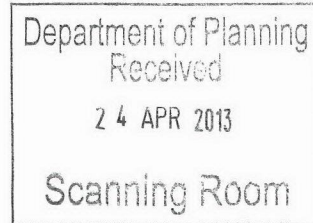


Your reference:
Our reference: DOC13/8827; NSR13/240; LIC08/1088-03
Contact Michael Howat; (02) 4908 6819

Department of Planning and Infrastructure
GPO Box 39
SYDNEY NSW 2001

Attn: Ms Sophie Butcher



Dear Ms Butcher

**Karuah East Hard Rock Quarry (MP 09_0175)
Part 3A of the *Environmental Planning and Assessment Act 1979*
Lot 12 and Lot 13 DP 1024564, Pacific Highway, Karuah**

Reference is made to the report titled "*Environmental Assessment Report: Proposed Karuah East Hard Rock Quarry – 31 January 2013*" (EA) and accompanying information provided for the proposed Karuah East Hard Rock Quarry (MP09_0175) received by the Environment Protection Authority (EPA) on 11 March 2013.

The EPA understands that the proposal includes the following:

- Extraction of up to 1.5 million tonnes of hard rock (andesite) annually for 20 years;
- Construction of infrastructure such as offices, weighbridge, crushing and screening facilities;
- Transport of material off-site by road involving up to 216 truck loads per day; and
- Drilling and blasting activities.

The EPA has reviewed the proposal as described in the EA and provides the comments shown in **Attachment 1** in relation to some aspects of the proposal. If the project is approved, the EPA recommends that the conditions provided in Attachment 1 are incorporated into the consent.

In assessing the proposal the EPA has also however identified concerns in relation to the air quality impact assessment undertaken for the proposal and EPA can find no assessment in the EA relating to on-site effluent management for the proposed 28 staff. As you'll note in Attachment 1 the EPA has provided recommended conditions in relation to noise, solid waste and surface water, however based on issues with the air assessment and an apparent lack of wastewater assessment the EPA is unable to provide recommended conditions for air quality and wastewater matters. The EPA's concerns in relation to the air quality assessment and wastewater have been provided as **Attachment 2** and need to be adequately assessed prior to EPA being able to recommend all conditions of approval. The Department will also notice that EPA does not accept the sizing of the surface water dams as acceptable and although we have provided recommended conditions of consent in relation to surface waters, prior to consent being granted EPA requires a reassessment of dam sizes in recognition of the sensitivity of the receiving environment and the principles of the "Bluebook".

PO Box 488G Newcastle NSW 2300

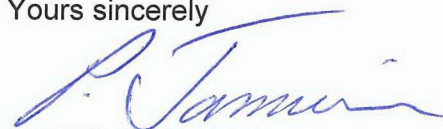
117 Bull Street, Newcastle West NSW 2302

Tel: (02) 4908 6800 Fax: (02) 4908 6810

It is noted that the project will require a licence under the *Protection of the Environment Operations Act 1997* to commence construction activities and to operate. The proponent will need to make a separate application to the EPA to obtain this licence if project approval is granted.

If you have any questions, or wish to discuss this matter further please contact Michael Howat on 4908 6819.

Yours sincerely

 19-4-13

PETER JAMIESON

**Head Regional Operations Unit – Hunter
Environment Protection Authority**

Encl: **Attachment 1** – Karuah East Hard Rock Quarry: Recommended Conditions of Approval
Attachment 2 – Karuah East Hard Rock Quarry: Detailed Review of Air Quality Impact Assessment

ATTACHMENT 1

KARUAH EASY HARD ROCK QUARRY (MP09_0175) RECOMMENDED CONDITIONS OF APPROVAL

General

1. Except as provided by these conditions of approval below, the works and activities must be undertaken in accordance with *"Environmental Assessment Report: Proposed Karuah East Hard Rock Quarry"* (EA) dated 31 January 2013.

Noise and Blasting

The EA and *Noise & Blasting Impact Assessment – Karuah East Quarry Project* (the "NBIA", SLR Consulting Australia Pty Ltd, dated 2012) appear to assess the proposal generally in accordance with the *New South Wales Industrial Noise Policy* (EPA 2000) and *NSW Road Noise Policy* (DECCW 2011). The EPA considers that it is able to licence the predicted noise impacts and proposes noise conditions which are attached. Please note that the proposed conditions do not include evening or night time limits, as the EA states that the proposal will operate only during daytime hours. The EPA expects that the Department of Planning and Infrastructure will include operational hours as a condition of consent.

The EPA notes the advice in the EA and NBIA that "structures on Lot 4 DP 828128 (to the north of the site) and Lot 10 DP 1032636 (to the east of the site) are a chicken shed and caravan respectively" and that there does not appear to be a residence on Lot 11 DP1024564. The EPA has therefore not included noise limits for these premises in the proposed conditions. However, if these lots are lawfully occupied by long-term residents, the noise impact of the proposal on those residential receivers would need to be assessed and appropriate limits derived.

Additionally the construction hours proposed in Condition 2 below differ to those proposed in the EA. The EA states the proposed construction hours of 7am to 1pm Saturdays, however the EPA recommends that construction hours commence no earlier than 8am on Saturdays, consistent with the *Interim Construction Noise Guidelines* (DECC, 2009).

Construction Noise

2. All construction work at the premises must be conducted between 7am to 6pm Monday to Friday and between 8am to 1pm Saturdays and at no time on Sundays and public holidays. This condition does not apply in the event of a direction from police or other relevant authority for safety or emergency reasons.

Note: 'safety or emergency reasons' refers to emergency works which may need to be undertaken to avoid loss of life, property loss and/or to prevent environmental harm.

Operational Noise

3. All quarrying operations, including extraction, processing and loadings / transport must be conducted between 7am to 6pm Monday to Friday and 7am to 1pm Saturdays and at no time on Sundays and public holidays.
4. Noise generated at the premises must not exceed the noise limits in the table below. The locations referred to in the table below are indicated in Table 3 and Figure 10 of the document entitled *Environmental Assessment Report – Proposed Karuah East Quarry* (ADW Johnson Pty Limited 2013)

Locality	Location	NOISE LIMITS dB(A)			
		Day	Evening	Night	
		L _{Aeq} (15 minute)	L _{Aeq} (15 minute)	L _{Aeq} (15 minute)	L _{A1} (1 minute)
A	The residence on Lot 100 DP785172	40	N/A	N/A	N/A
B	The residence on Lot 3 DP785172	37	N/A	N/A	N/A
G	The residence on Lot 1 DP1032636	38	N/A	N/A	N/A
Any other residence	Any other sensitive receiver not subject to a private negotiated agreement	35	N/A	N/A	N/A

For the purpose of the table above:

- Day is defined as the period from 7am to 6pm Monday to Saturday and 8am to 6pm Sunday and Public Holidays.
- Evening is defined as the period 6pm to 10pm.
- Night is defined as the period from 10pm to 7am Monday to Saturday and 10pm to 8am Sunday and Public Holidays.

