ATTACHMENT 9

NOISE REPORT

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NOISE COMPLIANCE TESTING

OF PF FORMATION EXTRACTIVE INDUSTRY OPERATIONS

HITCHCOCK ROAD SAND PROJECT

(JULY 2016 - JUNE 2017)

DOCUMENT CONTROL SHEET	
Project Title	NOISE COMPLIANCE TESTING OF PF FORMATION EXTRACTIVE INDUSTRY OPERATIONS HITCHCOCK ROAD SAND PROJECT (JULY 2016 - JUNE 2017)
Our Project Number	1933
Our File Number	Z:\ACOUSTICS\ACOUSTICS 17\REPORT\Other\1933C20170822mfcMaroota01-4v1.docx
Issue Date	V1 22nd August 2017
Prepared By	Michael Fan Chiang
Checked By	Nick Koikas 
Client Project No.	-
Prepared For	PF Formation Trust 1774 Wisemans Ferry Road Maroota NSW 2756 Attention: Joshua Graham E-mail: josh@pfformation.com.au ; accounts@pfformation.com.au

NOISE COMPLIANCE TESTING
OF PF FORMATION EXTRACTIVE INDUSTRY OPERATIONS
HITCHCOCK ROAD SAND PROJECT
(JULY 2016 - JUNE 2017)

NOISE COMPLIANCE TESTING
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1.0 CONSULTANT'S BRIEF

Koikas Acoustics Pty Ltd was engaged by PF Formation Trust to undertake noise compliance testing during the sand extraction operations for Hitchcock Road Sand Project in Maroota.

The assessment provides the following:

- a discussion of the applicable noise criteria at each site, and
- attended noise monitoring survey results.

Sand extractions have been undertaken in this area for many years. Koikas Acoustics has been advised that there have been no noise complaints received from the local community in regards to the sand mining extraction works since periodic noise surveys commenced.

All monitoring procedures were done in accordance with the requirements of the Project Approval of 3rd February 2009 and EPA Licence 3407.

Some measurements of sleep disturbance could not be taken 1 metre from a bedroom window. Sound level measurements were taken from the boundary. Measurements taken from the boundary were closer to the noise source and therefore louder compared to if measurements had been taken outside a bedroom window.

2.0 SITE DESCRIPTION

2.1 SITE LOCATION

The Hitchcock Road Sand Project site is bounded by:

- Old Northern Road along the east,
- Wisemans Ferry Road to the west (intersecting with the Old Northern Road to the north), and
- other rural properties to the south.

Refer to Figure 1 below for the project site extraction area.

Figure 1. Hitchcock Road Sand Project Site Area

Details of the topography are attached as a rendered aerial photograph in the Hitchcock Road Sand Extraction and Rehabilitation Project, revised January 2016 Maroota Noise Management Plan (Approved 21/07/2016) and the Project Approval dated 3rd February 2009 signed by the NSW Minister for Planning.

2.2 HOURS OF OPERATION

The hours of operation are specified in the project approval as shown in Table 1 below.

Table 1. Hours of Operation

Activity	Day	Time [Hours]
Construction	Monday to Friday Saturday Sunday and Public Holiday	0700 – 1800 0800 – 1300 None
Quarrying and processing including overburden removal	Monday to Saturday Sunday and Public Holiday	0700 – 1800 None
Product Transportation	Monday to Saturday Sunday and Public Holiday	0600 – 1800 None
Maintenance	Monday to Saturday Sunday and Public Holiday	0700 – 1800 None

2.3 AMBIENT NOISE PROFILE OF THE NOISE MONITORING SITES (RECEIVERS)

The assessment site is located in a rural-residential area. The main roads passing through this area being Old Northern Road and Wisemans Ferry Road carry light and heavy vehicles.

During the daytime, the perceived intrusiveness of noise of cars and trucks traversing along these roads whilst residents are inside or outside their homes is expected to be significantly greater compared to the noise of sand mining extraction activities.

The rustling of leaves with slight wind speeds would normally raise background noise levels. For periods when the wind is calm, background noise levels would typically be that of distant noise emanating from trucks and cars, and the sound of insects and birds.

2.4 MONITORING LOCATIONS

Noise monitoring was conducted in the Maroota area at the following locations:

1. Tornatola property Hitchcock Road (driveway);
2. Pignataro property (corner of Wisemans Ferry Road and Old Northern Road)
3. Jurds property (back of fire shed, adjacent to Old Northern Road)
4. Maroota Public School (rear of school)

The site locations are attached as an aerial photo in **Appendix A**.

3.0 NOISE CRITERIA

The noise criteria are specified in the project approval, EPA Licence 3407 and approved Noise Management Plan.

3.1 BACKGROUND NOISE

The noise criterion has been derived from previous noise surveys by undertaking long term ambient noise level measurements at a representative site. The background noise level was determined over consecutive 15 minute periods for a duration of at least one week. From this data of $L_{A90,15\ minutes}$ noise levels, the 10 percentile lowest background noise levels were determined for each of the days. The *rating background level* was then determined by calculating the median value of the daily 10 percentile background noise levels for each of the three specific time periods: daytime, evening and night time.

The rating background level result is used to determine the noise criteria applicable for the surrounding residential properties in accordance with the EPA's Industrial Noise Policy (INP) assessment procedures.

The background noise level $L_{A90,\ 15\ minutes}$ is normally determined in the absence of extraneous noise such as traffic, wind, rain, conversation, birds chirping, insect noise and unnatural increases in noise from distant sources due to local air movement. The EPA defines such sources as *incidental noise* which can cause the masking of offensive noise from a specific source. When traffic or other incidental noises cannot be excluded, then it is considered that these noise sources are part of the background noise.

3.2 EPA INDUSTRIAL NOISE POLICY

The INP defines two criteria, the Intrusive Noise Criterion and the Amenity Noise Criterion. The EPA requires that compliance with both the intrusive and amenity criteria be achieved for the purpose of controlling the intrusive nature of the industrial noise in the short term and also maintaining the noise level amenity of the area for residences and other land uses.

For the purpose of applying the INP the following time periods apply:

- Daytime 7am to 6pm Monday to Saturday
  8am to 6pm Sunday
- Evening 6pm to 10pm Monday to Sunday
- Night-time 10pm to 7am Monday to Saturday
  10pm to 8am Sunday

3.2.1 *Intrusive Noise Criterion*

The intrusiveness of an industrial noise source is generally considered acceptable by people if the equivalent continuous (A-weighted) noise level ($L_{Aeq,\ 15\ minutes}$) does not exceed the background noise level by more than 5 dB. The intrusive noise criterion is defined as:

$$L_{Aeq,\ 15\ minutes} = \textit{(rating background level)}\ L_{90,\ Period} + 5dB$$

When the noise source contains annoying characteristics such as prominent tonal, impulsive, intermittent, irregular and dominant low frequency components, adjustments are made.

3.2.2 *Noise Amenity Criterion*

In order to limit the continuing increase in noise, the EPA has nominated recommended acceptable and maximum ambient noise levels for various receiver sites from industrial noise.

Table 2.1 of the EPA's INP (below) specifies the following acceptable and maximum recommended $L_{Aeq,\ Period}$ noise levels for this project specific type area. In this case, the area is described as being Rural.

The EPA refers to rural as:

Rural—means an area with an acoustical environment that is dominated by natural sounds, having little or no road traffic. Such areas may include:

- an agricultural area, except those used for intensive agricultural activities
- a rural recreational area such as resort areas
- a wilderness area or national park
- an area generally characterised by low background noise levels (except in the immediate vicinity of industrial noise sources).

This area may be located in either a **rural, rural-residential, environment protection zone or scenic protection zone**, as defined on a council zoning map (Local Environmental Plan (LEP) or other planning instrument).

Table 2.1 of the EPA INP

			Recommended LAeq, Period	
Type of Receiver	Indicative Noise Amenity	Time of Day	Acceptable	Recommended Maximum
Residential	Rural	Day Evening Night	50 45 40	55 50 45
Schools	All	Noisiest 1 hour period when in use	35	40

Table 2.2 of the EPA INP (below) specifies the modification to the acceptable noise level to account for the existing level of industrial noise when additional industrial noise sources are proposed for the site:

Table 2.2 of the EPA INP

Total existing LAeq noise level from industrial sources, dB(A)	Maximum L_{Aeq} noise level from new sources alone, dB(A)
Acceptable noise level plus 2	If existing noise level is *likely* to decrease in future: acceptable noise level minus 10 If existing noise level is *unlikely* to decrease in future: existing level minus 10
Acceptable noise level plus 1	Acceptable noise level minus 8
Acceptable noise level	Acceptable noise level minus 8
Acceptable noise level minus 1	Acceptable noise level minus 6
Acceptable noise level minus 2	Acceptable noise level minus 4
Acceptable noise level minus 3	Acceptable noise level minus 3
Acceptable noise level minus 4	Acceptable noise level minus 2
Acceptable noise level minus 5	Acceptable noise level minus 2
Acceptable noise level minus 6	Acceptable noise level minus 1
< Acceptable noise level minus 6	Acceptable noise level

The amendments to the EPA INP (2006) state that both the predicted amenity noise level criterion and the intrusive noise level criteria need to be satisfied, which supersedes the requirement of assessing only the most stringent of the two noise criterion. In clearly obvious cases, one or the other noise criterion is considered. In this case, the intrusive noise criterion has been considered as it is clearly the most stringent due to the low Rating Background Level (RBL).

3.3 NOMINATED NOISE CRITERIA

As per the approved Noise Management Plan January 2016, the following noise criteria were adopted:

Table 9.1 Noise impact assessment monitoring locations and criteria

Noise assessment location	Other locations covered	Day	Night 1	Night 1
		L_{Aeq} (15 minute)	L_{Aeq} (15 minute)	L_{A1} (1 minute)
1. R9 – Young, Hitchcock Road	R10 Tomatola	39	35	45
2. R5 - Pignataro	R6 Camilleri	42	35	45
3. R3 – Fire station/Jurd	R1 Hammond and R2 Hitchcock	40	35	45
4. R7 – Maroota Public School	R6 Camilleri and R8 Portelli	36(L_{Aeq}(1 hour))	N/A	N/A

Note 1: Night time is defined as the period between 10.00pm and 7.00am. Activities on the site start at 6.00am and are completed by 6.00pm. There is no activity on the site during the evening period.

4.0 NOISE SURVEYS

4.1 NOISE MONITORING PROCEDURES

All noise methodologies and equipment used comply with the following Australian Standards:

- *AS1259.2-1990 "Acoustics - Sound Level Meters - Integrating - Averaging", and*
- *ISO 1996.2-2007 "Acoustics – Description, measurement and assessment of environmental noise" Part 2: Determination of environmental noise levels.*

All sound and noise level measurements were A-frequency and Fast-time weighted.

4.2 ATTENDED NOISE MONITORING

Attended noise monitoring was conducted on the following days at each monitoring location below:

<u>At location 1 Tornatola Property Hitchcock Road (@ driveway)</u>

18th July 2016	Daytime hours
19th July 2016	Night-time hours
20th October 2016	Night-time hours
20th October 2016	Daytime hours
3rd February 2017	Night-time hours
3rd February 2017	Daytime hours
1st June 2017	Night-time hours
1st June 2017	Daytime hours

<u>At location 2 Pignataro Property (corner of Wisemans Ferry Road and Old Northern Road)</u>

18th July 2016	Daytime hours
19th July 2016	Night-time hours
20th October 2016	Night-time hours
20th October 2016	Daytime hours
3rd February 2017	Night-time hours
3rd February 2017	Daytime hours
1st June 2017	Daytime hours
2nd June 2017	Night-time hours

At location 3 Jurds Property (back of fire shed, adjacent to Old Northern Road)

18th July 2016	Daytime hours
19th July 2016	Night-time hours
20th October 2016	Night-time hours
24th October 2016	Daytime hours
3rd February 2017	Night-time hours
3rd February 2017	Daytime hours
1st June 2017	Night-time hours
1st June 2017	Daytime hours

At location 4 Maroota Public School (rear of school)

18th July 2016	Daytime hours
24th October 2016	Daytime hours
3rd February 2017	Daytime hours
1st June 2017	Daytime hours

The noise measurements taken from July 2016 to June 2017 were conducted with a Class 1 Svan 971 S/N 40412 Sound Level Meter and calibrated with a Svanteck SV 33 Class 1 Acoustic Calibrator.

5.0 NOISE SURVEY RESULTS

Table 2, 3, 4 and 5 refers to the measured noise levels obtained at locations 1, 2, 3 and 4 respectively for each monitoring period. It is noted, that in all cases the measured L_{Aeq} was dominated by environmental and intermittent noise sources unrelated to the quarry noise. The exceeding levels are therefore not that of quarry activities.

Table 2. Location 1 Tornatola Property Hitchcock Road - Noise Survey Results

Date	Applicable Criterion Level	Measured Noise Level	Measured LA90	Exceeding [dB]	Note
18th July 2016 Daytime hours	39 LAeq, 15min	48 LAeq,15min	39	9	Noise dominated by road traffic. See also Note 6.
19th July 2016 Night-time hours	35 LAeq,15min 45 LA1,1min	55 LAeq,15min 56 LA1,1min	44	20 11	Noise dominated by road traffic. See also Note 6.
20th October 2016 Night-time hours	35 LAeq,15min 45 LA1,1min	46 LAeq,15min 54 LA1,1min	38	11 9	Road traffic noise levels of around 52 dB(A). See also Note 1.
20th October 2016 Daytime hours	39 LAeq, 15min	47 LAeq,15min	40	8	Noise dominated by road traffic and nature sounds. See also Note 1.
3rd February 2017 Night-time hours	35 LAeq,15min 45 LA1,1min	65 LAeq,15min 69 LA1,1min	39	30 24	Noise dominated by insect noise. See also Note 2.
3rd February 2017 Daytime hours	39 LAeq, 15min	57 LAeq,15min	38	18	Noise dominated by road traffic. See also Note 6.
1st June 2017 Night-time hours	35 LAeq,15min 45 LA1,1min	49 LAeq,15min 41 LA1,1min	48 37	14 -	Noise dominated by road traffic. See also Note 1.
1st June 2017 Daytime hours	39 LAeq, 15min	41 LAeq,15min	40	2	Noise dominated by road traffic. See also Note 1.

Table 3. Location 2 Pignataro Property - Noise Survey Results

Date	Applicable Criterion Level	Measured Noise Level	Measured LA90	Exceeding [dB]	Note
18th July 2016 Daytime hours	42 LAeq, 15min	55 LAeq,15min	48	13	Noise dominated by road traffic. See also Note 3.
19th July 2016 Night-time hours	35 LAeq,15min 45 LA1,1min	54 LAeq,15min 52 LA1,1min	43	19 7	Noise dominated by road traffic. See also Note 6.
20th October 2016 Night-time hours	35 LAeq,15min 45 LA1,1min	52 LAeq,15min 63 LA1,1min	34	17 18	Road traffic noise levels of around 56 dB(A). See also Note 6.
20th October 2016 Daytime hours	42 LAeq, 15min	50 LAeq,15min	40	8	Noise dominated by road traffic. See also Note 1.
3rd February 2017 Night-time hours	35 LAeq,15min 45 LA1,1min	47 LAeq,15min 58 LA1,1min	34	12 13	Noise dominated by road traffic. See also Note 4.
3rd February 2017 Daytime hours	42 LAeq, 15min	48 LAeq,15min	36	6	Noise dominated by road traffic. See also Note 1.
1st June 2017 Daytime hours	42 LAeq, 15min	46 LAeq,15min	45	4	Noise dominated by road traffic. See also Note 1.
2nd June 2017 Night-time hours	35 LAeq,15min 45 LA1,1min	51 LAeq,15min 52 LA1,1min	49	16 7	Noise dominated by road traffic. See also Note 6.

Table 4. Location 3 Jurds Property - Noise Survey Results					
Date	Applicable Criterion Level	Measured Noise Level	Measured LA90	Exceeding [dB]	Note
18th July 2016 Daytime Hours	40 LAeq, 15min	58 LAeq,15min	43	18	Noise dominated by road traffic. See also Note 5.
19th July 2016 Night-time hours	35 LAeq,15min 45 LA1,1min	58 LAeq,15min 62 LA1,1min	43	23 17	Noise dominated by road traffic. See also Note 5.
20th October 2016 Night-time hours	35 LAeq,15min 45 LA1,1min	57 LAeq,15min 64 LA1,1min	33	22 19	Noise dominated by road traffic. See also Note 1.
24th October 2016 Daytime Hours	40 LAeq, 15min	55 LAeq,15min	37	15	Noise dominated by road traffic. See also Note 3.
3rd February 2017 Night-time hours	35 LAeq,15min 45 LA1,1min	52 LAeq,15min 58 LA1,1min	30	17 23	Noise dominated by road traffic and insect noise during lulls in traffic. See also Note 4.
3rd February 2017 Daytime Hours	40 LAeq, 15min	46 LAeq,15min	30	6	Noise dominated by road traffic. See also Note 6.
1st June 2017 Night-time hours	35 LAeq,15min 45 LA1,1min	41 LAeq,15min 55 LA1,1min	40 52	6 10	Noise dominated by road traffic and rustling of leaves from breeze. See also Note 1.
1st June 2017 Daytime Hours	40 LAeq, 15min	39 LAeq,15min	39	-	Noise dominated by road traffic. See also Note 5.

Table 5. Location 4 Maroota Public School - Noise Survey Results					
Date	Applicable Criterion Level	Measured Noise Level	Measured LA90	Exceeding [dB]	Note
29th July 2016 Daytime hours	36 LAeq, 15min	47 LAeq,15min	43	11	Noise dominated by bird noise and natural sounds. See also Note 7.
24th October 2016 Daytime hours		43 LAeq,15min	40	7	Noise dominated by road traffic and bird noise. See also Note 3.
3rd February 2017 Daytime hours		40 LAeq,15min	35	4	See Note 3.
1st June 2017 Daytime hours		46 LAeq,15min	45	10	See Note 3.

Note 1. Dominant noise source is that of traffic and birds chirping or natural sounds such as wind and rustling of leaves (during lulls in traffic). Quarry noise was not audible.

Note 2. Dominant noise source is that of insect noise. Quarry noise was not audible and not measurable.

Note 3. Dominant noise source is that of traffic and birds chirping or natural sounds such as wind and rustling of leaves (during lulls in traffic). Quarry noise was audible but not measurable.

Note 4. Dominant noise source is that of traffic and insects (during lulls in traffic). Quarry noise was not audible and not measurable.

Note 5. Dominant noise source is that of traffic. Quarry noise was audible during lulls in traffic but not measurable.

Note 6. Dominant noise source is that of traffic. Quarry noise was not audible even during lulls in traffic. Therefore quarry noise was not measurable.

Note 7. Dominant noise source is that of birds chirping and natural sounds such as wind and rustling of leaves (during lulls in traffic). Other quarry noise was audible but not measurable.

On account of the large distances which sound travels from the sand mining extraction activities to the surrounding residential premises, it is often not measureable because it is either less than the prevailing background noise or because it is inaudible. At all the noise monitoring sites, the noise emanating from the Hitchcock Road Sand Project currently has minimal contribution compared to other noise sources such as traffic noise, birds chirping, insect noise, rustling of leaves and other quarry operation.

The noise criteria nominated by EPA Licence 3407, Minister of Planning approval and Table 9.1 of the approved Noise Management Plan January 2016 for the hours of operation were therefore not exceeded.

6.0 CONCLUSIONS

Koikas Acoustics was requested to undertake noise level surveys around the Hitchcock Road Sand Project sand mining extraction and processing quarry (from July 2016 to June 2017) and ascertain whether the noise from the extraction and processing works currently exceed the nominated noise criteria as nominated by EPA licence 3407 and the project approval.

The results of the noise surveys show that the site extraction works are currently comply with all the nominated noise criteria (including cumulative noise criteria).

At most sites, quarry activities are either just audible or inaudible and in most of cases, the noise emanating from the site was found not to be measureable on account of that the natural noise (which includes birds chirping, insects, rustling of leaves) and un-natural noise (being cars and trucks traversing along the main roads).

There are no noise mitigation measures necessary to be implemented for the subject quarry sites.

Koikas Acoustics therefore certifies that the subject Maroota Hitchcock Road Sand Project currently complies with the nominated noise criteria despite that the measured noise levels (predominantly that of traffic and other natural sound sources) are currently producing sound levels in excess of the nominated noise criteria.

