



**Three Kings Quarry**

**Air Quality Quarterly Report**

**December 2017 – February 2018**

**In compliance with: Permit 40041, Conditions 27 & 28**

## **Introduction**

This report details the air quality monitoring results for GBCWinstone Three Kings Quarry for the period December 2017 – February 2018.

On 11<sup>th</sup> February 2015 a new discharge to air consent (40041) was granted. The primary changes are the removal of HiVol monitoring and a decrease in the trigger level for the BAMs to 60µg/m<sup>3</sup> as a 24hour average. The HiVol monitors continued to be run as per the previous consent (21875) requirements until the 20<sup>th</sup> September 2015 when they were discontinued with the approval of Council.

The Air Quality Management Plan has been revised in consultation with the Three Kings Site Liaison Group and Council to reflect the conditions of the new consent.

This report has been prepared in accordance with Conditions 27 and 28 of Permit 40041.

Condition 27 states:

*TSP monitoring showing exceedance of the trigger value given in Condition 21, shall be reported to the Team Leader – Air Quality as soon as practicable. A summary of all monitoring results, including references where applicable to wind and rainfall data, and any remedial actions taken shall be submitted to the Team Leader – Air Quality at the end of each quarter.*

Condition 28 states:

*A daily log of all such information that is required to enable compliance with the conditions of this consent shall be kept and maintained. The log shall record, on a daily basis, information including, but not limited to:*

- (a) any dust control equipment malfunctions and any remedial action taken;*
- (b) any visible emissions of dust and the source;*
- (c) all relevant details relating to the TSP monitoring or other monitoring required by the TSP Monitoring Plan, to enable compliance with Conditions 19 to 24;*
- (d) when a water cart was used and, if so, the frequency of use and the volume of water used;*  
*and*
- (e) the date and time of the entry and the signature of the person entering the information.*

*The log shall be made available on request, during operating hours, to an enforcement officer and shall be kept for the term of the consent. A summary of the information recorded shall be submitted to the Team Leader – Air Quality at the end of each quarter.*

Details of the monitoring undertaken as part of the air permit are described below and actual monitoring results are presented in tables attached to the report.

## **Summary of Monitoring Results**

Summary tables of the monitoring results for each month of the reporting period are attached to this report. An overview of the quarter is provided below.

### **December 2017**

All results for December 2017 were within the consented limits.

## January 2018

All results for January 2018 were within the consented limits.

## February 2018

All results for February 2018 were within the consented limits. It was discovered on the 15<sup>th</sup> February 2018 that the air conditioning unit in the Southern Boundary BAM hut was not working. The Southern Boundary BAM unit was turned off so that the instrument did not overheat. A replacement air conditioning unit was installed on the 5<sup>th</sup> March 2018 and the Southern Boundary BAM unit was turned back on 6<sup>th</sup> March 2018. Auckland Council was notified via email.

## Daily Log

In accordance with Condition 28 of the air permit a daily log of monitoring results is maintained on site. The log includes information about equipment malfunctions, visible dust emissions, water cart use and all relevant details relating to particulate monitoring. A summary of the daily log is provided below.

- a. Over the last quarter all dust control equipment has functioned as required with maintenance being undertaken on both the sprinkler system and water cart as necessary.
- b. Visible dust emissions (that went over or were over the boundary) that were noted in the daily log for this period include:
  - On the 31<sup>st</sup> January 2018 sand was observed blowing from a stockpile in the centre of the site due to strong winds and dry conditions. Contractors on site were instructed to cover the sand with incoming clay material using trucks and a bulldozer. This action was carried out immediately.
  - Visible dust and odourous fumes from Danske Mobler extractor vents, recorded on multiple days in December 2017, January 2018 and February 2018.
- c. TSP monitoring was carried out as per TSP monitoring procedures documented in the site Air Quality Management Plan. A summary of the results is provided above and the tabled results for this reporting period are attached to this report.
- d. The water cart used 4,800 m<sup>3</sup> during this period. The use over this quarter was made up of:

MONTH	LOADS	VOLUME (m <sup>3</sup> )
December 2017	164	1968
January 2018	131	1572
February 2018	105	1260
- e. The daily log sheet is dated and signed by the person entering the information.