5. The noise limits set out in the table above apply under all meteorological conditions except for the following:
 - a) Wind speeds greater than 3 metres/second at 10 metres above ground level; or
 - b) Stability category F temperature inversion conditions and wind speeds greater than 2 metres/second at 10 metres above ground level; or
 - c) Stability category G temperature inversion conditions.
6. For the purposes of measuring the meteorological conditions specified above:
 - a) The proponent must install or utilise an existing meteorological station which has been approved in writing by the EPA. Data recorded by the meteorological station approved by the EPA must be used to determine meteorological conditions ; and
 - b) Temperature inversion conditions (stability category) are to be determined by the sigma-theta method referred to in Part E4 of Appendix E to the NSW Industrial Noise Policy.
7. To determine compliance:
 - a) with the L_{eq(15 minute)} noise limits specified above, the noise measurement equipment must be located:
 - approximately on the property boundary, where any dwelling is situated 30 metres or less from the property boundary closest to the premises; or
 - within 30 metres of a dwelling façade, but not closer than 3m, where any dwelling on the property is situated more than 30 metres from the property boundary closest to the premises; or, where applicable
 - within approximately 50 metres of the boundary of a National Park or a Nature Reserve.

- b) with the $L_{A1(1 \text{ minute})}$ noise limits specified above, the noise measurement equipment must be located within 1 metre of a dwelling façade.
 - c) with the noise limits specified above, the noise measurement equipment must be located:
 - at the most affected point at a location where there is no dwelling at the location; or
 - at the most affected point within an area at a location prescribed by sections (a) or (b) of this conditions.
8. A non-compliance of the noise limits specified above will still occur where noise generated from the premises in excess of the appropriate limit is measured:
- at a location other than an area prescribed by condition 7 (a) and 6(b) above; and/or
 - at a point other than the most affected point at a location.
9. For the purposes of determining the noise generated at the premises the modification factors in Section 4 of the NSW Industrial Noise Policy must be applied, as appropriate, to the noise levels measured by the noise monitoring equipment.

Blasting and Vibration

10. Blasting activities at the premises may only be conducted under the following conditions:
- Between the hours of 9am to 5pm Monday to Friday. No blasting is permitted Saturdays, Sundays or public holidays;
 - Blasting is not permitted simultaneous with adjacent quarry(s); and
 - Blasting outside of the hours specified above can only take place with the written approval of the EPA.
11. The airblast overpressure level from blasting operations at the premises must not exceed 120dB (Lin Peak) at any time at any noise sensitive locations. Error margins associated with any monitoring equipment used to measure this are not to be taken into account in determining whether or not the limit has been exceeded.
12. The airblast overpressure level from blasting operations at the premises must not exceed 115dB (Lin Peak) at any noise sensitive locations for more than five per cent of the total number of blasts over each reporting period. Error margins associated with any monitoring equipment used to measure this are not to be taken into account in determining whether or not the limit has been exceeded.
13. Ground vibration peak particle velocity from the blasting operations at the premises must not exceed 10mm/sec at any time at any noise sensitive locations. Error margins associated with any monitoring equipment used to measure this are not to be taken into account in determining whether or not the limit has been exceeded.
14. Ground vibration peak particle velocity from the blasting operations at the premises must not exceed 5mm/sec at any noise sensitive locations for more than five per cent of the total number of blasts over each reporting period. Error margins associated with any monitoring equipment used to measure this are not to be taken into account in determining whether or not the limit has been exceeded.
15. The airblast overpressure and ground vibration levels in the conditions above do not apply at noise sensitive locations that are owned by the licensee or subject to a private agreement, relating to airblast overpressure and ground vibration levels, between the licensee and land owner.

Monitoring

16. The meteorological weather station must be maintained so as to be capable of continuously monitoring the parameters specified in the condition below.

17. For each monitoring point specified in the table below the licensee must monitor (by sampling and obtaining results by analysis) the parameters specified in Column 1. The licensee must use the sampling method, units of measure, averaging period and sample at the frequency, specified opposite in the other columns.

Point <insert point number as listed in table P1.1>

Parameter	Units of Measure	Frequency	Averaging Period	Sampling Method
Air temperature	°C	Continuous	1 hour	AM-4
Wind direction	°	Continuous	15 minute	AM-2 & AM-4
Wind speed	m/s	Continuous	15 minute	AM-2 & AM-4
Sigma theta	°	Continuous	15 minute	AM-2 & AM-4
Rainfall	mm	Continuous	15 minute	AM-4
Relative humidity	%	Continuous	1 hour	AM-4

Note: the sampling methods referred to in the table above are described in the document *Approved Methods for Modelling and Assessment of Air Pollutants in New South Wales*

18. To assess compliance with the noise limits for this premises attended noise monitoring must be undertaken in accordance with condition 7 above and:
- at each one of the locations listed in condition 4;
 - occur annually each reporting period at the time of year generally associated with maximum noise transmission (ie generally winter conditions);
 - occur during each day period as defined in the NSW Industrial Noise Policy for a minimum of 1.5 hours.

Note: the frequency of this noise monitoring may be varied at the discretion of the EPA.

19. The proponent must monitor all blasts carried out in or on the premises at or near the nearest residence or noise sensitive location (such as a school or hospital) that is likely to be most affected by the blast and that is not owned by the licensee or subject of a private agreement between the owner of the residence or noise sensitive location and the licensee relating to alternative blasting limits.

Reporting Conditions

20. Noise Monitoring Report:

A noise compliance assessment report must be submitted to the EPA within 30 days of the completion of the annual monitoring. The assessment must be prepared by a suitably qualified and experienced acoustical consultant and include:

- an assessment of compliance with noise limits presented in condition 4; and
- an outline of any management actions taken within the monitoring period to address any exceedences of the limits contained in condition 4.

