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Karuah East Quarry

Environmental Monitoring Report

March 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 20611 (the EPL) and Project Approval MP09_0175 (the Consent) for the Karuah East Quarry (the Quarry) as summarised by **Table 1** and **Table 2** respectively.

Table 1 *Summary of Environment Protection Licence, EPL 20611*

EPL Number:	EPL 20611
Licensee's Name:	Karuah East Quarry Pty Limited
Licensee's Address:	Karuah East Quarry PO Box 3284, Thornton NSW 2322 Blue Rock Close, Karuah NSW 2324
Link to Full Licence on the EPA website:	EPL 20611

Table 2 *Summary of Project Approval, MP09_0175*

Project Approval:	MP09_0175
Applicant:	Karuah East Quarry Pty Limited
Consent Authority:	NSW Planning Assessment Commission
Link to Full Project Approval on the NSW Planning website:	Project Approval MP09_0175

A summary of the environmental monitoring data for the March 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 and TSP/PM10 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 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 (MP09-0175).

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 (MP09-0175).

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

Table 6 Air Quality Monitoring Locations (EPL 20611).

Site Monitoring Point ID	EPL Monitoring Point ID	Location	Address	Coordinates
DDG 1	4	South-West of Karuah East Quarry	54 Mill Hill Close, Karuah NSW 2324	32°38'04"S 151°59'58"E
DDG 2	5	South-West of Karuah East Quarry	64 Mill Hill Close, Karuah NSW 2324	32°38'02"S 152°00'09"E
DDG 3	6	South-West of Karuah East Quarry	Lot 251 DP1092111, Karuah NSW 2324	32°37'57"S 151°59'41"E
DDG 4	7	East of Karuah East Quarry	21 Halloran Road, North Arm Cove NSW 2324	32° 37' 30.87"S 152°01'10.18"E
DDG 5	8	South-West of Karuah East Quarry	Lot 21 DP1024341, Karuah NSW 2324	32° 37' 55.33"S 152°00'2.74"E
HVAS	9	South-West of Karuah East Quarry	64 Mill Hill Close, Karuah NSW 2324	32°38'03"S 152°00'09"E

2.1 Deposited Dust Monitoring

Deposited dust results for the 12-months prior-to and including March 2025 are summarised by **Table 7**. Monitoring results for the Reporting Period at all five DDG monitoring sites are within the long-term annual deposited dust limit of 4 g/m²/month

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	DDG 5 EPL ID 8
Apr-24	28/03/2024	29/04/2024	32	0.9	0.4	0.5	0.8	0.5
May-24	29/04/2024	29/05/2024	30	0.5	0.3	0.2	0.4	0.4
Jun-24	29/05/2024	28/06/2024	30	0.7	0.5	0.5	0.7	0.4
Jul-24	28/06/2024	30/07/2024	32	1.1	0.8	0.6	0.9	0.7
Aug-24	30/07/2024	30/08/2024	31	0.7	0.5	0.7	0.9	0.6
Sep-24	30/08/2024	30/09/2024	31	2.2	1.2	1.3	1.2	0.9
Oct-24	30/09/2024	31/10/2024	31	1.0	0.7	0.7	5.1 ²	0.4
Nov-24	31/10/2024	29/11/2024	29	1.4	1.1	1.1	1.7	0.9
Dec-24	29/11/2024	30/12/2024	29	0.6	1.4	1.3	3.1	1.1
Jan-25	30/12/2024	31/01/2025	32	3.8	1.7	1.9	1.3	1.3
Feb-25	31/01/2025	03/03/2025	31	1.2	0.9	1.1	1.2	2.1
Mar-25	03/03/2025	03/04/2025	31	0.7	1.0	1.4		28.2 ¹
Mar-25	04/03/2025	03/04/2025	30				1.1	
Progressive Annual Average				1.2	0.9	0.9	1.5	3.1

Notes:

1. An exceedance was recorded at DDG5 during the March 2025 Monitoring Period, due to an elevated quantity of combustible matter being recorded (27.5 g). This is attributed to the development of a significant algal bloom on the collected rainwater surface within the dust gauge glassware. This event was 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.
2. An anomalous exceedance was recorded at DDG4 during the October 2024 Monitoring Period which was subsequently reported to NSW Planning, the NSW EPA and surrounding landholders in accordance with the relevant conditions of the Consent and EPL.