APPENDIX A - AERIAL PHOTOGRAPH

ATTACHMENT 10

AIR QUALITY REPORT

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TEST REPORT

CLIENT: P.F. FORMATION
1774 Wisemans Ferry Road Maroota NSW 2756

FILE No: 250 / 16

PROJECT: Gravimetric Dust Monitoring at Maroota for July 2016

REQUEST No.: 68799

TEST PROCEDURE: AS 3580.10.1 – 2003 – Methods for Sampling and Analysis of Ambient Air
Method 10.1 – Determination of Particulate Matter - Deposited Matter – Gravimetric Method

Lab Sample Number:	181373	181374	181375	181376
Site Location Number:	1	2	3	4
Sample Description:		Dust		
Sampling Period:	From	1.07.16	to	1.08.16

TEST RESULTS

Insoluble Solids (g/m^2 month)	2.16	3.43	2.72	2.89
Ash (g/m^2 month)	0.88	1.23	1.22	1.34
Combustible Matter (g/m^2 month)	1.28	2.20	1.50	1.55
Soluble Matter (g/m^2 month)	0.49	0.92	1.48	0.59
Total Solids (g/m^2 month)	2.65	4.34	4.20	3.48
Volume of Liquid in the Gauge (ml)	1300	1300	1200	1300

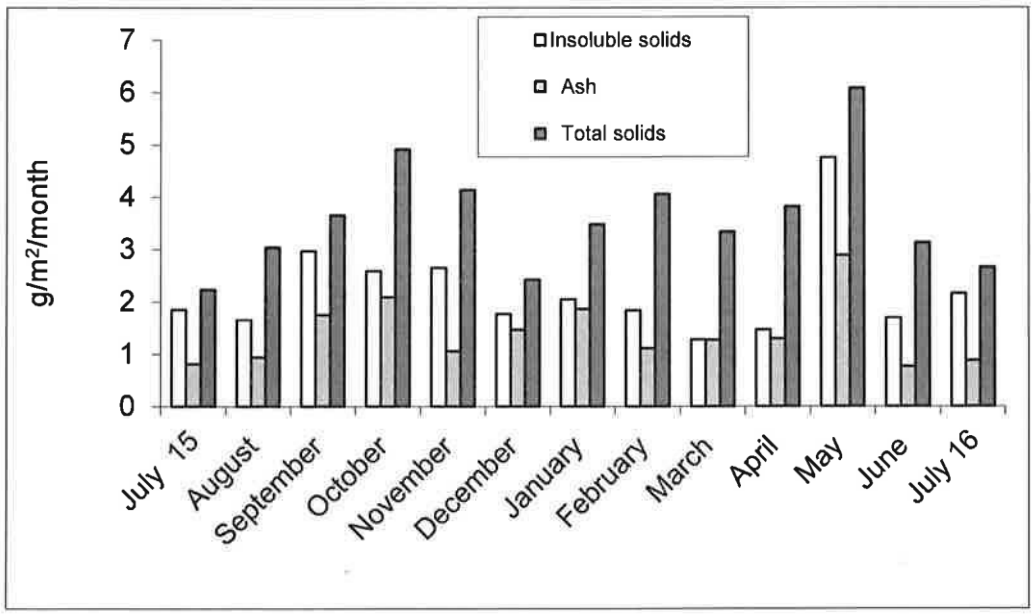
Notes:

- Refer to attached graphs.
- Samples submitted by the Client.

J.Graham, Mat. File, File.

Dust Monitoring
MAROOTA Site 1
Maroota Public School

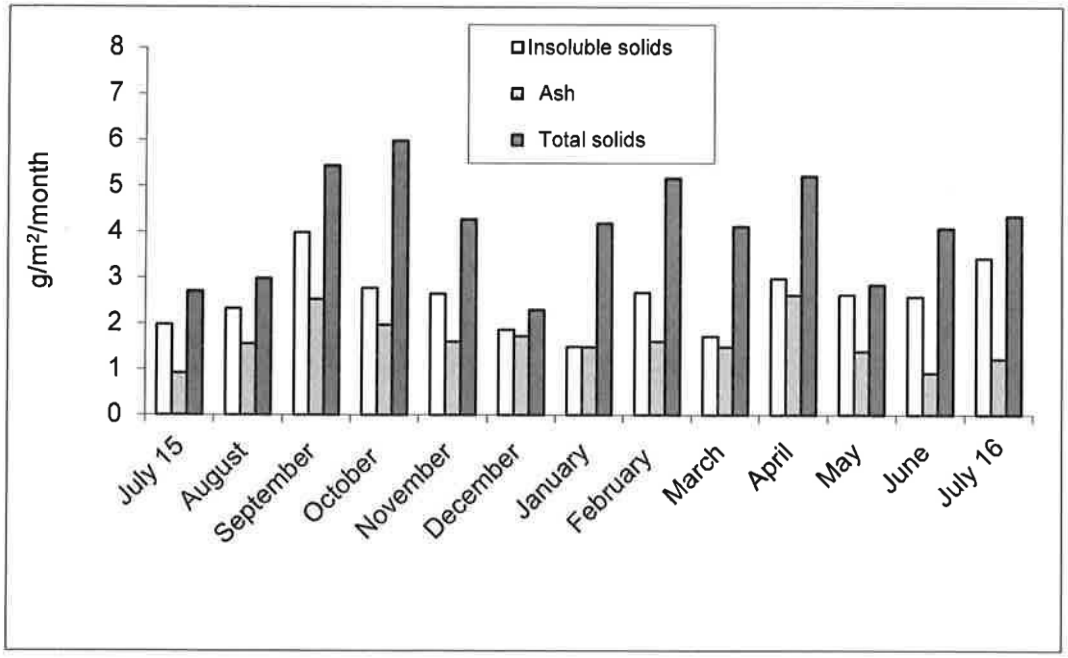
	Insoluble solids	Ash	Total solids
July 15	1.85	0.81	2.23
August	1.66	0.94	3.04
September	2.97	1.75	3.65
October	2.59	2.09	4.91
November	2.65	1.06	4.14
December	1.77	1.47	2.42
January	2.05	1.86	3.48
February	1.84	1.11	4.06
March	1.28	1.27	3.34
April	1.47	1.30	3.82
May	4.75	2.89	6.08
June	1.69	0.76	3.13
July 16	2.16	0.88	2.65



* NSW-EPA - Approved Methods and Guidance- For the Modelling and Assessment of Air Pollutants in New South Wales - AUGUST 2005 (pg 28)

Dust Monitoring
MAROOTA Site 2
Hitchcock Road

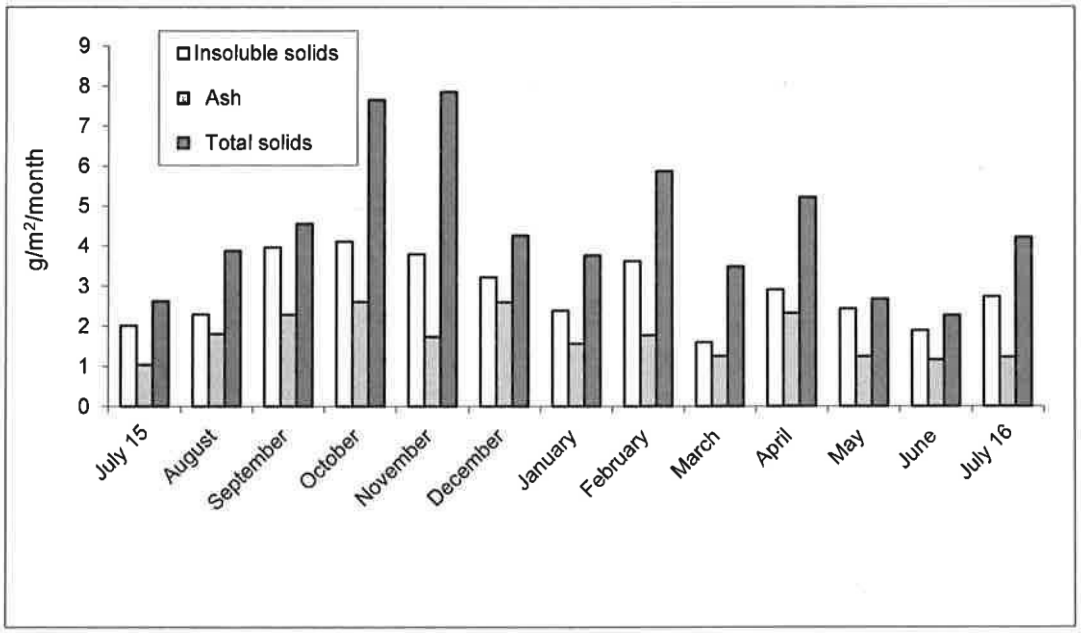
	Insoluble solids	Ash	Total solids
July 15	1.98	0.92	2.71
August	2.33	1.56	2.99
September	3.99	2.53	5.44
October	2.78	1.97	5.98
November	2.65	1.61	4.27
December	1.87	1.73	2.30
January	1.50	1.49	4.19
February	2.68	1.61	5.17
March	1.72	1.49	4.12
April	2.99	2.62	5.22
May	2.63	1.39	2.85
June	2.59	0.92	4.08
July 16	3.43	1.23	4.34



* NSW-EPA - Approved Methods and Guidance- For the Modelling and Assessment of Air Pollutants in New South Wales - AUGUST 2005 (pg 28)

Dust Monitoring
MAROOTA Site 3
Jurd's House

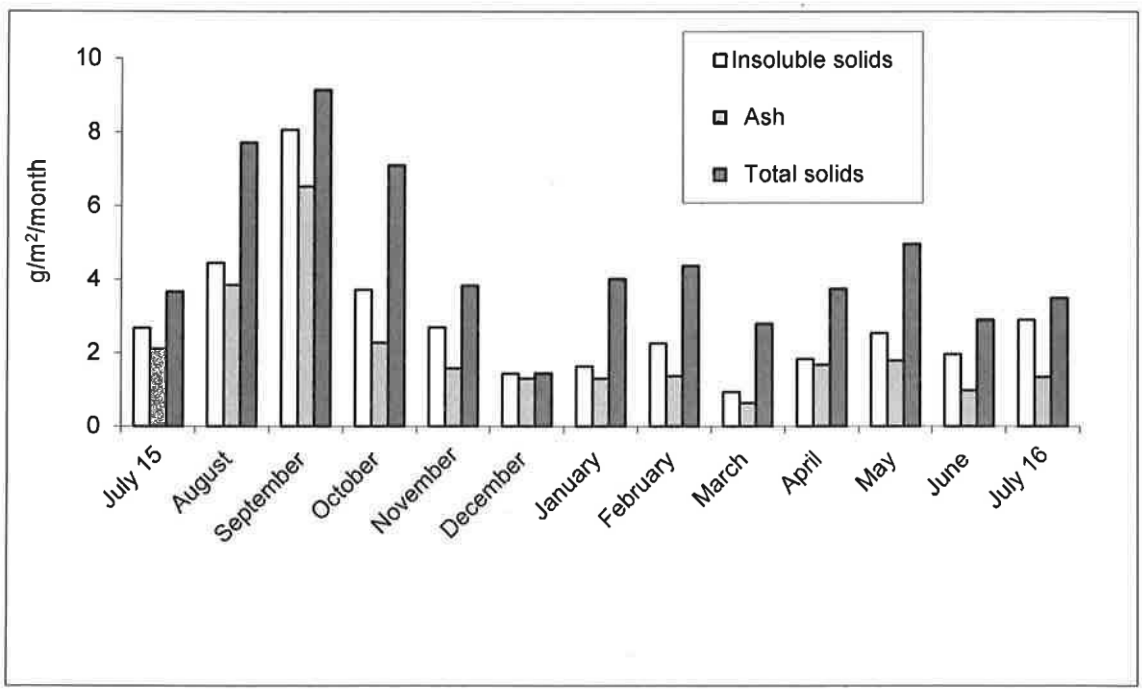
	Insoluble solids	Ash	Total solids
July 15	2.01	1.03	2.61
August	2.29	1.80	3.87
September	3.96	2.28	4.55
October	4.10	2.60	7.65
November	3.79	1.73	7.85
December	3.21	2.59	4.25
January	2.38	1.56	3.76
February	3.61	1.77	5.87
March	1.59	1.25	3.48
April	2.90	2.32	5.21
May	2.43	1.24	2.67
June	1.89	1.16	2.26
July 16	2.72	1.22	4.20



* NSW-EPA - Approved Methods and Guidance- For the Modelling and Assessment of Air Pollutants in New South Wales - AUGUST 2005 (pg 28)

Dust Monitoring
MAROOTA Site 4
Lot 2 DP 510812

	Insoluble solids	Ash	Total solids
July 15	2.67	2.10	3.66
August	4.44	3.84	7.71
September	8.06	6.52	9.14
October	3.71	2.27	7.09
November	2.68	1.57	3.82
December	1.42	1.29	1.43
January	1.62	1.29	4.01
February	2.25	1.36	4.36
March	0.93	0.63	2.78
April	1.82	1.67	3.74
May	2.53	1.78	4.95
June	1.95	0.97	2.89
July 16	2.89	1.34	3.48



* NSW-EPA - Approved Methods and Guidance- For the Modelling and Assessment of Air Pollutants in New South Wales - AUGUST 2005 (pg 28)

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TEST REPORT

CLIENT: P.F. FORMATION
1774 Wisemans Ferry Road Maroota NSW 2756

FILE No: 250 / 16

PROJECT: Gravimetric Dust Monitoring at Maroota for August 2016

REQUEST No.: 69410

TEST PROCEDURE: AS 3580.10.1 – 2003 – Methods for Sampling and Analysis of Ambient Air Method 10.1 – Determination of Particulate Matter - Deposited Matter – Gravimetric Method

Lab Sample Number:	182731	182732	182733	182734
Site Location Number:	1	2	3	4
Sample Description:		Dust		
Sampling Period:	From	1.08.16	to	1.09.16

TEST RESULTS

Insoluble Solids (g/m² month)	6.86	3.03	9.82	2.88
Ash (g/m² month)	1.59	1.81	2.64	1.00
Combustible Matter (g/m² month)	5.27	1.22	7.17	1.88
Soluble Matter (g/m² month)	0.32	5.03	1.87	5.21
Total Solids (g/m² month)	7.18	8.06	11.68	8.09
Volume of Liquid in the Gauge (ml)	2100	1900	2200	2100

Notes:

- Refer to attached graphs.
- Samples submitted by the Client.

J.Graham, Mat. File, File.

NATA
ACCREDITED FOR TECHNICAL COMPETENCE

Approved Signatory _____ **S. Krishnamoorthy**

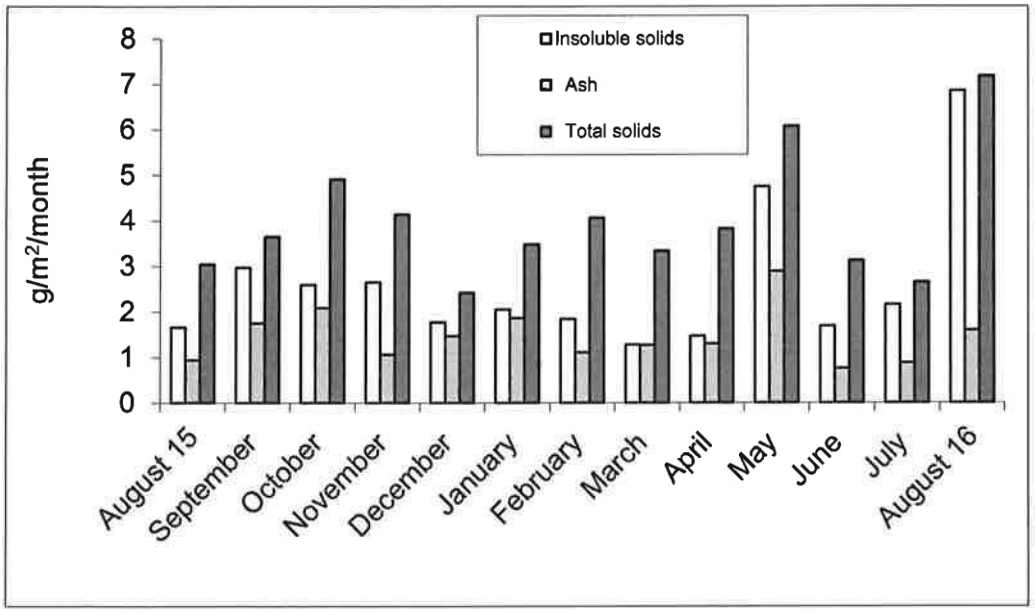
Date 15.9.16. Serial No. 149876

Accredited for compliance with ISO/IEC 17025

NATA Accredited Laboratory
Number: 9968

Dust Monitoring
MAROOTA Site 1
Maroota Public School

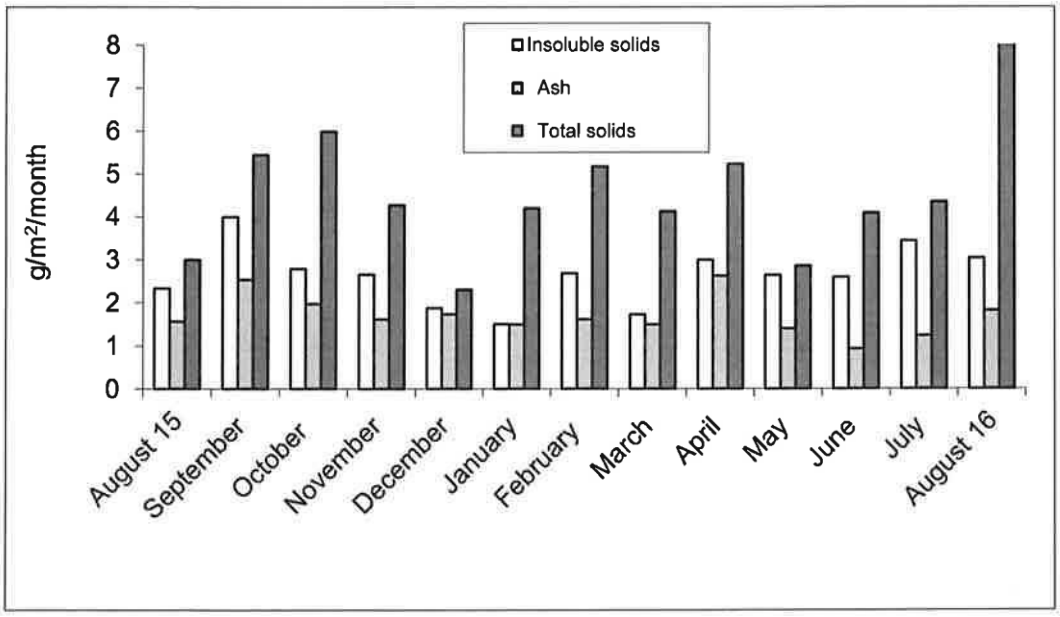
	Insoluble solids	Ash	Total solids
August 15	1.66	0.94	3.04
September	2.97	1.75	3.65
October	2.59	2.09	4.91
November	2.65	1.06	4.14
December	1.77	1.47	2.42
January	2.05	1.86	3.48
February	1.84	1.11	4.06
March	1.28	1.27	3.34
April	1.47	1.30	3.82
May	4.75	2.89	6.08
June	1.69	0.76	3.13
July	2.16	0.88	2.65
August 16	6.86	1.59	7.18



* NSW-EPA - Approved Methods and Guidance- For the Modelling and Assessment of Air Pollutants in New South Wales - AUGUST 2005 (pg 28)

Dust Monitoring
MAROOTA Site 2
Hitchcock Road

	Insoluble solids	Ash	Total solids
August 15	2.33	1.56	2.99
September	3.99	2.53	5.44
October	2.78	1.97	5.98
November	2.65	1.61	4.27
December	1.87	1.73	2.30
January	1.50	1.49	4.19
February	2.68	1.61	5.17
March	1.72	1.49	4.12
April	2.99	2.62	5.22
May	2.63	1.39	2.85
June	2.59	0.92	4.08
July	3.43	1.23	4.34
August 16	3.03	1.81	8.06



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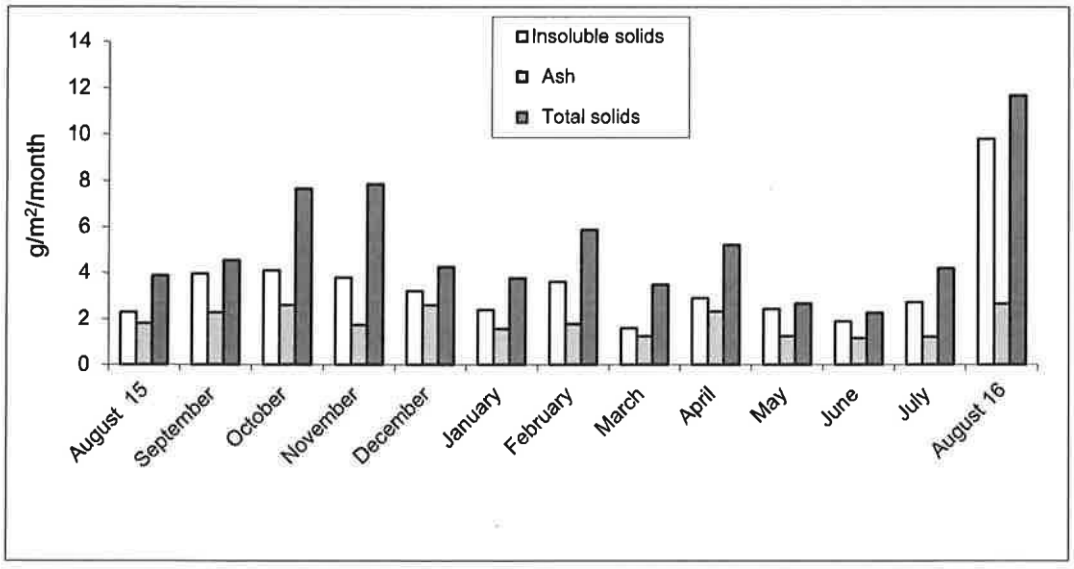
Dust Monitoring
MAROOTA Site 3
Jurd's House

