DUST MONITORING REPORT (OCTOBER TO DECEMBER 2024) CONCRUSH FACILITY, TERALBA

Prepared for CONCRUSH PTY LTD Prepared by RCA AUSTRALIA RCA ref 13589a-249/0 FEBRUARY 2025





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Contents

1	INTRODUCTION					
2	SITE II	DENTIFICATION AND DESCRIPTION	.2			
3	MONIT	ORING DETAILS	. 3			
	3.1 3.2	Guidelines Weather	.4 .6			
4	MONIT	ORING RESULTS	12			
	4.1 4.2	DEPOSITIONAL DUST GAUGES REAL TIME DUST MONITOR	12 15			
5	ASSES	SSMENT OF DUST MANAGEMENT EFFECTIVENESS	21			
6	LIMITA	TIONS	24			
REFE		ES	24			

APPENDIX A

FIELD SHEETS

APPENDIX B

LABORATORY REPORT SHEETS



RCA ref 13589a-249/0

RCA AUSTRALIA GEOTECHNICAL • ENVIRONMENTAL

Geotechnical Engineering Engineering Geology Environmental Engineering Hydrogeology Construction Materials Testing Environmental Monitoring Noise & Vibration Occupational Hygiene

19 February 2025

Concrush Pty Ltd 21 Racecourse Road Teralba NSW 2284

Attention: Kevin Thompson CC: Ross Lo Monaco

DUST MONITORING REPORT (OCTOBER TO DECEMBER 2024) CONCRUSH FACILITY, TERALBA

1 INTRODUCTION

This report presents the findings of dust monitoring undertaken at the Concrush resource recovery facility, situated in Teralba that covers the period between 1st October 2024 and 31st December 2024, noting that due to the Christmas / New Year closure of the site that the December dust samples were collected in January 2025.

The site was an operational facility over the entirety of the monitored area for the reporting period. Some construction is ongoing in the northern portion of the site for Sediment Basin 1 and the new weighbridge.

The monitoring undertaken has been detailed in an Operational Air Quality Management Plan (OAQMP, Ref [1]).

2 SITE IDENTIFICATION AND DESCRIPTION

The site is described as 21 Racecourse Road, Teralba and part Lot 2, DP 220347. Additional site details are shown in **Table 1** and the site extent is shown in **Figure 1** below.

Current zoning (Ref [2])	E5 – Heavy Industrial.		
Current use	Concrush resource recovery facility.		
Size of site	Approximately 4.8ha.		
Surrounding land use to the:			
	Lot 1 DP220347.		
North	Industrial – storage yard for pre-cast concrete panels operated by others.		
Courth	Part of Lot 2 DP220347.		
South	Industrial – scrap metal recycling yard operated by others.		
East	Racecourse Road and then Cockle Creek.		
West	Main Northern Rail line and then wetlands.		
Nearest sensitive receptor (human health)	Residential housing, located approximately 360m southeast across Cockle Creek.		
Nearest sensitive receptor (environmental)	Cockle Creek, located approximately 35m east and wetland approximately 30m west.		

Table 1Site Details



Figure 1 Project Site Location and Layout (aerial as of 26 June 2024)



3 MONITORING DETAILS

A total of five (5) monitoring locations are situated on site as shown in **Figure 2** below. At four (4) of these locations (DG1A-DG4A) there are dust depositional bottles situated on stands installed¹ in accordance with the relevant Australian Standard (Ref [3]). An additional dust gauge (DG5A) is situated on the southern portion of the roof of the office adjacent to the weigh station along with the real-time dust monitor.



Figure 2 Approximate Placement of Dust Deposition Gauges and Real Time Monitor (aerial as of 26 June 2024).

¹ It is noted that DG3A may be partially obscured by the nearby maintenance building depending on the wind direction and particle size.



3.1 GUIDELINES

The NSW EPA guidelines (Ref [4]) nominate the criteria for depositional dust as detailed in **Table 2** below.

Table 2	Depositional Dust:	Impact Assessment Criteria
---------	--------------------	----------------------------

Average	Maximum increase in	Maximum total deposited dust level	Sampling	
Period	deposited dust level		Frequency	
Annual 2.0g/m ² /month		4.0g/m ² /month	Monthly	

The NSW EPA guidelines (Ref [4]) nominate additional criteria:

- Particulate matter less than 2.5 micrometres in diameter (i.e., PM_{2.5}) daily average 0.025mg/m³, annual average 0.008mg/m³.
- Particulate matter less than 10 micrometres in diameter (i.e., PM₁₀) daily average 0.05mg/m³, annual average 0.025mg/m³.
- Total suspended particles (TSP) annual average 0.09mg/m³.

It is noted that there is no relevant Australian Standard for the methodology employed by the real time monitor, nor is the methodology included in the NSW EPA guidelines (Ref [5]); however, concentrations recorded by the real time monitor are considered appropriate for comparative purposes to trigger a review of dust control measures.

The Environmental Impact Statement for the expansion of the Concrush resource recovery facility to incorporate the southern portion of the site, refer **Figure 1**, included air quality monitoring and provided predicted values of $PM_{2.5}$ and PM_{10} . Extracts of the modelled contours are presented in **Figure 3** below noting that the contours are presented in $\mu g/m^3$.

Based on the modelled contours, the daily averages at the location of the real time dust monitor have been predicted as:

- PM_{2.5} >0.01mg/m³.
- PM₁₀ 0.045mg/m³.





Figure 3 Predicted Daily $PM_{2.5}$ (A, top) and PM_{10} (B, bottom) impacts with location of real time dust monitor marked with blue dot. All numbers are in units of $\mu g/m^3$.



3.2 WEATHER

The real time dust monitors recorded conditions every five (5) minutes continuously through the monitoring period. The monitor provides data with regards to wind direction and speed, air temperature, relative humidity, and air pressure.