2.2 High Volume Air Sampling

TSP and PM10 results for the Reporting Period are summarised by **Table 8** and illustrated respectively by **Figure 1** and **Figure 2**.

Table 8 *HVAS TSP and PM10 monitoring results for the Reporting Period.*

Run Date	Total Suspended Particulates, TSP (µg/m ³)	Particulate Matter < 10 µm, PM10 (µg/m ³)
01/03/2025	32	18
07/03/2025	20	10
13/03/2025	20	10
19/03/2025	43	15
25/03/2025	19	8
31/03/2025	13	4
Monthly Average	24.5	10.8

Monitoring results for the six HVAS run days within the Reporting Period were compliant with the long-term limits for TSP and PM10 and short-term limits for PM10.

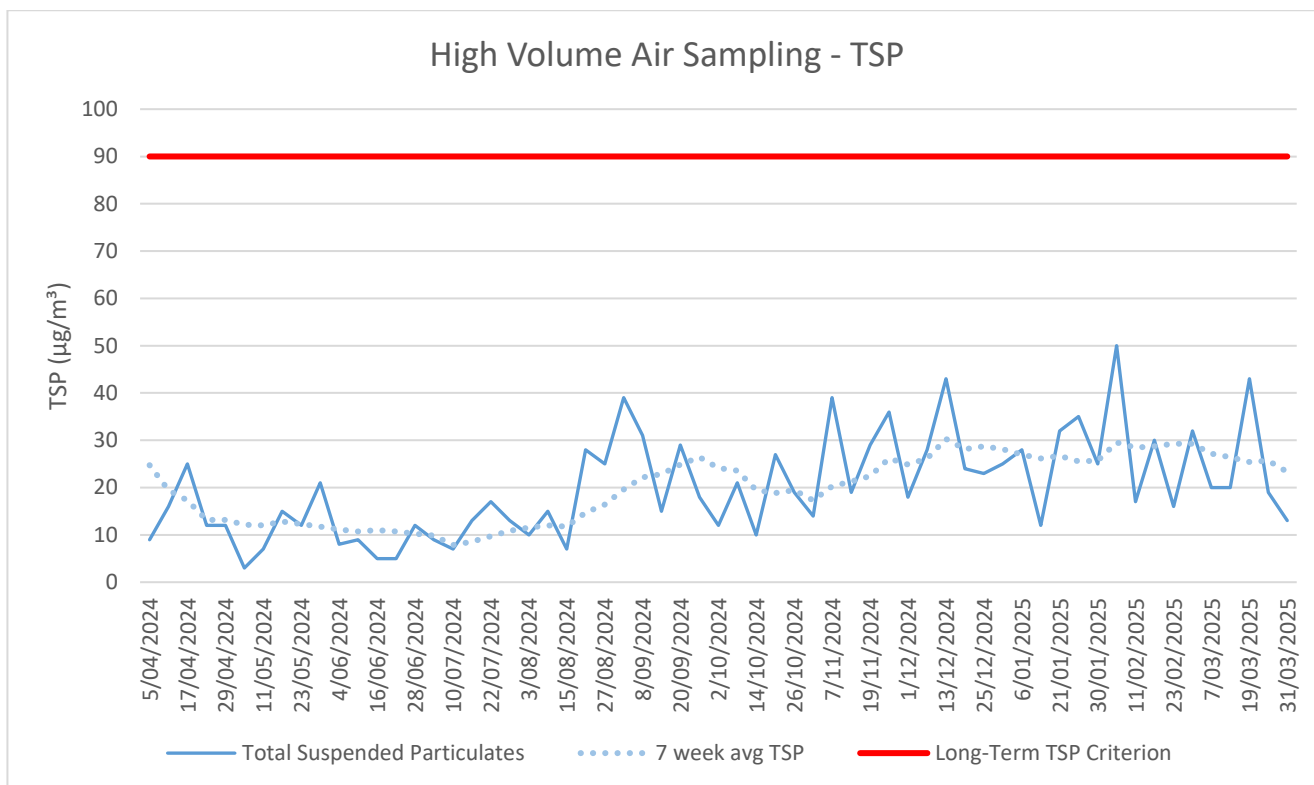


Figure 1 Long-term TSP monitoring trends.

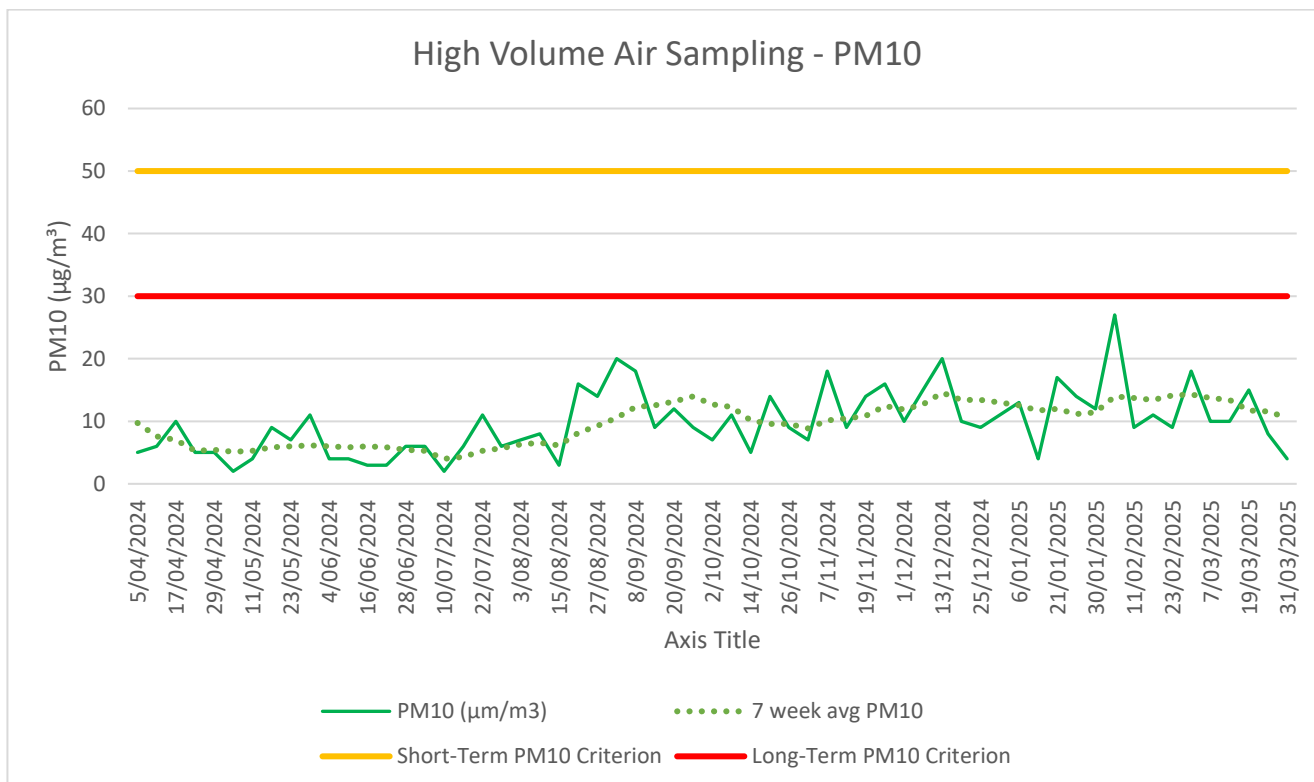


Figure 2 Long-term PM10 monitoring trends.