21. The proponent must report any exceedence of the blasting limits to the regional office of the EPA as soon as practicable after the exceedence becomes known to the licensee or to one of the licensee's employees or agents.
22. The proponent must supply annually a Blast Monitoring Report with the EPA licence Annual Return, which must include the following information relating to each blast carried out within the premises during the respective reporting period:
 - a) the date and time of the blast;
 - b) the location of the blast on the premises;
 - c) the blast monitoring results at each blast monitoring station; and
 - d) an explanation for any missing blast monitoring results.

Waste

23. The licensee must not cause, permit or allow any waste generated outside the premises to be received at the premises for storage, treatment, processing, reprocessing or disposal or any waste generated at the premises to be disposed of at the premises, except as expressly permitted by a licence.
24. The condition above only applies to the storage, treatment, processing, reprocessing or disposal of waste at the premises if those activities require an environment protection licence.

Water

The EPA notes the primary water bodies surrounding the Karuah East Quarry flow to either Bulga Creek to the east of the proposed site and Yalimbah Creek to the west. Both of these creek systems flow to the Port Stephens estuary and through State Environmental Planning Policy (SEPP) 14 Wetlands. The EPA considers the Port Stephens estuary a sensitive receiving environment.

As detailed in the EA, if approved, site operations would result in two potential discharge points from the premises. These discharge points are proposed from Dam 1 and Dam 2 as shown in Figure 15 of the EA. The EPA notes the dam capacities are allegedly designed in accordance with the *Soils and Construction: Managing Urban Stormwater 2004* (Bluebook) 5-day 95th percentile rainfall event for the locality, although Dam 1 will have increased capacity above the Bluebook calculation as it is proposed to receive additional volumes from the in-pit sump as required.

In addition to the above the EA states that the water management plan for the site is directed at reducing discharges from Dam 2 due to the close proximity of the Dam 2 outlet point to SEPP 14 wetlands. The EPA understands that pumping between the in-pit sump, Dam 1 and Dam 2 will be designed to ensure discharges are predominantly from Dam 1 wherever possible, and the EA states that discharges from Dam 2 are only anticipated during extreme wet weather events.

EPA notes from the EA that in a median year uncontrolled discharges are expected to occur up to 6 days per year for Stage 5 and this would rise to 13 uncontrolled discharges during a "wet" year. This is significantly higher than the anticipated 1-2 discharges per year detailed in the Bluebook. Given the sensitivity of the receiving environment this level of uncontrolled discharge is unacceptable. EPA requests that prior to approval the proponent increase the size of the dam(s), do additional modelling and make a submission to EPA for alternative dam designs/sizes that are more commensurate with the sensitivity of the receiving environment. This revised submission should also better document how sediment laden water will be managed from the extraction area during the early stages of development prior to an in-pit sump being developed.

The EPA notes that if approved the project will require an Environment Protection Licence (EPL) under the *Protection of the Environment Operations Act 1997*. It is the intention of the EPA to regulate discharges

from the site through an EPL including associated concentration limits, monitoring requirements and reporting conditions.

The EA does not appear to provide specific detail on the achievable water quality parameters from both controlled and uncontrolled discharges from the site. In response to this the EPA has reviewed the site operations and water management systems proposed and determined discharge quality parameters, which are included in the recommended conditions of approval provided below. These concentration limits are commensurate with the sensitivity of the receiving environment.

Sediment and erosion controls

25. The licensee must, before undertaking any earthmoving or vegetation removal works, implement erosion and sediment control measures to prevent pollution of waters in accordance with *Soils and Construction: Managing Urban Stormwater 2004* (Landcom, 2004).
26. Stormwater from the premises which has the potential to mobilise sediments and other material must be controlled and diverted through the appropriate sediment and erosion control and/or pollution control measures/structures, so as not to cause, permit or allow water pollution to occur.
27. The in-pit sump must be sized at all times to prevent a discharge to waters in the event of pump failure.

Location of monitoring/discharge points and areas

28. The following points referred to in the table below are identified for the purposes of monitoring and/or setting of limits for the emission of pollutants to water from the point.

WATER

Identification no.	Type of Monitoring Point	Type of Discharge Point	Description of Location
1	Discharge quality monitoring	Discharge to waters	The discharge point from Dam 1, as shown on Figure 15 of the Environmental Assessment Report dated 31 January 2013
2	Discharge quality monitoring	Discharge to waters	The discharge point from Dam 2, as shown on Figure 15 of the Environmental Assessment Report dated 31 January 2013

Concentration limits

29. Except as may be expressly provided by a licence under the *Protection of the Environment Operations Act 1997* in relation of the development, section 120 of the *Protection of the Environment Operations Act 1997* must be complied with in connection with the carrying out of the development.
30. For each monitoring/discharge point or utilisation area specified in the table above the concentration of a pollutant must not exceed the concentration limits specified for that pollutant in the table.

POINTS 1 & 2

Pollutant	Units of measure	100 PERCENTILE LIMIT
Suspended Solids	mg/L	40
Oil and Grease	mg/L	5 and/or none visible
pH	pH units	6.5 – 8.5

Monitoring

31. For each monitoring/discharge point or utilisation area specified below (by a point number) the concentration of each pollutant specified in Column 1 must be monitored by sampling and obtaining

results by analysis. Specified opposite in the other columns are the sampling method and units of measure to be used and the frequency with which samples are to be taken.

POINTS 1 & 2

Pollutant	Units of measure	Frequency	Sampling Method
Suspended Solids	mg/L	Special Frequency 1	Grab sample
Turbidity	ntu	Special Frequency 1	Grab sample
Oil and Grease	mg/L	Special Frequency 1	Visual
pH	pH units	Special Frequency 1	Grab sample

Note: For the purposes of the table above 'Special Frequency 1' means:

- (a) within 12 hours prior to any controlled discharge; or
- (b) daily during any uncontrolled discharge.

Bunding

32. All above ground tanks containing material that is likely to cause environmental harm must be banded or have an alternative spill containment system in place.
33. Bunds must:
- a) have walls and floors constructed of impervious materials;
 - b) be of sufficient capacity to contain 110% of the volume of the tank (or 110% volume of the largest tank where a group of tanks are installed);
 - c) have walls not less than 250 millimetres high;
 - d) have floors graded to a collection sump; and
 - e) not have a drain valve incorporated in the bund structure,
- or be constructed and operated in a manner that achieves the same environmental outcome.

ATTACHMENT 2

KARUAH EASY HARD ROCK QUARRY (MP09_0175) DETAILED REVIEW OF AIR QUALITY IMPACT ASSESSMENT AND WASTEWATER ASSESSMENT

AIR QUALITY

The EPA has determined that the Air Quality Impact Assessment (AQIA) has not been conducted in accordance with the *Approved Methods for the Modelling and Assessment of Air Pollutants in NSW* (DEC, 2005). Issues identified with the AQIA are summarised below.

