ENVIRONMENTAL MANAGEMENT SERVICES
Review of Monitoring Results

GENERAL

CLIENT:	**METROMIX PTY LTD**
PROJECT NO./LOCATION:	**215 - MARRANGAROO**
CONTACT PERSON:	**Mr Daniel Lythgo**

SAMPLES

Type:	**Deposited Dust**	No of Samples:	**3**
Sample Period:	**08/03/2018 to 16/04/2018**	Date Samples despatched:	**16/04/2018**
Submission Sheet received by Corkery & Co:	**No**		
Date Received by ALS	**16/04/2018**	Batch No:	**24006517**
Results Received by RWC:	**18/04/2018**		

REVIEW OF RESULTS		Comments
Results Entered/Accepted	**Yes**	
Comparison with Previous Results	**Yes**	
Statistical Analysis	**Yes**	

DISTRIBUTION OF RESULTS

Result Sheets to Client:	**Yes**	Result Sheets to Residents:	**No**
Summary Sheets to Client:	**Yes**	Summary Sheets to Residents:	**No**

COMMENTS

Deposited dust monitoring results for the period from 8 March 2018 to 16 April 2018 indicate that deposited dust levels at point locations MD-2, MD-3 and MD-4 are within approved EPA annual average guideline levels.

ACTION

No action is necessary

SIGNED: Mudassar Arsalan **DATE:** **22-04-18**

REV 2: 15/11/1996

METROMIX MARRANGAROO QUARRY
DUST DEPOSIT GAUGE ANALYSES - PROJECT #215

SAMPLING PERIOD	MD-2			MD-3			MD-4		
	Insoluble Matter	Ash Content	% Ash	Insoluble Matter	Ash Content	% Ash	Insoluble Matter	Ash Content	% Ash
EPA Annual Average Guideline	4.0 (Annual Av)			4.0 (Annual Av)			4.0 (Annual Av)		
18-Jan-11 to 25-Feb-11	0.1	0.1	100	0.2	0.1	50	0.1	0.1	100.0
25-Feb-11 to 31-Mar-11	2.2	1.7	77	4.0	2.9	73	1.4	0.6	42.9
01-Apr-11 to 05-May-11	0.4	0.2	50	0.4	0.2	50	0.6	0.3	50.0
06-May-11 to 06-Jun-11	0.4	0.2	50	0.6	0.4	67	0.5	0.3	60.0
06-Jun-11 to 08-Jul-11	NC	NC	NC	NC	NC	NC	NC	NC	NC
08-Jul-11 to 25-Aug-11	1.1	0.7	64	1.4	1.0	71	0.8	0.5	62.5
25-Aug-11 to 05-Sep-11	0.6	0.4	67	1.1	0.8	73	1.2	0.8	66.7
05-Oct-11 to 01-Nov-11	0.4	0.3	75	0.6	0.3	50	0.4	0.4	100.0
01-Nov-11 to 02-Dec-11	0.9	0.5	56	0.7	0.5	71	0.5	0.4	80.0
02-Dec-11 to 22-Dec-11	11.4	10.1	88.6	1.4	1.0	71.4	0.7	0.6	85.7
22-Dec-11 to 31-Jan-12	2.5	2.0	80.0	0.7	0.6	85.7	0.4	0.3	75.0
31-Jan-12 to 02-Mar-12	1.5	0.8	53.3	0.4	0.3	75.0	0.3	0.3	100.0
02-Mar-12 to 02-Apr-12	1.2	0.6	50.0	0.3	0.3	100.0	0.9	0.5	55.6
02-Apr-12 to 01-May-12	0.2	0.2	100.0	0.2	0.2	100.0	0.4	0.3	75.0
01-May-12 to 31-May-12	0.8	0.6	75.0	0.4	0.2	50.0	0.7	0.6	85.7
31-May-12 to 02-Jul-12	0.7	0.3	42.9	0.6	0.3	50.0	0.5	0.3	60.0