It is noted that some data were missing on 21st October 2024, and from 15th to 16th November 2024 for an unknown reason however presumed due to power / internet interruption. Further data is missing from since 18th December 2024 due to storm damage such that there is no power to the unit. There are some additional short periods of missing data within the October, November and December data.

The data availability for this quarter was calculated to be 79%.

A summary of the results for the monitoring for the quarter is presented in **Table 3** and **Figure 4** below.

Parameters	Maximum (date and time)	Minimum (date and time)			
Wind Speed (m/s)	8.667 at 19:45 17 th December 2024	0.0 at multiple occasions			
Air Temperature (°C)	26.3 from 11:25 to 11:30 6 th December 2024	6.6 at 5:45 4 th October 2024			
Relative Humidity (%)	99.2 at 8:00 on 13 th November 2024	23.8 at 14:45 6 th October 2024 & 12:50 28 th October 2024			
Air Pressure (mBar)	1030.8 from 8:05 to 8:10 3 rd October 2024	1002.6 at multiple occasions 17 th December 2024			

Table 3Weather Summary of Available Data within Monitoring Period





Figure 4 Weather Summary for Available Data within Monitoring Period

Concrush Pty Ltd Dust Monitoring Report (October to December 2024) Concrush Facility, Teralba RCA ref 13589a-249/0, February 2025



The wind speed was below the 5m/s (18km/h, Ref [1]) threshold for application of dust suppression measures for the majority of the monitored period, with the exception of 204 five-minute intervals (17 hours):

- Tuesday, 8th October: thirteen (13) five-minute interval occasions.
- Saturday, 12th October: fifty-one (51) five-minute interval occasions.
- Tuesday, 15th October: one (1) five-minute interval occasion.
- Sunday, 20th October: eleven (11) five-minute interval occasions.
- Thursday, 24th October: ten (10) five-minute interval occasions.
- Friday, 25th October: three (3) five-minute interval occasions.
- Monday, 28th October: nine (9) five-minute interval occasions.
- Thursday, 31st October: eight (8) five-minute interval occasions.
- Monday, 4th November: one (1) five-minute interval occasion.
- Sunday, 10th November: forty-six (46) five-minute interval occasion.
- Wednesday, 13th November: one (1) five-minute interval occasions.
- Thursday, 14th November: one (1) five-minute interval occasion.
- Sunday, 17th November: one (1) five-minute interval occasions.
- Wednesday, 27th November: one (1) five-minute interval occasion.
- Saturday, 7th December: one (1) five-minute interval occasion.
- Tuesday, 10th December: eighteen (18) five-minute interval occasions.
- Tuesday, 17th December: twenty-eight (28) five-minute interval occasions.

Calm winds occurred for a total of 17.7%, 14.8% and 15.1% of the monitored period for October, November, and December respectively. During the rest of the time, the wind speeds of between:

- 0.5 to 2.5m/s were recorded at 60.6%, 64.2%, 67.7% frequency respectively.
- 2.5 to 5.0m/s were recorded 18.8%, 17.6%, 16.1% frequency respectively.
- 5.0 to 7.5m/s were recorded 2.8%, 03.2%, 1.1% frequency respectively.

The winds were mainly from the south in October and December and from the south and northeast in November and the wind speeds varied during the monitored period. The wind roses for the monitoring period is shown as **Figure 5**, **Figure 6** and **Figure 7**.





Figure 5 Wind Rose Plot for October 2024





Figure 6

Wind Rose Plot for November 2024





Figure 7 Wind Rose Plot for part December 2024



4 MONITORING RESULTS

4.1 DEPOSITIONAL DUST GAUGES

Depositional dust bottles were collected on a monthly basis by RCA staff on 31st October 2024, 29th November 2024, and 2nd January 2025. All gauges and funnels were intact and unbroken. The field sheets are included as **Appendix A**.

The results of the monitoring at each of the locations for this quarter and the twelve (12) month rolling average at the end of the quarter are presented below in **Table 4**.

All results were either less than the previous month or were increased by less that the NSW EPA criterion of 2g/m²/month except for those at DG1A, DG3A and DG4A between November and December (refer to **Table 4**).

The 12-month rolling annual average for all five (5) dust gauges are below the annual criterion of $4g/m^2$ (Ref [4]), except for DG4A where the value was slightly (10%) above the criterion. It is noted that the value at DG3A was equal to the criterion (refer to **Table 4**).

Laboratory report sheets are included in Appendix B.



	Water Volume (mL)		Insoluble Solids (g/m²)		Ash (g/m²)		Combustible Matter (g/m²)		12-Month Rolling Average				
	30/09/24 _ 31/10/24	31/10/24 _ 29/11/24	29/11/24 _ 02/01/25	30/09/24 _ 31/10/24	31/10/24 _ 29/11/24	29/11/24 _ 02/01/25	30/09/24 _ 31/10/24	31/10/24 _ 29/11/24	29/11/24 _ 02/01/25	30/09/24 _ 31/10/24	31/10/24 _ 29/11/24	29/11/24 _ 02/01/25	Insoluble Solids (g/m²)
DG1A (east)	1600	3400		3.0	2.7	<u>4.8</u>	2.0	1.6	2.5	1.0	1.1	2.3	3.4
DG2A (south)	1600	3200		3.1	3.3	1.9	2.5	2.5	1.5	0.6	0.8	0.4	2.7
DG3A (west)	1700	3300		4.0	4.1	<u>6.7</u>	2.6	2.2	4.3	1.4	1.9	2.4	4.0
DG4A (north)	1600	3400		6.2	2.8	<u>4.9</u>	4.9	1.8	3.4	1.3	1.0	1.5	4.4
DG5A (roof)	1500	3200		3.5	2.7	4.4	2.6	1.7	2.7	0.9	1.0	1.7	2.8

Table 4Dust Monitoring Results for Quarter

BOLD identifies where results are in excess of annual average criterion of 4.0 g/m²/month (Ref [4]) which does not apply to individual monthly results.

