



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

W: www.hunterquarries.com.au
E: admin@hunterquarries.com.au
T: 02 4050 0304
P: PO Box 3284, Thornton NSW 2322

Karuah Hard Rock Quarry

Environmental Monitoring Report

August 2024



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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 Hard Rock Quarry (the Quarry) as summarised by **Table 1** and **Table 2** respectively.

Table 1 Summary of Environment Protection Licence, EPL 11569

EPL Number:	EPL 11569
Licensee’s Name:	Hunter Quarries Pty Ltd
Licensee’s Address:	Karuah Hard Rock Quarry PO Box 3284, Thornton NSW 2322 Corner of Andesite Road and The Branch Lane, Karuah NSW 2324.
Link to Full Licence on the EPA website:	EPL 11569

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

Project Approval:	DA 265-10-2004
Applicant:	Hunter Quarries Pty Ltd
Consent Authority:	Minister for Infrastructure, Planning and Natural Resources
Link to Full Project Approval on the NSW Planning website:	Development Consent DA 265-10-2004

A summary of the environmental monitoring data for the August 2024 reporting period (the Reporting Period) 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 (DA 265-10-2004).

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

¹ Deposited dust is assessed as insoluble solids as defined by AS 3580.10.1-2003.

Table 4 Long-term Assessment Criteria for Particulate Matter (DA 265-10-2004).

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

Table 5 Short-term Assessment Criteria for Particulate Matter (DA 265-10-2004).

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

Table 6 Air Quality Monitoring Locations (EPL 11569).

Site Monitoring Point ID	EPL Monitoring Point ID	Location	Address	Coordinates
DDG 1	2	South-West of Karuah Hard Rock Quarry	54 Mill Hill Close, Karuah NSW 2324	32°38'04''S 151°59'58''E
DDG 2	3	South-West of Karuah Hard Rock Quarry	64 Mill Hill Close, Karuah NSW 2324	32°38'02''S 152°00'09''E
DDG 3	4	South-West of Karuah Hard Rock Quarry	Lot 251 DP1092111, Karuah NSW 2324	32°37'57''S 151°59'41''E
DDG 4	5	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 August 2024 are summarised by **Table 7**.

Table 7 *Deposited dust monitoring results.*

Reporting Period	Start Date	End Date	Days	DDG 1 EPL ID 2	DDG 2 EPL ID 3	DDG 3 EPL ID 4	DDG 4 EPL ID 5
Sep-23	04/09/2023	04/10/2023	30	1.5	2.6	1.4	1.4
Oct-23	04/10/2023	02/11/2023	29	1.4	2.4	2.2	1.6
Nov-23	02/11/2023	30/11/2023	28	1.6	–	1.4	1.0
Dec-23	30/11/2023	28/12/2023	28	1.1	1.0	1.3	1.3
Jan-24	28/12/2024	25/01/2024	28	1.4	1.2	1.0	1.2
Feb-24	25/01/2024	26/02/2024	32	1.1	0.8	1.3	1.3
Mar-24	26/02/2024	28/03/2024	31	0.8	0.9	1.8	0.6
Apr-24	28/03/2024	29/04/2024	32	0.9	0.4	0.5	0.8
May-24	29/04/2024	29/05/2024	30	0.5	0.3	0.2	0.4
Jun-24	29/05/2024	28/06/2024	30	0.7	0.5	0.5	0.7
Jul-24	28/06/2024	30/07/2024	32	1.1	0.8	0.6	0.9
Aug-24	30/07/2024	30/08/2024	31	0.7	0.5	0.7	0.9
Progressive Annual Average				1.0	1.6	1.1	1.0

Monitoring results for the Reporting Period at the four DDG monitoring sites are within the long-term annual deposited dust limit of 4 g/m²/month.

It should be noted that DDG 2 sample in the November 2023 reporting period, became contaminated with vegetation matter and is therefore discounted from averaging. This ‘failure to monitor event’ was reported to the NSW Department of Planning, Housing and Infrastructure (NSW Planning), 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 8**; with the monitoring results summarised by **Table 9**.

No blasting activities were conducted during the Reporting Period.

Table 8 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 9 Blasting Monitoring Results.

Date	Time	Location	Airblast Overpressure (dB(L))	Ground Vibration (mm/s)
-	-	-	-	-

*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 NSW Planning 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 Reporting Period.

5.0 Surface Water Monitoring

Water monitoring is undertaken in accordance with the EPL and NSW Planning approved Site Water Management Plan, with daily monitoring of surface water being discharged from the Quarry via the licenced discharge point in accordance with Condition L2 and M2 of the EPL.

No discharge events occurred during the Reporting Period, as summarised by **Table 10**.

Table 10 *Discharge Water Monitoring Results.*

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

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 1** below outlines the weather records for the Reporting Period.