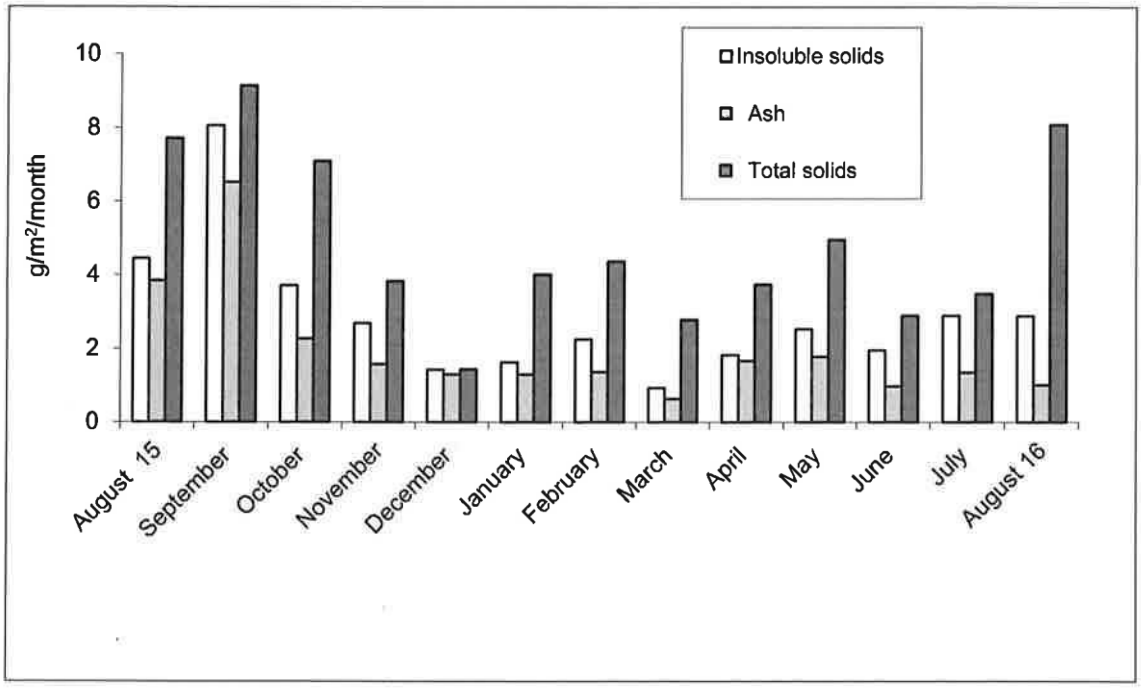
	Insoluble solids	Ash	Total solids
August 15	2.29	1.80	3.87
September	3.96	2.28	4.55
October	4.10	2.60	7.65
November	3.79	1.73	7.85
December	3.21	2.59	4.25
January	2.38	1.56	3.76
February	3.61	1.77	5.87
March	1.59	1.25	3.48
April	2.90	2.32	5.21
May	2.43	1.24	2.67
June	1.89	1.16	2.26
July	2.72	1.22	4.20
August 16	9.82	2.64	11.68



* NSW-EPA - Approved Methods and Guidance- For the Modelling and Assessment of Air Pollutants in New South Wales - AUGUST 2005 (pg 28)

Dust Monitoring
MAROOTA Site 4
Lot 2 DP 510812

	Insoluble solids	Ash	Total solids
August 15	4.44	3.84	7.71
September	8.06	6.52	9.14
October	3.71	2.27	7.09
November	2.68	1.57	3.82
December	1.42	1.29	1.43
January	1.62	1.29	4.01
February	2.25	1.36	4.36
March	0.93	0.63	2.78
April	1.82	1.67	3.74
May	2.53	1.78	4.95
June	1.95	0.97	2.89
July	2.89	1.34	3.48
August 16	2.88	1.00	8.09



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TEST REPORT

CLIENT: P.F. FORMATION
1774 Wisemans Ferry Road Maroota NSW 2756

FILE No: 250 / 16

PROJECT: Gravimetric Dust Monitoring at Maroota for September 2016

REQUEST No.: 69773

TEST PROCEDURE: AS 3580.10.1 – 2003 – Methods for Sampling and Analysis of Ambient Air
Method 10.1 – Determination of Particulate Matter - Deposited Matter – Gravimetric Method

Lab Sample Number:	183511	183512	183513	183514
Site Location Number:	1	2	3	4
Sample Description:		Dust		
Sampling Period:	From	1.09.16	to	4.10.16

TEST RESULTS

Insoluble Solids (g/m² month)	1.80	2.44	5.50	2.40
Ash (g/m² month)	1.32	1.41	2.41	1.43
Combustible Matter (g/m² month)	0.48	1.03	3.09	0.96
Soluble Matter (g/m² month)	2.08	1.96	3.85	1.88
Total Solids (g/m² month)	3.88	4.39	9.35	4.28
Volume of Liquid in the Gauge (ml)	900	1000	800	1000

Notes:

- Refer to attached graphs.
- Samples submitted by the Client.
- The samples collected were not covering the period as stipulated in the test method. Calculations based on 33 days of exposure.

J.Graham, Mat. File, File

Approved Signatory _____ **M. Abdulnebe**

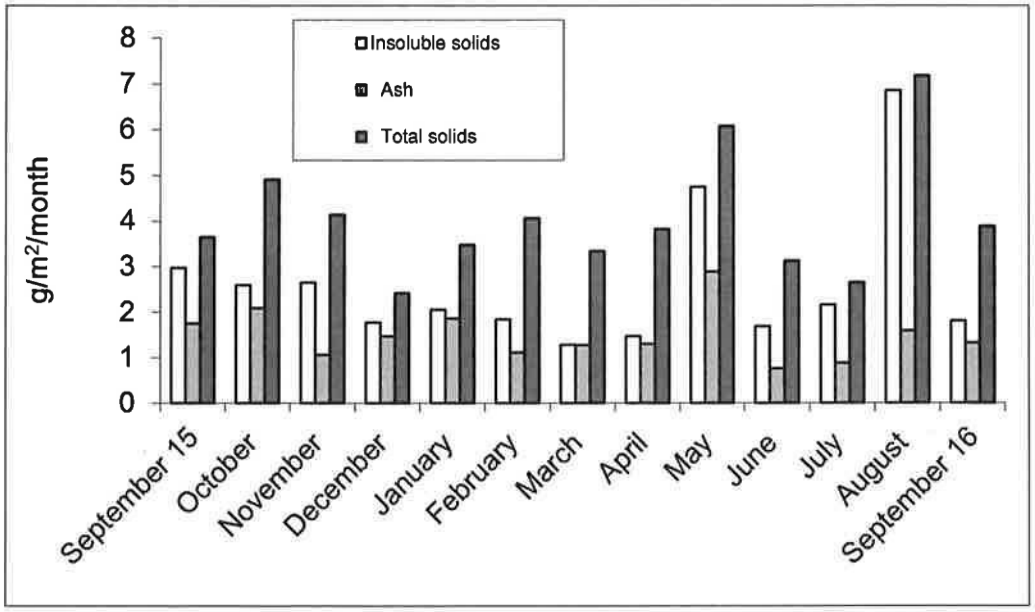
Date 14.10.16 Serial No. 150679

Dust Monitoring

MAROOTA Site 1

Maroota Public School

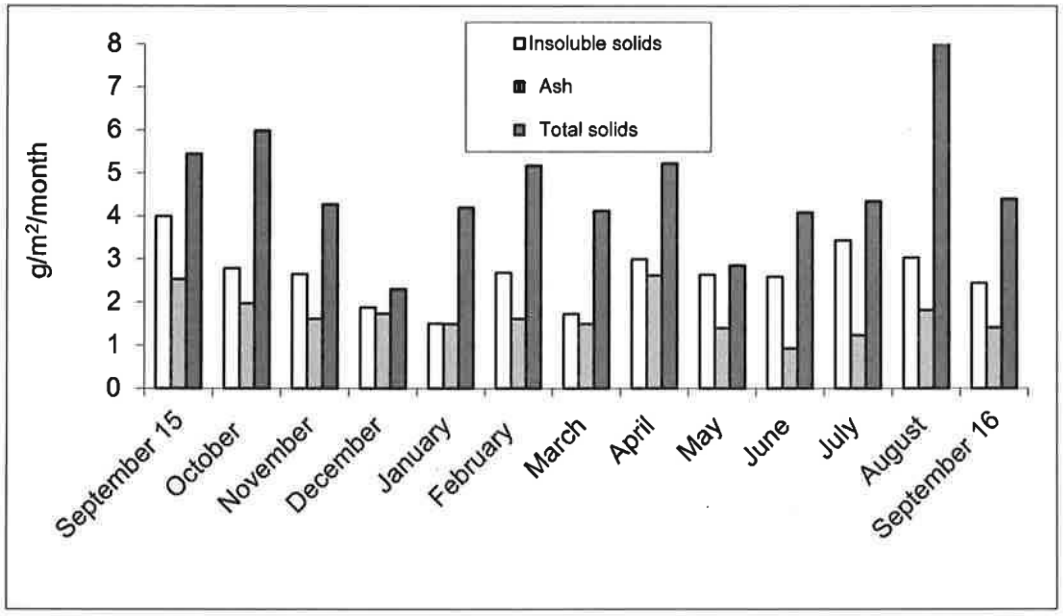
	Insoluble solids	Ash	Total solids
September 15	2.97	1.75	3.65
October	2.59	2.09	4.91
November	2.65	1.06	4.14
December	1.77	1.47	2.42
January	2.05	1.86	3.48
February	1.84	1.11	4.06
March	1.28	1.27	3.34
April	1.47	1.30	3.82
May	4.75	2.89	6.08
June	1.69	0.76	3.13
July	2.16	0.88	2.65
August	6.86	1.59	7.18
September 16	1.80	1.32	3.88



* NSW-EPA - Approved Methods and Guidance- For the Modelling and Assessment of Air Pollutants in New South Wales - AUGUST 2005 (pg 28)

Dust Monitoring
MAROOTA Site 2
Hitchcock Road

	Insoluble solids	Ash	Total solids
September 15	3.99	2.53	5.44
October	2.78	1.97	5.98
November	2.65	1.61	4.27
December	1.87	1.73	2.30
January	1.50	1.49	4.19
February	2.68	1.61	5.17
March	1.72	1.49	4.12
April	2.99	2.62	5.22
May	2.63	1.39	2.85
June	2.59	0.92	4.08
July	3.43	1.23	4.34
August	3.03	1.81	8.06
September 16	2.44	1.41	4.39



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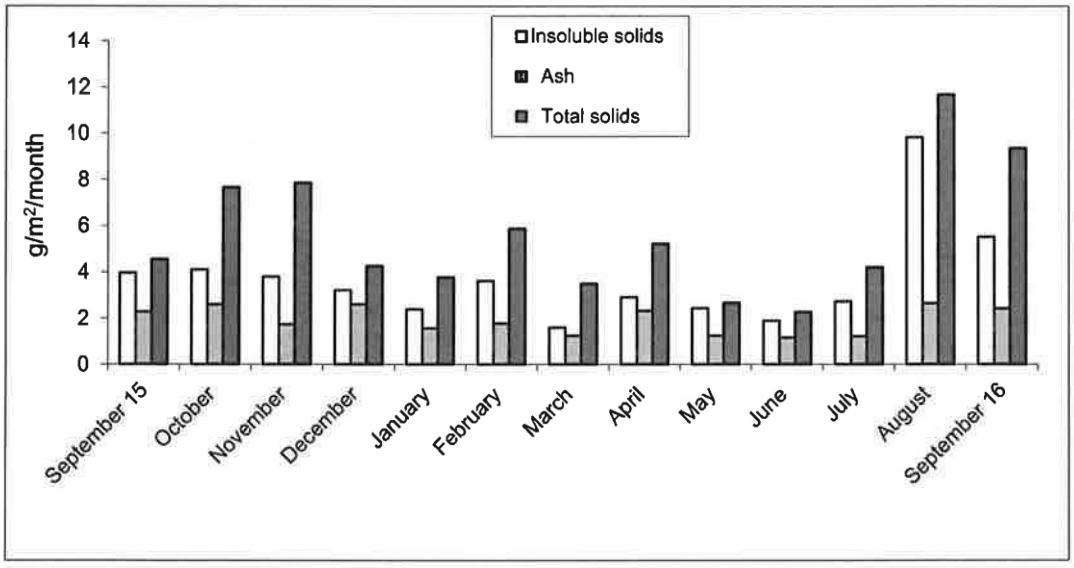
Dust Monitoring
MAROOTA Site 3
Jurd's House

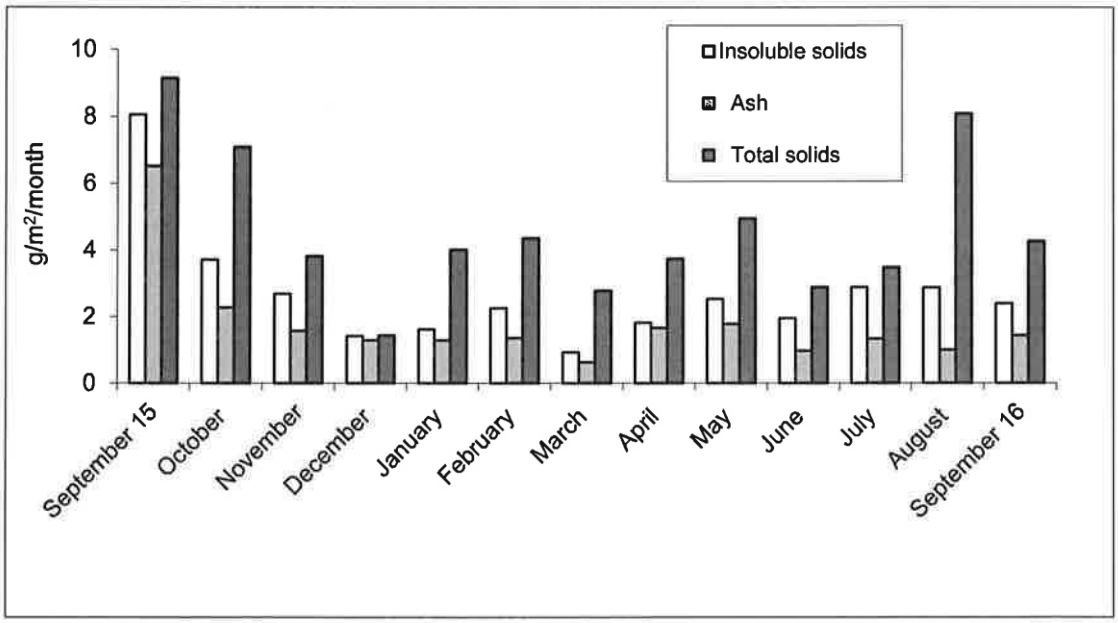
	Insoluble solids	Ash	Total solids
September 15	3.96	2.28	4.55
October	4.10	2.60	7.65
November	3.79	1.73	7.85
December	3.21	2.59	4.25
January	2.38	1.56	3.76
February	3.61	1.77	5.87
March	1.59	1.25	3.48
April	2.90	2.32	5.21
May	2.43	1.24	2.67
June	1.89	1.16	2.26
July	2.72	1.22	4.20
August	9.82	2.64	11.68
September 16	5.50	2.41	9.35



* NSW-EPA - Approved Methods and Guidance- For the Modelling and Assessment of Air Pollutants in New South Wales - AUGUST 2005 (pg 28)

Dust Monitoring
MAROOTA Site 4
Lot 2 DP 510812

	Insoluble solids	Ash	Total solids
September 15	8.06	6.52	9.14
October	3.71	2.27	7.09
November	2.68	1.57	3.82
December	1.42	1.29	1.43
January	1.62	1.29	4.01
February	2.25	1.36	4.36
March	0.93	0.63	2.78
April	1.82	1.67	3.74
May	2.53	1.78	4.95
June	1.95	0.97	2.89
July	2.89	1.34	3.48
August	2.88	1.00	8.09
September 16	2.40	1.43	4.28



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TEST REPORT

CLIENT: P.F. FORMATION

1774 Wisemans Ferry Road Maroota NSW 2756

FILE No: 250 / 16

PROJECT: Gravimetric Dust Monitoring at Maroota for October 2016

REQUEST No.: 70139

TEST PROCEDURE: AS 3580.10.1 – 2003 – Methods for Sampling and Analysis of Ambient Air
Method 10.1 – Determination of Particulate Matter - Deposited Matter – Gravimetric Method

Lab Sample Number:	184430	184431	184432	184433
Site Location Number:	1	2	3	4
Sample Description:		Dust		
Sampling Period:	From	4.10.16	to	1.11.16

TEST RESULTS:

Insoluble Solids (g/m² month)	2.13	1.89	3.55	3.62
Ash (g/m² month)	1.20	1.18	2.01	2.18
Combustible Matter (g/m² month)	0.93	0.71	1.54	1.44
Soluble Matter (g/m² month)	2.09	2.20	2.15	2.11
Total Solids (g/m² month)	4.22	4.09	5.70	5.73
Volume of Liquid in the Gauge (ml)	800	900	800	1100

Notes:

- Refer to attached graphs.
- Samples submitted by the Client.

J.Graham, Mat. File, File.

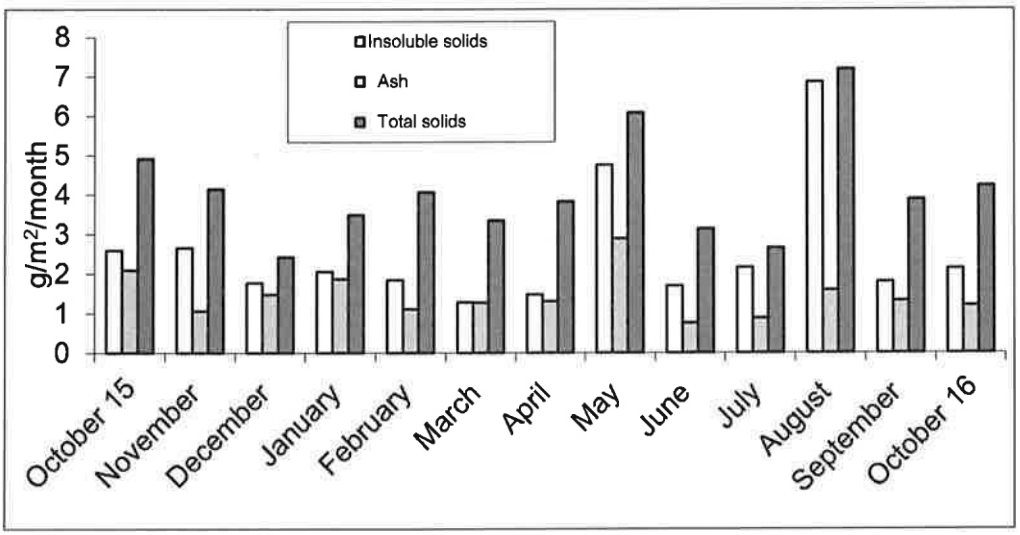
S.Krishnamoorthy

Approved Signatory _____

Date 9.11.16. Serial No. 151565

Dust Monitoring
MAROOTA Site 1
Maroota Public School

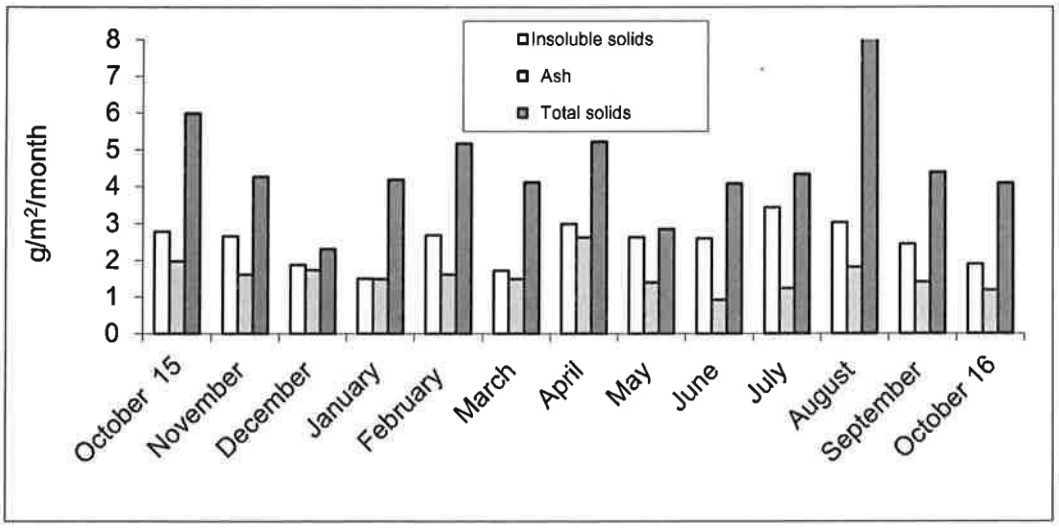
	Insoluble solids	Ash	Total solids
October 15	2.59	2.09	4.91
November	2.65	1.06	4.14
December	1.77	1.47	2.42
January	2.05	1.86	3.48
February	1.84	1.11	4.06
March	1.28	1.27	3.34
April	1.47	1.30	3.82
May	4.75	2.89	6.08
June	1.69	0.76	3.13
July	2.16	0.88	2.65
August	6.86	1.59	7.18
September	1.80	1.32	3.88
October 16	2.13	1.20	4.22



* NSW-EPA - Approved Methods and Guidance- For the Modelling and Assessment of Air Pollutants in New South Wales - AUGUST 2005 (pg 28)