<u>Underline</u> identifies where results are greater than the criterion for increase from the previous month.

-- Not mentioned in the laboratory report.



The majority of detected insoluble solids are related to 'ash' which comprises non-combustible matter and would include the types of particles that may originate from the Concrush site however would also be present in dust from other sources. Some coal dust originating from adjacent sites may also remain in the 'ash' component of the sample. The monthly insoluble solids and ash results are shown for the previous twelve (12) months in **Figure 8** and **Figure 9** below.



Figure 8 Dust Monitoring Results (Insoluble Solids) for the Past 12 Months, noting that there is no data in March 2024 at DG5A.



Figure 9 Dust Monitoring Results (Ash) for the Past 12 Months, noting that there is no data in March 2024 at DG5A.



4.2 REAL TIME DUST MONITOR

The real time dust monitors recorded conditions every five (5) minutes continuously during the monitoring period as detailed in **Section 3.2**. The monitor provides data with regards to $PM_{2.5}$, PM_{10} and PM_{total} . The PM_{total} concentration has been compared to the TSP annual average criterion.

A summary of the daily average results is presented in **Table 5** and **Figure 10** below. Noting that the results have not been obtained by a listed approved method for air quality (Ref [5]) and are not considered directly comparable with criteria (Ref [4]):

- The daily average of PM_{2.5} is below the relevant criterion (0.025 mg/m³) during the monitored period.
- The daily average PM_{2.5} concentration is below the predicted impact concentration (0.01 mg/m³, refer to **Section 3.1**) during the monitored period with the exception of those in thirteen (13) days (seven (7) days in October, four (4) days in November and two (2) days in December).
- The daily average of PM₁₀ is above the relevant criterion (0.05 mg/m³), on twenty-five (25) days of the seventy-five (75) monitored days.
- The daily average PM₁₀ concentration is above the predicted impact concentration (0.045 mg/m³, refer to **Section 3.1**) on twenty-nine (29) days of the seventy-five (75) monitored days.
- PM₁₀ is the dominant particle size of those monitored by the real time monitor (noting the different scales of the axes in **Figure 10**).

	Maximum (date and time)	Minimum (date and time)	Maximum Daily Average	
PM _{2.5}	0.258 (at 8:25, Tuesday 1 st October 2024)	0.000 (Multiple occasions)	0.013 Tuesday 19 th November 2024	
PM10	13.16 (at 8:25, Tuesday 1 st October 2024)	0.000 (Multiple occasions)	<u>0.121</u> Tuesday 1 st October 2024	
TSP	14.19 (at 8:25, Tuesday 1 st October 2024)	0.000 (Multiple occasions)	0.140 Tuesday 17 th December 2024	

 Table 5
 Particle Summary of Available Data Within Monitoring Period

Concentrations in mg/m³.

BOLD identifies where results are in excess of criteria (Ref [4]).

Due to the data omissions, it is not considered that there is a valid calculation for an annual average of $PM_{2.5}$, PM_{10} and PM_{total}/TSP to compare with the relevant criteria (Ref [4]).









A summary of the monitoring period's PM_{10} results in 15-minute increments is presented in **Figure 11** noting that this increment correlates with the alarms set to notify Concrush of:

- PM₁₀ >0.05 mg/m³ over a 15-minute period.
- Wind speed >5m/s.

In regard to the results:

- The highest PM₁₀ 15-minute average is 4.404mg/m³, identified on Tuesday 1st October 2024.
- The average PM₁₀ 15-minute average is 0.040mg/m³.
- The highest PM_{2.5} 15-minute average is 0.107mg/m³, identified on Wednesday 6th November 2024.
- The average PM_{2.5} 15-minute average is 0.007mg/m³.

The 15-minute average PM_{10} data shows that the 0.05mg/m³ real-time monitoring notification threshold is being exceeded on all working days during the monitoring period. The 0.05mg/m³ real-time monitoring notification threshold was exceeded on all Saturdays and five (5) out of twelve (12) Sundays / public holidays during the monitoring period. Since Concrush does not operate on Sundays (and public holidays), these readings are considered representative of background particles.



Figure 11 *PM*₁₀ 15-minute Average for the Available Data within the Monitoring Period.



Rainfall data obtained from the Bureau of Meteorology weather station at Cooranbong indicated a total rainfall of 217.6mm within the monitoring period (93.2mm in October, 96mm in November, and 28.4mm in December).

The available PM_{10} data has been graphed for a ten-hour workday from 7 a.m. to 4 p.m. and a twenty-four (24) hour average against average windspeed and daily rainfall in **Figure 12** to **Figure 15** below.



Figure 12 *PM*₁₀ 10-hr Average and Windspeed for the Available Data within the Monitoring Period





Figure 13 *PM*₁₀ 10-hr Average and Daily Rainfall for the Available Data within the Monitoring Period



Figure 14 *PM*₁₀ daily Average and Windspeed for the Available Data within the Monitoring Period





Figure 15 *PM*₁₀ *Daily Average and Daily Rainfall for the Available Data within the Monitoring Period*

No significant correlation was identified between wind speed and PM₁₀ daily average, indicating that high wind speeds do not consistently correlate with high particle concentrations (**Figure 12 & Figure 14**). Conversely, there appears to be a negative (i.e. lesser particles with rainfall) correlation between rainfall and particle concentrations (**Figure 13 & Figure 15**). Therefore, it is likely that the activities conducted at the site are the primary factor influencing the monitored dust levels beyond wind speed and direction, with rainfall potentially reducing dust levels.

5 ASSESSMENT OF DUST MANAGEMENT EFFECTIVENESS

The quarterly monitoring data indicates issues with effectiveness of site dust controls. It is noted that the OAQMP (Ref [1]) has been implemented since the works on the expansion component has been completed.

