



Three Kings Quarry  
Air Quality Quarterly Report  
March 2015 - May 2015

In compliance with: Permit 21875, Conditions 26 & 27 and Permit 40041, Conditions 27 & 28

## Introduction

This report details the air quality monitoring results for Winstone Aggregates Three Kings Quarry for the period March 2015 - May 2015.

On 11<sup>th</sup> February 2015 a new discharge to air consent (40041) was granted. Winstone is currently updating the existing Air Quality Management Plan to reflect the conditions of the new consent. The primary changes will be the removal of HiVol monitoring and a decrease in the trigger level for the BAMs to 60µg/m<sup>3</sup>. The Air Quality Management Plan needs to be revised in consultation with the Three Kings Site Liaison Group and Council. We are targeting July 2015 for the submission of the updated management plan to Council for review.

In the interim this report has been prepared in accordance with Conditions 26 and 27 of Permit 21875 as well as Conditions 27 and 28 of Permit 40041. The conditions in each permit are nearly identical with on those from the current Permit 40041 reproduced below.

Condition 27 of Permit 40041 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 of Permit 40041 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 2015

All results for March 2015 were within the consented limits with the exception of 12 March 2015. This exceedance was reported to Council on 24 April 2015 in the report called *Investigation of Total Suspended Particulate Trigger at Three Kings Quarry – 12 March 2015*.

## April 2015

All results for April 2015 were within the consented limits.

## May 2015

All results for May 2015 were within the consented limits.

## Daily Log

In accordance with Condition 27 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. No visible dust emissions (that went over or were over the boundary) were noted in the daily log for this period with the exception of the following comments:
  - Dust from Danske Moblier recorded on 1<sup>st</sup> April 2015 at approximately 12:15.
  - Smoke from stack of Danske Moblier recorded on 4<sup>th</sup> May 2015 at approximately 16:30.
  - Danske Moblier extractor fan emitting dust on the 15<sup>th</sup> May at approximately 11am.
- 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 4500m<sup>3</sup> during this period. The use over this quarter was made up of:

MONTH	LOADS	VOLUME (m <sup>3</sup> )
March 2015	146	1752
April 2015	134	1608
May 2015	95	1140

- e. The daily log sheet is dated and signed by the person entering the information.

## Complaints

There has been one complaint made directly to Three Kings Quarry regarding dust during the period of March 2015 - May 2015. A call was received on 5 March 2015 by a member of the public reporting that there was dust coming from the bottom pit. While onsite during the call the Site Manager and Environmental Coordinator reviewed the activities and dust was not being generated. However, there was a lot of heavy equipment operating in the area at the time, the day was very still and the early morning sun was on the eastern face of the quarry. The air monitoring results have been reviewed and were compliant.

## Next Reporting Period

The next quarterly report will be submitted in early September 2015. This report will cover the monitoring period of June 2015 to August 2015.

**Monitoring Results for the Period March 2015**

Date	Day	daily average WS m/sec	daily average WD ( degrees )	Daily Rain (mm)	Site TSP Office (µg/m³)	BAM Office (µg/m³)	Site TSP North Boundary (µg/m³)	BAM South Boundary (µg/m³)
1/03/2015	Sun	1.250	150.135	0.000		7.9		8.2
2/03/2015	Mon	1.834	112.656	0.000	25	11	19	22.1
3/03/2015	Tue	1.524	107.413	0.000		15.6		20.5
4/03/2015	Wed	1.205	121.330	0.000	34	19.7	34	19.6
5/03/2015	Thu	1.856	95.219	0.000		16.3		18.9
6/03/2015	Fri	3.331	159.601	1.000		15.4		15.2
7/03/2015	Sat	2.857	261.618	0.000	52	25.2	40	23.4
8/03/2015	Sun	3.953	238.222	1.000		18.9		18.6
9/03/2015	Mon	1.810	213.597	0.000		23.1		20.1
10/03/2015	Tue	2.737	194.038	0.000	71	22.4	50	16.1
11/03/2015	Wed	1.570	149.962	0.000		15.7		13.5
12/03/2015	Thu	1.728	99.722	0.000	23	12.5	86	12
13/03/2015	Fri	1.903	115.274	0.000		11.7		11.2
14/03/2015	Sat	1.692	94.701	0.000		11.7		11.3
15/03/2015	Sun	3.708	100.045	7.800	23	9.4	18	7.3
16/03/2015	Mon	4.664	186.882	18.600		9.7		11.7
17/03/2015	Tue	3.679	200.174	0.000		15.4		19.4
18/03/2015	Wed	2.745	213.660	1.000	40	20.4	29	21
19/03/2015	Thu	1.751	190.948	0.000		14.8		15.9
20/03/2015	Fri	1.643	133.267	0.000		13.3		11.2
21/03/2015	Sat	2.340	99.160	0.000	19	11	17	12.4
22/03/2015	Sun	1.536	112.087	0.000		6.1		5
23/03/2015	Mon	2.662	107.524	0.200		10.6		11
24/03/2015	Tue	1.684	129.292	4.400	19	9.7	15	9.5
25/03/2015	Wed	1.740	128.135	0.000		13.1		16.9
26/03/2015	Thu	2.139	153.156	10.800		11.6		12.9
27/03/2015	Fri	1.197	186.413	0.200	24	12.5	18	11.1
28/03/2015	Sat	1.575	130.076	10.000		7		6.7
29/03/2015	Sun	2.317	245.743	8.400		12.9		13.9
30/03/2015	Mon	3.560	235.087	0.200		18.6		17.3
31/03/2015	Tue	3.341	212.510	0.000	51	15.6	24	13.9