1. Cumulative impacts of emissions from the Project, the existing Karuah Quarry and the proposed Kiely's Quarry have not been adequately assessed

The AQIA does not adequately justify the assumption that emissions from operations at the existing Karuah Quarry are included within the background air quality data.

The EPA notes that the Project dispersion model uses background air quality from data obtained:

- during 2009 from the Karuah Quarry air quality monitoring network for dust deposition; and
- during 2008 from the Office of Environment and Heritage Wallsend air quality monitoring site for Total Suspended Particles (using a site specific TSP/PM₁₀ ratio of 1.9:1), 24-hour average PM₁₀ and annual PM₁₀.

The EPA agrees that air quality at Wallsend is likely to be generally representative of regional air quality and data from this site is likely to be adequate for use in estimating air quality at the Project site due to sources affecting regional air quality (the background air quality).

However, Karuah Quarry is located adjacent to the Project site and the air quality levels measured at Wallsend (located approximately 40 km to the north east of the Project site) will not be representative of air quality levels at properties located around the Karuah Quarry – which is expected to have a significant additional contribution to air pollutant levels in the vicinity around the Project site.

The EPA request the AQIA be revised and additional information is provided to demonstrate the cumulative impacts of emissions from all existing and potential quarries have been assessed. Specifically, the impacts of emissions from the existing Karuah Quarry must be included in the assessment of cumulative impacts.

2. Meteorological data used in the dispersion model has not been demonstrated as site-representative

The AQIA does not justify or demonstrate that metrological data used in the dispersion model is site representative.

The use of site representative metrological data is particularly important due to the topography of the Project site and the location of the identified residences. Valley drainage flows are likely to move air from the Project site downhill – potentially in the general direction of impacted residences.

The Bureau of Meteorology Newcastle Nobby's and Williamtown automatic weather stations are located approximately 39 km and 24 km southwest of the Project site. The AQIA states that since both sites are

located close to the coastline, they are not representative of local meteorological conditions at the Project site. Consequently, meteorological data for the dispersion model was prepared using the The Air Pollution Model (TAPM) meteorological model.

The AQIA dispersion model uses TAPM generated meteorological data based on 2008 data only. However, Section 4 of the *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales* (Approved Methods) requires that site-representative data should be “correlated against a longer-duration site-representative meteorological database of at least five years (preferably 5 consecutive years) to be deemed acceptable”. In addition, the AQIA does not justify that the year 2008 is representative of long term meteorology at this site (i.e. address the factor of inter-annual variability in meteorology).

The EPA request the AQIA be revised and additional information is provided to demonstrate and justify the meteorology data used in the dispersion model is site representative.

3. Predicted impacts may have been underestimated or are not well justified

Several issues have been identified in the AQIA which have the potential to result in an underestimation of predicted impacts:

a. Emissions inventory does not include all emission sources and the layout of the site and unit operations is unclear

AQIA Appendix E provides a summary of the emissions inventory used for the Project. The emissions inventory does not:

- include all emission sources such as drilling; or
- clearly define the likely extent or location of exposed areas.

In addition it is not clear if emplacement at dumps and stockpiles, and bulldozer operations on various overburden activities have been included in the emissions inventory.

The AQIA does not provide detailed site plans clearly showing the layout of all unit operations and the site topography, as required by Section 9 of the Approved Methods.

The EPA request the AQIA be revised and additional information is provided so that each potential emission source is clearly identified and described.

The EPA request detailed site plans clearly showing the layout of all unit operations and the site topography be provided, in accordance with the requirements of Section 9 of the EPA document *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales*.

b. The emission rate equations and control factors used are not clear or justified for all sources

Section 7.4 of the AQIA states that emission controls have been applied for drilling according to the equations summarised in Table 24, however drilling is not included as an activity in this table.

Section 7.3.1 states the haul roads between the product stockpiles and the Pacific Highway for the Project and Kiely's Quarry will be paved and consequently emissions from these roads will be reduced by 100%. 100% control efficiency is not realistic where the paved road is located near unpaved areas, is used to transport material, or is not curbed. Best practice emission control measures to best maintain the condition of paved roads must include a control plan to implement and address routine cleaning of the paved road surface.

The EPA request the AQIA be revised and additional information is provided to:

- clarify that appropriate emission controls have been applied for each emission source; and
- justify the use of a control efficiency of 100% for haul road emissions between the product stockpile and the Pacific Highway.

The EPA request detailed calculations of pollutant emission rates for each source be provided.

c. Adverse air impacts on adjacent residences are predicted if the identified “best practice” control measures are not implemented effectively or at the proposed Kiely’s Quarry

Previous air assessment and determination of best management practice measures for top four emission sources.

The EPA notes that the AQIA has been amended following a review of the initial air assessment conducted in November 2011 and a supplementary assessment conducted in May 2012 (all conducted by SLR Consulting Australia (SLR)). The supplementary assessment concluded that cumulative impacts from Karuah, Karuah East and Kiely’s Quarries would be likely to result in non-compliance of the air assessment criteria at existing sensitive receptors.

To address the non-compliance issue identified in the supplementary assessment, a best management practice assessment was conducted (July 2012) on the identified four largest emission sources at the proposed Karuah East and Kiely’s Quarries. Based on the incorporation of the identified best practice measures for these sources, SLR states the proposed quarries may both operate without exceeding the prescribed air quality criteria.

The EPA notes that additional control measures are included in the AQIA that are not specified in the best management practice assessment. The AQIA assumes that emission management practices used at the proposed Kiely’s Quarry will be the same as that identified as necessary for the Project.

The EPA notes that where the proposed control measures are not implemented effectively, or potentially at all in the case of the proposed Kiely’s Quarry, air impacts are predicted to exceed EPA assessment criteria (Appendix F).

The AQIA does not state if the operators of the proposed Kiely’s Quarry have committed to the use of best practice measures as identified in the AQIA. This will be necessary to ensure emissions do not have an adverse impact on adjacent residences.

The EPA request the AQIA be revised and additional information is provided to:

- **clarify that the proposed emission controls will be implemented for the Project and at the proposed Kiely’s Quarry.**
- **demonstrate how the proposed emission controls will be effectively implemented.**

4. Confirmation is required that all exiting and likely residential receptor locations have been assessed

The EPA notes that a dwelling appears to be located immediately south of the proposed Kiely’s Quarry (Figure 3). Air impacts at this location have not been assessed.