The real time monitor, which does not use a NSW EPA approved (Ref [5]) sampling methodology, indicated that PM_{10} were in excess of the 24hr average criterion (Ref [4]) in twenty-four (24) out of the seventy-five (75) days with monitoring data. Concentrations of PM_{10} were in excess of the predicted values in twenty-eight (28) out of the seventy-five (75) monitored days. It is noted that the concentrations observed from this monitor may not wholly reflect the site conditions depending on the wind direction.



RCA's observations on the sampling days (31st October 2024, 29th November 2024 and 2nd January 2025) regarding site activities that are associated with dust generation and suppression were:

- Excavators and crusher were operating at the time of all site inspections.
- Sprinklers and water truck were in operation however not on all stockpiles and not all site inspections.
- Customers' vehicles were observed during all the site inspections.
- RCA observed at least localised dust during the time of all site inspections.

RCA's photographs during the time of fieldwork are shown in **Figure 16** below.



Figure 16 Site Photographs during Sampling and Inspections



6 LIMITATIONS

This report has been prepared for Concrush Pty Ltd in accordance with an agreement with RCA Australia (RCA). The services performed by RCA have been conducted in a manner consistent with that generally exercised by members of its profession and consulting practice.

surface. RCA would also recommend regular use of the street-sweeper on the surface of

the weighbridges and water application on the trafficable areas.

This report has been prepared for the sole use of Concrush Pty Ltd. The report may not contain sufficient information for purposes of other uses or for parties other than Concrush Pty Ltd. This report shall only be presented in full and may not be used to support objectives other than those stated in the report without written permission from RCA Australia.

Yours faithfully

RCA AUSTRALIA

anhom

Dr. Anh Hoang Environmental Scientist BSc & MSc (Env Sci), PhD(Env Remediation)

REFERENCES

- [1] RCA Australia, Operational Air Quality Management Plan (OAQMP) for Expansion of the Concrush Resource Recovery Facility, RCA ref 13589-802 V3, June 2023.
- [2] Lake Macquarie City Council, *Local Environmental Plan 2014, under the Environmental Planning and Assessment Act 1979*, published 2014.
- [3] AS/NZS 3580.1.1:2016 Methods for sampling and analysis of ambient air: Guide to siting air monitoring equipment, May 2016.
- [4] NSW EPA, Approved Methods for the Modelling and Assessment of Air Pollutants in NSW, August 2022.
- [5] NSW EPA, Approved Methods for the Sampling and Analysis of Air Pollutants in NSW, January 2022.



Page 24

Appendix A

Field Sheets



STATIC DUST GAUGES – FIELD SHEET

Client:	Concrush

Location: 21 Racecourse Road, Teralba

Date On: 30/09/2024

Date Off: 31/10/2024

Job Number:	13589a
Month/Year:	10/2024
Personnel:	APP
Field Sheet:	Page 1 of 1

Field ID (Job No + Gauge No.)	Lab ID (To be entered by Lab Technician on receipt of samples)	Time Serviced	Funnel Number (if replaced)	Approx. Volume	Notes	Comments	
						Eg. Colour, contamination, bird droppings, insects etc	
DG1A		9,31		1.5		Clear, T	
DG2A		60:11		1.5		Clear, T	
DG3A		11:10		1.5		Clear, D. T	
DG4A		13:35		1.5		Char, T	
DG5A		13:45		1.5		Clear, T	
			1			Photographs taken of dust gauge inlet & bottle contents (Y/N)	
OBSERVATIONS OF DUST GENERATING ACTIVITIES & SUPPRESSION MEASURES Dust cart on site (Y/N). Dust cart in operation (Y/N) Sprinklers on all stockpiles (Y/N). Sprinklers in operation (Y/N) Equipment in operation? Customer activity? Dust observed?Photographs taken (Y/N).							
Stes: Animals (from lizards spakes) $B = Bird Droppings$ $G = Grass (and space) T = Trop Litter (twice leaves gum pute) ME = Invalid complex Missing function EB = Invalid complex Missing function EB = Invalid complex Missing function for the space of the spac$							

O = Organic Matter (specify)

F = Feathers

N = No foreign mater

I = Insects (and spiders)

tunnel FB = Invalid sample: Broken funnel EB = Invalid sample: Excess bird droppings RN = Invalid sample: Refer to notes below



STATIC DUST GAUGES – FIELD SHEET

Client: Location:	Concrush 21 Racecourse Road,	Teralba				Job Number: 13589a Month/Year: (19/2024
Date On:	30/09/2024 31/10	(224				Personnel:
Date Off:	31/10/2024 29/11	124				Field Sheet: Page 1 of 1
Field ID (Job No + Gauge No.)	Lab ID (To be entered by Lab Technician on receipt of samples)	Time Serviced	Funnel Number (if replaced)	Approx. Volume	Notes	Comments
						Eg. Colour, contamination, bird droppings, insects etc
DG1A		8:50		3.5L		I
DG2A		10:00		3.5L		T
DG3A		10:10		3.51		TT
DG4A		12:35		3.51		
DG5A		12:40		STL		T
						Photographs taken of dust gauge inlet & bottle contents((Y/N)
OBSERVATION Dust cart on site Sprinklers on al Equipment in op Customer activi Dust observed?	NS OF DUST GENE (Y)N). Dust cart in I stockpiles (Y)N). S peration?	RATING ACTIN operation (Y/N prinklers in ope	VITIES & SUP	PRESSION ME	ASURES	Photographs taken (Y/N).