3.0 Blast Monitoring

Blast monitoring is undertaken for all blasts at the Quarry at the nearest residential location (EPL Monitoring Point 11) to ensure that air blast overpressure and ground vibration remain within the compliance limits, as summarised by **Table 9**; with the monitoring results summarised by **Table 10**.

There were two blasts undertaken during the Reporting Period, which were observed to be within compliance limits, as summarised by **Table 10**.

Table 9 *Blasting Airblast Overpressure and Ground Vibration Criteria (MP09-0175 & EPL 20611).*

Location	Airblast Overpressure (dB(L))	Ground Vibration (mm/s)	Allowable Exceedance
Private Residence B	120	10	0%
EPL Monitoring Point ID 11	115	5	5% over 12-month reporting period.

Table 10 *Blasting Monitoring Results.*

Date	Time	Location	Airblast Overpressure (dB(L))	Ground Vibration (mm/s)
03/03/2025	13:36	RL 120	n/t	n/t
28/03/2025	12:33	RL 120 + 90	111.0	0.84

*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 Noise Management Plan, which requires attended noise monitoring to be conducted on a quarterly 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 Water Management Plan, with daily monitoring of surface water being discharged from the Quarry via the licenced discharge points in accordance with Condition L2 and M2 of the EPL.

Discharge events that occurred during the Reporting Period are summarised by **Table 11**.


All discharge events were compliant with the limits provided by the Consent and EPL, including Total Suspended Solids (TSS) below 40 mg/L and pH within the range of 6.5 to 8.5.

Table 11 *Discharge Water Monitoring Results.*

Date	pH	Turbidity (NTU)	Total Suspended Solids, TSS (mg/L)	Oil and Grease	Discharge Type
LDP 1 – Dam 1					
–	–	–	–	–	–
LDP 2 – Dam 2					
06/03/2025	7.2	19	12	Not Visible	Controlled
10/03/2025	7.4	45	24	Not Visible	Controlled
14/03/2025	7.6	27	19	Not Visible	Controlled
24/03/2025	7.7	11	6	Not Visible	Controlled
29/03/2025	7.1	45	35	Not Visible	Controlled
LDP 3 – Dam 3					
05/03/2025	7.3	20	14	Not Visible	Controlled
10/03/2025	7.3	24	14	Not Visible	Controlled
11/03/2025	7.3	28	20	Not Visible	Controlled
24/03/2025	7.4	20	10	Not Visible	Controlled
25/03/2025	7.2	18	11	Not Visible	Controlled
29/03/2025	7.8	31	17	Not Visible	Controlled

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 Reporting Period.



