Government of **Western Australia**
Department of **Water and Environmental Regulation**

Annual Audit Compliance Report Form

Environmental Protection Act 1986, Part V Division 3

Once completed, please submit this form either via email to info@dwer.wa.gov.au, or to the below postal address:

Department of Water and Environmental Regulation
Locked Bag 10
Joondalup DC WA 6919

Section A – Licence details			
Licence number:	L7799/2001/8	Licence file number:	DER2015/001639-1
Licence holder name:	Resource Recovery Group		
Trading as:	Resource Recovery Group		
ACN:			
Registered business address:	9 Aldous Place BOORAGOON WA 6154		
Reporting period:	01/07/2024 **to** 30/06/2025		

Section B – Statement of compliance with licence conditions

Did you comply with all of your licence conditions during the reporting period? (please tick the appropriate box)

☐ Yes – please complete:
- section C;
- section D (if required); and
- sign the declaration in Section F.

☒ No – please complete:
- section C;
- section D (if required);
- section E; and
- sign the declaration in Section F.

Section C – Statement of actual production

Provide the actual production quantity for this reporting period. Supporting documentation is to be attached.

Prescribed premises category	**Actual production quantity**
61A - Solid waste facility, 67A - Compost manufacturing and soil blending 62 – Solid waste depot	See attached Spreadsheet

Section D – Statement of actual Part 2 waste discharge quantity	
Provide the actual Part 2 waste discharge quantity for this reporting period. Supporting documentation is to be attached.	
Prescribed premises category	**Actual Part 2 waste discharge quantity**

Section E – Details of non-compliance with licence condition			
Please use a separate page for each condition with which the licence holder was non-compliant at a time during the reporting period.			
Condition no:	18(a) and 18(b)	Date(s) of non-compliance:	August 2024
Details of non-compliance:			
August Monthly Odour Field Assessment (OFA) was not undertaken due to weather conditions (winter, wind and rain patterns) not being suitable for surveying.			
What was the actual (or suspected) environmental impact of the non-compliance? **NOTE** – please attach maps or diagrams to provide insight into the precise location of where the non-compliance took place.			
No known environmental impacts.			
Cause (or suspected cause) of non-compliance:			
Winter, wind and rain patterns			
Action taken to mitigate any adverse effects of non-compliance and prevent recurrence of the non-compliance:			
Next available weather conditions suitable for surveying.			
Was this non-compliance previously reported to DWER?			
☒ Yes, and			
☐ Reported to DWER verbally		Date: / /	
☒ Reported to DWER in writing		Date: 29 / 08/ 2024	

Section E – Details of non-compliance with licence condition			
Please use a separate page for each condition with which the licence holder was non-compliant at a time during the reporting period.			
Condition no:	13(a)	Date(s) of non-compliance:	December 2024
Details of non-compliance:			
An exceedance of odour concentrations from biofilter 3 surface outlet 111 and biofilter 4 surface outlet 110.			
What was the actual (or suspected) environmental impact of the non-compliance? **NOTE** – please attach maps or diagrams to provide insight into the precise location of where the non-compliance took place.			
No known environmental impacts.			
Cause (or suspected cause) of non-compliance:			
Biofilters not adequately "wetted".			
Action taken to mitigate any adverse effects of non-compliance and prevent recurrence of the non-compliance:			
Apply biofilter 3 surface outlet 111 and biofilter 4 surface outlet 110 with a heavy watering regime to ensure the media is adequately "wetted".			
Was this non-compliance previously reported to DWER?			
☒ Yes, and			
☐ Reported to DWER verbally		Date: / /	
☒ Reported to DWER in writing		Date: 19 / 12 / 2024	

Section E – Details of non-compliance with licence condition			
Please use a separate page for each condition with which the licence holder was non-compliant at a time during the reporting period.			
Condition no:	13(a).	Date(s) of non-compliance:	February 2025
Details of non-compliance:			
As per the February Biofilter Report, odour concentrations for February 2025 exceeded 500 odour units from Biofilter 4 Fan Area 109 and Biofilter 4 Fan Area 110.			
What was the actual (or suspected) environmental impact of the non-compliance? **NOTE** – please attach maps or diagrams to provide insight into the precise location of where the non-compliance took place.			
No environmental impact identified due to the non-compliance.			
Cause (or suspected cause) of non-compliance:			
Inlet airflow was 'compromised' and there was not enough flow of air into Fan Area 109. Please see the attached Environmental Incident Investigation Report for complete details.			
Action taken to mitigate any adverse effects of non-compliance and prevent recurrence of the non-compliance:			
Immediate Remedial Action: Biofilter Inspection and modified biofilter watering duration. Please see attached Environmental Incident Investigation Report for complete details.			
Was this non-compliance previously reported to DWER?			
☒ Yes, and			
☐ Reported to DWER verbally		Date: / /	
☒ Reported to DWER in writing		Date: 08/07/2025	

