

# Ambient Air Monitoring Report, September 2021

InfraBuild Recycling, Hexham

18-Oct-2021  
Commercial-in-Confidence



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# Ambient Air Monitoring Report, September 2021

InfraBuild Recycling, Hexham

Client: InfraBuild Recycling

ABN: 28 002 707 262

Prepared by

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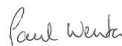
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## Quality Information

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Reviewed by Paul Wenta  
AECOM Approved Signatory Cye Buckland 

### Revision History

Rev	Revision Date	Details	Authorised	
			Name/Position	Signature
0	18-October-2021	Final Report	Paul Wenta Principal Scientist	

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## 1.0 Introduction

AECOM Pty Ltd (AECOM) was commissioned by InfraBuild Recycling Pty Ltd (InfraBuild) to undertake ambient air quality monitoring at their Hexham site. The purpose of the monitoring program is to demonstrate due diligence in the assessment of the air quality impacts of the metal recycling operation. This report presents the results from depositional dust gauge samples for September 2021, with sampling conducted from 2 September to 5 October 2021.

## 2.0 Methodology

The air quality monitoring network consists of six depositional dust gauges (DG1 – DG6) as shown in **Figure 1**. Dust gauges, with the exception of DG5, are positioned on or near the site boundary to allow analysis of dust potentially leaving the site. DG5 is located to the south east of the facility at the nearest residential receptor.

Monitoring of dust fallout is conducted in accordance with AS 3580.10.1:2016, with sampling conducted on a monthly basis. Prior to the 2020 sampling program, sampling had been conducted on a quarterly basis (4 monthly samples per year). Dust samples are analysed by Australian Laboratory Services (ALS) for the following constituents:

- insoluble matter
- ash residue
- combustible matter.

AECOM is National Association of Testing Authorities (NATA) accredited (Accreditation number 2778 (14391)) for DDG sampling while ALS is also NATA accredited for the analysis of these samples (Accreditation number 825). The formal guidelines for the assessment of depositional dust relate to insoluble matter, with the EPA publication *Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales* (2016), defining the criterion for insoluble matter as an annual average of 4 g/m<sup>2</sup>.month.



**Figure 1** InfraBuild Recycling Dust Deposition Gauge Sampling Locations

### 3.0 Results

The September 2021 dust deposition results are presented in **Table 1**. Monitoring was conducted over the period 2 September to 5 October 2021 (33 Days). Samples were unable to be collected within the required window (28 to 32 days) due site priorities, however as results are corrected for the sampling duration this is not expected to have any significant impact on the results reported.

Laboratory analysis results are attached in ALS report EN2108683 provided in **Appendix A**. A wind rose for the sampling period created from data sourced from the DPIE Mayfield meteorology station is attached as **Appendix B** along with the field sheet.

AECOM has a calculated limit of uncertainty in regard to results. The estimation of measurement uncertainty in monitoring is conducted to provide an indication of the precision of the measurement result and a degree of confidence in the range of values the reported result may represent. The measurement of uncertainty has been calculated at  $\pm 5.3\%$ .

**Table 1 Dust Deposition Results – September 2021**

Gauge	Insoluble Matter (g/m <sup>2</sup> .month)	Ash Content		Combustible Matter (g/m <sup>2</sup> .month)	Annual Average Insoluble Matter (g/m <sup>2</sup> .month)
		(g/m <sup>2</sup> .month)	% of Insoluble Matter		
DG1	3.3	2.5	76	0.8	4.4
DG2	3.6	2.7	75	0.9	4.0
DG3	8.9	7.1	80	1.8	5.8
DG4	2.3	2.0	87	0.3	2.4
DG5	1.0	0.8	80	0.2	1.1
DG6	1.0	0.9	90	0.1	1.2

**Bold** denotes value above EPL Guideline.

For the September monitoring period DG5 (located at the nearest receptor) returned an Insoluble Solids result of 1.0 g/m<sup>2</sup>.month, below the 4 g/m<sup>2</sup>.month annual criteria.