## Complaints

There have been no complaints made directly to Three Kings Quarry regarding dust during the period of December 2017 to February 2018.

### **Next Reporting Period**

The next quarterly report will be submitted in early June 2018. This report will cover the monitoring period of March to May 2018.

### Monitoring Results for the Period December 2017

Date	Day	daily average WS m/sec	daily average WD ( degrees )	Daily Rain (mm)	BAM Office ( $\mu\text{g}/\text{m}^3$ )	BAM South Boundary ( $\mu\text{g}/\text{m}^3$ )
1/12/2017	Fri	2.009	108.576	0.0	9.7	7.7
2/12/2017	Sat	2.226	106.347	0.0	7.9	9.3
3/12/2017	Sun	1.632	140.507	0.0	8.2	10.1
4/12/2017	Mon	1.863	180.830	0.0	16.7	8.9
5/12/2017	Tue	1.697	144.087	0.0	13.3	8.7
6/12/2017	Wed	1.997	128.156	0.0	13.9	15.9
7/12/2017	Thu	2.251	109.083	0.0	18.0	18.0
8/12/2017	Fri	2.274	103.111	0.0	12.9	12.3
9/12/2017	Sat	3.232	105.969	0.6	10.8	11.6
10/12/2017	Sun	2.063	211.260	0.0	11.0	10.8
11/12/2017	Mon	1.892	258.229	0.0	22.3	15.2
12/12/2017	Tue	2.824	231.000	0.0	24.2	14.3
13/12/2017	Wed	3.756	226.319	0.0	26.6	13.6
14/12/2017	Thu	2.550	194.382	2.2	12.5	10.1
15/12/2017	Fri	2.026	185.097	0.0	19.2	14.2
16/12/2017	Sat	2.718	253.115	0.0	23.7	12.8
17/12/2017	Sun	1.500	183.868	0.2	12.2	11.2
18/12/2017	Mon	2.229	252.097	0.0	17.1	11.4
19/12/2017	Tue	3.337	239.774	0.0	32.9	24.5
20/12/2017	Wed	4.517	234.462	2.8	37.0	25.7
21/12/2017	Thu	3.577	221.566	0.0	34.7	18.9
22/12/2017	Fri	1.882	232.694	0.0	18.3	18.1
23/12/2017	Sat	3.693	107.698	0.0	17.4	16.2
24/12/2017	Sun	2.744	112.906	0.0	11.0	12.5
25/12/2017	Mon	2.696	113.257	0.0	9.2	7.9
26/12/2017	Tue	3.117	230.684	4.0	8.3	9.5
27/12/2017	Wed	3.758	205.681	0.4	19.3	19.2
28/12/2017	Thu	4.130	196.722	0.0	40.3	14.9
29/12/2017	Fri	4.033	211.554	0.0	36.4	16.6
30/12/2017	Sat	2.393	222.747	0.0	20.3	14.5
31/12/2017	Sun	1.815	272.632	0.0	6.5	6.5

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**Monitoring Results for the Period January 2018**

