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Karuah Hard Rock Quarry

## Environmental Monitoring Report

April 2025



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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*

|   |   |
|---|---|
| <b>EPL Number:</b>                              | EPL 11569   |
| <b>Licensee's Name:</b>                         | Hunter Quarries Pty Ltd   |
| <b>Licensee's Address:</b>                      | Karuah Hard Rock Quarry<br>PO Box 3284, Thornton NSW 2322<br>Corner of Andesite Road and The Branch Lane,<br>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 Ltd                                     |
| <b>Consent Authority:</b>   | Minister for Infrastructure, Planning and Natural Resources |
| <b>Link to Full Project Approval on the NSW Planning website:</b> | <a href="#">Development Consent DA 265-10-2004</a>          |

A summary of the environmental monitoring data for the April 2025 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 <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 (DA 265-10-2004).**

| 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 (DA 265-10-2004).**

| 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                                   |
|--------------------------|-------------------------|---------------------------------------|---|
| DDG 1                    | 6                       | South-West of Karuah Hard Rock Quarry | 54 Mill Hill Close, Karuah NSW 2324       |
| DDG 2                    | 7                       | South-West of Karuah Hard Rock Quarry | 64 Mill Hill Close, Karuah NSW 2324       |
| DDG 3                    | 8                       | South-West of Karuah Hard Rock Quarry | Lot 251 DP1092111, Karuah NSW 2324        |
| DDG 4                    | 5                       | East of Karuah Hard Rock Quarry       | 21 Halloran Road, North Arm Cove NSW 2324 |

Deposited dust results for the 12-months prior-to and including April 2025 are summarised by **Table 7**.

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

| Reporting Period           | Start Date | End Date   | Days | DDG 1<br>(EPL ID 2)<br>EPL ID 6 | DDG 2<br>(EPL ID 3)<br>EPL ID 7 | DDG 3<br>(EPL ID 4)<br>EPL ID 8 | DDG 4<br>(EPL ID 5)<br>EPL ID 9 |
|----------------------------|------------|------------|------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|
| 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)                           |
| Sep-24                     | 30/08/2024 | 30/09/2024 | 31   | (2.2)                           | (1.2)                           | (1.3)                           | (1.2)                           |
| Oct-24                     | 30/09/2024 | 31/10/2024 | 31   | (1.0)                           | (0.7)                           | (0.7)                           | (5.1)*                          |
| Nov-24                     | 31/10/2024 | 29/11/2024 | 29   | (1.4)                           | (1.1)                           | (1.1)                           | (1.7)                           |
| Dec-24                     | 29/11/2024 | 30/12/2024 | 29   | (0.6)                           | (1.4)                           | (1.3)                           | (3.1)                           |
| Jan-25                     | 30/12/2024 | 31/01/2025 | 32   | (3.8)                           | (1.7)                           | (1.9)                           | (1.3)                           |
| Feb-25                     | 31/01/2025 | 03/03/2025 | 31   | (1.2)                           | (0.9)                           | (1.1)                           | (1.2)                           |
| Mar-25                     | 03/03/2025 | 03/04/2025 | 31   | (0.7)                           | (1.0)                           | (1.4)                           |                                 |
|                            | 04/03/2025 | 03/04/2025 | 30   |                                 |                                 |                                 | (1.1)                           |
| Apr-25                     | 03/04/2025 | 05/05/2025 | 32   | 1.2                             | 3.2                             | 0.4                             | (1.0)                           |
| Progressive Annual Average |            |            |      | 1.2                             | 1.0                             | 1.0                             | 1.4                             |

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

*\*Note: an anomalous exceedance was recorded at DDG4 during the October 2024 Monitoring Period which was subsequently reported to the NSW Department of Planning, Housing & 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**.

There were no blasts undertaken within 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 Management Strategy & Monitoring Program (EMS&MP), which requires attended and unattended noise monitoring to be conducted on a 6-monthly basis.

No noise monitoring was undertaken 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.

There were three discharge events over ten days during the Reporting Period, as summarised by **Table 10**.

Two discharge events consisted of controlled discharges that were compliant with the limits provided by the Consent and EPL, including Total Suspended Solids (TSS) below 50 mg/L and pH within the range of 6.5 to 8.5.


The third discharge event began as a controlled discharge and became uncontrolled due to an extreme rainfall event greater than the design storm event. However, due to pre-treatment dosing with Calcium Chloride, the third discharge remained compliant with the limits provided by the Consent and EPL, including Total Suspended Solids (TSS) below 50 mg/L and pH within the range of 6.5 to 8.5.