The location D3 returned the highest result for this monitoring period at 8.9 g/m<sup>2</sup>.month, likely as a result of the predominant North Westerly winds. All other locations returned results below the 4 g/m<sup>2</sup>.month annual criteria.

The EPA guideline value for insoluble solids of 4 g/m<sup>2</sup>.month is expressed as an annual average and sampling has now been performed monthly for 12 consecutive months (after being performed quarterly in recent years). The annual averages can now be compared to the guideline, with sites DG1, DG2 and DG3 currently returning annual averages above or equivalent to 4 g/m<sup>2</sup>.month. The annual averages for DG1 and DG3 are trending lower over the last 12 months, while DG2 has stabilised around 4 g/m<sup>2</sup>.month.

Wind data has been sourced from DPIE Mayfield station with winds for the monitoring period predominantly from the North West quadrant, accounting for approximately 50% of all winds.

Plots detailing both the monthly Insoluble Solids and the Rolling Average Insoluble Solids results are provided in **Figure 2** and **Figure 3** respectively, noting that the annual averages remained indicative prior to April 2021 until 12 months of data was collected.

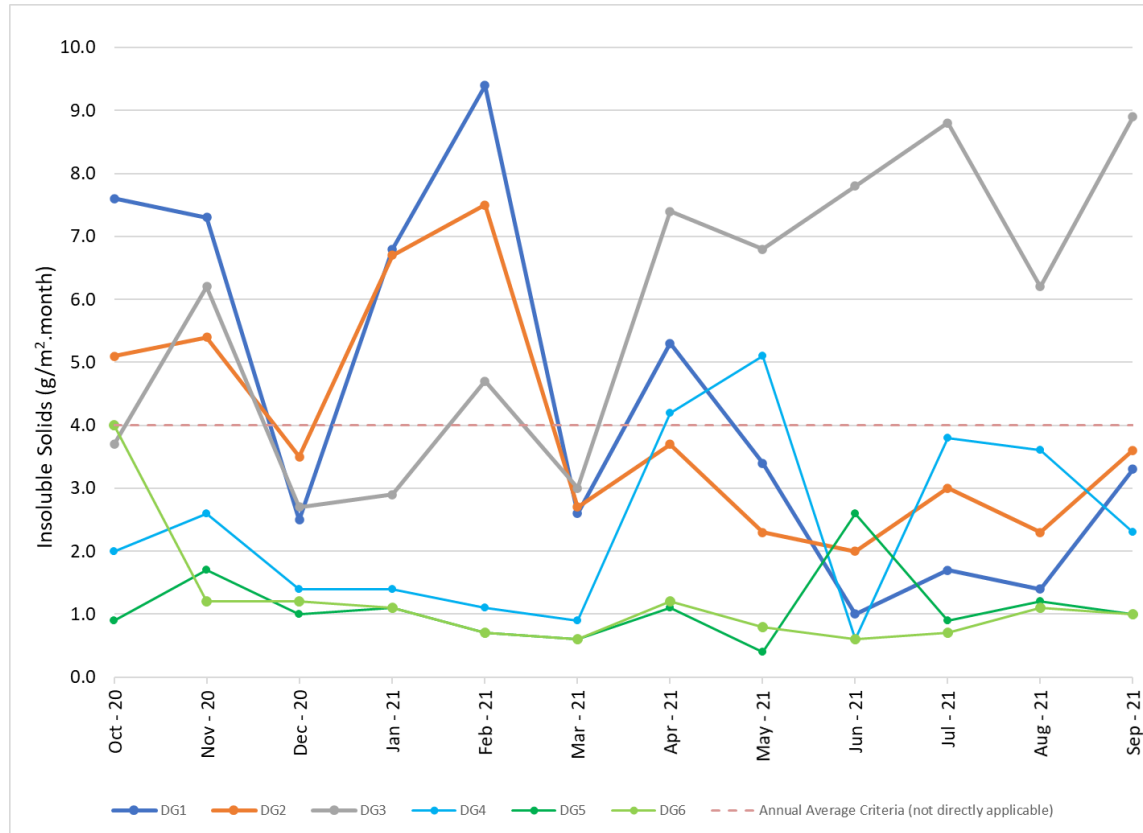


Figure 2 Insoluble Solids Monthly Plot

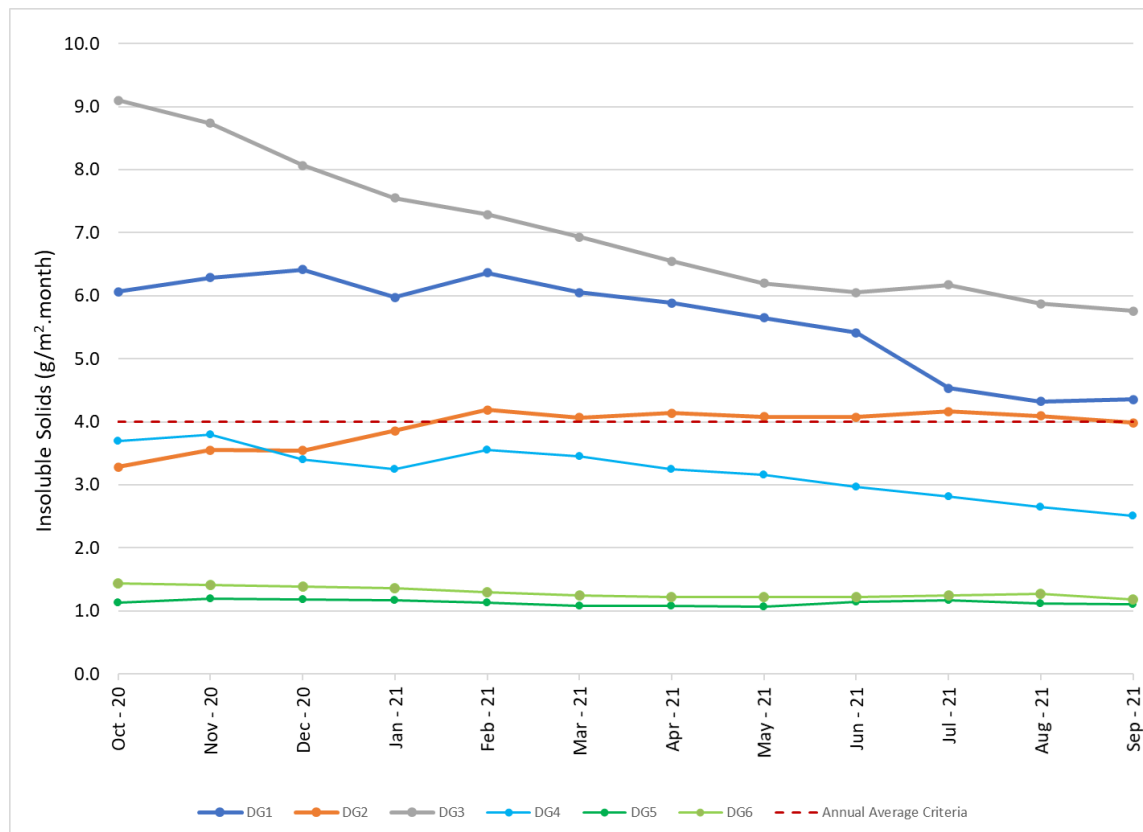


Figure 3 Insoluble Solids Rolling Average Plot



## 4.0 Discussion

Field observations suggest that for the September 2021 monitoring period the deposition consisted predominantly of inorganic material, with some decomposing matter present in the samples. Field notes indicate samples contained an estimated 1600 ml of rainwater and were clear in colour. The turbidity of all samples was noted to be clear with the exception of DG1 which was slightly turbid.

