to be included in the work plan to include clauses (a), (b), (h), (i), (j), (k), (l), (t), (x), (y), and (z) in Section A2.2 of Appendix A in Australian Standard 2187.2 – 2006."

As per comment for page 3., last para.

Page 4, last para

"Earth Resources Regulations considers that applications with blasting proposed within 500 metres of an easement or land not owned by the applicant are potentially high risk."

What about leased land? Effectively ERR has rated virtually all hard rock quarries in Victoria as high risk.

Page 5, table

"Maintain Separation Distance between any proposed blast and a potential receptor (any easement or any land not owned by the applicant). The EPA Guideline 1518 "Recommended Separation Distances for industrial residual air emissions" recommends a 500 metre separation distance for Earth Resources' sites that require blasting."

There is much recent confusion about the issue of buffers around quarries. The EPA 500m buffer pertains to dust and odours from quarries with blasting and is not believed to be a regulatory requirement. While large buffers around quarries are always desirable, separation distances >500m are not always possible. If a dwelling is constructed on private land within 500m of a quarry, this buffer could effectively lock up a considerable quantity of stone resource and if applied at existing quarries, legal actions and compensation claims could follow. Compliance with current environmental controls (Peak Particle Velocity (PPV), airblast and dust limits, etc.) at sensitive receptors is the most important consideration for blasting, not separation distances.

Some existing and proposed quarries with receptors <500m are accused of being "in breach of EPA guidelines!", a misleading statement that causes reputational damage and adds to community concerns. A clear answer to the question of buffers is needed, with consideration that a mandatory 500m buffer would result in significant restrictions to the locations of future quarries and extensions to existing operations. This would in turn impact the availability of construction materials for industry and the economic prosperity of Victoria.

Page 5, table

"*Limit blast direction.*

Blast Direction is the direction that the blast is fired in. The impact of a blast is different in different directions and is greater in the direction that it is fired."

Presumably means blast "face" direction. The term "blast direction" can also apply to firing/initiation direction.

Page 5, table

"Maintain exclusion zone.

The exclusion zone is the area of land that needs to be vacated to ensure peoples safety.

It is the responsibility of the applicant to propose the exclusion zone, noting that Earth Resources Regulation would not expect an exclusion zone of less than 400 metres in front of the blast or 150 metres behind a blast."

No technical basis for the 400m/150m exclusion zone is provided (though it may be a reaction to a recent flyrock incident). Specifying a minimum exclusion distance for all quarry blasting is unprecedented and no distances are specified in current regulations and standards. The term "maintain" is also confusing.

The proposed distances are broadly appropriate and would already be observed for most blasts at most quarries. Aside from a few shotfirers, the vast majority (and most quarry operators) are acutely aware of the serious potential consequences of flyrock, their OHS obligations and do well to prevent flyrock and provide as much clearance as can be practicably achieved.

However, a small-scale blast in competent rock with adequate stemming and front row burden presents a significantly lower flyrock risk than a blast in inconsistent rock with insufficient burden and stemming. There is potential for ERR's nominated distances to be insufficient for some blasts and excessive for reduced risk blasts. The distances could also partly abrogate the responsibility of shotfirers in a serious flyrock event where the minimum distances were observed yet were ineffective.

It should be emphasised in the Draft Guideline that all rock fragments from blasting must be contained within quarry boundaries, shotfirers must design blasts accordingly, and that breaches are reportable and subject to investigation, infringements, or prosecution. Where additional confinement is used, the probability of flyrock and throw distance is reduced and design modifications should be implemented to minimise the need for road closures near some quarries.

To summarise, flexibility of blast design and clearance distances is needed at quarries, and the responsibility of determining adequate blast clearance distances should remain wholly with the shotfirer and be determined on a case-by-case basis as part of the Blast Plan risk assessment.

The significance of set exclusion zones as stated in the Draft Guideline is little understood by the authors in that it will be used in the planning permit application process by objectors to prevent a work plan or work plan variation going ahead.

Page 5, table

"Limit instantaneous charge mass.
The Instantaneous Charge Mass is the mass of explosive detonated at any instant and is usually controlled by initiating one hole at a time."
The meaning of this unclear. Limits to charge mass should be implemented, where needed, to maintain compliance with vibration and airblast limits at sensitive sites. Total charge mass is irrelevant.

Page 6, 1st para

"*Earth Resources Regulation takes these controls into consideration in determining where blasting is permissible.*"
ERR has limited experience in this area.

Page 7 (t)

☐ *"That the peak particle velocity resulting from blasting operations, as measured in the vicinity of any sensitive location (e.g., residence) in accordance with AS2187.2:2006 Explosives - Storage and Use - Use of Explosives, will not exceed 5mm/s on more than 5% of blasts fired in a 12-month period and 10mm/s at any time; and.*

☐ *That the air-blast overpressure from blasting operations, as measured in the vicinity of any sensitive location (e.g., residence) in accordance with AS2187.2: 2006 Explosives - Storage and Use - Use of Explosives, will not exceed 115 dB(L) on more than 5% of blasts fired in a 12-month period, and 120 dB(L) at any time."*

There continues to be confusion about the 5% allowance for exceedances of the 95% limits. While an allowance is fair and appropriate, 5% of blasts constitutes 1 out of 20 blasts fired in a 12 month period. Many quarries fire less than 20 blasts in a 12 month period. Advice for such quarries shown in the ERR guidelines (web version) is somewhat confusing, being "Statistical outcomes should be recalculated on a monthly basis so that the percentage exceedance of the lower limits is known for the immediate past 12 month (or longer) period." Further advice, "Data from a number of approved monitoring sites may be aggregated for the purpose of assessing compliance with percentile limits" suggests that the 95% criteria apply to individual measurements, not individual blasts. The interpretation is the limits apply to 95% of blast vibration readings, not 95% of blasts.