**63.600**

**Monitoring Results for the Period April 2015**

Date	Day	daily average WS m/sec	daily average WD ( degrees )	Daily Rain (mm)	Site TSP Office (µg/m³)	BAM Office (µg/m³)	Site TSP North Boundary (µg/m³)	BAM South Boundary (µg/m³)
1/04/2015	Wed	1.230	168.941	0.000		22.8		19.6
2/04/2015	Thu	1.002	138.976	0.000		25.5		17.8
3/04/2015	Fri	1.921	213.111	0.000		24.8		14.0
4/04/2015	Sat	1.734	260.007	0.000	22	12.6	14	8.8
5/04/2015	Sun	1.293	204.771	3.000		9.1		7.6
6/04/2015	Mon	2.546	114.493	0.000		8.4		10.5
7/04/2015	Tue	3.002	107.215	0.000	25	12.7	31	14.8
8/04/2015	Wed	1.740	182.993	0.000		17.0		12.8
9/04/2015	Thu	1.624	255.924	0.000	35	23.9	21	14.6
10/04/2015	Fri	2.663	217.757	3.400		16.9		12.5
11/04/2015	Sat	3.707	228.722	1.200		13.0		14.1
12/04/2015	Sun	2.011	261.878	0.000	44	18.3	21	14.4
13/04/2015	Mon	3.730	234.684	13.600		15.6		12.9
14/04/2015	Tue	3.447	233.736	11.000		11.7		10.1
15/04/2015	Wed	3.351	223.170	1.600	36	18.1	23	14.9
16/04/2015	Thu	2.050	205.014	0.000		30.7		No Data
17/04/2015	Fri	1.963	251.722	0.000	41	23.7	34	18.5
18/04/2015	Sat	3.083	170.646	7.000		6.1		6.6
19/04/2015	Sun	1.931	121.253	0.000		7.6		5.3
20/04/2015	Mon	1.525	117.438	0.000		11.3		15.7
21/04/2015	Tue	1.111	117.174	0.000	29	17.2	24	22.9
22/04/2015	Wed	1.241	166.403	0.000		34.0		22.3
23/04/2015	Thu	0.978	95.747	2.000	35	15.8	27	21.3
24/04/2015	Fri	2.187	110.198	0.000		11.3		11.0
25/04/2015	Sat	1.745	116.469	0.000		7.3		6.4
26/04/2015	Sun	3.572	101.087	0.000		16.4		5.7
27/04/2015	Mon	5.724	119.813	41.400	25	16.9	20	14.3
28/04/2015	Tue	3.334	236.802	1.400		15.2		16.8
29/04/2015	Wed	3.668	244.620	5.800	26	13.1	21	10.8
30/04/2015	Thu	5.650	217.715	0.600		20.8		30.6

**92.000**

**Monitoring Results for the Period May 2015**

Date	Day	daily average WS m/sec	daily average WD (degrees )	Daily Rain (mm)	Site TSP Office (µg/m³)	BAM Office (µg/m³)	Site TSP North Boundary (µg/m³)	BAM South Boundary (µg/m³)
1/05/2015	Fri	1.198	202.646	0.000		29.7		28.2
2/05/2015	Sat	1.754	198.816	0.000	28	17.5		15.5
3/05/2015	Sun	0.867	183.587	0.000		11.0		12.1
4/05/2015	Mon	1.176	123.639	0.000		14.8		10.3
5/05/2015	Tue	2.226	96.451	0.000	25	13.6	19	20.6
6/05/2015	Wed	3.332	85.399	0.000		18.5		23.6
7/05/2015	Thu	3.543	112.861	4.800		14.0		13.0
8/05/2015	Fri	2.385	207.257	21.800		11.7		8.3
9/05/2015	Sat	2.285	198.951	0.200		13.2		16.2
10/05/2015	Sun	1.993	236.535	0.000	27	14.8		14.3
11/05/2015	Mon	2.214	256.271	0.000		22.9		16.2
12/05/2015	Tue	3.945	212.403	9.200		15.4		12.8
13/05/2015	Wed	2.329	249.667	0.000	39	25.4	38	20.8
14/05/2015	Thu	3.413	161.826	3.400		13.3		11.7
15/05/2015	Fri	3.341	236.688	10.800	31	14.6		13.6
16/05/2015	Sat	2.445	207.910	0.200		19.2		19.2
17/05/2015	Sun	1.563	198.896	0.400		20.0		17.7
18/05/2015	Mon	3.525	213.979	0.600		18.6		16.7
19/05/2015	Tue	3.933	207.861	0.200	40	36.4	30	20.5
20/05/2015	Wed	1.168	242.833	0.000		24.8		20.8
21/05/2015	Thu	2.488	274.944	2.000		25.3		12.6
22/05/2015	Fri	2.445	186.646	2.200		23.8		26.9
23/05/2015	Sat	3.848	149.837	41.600		12.8		10.1
24/05/2015	Sun	6.495	223.878	4.600		13.7		18.0
25/05/2015	Mon	5.934	233.056	7.600		17.7		21.5
26/05/2015	Tue	5.024	237.042	2.600		11.8		12.5
27/05/2015	Wed	1.734	201.465	0.200		16.0		14.8
28/05/2015	Thu	1.406	167.885	0.000		15.4		10.9
29/05/2015	Fri	0.912	133.533	0.200		20.1		12.7
30/05/2015	Sat	1.230	122.385	0.000		16.0		8.5
31/05/2015	Sun	1.694	106.976	10.200		10.1		9.1