



Three Kings Quarry

Air Quality Quarterly Report

March 2018 – May 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 March 2018 – May 2018.

On 11th 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/m³ as a 24hour average. The HiVol monitors continued to be run as per the previous consent (21875) requirements until the 20th 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.

March 2018

All results for March 2018 were within the consented limits.

April 2018

All results for April 2018 were within the consented limits.

May 2018

All results for May 2018 were within the consented limits.

The Southern Boundary BAM unit encountered several issues between March and May 2018 resulting in periods of invalid and/or no data as follows:

- It was discovered on the 15th 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 5th March 2018 and the Southern Boundary BAM unit was turned back on 6th March 2018. Auckland Council was notified via email.
- Following the March 2018 calibration of the BAM unit at the Southern Boundary, it appears that the inlet tube became disconnected from the inlet heater inside the hut. This resulted in the BAM unit sampling air from inside the hut instead of outside the hut which meant results were not representative of ambient dust levels. This issue was noticed during the next monthly calibration conducted on the 6th April 2018 and the inlet tube was reconnected. Data recorded by the Southern Boundary BAM unit during this period was deemed invalid.
- On the 11th April 2018 the Southern Boundary BAM hut blew over and was severely damaged during a storm event. Equipment including the newly replaced air conditioning unit and the BAM unit are currently being repaired.

During this reporting period the BAM unit located at the site office continued to run as normal.

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:
 - Visible dust and odourous fumes from Danske Mobler extractor vents, recorded on multiple days in March 2018, April 2018 and May 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 1,644 m³ during this period. The use over this quarter was made up of:

MONTH	LOADS	VOLUME (m ³)
March 2018	89	1068
April 2018	22	264
May 2018	26	312

- 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 March to May 2018.

Next Reporting Period

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

Monitoring Results for the Period March 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 ($\mu\text{g}/\text{m}^3$)
1/03/2018	Thu	3.135	88.476	9.0	11.4	NO DATA
2/03/2018	Fri	2.779	91.059	3.0	16.0	NO DATA
3/03/2018	Sat	2.826	91.573	0.6	24.0	NO DATA
4/03/2018	Sun	2.304	93.194	0.0	17.2	NO DATA
5/03/2018	Mon	1.285	157.972	0.0	16.6	NO DATA
6/03/2018	Tue	1.380	142.208	0.0	17.4	NO DATA
7/03/2018	Wed	2.584	180.021	6.2	7.6	1.7
8/03/2018	Thu	1.973	113.271	2.4	10.9	14.8
9/03/2018	Fri	2.083	169.212	0.0	9.5	4.1
10/03/2018	Sat	1.425	159.208	0.0	14.4	1.3
11/03/2018	Sun	2.323	118.816	0.0	9.5	6.9
12/03/2018	Mon	2.799	170.601	12.0	11.9	1.8
13/03/2018	Tue	4.296	243.701	0.2	18.3	4.5
14/03/2018	Wed	2.793	227.743	1.2	17.6	INVALID DATA
15/03/2018	Thu	1.174	239.292	0.0	19.1	INVALID DATA
16/03/2018	Fri	1.680	258.080	0.0	19.7	INVALID DATA
17/03/2018	Sat	2.431	109.549	0.0	12.4	INVALID DATA
18/03/2018	Sun	2.696	107.830	0.0	12.2	INVALID DATA
19/03/2018	Mon	2.381	111.826	0.0	12.7	INVALID DATA
20/03/2018	Tue	2.155	108.938	0.6	10.9	INVALID DATA
21/03/2018	Wed	1.366	120.101	4.4	16.3	INVALID DATA
22/03/2018	Thu	1.403	110.951	0.2	15.3	INVALID DATA
23/03/2018	Fri	1.890	115.399	15.6	11.3	INVALID DATA
24/03/2018	Sat	1.539	150.670	11.6	8.5	INVALID DATA
25/03/2018	Sun	1.412	182.038	0.4	6.0	INVALID DATA
26/03/2018	Mon	1.932	112.802	0.0	12.7	INVALID DATA
27/03/2018	Tue	2.344	135.677	0.0	11.8	INVALID DATA
28/03/2018	Wed	1.832	178.090	0.0	11.3	INVALID DATA
29/03/2018	Thu	1.555	271.707	0.0	14.9	INVALID DATA
30/03/2018	Fri	1.653	253.851	1.8	11.4	INVALID DATA
31/03/2018	Sat	2.217	274.694	0.0	10.2	INVALID DATA

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Monitoring Results for the Period April 2018