The EPA recommends that if necessary, the AQIA should be revised to include an assessment of impacts at the apparent residence south of the proposed Kiely’s Quarry.

5. Any future residence to be located on Lot 11

The EPA notes that the likely impacts of the Project on future residential development within Lot 11 were considered in the May 2012 supplementary assessment.

The EPA notes an outcome of the supplementary assessment that a residence may be located within the northern portion of Lot 11 “provided suitable particulate management practices are adhered to at both the existing and proposed quarries”.

The EPA recommends that if a residential dwelling is likely to be situated within Lot 11 a revised AQIA should consider and assess air impacts at this location.

6. Blast fume emissions have not been assessed

The AQIA has not considered blast fume emissions (NO_2) which can vary greatly depending on a range of factors including the tendency of a particular blast to generate NO_2 emissions.

The EPA recommends the AQIA be revised and additional information is provided to consider and discuss blast fume emissions.

7. The AQIA does not assess $\text{PM}_{2.5}$ emissions as “the goals related to $\text{PM}_{2.5}$ particles are reporting guidelines only at the present time and are not assessed by NSW EPA as Project criteria”

Particulate matter below $2.5\ \mu\text{m}$ in aerodynamic diameter ($\text{PM}_{2.5}$) can penetrate deep into the lungs and studies show that people in cities exposed to higher levels of $\text{PM}_{2.5}$ are at greater risk of PM associated health effects such as death from cardiopulmonary disease.

Despite the $\text{PM}_{2.5}$ goals being reporting guidelines under the Ambient Air Quality NEPM, the EPA expects $\text{PM}_{2.5}$ impacts to be investigated as a part of the assessment of air impacts due to the Project.

The EPA request the AQIA be revised to include an assessment of $\text{PM}_{2.5}$ emissions.

WASTEWATER MANAGEMENT

The EPA could find no assessment of wastewater management in the EA for the 28 employees proposed to work on the site. This would appear to be a major deficiency in the EA. It is anticipated that for a workforce of 28 a package sewage treatment system involving effluent irrigation will be necessary. Prior to this project being given consideration for approval EPA requires a thorough assessment of wastewater management, including an assessment of the soils in the proposed effluent disposal area and the provision of water and nutrient budgets to demonstrate that wastewater management can be conducted in a sustainable manner on the site.

Upon provision of this documentation EPA will be in a position to determine if it can issue conditions of approval in relation to wastewater management.



Your reference:
Our reference: LIC08/1088-03
Contact: Michael Howat (02) 4908 6819
Electronic correspondence to: hunter.region@epa.nsw.gov.au

Department of Planning and Infrastructure
GPO Box 39
SYDNEY NSW 2001

Attn: Ms Sophie Butcher

Dear Ms Butcher

**Preferred Project Report – Recommended Conditions of Approval
Karuah East Hard Rock Quarry (MP 09_0175)**

Reference is made to the report titled "*Preferred Project Report – Proposed Karuah East Quarry – 30 July 2013*" (PPR) provided by ADW Johnson Pty Ltd for the proposed Karuah East Hard Rock Quarry (MP09_0175) received by the Environment Protection Authority (EPA) on 12 August 2013.

As you'll already be aware the EPA provided comments, dated 19 April 2013, on the report "*Environmental Assessment Report: Proposed Karuah East Hard Rock Quarry – 31 January 2013*" (EA), noting our concerns with the air quality impact assessment and insufficient information on wastewater management.

The EPA has reviewed the PPR and provides the comments below. With the exception of wastewater issues the EPA's previously raised issues have been largely addressed. The issue of wastewater management needs to be resolved prior to consent being considered. The EPA has however recommended conditions of approval based on our review of the PPR. These recommended conditions of approval are provided in **Attachment 1** and replace the previous conditions provided on 19 April 2013.

Wastewater

From our review of the PPR it appears the proponent has still not adequately addressed our comments in relation to the treatment and disposal of wastewater at the site. The only reference to wastewater management at the premises appears to be a single statement in Section 4.14 of the PPR stating that the development will comply with the requirements of the relevant utility authorities. The nearest sewer is some distance away and is unlikely to be an option.

Based on the proposed 28 employees at the site it's likely that some form of aerated treatment system and disposal at the premises will be required. This system should be detailed and assessed at this development application stage.

Due to this matter not being adequately addressed in the PPR the EPA cannot support the proposal until an adequate assessment of wastewater management has been provided. The assessment would need to include details of the irrigation area including an assessment of the soils, a water balance, nutrient balances, and details of appropriate application rates.

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Air quality

The EPA has reviewed the PPR and report titled '*Proposed Karuah East Quarry Project Pacific Highway, Air Quality Impact Assessment & Greenhouse Gas Assessment*' (AQIA), dated 24 July 2013.

In response to EPA's previous comments of 19 April 2013 the AQIA has been amended to include:

- a. an assessment of cumulative impacts of emissions from the Project and the existing Karuah Quarry. The Kiely's Quarry proposal has now been formally withdrawn and is no longer included in the assessment of cumulative air impacts;
- b. further information that demonstrates the meteorological data used in the dispersion model is site representative;
- c. a revised emissions inventory and dispersion modelling that includes each potential emission source;
- d. additional information that shows the layout of operations and site topography;
- e. clarification and justification of proposed emission controls;
- f. confirmation air impacts are assessed at all sensitive receptors. The EPA notes the PPR states the apparent residence on Lot 11 is not a legal residence. Consequently this location is not included as a sensitive receptor in the AQIA;
- g. an assessment that demonstrates air impacts at the northern portion of Lot 11 will comply with EPA air assessment criteria; and
- h. an assessment of blast fume emissions and impacts from particulate matter below 2.5 µm in aerodynamic diameter (PM_{2.5}).

Predicted impacts are below EPA air assessment criteria

Particulate impacts

Predicted impacts for 24-hour and annual average PM₁₀ and PM_{2.5}, deposited dust and total suspended particulates (TSP) are below EPA air assessment criteria. The Project contribution to cumulative PM₁₀, PM_{2.5}, deposited dust and total suspended particulates (TSP) concentrations at sensitive receptors is generally below 35%.

Nitrogen dioxide impacts

Predicted nitrogen dioxide (NO₂) impacts are below EPA air assessment criteria. The maximum 1-hour average predicted concentration of NO₂ at sensitive receptors is 205 µg/m³. However conservative assumptions were used in the dispersion model (such as 100% conversion of NO_x to NO₂ and background 1-hour average NO₂ concentrations assumed to be at the maximum level throughout the day) and consequently NO₂ impacts are expected to be well below the assessment criterion of 246 µg/m³.

