



**Three Kings Quarry**  
**Air Quality Quarterly Report**  
**March - May**  
**2009**

In compliance with: Permit 21875, conditions 26 & 27

Compiled By: Sari Eru, Environmental Coordinator

Date: 11 June 2009

## **Introduction**

This report details the air quality monitoring results for Winstone Aggregates Three Kings Quarry for the period March - May 09

This report is being prepared in accordance with Conditions 26 and 27 of Permit 21875. The conditions state:

**“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 Manager at the end of each quarter”.**

**“A summary of the information recorded shall be submitted to the Manager 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 within the report or in the Appendices.

## **Daily Log**

In accordance with Condition 26 (a) – (e) 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.

## March 09

### Three Kings Quarry Summary monitoring results for the period March 2009

Date	daily average WS m/sec	daily average WD ( degrees )	Daily Rain (mm)	Site TSP mg/m3 office	BAM FH62 mg/m-3 office	Site TSP mg/m3 North Boundary
Sunday, 1 March 2009	2.006	110.5	0.000		15.9	
Monday, 2 March 2009	2.107	94.6	0.000	40.7	10.7	22.7
Tuesday, 3 March 2009	2.690	86.8	0.000		14.8	
Wednesday, 4 March 2009	3.547	225.7	0.000	45.4	17.2	51.5
Thursday, 5 March 2009	4.432	201.4	9.200		23.8	
Friday, 6 March 2009	2.696	154.3	25.600		12.2	
Saturday, 7 March 2009	2.391	96.6	0.000	32.1	12.2	24.3
Sunday, 8 March 2009	3.192	144.0	0.000		16.1	
Monday, 9 March 2009	4.611	160.9	0.200		22.6	
Tuesday, 10 March 2009	3.177	197.8	0.200	45	15.6	33.3
Wednesday, 11 March 2009	6.440	47.8	3.000		29.1	
Thursday, 12 March 2009	3.752	89.1	0.800		17.1	
Friday, 13 March 2009	3.621	110.2	2.000	35.5	11.7	28.4
Saturday, 14 March 2009	2.014	157.7	1.400		11.3	
Sunday, 15 March 2009	2.304	179.1	0.000		16.8	
Monday, 16 March 2009	1.632	209.1	0.000		13.8	
Tuesday, 17 March 2009	0.956	234.5	0.000	29.6	11.7	24.6
Wednesday, 18 March 2009	1.274	203.5	0.000		14.8	
Thursday, 19 March 2009	2.505	170.9	4.000	42.5	16.8	26.7
Friday, 20 March 2009	4.093	121.4	0.000		18	
Saturday, 21 March 2009	2.445	237.3	0.000		16.1	
Sunday, 22 March 2009	1.688	265.4	0.000		12.2	
Monday, 23 March 2009	1.795	207.3	0.400	50.6	14.4	55.4
Tuesday, 24 March 2009	2.437	138.6	0.000		14.1	
Wednesday, 25 March 2009	1.778	169.2	0.200		17.8	
Thursday, 26 March 2009	2.636	185.1	0.000	43.6	12.3	62.3
Friday, 27 March 2009	1.363	99.8	0.200		12.4	
Saturday, 28 March 2009	1.343	192.5	0.000		10.5	
Sunday, 29 March 2009	1.820	274.7	0.200	37.4	15.9	34.6
Monday, 30 March 2009	1.799	123.8	0.200		19.8	
Tuesday, 31 March 2009	0.001	145.6	0.000	63.1	34	56.7

## April 09

### Three Kings Quarry Summary monitoring results for the period April 09

Date	Day	daily average WS m/sec	daily average WD ( degrees )	Daily Rain (mm)	Site TSP mg/m3 office	BAM FH62 mg/m-3 office	Site TSP mg/m3 North Boundary
1/04/2009	Wed	0.447	248.5	1.200		10.2	
2/04/2009	Thur	0.113	251.4	0.000		14.2	
3/04/2009	Fri	0.882	228.3	0.000		16.4	
4/04/2009	Sat	1.585	244.9	0.000	25.9	11.2	23.9
5/04/2009	Sun	1.471	223.7	0.000		8	
6/04/2009	Mon	1.090	257.5	0.600		9.8	
7/04/2009	Tue	2.800	266.8	0.200		10.8	
8/04/2009	Wed	0.490	160.2	6.400	26.4	13.4	30.1
9/04/2009	Thur	0.298	176.8	7.200		10.2	
10/04/2009	Fri	0.016	160.0	0.800	17.1	7.3	14.9
11/04/2009	Sat	0.464	167.0	1.600		4.8	
12/04/2009	Sun	0.011	215.4	0.000		7.2	
13/04/2009	Mon	0.001	131.2	0.000		10.6	
14/04/2009	Tue	0.007	129.8	0.000		7.9	
15/04/2009	Wed	0.008	204.7	0.200	24.4	11.4	24.2
16/04/2009	Thur	0.003	165.6	0.000		10.9	
17/04/2009	Fri	0.000	272.9	0.000	37.7	12.4	31.5
18/04/2009	Sat	0.006	243.8	0.000		13.1	
19/04/2009	Sun	0.015	257.2	1.600		9.5	
20/04/2009	Mon	0.999	48.2	11.200		3.7	
21/04/2009	Tue	1.790	206.8	0.000	20	8.9	24.6
22/04/2009	Wed	0.001	246.1	0.000		172.5	
23/04/2009	Thur	2.383	160.6	0.000	22.8	12.4	31.8
24/04/2009	Fri	1.448	100.0	0.000		13.3	
25/04/2009	Sat	0.051	196.2	1.200		22	
26/04/2009	Sun	1.340	287.3	3.400		13.1	
27/04/2009	Mon	2.513	291.4	0.000		24.1	
28/04/2009	Tue	0.171	303.2	5.000	53.1	24.8	49.1
29/04/2009	Wed	0.029	274.0	8.400		21.7	
30/04/2009	Thur	0.010	244.4	0.600		16.1	
			0.0	0.000			

