



4 December 2017

## **Karuah East Quarry (MP 09\_0175)**

### **Company Report and Overview of Activities**

#### **1. INTRODUCTION OF APPROVED PROJECT**

The Karuah East Quarry is an approved hard rock quarry located at Karuah in the Hunter Region, NSW. Karuah East Quarry was approved by the NSW Planning Assessment Commission as a Part 3A Major Project on 18 June 2014 (Project Approval 09\_0175). The project also received approval from the Australian Government Department of Environment on 20 March 2015 (EPBC 2014/7282).

The key elements of the approved project are as follows:

- Extraction of up to 1.5 million tonnes of andesite material per year from a total resource of approximately 29 million tonnes.
- Removal and stockpiling an estimated 380,000m<sup>3</sup> of overburden from the quarry extraction area. Overburden is not included in the extraction rate of 1.5 million tonnes of andesite per annum.
- Construction of quarry plant (crushing plant, wash plant, pug mill, workshop and weighbridge), stockpile areas, and haulage road.
- Quarry Lands – Pt Lot 12 and Part Lot 13 DP 1024564.
- Disturbance Area of proposed works – 31.63ha (actual vegetation disturbance 28.09ha).
- Environmental Offset Lands – Pt. Lot 13 & 14 DP 1024564 and Lot 5 DP 838128. Total environmental offset 138.22ha. These offset lands were confirmed acceptable by NSW OEH and the Federal Department of Environment.
- Upgrade and extension of Blue Rock Lane (RMS owned land) to provide access to the quarry.
- Haulage of product from site to market by 25 – 30 tonne haul trucks via the Pacific Highway.
- Approximately 216 laden truckloads per day at maximum production.
- Drilling & Blasting Activity.
- Crushing and screening of extracted material.
- Loading and hauling of extracted material.
- Employment of 28 staff to operate the quarry. 56 construction jobs will be created.
- The Karuah East Quarry is a stand-alone operation, separate to the existing Karuah Quarry. All environmental modelling undertaken (eg, air quality and noise) considered the cumulative impacts of both quarries combined and results satisfied legislative goals.

All Project Approval documents and Environmental Reporting are available on the Hunter Quarries website at [www.hunterquarries.com.au](http://www.hunterquarries.com.au) (see 'Karuah East Documents' at the bottom of the web page).

Prior to the commencement of vegetation clearing and construction, the Project Approval and EPBC Approval required the preparation of a number of important management plans inclusive of environmental safeguards. These management plans (prepared by experts endorsed by the NSW DPE) include:

- Biodiversity Offset Area Management Plan.
- Tetratheca Juncea Translocation Management Plan.
- Noise Management Plan.
- Air Quality and Greenhouse Gas Management Plan.
- Blast Management Plan.
- Water Management Plan.
- Traffic Management Plan (including Construction Management and Operational Traffic Management).
- Heritage Management Plan.
- Landscaping and Rehabilitation Management Plan.
- Environmental Management Strategy.

All of the abovementioned Management plans have been endorsed by the NSW DPE. In addition, the Biodiversity Management Plan was also endorsed by the Federal Department of the Environment.

Each of the Management Plans are available on the abovementioned Hunter Quarries website.

## 2. PROGRESS OF THE PROJECT

Karuah East Quarry officially commenced operations on 16 November 2017. Material is now being transported offsite via the new Blue Rock Close entry.

Management Area	Task	Status
Construction	Internal site works	<ul style="list-style-type: none"> <li>• The install of the disturbance boundary fencing commenced on 14 August 2017. A total of 2210m of fencing has been install thus far. The fencing is installed as a chain-wire “fauna” exclusion fence as required under Project Approval’s Statement of Commitments.</li> <li>• The internal access road has been completed in the past quarter. The road has been capped and sealed as required under the Project Approval’s Statement of Commitments. This road is the main entry to the Quarry site from Blue Rock Close. Construction on the entry gate has started.</li> <li>• Dam 2 was reconstructed on 24 August 2017.</li> <li>• First stage of extraction area has been developed.</li> </ul>
	Blue Rock Close	Road completed. Construction Completion Certificate was issued by the RMS on 15 November 2017.
	Plant & Site Buildings	<ul style="list-style-type: none"> <li>• The weighbridge along with a wheel wash has been completed.</li> <li>• Weighbridge office and amenities have been completed.</li> <li>• The primary crushing plant was completed in September 2017. The electrics are been finalised.</li> </ul>

