



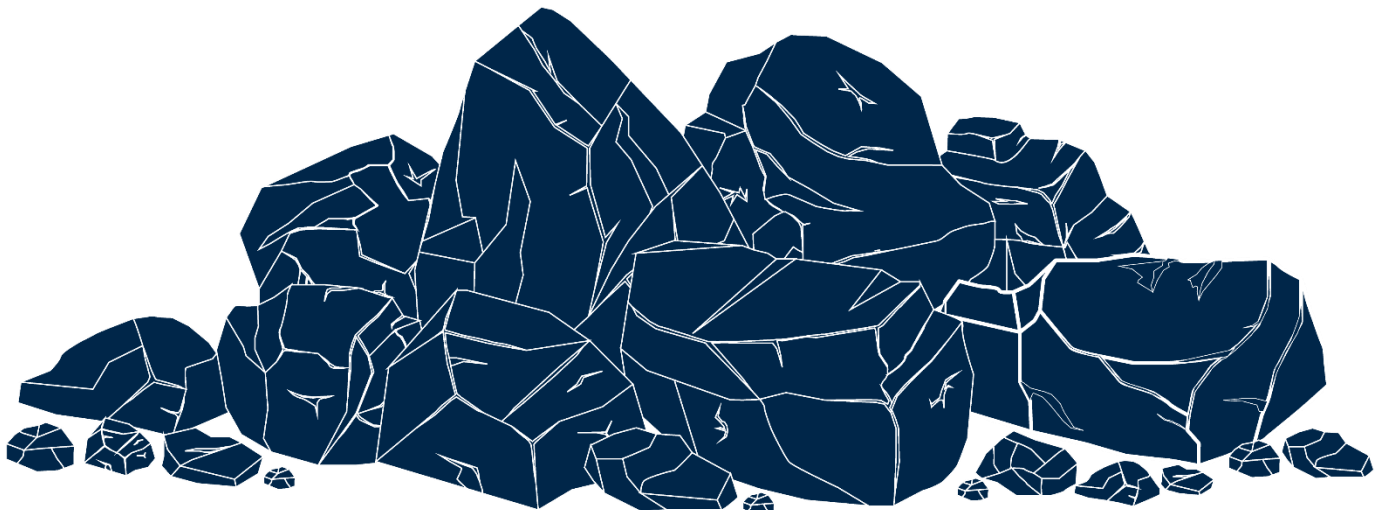
Karuah Hard Rock Quarry  
ABN: 15 093 914 937  
Hunter Quarries Pty Ltd  
Andersite Road, Karuah NSW 2324

W: [www.hunterquarries.com.au](http://www.hunterquarries.com.au)  
E: [admin@hunterquarries.com.au](mailto:admin@hunterquarries.com.au)  
T: 02 4050 0304  
P: PO Box 3284, Thornton NSW 2322

Karuah Hard Rock Quarry

## Environmental Monitoring Report

September 2023



## Contents

1.0	Introduction .....	3
2.0	Air Quality Monitoring.....	4
3.0	Blast Monitoring.....	6
4.0	Noise Monitoring.....	6
5.0	Surface Water Monitoring .....	7
6.0	Weather Station Monitoring.....	8
7.0	Production Data .....	9
8.0	Reporting .....	9
8.1	Reportable Environmental Incidents .....	9
8.2	Reportable Non-Compliances .....	9
8.3	Community Complaints .....	9
	Appendix 1 – EPL 11569 Monitoring Locations .....	10

## 1.0 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 (EPA, 2013). This report summarises the required monitoring data under Environmental Protection Licence 11569 (the EPL) and Development Consent for the Karuah Quarry (the Quarry) as summarised by **Table 1** and **Table 2** respectively.