O = Organic Matter (specify)

es) B = Bird Droppings F = Feathers

roppings G = Grass (and seeds) ers N = No foreign mater

T = Tree Litter (twigs, leaves, gum nuts) I = Insects (and spiders)

MF = Invalid sample: Missing funnel FB = Invalid sample: Broken funnel

EB = Invalid sample: Excess bird droppings RN = Invalid sample: Refer to notes below



Concrush

Client:

STATIC DUST GAUGES – FIELD SHEET

Data One		roraiba				Month/Year: 01/2025
Date On:	29/11/2024					Personnel: AM
Date Off:	02/01/2024					Field Sheet: Page 1 of 1
Field ID (Job No + Gauge No.)	Lab ID (To be entered by Lab Technician on receipt of samples)	Time Serviced	Funnel Number (if replaced)	Approx. Volume	Notes	Comments
						Eg. Colour, contamination, bird droppings, insects etc
DG1A		10:55		0.86		Chear T
DG2A		11;10		0.71		Clear T
DG3A		11:15		0.71		Clear T. T
DG4A		14:20		OTL		elear. T
DG5A		14-25		0.71		Clar, C
				2		Photographs taken of dust gauge inle & bottle contents (Y/N)
OBSERVATIO Dust cart on site Sprinklers on a Equipment in o Customer activ	NS OF DUST GENE e (Y/N). Dust cart in Il stockpiles (Y/N). S peration?	RATING ACTIN operation ()/N prinklers in ope	VITIES & SUP) eration (Y/N) I. dozev	PRESSION ME	ASURES	

I = Insects (and spiders)

FB = Invalid sample: Broken funnel RN = Invalid sample: Refer to notes below

Job Number:

13589a

Appendix B

Laboratory Report Sheets



Robert Carr & Associates Pty Ltd Trading as RCA Laboratories – Environmental 92 Hill Street PO Box 175, Carrington NSW 2374 ABN 53 063 515 711 Ph 02 4902 9200 – Fax 02 4902 9299 Email: administrator@rca.com.au Web www.rca.com.au



Concrush Pty Ltd PO Box 362 Merewether NSW 2371

Attention Kevin Thompson

Client order number:	N/A	Testing commenced:	31/10/2024
Received date:	31/10/2024	Number of samples:	5
Client reference:	Dust Report October 2024		
Date:	27/11/2024		
Project:	RCA ref 13589a-245/0		

CERTIFICATE OF ANALYSIS

1 ANALYTICAL TEST METHODS

ANALYSIS	METHOD	UNITS	ANALYSING LABORATORY	NATA ANALYSIS / NON NATA
Dust Depositional Gauge (DDG)	ENV-LAB004*	g/m ² .month	RCA Laboratories - Environmental	NON-NATA
Dust Depositional Gauge (DDG)	ENV-LAB004*	mg	RCA Laboratories - Environmental	ΝΑΤΑ

* The analytical procedures used by RCA Laboratories - Environmental are based on established internationally recognised procedures such as APHA and Australian Standards

** Analysis as per AS3580.10.1-2016. Samples passed through a 1mm sieve prior to analysis. NATA accreditation does not apply for results reported in g/m².mth as sampling not collected by RCA Laboratory personal.



Robert Carr & Associates Pty Ltd Trading as RCA Laboratories – Environmental 92 Hill Street PO Box 175, Carrington NSW 2374 ABN 53 063 515 711 Ph 02 4902 9200 – Fax 02 4902 9299 Email: <u>administrator@rca.com.au</u> Web <u>www.rca.com.au</u>

2 RESULTS



ANALYSIS	UNITS	DG1A	DG2A	DG3A	DG4A
Depositional Dust Gauge (DDG)					
Sample Number	-	102413589001	102413589002	102413589003	102413589004
Date sample started	-	30/09/2024	30/09/2024	30/09/2024	30/09/2024
Date sample finished	-	31/10/2024	31/10/2024	31/10/2024	31/10/2024
Sampled By		AH	AH	AH	AH
Number of days	-	31	31	31	31
Notes	-	IT	IT	IT	IT
Insoluble solids **	(g/m ² .month)	3.0	3.1	4.0	6.2
Ash **	(g/m ² .month)	2.0	2.5	2.6	4.9
Combustible matter **	(g/m ² .month)	1.0	0.6	1.4	1.3
Insoluble solids (mg)	mg	54.3	57.3	73.5	112.9
Ash (mg)	mg	35.7	45.3	47.8	89.4
Combustible matter (mg)	mg	18.6	12.0	25.7	23.5
Volume **	mg	1600	1600	1700	1600

ANALYSIS	UNITS	DG5A
Depositional Dust Gauge (DDG)		
Sample Number	-	102413589005
Date sample started	-	30/09/2024
Date sample finished	-	31/10/2024
Sampled By		AH
Number of days	-	31
Notes	-	I
Insoluble solids **	(g/m ² .month)	3.5
Ash **	(g/m ² .month)	2.6
Combustible matter **	(g/m ² .month)	0.9
Insoluble solids (mg)	mg	64.2
Ash (mg)	mg	48.3
Combustible matter (mg)	mg	15.9
Volume **	mg	1500

Depositional Dust Gauge (DDG)

Analysis on samples is on as received basis samples

Depositional Dust Gauge (DDG) Qualifier Codes

I = Insects (eg. Ants, spiders) T = Tree Litter (eg. Twigs. Leaves, gumnuts)



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Depositional Dust Gauge Quality Control

A blank crucible, containing no deposited matter, is analysed with every batch of 10 samples analysed. The acceptable mass difference between the first and second weighing of a blank crucible, at the indicated steps, in the analysis procedure is +/- 0.001g.

Blank	Crucibles	Analysis
Dianin	Ci ucibico	Analysis

METHOD STEP	PRE-DETER	MINATION	DETERMII INSOLUB	NATION OF LE SOLIDS	DETERMINATION OF ASH AND COMBUSTIBLE MATTER			
	1 st weighing	2 nd weighing	1 st weighing	2 nd weighing	1 st weighing	2 nd weighing		
Crucible No.	Mass of Crucible(g)	Mass of Crucible(g)						
73	25.4885	25.4885	25.4885	25.4885	25.4885	25.4885		

Please contact the undersigned if you have any queries.