FPF and GWF Product 2024-2025	IN	OUT	Grand Total
FOGO - Member Council	26479		26479
FOGO - Commercial	9060		9060
FOGO Residuals/ Rejects to WtE		1712	1712
FOGO Fines (G)		29085	29085
FOGO Overs (H)		613	613
FOOD Organics - Commercial	199		199
Sub Total	**35738**	**31410**	**67148**
Green Waste - Commercial	3339		3339
GWaste 1.5	1389		1389
GWaste 3.0	995		995
GWaste Heavy Vehicles	854		854
GWaste Member Council	2358		2358
GWaste Oversized	48		48
GWaste Oversized (Member Council)	98		98
GWaste Palms 1.5	5		5
GWaste Palms 3.0	6		6
GWaste PASS 1.5	105		105
Unprocessed Greenwaste		7266	7266
Sub Total	**9197**	**7266**	**16463**
Grand Total	**44935**	**38676**	**83611**

Note: Weight in Tonne.

Section F – Declaration

I / We declare that the information in this Annual Audit Compliance Report is true and correct and is not false or misleading in a material particular[1].

I / We consent to the Annual Audit Compliance Report being published on the Department of Water and Environmental Regulation's (DWER) website.

Signature[2]:	[redacted]	Signature:	
Name: (printed)		Name: (printed)	
Position:		Position:	
Date:	28/07/2025	Date:	
Seal (if signing under seal):			

[1] It is an offence under section 112 of the *Environmental Protection Act 1986* for a person to give information on this form that to their knowledge is false or misleading in a material particular.

[2] AACRs can only be signed by the licence holder or an authorised person with the legal authority to sign on behalf of the licence holder.

RRG - Environmental Incident Investigation Report

EMIS ID	EMIS 300	EMIS Title	2024 August Monthly Odour Field Assessment (OFA)		
EMIS Opened By	Zara Pedder	EMIS Status	Closed	Management Notification	
EMIS Assigned To	Zara Pedder	EMIS Category	Monitoring	Significant	
EMIS Reported To	Zara Pedder	EMIS Priority	(3) Low		
EMIS Opened Date	29/08/2024	EMIS Opened Time	10:37	Environmental Incident Risk	
EMIS Incident Date	28/08/2024	Incident Time	14:04	Low	
EMIS Completion Date	29/08/2024				

EMIS Details of Incident

August Monthly Odour Field Assessment (OFA) was not undertaken due to weather conditions (winter, wind and rain patterns) not being suitable for surveying.

Immediate Remedial Action Taken

Review weather condition for appropriate day.

Description of Environmental Impact

Unknown

Description of Events Leading up to the Incident

Normal operations.

Contributing Factors / Immediate Causes

None.

Likely Underlying Cause

Weather not suitable for surveying.

Licence Condition

Fig.1 Eml Odour Field Survey August 2024

Zara Pedder

Signature & Date 29/08/2024

Comments

Signature & Date

From: John Hurley
To: Zara Pedder
Subject: RE: August OFA
Date: Wednesday, 28 August 2024 2:04:19 PM
Importance: High

Hi Zara,

During the month of August, the Jandakot locality's wind direction was on majority from those directions outside of the Odour field Assessment (OFA) Plan, and together with rainfall, the August OFA was unable to be undertaken within the OFA Plan Assessment Areas.
The required winds are from the east-southeast (Assessment Areas 1 and 2), southeast (Assessment Area 3), and south-southeast (Assessment Area 4).
There were 3 instances in August where winds originated from the desired origins, and only in the AM period of the day.
Staff are not always available on every day.
As a result, the August OFA could not be undertaken by EAQ and its staff.
This has occurred during winter periods over previous years, albeit usually EAQ can usually accommodate a last-minute scheduling due to weather.
The remaining days of August sees winds from the west, which again do not satisfy the OFA Plan.
Consequently, the August OFA cannot be undertaken within the OFA Plan Assessment Areas.
It should be noted however that field odours have not been detectable from the RRG's CVC for many months and years, and the risk of any odour impacts during August is therefore Low.