Management Area	Task	Status
Regulators	EPL Annual Return	Annual return for the Environmental Protection Licence 20611 was completed and submitted to the EPA on 25 October 2017.
Planning	Section 75(W) Modification 1	<ul style="list-style-type: none"> <li>• A modification application was lodged to the Department of Planning and Environment in July 2017 for expanding the disturbance area of 2,500m<sup>2</sup>. At the time, the DPE requested for further studies to be conducted to assess any potential environmental implications.</li> <li>• Biodiversity (Flora &amp; Fauna), air quality, water, visual and noise assessments were completed in October 2017.</li> <li>• Final Cultural Heritage assessment report still pending.</li> <li>• The final Flora &amp; Fauna report was submitted to the Commonwealth Department of the Environment &amp; Energy on 30 October 2017 for feedback. The Federal EPBC 2014/7282 approval may require a variation or additional amendments to the BOAMP.</li> </ul>

**Photo 1**



*Weighbridge and office. Photo taken 13 November 2017.*

**Photo 2**



*Plant completed. Extraction area shown in background. Photo taken.1 November 2017*

**Photo 3**



*Blue Rock Close extension looking west from the Karuah East Quarry entry. Photo taken 13 November 2017.*

**Photo 4**



*Internal access road looking towards the weighbridge from the entry. Chain-wire fauna fencing shown to the left. Photo taken 13 November 2017.*

### **3. CONSTRUCTION SCHEDULE**

Karuah East Quarry is now operational but construction activities will continue as production output increases. Over the next 12 months, it is anticipated that the following construction activities will commence or continue:

- Extraction area will be developed further;
- Permanent amenities will be constructed for Quarry staff;
- A new workshop will be constructed; and
- Stage 2 of the crushing plant will commence.

### **4. MONITORING AND ENVIRONMENTAL PERFORMANCE**

Ongoing environmental monitoring will be undertaken during the life of the Karuah East Quarry. Monitoring of groundwater, surface water, noise, blasting, air quality (dust) and ecological monitoring has commenced. Monitoring results are published in the *Monthly Environmental Monitoring Reports*, which can be downloaded from the Hunter Quarries website.

## 4.1 Air Quality Monitoring

### Insoluble Solids (g/m<sup>2</sup>/month)

Date	DDG 1	DDG 2	DDG 3	DDG 4	DDG 5
8/1/2016 to 8/2/2016	1.4	0.9	1.1	1.2	-
8/2/2016 to 3/3/2016	4.0	0.7	0.6	0.9	-
3/3/2016 to 4/4/2016	3.1	0.3	1.0	2.0	-
4/4/2016 to 6/5/2016	1.5	1.1	0.4	3.2	-
6/5/2016 to 3/6/2016	1.0	0.9	0.7	0.4	-
3/6/2016 to 4/7/2016	0.4	1.6	0.5	0.3	-
4/7/2016 to 1/8/2016	1.4	0.7	0.3	0.5	-
1/8/2016 to 31/8/2016	2.7	3.0	0.8	0.7	-
31/8/2016 to 28/9/2016	2.1	1.6	0.8	0.8	0.9
28/9/2016 to 26/10/2016	0.8	0.6	0.8	0.5	0.7
26/10/2016 to 23/11/2016	0.7	1.0	1.3	2.3	1.9
23/11/2016 to 21/12/2016	1.3	0.5	0.9	1.0	4.2
21/12/2016 to 18/01/2017	0.4	0.8	0.7	2.5	3.1
18/01/2017 to 16/02/2017	1.3	0.9	1.2	1.2	1.9
16/02/2017 to 20/03/2017	0.4	1.4	0.5	3.8	1.3
20/03/2017 to 21/04/2017	0.6	0.7	0.5	0.8	1.3
21/04/2017 to 23/05/2017	0.6	0.6	1.1	0.8	0.8
23/05/2017 to 20/06/2017	0.5	1.3	0.9	1.6	0.5
20/06/2017 to 18/07/2017	0.4	0.2	0.5	1.2	0.4
18/07/2017 to 17/08/2017	0.6	0.5	0.6	0.5	0.8
17/08/2017 to 14/09/2017	1.4	0.2	1.4	1.5	0.7
14/09/2017 to 12/10/2017	1.1	0.1	1.2	1.8	1.5
<sup>1</sup> Rolling Annual Average	<b>1.3</b>	<b>0.2</b>	<b>1.3</b>	<b>1.7</b>	<b>1.1</b>
<sup>2</sup> Annual Average Criteria	<b>4.0</b>	<b>4.0</b>	<b>4.0</b>	<b>4.0</b>	<b>4.0</b>

Note <sup>1</sup>: Rolling annual average from EPL 20611 anniversary date of 26 August.

Note <sup>2</sup>: Maximum criteria as specified in EPL 20611.