Yours sincerely

Laura Schofield Environmental Laboratory Manager Robert Carr & Associates Pty Ltd Trading as RCA Laboratories – Environmental

Robert Carr and Associates Pty Ltd shall not be liable for loss, cost, damages or expenses incurred by the client, or any other person or company resulting from the use of any information or interpretation given in this report. In no case shall RCA limited be liable for consequential damages including, but not limited to, loss profits damages for failure to meet deadlines and lost production arising from this report. This document shall not be reproduced except in full and relates only to the items tested. Unless indicated otherwise, the tests were performed on the samples as received. Sampled dates quoted in this report are those listed on the COC or sample jars; if no sample dates are noted, the date the samples are received at the laboratory have been used. The Laboratory is accredited for compliance with ISO/IEC 17025. The results of the tests, calibrations &/or measurements included in this document are traceable to Australian/National Standards.



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RCA Internal Quality Review

General

- 1. Laboratory QC results for Method Blanks, Duplicates and Laboratory Control Samples are included in this QC report where applicable. Additional QC data maybe available on request.
- RCA QC Acceptance / Rejection Criteria are available on request. 2
- 3 Proficiency Trial results are available on request.
- Actual PQLs are matrix dependant. Quoted PQLs may be raised where sample extracts are diluted due to interferences. 4. When individual results are qualified in the body of a report, refer to the qualifier descriptions that follow. 5.
- 6. Samples were analysed on an 'as received' basis.
- 7. Sampled dates in this report are those listed on the COC or sample jars; if no sample dates are noted, the date the samples are received at the laboratory have been used.
- All soil results are reported on a dry basis, unless otherwise stated. (ACID SULPHATE SOILS) 8
- Q This report replaces any interim results previously issued.

Holding Times.

For samples received on the last day of holding time, notification of testing requirements should have been received at least 6 hours prior to sample receipt deadlines as stated on the Sample

Receipt Acknowledgment

If the Laboratory did not receive the information in the required timeframe, and regardless of any other integrity issues, suitably qualified results may still be reported. Holding times apply from the date of sampling, therefore compliance to these may be outside the laboratory's control. ##NOTE: pH duplicates are reported as a range NOT as RPD

QC - ACCEPTANCE CRITERIA

RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable: Results <10 times the LOR: No Limit Results between 10-20 times the LOR: RPD must lie between 0-50% Results >20 times the LOR: RPD must lie between 0-30%

QC DATA GENERAL COMMENTS

1. Where a result is reported as a less than (<), higher than the nominated LOR, this is due to either matrix interference, extract dilution required due to interferences or contaminant levels within the sample, high moisture content or insufficient sample provided.

2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples

3. Duplicate RPD's are calculated from raw analytical data thus it is possible to have two sets of data.

Glossary

UNITS

mg/kg: milligrams per Kilogram ug/L: micrograms per litre ppm: Parts per million ppb: Parts per billion %: Percentage org/100ml: Organisms per 100 millilitres NTU: Units MPN/100mL: Most Probable Number of organisms per 100 millilitres mg/L: milligrams per Litre

TERMS

Dry Where moisture has been determined on a solid sample the result is expressed on a dry basis.

LOR Limit of Reporting.

RPD Relative Percent Difference between two Duplicate pieces of analysis can be obtained upon request.

QCS Quality Control Sample - reported as value recovery

Method Blank In the case of solid samples these are performed on laboratory certified clean sands.

In the case of water samples these are performed on de-ionised water

Duplicate A second piece of analysis from the same sample and reported in the same units as the result to show comparison.

Batch Duplicate A second piece of analysis from a sample outside of the clients batch of samples but run within the laboratory batch of analysis.

USEPA United States Environment Protection Authority

APHA American Public Health Association

COC Chain of Custody

CP Client Parent - QC was performed on samples pertaining to this report

NCP Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within

< indicates less than

> Indicates greater than

ND Not Detected

ENI CONSTRUCT	CA BORA VIRONMENT TION MATER	TORIES TAL • RIALS TESTING		Ph: (02) 4902 9200 Fax: 02 4902 9299 92 Hill Street, Carrington NSW 2294 www.rca.com.au Email: labenviro@rca.com.au																			
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Concrush Pty Ltd PO Box 362 Merewether NSW 2371

Attention Kevin Thompson

Client order number:	N/A	Testing commenced:	29/11/2024
Received date:	29/11/2024	Number of samples	5
Client reference:	Dust Report November 2024		
Date:	23/12/2024		
Project:	RCA ref 13589a-247/0		

CERTIFICATE OF ANALYSIS

1 ANALYTICAL TEST METHODS

ANALYSIS	METHOD	UNITS	ANALYSING LABORATORY	NATA ANALYSIS / NON NATA
Dust Depositional Gauge (DDG)	ENV-LAB004*	g/m ² .month	RCA Laboratories - Environmental	NON-NATA
Dust Depositional Gauge (DDG)	ENV-LAB004*	mg	RCA Laboratories - Environmental	ΝΑΤΑ

* The analytical procedures used by RCA Laboratories - Environmental are based on established internationally recognised procedures such as APHA and Australian Standards

** Analysis as per AS3580.10.1-2016. Samples passed through a 1mm sieve prior to analysis. NATA accreditation does not apply for results reported in g/m².mth as sampling not collected by RCA Laboratory personal.