BAM inlet cleaned

**May 09**

**Three Kings Quarry Summary monitoring results for the period May 09**

Date	Day	daily average WS m/sec	daily average WD ( degrees )	Daily Rain (mm)	Site TSP mg/m3 office	BAM FH62 mg/m-3 office	Site TSP mg/m3 North Boundary
1/05/2009	Fri	0.001	146.7	3.400	29.4	15.6	24.7
2/05/2009	Sat	0.004	71.1	19.000		4.5	
3/05/2009	Sun	0.003	98.6	0.000		4.1	
4/05/2009	Mon	0.071	117.8	0.200		11.1	
5/05/2009	Tue	0.055	239.7	2.200	16.3	9.3	10.5
6/05/2009	Wed	0.047	142.9	4.600		14.9	
7/05/2009	Thur	0.007	152.7	4.400	36.9	23.7	22.6
8/05/2009	Fri	0.063	190.4	12.600		16.3	
9/05/2009	Sat	1.392	98.6	6.400	19.3	11.7	
10/05/2009	Sun	0.017	145.8	17.800		11.5	
11/05/2009	Mon	0.021	212.4	11.200		10.2	
12/05/2009	Tue	0.043	164.6	6.400	40.1	13.6	19.8
13/05/2009	Wed	0.015	159.9	3.600		15	
14/05/2009	Thur	0.004	150.2	3.200		15.7	
15/05/2009	Fri	0.019	149.0	3.600		20.3	
16/05/2009	Sat	0.008	236.6	0.400		24.1	
17/05/2009	Sun	0.026	235.2	2.200	32.4	11.6	
18/05/2009	Mon	out of order	out of order	out of order		18.9	
19/05/2009	Tue	new station	new station	new station	37.9	14.8	39.3
20/05/2009	Wed	installed	installed	installed		13.2	
21/05/2009	Thur	today	today	today		16.9	
22/05/2009	Fri	1.417	207.5	0.800		15.8	
23/05/2009	Sat	2.222	211.6	0.200		11.9	
24/05/2009	Sun	2.891	190.3	4.000		9.3	
25/05/2009	Mon	2.567	156.7	2.000		6.2	
26/05/2009	Tue	2.173	169.7	0.000		7.7	
27/05/2009	Wed	1.844	184.7	0.000		7.1	
28/05/2009	Thur	0.967	186.1	0.000		14.5	
29/05/2009	Fri	1.603	271.0	0.200		20.8	
30/05/2009	Sat	1.742	162.9	7.600		12.9	
31/05/2009	Sun	3.514	207.7	1.400		8.8	

Please Note: Northern Boundary moved to 1 in 6 day cycle in May 09.

**Daily Log Summary for Three Kings Quarry Site for the period  
March – May 09**

**(Condition 27, Air Permit 21875)**

- a. No significant visible dust emissions from the quarry (outside the boundary) were recorded during the above period. Visual dust emissions were noted on the 19<sup>th</sup> of March, the 7<sup>th</sup>, 21<sup>st</sup> 24<sup>th</sup> and 27<sup>th</sup> of April and the 1<sup>st</sup>, 18<sup>th</sup> 21<sup>st</sup> and 29<sup>th</sup> of May from the Danske Mobler building. Most sightings were in relation to the re-painting of the roof of these buildings.
- b. TSP monitoring was carried as per TSP monitoring procedures documented in the site Air Quality Management Plan. One exceedance were encountered for this period, occurring on the 22<sup>nd</sup> of April from the BAM. This would have been due to the cleaning of the inlet tube, as part of the regular servicing of the machine, and was completed by Watercare Services. Alerts during services were received, so no investigation will be undertaken.
- c. The water cart used 1980m<sup>3</sup> during this period, made up of:  
  
December: 119 loads, 1428m<sup>3</sup>  
January: 45 loads, 540m<sup>3</sup>  
February: 1 load, 12m<sup>3</sup>
- d. The daily log sheet is dated and signed by the person entering the information.

**Complaints:**

There has been no complaints received for this period.

## APPENDIX 1

### Hi Vol vs. BAM Graphs to show relationships