The ash to insoluble solids ratio provides an indication of organic contamination and September ratios range between 75% and 90% indicating relatively low percentages of organic matter. No samples have been deemed contaminated for this monitoring period.

Winds for the monitoring period were predominantly from north west. Under these meteorological conditions monitoring locations DG3 and DG4 were downwind of the site operations for a significant portion of the month.

With the exception of DG5, dust gauges are located either on site or on the site boundary and provide an indication of on-site dust and any dust potentially leaving site. Two of the five rolling averages for the on-site sampling locations exceed the annual average criteria of 4 g/m<sup>2</sup>.month following September monitoring period, with one annual average equivalent to 4 g/m<sup>2</sup>.month.

These on-site gauges are in some cases impacted by site activities carried out in relatively close proximity to the sampling locations. The location of these gauges is such that results do not reflect the impact at the nearest residential receptor and should not be used as a measure of dust deposition at the nearest off-site receptor. These locations do provide an indication of conditions on site and any dust potentially leaving site.

DG5, the off-site location in the residential area to the south east of the facility (and established to measure impacts experienced at the nearest receptor) recorded a result of 1.0 g/m<sup>2</sup>.month for the September monitoring period, with the annual average at 1.1 g/m<sup>2</sup>.month, below the 4 g/m<sup>2</sup>.month annual criterion. Meteorology data indicates winds were such that this location was downwind of the site for a significant portion of the September monitoring period.

# Appendix A

Laboratory Certificates  
and Chain of Custody  
(5 pages)

## CERTIFICATE OF ANALYSIS

**Work Order** : **EN2108683**  
**Client** : **AECOM AUSTRALIA PTY LTD**  
**Contact** : MR CYE BUCKLAND  
**Address** : 17 WARABROOK BLVD  
                   NEWCASTLE Newcastle 2304  
**Telephone** : +61 02 4911 4900  
**Project** : 60493017 Task 6.2  
**Order number** : 60493017  
**C-O-C number** : ----  
**Sampler** : ----  
**Site** : ----  
**Quote number** : EN/004/20  
**No. of samples received** : 6  
**No. of samples analysed** : 6

**Page** : 1 of 4  
**Laboratory** : Environmental Division Newcastle  
**Contact** : Tahlee Brook  
**Address** : 5/585 Maitland Road Mayfield West NSW Australia 2304  
  
**Telephone** : +61 2 4014 2500  
**Date Samples Received** : 05-Oct-2021 13:17  
**Date Analysis Commenced** : 07-Oct-2021  
**Issue Date** : 15-Oct-2021 09:33



This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted, unless the sampling was conducted by ALS. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

**Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QA/QC Compliance Assessment to assist with Quality Review and Sample Receipt Notification.**

### *Signatories*

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

<i>Signatories</i>	<i>Position</i>	<i>Accreditation Category</i>
Zoran Grozdanovski	Laboratory Operator	Newcastle - Inorganics, Mayfield West, NSW



## General Comments

The analytical procedures used by ALS have been developed from established internationally recognised procedures such as those published by the USEPA, APHA, AS and NEPM. In house developed procedures are fully validated and are often at the client request.

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

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

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

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

Where a result is required to meet compliance limits the associated uncertainty must be considered. Refer to the ALS Contact for details.

Key : CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.  
LOR = Limit of reporting  
^ = This result is computed from individual analyte detections at or above the level of reporting  
∅ = ALS is not NATA accredited for these tests.  
~ = Indicates an estimated value.

- 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/m<sup>2</sup>.mth as sampling data was provided by the client.
- Sample exposure period is 33 days which is outside the typical exposure period of 30 +/- 2 days as per AS3580.10.1.