Dust Monitoring
MAROOTA Site 2
Hitchcock Road

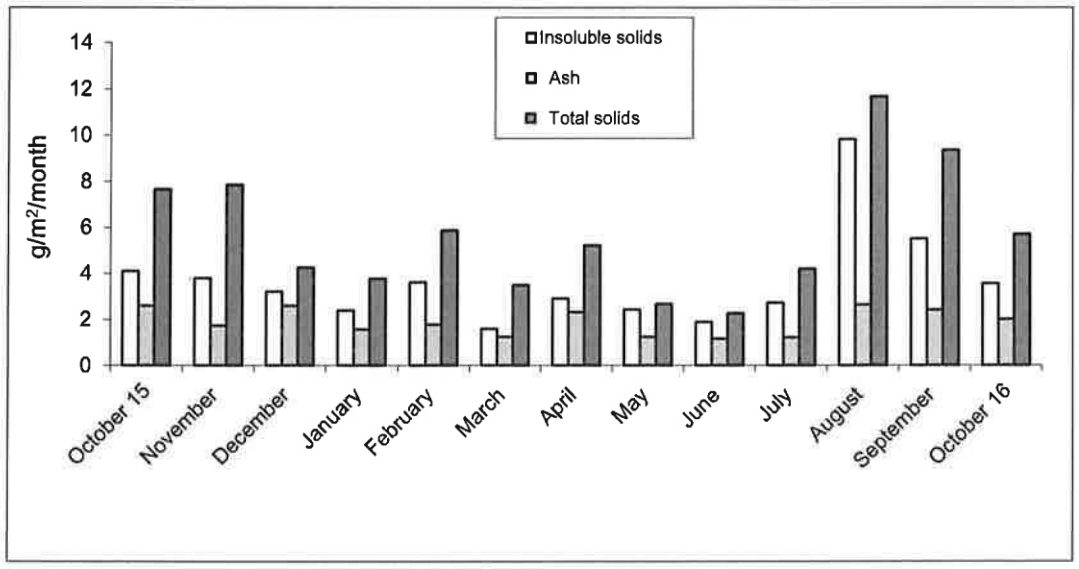
	Insoluble solids	Ash	Total solids
October 15	2.78	1.97	5.98
November	2.65	1.61	4.27
December	1.87	1.73	2.30
January	1.50	1.49	4.19
February	2.68	1.61	5.17
March	1.72	1.49	4.12
April	2.99	2.62	5.22
May	2.63	1.39	2.85
June	2.59	0.92	4.08
July	3.43	1.23	4.34
August	3.03	1.81	8.06
September	2.44	1.41	4.39
October 16	1.89	1.18	4.09



* NSW-EPA - Approved Methods and Guidance- For the Modelling and Assessment of Air Pollutants in New South Wales - AUGUST 2005 (pg 28)

Dust Monitoring
MAROOTA Site 3
Jurd's House

	Insoluble solids	Ash	Total solids
October 15	4.10	2.60	7.65
November	3.79	1.73	7.85
December	3.21	2.59	4.25
January	2.38	1.56	3.76
February	3.61	1.77	5.87
March	1.59	1.25	3.48
April	2.90	2.32	5.21
May	2.43	1.24	2.67
June	1.89	1.16	2.26
July	2.72	1.22	4.20
August	9.82	2.64	11.68
September	5.50	2.41	9.35
October 16	3.55	2.01	5.70



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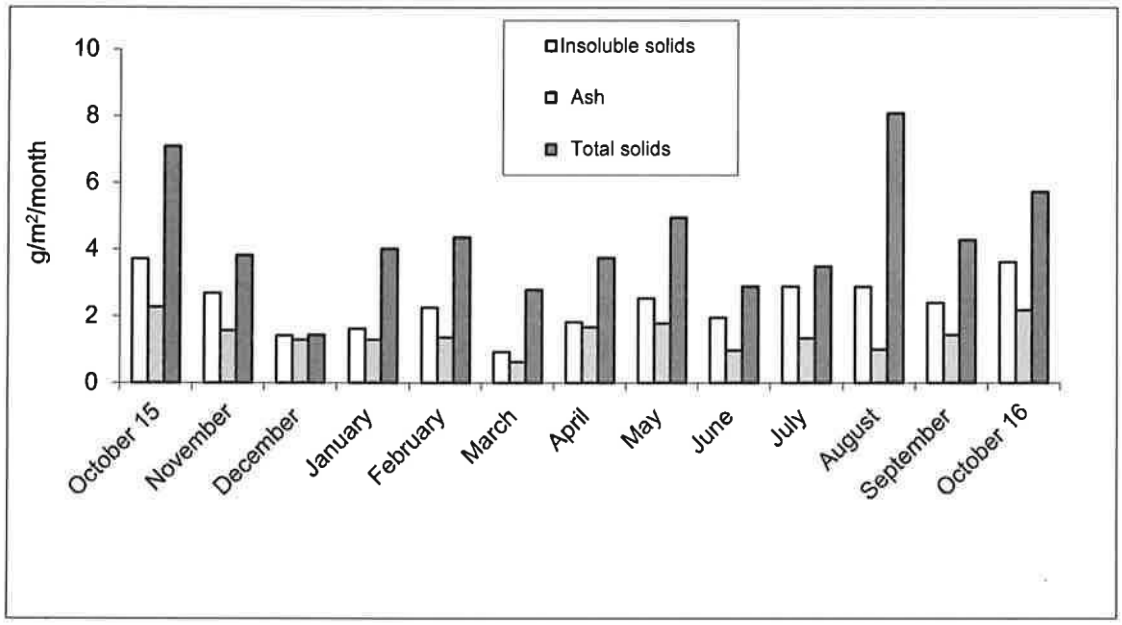
Dust Monitoring
MAROOTA Site 4
Lot 2 DP 510812

	Insoluble solids	Ash	Total solids
October 15	3.71	2.27	7.09
November	2.68	1.57	3.82
December	1.42	1.29	1.43
January	1.62	1.29	4.01
February	2.25	1.36	4.36
March	0.93	0.63	2.78
April	1.82	1.67	3.74
May	2.53	1.78	4.95
June	1.95	0.97	2.89
July	2.89	1.34	3.48
August	2.88	1.00	8.09
September	2.40	1.43	4.28
October 16	3.62	2.18	5.73



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TEST REPORT

CLIENT: P.F. FORMATION

1774 Wisemans Ferry Road Maroota NSW 2756

FILE No: 250 / 16

PROJECT: Gravimetric Dust Monitoring at Maroota for November 2016

REQUEST No.: 70568

TEST PROCEDURE: AS 3580.10.1 – 2003 – Methods for Sampling and Analysis of Ambient Air Method 10.1 – Determination of Particulate Matter - Deposited Matter – Gravimetric Method

Lab Sample Number:	185402	185403	185404	185405
Site Location Number:	1	2	3	4
Sample Description:		Dust		
Sampling Period:	From	1.11.16	to	1.12.16

TEST RESULTS:

Insoluble Solids (g/m^2 month)	3.09	3.43	3.64	3.74
Ash (g/m^2 month)	1.96	2.09	2.20	2.12
Combustible Matter (g/m^2 month)	1.12	1.34	1.45	1.63
Soluble Matter (g/m^2 month)	1.93	1.59	2.28	2.10
Total Solids (g/m^2 month)	5.01	5.02	5.92	5.85
Volume of Liquid in the Gauge (ml)	1600	1500	1250	1600

Notes:

- Refer to attached graphs.
- Samples submitted by the Client.

J.Graham, Mat. File, File.

S.Krishnamoorthy

Approved Signatory _____

Date 7/2/16. Serial No. 152367

NATA ACCREDITED FOR TECHNICAL COMPETENCE

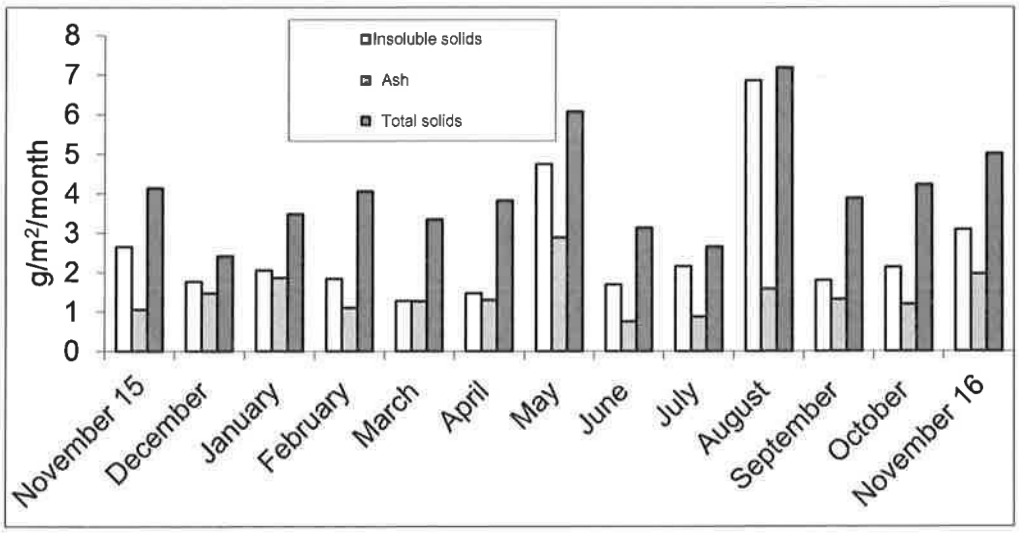
Accredited for compliance with ISO/IEC 17025

NATA Accredited Laboratory

Number: 9968

Dust Monitoring
MAROOTA Site 1
Maroota Public School

	Insoluble solids	Ash	Total solids
November 15	2.65	1.06	4.14
December	1.77	1.47	2.42
January	2.05	1.86	3.48
February	1.84	1.11	4.06
March	1.28	1.27	3.34
April	1.47	1.30	3.82
May	4.75	2.89	6.08
June	1.69	0.76	3.13
July	2.16	0.88	2.65
August	6.86	1.59	7.18
September	1.80	1.32	3.88
October	2.13	1.20	4.22
November 16	3.09	1.96	5.01



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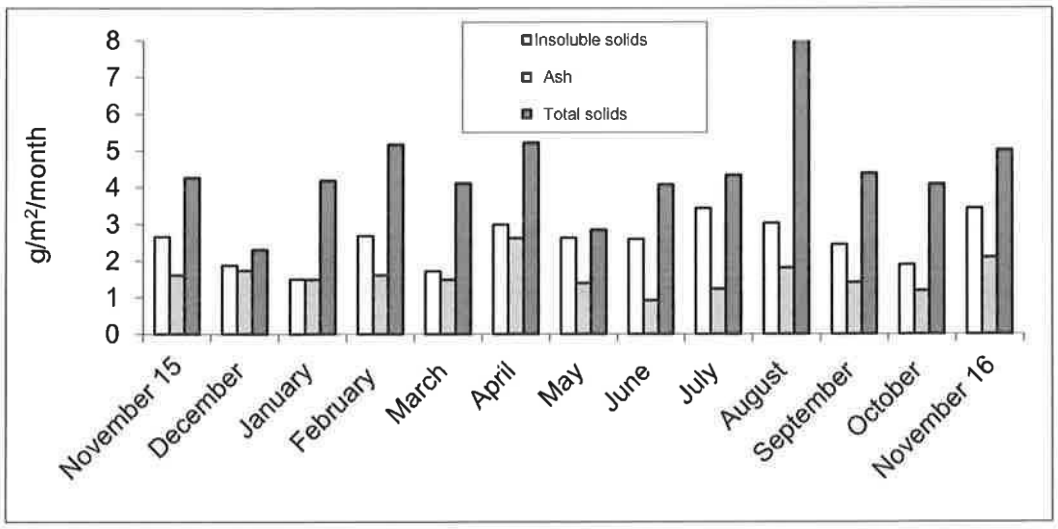
Dust Monitoring
MAROOTA Site 2
Hitchcock Road

	Insoluble solids	Ash	Total solids
November 15	2.65	1.61	4.27
December	1.87	1.73	2.30
January	1.50	1.49	4.19
February	2.68	1.61	5.17
March	1.72	1.49	4.12
April	2.99	2.62	5.22
May	2.63	1.39	2.85
June	2.59	0.92	4.08
July	3.43	1.23	4.34
August	3.03	1.81	8.06
September	2.44	1.41	4.39
October	1.89	1.18	4.09
November 16	3.43	2.09	5.02



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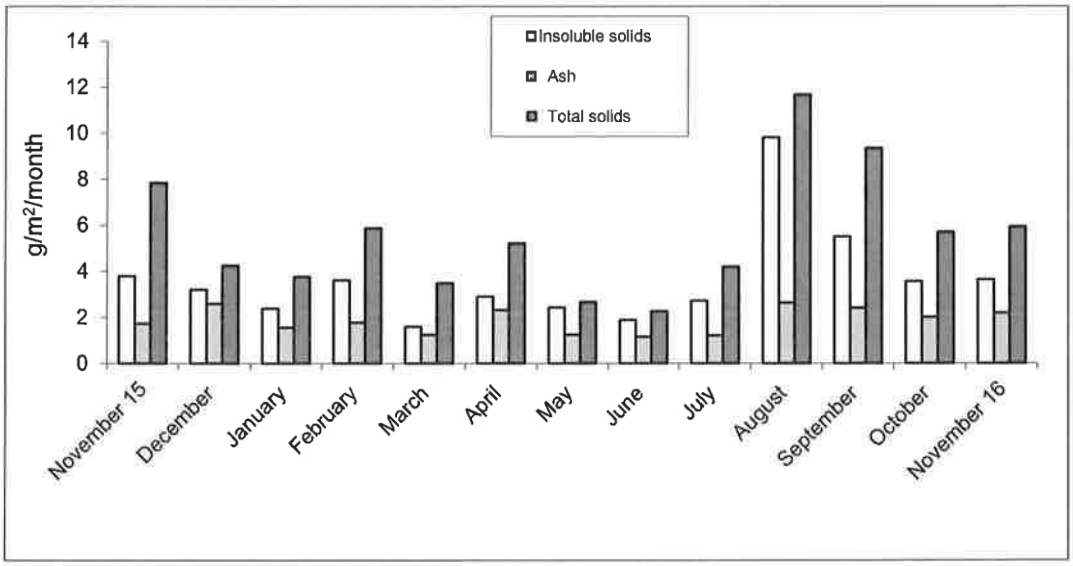
Dust Monitoring
MAROOTA Site 3
Jurd's House

	Insoluble solids	Ash	Total solids
November 15	3.79	1.73	7.85
December	3.21	2.59	4.25
January	2.38	1.56	3.76
February	3.61	1.77	5.87
March	1.59	1.25	3.48
April	2.90	2.32	5.21
May	2.43	1.24	2.67
June	1.89	1.16	2.26
July	2.72	1.22	4.20
August	9.82	2.64	11.68
September	5.50	2.41	9.35
October	3.55	2.01	5.70
November 16	3.64	2.20	5.92



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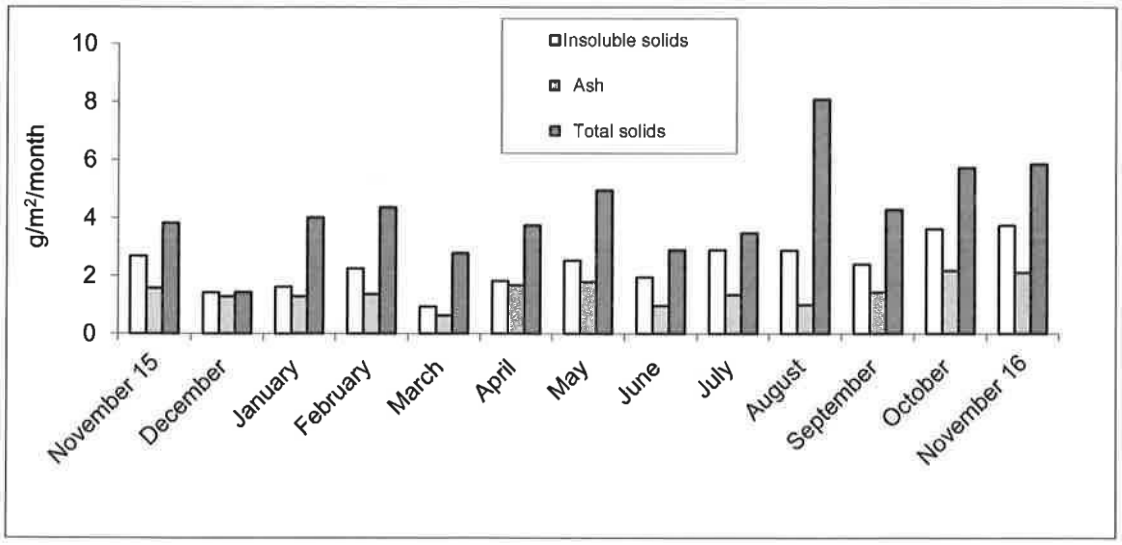
Dust Monitoring
MAROOTA Site 4
Lot 2 DP 510812

	Insoluble solids	Ash	Total solids
November 15	2.68	1.57	3.82
December	1.42	1.29	1.43
January	1.62	1.29	4.01
February	2.25	1.36	4.36
March	0.93	0.63	2.78
April	1.82	1.67	3.74
May	2.53	1.78	4.95
June	1.95	0.97	2.89
July	2.89	1.34	3.48
August	2.88	1.00	8.09
September	2.40	1.43	4.28
October	3.62	2.18	5.73
November 16	3.74	2.12	5.85



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TEST REPORT

CLIENT: P.F. FORMATION — FILE No: 250 / 17

1774 Wisemans Ferry Road Maroota NSW 2756

PROJECT: Gravimetric Dust Monitoring at Maroota for December 2016 — REQUEST No.: 71078

TEST PROCEDURE: AS 3580.10.1 – 2003 – Methods for Sampling and Analysis of Ambient Air
Method 10.1 – Determination of Particulate Matter - Deposited Matter – Gravimetric Method

Lab Sample Number:	186762	186763	186764	186765
Site Location Number:	1	2	3	4
Sample Description:		Dust		
Sampling Period:	From	1.12.16	to	3.01.17

TEST RESULTS:

Insoluble Solids (g/m² month)	1.89	1.92	2.91	2.24
Ash (g/m² month)	1.36	1.59	2.06	1.37
Combustible Matter (g/m² month)	0.53	0.34	0.86	0.87
Soluble Matter (g/m² month)	3.74	4.10	3.86	4.67
Total Solids (g/m² month)	5.63	6.02	6.77	6.91
Volume of Liquid in the Gauge (ml)	1300	1600	1300	1450

Notes:

- Refer to attached graphs.
- Samples submitted by the Client.
- The samples collected were not covering the period as stipulated in the test method. Calculations based on 33 days of exposure

J.Graham, Mat. File, File.

NATA ACCREDITED FOR TECHNICAL COMPETENCE

Approved Signatory _____ S.Krishnamoorthy

Date 23.1.17. Serial No. 153303

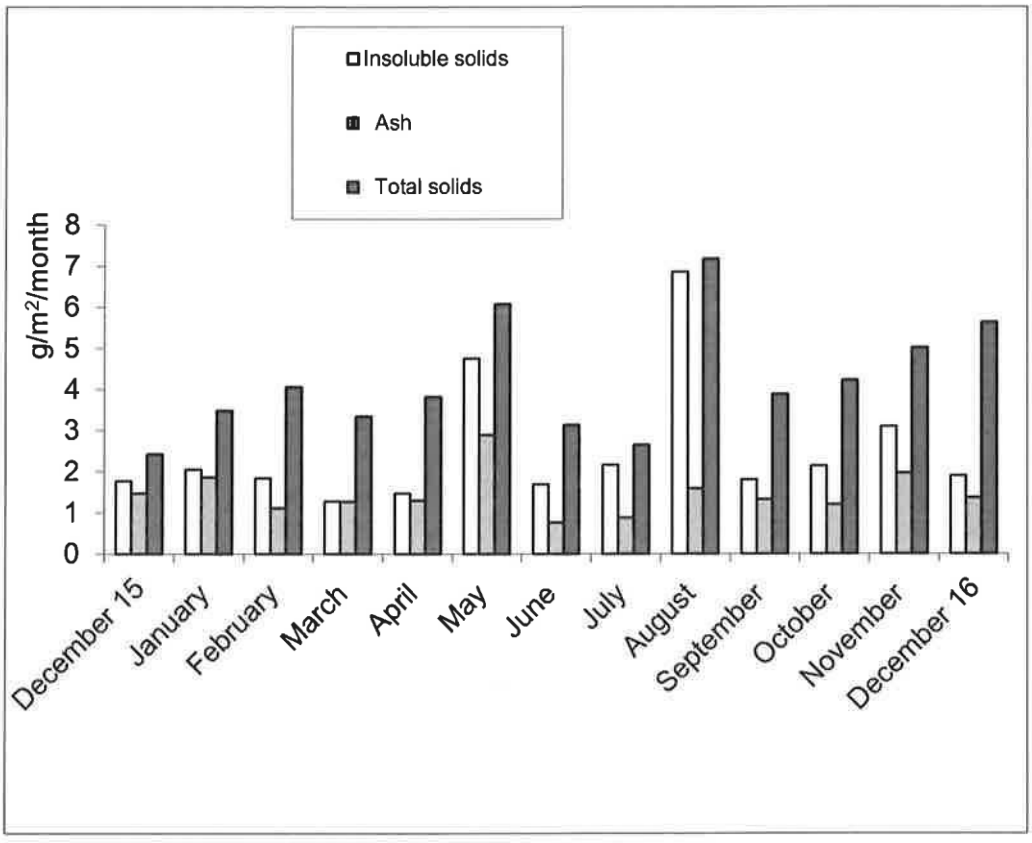
Accredited for compliance with ISO/IEC 17025