Monthly Weather Summary

Site: **Karuah Quarry Complex**
Month: **March 2025**

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	Sat	37.1	20.4	26.8	34.8	21.0	26.3	26.0	4.2	168	820.0	224.5	0.0
2	Sun	32.5	19.4	25.0	30.9	19.9	24.5	21.3	4.9	173	1008.3	202.9	0.0
3	Mon	34.4	19.9	25.4	32.1	20.5	24.8	29.6	5.2	136	809.2	226.7	0.8
4	Tue	24.8	20.0	21.8	23.4	20.2	21.5	36.7	6.0	129	626.7	90.2	5.4
5	Wed	25.2	19.7	21.7	24.4	19.9	22.0	40.2	9.1	101	975.8	104.7	22.0
6	Thu	25.9	20.2	22.1	24.5	20.3	22.1	46.1	9.1	101	1035.8	131.0	9.8
7	Fri	25.5	18.7	21.2	24.1	19.3	21.4	45.0	8.8	101	965.8	110.3	9.0
8	Sat	24.5	19.7	21.5	23.7	19.9	21.5	47.3	10.1	106	704.9	102.0	16.0
9	Sun	27.1	18.6	21.8	25.2	19.7	22.1	41.4	5.9	142	1005.7	149.1	5.6
10	Mon	27.3	20.2	22.6	26.0	20.1	22.4	26.0	4.0	180	949.9	143.9	1.0
11	Tue	23.5	19.8	20.9	22.7	19.7	20.7	16.6	3.1	131	299.1	65.1	7.2
12	Wed	24.1	17.6	20.4	23.1	17.9	20.3	16.6	2.8	155	625.8	76.2	4.0
13	Thu	27.9	16.2	20.7	25.3	16.7	20.6	18.9	2.8	152	1055.0	136.4	0.6
14	Fri	30.8	17.2	22.7	27.8	17.8	22.4	18.9	3.3	177	945.8	205.9	0.0
15	Sat	33.6	18.7	24.5	31.4	19.2	24.3	16.6	3.1	184	763.3	218.8	0.0
16	Sun	34.4	17.8	24.9	33.5	19.4	25.7	18.9	3.1	251	935.7	201.3	0.0
17	Mon	35.5	18.8	26.2	33.9	18.9	26.3	40.2	5.5	181	903.2	189.0	0.0
18	Tue	22.8	14.2	18.1	20.7	14.5	17.8	42.6	5.0	190	814.2	112.1	0.0
19	Wed	25.6	17.5	20.7	23.2	17.5	20.5	18.9	3.8	134	1019.2	117.4	0.0
20	Thu	29.3	16.7	22.7	27.2	17.5	22.4	23.7	5.3	181	874.2	191.3	0.0
21	Fri	31.9	17.4	23.2	29.8	18.1	22.9	23.7	3.3	191	714.9	184.7	0.0
22	Sat	25.5	17.2	20.3	24.9	17.6	20.4	22.5	2.3	222	451.7	48.8	18.4
23	Sun	28.6	19.9	22.3	25.9	19.8	21.9	23.7	3.4	157	971.7	121.9	4.4
24	Mon	25.2	20.6	21.7	23.9	20.6	21.4	27.2	2.7	161	521.6	81.7	1.4
25	Tue	25.3	18.9	21.5	24.6	18.9	21.5	18.9	2.3	174	527.4	75.3	3.4
26	Wed	26.2	17.4	20.9	24.9	17.8	20.8	21.3	2.3	153	797.5	100.8	1.0
27	Thu	26.2	17.2	20.6	24.6	17.4	20.5	20.1	2.1	182	842.5	111.9	0.0
28	Fri	26.8	16.1	20.8	25.1	16.8	20.8	26.0	3.2	165	721.6	128.5	0.2
29	Sat	25.2	18.8	21.0	24.2	18.7	20.8	20.1	2.7	136	431.6	78.5	42.8
30	Sun	21.1	18.6	19.9	20.9	18.6	20.0	27.2	4.0	223	230.8	28.6	36.2
31	Mon	25.9	17.8	20.9	24.4	18.2	20.7	46.1	8.0	212	814.2	120.7	16.2
Ave or Total		27.7	18.4	22.1	26.2	18.8	22.0	28.0	4.6	162.9	779.5	131.6	205.4
High		37.1	20.6	26.8	34.8	21.0	26.3	47.3	10.1		1055.0	226.7	42.8
Low		21.1	14.2	18.1	20.7	14.5	17.8	16.6	2.1		230.8	28.6	

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: **15**

Figure 3 Weather Records Summary during the Reporting Period.

7.0 Production Data

Monthly monitoring of sales and truck movements are summarised by **Table 12**.

Table 12 *Quarry Production Data.*

Month	Truck Movements	Quarry Product Sales (t)
Jan-25	1,822	54,080
Feb-25	3,048	95,968
Mar-25	3,001	95,438
Progressive Annual Total	7,871	245,486