The AQIA has generally been conducted in accordance with the *Approved Methods for the Modelling and Assessment of Air Pollutants in NSW* (DEC, 2005). The AQIA predicts air impacts at affected sensitive receptors will comply with EPA assessment criteria and findings indicate that the Quarry can operate without significant adverse impacts to human health or the environment.

Surface water

The PPR details significant amendments to surface water management at the site, the key changes being:

- Alterations to the site layout resulting in changes to the catchment areas within the site and the number of on-site dams to be increased from two to three;
- Further detail in relation to the proposed surface water monitoring program to be implemented at the site, including a full list of parameters, monitoring frequencies, and clarification of monitoring locations; and
- An increase in the number of potential licensed discharge points from two to three.

Due to the amendments to the surface water management system at the site the EPA has changed the previous recommended conditions of approval. Conditions provided in Attachment 1 in relation to surface water replace our previous conditions of 19 April 2013.

Catchment dams

In our comments dated 19 April 2013, the EPA identified concerns with the sizing of the surface water dams and noted the dam size should be reassessed in accordance with the principles of the *'Soils and Construction: Managing Urban Stormwater 2004'* (Bluebook) making specific reference to the sensitivity of the receiving environment.

The PPR updates the site water balance modelling and discharge predictions in response to replacement of the former Dam 2 (5.2 ML) with the currently proposed Dam 2 (1.2 ML) and Dam 3 (2.3 ML).

While the formation of Dams 2 and 3 in place of the previous EA's Dam 2 has resulted in a reduction in the sites total dam capacity, the PPR argues that the changes to the site layout and catchment areas has resulted in lowering the predicted annual discharges. The PPR predicts that at Stage 5 the site will result in 2 controlled discharges per year for a "median" year, this was formerly 6 discharges in the EA, and up to 6 uncontrolled discharges during a "wet" year, formerly 13 discharges in the EA. In view of the sensitivity of the receiving environment the EPA expects performance superior to that detailed.

Chemical flocculation

The EPA notes the PPR, as well as the EA, state that chemical flocculation may be required prior to discharge, however very little information is provided on the flocculation. While the EPA does not oppose the use of chemical flocculants as a treatment option, there is insufficient detail in the report to determine if chemical flocculation would be suitable at this site. Based on the small dam capacities, specifically for Dams 2 and 3, the EPA is concerned that there would not be sufficient storage time to allow the required testing, dosing/treating, settling, and further testing prior to discharge. The dams may need to be bigger.

Despite the above the EPA notes the proponent has committed to undertaking a detailed monitoring program, including a range of parameters, monitoring locations and appropriate frequencies. The EPA is proposing to apply strict discharge concentration limits with the onus on the proponent to ensure compliance with the limits. The proponent should be made aware that commitments made in the EA and PPR may be formalised as conditions of consent and subsequent Environment Protection Licence conditions, and failure to comply with these conditions may result in regulatory action.

The EPA's recommended conditions of approval relate to the development as proposed in the EA and PPR. In the event that the development is modified either by the applicant prior to the granting of consent or as a result of the conditions proposed to be attached to the consent, it will be necessary to consult with the EPA about the changes before the consent is issued. This will enable the EPA to determine whether the recommended conditions of approval need to be modified in light of the changes.

If you have any questions or wish to discuss this matter further contact Michael Howat on 4908 6819.

Yours sincerely



PETER JAMIESON
A/Manager Hunter Region
Environment Protection Authority

Encl: **Attachment 1:** Karuah East Hard Rock Quarry: Amended recommended conditions of approval: August 2013

ATTACHMENT 1
KARUAH EASY HARD ROCK QUARRY (MP09_0175)
RECOMMENDED CONDITIONS OF APPROVAL

The conditions provided below are in response to the information detailed in the report titled "*Preferred Project Report – Proposed Karuah East Quarry – 30 July 2013*" and where relevant the report "*Environmental Assessment Report: Proposed Karuah East Hard Rock Quarry*", dated 31 January 2013. These conditions are to replace our previous recommended conditions provided on 19 April 2013.

General

1. Except as provided by these conditions of approval below, the works and activities must be undertaken in accordance with the following reports:
 - *Environmental Assessment Report: Proposed Karuah East Hard Rock Quarry* (EA) dated 31 January 2013; and
 - *Preferred Project Report – Proposed Karuah East Quarry* (PPR) dated 30 July 2013.

Where any discrepancy or conflict exists between these two reports the PPR takes precedence.

Wastewater

Effluent application to land

2. The quantity of effluent/solids applied to the utilisation area must not exceed the capacity of the area to effectively utilise the effluent/solids.

For the purposes of this condition, 'effectively utilise' includes the use of the effluent/solids for pasture or crop production, as well as the ability of the soil to absorb the nutrient, salt, hydraulic load and organic material.

3. Effluent application to the utilisation area(s) must not occur in a manner that causes surface run-off from the utilisation area(s).
4. Spray from effluent application to the utilisation area(s) must not drift beyond the boundary of the utilisation area(s) to which it has been applied.

Water

Sediment and erosion controls

5. The licensee must, before undertaking any earthmoving or vegetation removal works, implement erosion and sediment control measures to prevent pollution of waters in accordance with *Soils and Construction: Managing Urban Stormwater 2004* (Landcom, 2004).
6. Stormwater from the premises which has the potential to mobilise sediments and must be controlled and diverted through the appropriate sediment and erosion control and/or pollution control measures/structures, so as not to cause, permit or allow water pollution to occur.
7. The in-pit sump must be sized at all times to prevent a discharge to waters in the event of pump failure.

Location of monitoring/discharge points and areas

8. The following points referred to in the table below are identified for the purposes of monitoring and/or setting of limits for the emission of pollutants to water from the point.

WATER

Identification no.	Type of Monitoring Point	Type of Discharge Point	Description of Location
1	Discharge quality monitoring	Discharge to waters	The discharge point from Dam 1 as shown on Figure 4 of the Preferred Project Report dated 30 July 2013
2	Discharge quality monitoring	Discharge to waters	The discharge point from Dam 2 as shown on Figure 4 of the Preferred Project Report dated 30 July 2013
3	Discharge quality monitoring	Discharge to waters	The discharge point from Dam 3 as shown on Figure 4 of the Preferred Project Report dated 30 July 2013

Concentration limits

9. Except as may be expressly provided by a licence under the *Protection of the Environment Operations Act 1997* in relation of the development, section 120 of the *Protection of the Environment Operations Act 1997* must be complied with in connection with the carrying out of the development.
10. For each monitoring/discharge point or utilisation area specified in the table above the concentration of a pollutant must not exceed the concentration limits specified for that pollutant in the table.