NATA Accredited Laboratory

Number: 9968

Dust Monitoring
MAROOTA Site 1
Maroota Public School

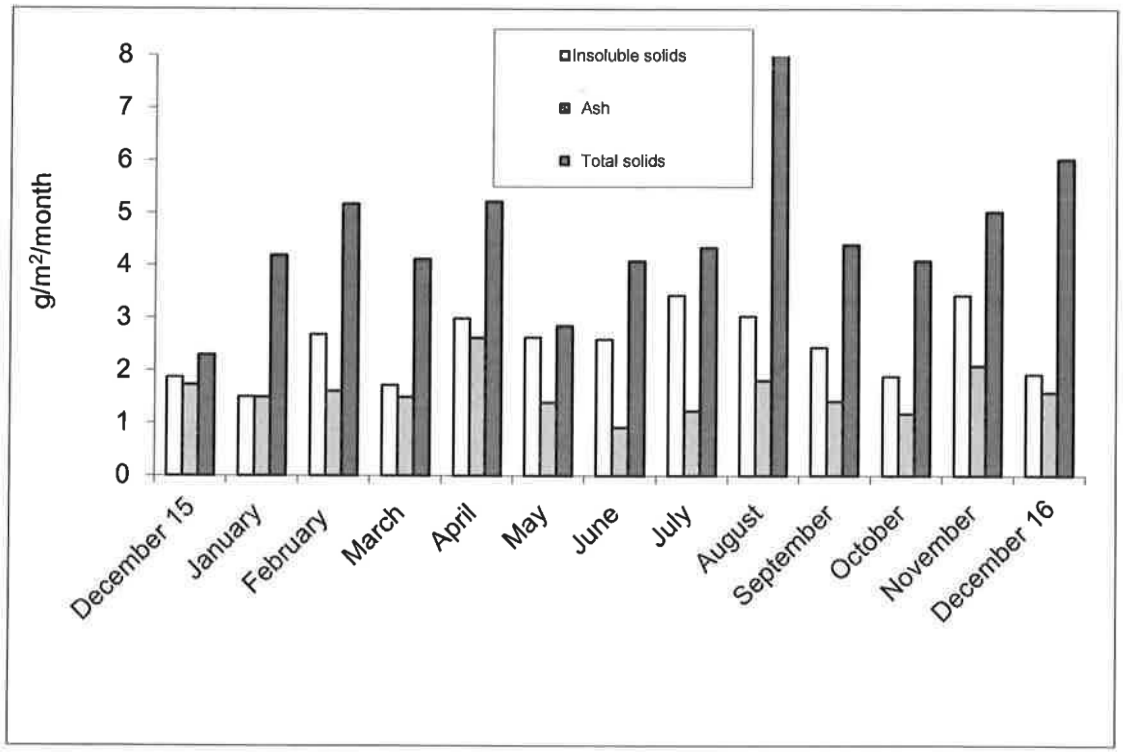
	Insoluble solids	Ash	Total solids
December 15	1.77	1.47	2.42
January	2.05	1.86	3.48
February	1.84	1.11	4.06
March	1.28	1.27	3.34
April	1.47	1.30	3.82
May	4.75	2.89	6.08
June	1.69	0.76	3.13
July	2.16	0.88	2.65
August	6.86	1.59	7.18
September	1.80	1.32	3.88
October	2.13	1.20	4.22
November	3.09	1.96	5.01
December 16	1.89	1.36	5.63



* NSW-EPA - Approved Methods and Guidance- For the Modelling and Assessment of Air Pollutants in New South Wales - AUGUST 2005 (pg 28)

Dust Monitoring
MAROOTA Site 2
Hitchcock Road

	Insoluble solids	Ash	Total solids
December 15	1.87	1.73	2.30
January	1.50	1.49	4.19
February	2.68	1.61	5.17
March	1.72	1.49	4.12
April	2.99	2.62	5.22
May	2.63	1.39	2.85
June	2.59	0.92	4.08
July	3.43	1.23	4.34
August	3.03	1.81	8.06
September	2.44	1.41	4.39
October	1.89	1.18	4.09
November	3.43	2.09	5.02
December 16	1.92	1.59	6.02



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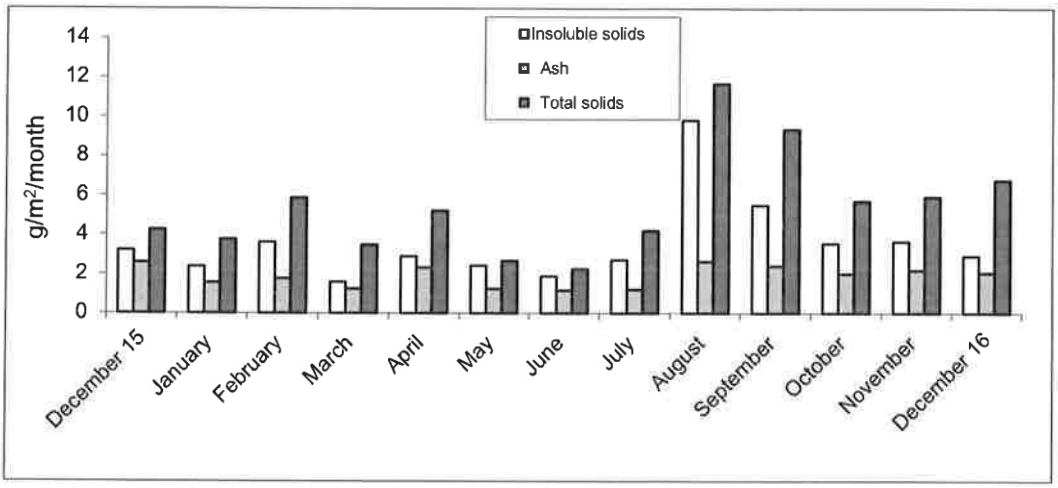
Dust Monitoring
MAROOTA Site 3
Jurd's House

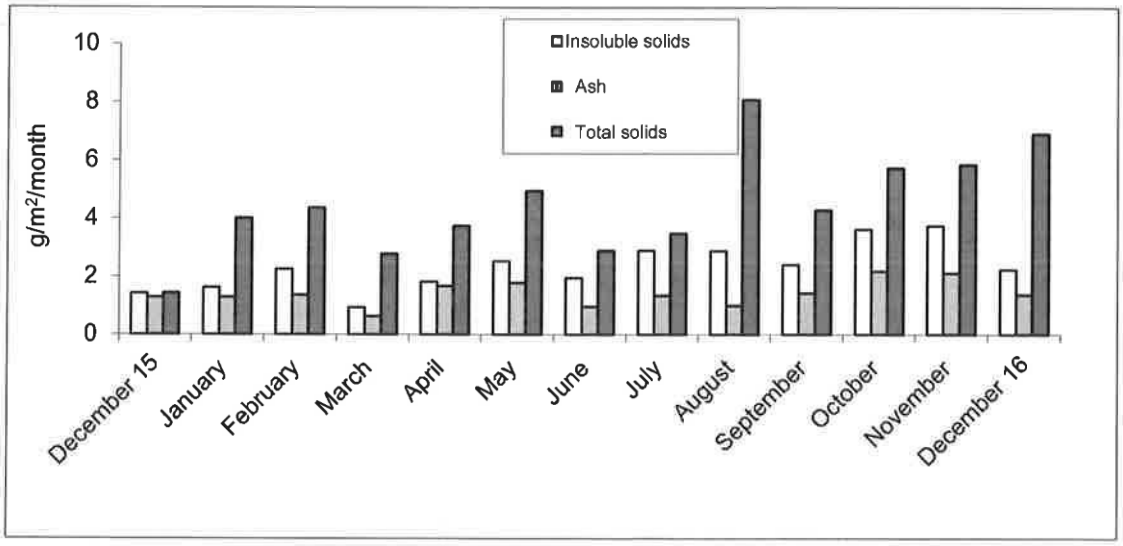
	Insoluble solids	Ash	Total solids
December 15	3.21	2.59	4.25
January	2.38	1.56	3.76
February	3.61	1.77	5.87
March	1.59	1.25	3.48
April	2.90	2.32	5.21
May	2.43	1.24	2.67
June	1.89	1.16	2.26
July	2.72	1.22	4.20
August	9.82	2.64	11.68
September	5.50	2.41	9.35
October	3.55	2.01	5.70
November	3.64	2.2	5.92
December 16	2.91	2.06	6.77



* NSW-EPA - Approved Methods and Guidance- For the Modelling and Assessment of Air Pollutants in New South Wales - AUGUST 2005 (pg 28)

Dust Monitoring
MAROOTA Site 4
Lot 2 DP 510812

	Insoluble solids	Ash	Total solids
December 15	1.42	1.29	1.43
January	1.62	1.29	4.01
February	2.25	1.36	4.36
March	0.93	0.63	2.78
April	1.82	1.67	3.74
May	2.53	1.78	4.95
June	1.95	0.97	2.89
July	2.89	1.34	3.48
August	2.88	1.00	8.09
September	2.40	1.43	4.28
October	3.62	2.18	5.73
November	3.74	2.12	5.85
December 16	2.24	1.37	6.91



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TEST REPORT

CLIENT: P.F. FORMATION

1774 Wisemans Ferry Road Maroota NSW 2756

FILE No: 250 / 17

PROJECT: Gravimetric Dust Monitoring at Maroota for January 2017

REQUEST No.:71359

TEST PROCEDURE: AS 3580.10.1 – 2003 – Methods for Sampling and Analysis of Ambient Air Method 10.1 – Determination of Particulate Matter - Deposited Matter – Gravimetric Method

Lab Sample Number:	187538	187539	187540	187541
Site Location Number:	1	2	3	4
Sample Description:		Dust		
Sampling Period:	From	3.01.17	to	1.02.17

TEST RESULTS:

Insoluble Solids (g/m^2 month)	3.90	5.03	4.49	4.50
Ash (g/m^2 month)	1.95	2.48	2.45	1.82
Combustible Matter (g/m^2 month)	1.95	2.54	2.04	2.68
Soluble Matter (g/m^2 month)	3.97	7.14	3.08	4.51
Total Solids (g/m^2 month)	7.87	12.17	7.57	9.01
Volume of Liquid in the Gauge (ml)	1300	1300	800	1300

Notes:

- Refer to attached graphs.
- Samples submitted by the Client.

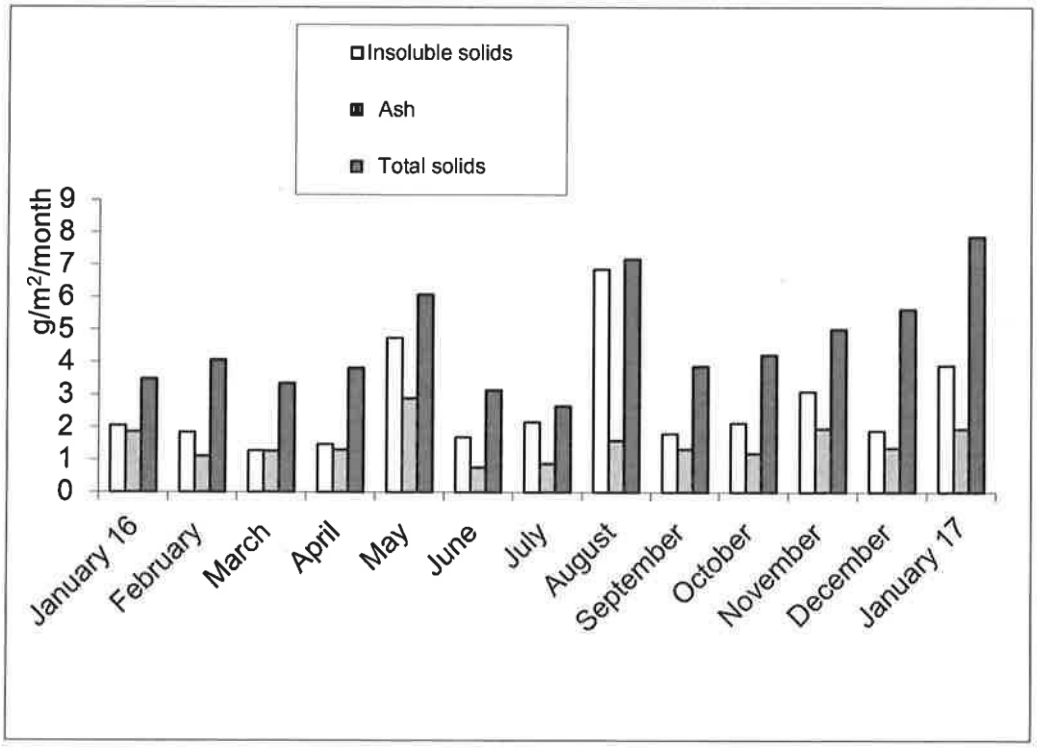
J.Graham, Mat. File, File.

Approved Signatory _____ **M. Abdulnebe**

Date 9.02.17 Serial No. 153751

Dust Monitoring
MAROOTA Site 1
Maroota Public School

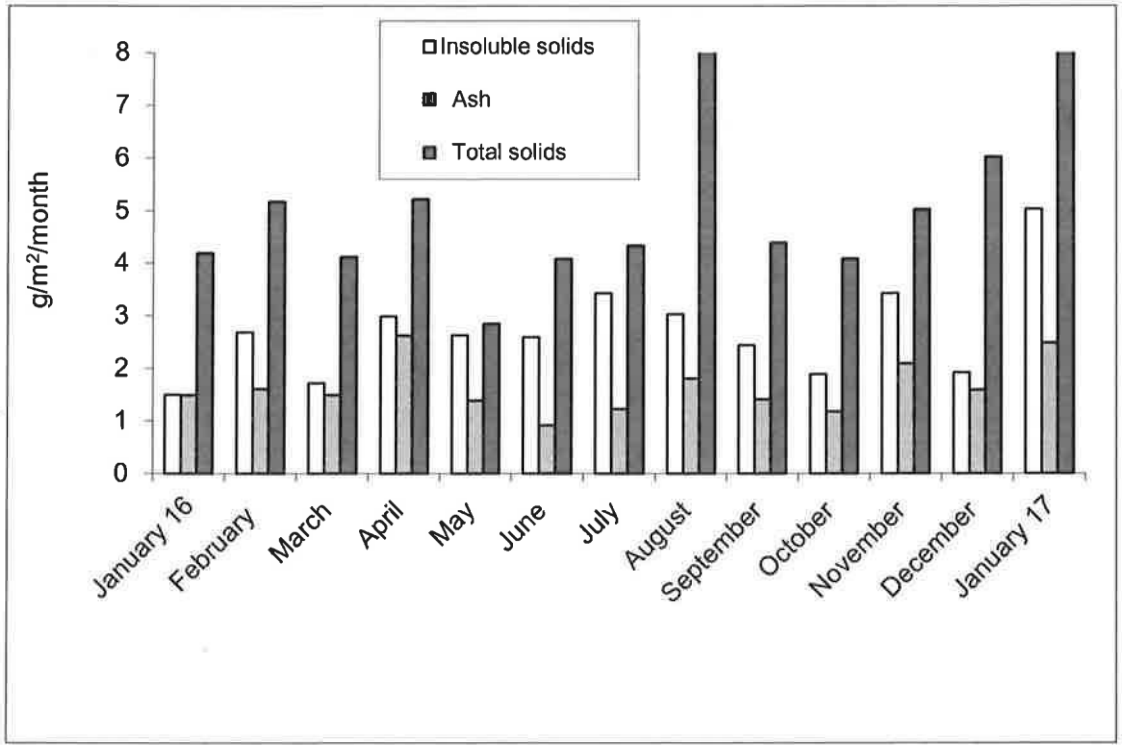
	Insoluble solids	Ash	Total solids
January 16	2.05	1.86	3.48
February	1.84	1.11	4.06
March	1.28	1.27	3.34
April	1.47	1.30	3.82
May	4.75	2.89	6.08
June	1.69	0.76	3.13
July	2.16	0.88	2.65
August	6.86	1.59	7.18
September	1.80	1.32	3.88
October	2.13	1.20	4.22
November	3.09	1.96	5.01
December	1.89	1.36	5.63
January 17	3.90	1.95	7.87



* NSW-EPA - Approved Methods and Guidance- For the Modelling and Assessment of Air Pollutants in New South Wales - AUGUST 2005 (pg 28)

Dust Monitoring
MAROOTA Site 2
Hitchcock Road

	Insoluble solids	Ash	Total solids
January 16	1.50	1.49	4.19
February	2.68	1.61	5.17
March	1.72	1.49	4.12
April	2.99	2.62	5.22
May	2.63	1.39	2.85
June	2.59	0.92	4.08
July	3.43	1.23	4.34
August	3.03	1.81	8.06
September	2.44	1.41	4.39
October	1.89	1.18	4.09
November	3.43	2.09	5.02
December	1.92	1.59	6.02
January 17	5.03	2.48	12.17



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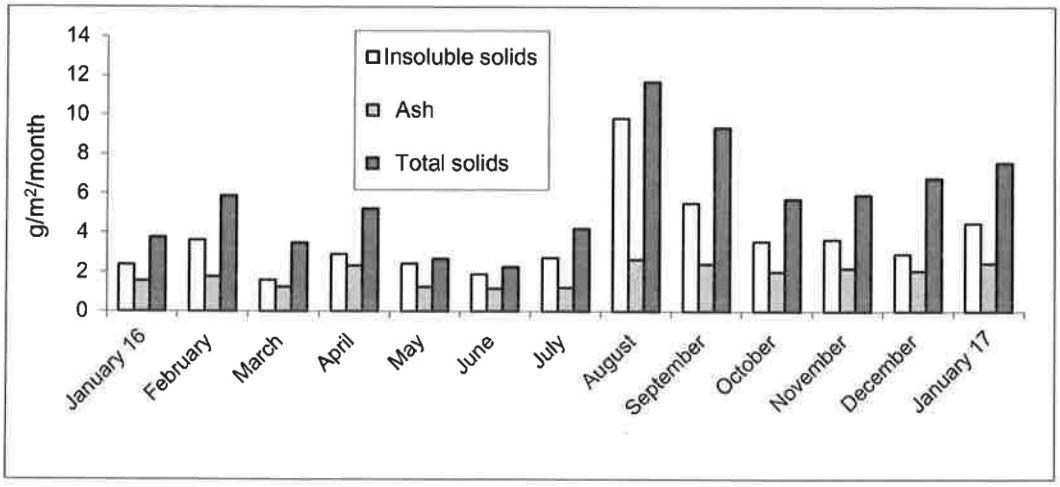
Dust Monitoring
MAROOTA Site 3
Jurd's House

	Insoluble solids	Ash	Total solids
January 16	2.38	1.56	3.76
February	3.61	1.77	5.87
March	1.59	1.25	3.48
April	2.90	2.32	5.21
May	2.43	1.24	2.67
June	1.89	1.16	2.26
July	2.72	1.22	4.20
August	9.82	2.64	11.68
September	5.50	2.41	9.35
October	3.55	2.01	5.70
November	3.64	2.2	5.92
December	2.91	2.06	6.77
January 17	4.49	2.45	7.57



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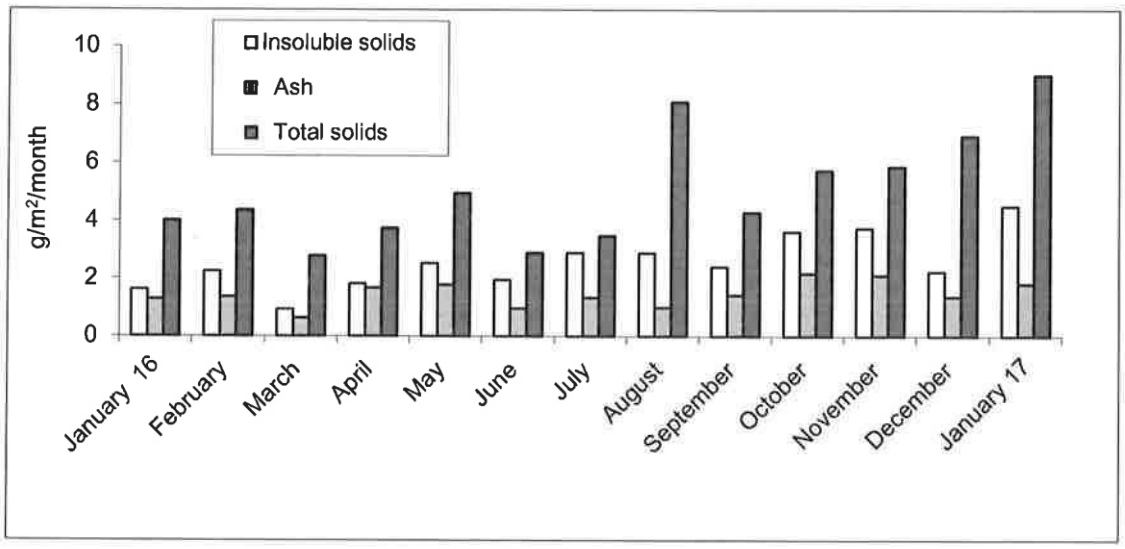
Dust Monitoring
MAROOTA Site 4
Lot 2 DP 510812

	Insoluble solids	Ash	Total solids
January 16	1.62	1.29	4.01
February	2.25	1.36	4.36
March	0.93	0.63	2.78
April	1.82	1.67	3.74
May	2.53	1.78	4.95
June	1.95	0.97	2.89
July	2.89	1.34	3.48
August	2.88	1.00	8.09
September	2.40	1.43	4.28
October	3.62	2.18	5.73
November	3.74	2.12	5.85
December	2.24	1.37	6,91
January 17	4.50	1.82	9.01



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TEST REPORT

CLIENT: P.F. FORMATION — FILE No: 250 / 17

1774 Wisemans Ferry Road Maroota NSW 2756

PROJECT: Gravimetric Dust Monitoring at Maroota for February 2017 — REQUEST No.:71978

