



Karuah Hard Rock Quarry

Summary of Environmental Monitoring Data



For the Period: December 2013

1. Introduction

This report has been completed to meet the requirements of Section 66(6) of the *Protection of the Environment Operations Act 1997* and the NSW Environmental Protection Authority's (EPA) *Requirements for Publishing Pollution Monitoring Data* (March 2012). This report summarises the required monitoring data under Environmental Protection Licence (EPL) 11569 for the Karuah Hard Rock Quarry (Karuah Quarry). This report also includes some monitoring requirements under Development Consent (DA 265-10-2004).

A summary of the environmental monitoring data for December 2013 is covered in this report.

A summary of the licence information is provided in the tables in the report.

Table 1 – Licence Information

| | |
|--|---|
| Environmental Protection Licence Number | 11569 |
| Licensee's Name | Hunter Quarries Pty Ltd |
| Licensee's Address | Licensee Postal Address: PO Box 3284 Thornton NSW 2322. Premises Address: Karuah Quarry, Corner of Andesite Road and The Branch Lane, Karuah NSW 2324. |
| Link to Full Licence on the EPA Website | EPL 11569 |

2. Dust Monitoring Results

There are no specific dust criteria listed in the EPL, but the following dust criteria (**Table 2**) are listed in Schedule 3 Condition 14 of DA 265-10-2004.

Table 2 - DA 265-10-2004 Dust Deposition Criteria for the Karuah Quarry

| Averaging Period | Maximum Increase in Deposited Dust Level¹ | Maximum Total Deposited Dust Level¹ |
|-------------------------|---|---|
| Annual | 2 g/m ² /month | 4 g/m ² /month |

Note¹: Dust is assessed as insoluble solids as defined by AS 3580.10.1-2003.

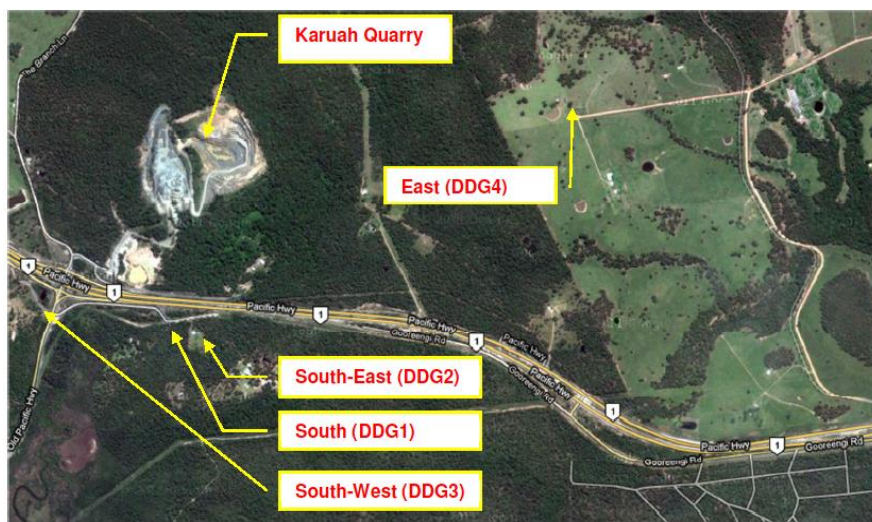
SLR Consulting Australia Pty Ltd undertakes the depositional dust monitoring at Karuah Quarry. Monitoring is completed at the locations listed in **Table 3** below.

Table 3 – Air Quality Monitoring Locations for the Karuah Quarry

| Site ID | Location | Address | GPS Coordinates |
|--------------------|---------------------------------|---|-----------------------------------|
| South (DDG 1) | South of the Karuah Quarry | 5760 Pacific Hwy, Karuah NSW 2324 | 32°38'04"S 151°59'58"E |
| South-East (DDG 2) | South of the Karuah Quarry | 5770 Pacific Hwy, Karuah NSW 2324 | 32°38'02"S 152°00'09"E |
| South-West (DDG 3) | South-West of the Karuah Quarry | DP 1024341, Karuah | 32°37'57"S 151°59'41"E |
| East (DDG 4) | East of the Karuah Quarry | 21 Halloran Rd North Arm Cove NSW | 32° 37' 30.87"S 152°01'10.18"E |

| Site ID | Location | Address | GPS Coordinates |
|---------|----------|---------|-----------------|
| | | 2324 | |

Figure 1 illustrates the air quality monitoring locations at Karuah Quarry.



Source: Google Earth

Figure 1 - Air Quality Monitoring Locations

Air quality monitoring was undertaken during the period 18/11/2013 to 16/12/2013 at the locations detailed in **Table 4**. Depositional dust gauge ($\text{g}/\text{m}^2/\text{month}$) results for December 2013 and the year to date are shown in **Table 4**.