## Analytical Results

Sub-Matrix: DEPOSITIONAL DUST  
 (Matrix: AIR)

Sample ID

				DG1	DG2	DG3	DG4	DG5
				02/09/21 - 05/10/21	02/09/21 - 05/10/21	02/09/21 - 05/10/21	02/09/21 - 05/10/21	02/09/21 - 05/10/21
Sampling date / time				05-Oct-2021 00:00	05-Oct-2021 00:00	05-Oct-2021 00:00	05-Oct-2021 00:00	05-Oct-2021 00:00
Compound	CAS Number	LOR	Unit	EN2108683-001	EN2108683-002	EN2108683-003	EN2108683-004	EN2108683-005
				Result	Result	Result	Result	Result
<b>EA120: Ash Content</b>								
Ash Content	----	0.1	g/m <sup>2</sup> .month	2.5	2.7	7.1	2.0	0.8
Ash Content (mg)	----	1	mg	48	51	133	37	15
<b>EA125: Combustible Matter</b>								
Combustible Matter	----	0.1	g/m <sup>2</sup> .month	0.8	0.9	1.8	0.3	0.2
Combustible Matter (mg)	----	1	mg	14	17	33	6	4
<b>EA141: Total Insoluble Matter</b>								
Total Insoluble Matter	----	0.1	g/m <sup>2</sup> .month	3.3	3.6	8.9	2.3	1.0
Total Insoluble Matter (mg)	----	1	mg	62	68	166	43	19



**Analytical Results**

Sub-Matrix: **DEPOSITIONAL DUST**  
 (Matrix: **AIR**)

Sample ID

			DG6	----	----	----	----
			02/09/21 - 05/10/21	----	----	----	----
			05-Oct-2021 00:00	----	----	----	----
Compound	CAS Number	LOR	Unit	EN2108683-006	-----	-----	-----
				Result	----	----	----
<b>EA120: Ash Content</b>							
Ash Content	----	0.1	g/m <sup>2</sup> .month	<b>0.9</b>	----	----	----
Ash Content (mg)	----	1	mg	<b>17</b>	----	----	----
<b>EA125: Combustible Matter</b>							
Combustible Matter	----	0.1	g/m <sup>2</sup> .month	<b>0.1</b>	----	----	----
Combustible Matter (mg)	----	1	mg	<b>1</b>	----	----	----
<b>EA141: Total Insoluble Matter</b>							
Total Insoluble Matter	----	0.1	g/m <sup>2</sup> .month	<b>1.0</b>	----	----	----
Total Insoluble Matter (mg)	----	1	mg	<b>18</b>	----	----	----



# Appendix B

Wind Rose and  
Field Sheet (2 pages)

