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: **02/04/2020 to 08/05/2020** Date Samples despatched: **08/05/2020**

Submission Sheet received by Corkery & Co: **No**

Date Received by ALS **08/05/2020** Batch No: **24006981-05**

Results Received by RWC: **21/05/2020**

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 2 April 2020 to 8 May 2020 indicate that the rolling annual average monthly total insoluble matter at point locations MD-2, MD-3 and MD-4 remain within the approved EPA annual average monthly guideline level (4.0 g/m^2/month).

ACTION

No action is necessary

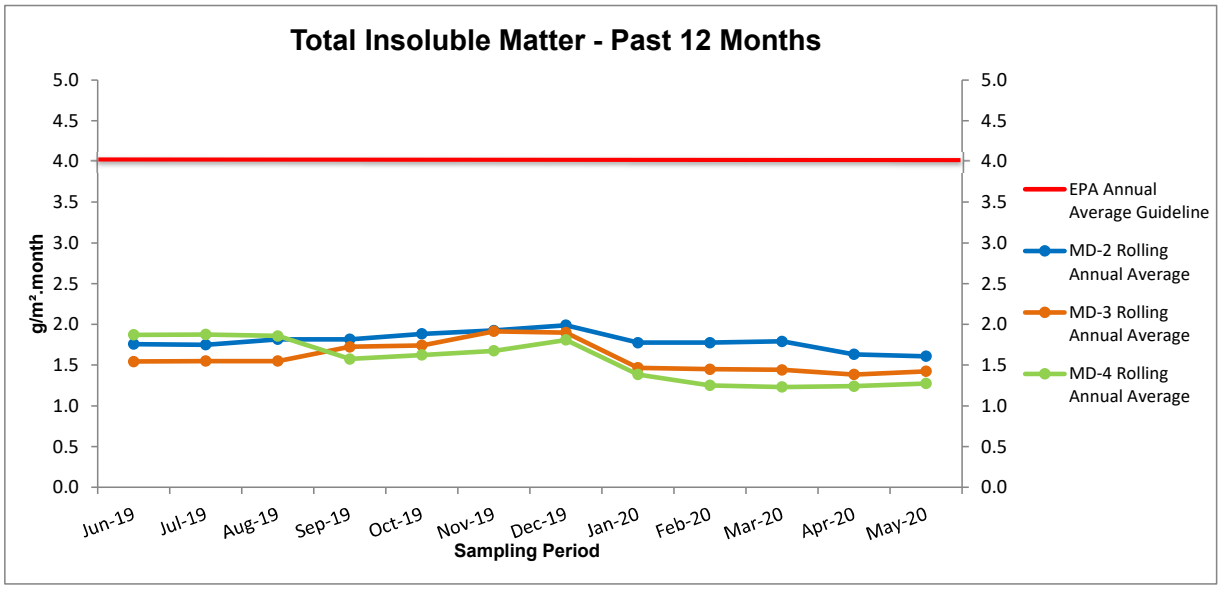
SIGNED: Mudassar Arsalan **DATE:** **26-05-20**