02-Jul-12 to 02-Aug-12	0.2	0.2	100.0	0.4	0.3	75.0	0.4	0.3	75.0
02-Aug-12 to 03-Sep-12	0.4	0.3	75.0	1.3	0.8	61.5	1.2	0.8	66.7
03-Sep-12 to 02-Oct-12	1.3	0.8	61.5	1.0	0.9	90.0	2.0	1.2	60.0
02-Oct-12 to 01-Nov-12	0.5	0.3	60.0	1.4	1.2	85.7	0.8	0.6	75.0
01-Nov-12 to 03-Dec-12	1.7	0.9	52.9	2.2	1.4	63.6	1.2	0.7	58.3
03-Dec-12 to 03-Jan-13	1.0	0.7	70.0	2.0	1.4	70.0	0.7	0.5	71.4
03-Jan-13 to 31-Jan-13	1.7	0.8	47.1	1.2	0.9	75.0	1.3	1.0	76.9
31-Jan-13 to 05-Mar-13	6.7	3.4	50.7	2.6	2.1	80.8	0.6	0.4	66.7
05-Mar-13 to 02-Apr-13	0.5	0.4	80.0	0.3	0.2	66.7	0.3	0.2	66.7
02-Apr-13 to 08-May-13	0.4	0.4	100.0	0.2	0.2	100.0	0.3	0.2	66.7
08-May-13 to 04-Jun-13	0.8	0.6	75.0	0.4	0.4	100.0	0.6	0.4	66.7
04-Jun-13 to 01-Jul-13	0.9	0.5	55.6	0.6	0.3	50.0	0.7	0.3	42.9
01-Jul-13 to 02-Aug-13	1.2	0.9	75.0	0.4	0.3	75.0	0.7	0.3	42.9
02-Aug-13 to 04-Sep-13	3.2	2.8	87.5	0.5	0.5	100.0	0.7	0.5	71.4
04-Sep-13 to 01-Oct-13	1.5	1.3	86.7	1.0	0.8	80.0	1.1	0.6	54.5
01-Oct-13 to 05-Nov-13	1.1	1.0	90.9	1.2	1.0	83.3	1.5	1.2	80.0
05-Nov-13 to 02-Dec-13	1.4	0.9	64.3	0.9	0.6	66.7	1.6	0.9	56.3
02-Dec-13 to 06-Jan-14	0.6	0.3	50.0	1.1	0.6	54.5	1.1	0.8	72.7
06-Jan-14 to 03-Feb-14	0.2	0.2	100.0	0.3	0.3	100.0	1.2	0.7	58.3
03-Feb-14 to 05-Mar-14	1.0	0.4	40.0	1.2	0.6	50.0	1.0	0.5	50.0
05-Mar-14 to 02-Apr-14	0.8	0.5	62.5	0.8	0.5	62.5	0.7	0.4	57.1
02-Apr-14 to 02-May-14	0.5	0.3	60.0	0.4	0.3	75.0	0.5	0.3	60.0
02-May-14 to 02-Jun-14	0.4	0.2	50.0	0.4	0.2	50.0	0.5	0.3	60.0
02-Jun-14 to 01-Jul-14	0.3	0.3	100.0	0.6	0.6	100.0	0.6	0.3	50.0
01-Jul-14 to 07-Aug-14	2.6	2.2	84.6	0.4	0.3	75.0	0.1	0.1	50.0
07-Aug-14 to 02-Sep-14	2.4	2.1	87.5	1.3	1.0	76.9	0.3	0.1	16.7
02-Sep-14 to 01-Oct-14	0.2	0.1	50.0	1.2	0.5	41.7	0.4	0.2	50.0
01-Oct-14 to 03-Nov-14	1.1	0.4	36.4	2.4	1.0	41.7	0.6	0.2	33.3
03-Nov-14 to 02-Dec-14	0.8	0.4	50.0	1.2	0.8	66.7	1.4	0.7	50.0
02-Dec-14 to 05-Jan-15	0.8	0.2	25.0	1.3	0.6	46.2	2.8	1.1	39.3
05-Jan-15 to 02-Feb-15	1.3	0.1	7.7	0.1	0.1	100.0	0.4	0.1	25.0
02-Feb-15 to 02-Mar-15	1.1	0.6	54.5	0.7	0.4	57.1	0.8	0.4	50.0
02-Mar-15 to 01-Apr-15	0.2	<0.1	0.0	0.2	0.1	50.0	0.3	<0.1	0.0
01-Apr-15 to 01-May-15	0.9	0.3	33.3	1.1	0.3	27.3	<0.1	<0.1	
01-May-15 to 01-Jun-15	0.5	0.4	80.0	1.0	0.3	30.0	<0.1	<0.1	
01-Jun-15 to 18-Jul-15†	0.8	0.5	62.5	0.8	0.1	12.5	0.8	0.3	37.5
18-Jul-15 to 3-Aug-15†	0.7	0.4	57.1	<0.1	<0.1		<0.1	<0.1	