TEST PROCEDURE: AS 3580.10.1 – 2003 – Methods for Sampling and Analysis of Ambient Air Method 10.1 – Determination of Particulate Matter - Deposited Matter – Gravimetric Method

Lab Sample Number:	189265	189266	189267	189268
Site Location Number:	1	2	3	4
Sample Description:		Dust		
Sampling Period:	From	1.02.17	to	1.03.17

TEST RESULTS:

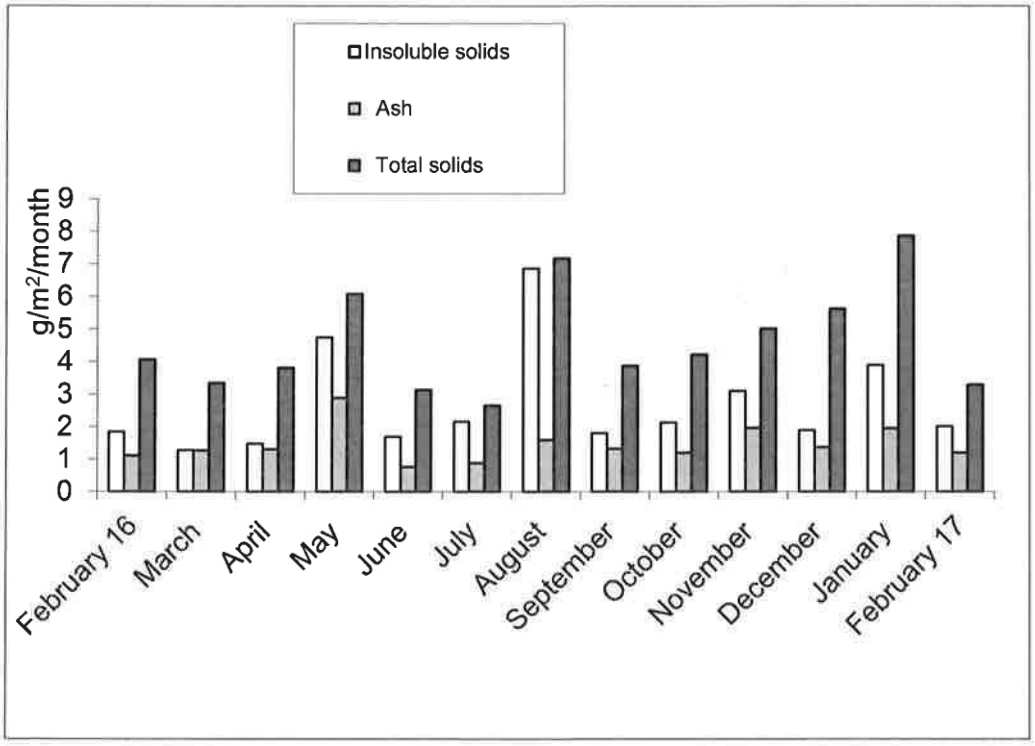
Insoluble Solids (g/m^2 month)	2.00	4.13	2.12	1.90
Ash (g/m^2 month)	1.20	2.57	1.58	1.21
Combustible Matter (g/m^2 month)	0.80	1.56	0.54	0.69
Soluble Matter (g/m^2 month)	1.29	3.06	1.45	0.82
Total Solids (g/m^2 month)	3.29	7.19	3.57	2.73
Volume of Liquid in the Gauge (ml)	2100	2200	2200	2200

Notes:
- Refer to attached graphs.
- Samples submitted by the Client.

J.Graham, Mat. File, File.

Dust Monitoring
MAROOTA Site 1
Maroota Public School

	Insoluble solids	Ash	Total solids
February 16	1.84	1.11	4.06
March	1.28	1.27	3.34
April	1.47	1.30	3.82
May	4.75	2.89	6.08
June	1.69	0.76	3.13
July	2.16	0.88	2.65
August	6.86	1.59	7.18
September	1.80	1.32	3.88
October	2.13	1.20	4.22
November	3.09	1.96	5.01
December	1.89	1.36	5.63
January	3.90	1.95	7.87
February 17	2.00	1.20	3.29



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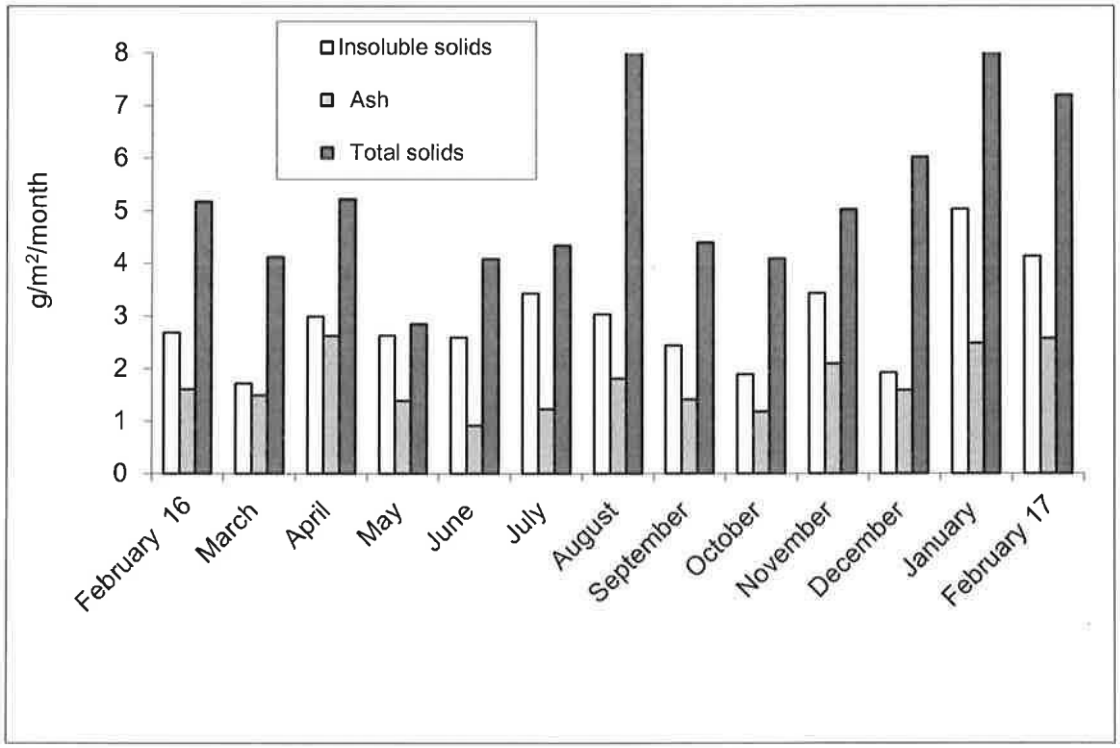
Dust Monitoring
MAROOTA Site 2
Hitchcock Road

	Insoluble solids	Ash	Total solids
February 16	2.68	1.61	5.17
March	1.72	1.49	4.12
April	2.99	2.62	5.22
May	2.63	1.39	2.85
June	2.59	0.92	4.08
July	3.43	1.23	4.34
August	3.03	1.81	8.06
September	2.44	1.41	4.39
October	1.89	1.18	4.09
November	3.43	2.09	5.02
December	1.92	1.59	6.02
January	5.03	2.48	12.17
February 17	4.13	2.57	7.19



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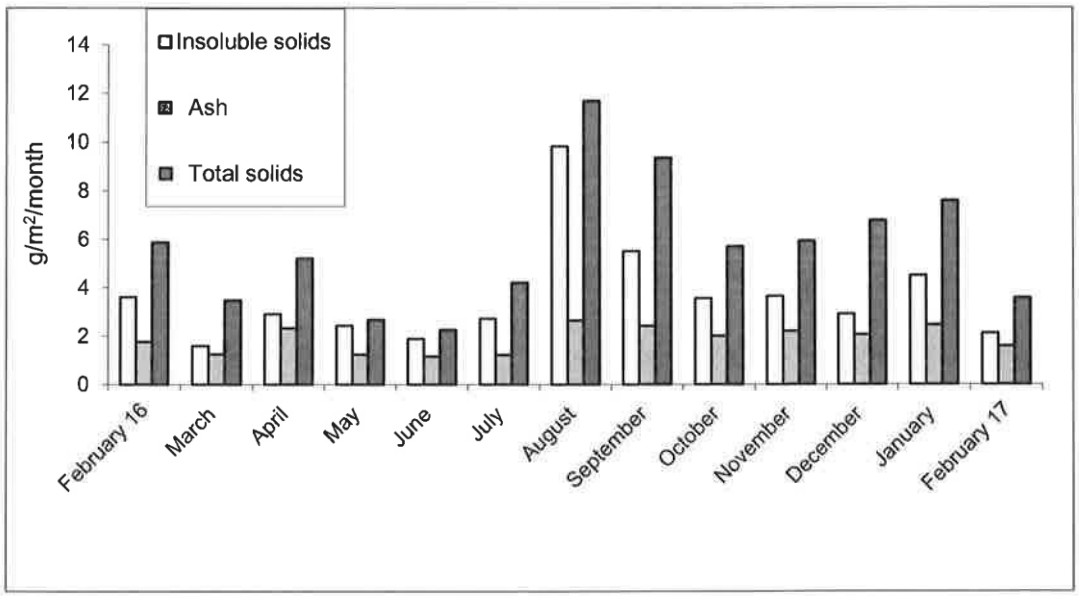
Dust Monitoring
MAROOTA Site 3
Jurd's House

	Insoluble solids	Ash	Total solids
February 16	3.61	1.77	5.87
March	1.59	1.25	3.48
April	2.90	2.32	5.21
May	2.43	1.24	2.67
June	1.89	1.16	2.26
July	2.72	1.22	4.20
August	9.82	2.64	11.68
September	5.50	2.41	9.35
October	3.55	2.01	5.70
November	3.64	2.2	5.92
December	2.91	2.06	6.77
January	4.49	2.45	7.57
February 17	2.12	1.58	3.57



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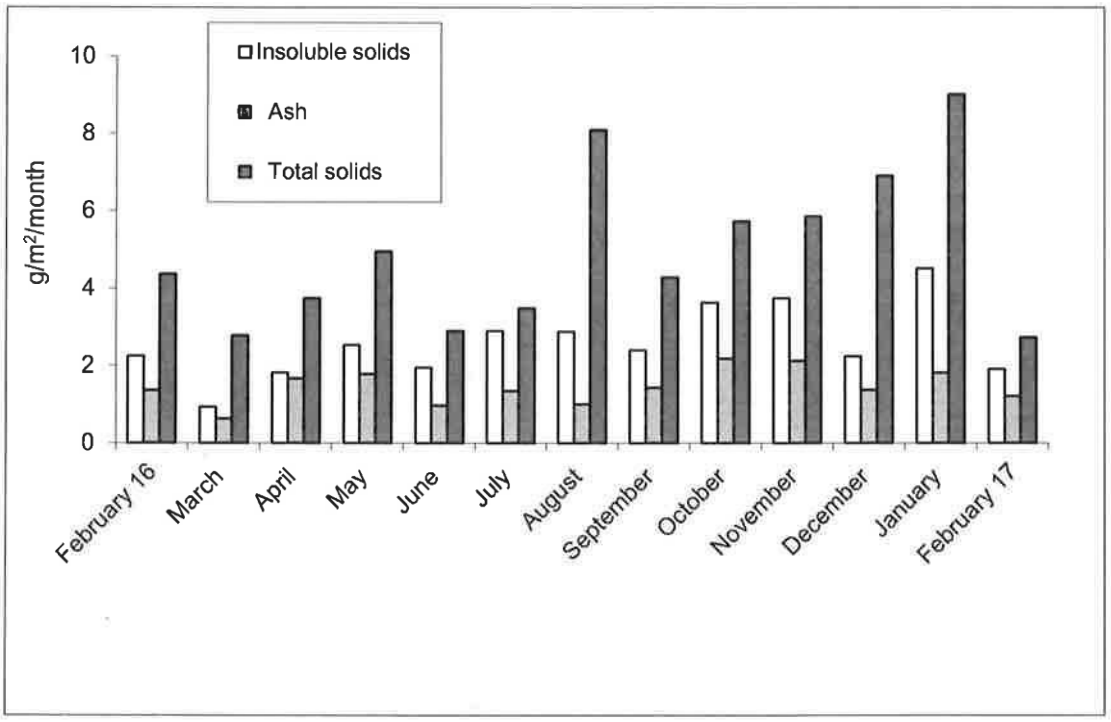
Dust Monitoring
MAROOTA Site 4
Lot 2 DP 510812

	Insoluble solids	Ash	Total solids
February 16	2.25	1.36	4.36
March	0.93	0.63	2.78
April	1.82	1.67	3.74
May	2.53	1.78	4.95
June	1.95	0.97	2.89
July	2.89	1.34	3.48
August	2.88	1.00	8.09
September	2.40	1.43	4.28
October	3.62	2.18	5.73
November	3.74	2.12	5.85
December	2.24	1.37	6.91
January	4.50	1.82	9.01
February 17	1.90	1.21	2.73



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TEST REPORT

CLIENT: P.F. FORMATION

1774 Wisemans Ferry Road Maroota NSW 2756

FILE No: 250 / 17

PROJECT: Gravimetric Dust Monitoring at Maroota for March 2017

REQUEST No.:72409

TEST PROCEDURE: AS 3580.10.1 – 2003 – Methods for Sampling and Analysis of Ambient Air Method 10.1 – Determination of Particulate Matter - Deposited Matter – Gravimetric Method

Lab Sample Number:	190495	190496	190497	190498
Site Location Number:	1	2	3	4
Sample Description:		Dust		
Sampling Period:	From	1.03.17	to	3.04.17

TEST RESULTS:

Insoluble Solids (g/m² month)	1.79	0.81	1.43	1.68
Ash (g/m² month)	0.84	0.43	0.71	0.75
Combustible Matter (g/m² month)	0.95	0.39	0.72	0.93
Soluble Matter (g/m² month)	2.47	0.85	1.47	1.65
Total Solids (g/m² month)	4.26	1.66	2.90	3.33
Volume of Liquid in the Gauge (ml)	5000	5000	5000	5000

Notes:

- Refer to attached graphs.
- Samples submitted by the Client.
- The samples collected were not covering the period as stipulated in the test method. Calculations based on 33 days of exposure

J.Graham, Mat. File, File.

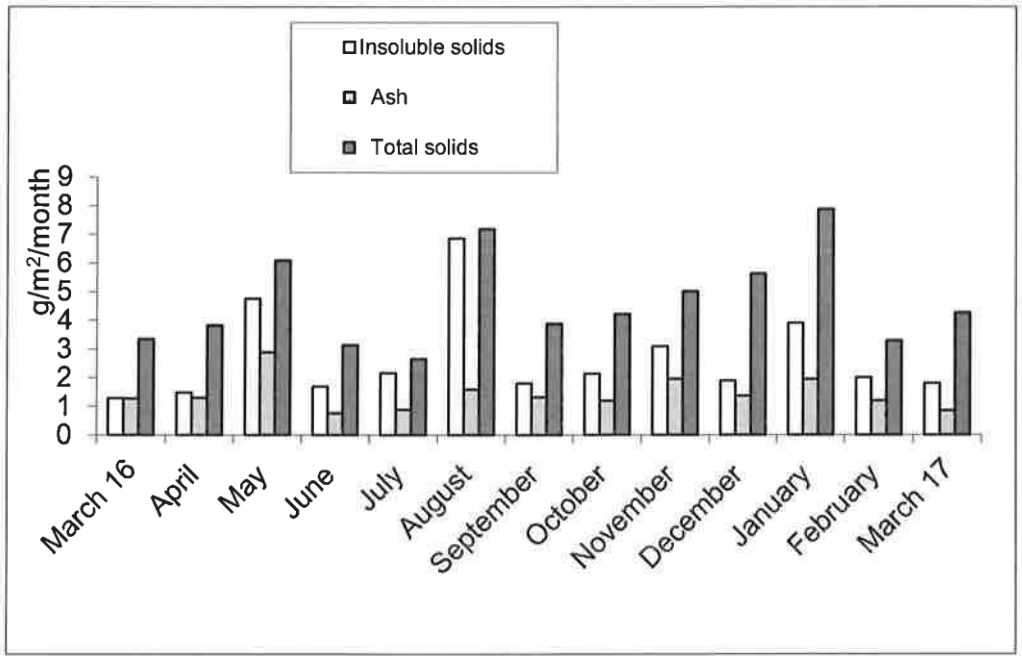
S. Krishnamoorthy

Approved Signatory _____

Date 10.4.17. Serial No. 155805

Dust Monitoring
MAROOTA Site 1
Maroota Public School

	Insoluble solids	Ash	Total solids
March 16	1.28	1.27	3.34
April	1.47	1.30	3.82
May	4.75	2.89	6.08
June	1.69	0.76	3.13
July	2.16	0.88	2.65
August	6.86	1.59	7.18
September	1.80	1.32	3.88
October	2.13	1.20	4.22
November	3.09	1.96	5.01
December	1.89	1.36	5.63
January	3.90	1.95	7.87
February	2.00	1.20	3.29
March 17	1.79	0.84	4.26



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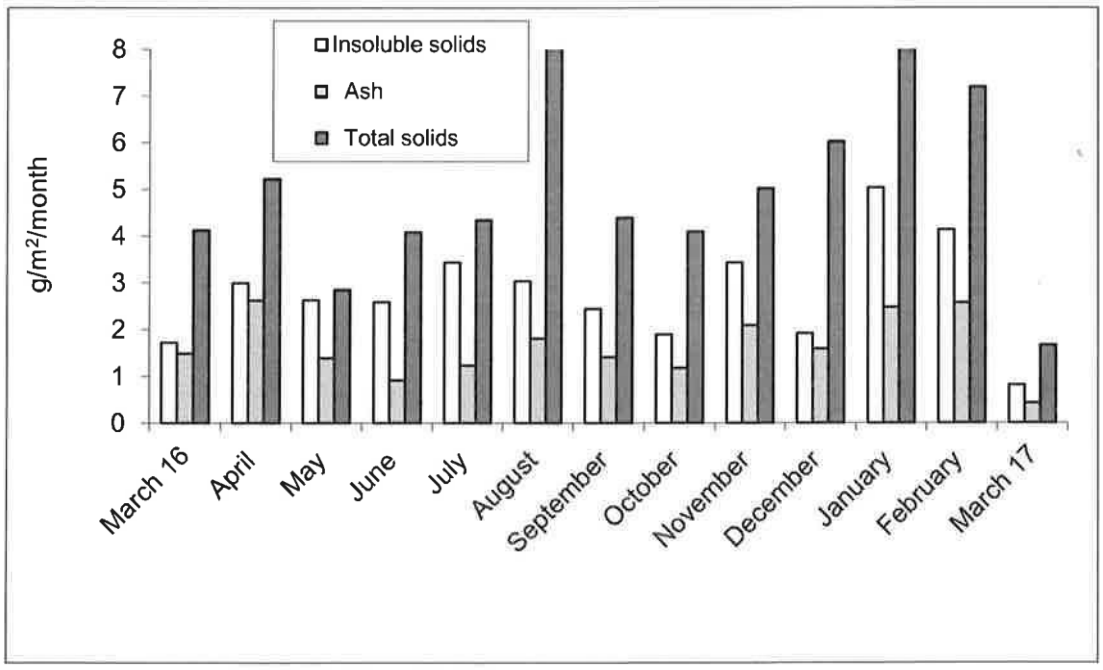
Dust Monitoring
MAROOTA Site 2
Hitchcock Road

	Insoluble solids	Ash	Total solids
March 16	1.72	1.49	4.12
April	2.99	2.62	5.22
May	2.63	1.39	2.85
June	2.59	0.92	4.08
July	3.43	1.23	4.34
August	3.03	1.81	8.06
September	2.44	1.41	4.39
October	1.89	1.18	4.09
November	3.43	2.09	5.02
December	1.92	1.59	6.02
January	5.03	2.48	12.17
February	4.13	2.57	7.19
March 17	0.81	0.43	1.66



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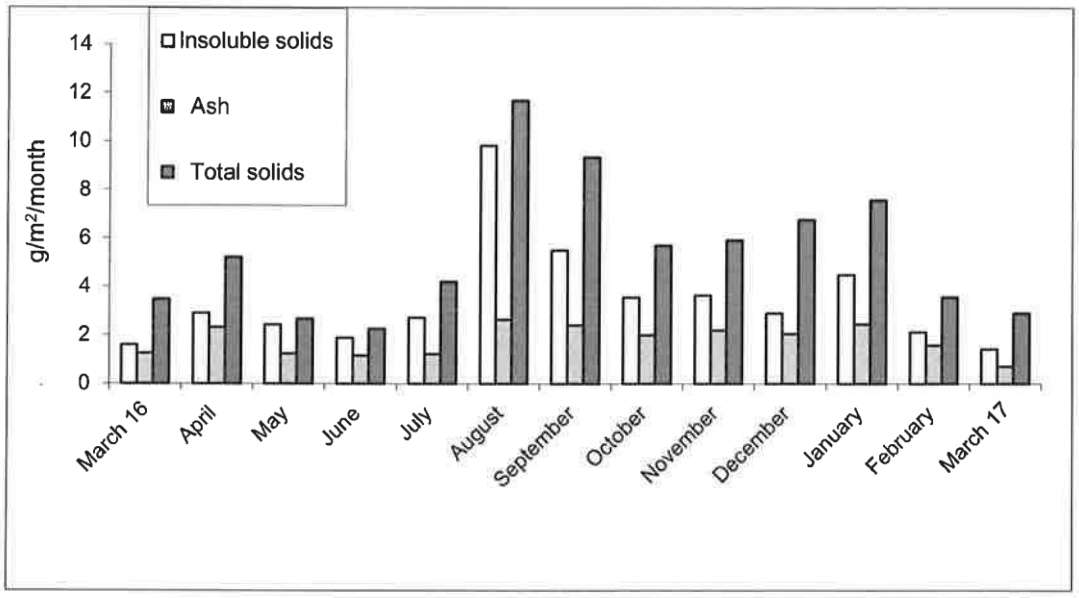
Dust Monitoring
MAROOTA Site 3
Jurd's House