**Table 1** Summary of Environment Protection Licence, EPL 11569

<b>EPL Number:</b>	EPL 11569
<b>Licensee’s Name:</b>	Hunter Quarries Pty Limited
<b>Licensee’s Address:</b>	Karuah Hard Rock Quarry PO Box 3284, Thornton NSW 2322 Premises Address: Karuah Quarry, Corner of Andesite Road and The Branch Lane, Karuah NSW 2324.
<b>Link to Full Licence on the EPA website:</b>	<a href="#">EPL 11569</a>

**Table 2** Summary of Project Approval, DA 265-10-2004

<b>Project Approval:</b>	DA 265-10-2004
<b>Applicant:</b>	Hunter Quarries Pty Limited
<b>Consent Authority:</b>	Minister for Infrastructure, Planning and Natural Resources
<b>Link to Full Project Approval on the DPE website:</b>	<a href="#">Development Consent DA 265-10-2004</a>

A summary of the environmental monitoring data for September 2023 is covered in this report. Tables throughout this report provide key monitoring information from the EPL and the Consent, including:

- location of monitoring;
- pollutant;
- unit of measurement; and
- monitoring frequency required.

Monitoring locations are illustrated by the site plan provided by **Appendix 1**.

## 2.0 Air Quality Monitoring

Dust emissions generated by the Quarry operation must not cause additional exceedances of ambient air quality criterion outlined in Schedule 3, Condition 13 of the Consent and summarised by **Table 3**, **Table 4** and **Table 5**.

Deposited dust monitoring is undertaken at the locations listed in **Table 6**, in accordance with the Approved Methods of Sampling and Analysis of Air Pollutants in NSW (EPA, 2022).

**Table 3 Long-term Assessment Criteria for Deposited Dust (MP09-0175).**

Pollutant	Averaging Period	Maximum Increase in Deposited Dust Level <sup>1</sup>	Maximum Total Deposited Dust Level <sup>1</sup>
Deposited Dust	Annual	2 g/m <sup>2</sup> /month	4 g/m <sup>2</sup> /month

<sup>1</sup> Deposited dust is assessed as insoluble solids as defined by AS 3580.10.1-2003.

**Table 4 Long-term Assessment Criteria for Particulate Matter (MP09-0175).**

Pollutant	Averaging Period	Criterion
Total Suspended Particulates	Annual	90 µg/m <sup>3</sup>
Particulate Matter < 10 µm (PM10)	Annual	30 µg/m <sup>3</sup>

**Table 5 Short-term Assessment Criteria for Particulate Matter (MP09-0175).**

Pollutant	Averaging Period	Criterion
Particulate Matter < 10 µm (PM10)	24-hour	50 µg/m <sup>3</sup>

**Table 6 Air Quality Monitoring Locations (EPL 11569).**

Site Monitoring Point ID	EPL Monitoring Point ID	Location	Address	Coordinates
DDG 1	4	South-West of Karuah Hard Rock Quarry	54 Mill Hill Close, Karuah NSW 2324	32°38'04''S 151°59'58''E
DDG 2	5	South-West of Karuah Hard Rock Quarry	64 Mill Hill Close, Karuah NSW 2324	32°38'02''S 152°00'09''E
DDG 3	6	South-West of Karuah Hard Rock Quarry	Lot 251 DP1092111, Karuah NSW 2324	32°37'57''S 151°59'41''E
DDG 4	7	East of Karuah Hard Rock Quarry	21 Halloran Road, North Arm Cove NSW 2324	32° 37' 30.87"S 152°01'10.18"E

Deposited dust results for the 12-months prior-to and including September 2023 are summarised by **Table 7**.