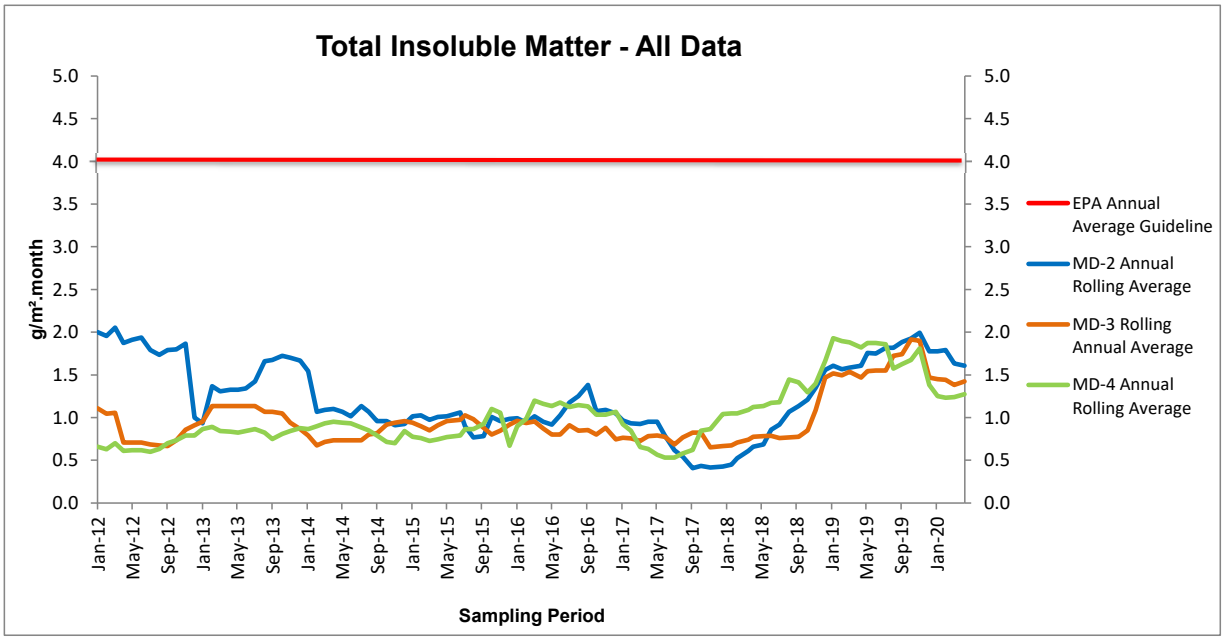
REV 2: 15/11/1996

METROMIX MARRANGAROO QUARRY
DUST DEPOSIT GAUGE ANALYSES - PROJECT #215
(14-May-19 to 08-May-20)

SAMPLING PERIOD	MD-2			MD-3			MD-4		
	Total Insoluble Matter (g/m^2.month)	Rolling Annual Average	Ash Content (g/m^2.month)	Total Insoluble Matter (g/m^2.month)	Rolling Annual Average	Ash Content (g/m^2.month)	Total Insoluble Matter (g/m^2.month)	Rolling Annual Average	Ash Content (g/m^2.month)
EPA Annual Average Guideline	4.0 (Annual Av)	4.0 (Annual Av)		4.0 (Annual Av)	4.0 (Annual Av)		4.0 (Annual Av)	4.0 (Annual Av)	
14-May-19 to 5-Jun-19	2.2	1.8	1.1	1.3	1.5	1.0	1.0	1.9	0.7
5-Jun-19 to 4-Jul-19	2.2	1.8	1.0	0.7	1.6	0.2	0.7	1.9	0.3
4-Jul-19 to 7-Aug-19	1.9	1.8	1.2	0.6	1.6	0.4	0.6	1.9	0.4
7-Aug-19 to 3-Sep-19	2.6	1.8	2.5	3.3	1.7	3.0	0.8	1.6	0.7
3-Sep-19 to 3-Oct-19	2.0	1.9	1.5	1.2	1.7	1.0	1.6	1.6	1.1
3-Oct-19 to 4-Nov-19	1.8	1.9	1.5	3.9	1.9	2.6	2.3	1.7	2.0
4-Nov-19 to 4-Dec-19	2.7	2.0	2.1	3.1	1.9	2.7	3.9	1.8	3.0
4-Dec-19 to 6-Jan-20	0.6	1.8	1.3	0.2	1.5	0.6	0.6	1.4	1.8
6-Jan-20 to 4-Feb-20	1.3	1.8	9.2	1.3	1.5	8.2	2.4	1.3	13.6
4-Feb-20 to 3-Mar-20	0.7	1.8	2.3	0.3	1.4	1.1	0.1	1.2	0.7
3-Mar-20 to 2-Apr-20	0.3	1.6	2.7	0.3	1.4	2.3	0.5	1.2	1.2
2-Apr-20 to 8-May-20	1.0	1.6	0.6	0.9	1.4	0.6	0.8	1.3	0.3

METROMIX MARRANGAROO QUARRY
DUST DEPOSIT GAUGE ANALYSES - PROJECT #215





R.W. CORKERY & CO. PTY LIMITED

CERTIFICATE OF ANALYSIS

Work Order	: **24006981-05**	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 2113	Address	: Unit 2, 16 Donald Street LITHGOW NSW Australia 2790
E-mail	: rob@rwcorkery.com	E-mail	: Almudena.Bryce@alsglobal.com
Telephone	: -363 625411	Telephone	: 61-3-6350-7400
Facsimile	: -363613622	Facsimile	: 61-3-6352-3583
Project	: Marrangaroo	QC Level	:
Order number	:	Date Samples Received	: 08/05/2020
C-O-C number	:	Issue Date	: 19/05/2020
Sampler	:	No. of samples received	: 3
Site	:	No. of samples analysed	: 3
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 17-35

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 AS3580.11.1-3003. 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	----	----
	Client sampling date/time		02/04/2020	02/04/2020	02/04/2020	----	----
Compound / CAS Number	LOR	Unit	240006981-05-01	240006981-05-02	240006981-05-03	----	----
EA414: Total Insoluble Matter							
Total Insoluble Matter	0.1	g/m^2.month	1.0	0.9	0.8	----	----
Total Insoluble Matter (mg)	1	mg	32.3	32.8	24.1	----	----
EA120: Ash Content							
Ash Content	0.1	g/m^2.month	0.6	0.6	0.3	----	----
Ash Content (mg)	1	mg	12.2	13.2	7.0	----	----
EA125: Combustible Matter							
Combustible Matter	0.1	g/m^2.month	0.4	0.3	0.5	----	----
Combustible Matter (mg)	1	mg	20.1	19.6	17.1	----	----