POINTS 1 - 3

Pollutant	Units of measure	100 PERCENTILE LIMIT
Suspended Solids	mg/L	40
Oil and Grease	mg/L	5 and/or none visible
pH	pH units	6.5 – 8.5

Monitoring

11. For each monitoring/discharge point or utilisation area specified below (by a point number) the concentration of each pollutant specified in Column 1 must be monitored by sampling and obtaining results by analysis. Specified opposite in the other columns are the sampling method and units of measure to be used and the frequency with which samples are to be taken.

POINTS 1 - 3

Pollutant	Units of measure	Frequency	Sampling Method
Suspended Solids	mg/L	Special Frequency 1	Grab sample
Turbidity	ntu	Special Frequency 1	Grab sample
Oil and Grease	mg/L	Special Frequency 1	Visual
pH	pH units	Special Frequency 1	Grab sample

Note: For the purposes of the table above 'Special Frequency 1' means:

- (a) within 12 hours prior to any controlled discharge; and
- (b) daily during a controlled discharge; or
- (c) daily during any uncontrolled discharge.

Bunding

12. All above ground tanks containing material that is likely to cause environmental harm must be banded or have an alternative spill containment system in place.
13. Bunds must:
 - a) have walls and floors constructed of impervious materials;
 - b) be of sufficient capacity to contain 110% of the volume of the tank (or 110% volume of the largest tank where a group of tanks are installed);
 - c) have floors graded to a collection sump; and
 - d) not have a drain valve incorporated in the bund structure, or be constructed and operated in a manner that achieves the same environmental outcome.

Air Quality

14. The Proponent shall:
 - a. implement best practice management to minimise the off-site odour, fume and dust emissions of the project;
 - b. operate a comprehensive air quality management system on site that uses meteorological and air quality monitoring data to guide the day-to-day planning of operations and implementation of both proactive and reactive air quality mitigation measures to prevent adverse air impacts;
 - c. minimise the air quality impacts of the project during adverse meteorological conditions and extraordinary events;
 - d. minimise any visible off-site air pollution; and
 - e. minimise the surface disturbance of the site generated by the project.

Air Quality Emission Control Measures

15. The Proponent must develop, implement and maintain air quality emission control measures for all dust generating activities. The air quality emission control measures must be consistent with best available technology and best environmental practice for emission control.
16. The Proponent must document all proposed air quality emission control measures. The information must include:
 - explicit linkage of proposed emission controls to the site specific best practice determination assessment;
 - timeframe for implementation of all identified emission controls;
 - key performance indicator(s) for emission controls;
 - monitoring method(s) including location, frequency and duration;
 - response mechanisms;
 - responsibilities for demonstrating and reporting achievement of key performance indicator(s);
 - record keeping and complaints response register; and
 - compliance reporting.
17. The Proponent must install, implement and maintain an ambient air quality monitoring network to monitor PM₁₀. Details of the monitoring network, and its operation and maintenance, must be documented.
18. Prior to commencement of operations, the Proponent must appoint a recognised air quality specialist to review and approve the air quality emission control measures and air quality monitoring network. The review of the air quality emission control measures must include a review against each of the mitigation measures and management practices described in the documents submitted to support the Project development application.
19. Details of the air quality emission control measures and ambient air quality monitoring network must be submitted to the Environment Protection Authority (EPA) in conjunction with the application for an

Environment Protection Licence under the *Protection of the Environment Operations Act 1997* for the project.

20. The air quality emission control measures and ambient air quality monitoring network must be implemented prior to the commencement of any dust generating activities at the site.

Meteorological Monitoring

21. Prior to the commencement of operation of the development, the Proponent must establish a permanent meteorological station complying with the Approved Methods for Sampling and Analysis and the Australian Standard AS2923 – 1987, at the facility. The meteorological station must monitor the following parameters:

Parameter	Units of measure	Averaging period	Frequency	Sampling method ¹
Rainfall	mm/hr	1 hour	Continuous	AM-4
Sigma Theta @ 10 m	°	1 hour	Continuous	AM-2
Siting	-	-	-	AM-1
Temperature @ 10 m	K	1 hour	Continuous	AM-4
Temperature @ 2 m	K	1 hour	Continuous	AM-4
Total Solar Radiation @ 10m	W/m2	1 hour	Continuous	AM-4
Wind Direction @ 10 m	°	1 hour	Continuous	AM-2
Wind Speed @ 10 m	m/s	1 hour	Continuous	AM-2

¹ NSW EPA, 2001, *Approved Methods for the Sampling and Analysis of Air Pollutants in NSW*.

22. The location of the site chosen for the station and details of equipment, measurement and maintenance/service procedures and schedules to be installed and maintained must be submitted to the EPA and approved in writing by the EPA before any sampling or analysis is carried out. The meteorological monitoring station must be calibrated at least once every 12 months. The EPA is to be provided with data on request on a Microsoft ® Office software compatible format.

Dust

23. The premises must be maintained in a condition which minimises or prevents the emission of dust from the premises.

Activities occurring in or on the premises must be carried out in a manner that will minimise the generation or emission of wind-blown and traffic generated dust.

Odour

24. No condition of this licence identifies a potentially offensive odour for the purposes of section 129 of the Protection of the Environment Operations Act 1997.

Note: Section 129 of the Protection of the Environment Operations Act 1997, provides that the licensee must not cause or permit the emission of any offensive odour from the premises but provides a defence if the emission is identified in the relevant environment protection licence as a potentially offensive odour and the odour was emitted in accordance with the conditions of a licence directed at minimising odour.

Waste

25. The licensee must not cause, permit or allow any waste generated outside the premises to be received at the premises for storage, treatment, processing, reprocessing or disposal or any waste generated at the premises to be disposed of at the premises, except as expressly permitted by a licence.
26. The condition above only applies to the storage, treatment, processing, reprocessing or disposal of waste at the premises if those activities require an environment protection licence.

Noise and Blasting

Construction Noise

27. All construction work at the premises must be conducted between 7am to 6pm Monday to Friday and between 8am to 1pm Saturdays and at no time on Sundays and public holidays. This condition does not apply in the event of a direction from police or other relevant authority for safety or emergency reasons.