**Table 7** *Deposited dust monitoring results.*

Reporting Period	Start Date	End Date	Days	DDG 1 EPL ID 4	DDG 2 EPL ID 5	DDG 3 EPL ID 6	DDG 4 EPL ID 7
Oct-22	4/10/2022	3/11/2022	30	0.2	0.5	0.5	0.3
Nov-22	3/11/2022	5/12/2022	32	0.8	0.8	0.7	1.2
Dec-22	5/12/2022	5/01/2023	31	0.7	0.7	0.3	0.6
Jan-23	5/01/2023	3/02/2023	29	0.2	0.4	0.8	0.1
Feb-23	3/02/2023	5/03/2023	31	0.9	0.7	0.2	0.3
Mar-23	5/03/2023	5/04/2023	30	1.1	1.5	1.1	1.1
Apr-23	5/04/2023	4/05/2023	29	0.3	0.5	0.3	0.2
May-23	4/05/2023	5/06/2023	32	0.2	0.3	0.3	0.4
Jun-23	6/06/2023	4/07/2023	28	0.6	2.5	1.8	–
Jul-23	4/07/2023	3/08/2023	30	0.4	0.9	1.2	1.1
Aug-23	3/08/2023	4/09/2023	32	0.7	0.3	0.5	0.5
Sep-23	4/09/2023	4/10/2023	32	1.5	2.6	1.4	1.4
<b>Progressive Annual Average</b>				<b>0.6</b>	<b>1.0</b>	<b>0.8</b>	<b>0.7</b>

Monitoring results for the September 2023 reporting period at four DDG monitoring sites are within the long-term annual deposited dust limit of 4 g/m<sup>2</sup>/month.

It should be noted that DDG 4 samples in the June 2023 reporting period become contaminated with vegetation matter and are therefore discounted from averaging. This failure to monitor event was reported to the NSW Department of Planning & Environment (DPE), the NSW EPA and surrounding landholders in accordance with the relevant conditions of the Consent and EPL.

### 3.0 Blast Monitoring

Blast monitoring is undertaken for all blasts at the Quarry at the nearest residential location to ensure that air blast overpressure and ground vibration remain within the compliance limits, as summarised by **Table 9**.

There were no within the September 2023 reporting period.

**Table 9 Blasting Airblast Overpressure and Ground Vibration Criteria (DA 265-10-2004 & EPL 11569).**

Location	Airblast Overpressure (dB(L))	Ground Vibration (mm/s)	Allowable Exceedance
Private Residence B	120	10	0%
	115	5	5% over 12-month reporting period.

**Table 10 Blasting Monitoring Results**

Date	Time	Location	Airblast Overpressure (dB(L))	Ground Vibration (mm/s)
15 September 2023	12:21 PM	RL 76	112.5	2.20

\*Not triggered = n/t  
 Ground Vibration < 0.5 mm/s  
 Overpressure < 108 dB(L)

### 4.0 Noise Monitoring

Noise monitoring is undertaken in accordance with the EPL and DPE approved Environmental Monitoring Program, which requires attended and unattended noise monitoring to be conducted on a 6 monthly basis.

No noise monitoring was conducted during the September 2023 reporting period.

## 5.0 Surface Water Monitoring

Water monitoring is undertaken in accordance with the EPL and DPE approved Water Management Plan, which includes 6 monthly surveillance sampling and daily sampling during discharge events, with results summarised in **Table 11** and **Table 12** respectively.

No surface water surveillance monitoring was undertaken in the September 2023 reporting period.

**Table 11** *Surface Water Monitoring Results.*

Parameter	Units	EPL Discharge Limits	Sed Dam 2
Oil and Grease	mg/L	5 and/or non-visible	-
pH	pH	6.5 – 8.5	-
Total Suspended Solids	mg/L	50	-
Parameter	Units	EPL Discharge Limits	Sed Dam 2
Electrical Conductivity	µS/cm	125 – 2,200	-

<sup>1</sup> Key default trigger values presented in ANZECC 2000 for slightly disturbed upland rivers in NSW. Heavy metals based on hard water (120-179 mg CaCO<sub>3</sub>/L).

Daily discharge monitoring was conducted when discharging surface water from the Quarry via the licenced discharge points in accordance with Condition L2 and M2 of the EPL, as summarised by **Table 12**. No discharging events occurred in September 2023.