### High Volume Air Sampling (TSP & PM10) Results

Date	TSP (µg/m <sup>3</sup> )	PM10 (µg/m <sup>3</sup> )	Comments
29/04/2016	23	18	
05/05/2016	20	18	
11/05/2016	17	8	
17/05/2016	25	19	
23/05/2016	35	20	
29/05/2016	11	5	
04/06/2016	9	8	
10/06/2016	11	4	
16/06/2016	10	8	
22/06/2016	11	4	
28/06/2016	11	6	
04/07/2016	20	5	
10/07/2016	10	6	
16/07/2016	10	8	
22/07/2016	14	7	
28/07/2016	9	5	

Date	TSP ( $\mu\text{g}/\text{m}^3$ )	PM10 ( $\mu\text{g}/\text{m}^3$ )	Comments
03/08/2016	27	14	
09/08/2016	11	6	
15/08/2016	18	12	
21/08/2016	10	5	
27/08/2016	9	4	
02/09/2016	11	7	
08/09/2016	15	8	
14/09/2016	11	6	
20/09/2016	16	9	
26/09/2016	<i>Breakdown</i>	<i>Breakdown</i>	Power failure
02/10/2016	18	7	
08/10/2016	35	21	
14/10/2016	12	8	
20/10/2016	19	11	
24/10/2016	21	12	Catch up sample for 26/9/2016
26/10/2016	21	12	
01/11/2016	19	9	
07/11/2016	74	50	Bushfires in vicinity
13/11/2016	27	14	
19/11/2016	40	24	
25/11/2016	28	13	
01/12/2016	25	12	
07/12/2016	16	14	
13/12/2016	41	21	
19/12/2016	41	23	
25/12/2016	19	13	
31/12/2016	34	22	
06/01/2017	30	14	
12/01/2017	42	24	
18/01/2017	44	18	
24/01/2017	40	21	
30/01/2017	34	18	
05/02/2017	40	24	
11/02/2017	54	36	
17/02/2017	41	20	
23/02/2017	30	16	
01/03/2017	13	11	
07/03/2017	30	16	
13/03/2017	30	18	
19/03/2017	21	15	
25/03/2017	25	17	
31/03/2017	25	14	
06/04/2017	12	7	
12/04/2017	13	6	
18/04/2017	17	11	
24/04/2017	18	10	
30/04/2017	15	10	
12/05/2017	23	14	
18/05/2017	20	10	
24/05/2017	23	9	

Date	TSP ( $\mu\text{g}/\text{m}^3$ )	PM10 ( $\mu\text{g}/\text{m}^3$ )	Comments
30/05/2017	20	9	
05/06/2017	11	7	
11/06/2017	9	7	
17/06/2017	18	9	48 hour runtime - 17/6 and 23/6/2017
26/06/2017	12	9	Catch up for 23/6/2017
29/06/2017	9	6	
05/07/2017	16	6	
11/07/2017	11	5	
17/07/2017	10	4	
23/07/2017	10	2	
29/07/2017	9	3	
04/08/2017	6	1	
10/08/2017	14	2	
16/08/2017	25	9	
22/08/2017	14	9	
28/08/2017	16	6	
03/09/2017	15	9	
09/09/2017	14	6	
15/09/2017	20	6	
21/09/2017	26	15	
27/09/2017	55	22	
<b><sup>1</sup>24hr Max Criteria</b>	<b>N/A</b>	<b>50</b>	
<b>Year-to-date Average</b>	24.3	10.7	
<b><sup>1</sup>Annual Average</b>	<b>90</b>	<b>30</b>	
<b>Criteria</b>			

**Note** <sup>1</sup>: Maximum criteria as specified in PA 09\_0175

**Note** <sup>2</sup>: Year-to-date average from EPL 20611 anniversary date of 26 August.

## 4.2 Blast Monitoring

One blast was undertaken in the last quarter.

Date and time	Overpressure and vibration	<sup>1</sup> Monitor 1 (Front Gate)	<sup>2</sup> Monitor 2 (Nearest Residence)
26/10/2017	Overpressure dB(L)	110.4	111.4
12:33 pm	Vibration (mm/s)	1.44	1.34

**Note** <sup>1</sup>: Front gate is defined as the approved public entry to the Karuah East Quarry site from Blue Rock Close.

**Note** <sup>2</sup>: Nearest resident is also known as receiver location "B", 5770 Pacific Hwy and EPL Monitoring Point 11.

The blasting event that occurred on the 26 October 2017 was below the EPL limits for overpressure and vibration. The permitted limits for overpressure is 115 dB(L) and 10 mm/s for vibration at any approved premises. Overpressure is permitted to exceed 115 dB(L) but no more than 120 dB(L) for up to 5% of the total number of blasts within the EPL reporting year.