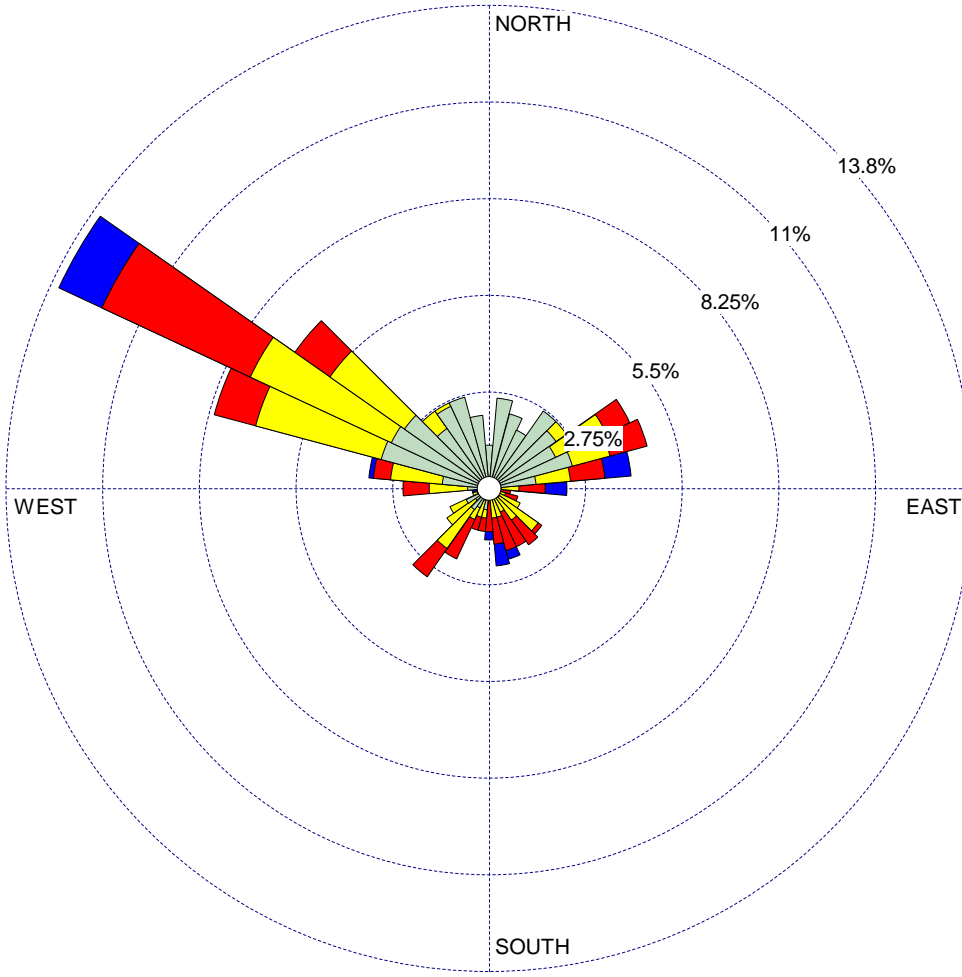


WIND ROSE PLOT:

**DPIE Mayfield Meteorology Data**  
**September monitoring period (2 Sep - 5 Oct 2021)**

DISPLAY:

**Wind Speed**  
**Direction (blowing from)**



**WIND SPEED**  
(m/s)

- >= 11.10
- 8.80 - 11.10
- 5.70 - 8.80
- 3.60 - 5.70
- 2.10 - 3.60
- 0.30 - 2.10

Calms: 1.84%

COMMENTS:

DATA PERIOD:

**Start Date: 2/09/2021 - 00:00**  
**End Date: 5/10/2021 - 23:00**

COMPANY NAME:

MODELER:

CALM WINDS:

**1.84%**

TOTAL COUNT:

**816 hrs.**

AVG. WIND SPEED:

**2.47 m/s**

DATE:

**6/10/2021**

PROJECT NO.:

**60493017**

### CPFO451c (ENV) Air Analysis - Dust Monitoring Field Sheet

Client: InfraBuild Hexham Project No.: 60493017 Field Staff: S Hamilton  
 Date Collected: 5/10/21 Collection Start Time: 9:00 Collection Stop Time: 10:00

Site	Time	Funnel Diameter (mm)	Installed Date	Collection Date	Water Level (mL)	Water Colour	Turbidity	Decomposing Matter	Comments
DG1	9:30	148	2/9/21	5/10/21	1600	clear	ST	insects/veg	
DG2	9:50	147	2/9/21	5/10/21	1600	clear	C	insects/veg	
DG3	9:40	147	2/9/21	5/10/21	1600	clear	C	insects/veg	
DG4	9:45	148	2/9/21	5/10/21	1600	clear	C	insects/veg	
DG5	9:10	148	2/9/21	5/10/21	1800	clear	C	insects/vegetation	
DG6	9:35	147	2/9/21	5/10/21	1600	clear	C	insects veg	
Turbidity – Clear (C), Slightly Turbid (ST), Turbid (T), Very Turbid (VT).							Initials: <u>SH</u>		