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

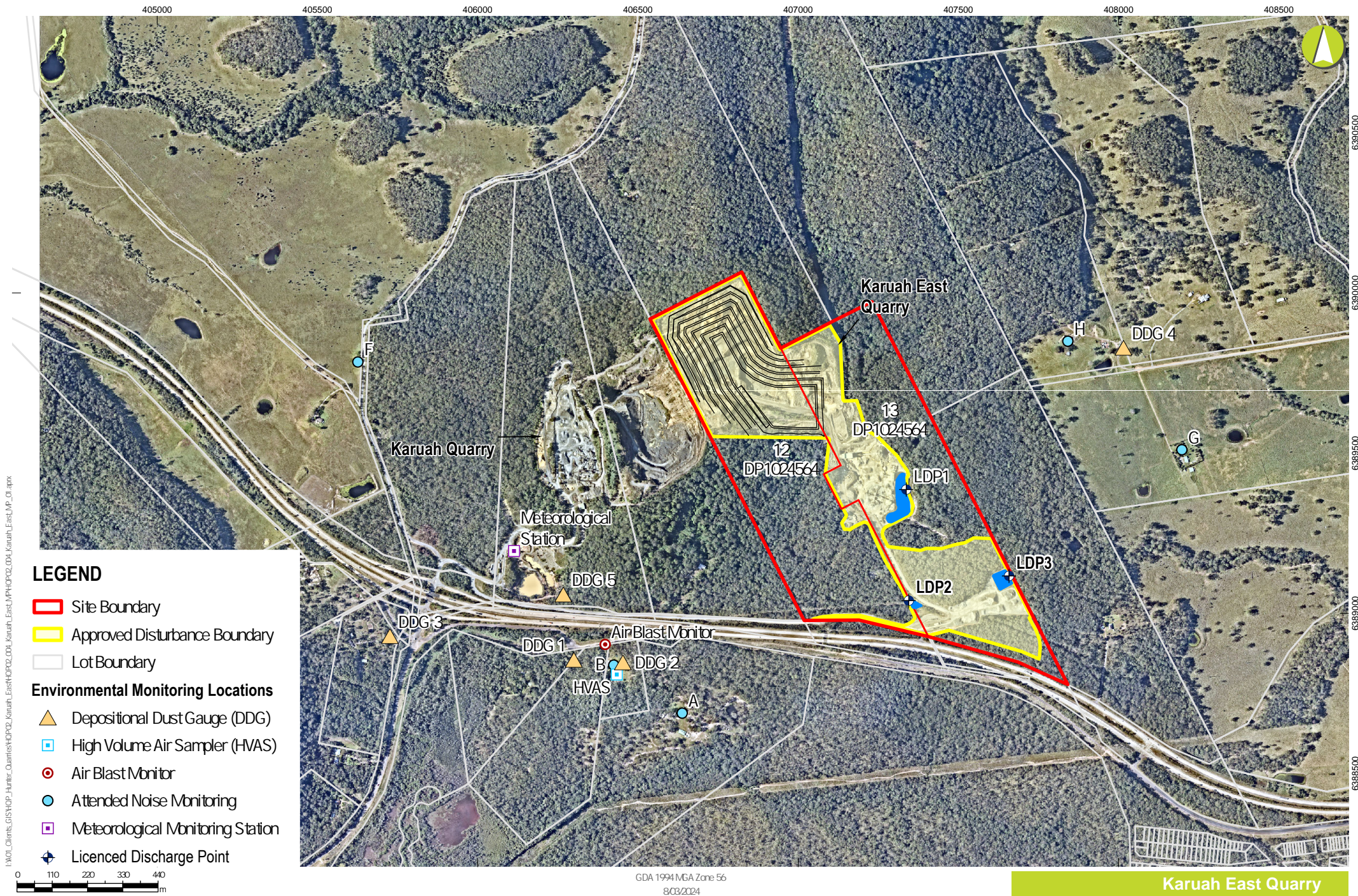
During the Reporting Period, the Quarry had one reportable non-compliance in relation to air quality:

- Exceedance of performance criteria at one Depositional Dust Gauge, due to the development of an significant algal bloom on the collected rainwater surface within the dust gauge glassware.

8.3 Community Complaints

During the Reporting Period, no community complaints were received by the Quarry.

Appendix 1 – EPL 20611 Monitoring Locations



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