03-Aug-15 to 01-Sep-15	0.8	0.5	62.5	0.8	0.4	50.0	0.3	<0.1	0.0
01-Sep-15 to 07-Oct-15	0.4	0.1	25.0	0.1	<0.01	0.0	<0.1	<0.1	
07-Oct-15 to 04-Nov-15	3.8	3.0	78.9	1.5	0.8	53.3	2.0	0.7	35.0
04-Nov-15 to 04-Dec-15	0.2	<0.1	0.0	1.7	0.7	41.2	<0.1	<0.1	
04-Dec-15 to 05-Jan-16	1.1	0.5	45.5	2.1	0.8	38.1	0.1	<0.1	0.0
05-Jan-16 to 01-Feb-16	1.4	0.6	42.9	0.6	0.2	33.3	2.0	0.5	25.0
01-Feb-16 to 03-Mar-16	0.5	0.2	40.0	0.4	0.2	50.0	1.4	0.6	42.9
03-Mar-16 to 01-Apr-16	1.1	0.7	63.6	0.4	0.2	50.0	1.8	0.9	50.0
01-Apr-16 to 01-May-16	0.1	<0.1	0.0	0.2	0.1	50.0	0.9	0.5	55.6
01-May-16 to 31-May-16	0.1	<0.1	0.0	0.2	0.2	100.0	0.9	0.6	66.7
31-May-16 to 30-Jun-16	2.1	1.2	57.1	ND	ND		ND	ND	
30-Jun-16 to 01-Aug-16	2.5	1.9	76.0	2.0	1.4	70.0	0.7	0.4	57.1
01-Aug-16 to 01-Sep-16	1.7	1.3	76.5	0.1	<0.1	0.0	0.5	0.2	40.0
01-Sep-16 to 04-Oct-16	2.0	0.3	15.0	0.2	<0.1	0.0	1.0	0.2	20.0
04-Oct-16 to 02-Nov-16	0.1	<0.1	0.0	0.9	0.6	66.7	<0.1	<0.1	
02-Nov-16 to 05-Dec-16	0.4	<0.1	0.0	2.6	1.9	73.1	<0.1	<0.1	
05-Dec-16 to 10-Jan-17	0.6	0.3	50.0	0.6	0.4	66.7	0.4	<0.1	0.0
10-Jan-17 to 03-Feb-17	0.4	0.1	25.0	0.8	0.4	50.0	0.7	0.5	71.4
03-Feb-17 to 03-Mar-17	0.1	<0.1	0.0	0.3	0.1	33.3	0.7	0.3	42.9
03-Feb-17 to 04-Apr-17	1.0	0.7	70.0	0.1	<0.1	0.0	0.1	<0.1	0.0
04-Apr-17 to 02-May-17	0.4	0.2	50.0	0.8	0.5	62.5	0.7	0.4	57.1
02-May-17 to 02-Jun-17	0.1	<0.01	0.0	0.3	0.2	66.7	0.3	0.2	66.7
02-Jun-17 to 29-Jun-17	0.2	0.1	50.0	0.6	0.4	66.7	0.2	0.1	50.0
29-Jun-17 to 02-Aug-17	0.4	0.2	50.0	0.9	0.7	77.8	0.7	0.5	71.4
02-Aug-17 to 31-Aug-17	0.8	0.3	37.5	1.1	0.9	81.8	1.0	0.5	50.0
31-Aug-17 to 04-Oct-17	0.4	0.2	50.0	0.9	0.8	88.9	1.4	1.0	71.4
04-Oct-17 to 02-Nov-17	0.4	0.1	25.0	0.9	0.7	77.8	3.1	1.2	38.7
02-Nov-17 to 04-Dec-17	0.2	<0.1	50.0	0.5	0.3	60.0	1.1	0.4	36.4
04-Dec-17 to 17-Jan-18	0.7	0.3	42.9	0.8	0.3	37.5	2.5	1.0	40.0
17-Jan-18 to 16-Feb-18	0.7	0.3	42.9	0.9	0.2	22.2	0.8	0.3	37.5
16-Feb-18 to 08-Mar-18	1.0	0.1	10.0	0.7	0.1	14.3	0.7	0.1	14.3
08-Mar-18 to 16-Apr-18	2.0	0.4	20.0	0.5	0.1	20.0	0.6	0.0	0.0
AVERAGE 1	**0.6**	**0.2**	**35.7**	**0.7**	**0.4**	**56.3**	**1.1**	**0.5**	**44.5**
AVERAGE 2	**1.1**	**0.8**	**53.7**	**0.9**	**0.6**	**60.7**	**0.9**	**0.5**	**52.6**
STANDARD DEVIATION 1	**0.5**	**0.1**	**17.6**	**0.2**	**0.3**	**26.1**	**0.9**	**0.4**	**21.8**
STANDARD DEVIATION 2	**1.5**	**1.3**	**27.5**	**0.7**	**0.5**	**25.3**	**0.6**	**0.3**	**23.6**