	Insoluble solids	Ash	Total solids
March 16	1.59	1.25	3.48
April	2.90	2.32	5.21
May	2.43	1.24	2.67
June	1.89	1.16	2.26
July	2.72	1.22	4.20
August	9.82	2.64	11.68
September	5.50	2.41	9.35
October	3.55	2.01	5.70
November	3.64	2.2	5.92
December	2.91	2.06	6.77
January	4.49	2.45	7.57
February	2.12	1.58	3.57
March 17	1.43	0.71	2.90



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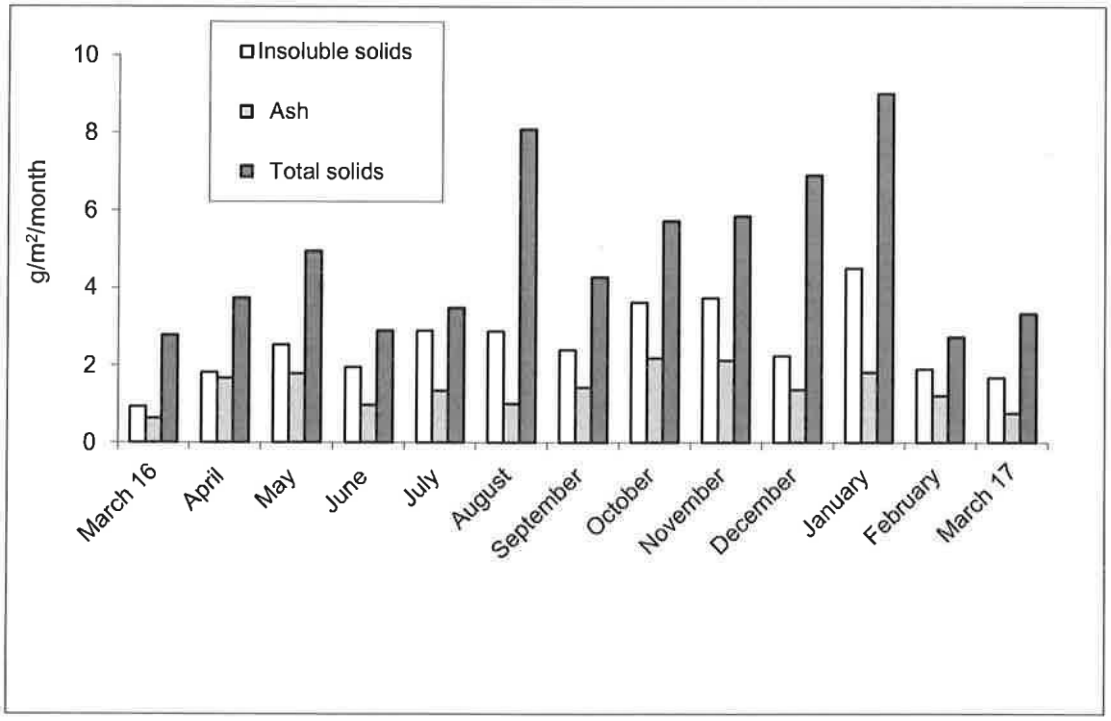
Dust Monitoring
MAROOTA Site 4
Lot 2 DP 510812

	Insoluble solids	Ash	Total solids
March 16	0.93	0.63	2.78
April	1.82	1.67	3.74
May	2.53	1.78	4.95
June	1.95	0.97	2.89
July	2.89	1.34	3.48
August	2.88	1.00	8.09
September	2.40	1.43	4.28
October	3.62	2.18	5.73
November	3.74	2.12	5.85
December	2.24	1.37	6.91
January	4.50	1.82	9.01
February	1.90	1.21	2.73
March 17	1.68	0.75	3.33



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TEST REPORT

CLIENT: P.F. FORMATION — FILE No: 250 / 17

1774 Wisemans Ferry Road Maroota NSW 2756

PROJECT: Gravimetric Dust Monitoring at Maroota for April 2017 — REQUEST No.:72947

TEST PROCEDURE: AS 3580.10.1 – 2003 – Methods for Sampling and Analysis of Ambient Air Method 10.1 – Determination of Particulate Matter - Deposited Matter – Gravimetric Method

Lab Sample Number:	191749	191750	191751	191752
Site Location Number:	1	2	3	4
Sample Description:		Dust		
Sampling Period:	From	3.04.17	to	1.05.17

TEST RESULTS:

Insoluble Solids (g/m² month)	2.18	2.40	1.75	1.59
Ash (g/m² month)	1.12	1.42	1.36	0.95
Combustible Matter (g/m² month)	1.06	0.98	0.39	0.65
Soluble Matter (g/m² month)	2.32	2.03	2.55	1.57
Total Solids (g/m² month)	4.50	4.43	4.30	3.16
Volume of Liquid in the Gauge (ml)	800	800	800	800

Notes:
- Refer to attached graphs.
- Samples submitted by the Client.

J.Graham, Mat. File, File.

NATA ACCREDITED FOR TECHNICAL COMPETENCE

Approved Signatory S. Krishnamoorthy

Date 11.5.17. Serial No. 156991

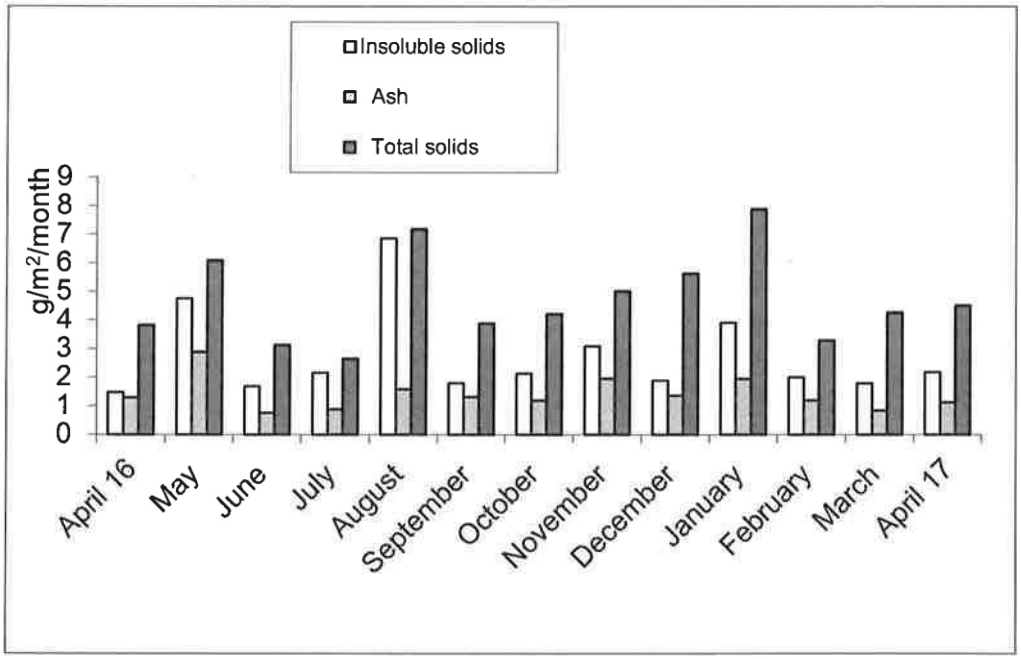
Accredited for compliance with ISO/IEC 17025

NATA Accredited Laboratory

Number: 9968

Dust Monitoring
MAROOTA Site 1
Maroota Public School

	Insoluble solids	Ash	Total solids
April 16	1.47	1.30	3.82
May	4.75	2.89	6.08
June	1.69	0.76	3.13
July	2.16	0.88	2.65
August	6.86	1.59	7.18
September	1.80	1.32	3.88
October	2.13	1.20	4.22
November	3.09	1.96	5.01
December	1.89	1.36	5.63
January	3.90	1.95	7.87
February	2.00	1.20	3.29
March	1.79	0.84	4.26
April 17	2.18	1.12	4.50



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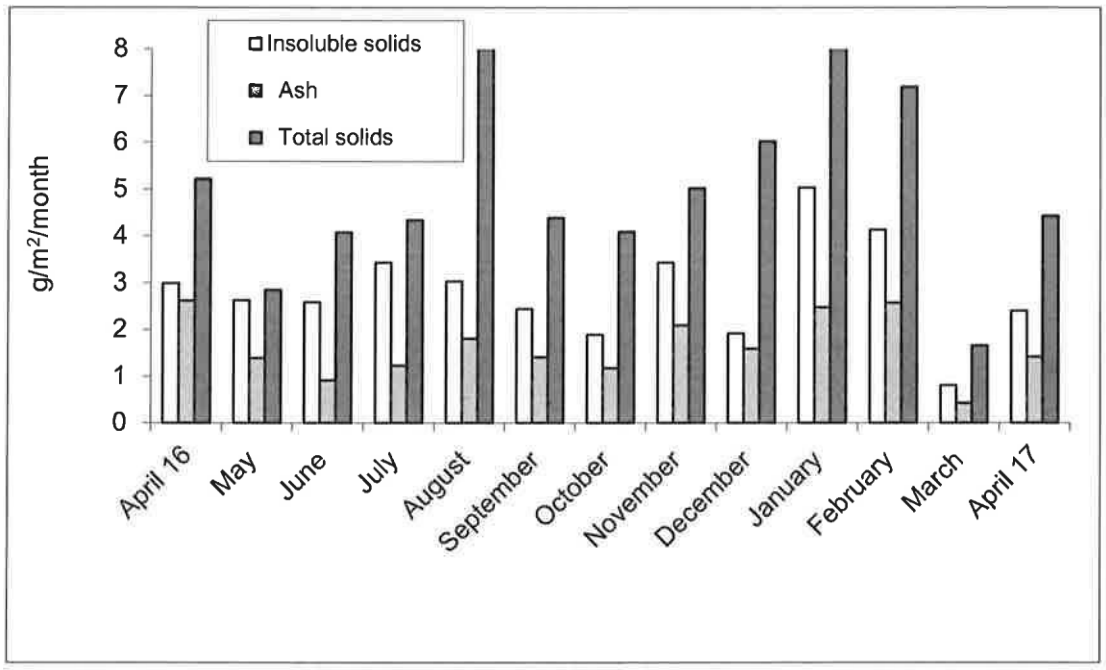
Dust Monitoring
MAROOTA Site 2
Hitchcock Road

	Insoluble solids	Ash	Total solids
April 16	2.99	2.62	5.22
May	2.63	1.39	2.85
June	2.59	0.92	4.08
July	3.43	1.23	4.34
August	3.03	1.81	8.06
September	2.44	1.41	4.39
October	1.89	1.18	4.09
November	3.43	2.09	5.02
December	1.92	1.59	6.02
January	5.03	2.48	12.17
February	4.13	2.57	7.19
March	0.81	0.43	1.66
April 17	2.40	1.42	4.43



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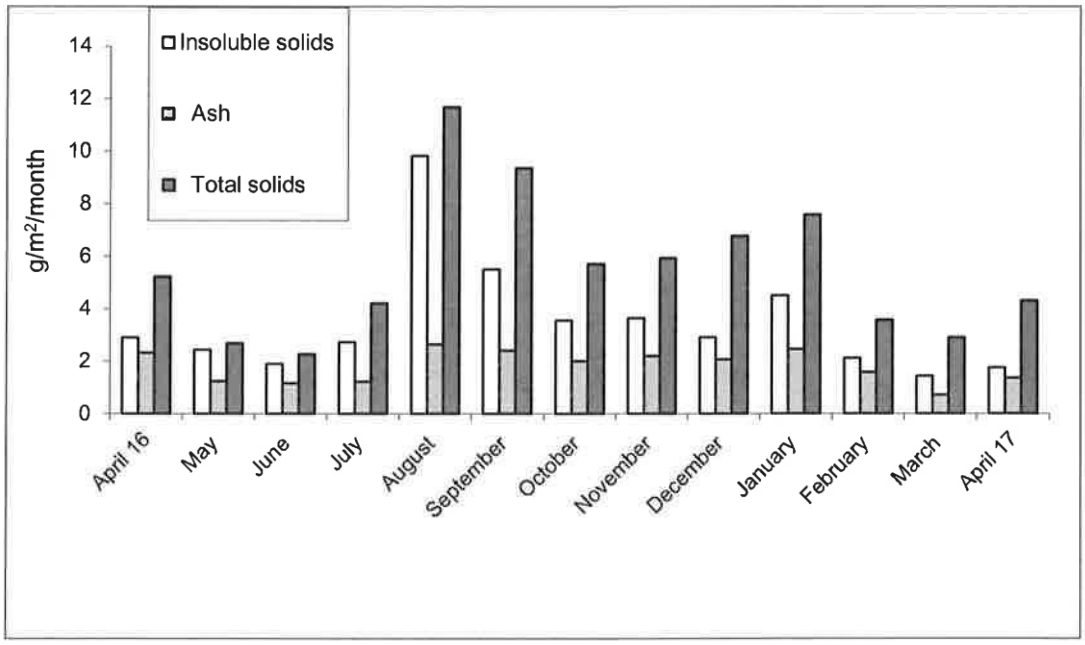
Dust Monitoring
MAROOTA Site 3
Jurd's House

	Insoluble solids	Ash	Total solids
April 16	2.90	2.32	5.21
May	2.43	1.24	2.67
June	1.89	1.16	2.26
July	2.72	1.22	4.20
August	9.82	2.64	11.68
September	5.50	2.41	9.35
October	3.55	2.01	5.70
November	3.64	2.2	5.92
December	2.91	2.06	6.77
January	4.49	2.45	7.57
February	2.12	1.58	3.57
March	1.43	0.71	2.90
April 17	1.75	1.36	4.30



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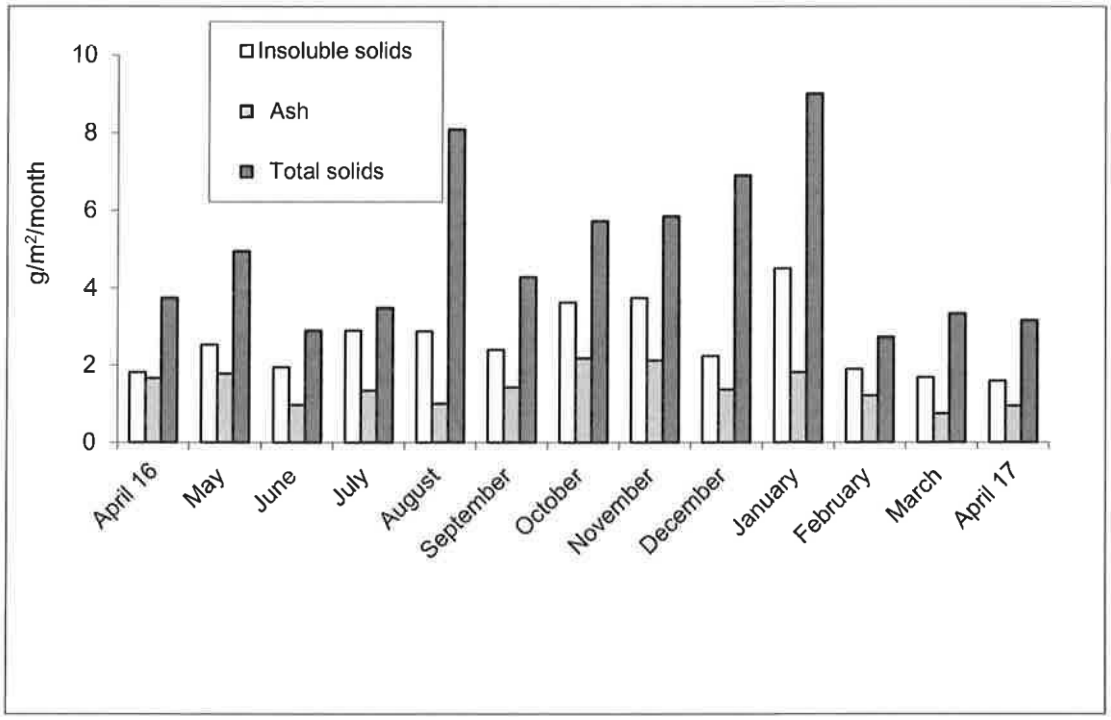
Dust Monitoring
MAROOTA Site 4
Lot 2 DP 510812

	Insoluble solids	Ash	Total solids
April 16	1.82	1.67	3.74
May	2.53	1.78	4.95
June	1.95	0.97	2.89
July	2.89	1.34	3.48
August	2.88	1.00	8.09
September	2.40	1.43	4.28
October	3.62	2.18	5.73
November	3.74	2.12	5.85
December	2.24	1.37	6.91
January	4.50	1.82	9.01
February	1.90	1.21	2.73
March	1.68	0.75	3.33
April 17	1.59	0.95	3.16



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TEST REPORT

CLIENT: P.F. FORMATION

1774 Wisemans Ferry Road Maroota NSW 2756

FILE No: 250 / 17

PROJECT: Gravimetric Dust Monitoring at Maroota for May 2017

REQUEST No.:73454

TEST PROCEDURE: AS 3580.10.1 – 2003 – Methods for Sampling and Analysis of Ambient Air Method 10.1 – Determination of Particulate Matter - Deposited Matter – Gravimetric Method

Lab Sample Number:	192943	192944	192945	192946
Site Location Number:	1	2	3	4
Sample Description:	Dust			
Sampling Period:	From	1.05.17	to	1.06.17

TEST RESULTS:

Insoluble Solids (g/m^2 month)	3.05	2.13	2.84	2.09
Ash (g/m^2 month)	1.48	1.16	1.55	1.12
Combustible Matter (g/m^2 month)	1.57	0.97	1.29	0.97
Soluble Matter (g/m^2 month)	1.52	0.50	1.18	1.24
Total Solids (g/m^2 month)	4.56	2.63	4.02	3.33
Volume of Liquid in the Gauge (ml)	600	600	700	500

Notes:
- Refer to attached graphs.
- Samples submitted by the Client.

J.Graham, Mat. File, File.