Table 4 – Insoluble Solids ($\text{g}/\text{m}^2/\text{month}$) for the Year to Date

| EPL | | 11569 | | |
|---------------------------------|------------|------------------|------------|------------------------|
| Date Sampled | | 16 December 2013 | | |
| Obtained by Hunter Quarries | | 10 January 2013 | | |
| Published by Hunter Quarries | | 13 January 2013 | | |
| Date | DDG 1 | DDG 2 | DDG 3 | DDG 4 |
| 20/11/2012 to 19/12/2012 | 0.6 | 0.9 | 1.1 | No result ¹ |
| 19/12/2012 to 17/01/2013 | 1.1 | 1.7 | 0.6 | 0.8 |
| 17/1/2013 to 18/2/2013 | 0.8 | 1.5 | 0.6 | 0.6 |
| 18/2/3013 to 22/3/2013 | 1.9 | 1.0 | 3.2 | 0.4 |
| 22/3/2013 to 22/4/2013 | 5.1 | 1.0 | 0.2 | 0.2 |
| 22/2/4013 to 24/5/2013 | 2.8 | 0.4 | 0.3 | 0.3 |
| 24/5/2013 to 26/6/2013 | 1.6 | 0.4 | 0.3 | 0.2 |
| 26/6/2013 to 24/7/2013 | 0.7 | 0.6 | 0.4 | 0.2 |
| 24/7/2013 to 21/8/2013 | 0.8 | 0.7 | 0.4 | 0.6 |
| 21/8/2013 to 18/9/2013 | 1.2 | 0.9 | 0.7 | 0.4 |
| 18/9/2013 to 17/10/2013 | 1.9 | 1.4 | 1.5 | 2.1 |
| 17/10/2013 to 18/11/2013 | 0.5 | 1.8 | 0.7 | 9.5 |
| 18/11/2013 to 16/12/2013 | 1.1 | 0.7 | 2.6 | 1.6 |
| Average | 1.4 | 1.3 | 1.2 | 0.9 |
| Rolling Annual Average | 1.6 | 1.0 | 1.0 | 1.4 |

¹ No result as dust gauge was damaged on site.

Monitoring results indicate that for the period 18/11/2013 to 16/12/2013, the insoluble solid and ash residue levels recorded at DDG1, DDG2, DDG3 and DDG4 were below the project criterion of 4 g/m²/month.

3. Blast Monitoring Results

The following conditions in EPL 11569 refer to blast management.

M6.1 The licensee 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.

L4.1 Blasting in or on the premises must only be carried out between 0900 hours and 1500 hours, Monday to Friday. Blasting in or on the premises must not take place on weekends or Public Holidays without the prior approval of the EPA.

L4.2 The overpressure level from blasting operations carried out in or on the premises must not:
a) *exceed 115 dB(L) for more than 5% of the total number of blasts carried out on the premises within the 12 months annual reporting period; and*
b) *exceed 120 dB(L) at any time*

at any residence or noise sensitive location (such as a school or hospital) 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 as to an alternative overpressure level.

L4.3 The ground vibration peak particle velocity from blasting operations carried out in or on the premises must not:
a) *exceed 5mm/second for more than 5% of the total number of blasts carried out on the premises within the 12 months annual reporting period; and*
b) *exceed 10mm/second at any time at any residence or noise sensitive location (such as a school or hospital) 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 as to an alternative ground vibration level.*

Table 5 summarises the December 2013 blasting results.

Table 5 – December 2013 Blast Monitoring Results

| Date and Time | Overpressure and Vibration | Monitor 1 | Monitor 2 |
|--------------------|----------------------------|-----------|-----------|
| 6/12/2013 13:04 | Overpressure dB(L) | 111.5 | 104.2 |
| | Vibration(mm/s) | 1.21 | 0.727 |
| 6/12/2013 13:13 | Overpressure dB(L) | 111.2 | 105.5 |
| | Vibration(mm/s) | 0.98 | 0.553 |

The blasting results from December, 2013 indicate that the blast was below the EPL criteria.

4. Noise Monitoring Results

Schedule 3 Condition 1 of the Development Consent requires Hunter Quarries to ensure noise generated by the development does not exceed criteria outlined in **Table 6** at any residence, or any noise sensitive receptor on privately owned land.

Table 6 – Development Consent Noise Impact Criteria – Karuah Quarry

| Time Period | Noise Limit (dBA) 1 LAeq(15minute) |
|---|------------------------------------|
| Day 7:00am to 6:00pm Monday to Friday 7:00am to 1:00pm Saturday | 48 |
| Evening 6:00pm to 10:00pm Monday to Friday | 47 |
| At All Other Times | 46 |

Table 7 illustrates the operator attended and unattended noise monitoring locations at Karuah Quarry.

Table 7 – Development Consent Noise Impact Criteria – Karuah Quarry

| Noise Monitoring Location | Property Name | Distance from Karuah Quarry |
|---------------------------|---|--|
| NM1 | Lot 3 DP785172 5772 Pacific Hwy, Karuah | 317 metres South of the Karuah Quarry |
| NM2 | Lot 2 DP 785172 5760 Pacific Hwy, Karuah | 200 metres South of the Karuah Quarry |
| NM3 | Lot 22 DP 1024341 | 370 metres South West of the Karuah Quarry |

Figure 2 below illustrates the noise monitoring locations at Karuah Quarry.



Figure 2 - Noise Monitoring Locations

No noise monitoring was completed in December 2013.

5. Surface Water Monitoring Results

Condition L2 of the EPL outlines the requirement to monitor surface water discharges from the Karuah Quarry via the licensed discharge point (LDP001).

Table 8 summarises discharge monitoring at Karuah Quarry. There were no surface water discharges in December 2013.

Table 8 - Surface Water Discharge Monitoring Results

| Sampling Point | Monitoring Frequency | Pollutant | Measurement | EPL Limit |
|----------------|----------------------|-----------|--|-----------|
| LDP001 | During Discharge | pH | <i>No discharge during December 2013</i> | 6.5 – 8.5 |