Date	Day	daily average WS m/sec	daily average WD (degrees)	Daily Rain (mm)	BAM Office (µg/m ³)	BAM South Boundary (µg/m ³)
1/04/2018	Sun	2.288	206.389	0.4	16.4	INVALID DATA
2/04/2018	Mon	1.308	207.083	0.0	10.6	INVALID DATA
3/04/2018	Tue	1.545	272.503	0.0	28.1	INVALID DATA
4/04/2018	Wed	2.049	264.285	0.6	15.9	INVALID DATA
5/04/2018	Thu	2.763	205.208	0.0	22.1	INVALID DATA
6/04/2018	Fri	1.557	169.681	0.0	21.8	INVALID DATA
7/04/2018	Sat	2.484	236.385	0.2	17.4	2.2
8/04/2018	Sun	2.172	228.163	0.0	16.1	6.3
9/04/2018	Mon	1.905	268.222	0.0	27.5	1.0
10/04/2018	Tue	4.840	273.469	9.2	41.2	18.5
11/04/2018	Wed	4.427	194.094	14.2	33.9	NO DATA
12/04/2018	Thu	3.668	214.823	2.4	20.9	NO DATA
13/04/2018	Fri	4.955	230.684	6.6	36.7	NO DATA
14/04/2018	Sat	2.965	235.368	55.8	23.3	NO DATA
15/04/2018	Sun	1.242	167.309	2.4	17.9	NO DATA
16/04/2018	Mon	3.598	237.639	1.2	25.6	NO DATA
17/04/2018	Tue	2.414	259.538	1.8	31.1	NO DATA
18/04/2018	Wed	3.623	251.212	1.2	18.7	NO DATA
19/04/2018	Thu	2.262	250.781	0.0	21.2	NO DATA
20/04/2018	Fri	2.463	268.323	0.0	13.8	NO DATA
21/04/2018	Sat	2.324	258.340	4.4	11.0	NO DATA
22/04/2018	Sun	2.860	226.990	0.8	13.9	NO DATA
23/04/2018	Mon	1.593	210.444	0.0	26.9	NO DATA
24/04/2018	Tue	1.577	248.781	0.0	13.8	NO DATA
25/04/2018	Wed	1.489	216.583	0.0	7.2	NO DATA
26/04/2018	Thu	1.255	214.118	0.0	15.4	NO DATA
27/04/2018	Fri	1.603	112.188	0.0	11.2	NO DATA
28/04/2018	Sat	3.232	107.615	22.0	17.0	NO DATA
29/04/2018	Sun	2.408	111.236	0.6	15.3	NO DATA
30/04/2018	Mon	1.949	134.205	2.2	7.4	NO DATA

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Monitoring Results for the Period May 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 ($\mu\text{g}/\text{m}^3$)
1/05/2018	Tue	2.620	220.510	0.0	12.1	NO DATA
2/05/2018	Wed	2.261	158.163	0.0	11.1	NO DATA
3/05/2018	Thu	1.119	161.892	0.0	16.0	NO DATA
4/05/2018	Fri	0.722	148.931	0.0	21.4	NO DATA
5/05/2018	Sat	1.589	170.760	0.0	16.2	NO DATA
6/05/2018	Sun	2.086	250.413	1.4	13.1	NO DATA
7/05/2018	Mon	3.174	230.431	0.0	24.2	NO DATA
8/05/2018	Tue	2.476	244.330	0.0	24.3	NO DATA
9/05/2018	Wed	2.229	224.896	0.0	19.3	NO DATA
10/05/2018	Thu	1.187	131.545	0.2	19.9	NO DATA
11/05/2018	Fri	3.414	96.358	2.8	16.1	NO DATA
12/05/2018	Sat	1.601	99.642	7.6	8.0	NO DATA
13/05/2018	Sun	2.186	155.455	12.6	6.5	NO DATA
14/05/2018	Mon	1.221	153.403	1.2	13.4	NO DATA
15/05/2018	Tue	3.513	91.785	0.0	11.5	NO DATA
16/05/2018	Wed	3.020	213.115	3.0	18.2	NO DATA
17/05/2018	Thu	2.314	259.809	1.6	12.3	NO DATA
18/05/2018	Fri	2.034	263.337	0.0	17.7	NO DATA
19/05/2018	Sat	2.474	279.135	9.6	10.1	NO DATA
20/05/2018	Sun	1.975	276.174	1.6	13.0	NO DATA
21/05/2018	Mon	2.205	269.080	18.4	15.9	NO DATA
22/05/2018	Tue	2.690	286.451	2.0	16.2	NO DATA
23/05/2018	Wed	3.244	264.267	21.6	16.6	NO DATA
24/05/2018	Thu	3.501	265.076	9.2	14.8	NO DATA
25/05/2018	Fri	2.606	231.903	9.6	18.5	NO DATA
26/05/2018	Sat	3.236	196.174	1.4	11.0	NO DATA
27/05/2018	Sun	3.926	244.858	4.8	10.5	NO DATA
28/05/2018	Mon	1.906	182.844	1.8	7.9	NO DATA
29/05/2018	Tue	1.682	168.815	0.0	12.8	NO DATA
30/05/2018	Wed	1.367	162.201	0.0	13.7	NO DATA
31/05/2018	Thu	1.027	187.816	0.0	17.4	NO DATA

110.400