**Table 12** *Discharge Water Monitoring Results.*

Date	pH	Total Suspended Solids, TSS (mg/L)	Oil and Grease	Nitrogen (total) (mg/L)	Phosphorus (total) (mg/L)	Discharge Type
<b>LDP 1 – Sediment Dam 2</b>						
-	-	-	-	-	-	-

## 6.0 Weather Station Monitoring

The Quarry operates and maintains a permanent meteorological monitoring station to record weather parameters including temperature, wind speed and direction, solar radiation and rainfall. **Figure 3** below outlines the weather records for the September 2023 reporting period.

### Monthly Weather Summary



Site: Karuah Quarry  
 Month: September 2023

Date	Day	Temperature @ 2m			Temperature @ 10m			Winds			Solar Radiation		Rain <sup>2</sup> mm
		Max <sup>1</sup> °C	Min <sup>2</sup> °C	Ave <sup>1</sup> °C	Max <sup>1</sup> °C	Min <sup>2</sup> °C	Ave <sup>1</sup> °C	Max Gust <sup>1</sup> km/h	Ave Speed <sup>2</sup> km/h	Dir Ave <sup>1</sup> deg	Max <sup>1</sup> W/m <sup>2</sup>	Ave <sup>1</sup> W/m <sup>2</sup>	
1	Fri	21.0	9.2	13.8	19.0	10.7	14.1	16.0	3.7	209	894.1	127.7	0.4
2	Sat	16.8	9.0	12.7	16.4	9.8	13.1	20.8	5.8	223	776.6	87.4	4.6
3	Sun	19.2	6.5	11.7	16.8	7.1	11.6	18.3	3.9	233	766.7	157.0	0.0
4	Mon	20.8	6.4	11.7	18.5	7.0	12.0	15.3	3.0	176	766.7	146.8	0.0
5	Tue	24.1	10.4	16.4	22.3	11.6	17.0	15.4	3.9	141	640.0	173.0	0.0
6	Wed	26.9	3.7	15.0	25.6	5.3	16.6	21.8	4.8	248	672.6	186.4	0.0
7	Thu	23.1	9.3	16.3	20.6	10.7	16.5	19.2	5.0	147	686.7	185.6	0.0
8	Fri	28.5	16.1	21.0	27.4	16.7	21.8	14.7	4.6	148	776.7	153.3	1.0
9	Sat	22.4	4.2	11.2	22.3	6.7	12.7	23.8	6.3	268	639.1	72.3	1.8
10	Sun	20.1	2.7	10.4	18.7	3.4	10.7	16.3	3.6	238	668.3	186.7	0.0
11	Mon	19.7	3.4	10.1	17.3	4.2	10.3	16.3	3.5	213	703.2	180.7	0.0
12	Tue	21.3	5.3	11.4	18.4	6.4	11.8	15.5	3.3	204	935.8	163.8	0.0
13	Wed	23.2	6.6	13.2	20.6	7.5	13.3	17.1	3.0	207	775.0	179.4	0.0
14	Thu	25.4	5.6	14.2	22.3	6.6	14.5	21.3	3.8	157	702.5	193.0	0.0
15	Fri	25.7	7.6	14.8	23.4	8.7	15.3	13.4	3.0	170	704.2	193.7	0.0
16	Sat	27.1	9.1	16.9	25.2	10.9	17.9	14.8	3.5	157	691.7	190.9	0.0
17	Sun	33.0	11.2	20.5	31.7	13.1	21.9	14.9	3.7	228	722.6	203.8	0.0
18	Mon	33.9	9.6	19.9	32.5	11.6	20.9	22.5	4.0	210	727.5	206.1	0.0
19	Tue	33.9	10.4	20.9	32.7	12.7	22.6	13.8	2.9	147	734.2	205.7	0.0
20	Wed	33.4	10.5	20.4	30.8	13.5	21.6	16.4	3.4	136	723.3	205.5	0.0
21	Thu	34.3	15.1	22.7	32.8	16.3	23.6	21.2	5.0	183	736.7	207.8	0.0
22	Fri	25.6	11.9	17.2	22.9	12.1	16.9	28.6	8.3	169	916.7	189.9	3.6
23	Sat	21.3	6.7	12.9	18.5	7.7	12.8	24.0	4.9	213	968.3	184.1	0.2
24	Sun	20.7	6.4	12.7	18.2	7.5	12.8	15.2	3.2	156	887.5	128.8	0.0
25	Mon	21.3	5.9	13.4	19.3	7.3	13.7	19.2	4.4	177	1039.9	168.8	0.0
26	Tue	26.8	8.9	17.0	24.3	10.6	17.4	15.5	3.5	172	775.8	218.1	0.0
27	Wed	27.4	13.9	18.7	24.9	14.8	18.2	19.3	4.5	193	794.2	190.6	0.2
28	Thu	26.2	14.1	18.7	23.0	14.8	18.4	19.5	4.7	158	879.2	182.7	1.0
29	Fri	22.9	8.6	15.4	20.6	10.2	15.7	18.6	4.2	172	944.9	130.7	0.2
30	Sat	32.9	10.4	19.1	30.3	11.0	19.3	17.7	3.6	211	789.2	228.3	0.0
<b>Ave or Total</b>		<b>25.3</b>	<b>8.6</b>	<b>15.7</b>	<b>23.2</b>	<b>9.9</b>	<b>16.2</b>	<b>18.2</b>	<b>4.2</b>	<b>188.8</b>	<b>781.3</b>	<b>174.3</b>	<b>13.0</b>
<b>High</b>		<b>34.3</b>	<b>16.1</b>	<b>22.7</b>	<b>32.8</b>	<b>16.7</b>	<b>23.6</b>	<b>28.6</b>	<b>8.3</b>		<b>1039.9</b>	<b>228.3</b>	<b>4.6</b>
<b>Low</b>		<b>16.8</b>	<b>2.7</b>	<b>10.1</b>	<b>16.4</b>	<b>3.4</b>	<b>10.3</b>	<b>13.4</b>	<b>2.9</b>		<b>639.1</b>	<b>72.3</b>	