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2 RESULTS



ANALYSIS	UNITS	DG1A	DG2A	DG3A	DG4A	
Depositional Dust Gauge (DDG)						
Sample Number	-	112413589001	112413589002	112413589003	112413589004	
Date sample started	-	31/10/2024	31/10/2024	31/10/2024	31/10/2024	
Date sample finished	-	29/11/2024	29/11/2024	29/11/2024	29/11/2024	
Sampled By		AH	AH	AH	AH	
Number of days	-	30	30	30	30	
Notes	-	I	I	IT	IT	
Insoluble solids **	(g/m ² .month)	2.7	3.3	4.1	2.8	
Ash **	(g/m ² .month)	1.6	2.5	2.2	1.8	
Combustible matter **	(g/m ² .month)	1.1	0.8	1.9	1.0	
Insoluble solids (mg)	mg	47.1	58.1	71.6	49.7	
Ash (mg)	mg	28.2	43.9	39.4	31.5	
Combustible matter (mg)	mg	18.9	14.2	32.2	18.2	
Volume **	mg	3400	3200	3300	3400	

ANALYSIS	UNITS	DG5A
Depositional Dust Gauge (DDG)		
Sample Number	-	112413589005
Date sample started	-	31/10/2024
Date sample finished	-	29/11/2024
Sampled By		AH
Number of days	-	30
Notes	-	I
Insoluble solids **	(g/m ² .month)	2.7
Ash **	(g/m ² .month)	1.7
Combustible matter **	(g/m ² .month)	1.0
Insoluble solids (mg)	mg	47.1
Ash (mg)	mg	30.0
Combustible matter (mg)	mg	17.1
Volume **	mg	3200

Depositional Dust Gauge (DDG)

Analysis on samples is on as received basis samples

Depositional Dust Gauge (DDG) Qualifier Codes

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Blank	Crucibles	Analysis
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METHOD STEP	PRE-DETER	MINATION	DETERMII INSOLUB	NATION OF LE SOLIDS	DETERMINATIO COMBUSTIE	ON OF ASH AND BLE MATTER
	1 st weighing	2 nd weighing	1 st weighing	2 nd weighing	1 st weighing	2 nd weighing
Crucible No.	Mass of Crucible(g)	Mass of Crucible(g)				
73	25.4885	25.4885	25.4885	25.4885	25.4885	25.4885

Please contact the undersigned if you have any queries.

Yours sincerely

Laura Schofield Environmental Laboratory Manager Robert Carr & Associates Pty Ltd Trading as RCA Laboratories – Environmental

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- All soil results are reported on a dry basis, unless otherwise stated. (ACID SULPHATE SOILS) 8
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RPD Duplicates: Global RPD Duplicates Acceptance Criteria is 30% however the following acceptance guidelines are equally applicable: Results <10 times the LOR: No Limit Results between 10-20 times the LOR: RPD must lie between 0-50% Results >20 times the LOR: RPD must lie between 0-30%

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2. Duplicate data shown within this report that states the word "BATCH" is a Batch Duplicate from outside of your sample batch, but within the laboratory sample batch at a 1:10 ratio. The Parent and Duplicate data shown is not data from your samples

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Glossary

UNITS

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TERMS

Dry Where moisture has been determined on a solid sample the result is expressed on a dry basis.

LOR Limit of Reporting.

RPD Relative Percent Difference between two Duplicate pieces of analysis can be obtained upon request.

QCS Quality Control Sample - reported as value recovery

Method Blank In the case of solid samples these are performed on laboratory certified clean sands.

In the case of water samples these are performed on de-ionised water

Duplicate A second piece of analysis from the same sample and reported in the same units as the result to show comparison.

Batch Duplicate A second piece of analysis from a sample outside of the clients batch of samples but run within the laboratory batch of analysis.

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APHA American Public Health Association

COC Chain of Custody

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NCP Non-Client Parent - QC performed on samples not pertaining to this report, QC is representative of the sequence or batch that client samples were analysed within

< indicates less than

> Indicates greater than

ND Not Detected

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CERTIFICATE OF ANALYSIS 369872

Client Details	
Client	RCA Australia
Attention	Enviro RCA
Address	PO Box 175, Carrington, NSW, 2294

Sample Details	
Your Reference	<u>13589a</u>
Number of Samples	5 Dust Guage
Date samples received	03/01/2025
Date completed instructions received	03/01/2025

Analysis Details

Please refer to the following pages for results, methodology summary and quality control data.

Samples were analysed as received from the client. Results relate specifically to the samples as received.

Results are reported on a dry weight basis for solids and on an as received basis for other matrices.

Report Details	
Date results requested by	09/01/2025
Date of Issue	08/01/2025
NATA Accreditation Number 2901. This do	ocument shall not be reproduced except in full.
Accredited for compliance with ISO/IEC 17	7025 - Testing. Tests not covered by NATA are denoted with *

Results Approved By Laura Schofield, Lab Manager <u>Authorised By</u> Nancy Zhang, Laboratory Manager



Dust Deposition AS 3580.10.1				_	_	
Our Reference		369872-1	369872-2	369872-3	369872-4	369872-5
Your Reference	UNITS	DG1A	DG2A	DG3A	DG4A	DG5A
Sampling Period Dates		29/11/2024 - 02/01/2025				
Type of sample		Dust Guage				
Dust Gauge Start Date		29/11/2024	29/11/2024	29/11/2024	29/11/2024	29/11/2024
Dust Gauge End Date		2/01/2025	2/01/2025	2/01/2025	2/01/2025	2/01/2025
Sampler Name	-	AH	AH	AH	AH	AH
Dust - No. of Days Collected		34	34	34	34	34
Notes	-	I	I	IT	IT	IT
Insoluble Solids	g/m ² /month	4.8	1.9	6.7	4.9	4.4
Ash	g/m ² /month	2.5	1.5	4.3	3.4	2.7
Combustible Matter	g/m ² /month	2.3	0.4	2.4	1.5	1.7

Method ID	Methodology Summary
Ext-073-Q	Analysis of Dust Deposition by AS/NZS 3580.10.1 and in-house method ENV-LAB004,
	Analysed by Envirolab Newcastle

Result Definiti	ons
NT	Not tested
NA	Test not required
INS	Insufficient sample for this test
PQL	Practical Quantitation Limit
<	Less than
>	Greater than
RPD	Relative Percent Difference
LCS	Laboratory Control Sample
NS	Not specified
NEPM	National Environmental Protection Measure
NR	Not Reported

Quality Control	I Definitions
Blank	This is the component of the analytical signal which is not derived from the sample but from reagents, glassware etc, can be determined by processing solvents and reagents in exactly the same manner as for samples.
Duplicate	This is the complete duplicate analysis of a sample from the process batch. If possible, the sample selected should be one where the analyte concentration is easily measurable.
Matrix Spike	A portion of the sample is spiked with a known concentration of target analyte. The purpose of the matrix spike is to monitor the performance of the analytical method used and to determine whether matrix interferences exist.
LCS (Laboratory Control Sample)	This comprises either a standard reference material or a control matrix (such as a blank sand or water) fortified with analytes representative of the analyte class. It is simply a check sample.
Surrogate Spike	Surrogates are known additions to each sample, blank, matrix spike and LCS in a batch, of compounds which are similar to the analyte of interest, however are not expected to be found in real samples.