NATA
ACCREDITED FOR TECHNICAL COMPETENCE

Approved Signatory S. Krishnamoorthy

Date 8.6.17. Serial No. 158093

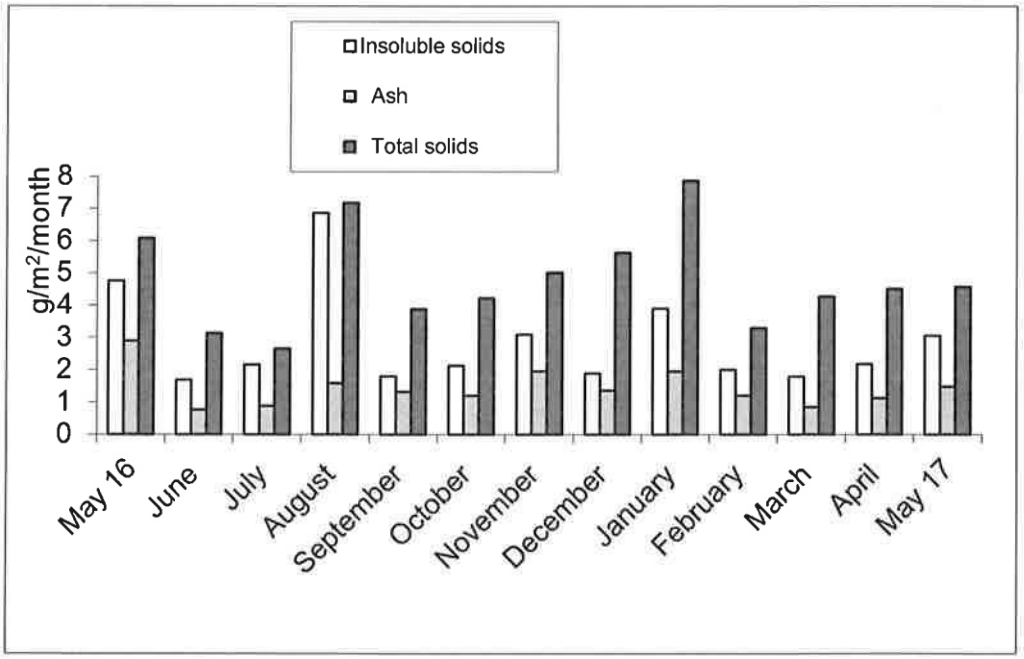
Accredited for compliance with ISO/IEC 17025

NATA Accredited Laboratory

Number: 9968

Dust Monitoring
MAROOTA Site 1
Maroota Public School

	Insoluble solids	Ash	Total solids
May 16	4.75	2.89	6.08
June	1.69	0.76	3.13
July	2.16	0.88	2.65
August	6.86	1.59	7.18
September	1.80	1.32	3.88
October	2.13	1.20	4.22
November	3.09	1.96	5.01
December	1.89	1.36	5.63
January	3.90	1.95	7.87
February	2.00	1.20	3.29
March	1.79	0.84	4.26
April	2.18	1.12	4.50
May 17	3.05	1.48	4.56



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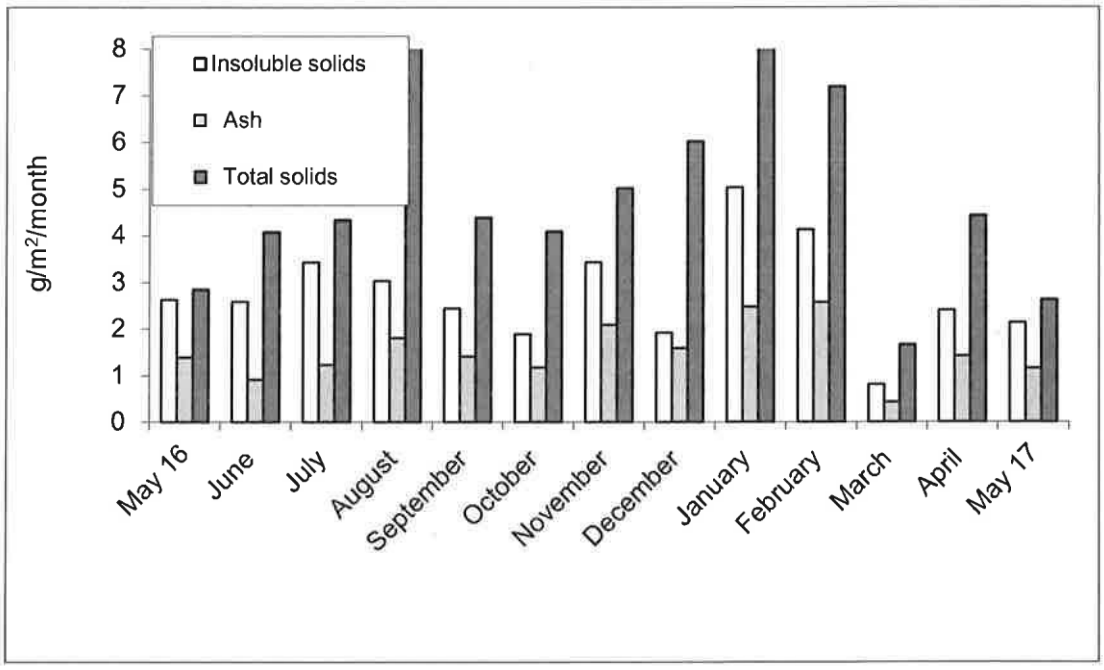
Dust Monitoring
MAROOTA Site 2
Hitchcock Road

	Insoluble solids	Ash	Total solids
May 16	2.63	1.39	2.85
June	2.59	0.92	4.08
July	3.43	1.23	4.34
August	3.03	1.81	8.06
September	2.44	1.41	4.39
October	1.89	1.18	4.09
November	3.43	2.09	5.02
December	1.92	1.59	6.02
January	5.03	2.48	12.17
February	4.13	2.57	7.19
March	0.81	0.43	1.66
April	2.40	1.42	4.43
May 17	2.13	1.16	2.63



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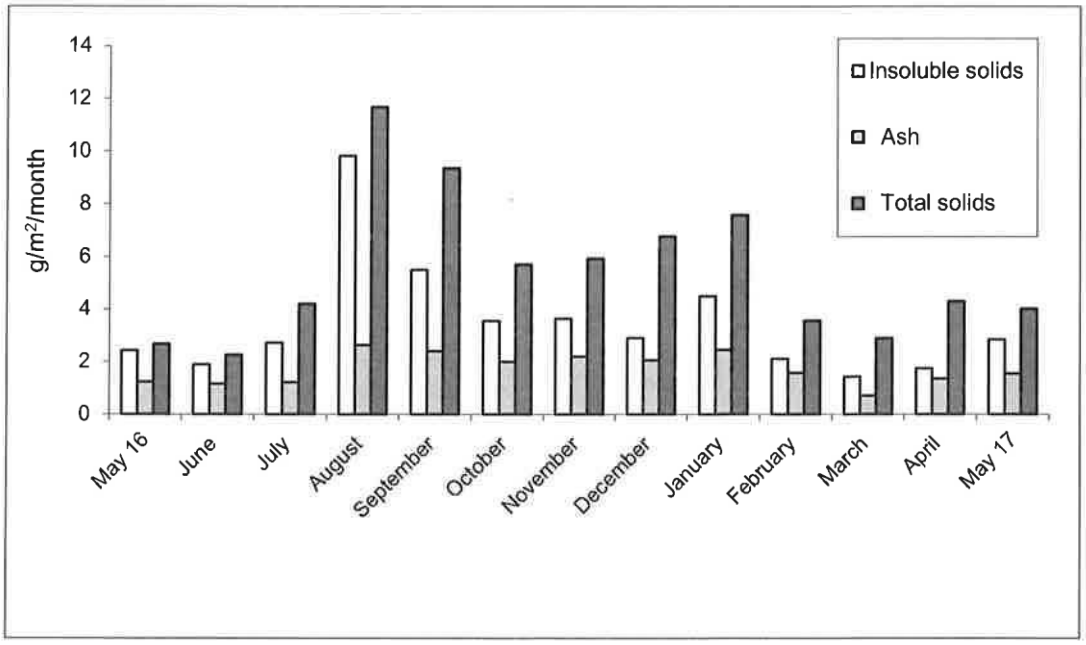
Dust Monitoring
MAROOTA Site 3
Jurd's House

	Insoluble solids	Ash	Total solids
May 16	2.43	1.24	2.67
June	1.89	1.16	2.26
July	2.72	1.22	4.20
August	9.82	2.64	11.68
September	5.50	2.41	9.35
October	3.55	2.01	5.70
November	3.64	2.2	5.92
December	2.91	2.06	6.77
January	4.49	2.45	7.57
February	2.12	1.58	3.57
March	1.43	0.71	2.90
April	1.75	1.36	4.30
May 17	2.84	1.55	4.02



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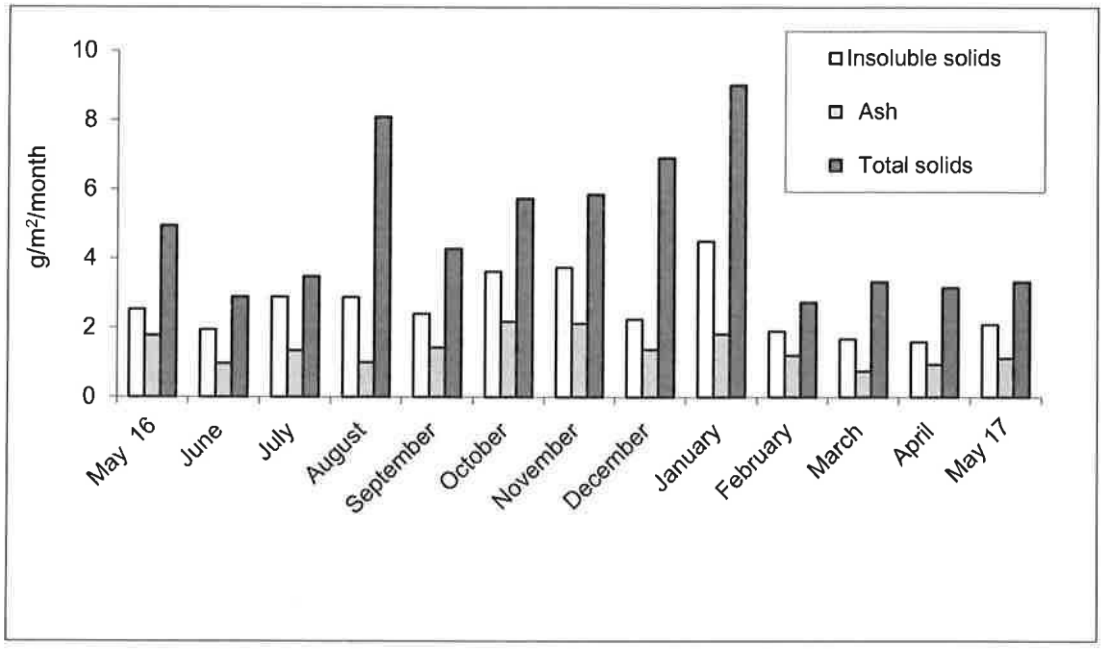
Dust Monitoring
MAROOTA Site 4
Lot 2 DP 510812

	Insoluble solids	Ash	Total solids
May 16	2.53	1.78	4.95
June	1.95	0.97	2.89
July	2.89	1.34	3.48
August	2.88	1.00	8.09
September	2.40	1.43	4.28
October	3.62	2.18	5.73
November	3.74	2.12	5.85
December	2.24	1.37	6.91
January	4.50	1.82	9.01
February	1.90	1.21	2.73
March	1.68	0.75	3.33
April	1.59	0.95	3.16
May 17	2.09	1.12	3.33



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TEST REPORT

CLIENT: P.F. FORMATION
1774 Wisemans Ferry Road Maroota NSW 2756

FILE No: 250 / 17

PROJECT: Gravimetric Dust Monitoring at Maroota for June 2017

REQUEST No.:73900

TEST PROCEDURE: AS 3580.10.1 – 2003 – Methods for Sampling and Analysis of Ambient Air Method 10.1 – Determination of Particulate Matter - Deposited Matter – Gravimetric Method

Lab Sample Number:	194063	194064	194065	194066
Site Location Number:	1	2	3	4
Sample Description:		Dust		
Sampling Period:	From	1.06.17	to	3.07.17

TEST RESULTS:

Insoluble Solids (g/m² month)	1.63	2.16	3.32	1.38
Ash (g/m² month)	0.91	1.42	2.10	0.88
Combustible Matter (g/m² month)	0.72	0.75	1.23	0.51
Soluble Matter (g/m² month)	0.95	0.86	2.62	0.56
Total Solids (g/m² month)	2.58	3.02	5.94	1.95
Volume of Liquid in the Gauge (ml)	2200	2200	2200	2300

Notes:
- Refer to attached graphs.
- Samples submitted by the Client.

J.Graham, Mat. File, File.

Approved Signatory _____ M. Abdulnebe

Date 13.07.17 Serial No. 159000

NATA ACCREDITED FOR TECHNICAL COMPETENCE

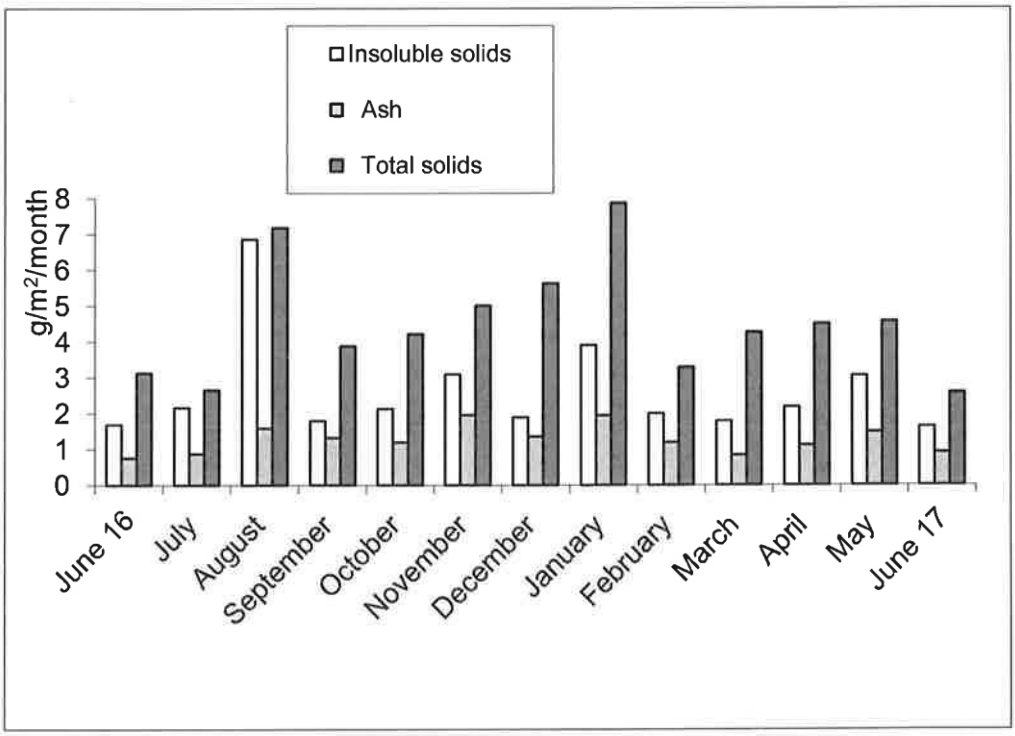
Accredited for compliance with ISO/IEC 17025

NATA Accredited Laboratory

Number: 9968

Dust Monitoring
MAROOTA Site 1
Maroota Public School

	Insoluble solids	Ash	Total solids
June 16	1.69	0.76	3.13
July	2.16	0.88	2.65
August	6.86	1.59	7.18
September	1.80	1.32	3.88
October	2.13	1.20	4.22
November	3.09	1.96	5.01
December	1.89	1.36	5.63
January	3.90	1.95	7.87
February	2.00	1.20	3.29
March	1.79	0.84	4.26
April	2.18	1.12	4.50
May	3.05	1.48	4.56
June 17	1.63	0.91	2.58



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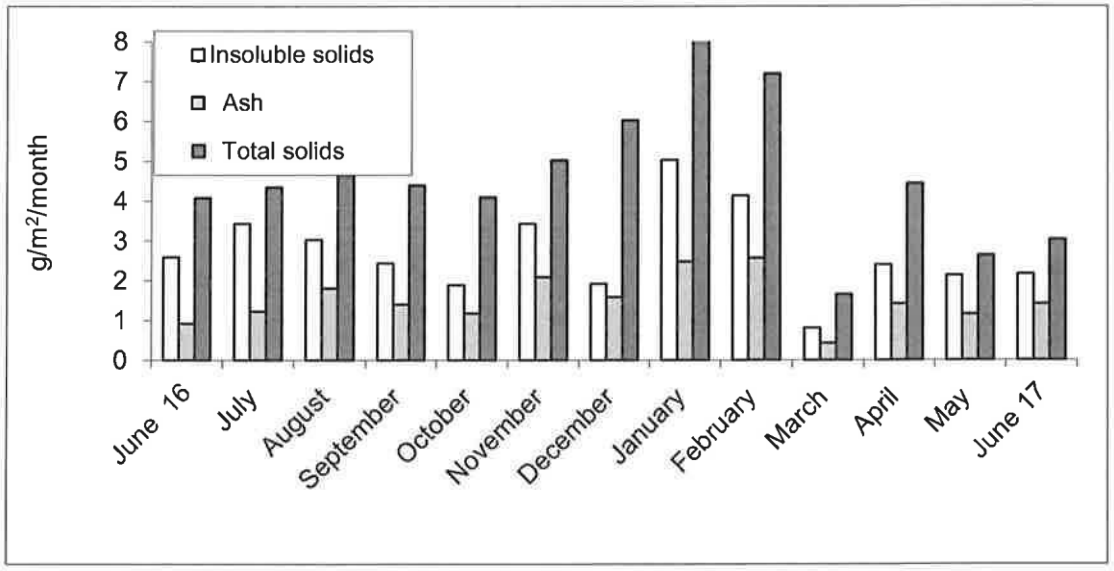
Dust Monitoring
MAROOTA Site 2
Hitchcock Road

	Insoluble solids	Ash	Total solids
June 16	2.59	0.92	4.08
July	3.43	1.23	4.34
August	3.03	1.81	8.06
September	2.44	1.41	4.39
October	1.89	1.18	4.09
November	3.43	2.09	5.02
December	1.92	1.59	6.02
January	5.03	2.48	12.17
February	4.13	2.57	7.19
March	0.81	0.43	1.66
April	2.40	1.42	4.43
May	2.13	1.16	2.63
June 17	2.16	1.42	3.02



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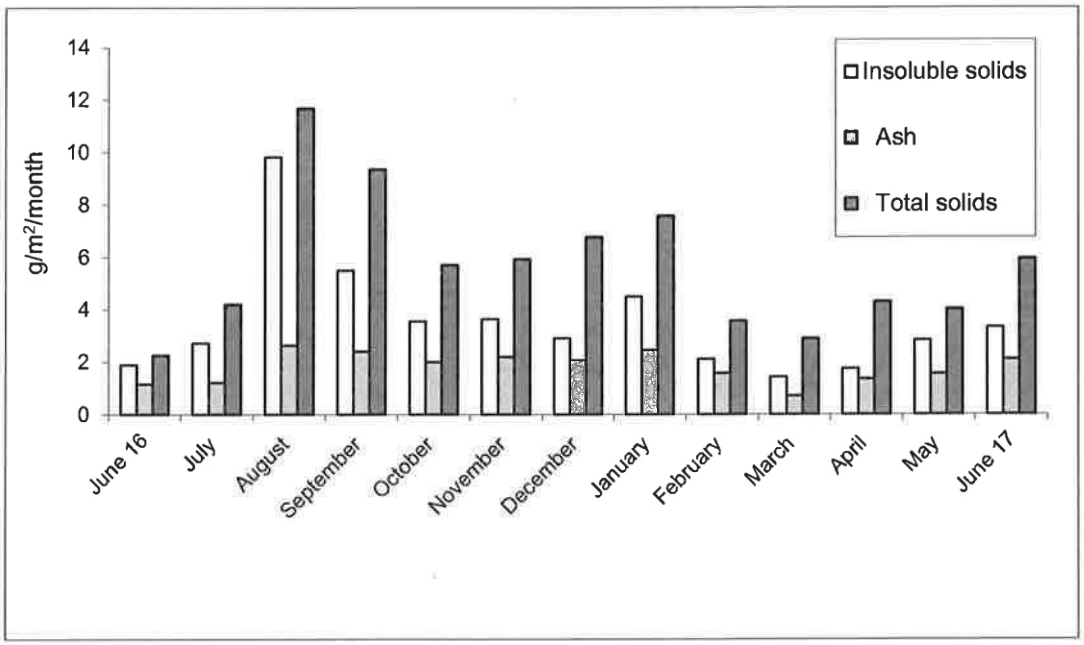
Dust Monitoring
MAROOTA Site 3
Jurd's House

	Insoluble solids	Ash	Total solids
June 16	1.89	1.16	2.26
July	2.72	1.22	4.20
August	9.82	2.64	11.68
September	5.50	2.41	9.35
October	3.55	2.01	5.70
November	3.64	2.2	5.92
December	2.91	2.06	6.77
January	4.49	2.45	7.57
February	2.12	1.58	3.57
March	1.43	0.71	2.90
April	1.75	1.36	4.30
May	2.84	1.55	4.02
June 17	3.32	2.10	5.94



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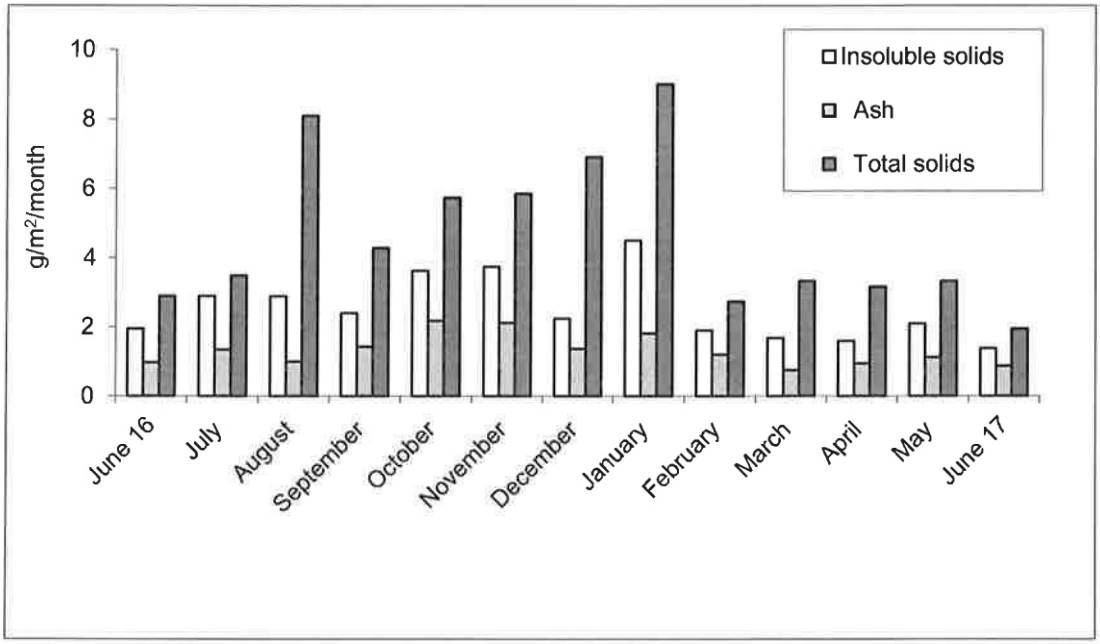
Dust Monitoring
MAROOTA Site 4
Lot 2 DP 510812

	Insoluble solids	Ash	Total solids
June 16	1.95	0.97	2.89
July	2.89	1.34	3.48
August	2.88	1.00	8.09
September	2.40	1.43	4.28
October	3.62	2.18	5.73
November	3.74	2.12	5.85
December	2.24	1.37	6.91
January	4.50	1.82	9.01
February	1.90	1.21	2.73
March	1.68	0.75	3.33
April	1.59	0.95	3.16
May	2.09	1.12	3.33
June 17	1.38	0.88	1.95



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