## 4.3 Noise Monitoring

Operator attended noise monitoring was undertaken on 23 August 2017. Results shown in table below.



## Operator Attended Noise Monitoring Results

Location	Date/Start Time/ Weather	Primary Noise Descriptor (dBA re 20 µPa)					Description of Noise Emissions and Typical Maximum Noise Levels (dBA)
		LAmx	LA1	LA10	LA90	LAEq	
F Lot 50 DP 103	23/08/2017 13:48 Wind: Calm Temp: 21°C	54	50	48	41	45	Pacific Highway 43 to 54 dBA Birds 35 to 42 dBA <b>Karuah East Project construction not audible</b>
G Lot 3 DP 1032636	04/05/2017 14:18 Wind: 2.5 m/s SSSE Temp: 21°C	56	49	46	40	43	Pacific Highway 40 to 45 dBA Birds 34 to 56 dBA Local Traffic 45 dBA <b>Karuah East Project construction audible</b> Crushers ~31 dBA

The noise survey conducted on 23 August 2017 showed that the contributed noise relating to the Karuah East Quarry within the criterion limits of the Noise Management Plan. Contributed noise relating to the Karuah East Quarry construction activities were estimated to be 31 dBA LAeq(15 minute) at location G. Noise relating to the Karuah East Quarry was not audible at location F. It is noted that the main noise contributor to the measured LAeq(15 minute) construction noise levels at location G was from the mobile crushers.

## 4.4 Water Monitoring

### Surface Water Monitoring - Monthly Results

Date	LDP001 (Dam 1)				LDP002 (Dam 2)				LDP003 (Dam 3)			
	pH (Lab)	TSS	Oil & Grease	EC	pH (Lab)	TSS	Oil & Grease	EC	pH (Lab)	TSS	Oil & Grease	EC
19/01/2016	-	-	-	-	-	-	-	-	-	-	-	-
25/07/2016	6.60	<5	<5	107	-	-	-	-	-	-	-	-
30/08/2016	6.07	<5	<5	74	-	-	-	-	-	-	-	-
19/10/2016	5.57	96	<5	317	-	-	-	-	-	-	-	-
29/11/2016	5.89	63	<5	305	5.39	72	<5	520	5.22	<5	34	260
19/12/2016	4.97	570	<5	335	4.75	119	<5	559	4.75	58	<5	284
22/02/2017	5.90	145	8	349	-	-	-	-	5.28	8	<5	323
01/03/2017	5.28	40	<5	533	-	-	-	-	5.32	883	<5	216
21/03/2017	5.97	383	18	612	-	-	-	-	4.78	890	16	286
21/04/2017	6.48	21	<5	586	-	-	-	-	7.09	54	8	431
19/05/2017	6.81	11	<5	907	-	-	-	-	6.97	169	14	500
16/06/2017	5.94	220	22	457	-	-	-	-	5.95	1180	25	482
14/07/2017	6.50	82	<5	462	-	-	-	-	6.51	228	<5	452
18/08/2017	6.81	47	8	515	-	-	-	-	6.73	190	12	487
22/09/2017	6.98	18	10	492	6.61	26	8	444	6.80	122	10	520
23/10/2017	6.78	90	<5	438	6.73	336	15	382	6.63	164	10	475

Units: pH in pH units, Total Suspended Solids (TSS) in mg/L, Oil & Grease in mg/L, Electrical Conductivity (EC) in µS/cm

Values outside of EPL limits highlighted in red.

Date	SW1 (Bulga Creek)				SW2 (Bulga Creek)				SW4 (Yalimbah Creek)			
	pH (Lab)	TSS	Oil & Grease	EC	pH (Lab)	TSS	Oil & Grease	EC	pH (Lab)	TSS	Oil & Grease	EC
19/01/2016	5.60	<5	9	204	4.66	<5	<5	173	5.70	13	<5	201
25/07/2016	-	-	-	-	5.97	7	<5	158	-	-	-	-