Date	Day	daily average WS m/sec	daily average WD ( degrees )	Daily Rain (mm)	BAM Office ( $\mu\text{g}/\text{m}^3$ )	BAM South Boundary ( $\mu\text{g}/\text{m}^3$ )
1/01/2018	Mon	2.100	145.740	9.0	9.4	9.1
2/01/2018	Tue	2.255	99.368	0.0	6.3	7.3
3/01/2018	Wed	2.499	115.330	0.2	11.5	9.0
4/01/2018	Thu	2.934	116.267	48.2	9.3	6.1
5/01/2018	Fri	6.217	181.288	20.2	13.9	13.6
6/01/2018	Sat	3.871	239.003	0.0	33.2	38.4
7/01/2018	Sun	2.870	241.441	0.0	33.4	30.9
8/01/2018	Mon	3.009	213.375	0.0	30.2	31.4
9/01/2018	Tue	2.011	229.288	0.0	17.2	11.0
10/01/2018	Wed	2.085	250.073	0.0	13.8	11.0
11/01/2018	Thu	1.770	243.819	0.0	19.3	11.5
12/01/2018	Fri	1.935	150.726	0.0	17.5	22.2
13/01/2018	Sat	2.315	119.063	0.0	12.8	22.3
14/01/2018	Sun	2.487	104.226	0.2	9.8	12.4
15/01/2018	Mon	2.243	108.740	0.0	10.0	23.2
16/01/2018	Tue	2.651	117.135	0.4	17.4	20.1
17/01/2018	Wed	3.443	128.094	0.0	27.4	19.8
18/01/2018	Thu	3.981	104.358	47.4	14.2	10.4
19/01/2018	Fri	3.625	106.840	12.4	19.2	18.1
20/01/2018	Sat	2.965	102.170	0.0	17.4	37.9
21/01/2018	Sun	2.788	113.764	0.0	16.2	15.2
22/01/2018	Mon	2.324	120.080	15.2	7.7	7.4
23/01/2018	Tue	1.948	167.167	13.2	6.0	6.5
24/01/2018	Wed	2.397	202.753	0.0	13.6	8.6
25/01/2018	Thu	2.516	224.924	0.0	15.7	13.5
26/01/2018	Fri	1.482	197.451	0.0	19.4	17.8
27/01/2018	Sat	1.103	151.986	3.4	16.5	19.8
28/01/2018	Sun	1.482	125.844	0.2	9.5	11.1
29/01/2018	Mon	1.983	120.098	0.0	12.8	9.8
30/01/2018	Tue	1.930	111.632	0.0	15.1	26.1
31/01/2018	Wed	2.543	112.618	0.0	20.8	33.2

**170.0**

**Monitoring Results for the Period February 2018**

Date	Day	daily average WS m/sec	daily average WD ( degrees )	Daily Rain (mm)	BAM Office (µg/m³)	BAM South Boundary (µg/m³)
1/02/2018	Thu	5.157	120.122	50.4	23.3	20.3
2/02/2018	Fri	3.191	241.646	0.2	26.1	27.3
3/02/2018	Sat	2.494	158.767	22.0	9.4	10.6
4/02/2018	Sun	1.848	110.997	11.8	10.0	11.0
5/02/2018	Mon	1.671	163.882	4.0	10.5	10.3
6/02/2018	Tue	2.863	242.361	0.0	11.6	15.6
7/02/2018	Wed	2.839	127.535	0.0	20.3	21.5
8/02/2018	Thu	3.056	117.128	0.0	11.6	15.7
9/02/2018	Fri	2.190	141.681	14.0	5.7	1.6
10/02/2018	Sat	1.692	118.830	17.8	6.6	7.2
11/02/2018	Sun	2.974	101.260	45.8	7.2	8.3
12/02/2018	Mon	2.551	106.576	0.0	9.8	15.9
13/02/2018	Tue	2.784	99.701	25.6	9.6	12.3
14/02/2018	Wed	2.422	102.156	4.6	14.5	13.9
15/02/2018	Thu	2.172	186.969	0.0	17.5	NO DATA
16/02/2018	Fri	1.868	134.951	0.0	13.9	NO DATA
17/02/2018	Sat	2.375	140.288	0.0	17.1	NO DATA
18/02/2018	Sun	1.596	123.510	0.0	19.6	NO DATA
19/02/2018	Mon	1.927	163.552	2.2	17.7	NO DATA
20/02/2018	Tue	4.730	165.910	5.0	25.6	NO DATA
21/02/2018	Wed	2.406	269.465	0.6	22.3	NO DATA
22/02/2018	Thu	2.679	255.816	1.0	16.6	NO DATA
23/02/2018	Fri	3.278	227.813	1.0	11.7	NO DATA
24/02/2018	Sat	2.116	187.941	0.0	15.2	NO DATA
25/02/2018	Sun	1.337	185.215	0.0	8.9	NO DATA
26/02/2018	Mon	2.087	274.472	0.0	13.9	NO DATA
27/02/2018	Tue	1.759	132.340	0.4	10.7	NO DATA
28/02/2018	Wed	2.539	106.743	0.0	14.3	NO DATA

**206.400**