Australian Drinking Water Guidelines recommend that Thermotolerant Coliform, Faecal Enterococci, & E.Coli levels are less than 1cfu/100mL. The recommended maximums are taken from "Australian Drinking Water Guidelines", published by NHMRC & ARMC 2011.

The recommended maximums for analytes in urine are taken from "2018 TLVs and BEIs", as published by ACGIH (where available). Limit provided for Nickel is a precautionary guideline as per Position Paper prepared by AIOH Exposure Standards Committee, 2016.

Guideline limits for Rinse Water Quality reported as per analytical requirements and specifications of AS 4187, Amdt 2 2019, Table 7.2

Laboratory Acceptance Criteria

Duplicate sample and matrix spike recoveries may not be reported on smaller jobs, however, were analysed at a frequency to meet or exceed NEPM requirements. All samples are tested in batches of 20. The duplicate sample RPD and matrix spike recoveries for the batch were within the laboratory acceptance criteria.

Filters, swabs, wipes, tubes and badges will not have duplicate data as the whole sample is generally extracted during sample extraction.

Spikes for Physical and Aggregate Tests are not applicable.

For VOCs in water samples, three vials are required for duplicate or spike analysis.

Duplicates: >10xPQL - RPD acceptance criteria will vary depending on the analytes and the analytical techniques but is typically in the range 20%-50% – see ELN-P05 QA/QC tables for details; <10xPQL - RPD are higher as the results approach PQL and the estimated measurement uncertainty will statistically increase.

Matrix Spikes, LCS and Surrogate recoveries: Generally 70-130% for inorganics/metals (not SPOCAS); 60-140% for organics/SPOCAS (+/-50% surrogates) and 10-140% for labile SVOCs (including labile surrogates), ultra trace organics and speciated phenols is acceptable.

In circumstances where no duplicate and/or sample spike has been reported at 1 in 10 and/or 1 in 20 samples respectively, the sample volume submitted was insufficient in order to satisfy laboratory QA/QC protocols.

When samples are received where certain analytes are outside of recommended technical holding times (THTs), the analysis has proceeded. Where analytes are on the verge of breaching THTs, every effort will be made to analyse within the THT or as soon as practicable.

Where sampling dates are not provided, Envirolab are not in a position to comment on the validity of the analysis where recommended technical holding times may have been breached.

Where matrix spike recoveries fall below the lower limit of the acceptance criteria (e.g. for non-labile or standard Organics <60%), positive result(s) in the parent sample will subsequently have a higher than typical estimated uncertainty (MU estimates supplied on request) and in these circumstances the sample result is likely biased significantly low.

Measurement Uncertainty estimates are available for most tests upon request.

Analysis of aqueous samples typically involves the extraction/digestion and/or analysis of the liquid phase only (i.e. NOT any settled sediment phase but inclusive of suspended particles if present), unless stipulated on the Envirolab COC and/or by correspondence. Notable exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, total recoverable metals and PFAS where solids are included by default.

Samples for Microbiological analysis (not Amoeba forms) received outside of the 2-8°C temperature range do not meet the ideal cooling conditions as stated in AS2031-2012.

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Envirolab Services Pty Ltd ABN 37 112 535 645 12 Ashley St Chatswood NSW 2067 ph 02 9910 6200 fax 02 9910 6201 customerservice@envirolab.com.au www.envirolab.com.au

SAMPLE RECEIPT ADVICE

Client Details	
Client	RCA Australia
Attention	Enviro RCA

Sample Login Details	
Your reference	13589a
Envirolab Reference	369872
Date Sample Received	03/01/2025
Date Instructions Received	03/01/2025
Date Results Expected to be Reported	09/01/2025

Sample Condition	
Samples received in appropriate condition for analysis	Yes
No. of Samples Provided	5 Dust Guage
Turnaround Time Requested	Standard
Temperature on Receipt (°C)	
Cooling Method	
Sampling Date Provided	YES

Comments	
Nil	

Please direct any queries to:

Aileen Hie	Jacinta Hurst
Phone: 02 9910 6200	Phone: 02 9910 6200
Fax: 02 9910 6201	Fax: 02 9910 6201
Email: ahie@envirolab.com.au	Email: jhurst@envirolab.com.au

Analysis Underway, details on the following page:



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Sample ID	Dust Deposition AS 3580.10.1
DG1A	\checkmark
DG2A	\checkmark
DG3A	✓
DG4A	✓
DG5A	✓

The ' \checkmark ' indicates the testing you have requested. THIS IS NOT A REPORT OF THE RESULTS.

Additional Info

Sample storage - Waters are routinely disposed of approximately 1 month and soils approximately 2 months from receipt.

Requests for longer term sample storage must be received in writing.

Please contact the laboratory immediately if observed settled sediment present in water samples is to be included in the extraction and/or analysis (exceptions include certain Physical Tests (pH/EC/BOD/COD/Apparent Colour etc.), Solids testing, Total Recoverable metals and PFAS analysis where solids are included by default.

TAT for Micro is dependent on incubation. This varies from 3 to 6 days.