Date	SW1 (Bulga Creek)				SW2 (Bulga Creek)				SW4 (Yalimbah Creek)			
	pH (Lab)	TSS	Oil & Grease	EC	pH (Lab)	TSS	Oil & Grease	EC	pH (Lab)	TSS	Oil & Grease	EC
30/08/2016	-	-	-	-	5.70	<5	<5	207	-	-	-	-
19/10/2016	-	-	-	-	5.84	7	<5	172	-	-	-	-
29/11/2016	-	-	-	-	-	-	-	-	-	-	-	-
19/12/2016	-	-	-	-	-	-	-	-	-	-	-	-
21/03/2017	4.90	<5	<5	313	4.76	12	<5	309	-	-	-	-
31/03/2017	-	-	-	-	5.70	86	34	319	5.79	9	97	263
21/04/2017	-	-	-	-	5.76	12	<5	369	-	-	-	-
19/05/2017	-	-	-	-	5.89	7	<5	414	-	-	-	-
16/06/2017	5.47	6	<5	329	5.54	65	8	313	5.29	6	24	259
14/07/2017	-	-	-	-	5.81	47	<5	348	-	-	-	-
18/08/2017	-	-	-	-	6.04	22	<5	385	-	-	-	-
22/09/2017	-	-	-	-	6.34	10	<5	406	-	-	-	-
23/10/2017	-	-	-	-	6.42	29	6	323	-	-	-	-

Units: pH in pH units, Total Suspended Solids (TSS) in mg/L, Oil & Grease in mg/L, Electrical Conductivity (EC) in  $\mu\text{S}/\text{cm}$   
*Values outside of EPL limits highlighted in red.*

### Groundwater Levels

Date	Unit	<sup>2</sup> BH205	<sup>3</sup> BH207	BH208	BH303
30/03/2016	<sup>1</sup> metres	22.83	12.38	19.54	29.93
04/10/2016	<sup>1</sup> metres	24.00	9.61	19.77	30.45
04/04/2017	<sup>1</sup> metres	25.30	9.39	19.99	30.66
05/10/2017	<sup>1</sup> metres	22.87	8.88	19.90	30.60

- Note:**
1. Groundwater levels are measured in metres below ground level.
  2. BH205 was relocated on 26 September 2016.
  3. BH207 was relocated on 13 March 2017.

## 5. COMMUNITY COMPLAINTS & COMPANY RESPONSE TO COMPLAINTS

Two (2) complaints were received in the past quarter. Complaint summaries are shown below.

**Date/Time of Complaint:** 28 August 2017, 12:15pm

**Method of Complaint:** Phone

**Nature of Complaint:** Noise

**Investigation/Outcome:** Noise complaint received regarding noise levels at premises along Halloran Road, North Arm Cove. In particular, it was noticed that the noise was being generated from the mobile crushers that were operating in the lower extraction area. The mobile crushers commenced in the week before the complaint was received.

Upon further investigation, the noise levels were possibly higher due to the meteorological conditions in the week leading up to the complaint. Mornings were cool with light westerly winds. Attended noise monitoring was undertaken on the 23 August 2017 to coincide with the commencement of mobile crushing activities in the lower extraction area. The noise monitoring results at the western end Halloran Road (location G) showed that the contributed noise levels relating to the Karuah East Quarry project were within criterion limits.

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**Date/Time of Complaint:** 1 November 2017, 10:45am

**Method of Complaint:** Phone and email

**Nature of Complaint:** Noise/Dust

**Investigation/Outcome:** Complaint was received via the DPE. Complainant did not contact Karuah East Quarry directly.

Complaint was made by a resident on Halloran Road, North Arm Cove relating to noise and dust. No specific times and dates were given.

The complainant had provided the following information (as reported from the DPE):

1. The crusher is supposed to be in a sound and dust proof building which it is not and they have already started using the crusher when they're not supposed to be doing it yet.
2. There is dust everywhere all over his place.
3. The quarry is noisy during daytime hours.

KEQ responded to the DPE on 3 November 2017.

1. The crushers are not required to be in a sound and dust proof building but the permanent crushing plant requires the crushers and screens to be enclosed for long term operational activities as per the Noise and Dust Management Plans.
2. The most recent noise monitoring results have shown that the levels are within the project criterion.
3. All dust monitoring results have shown that the levels are within the project criterion.

It was recommended to the DPE that the complainant be encouraged to contact Karuah East directly to work through this matter further.

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## **6. INFORMATION PROVIDED TO THE COMMUNITY AND ANY FEEDBACK**

Since Project Approval, the following information has been made publicly available:

- Notice of expressions of interest to join the CCC (December 2015 – January 2016 and June 2016).
- Information available on the Karuah East Quarry website include:
  - Approvals.
  - Environmental Management Plans.
  - Environmental Assessment Reports.
  - Complaints Register.
  - Environmental Monitoring Reports.
  - Annual Reviews.
  - Independent Environmental Audits.
  - Quarterly Community Consultative Committee meeting minutes and related documents.

All of the above mentioned documents can be downloaded from the following webpage.

<http://hunterquarries.com.au/karuah-east-documents/>