Units:grams per square metre per month

ND: Not determined BD: Below Detection

Note: Dust storms were evident in October 2002 due to drought conditions across NSW.

ND[1]: Broken by frost NC: Not Collected

Av1/SD1 = 12 Month Rolling Average/Standard Deviation

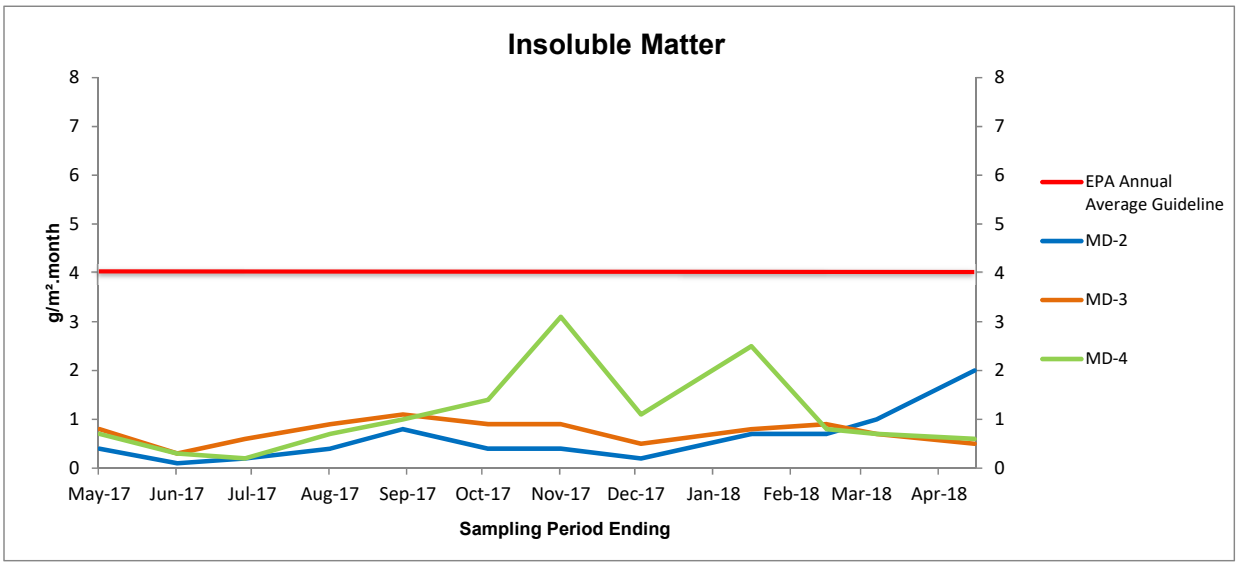