Monthly Weather Summary



Site: Karuah Quarry Complex
 Month: August 2024

Date	Day	Temperature @ 2m			Temperature @ 10m			Winds			Solar Radiation		Rain ² mm
		Max ¹ °C	Min ² °C	Ave ¹ °C	Max ¹ °C	Min ² °C	Ave ¹ °C	Max Gust ¹ km/h	Ave Speed ¹ km/h	Dir Ave ¹ deg	Max ¹ W/m ²	Ave ¹ W/m ²	
1	Thu	14.3	8.1	10.5	14.1	8.3	10.6	33.1	5.4	210.2	645.8	73.3	12.8
2	Fri	16.0	8.0	10.8	15.0	8.7	10.9	35.5	4.7	215.4	664.9	82.7	5.6
3	Sat	17.5	3.8	9.5	16.3	4.7	9.8	23.7	2.9	216.4	604.1	107.4	0.0
4	Sun	18.6	3.6	9.3	17.1	4.3	9.7	10.6	2.1	217.5	591.7	123.5	0.2
5	Mon	17.8	7.2	10.6	16.7	7.8	10.8	9.5	1.7	200.2	499.1	94.9	0.0
6	Tue	18.2	9.6	12.6	17.5	9.9	12.5	15.4	1.9	214.1	538.3	71.3	11.2
7	Wed	18.1	4.8	10.1	16.5	5.7	10.5	23.7	2.7	219.3	657.4	89.2	0.0
8	Thu	19.7	5.4	10.7	18.3	6.0	11.0	15.4	2.3	219.7	527.5	129.6	0.0
9	Fri	21.0	6.4	12.9	19.7	7.5	13.7	18.9	2.7	222.9	581.7	127	0.0
10	Sat	22.6	6.2	12.9	21.3	7.0	13.2	11.8	2.1	217.9	614.2	119.4	0.0
11	Sun	21.0	7.6	12.4	19.0	8.5	12.6	14.2	2.4	207	670.8	90.2	0.4
12	Mon	20.5	9.3	13.1	18.6	9.4	13.0	18.9	2.5	204.4	734.2	89	0.2
13	Tue	16.8	11.2	14.0	17.1	10.9	14.4	14.2	1.8	155.1	254.9	41	1.2
14	Wed	20.3	15.1	16.8	19.6	15.5	16.8	27.2	4.3	130	569.1	71.2	2.0
15	Thu	17.6	15.2	16.2	17.3	15.1	16.1	11.8	2.8	144.4	170	33.5	12.2
16	Fri	17.9	15.4	16.3	17.7	15.3	16.2	14.2	2.5	182.2	410.7	46.5	16.2
17	Sat	19.5	11.7	14.8	18.7	12.3	15.0	15.4	2.3	191.1	690.8	77.2	2.2
18	Sun	20.9	12.4	16.1	20.0	13.1	16.2	42.6	9.9	236.4	656.7	142.8	0.0
19	Mon	20.0	10.2	13.7	18.5	10.7	13.5	29.6	3.8	216	710.7	83.3	9.8
20	Tue	20.3	8.1	11.9	17.8	8.8	12.3	17.8	2.4	188.8	780	93	0.0
21	Wed	23.3	12.0	16.7	22.5	13.2	17.2	18.9	3.3	193.2	577.4	147.4	0.0
22	Thu	26.6	10.9	18.3	25.4	11.6	19.1	30.8	4.1	217.6	703.3	139.6	0.0
23	Fri	22.9	7.0	13.7	21.8	8.6	14.4	24.9	2.7	220.7	620.8	119.7	0.0
24	Sat	22.8	11.7	15.8	21.6	12.9	16.1	21.3	3.4	192.2	663.3	137.5	1.0
25	Sun	25.6	12.7	16.6	24.6	14.0	17.4	23.7	2.6	225.2	713.3	105.8	1.0
26	Mon	20.4	12.6	15.9	20.8	13.6	16.7	22.5	3.5	219.4	349.1	35.8	9.0
27	Tue	26.2	6.3	14.5	24.9	7.3	15.0	27.2	2.8	201.1	632.4	168.5	0.0
28	Wed	25.9	8.0	15.1	25.1	8.9	15.8	14.2	2.5	234.6	637.4	169.5	0.2
29	Thu	29.0	10.4	21.3	28.2	13.1	22.4	65.1	8.8	226.1	694.2	156.8	0.0
30	Fri	24.6	7.8	14.5	23.4	9.0	15.2	26	3.8	239.6	631.7	171.1	0.0
31	Sat	30.9	11.2	20.3	30.0	13.2	21.7	36.7	4.5	221.3	630.8	173.2	0.0
Ave or Total		21.2	9.4	14.1	20.2	10.2	14.5	23.1	3.4	206.5	594.4	106.8	85.2
High		30.9	15.4	21.3	30.0	15.5	22.4	65.1	9.9		780.0	173.2	16.2
Low		14.3	3.6	9.3	14.1	4.3	9.7	9.5	1.7		170.0	33.5	
												No. rain days >1mm:	10

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

Figure 1 Weather Records Summary.

7.0 Production Data

Monthly monitoring of sales and truck movements are summarised by **Table 11**.

Table 11 *Quarry Production Data.*

Month	Truck Movements	Quarry Product Sales (t)
Jan-24	1,537	50,963
Feb-24	2,247	73,874
Mar-24	1,419	46,529
Apr-24	1,076	35,168
May-24	419	13,584
Jun-24	511	17,217
Jul-24	629	19,502
Aug-24	497	14,401

8.0 Reporting

8.1 Reportable Environmental Incidents

During the Reporting Period, no reportable environmental incidents occurred at the Quarry.

8.2 Reportable Non-Compliances

During the Reporting Period, no reportable non-compliances were identified at the Quarry.

8.3 Community Complaints

During the Reporting Period, no community complaints were reported to the Quarry.

Appendix 1 – EPL 11569 Monitoring Locations



LEGEND

- Site Boundary
 - Lot Boundary
 - Dams
- Environmental Monitoring Locations**
- ▲ Depositional Dust Gauge (DDG)
 - ⊙ Air Blast Monitor
 - Noise Monitoring Locations
 - ⊕ Licensed Discharge Point
 - ⊞ Meteorological Station



GDA2020 MGA Zone 56
8/03/2024

Karuah Hard Rock Quarry

Environmental Monitoring Report

APPENDIX 1 - Environmental Monitoring Locations

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