INTERPRETIVE QUALITY CONTROL REPORT

Work Order	: **24006981-05**	Page	: 1 of 5
Client	: R W Corkery & CO PTY LTD	Laboratory	: Coal Division Lithgow
Contact	: MR ROB CORKERY	Contact	: Almudena Bryce
Address	: PO 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	: 0263 613622	Facsimile	: +61-2-6352-3583
Project	: Marrangaroo	QC Level	: NEPM 2013 Schedule B(3) and ALS QCS3 requirement
Site	:		
C-O-C number	:	Date Samples Received	: 08/05/2020
Sampler	:	Issue Date	: 13/05/2020
Order number	:	No. of samples received	: 3
Quote number	:	No. of samples analysed	: 3

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 Interpretive Quality Control Report contains the following information:

- Analysis Holding Time Compliance
- Quality Control Parameter Frequency Compliance
- Brief Method Summaries
- Summary of Outliers

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with recommended holding times (USEPA SW 846, APHA, AS and NEPM) based on the sample container provided. Dates reported represent first date of extraction or analysis and preclude subsequent dilutions and reruns. A listing of breaches (if any) is provided herein.

Holding time for leachate methods (e.g. TCLP) vary according to the analytes reported. Assessment compares the leach date with the shortest analyte holding time for the equivalent soil method. These are: organics 14 days, mercury 28 days & other metals 180 days. A recorded breach does not guarantee a breach for all non-volatile parameters.

Holding times for ***VOC in soils*** vary according to analytes of interest. Vinyl Chloride and Styrene holding time is 7 days; others 14 days. A recorded breach does not guarantee a breach for all VOC analytes and should be verified in case the reported breach is a false positive or Vinyl Chloride and Styrene are not key analytes of interest/concern.

Matrix: **AIR**

Evaluation: × = Holding time breach ; ✓ = Within holding time.

Method / Container / Client Sample ID(s)	Sample Date	Extraction / Preparation			Analysis		
		Date extracted	Due for extraction	Evaluation	Date analysed	Due for analysis	Evaluation
EA120: Ash Content							
Dust Gauge - Copper Sulfate (EA120)							
MD2 , MD3, MD4	08/05/2020	---	30/04/2020	×	13/05/2020	15/05/2020	✓
EA125: Combustible Matter							
Dust Gauge - Copper Sulfate (EA125)							
MD2 , MD3, MD4	08/05/2020	---	30/04/2020	×	13/05/2020	15/05/2020	✓
EA141: Total Insoluble Matter							
Dust Gauge - Copper Sulfate (EA141)							
MD2 , MD3, MD4	08/05/2020	---	30/04/2020	×	13/05/2020	15/05/2020	✓

Quality Control Parameter Frequency Compliance

The following report summarises the frequency of laboratory QC samples analysed within the analytical lot(s) in which the submitted sample(s) was(where) processed. Actual rate should be greater than or equal to the expected rate. A listing of breaches is provided in the Summary of Outliers.

Matrix:

Evaluation: × = Quality Control frequency not within specification ; ✓ = Quality Control frequency within specification.

Quality Control Sample Type		Count		Rate (%)			Quality Control Specification
Analytical Methods	Method	QC	Regular	Actual	Expected	Evaluation	

Brief Method Summaries

The analytical procedures used by the Environmental Division have been developed from established internationally recognized procedures such as those published by the US EPA, APHA, AS and NEPM. In house developed procedures are employed in the absence of documented standards or by client request. The following report provides brief descriptions of the analytical procedures employed for results reported in the Certificate of Analysis. Sources from which ALS methods have been developed are provided within the Method Descriptions.

Analytical Methods	Method	Matrix	Method Descriptions
Ash Content (AC)	EA120	AIR	AS 3580.10.1 - 2004 A gravimetric procedure reporting Ash content in deposited dust.
Combustible Matter (CM)	EA125	AIR	AS 3580.10.1 - 2004 A gravimetric procedure reporting Combustible Matter in deposited dust.
Total Insoluble Matter (TIM)	EA141	AIR	AS 3580.10.1 - 2004 A gravimetric procedure reporting Total Insoluble solids in deposited dust.

Summary of Outliers

Outliers : Quality Control Samples

The following report highlights outliers flagged in the Quality Control (QC) Report. Surrogate recovery limits are static and based on USEPA SW 846 or ALS-QWI/EN/38 (in the absence of specific USEPA limits). This report displays QC Outliers (breaches) only.

Duplicates, Method Blanks, Laboratory Control Samples and Matrix Spikes

- **For all matrices, no Method Blank value outliers occur.**
- **For all matrices, no Duplicate outliers occur.**
- **For all matrices, no Laboratory Control outliers occur.**
- **For all matrices, no Matrix Spike outliers occur.**

Regular Sample Surrogates

- **For all regular sample matrices, no surrogate recovery outliers occur.**

Outliers : Analysis Holding Time Compliance

This report displays Holding Time breaches only. Only the respective Extraction / Preparation and/or Analysis component is/are displayed.

- **No Analysis Holding Time Outliers exist.**

Outliers : Frequency of Quality Control Samples

The following report highlights breaches in the Frequency of Quality Control Samples.

- **No Quality Control Sample Frequency Outliers exist.**