Notes: 1. Values are for the 24 hour period from 9am to 9am next day.

2. Values are for the 24 hours to 9am.

No. rain days >1mm: 3

**Figure 3 Weather Records Summary – September 2023.**

## 7.0 Production Data

Monthly monitoring of sales and truck movements are summarised by **Table 13**.

**Table 13** *Quarry Production Data.*

Month	Truck Movements	Quarry Product Sales (t)
Jan-23	422	12,109
Feb-23	842	24,606
Mar-23	668	18,737
Apr-23	616	18,013
May-23	776	21,807
Jun-23	903	27,048
Jul-23	769	24,880
Aug-23	563	18,090
Sep-23	599	18,790

## 8.0 Reporting

### 8.1 Reportable Environmental Incidents

During the September 2023 reporting period, no reportable environmental incidents occurred at the Quarry.

### 8.2 Reportable Non-Compliances

During the September 2023 reporting period, no reportable non-compliances were identified at the Quarry.

### 8.3 Community Complaints

During the September 2023 reporting period there were no community complaints reported to the Quarry.

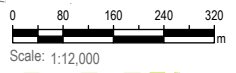
## Appendix 1 – EPL 11569 Monitoring Locations



I:\01 Clients\_GIS\HQ2 - Hunter Quarries\HQ2\1-003 Karuah Quarry\MP\_Reviews\2022\HQ201\_003\_Karuah\_MP\_01.aprx

**LEGEND**

- ▭ EPL Boundary
- ~ Water Courses
- Monitoring Site Type**
- Blast Monitoring
- Noise Monitoring
- ▣ Meteorological Station
- ▲ Air Quality Monitoring
- ⊕ Water Monitoring Site



GDA2020 MGA Zone 56  
11/09/2023

**KARUAH HARD ROCK QUARRY**

**Environmental Monitoring Locations**

**APPENDIX 1**