Clarity on this matter would be appreciated by industry.

There has also been some confusion regarding the ERR (website) advice, "In situations where the location or nature of the operations mean that this [compliance with the limits] is not achievable, the standards may be varied, subject to the department being satisfied that all effected [sic] people have given informed consent".

This proviso works well in other jurisdictions (e.g., NSW DPIE) and helps reduce exceedances of standard limits. However, attempts by some Victorian quarries (with nearby residents who have good or financial relations with the quarry and are unconcerned by blasting) to establish such agreements have been flatly rejected by ERR without explanation. This provision should be either allowed or removed from the guidelines.

Page 8 (x)

"Proposed dates and times of blasting"

Specific blast dates cannot be known ahead of time.

Page 8 (z)

☐ *"The applicant agrees to apply to Earth Resources Regulation for a work plan variation if Parts 1A and 1B of this application is (are) proposed to be changed and will potentially result in additional risk."*

The way the Draft Guideline is written will lead to numerous requests for variations. It should read: "*…proposed to be changed and will potentially result in ~~additional~~* ***<u>an increase in risk to high or very high</u>***."

Page 9 (h)

"Details of the risk management assessment"

Details of risks, controls and general blasting procedures for whole operations can be provided in the Work Plan BMP. It should be noted that a detailed, blast-specific risk assessment must be also produced and included in Blast Plans.

Page 9 (k), Page 10 (j)

"Layout plan of the blast including drilling pattern and hole depths."

"Detonation sequence / effective charge mass per delay (MIC) / powder factor."

References to “the blast” may be confusing as this infers details for a single blast. Recommend change (throughout Part 1B) from the term “the blast”, e.g., “the blast design” becomes “indicative blast design”

“layout plan for the blast” becomes “indicative layout plan for standard/production blasts”.

Details for individual blasts to be shown in Blast Plans.

Note: Quarries typically use a wide range of blast design specifications over the life of operations, depending on blast location, type (production, ramp, drop-cut, sump, etc.), rock type, rock structure, previous performance results and production targets. Therefore, any blast plan drawings shown in the Work Plan BMP are indicative only. In summary, shotfirers must be allowed considerable flexibility of blast designs to achieve required outcomes in changing conditions.

Page 10 (y)

“*Notes:*

a) ERR is unlikely to approve any blasting within a distance of 200 metres from a freeway

b) ERR suggests that any public road located within 100 metres of a proposed blast be closed during the blast.

c) ERR suggests that all blasts be videoed as far as practicable”

Because the responsibility for blast safety ultimately lies with the shotfirer, he/she must review the adequacy of the standard clearance distance prior to each blast and modify (i.e. increase) the minimum zone on consideration of each blast’s location, design, loading details, and the potential for under-confined blast holes (as part of the Blast Plan risk assessment).

However, general clearance provisions shown in the work plan should be determined or reviewed by an experienced, reputable independent person.

Page 10

“Blasting engineer details”

A “blasting engineer” that meets ERR criteria may not have intimate knowledge of a quarry’s rock or it’s behaviour under blasting. The final say on clearance for individual blasts should remain with experienced shotfirers who are familiar with the quarry’s rock, not partly outsourced to an outsider who may have limited site knowledge and is not responsible for blasting operations.

Assumed to mean shotfirers licence number, i.e. the blast engineer must also hold a current UBE licence?

The qualifications for the blasting engineer may be too prescriptive and there would be a very few people in Victoria who meet the strict criteria (Page 5) and are available to help quarries produce Work Plans.

Additionally, the wide range of blast design specifications to be shown in a Work Plan BMP fall within standard industry practice and do not require the special consideration of an engineer.

Summary

In summary, the following points are restated:

- Having three separate approaches to blasting is unacceptable:
  1) To satisfy ERR requirements using parts of of *AS 2187.2-2006* Explosives - Storage and Use - Use of Explosives;

2) To satisfy WorkSafe requirements using parts of of *AS 2187.2-2006* Explosives - Storage and Use - Use of Explosives; and
3) To enable a blast to be undertaken by all personnel associated with blasting activities at the quarry site according to *AS 2187.2-2006* Explosives - Storage and Use - Use of *E*xplosives

The CMPA Blast Management Template (Issue 3, September 2020) incorporates all requirements for blasting; has been reviewed by experts, practitioners, WorkSafe and ERR. It could also be made available to ERR. Other information required by the Draft Guideline is already found in the work plan.

- The qualifications/experience and need for a blast engineer are unnecessary and need to be changed.

- Changes to 1A or 1B in the Draft Guideline will result in a work plan variation. The Draft Guideline inadvertently places restrictions on operations that will not make adjustments due to the difficulty in red tape of a work plan variation which may result in best practices not being utilised.

- It is important that shotfirers are provided flexibility and discretion over blast designs and are allowed some flexibility for blast clearance, particularly with respect design modifications that can limit the need for road closures. Highly prescriptive details in Work Plans or inflexible arrangements could:
    - Increase the chance of quarries breaching their Work Plan conditions.
    - Potentially increase the risks and impacts of blasting (where approved design specifications are unsuitable for changing/future site conditions and operational requirements).
    - Potentially require ongoing Work Plan variations that would waste the time of both quarry operators and the regulator.

- A regulatory impact statement (due to regulatory creep) must be conducted prior to this Draft Guideline being finalised.

Hence, the Draft Guideline is **not supported** in its current form.

I would be happy to discuss our submission further at your invitation.

Yours sincerely

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