**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 |
|-------------------------------|----------------|-----|------------------------------------|-------------------------|---------------------------|----------------|
| <b>LDP 1 – Sediment Dam 2</b> |                |     |                                    |                         |                           |                |
| 09/04/2025                    | Not Visible    | 7.2 | 16                                 | 1.8                     | <0.05                     | Controlled     |
| 10/04/2025                    | Not Visible    | 7.2 | 22                                 | 2.1                     | <0.05                     | Controlled     |
| 11/04/2025                    | Not Visible    | 7.4 | 24                                 | 1.6                     | <0.05                     | Controlled     |
| 12/04/2025                    | Not Visible    | 7.6 | 36                                 | 1.4                     | <0.05                     | Controlled     |
| 13/04/2025                    | Not Visible    | 7.7 | 18                                 | 1.3                     | <0.05                     | Controlled     |
| 17/04/2025                    | Not Visible    | 7.5 | 38                                 | 2.2                     | <0.05                     | Controlled     |
| 27/04/2025                    | Not Visible    | 7.2 | 30                                 | 1.8                     | <0.05                     | Controlled     |
| 28/04/2025                    | Not Visible    | 7.2 | 26                                 | 1.7                     | <0.05                     | Controlled     |
| 29/04/2025                    | Not Visible    | 7.3 | 36                                 | 1.5                     | <0.05                     | Uncontrolled   |
| 30/04/2025                    | Not visible    | 7.4 | 36                                 | 1.1                     | <0.05                     | Uncontrolled   |