DE: Documentation Error

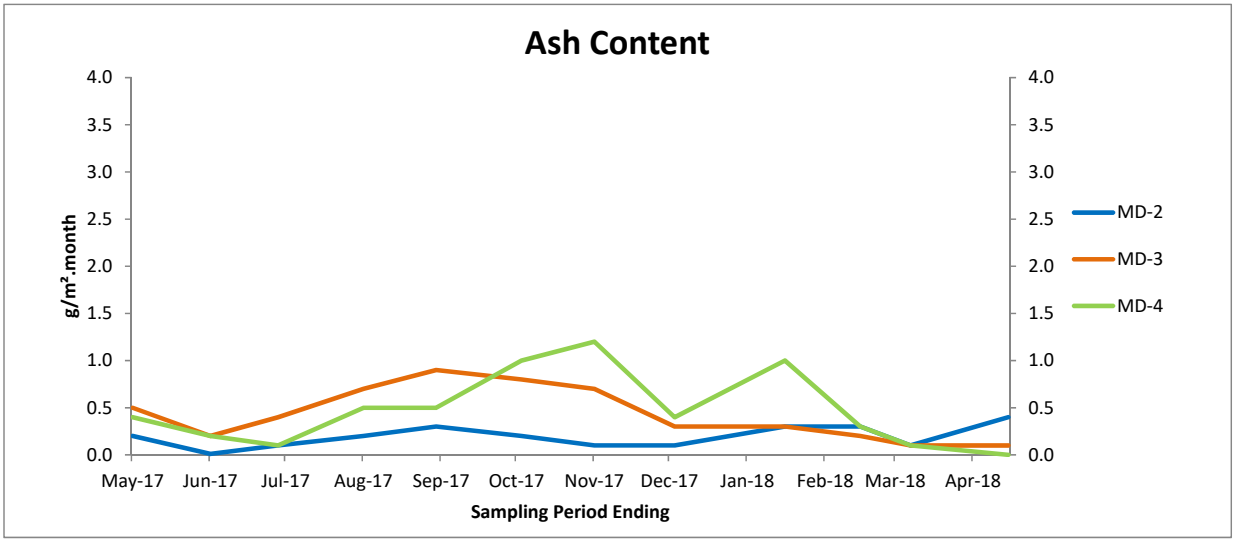
Av2/SD2 = All samples from December 2001 excluding data from period 30 September 2002 to 1 November 2002

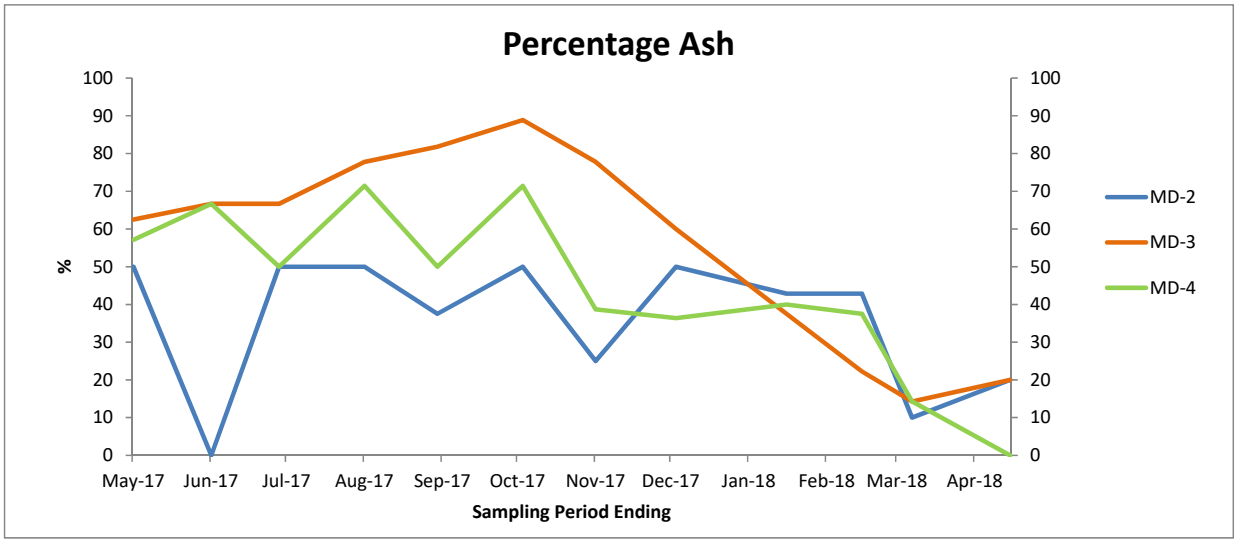
**Samples collected in May 2013 did not identify collection location ID. Not included in statistical analysis.