Note: 'safety or emergency reasons' refers to emergency works which may need to be undertaken to avoid loss of life, property loss and/or to prevent environmental harm.

Operational Noise

28. All quarrying operations, including extraction, processing and loadings / transport must be conducted between 7am to 6pm Monday to Friday and 7am to 1pm Saturdays and at no time on Sundays and public holidays.
29. Noise generated at the premises must not exceed the noise limits in the table below. The locations referred to in the table below are indicated in Table 3 and Figure 10 of the document entitled *Environmental Assessment Report – Proposed Karuah East Quarry* (ADW Johnson Pty Limited 2013)

Locality	Location	NOISE LIMITS dB(A)			
		Day	Evening	Night	
		L _{Aeq} (15 minute)	L _{Aeq} (15 minute)	L _{Aeq} (15 minute)	L _{A1} (1 minute)
A	The residence on Lot 100 DP785172	40	N/A	N/A	N/A
B	The residence on Lot 3 DP785172	37	N/A	N/A	N/A
G	The residence on Lot 1 DP1032636	38	N/A	N/A	N/A
Any other residence	Any other sensitive receiver not subject to a private negotiated agreement	35	N/A	N/A	N/A

For the purpose of the table above:

- Day is defined as the period from 7am to 6pm Monday to Saturday and 8am to 6pm Sunday and Public Holidays.
- Evening is defined as the period 6pm to 10pm.

- o Night is defined as the period from 10pm to 7am Monday to Saturday and 10pm to 8am Sunday and Public Holidays.

30. The noise limits set out in the table above apply under all meteorological conditions except for the following:

- a) Wind speeds greater than 3 metres/second at 10 metres above ground level; or
- b) Stability category F temperature inversion conditions and wind speeds greater than 2 metres/second at 10 metres above ground level; or
- c) Stability category G temperature inversion conditions.

31. To determine compliance:

- a) with the $L_{eq(15 \text{ minute})}$ noise limits specified above, the noise measurement equipment must be located:
 - approximately on the property boundary, where any dwelling is situated 30 metres or less from the property boundary closest to the premises; or
 - within 30 metres of a dwelling façade, but not closer than 3m, where any dwelling on the property is situated more than 30 metres from the property boundary closest to the premises; or, where applicable
 - within approximately 50 metres of the boundary of a National Park or a Nature Reserve.
- b) with the $L_{A1(1 \text{ minute})}$ noise limits specified above, the noise measurement equipment must be located within 1 metre of a dwelling façade.
- c) with the noise limits specified above, the noise measurement equipment must be located:
 - at the most affected point at a location where there is no dwelling at the location; or
 - at the most affected point within an area at a location prescribed by sections (a) or (b) of this conditions.

32. A non-compliance of the noise limits specified above will still occur where noise generated from the premises in excess of the appropriate limit is measured:

- at a location other than an area prescribed by condition 31 (a) and 31 (b) above; and/or
- at a point other than the most affected point at a location.

33. For the purposes of determining the noise generated at the premises the modification factors in Section 4 of the NSW Industrial Noise Policy must be applied, as appropriate, to the noise levels measured by the noise monitoring equipment.

Blasting and Vibration

34. Blasting activities at the premises may only be conducted under the following conditions:

- Between the hours of 9am to 5pm Monday to Friday. No blasting is permitted Saturdays, Sundays or public holidays;
- Blasting is not permitted simultaneous with adjacent quarry(s); and
- Blasting outside of the hours specified above can only take place with the written approval of the EPA.

35. The airblast overpressure level from blasting operations at the premises must not exceed 120dB (Lin Peak) at any time at any noise sensitive locations. Error margins associated with any monitoring equipment used to measure this are not to be taken into account in determining whether or not the limit has been exceeded.

36. The airblast overpressure level from blasting operations at the premises must not exceed 115dB (Lin Peak) at any noise sensitive locations for more than five per cent of the total number of blasts over each reporting period. Error margins associated with any monitoring equipment used to measure this are not to be taken into account in determining whether or not the limit has been exceeded.

37. Ground vibration peak particle velocity from the blasting operations at the premises must not exceed 10mm/sec at any time at any noise sensitive locations. Error margins associated with any monitoring equipment used to measure this are not to be taken into account in determining whether or not the limit has been exceeded.
38. Ground vibration peak particle velocity from the blasting operations at the premises must not exceed 5mm/sec at any noise sensitive locations for more than five per cent of the total number of blasts over each reporting period. Error margins associated with any monitoring equipment used to measure this are not to be taken into account in determining whether or not the limit has been exceeded.
39. The airblast overpressure and ground vibration levels in the conditions above do not apply at noise sensitive locations that are owned by the licensee or subject to a private agreement, relating to airblast overpressure and ground vibration levels, between the licensee and land owner.

Monitoring

40. To assess compliance with the noise limits for this premises attended noise monitoring must be undertaken in accordance with the conditions above and:
 - a) at each one of the locations listed in condition 29;
 - b) occur annually each reporting period at the time of year generally associated with maximum noise transmission (ie generally winter conditions);
 - c) occur during each day period as defined in the NSW Industrial Noise Policy for a minimum of 1.5 hours.Note: the frequency of this noise monitoring may be varied at the discretion of the EPA.
41. The proponent must monitor all blasts carried out in or on the premises at or near the nearest residence or noise sensitive location (such as a school or hospital) that is likely to be most affected by the blast and that is not owned by the licensee or subject of a private agreement between the owner of the residence or noise sensitive location and the licensee relating to alternative blasting limits.

Reporting Conditions

42. Noise Monitoring Report:

A noise compliance assessment report must be submitted to the EPA within 30 days of the completion of the annual monitoring. The assessment must be prepared by a suitably qualified and experienced acoustical consultant and include:

 - a) an assessment of compliance with noise limits presented in condition 29; and
 - b) an outline of any management actions taken within the monitoring period to address any exceedences of the limits contained in condition 29.
43. The proponent must report any exceedence of the blasting limits to the regional office of the EPA as soon as practicable after the exceedence becomes known to the licensee or to one of the licensee's employees or agents.
44. The proponent must supply annually a Blast Monitoring Report with the EPA licence Annual Return, which must include the following information relating to each blast carried out within the premises during the respective reporting period:
 - a) the date and time of the blast;
 - b) the location of the blast on the premises;
 - c) the blast monitoring results at each blast monitoring station; and
 - d) an explanation for any missing blast monitoring results.