## 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:  |     | April 2025             |                        |                        |                        |                        |                        |                               |                                |                             |                                      |                                      |                   |
| Date  | Day | Temperature @ 2m       |                        |                        | Temperature @ 10m      |                        |                        | Winds                         |                                |                             | Solar Radiation                      |                                      | Rain <sup>2</sup> |
|   |     | Max <sup>1</sup><br>°C | Min <sup>2</sup><br>°C | Ave <sup>1</sup><br>°C | Max <sup>1</sup><br>°C | Min <sup>2</sup><br>°C | Ave <sup>1</sup><br>°C | Max Gust <sup>1</sup><br>km/h | Ave Speed <sup>1</sup><br>km/h | Dir Ave <sup>1</sup><br>deg | Max <sup>1</sup><br>W/m <sup>2</sup> | Ave <sup>1</sup><br>W/m <sup>2</sup> |                   |
| 1   | Tue | 23.0                   | 16.0                   | 18.6                   | 22.2                   | 16.0                   | 18.7                   | 35.5                          | 17.6                           | 199                         | 486.6                                | 64.6                                 | 10.4              |
| 2   | Wed | 22.1                   | 14.8                   | 17.3                   | 20.9                   | 14.7                   | 17.4                   | 29.6                          | 18.9                           | 209                         | 776.6                                | 91.5                                 | 3.6               |
| 3   | Thu | 20.3                   | 15.3                   | 17.1                   | 19.3                   | 15.1                   | 16.9                   | 14.2                          | 9.2                            | 248                         | 451.7                                | 61.6                                 | 1.8               |
| 4   | Fri | 28.3                   | 12.5                   | 16.5                   | 25.4                   | 13.2                   | 17.1                   | 13.0                          | 6.6                            | 229                         | 642.5                                | 61.1                                 | 2.2               |
| 5   | Sat | 28.2                   | 12.2                   | 19.2                   | 26.7                   | 13.4                   | 19.7                   | 16.6                          | 10.8                           | 204                         | 699.2                                | 180.5                                | 0.0               |
| 6   | Sun | 27.4                   | 11.5                   | 18.5                   | 25.8                   | 12.1                   | 18.6                   | 26.0                          | 18.5                           | 196                         | 694.1                                | 195.9                                | 0.0               |
| 7   | Mon | 27.0                   | 9.3                    | 17.2                   | 25.8                   | 11.0                   | 18.1                   | 23.7                          | 15.4                           | 211                         | 686.6                                | 186.3                                | 0.0               |
| 8   | Tue | 27.4                   | 13.2                   | 18.6                   | 25.9                   | 13.6                   | 18.5                   | 29.6                          | 19.5                           | 213                         | 675.8                                | 180.1                                | 0.0               |
| 9   | Wed | 22.9                   | 14.0                   | 17.3                   | 21.2                   | 14.7                   | 17.3                   | 30.8                          | 20.4                           | 156                         | 718.2                                | 90.2                                 | 0.8               |
| 10  | Thu | 25.1                   | 12.7                   | 18.0                   | 23.0                   | 13.8                   | 18.2                   | 23.7                          | 18.1                           | 182                         | 860.8                                | 126.3                                | 0.0               |
| 11  | Fri | 27.2                   | 13.1                   | 18.8                   | 24.8                   | 14.1                   | 19.1                   | 14.2                          | 10.7                           | 194                         | 808.2                                | 142.8                                | 0.0               |
| 12  | Sat | 28.9                   | 14.0                   | 19.8                   | 26.8                   | 14.3                   | 19.7                   | 14.2                          | 10.6                           | 172                         | 625.8                                | 167.7                                | 0.0               |
| 13  | Sun | 26.7                   | 15.6                   | 19.9                   | 24.6                   | 16.0                   | 19.6                   | 26.0                          | 20.2                           | 177                         | 784.2                                | 137.5                                | 14.2              |
| 14  | Mon | 26.5                   | 12.8                   | 18.3                   | 25.1                   | 13.2                   | 18.5                   | 18.9                          | 13.6                           | 218                         | 838.3                                | 111.4                                | 0.2               |
| 15  | Tue | 27.2                   | 16.0                   | 20.3                   | 26.3                   | 16.8                   | 20.4                   | 31.9                          | 18.3                           | 160                         | 645.8                                | 159.3                                | 7.2               |
| 16  | Wed | 22.9                   | 13.8                   | 17.4                   | 22.1                   | 14.3                   | 17.4                   | 36.7                          | 23.5                           | 202                         | 907.4                                | 110.8                                | 2.6               |
| 17  | Thu | 22.7                   | 15.3                   | 17.7                   | 21.0                   | 15.5                   | 17.4                   | 34.3                          | 15.9                           | 201                         | 845.0                                | 91.6                                 | 30.8              |
| 18  | Fri | 22.1                   | 13.7                   | 16.7                   | 21.5                   | 14.7                   | 17.0                   | 28.4                          | 19.4                           | 234                         | 735.0                                | 78.8                                 | 12.2              |
| 19  | Sat | 25.6                   | 11.3                   | 16.6                   | 23.4                   | 11.8                   | 16.7                   | 18.9                          | 12.1                           | 224                         | 702.5                                | 144.5                                | 0.0               |
| 20  | Sun | 27.3                   | 12.5                   | 17.8                   | 26.0                   | 13.4                   | 18.3                   | 13.0                          | 7.5                            | 250                         | 776.6                                | 135.2                                | 0.0               |
| 21  | Mon | 29.7                   | 15.0                   | 20.8                   | 28.8                   | 16.9                   | 22.1                   | 16.6                          | 9.7                            | 237                         | 596.6                                | 152.8                                | 0.0               |
| 22  | Tue | 26.8                   | 13.1                   | 17.7                   | 25.3                   | 13.7                   | 17.9                   | 30.8                          | 17.7                           | 215                         | 768.3                                | 103.6                                | 14.6              |
| 23  | Wed | 22.8                   | 13.7                   | 16.8                   | 20.8                   | 14.0                   | 16.7                   | 26.0                          | 16.3                           | 226                         | 776.6                                | 104.9                                | 35.6              |
| 24  | Thu | 24.1                   | 14.4                   | 19.2                   | 23.1                   | 15.0                   | 19.8                   | 37.9                          | 24.9                           | 147                         | 735.1                                | 107.1                                | 1.2               |
| 25  | Fri | 25.2                   | 14.0                   | 18.2                   | 23.7                   | 14.0                   | 18.1                   | 24.9                          | 17.6                           | 170                         | 672.5                                | 111.2                                | 4.4               |
| 26  | Sat | 24.1                   | 13.8                   | 17.7                   | 22.7                   | 14.0                   | 17.9                   | 21.3                          | 14.3                           | 173                         | 690.0                                | 116.0                                | 0.4               |
| 27  | Sun | 25.0                   | 16.3                   | 19.6                   | 23.6                   | 16.2                   | 19.5                   | 22.5                          | 13.0                           | 191                         | 663.3                                | 90.2                                 | 58.4              |
| 28  | Mon | 18.7                   | 16.3                   | 17.3                   | 18.9                   | 16.5                   | 17.4                   | 54.4                          | 35.4                           | 146                         | 231.6                                | 20.7                                 | 142.2             |
| 29  | Tue | 23.4                   | 13.8                   | 17.3                   | 22.4                   | 14.5                   | 17.5                   | 33.1                          | 19.4                           | 197                         | 727.5                                | 94.7                                 | 7.6               |
| 30  | Wed | 24.0                   | 14.5                   | 17.8                   | 22.5                   | 15.0                   | 17.7                   | 16.6                          | 11.6                           | 207                         | 672.4                                | 94.1                                 | 18.6              |
| Ave or Total  |     | 25.1                   | 13.8                   | 18.1                   | 23.7                   | 14.4                   | 18.3                   | 25.4                          | 16.2                           | 199.5                       | 696.5                                | 117.1                                | 369.0             |
| High  |     | 29.7                   | 16.3                   | 20.8                   | 28.8                   | 16.9                   | 22.1                   | 54.4                          | 35.4                           |                             | 907.4                                | 195.9                                | 142.2             |
| Low   |     | 18.7                   | 9.3                    | 16.5                   | 18.9                   | 11.0                   | 16.7                   | 13.0                          | 6.6                            |                             | 231.6                                | 20.7                                 |                   |
| Notes: 1. Values are for the 24 hour period from 9am to 9am next day. |     |                        |                        |                        |                        |                        |                        |                               |                                |                             |                                      | No. rain days >1mm:                  |                   |
| 2. Values are for the 24 hours to 9am.                                |     |                        |                        |                        |                        |                        |                        |                               |                                |                             |                                      | 17                                   |                   |

**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-25                          | 352             | 12,215                   |
| Feb-25                          | 794             | 26,011                   |
| Mar-25                          | 745             | 23,981                   |
| Apr-25                          | 329             | 10,524                   |
| <b>Progressive Annual Total</b> | <b>2,220</b>    | <b>72,731</b>            |

## 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





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