†Samples Collected in July 2015 and August 2015 were outside the 30 day sample collection period. Not included in statistical analysis.

METROMIX MARRANGAROO QUARRY
DUST DEPOSIT GAUGE ANALYSES - PROJECT #215







CERTIFICATE OF ANALYSIS

Work Order	: **24006517**	Page	: 1 of 3
Client	: **R W CORKERY & CO PTY LTD**	Laboratory	: Coal Division Lithgow
Contact	: MR ROB CORKERY	Contact	: Almudena Bryce
Address	: P O BOX 239 BROOKLYN NSW, AUSTRALIA 2083	Address	: Unit 2, 16 Donald Street LITHGOW NSW Australia 2790
E-mail	: rob@rwcorkery.com	E-mail	: Almudena.Bryce@alsglobal.com
Telephone	: 0263 625411	Telephone	: 61-2-6350-7400
Facsimile	: 0263613622	Facsimile	: 61-2-6352-3583
Project	: Marrangaroo	QC Level	:
Order number	:	Date Samples Received	: 16/04/2018
C-O-C number	:	Issue Date	: 18/04/2018
Sampler	:	No. of samples received	: 4
Site	:	No. of samples analysed	: 4
Quote number	:		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

NATA Accredited Laboratory 11436

Accredited for compliance with ISO/IEC 17025

Signatories

This document has been electronically signed by the authorized signatories indicated below. Electronic signing has been carried out in compliance with procedures specified in 21 CFR Part 11.

Signatories	*Position*	*Accreditation Category*
Stephanie Thompson	Environmental Supervisor	Lithgow – Chemical Testing

General Comments

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request.

Where moisture determination has been performed, results are reported on a dry weight basis.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.
LOR = Limit of reporting
^ = This result is computed from individual analyte detections at or above the level of reporting

- **Analysis as per AS3580.10.1-2003. Samples passed through a 1mm sieve prior to analysis.**
- **NATA accreditation does not apply for results reported in g/m².mth as sampling data was provided by the client.**

Analytical Results

Sub-Matrix: DUST (Matrix: AIR)	Client sample ID			MD2	MD3	MD4	MD5	----
	Client sampling date/time			16-APR-201810:00	16-APR-201810:15	16-APR-201810:20	16-APR-2018 9:50	----
Compound	CAS Number	LOR	Unit	24006477-01	24006477-02	24006477-03	24006477-04	----
EA120: Ash Content								
Ash Content		0.1	g/m².month	1.6	0.4	0.6	1.1	----
Ash Content (mg)		1	mg	30.7	7.0	11.4	21.8	----
Combustible Matter		0.1	g/m².month	0.4	0.1	0.0	0.9	----
Combustible Matter (mg)		1	mg	39.4	10.1	11.4	40.4	----
Total Insoluble Matter		0.1	g/m².month	2.0	0.5	0.6	2.0	----
Total Insoluble Matter (mg)		1	mg	70.1	17.1	22.8	62.2	----