Regards

John Hurley
(B.Sc [Chemistry/Biotechnology], CAQP)

Environment | Odour | Dust | Toxics

EAQ Consulting
Environment | Air Quality

Principal Consultant | Director
Environmental & Air Quality Consulting Pty Ltd
PO Box 897, JOONDALUP DC, WA 6919
+61 (8) 6108 3760 (o)
+61 (0) 449 915 043 (m)
jhurley@eaqconsulting.com.au | www.eaqconsulting.au

From:	Zara Pedder
To:	Info; Hayden Nebel
Bcc:	Zara Pedder
Subject:	Notification - RRG Licence L7799/2001/8 Condition 18(a) and (18b)
Date:	Thursday, 29 August 2024 11:20:00 AM
Attachments:	EMIS300 Report 2024 Aug Mthly OFA with eml.pdf

Ref: L7799/2001/8
Attention: Hayden Nebal

Hello

As per Condition 18(a) and 18(b) of Licence L7799/2001/8, we wish to report Odour Field Assessment survey not complete for August 2024.

Condition 18(a) Odour Field Assessment and 18(b) publish results of the Odour Field Assessment.

Please see attached for detail.

Should you have any queries related to the attached or need any further information, please do not hesitate to contact me on the below.

From:	Microsoft Outlook
To:	Info; Hayden Nebel
Subject:	Relayed: Notification - RRG Licence L7799/2001/8 Condition 18(a) and (18b)
Date:	Thursday, 29 August 2024 11:21:01 AM
Attachments:	Notification - RRG Licence L779920018 Condition 18(a) and (18b).msg

Delivery to these recipients or groups is complete, but no delivery notification was sent by the destination server:
Info (info@dwer.wa.gov.au) <mailto:info@dwer.wa.gov.au>
Hayden Nebel (hayden.nebel@dwer.wa.gov.au) <mailto:hayden.nebel@dwer.wa.gov.au>
Subject: Notification - RRG Licence L7799/2001/8 Condition 18(a) and (18b)

From:	Hayden Nebel
To:	Zara Pedder
Subject:	Automatic reply: Notification - RRG Licence L7799/2001/8 Condition 18(a) and (18b)
Date:	Thursday, 29 August 2024 11:23:41 AM

Thank you for your email. I am currently out of the office.

I will respond to your email upon my return. Alternatively, please email Manager Waste Industries Melissa Chamberlain at melissa.chamberlain@dwer.wa.gov.au.

Kind regards,
Hayden Nebel
Regulatory Services

From:	Info
To:	Zara Pedder
Subject:	Re: Notification - RRG Licence L7799/2001/8 Condition 18(a) and (18b) - New Correspondence [SR-0155293]
Date:	Thursday, 29 August 2024 11:27:37 AM

Your ticket has been logged with ID **0155293**.

Thank you for your enquiry on **29/08/2024 11:24**. This auto-generated response confirms that the Department of Water and Environmental Regulation has received your email. As part of our Customer Service Charter, the department aims to reply to general correspondence and respond to general complaints within 10 business days of receipt.

Form 2

If you have submitted a Form 2 'Request for a Summary of Records in Respect of Land' under section 21 of the Contaminated Sites Act 2003, please be aware that all requests are dealt with on a first-come, first-served basis and cannot be prioritised. Due to the volume of requests received at any given time, the department may not be able to provide a response within 10 business days of receipt. To avoid delays please ensure you clearly identify the site, submit the correct payment ($44 for each Basic Summary of Records search i.e. 2 lots = $88) and pay using the department's online payment portal.

Please direct all future emails to info@dwer.wa.gov.au

Regards

Department of Water and Environmental Regulation

Section E – Details of non-compliance with licence condition			
Please use a separate page for each condition with which the licence holder was non-compliant at a time during the reporting period.			
Condition no:	13(a)	Date(s) of non-compliance:	December 2024
Details of non-compliance:			
An exceedance of odour concentrations from biofilter 3 surface outlet 111 and biofilter 4 surface outlet 110.			
What was the actual (or suspected) environmental impact of the non-compliance? **NOTE** – please attach maps or diagrams to provide insight into the precise location of where the non-compliance took place.			
No known environmental impacts.			
Cause (or suspected cause) of non-compliance:			
Biofilters not adequately “wetted”.			
Action taken to mitigate any adverse effects of non-compliance and prevent recurrence of the non-compliance:			
Apply biofilter 3 surface outlet 111 and biofilter 4 surface outlet 110 with a heavy watering regime to ensure the media is adequately “wetted”.			
Was this non-compliance previously reported to DWER?			
☒ Yes, and			
☐ Reported to DWER verbally		Date: / /	
☒ Reported to DWER in writing		Date: 19 / 12 / 2024	

RRG - Environmental Incident Investigation Report

EMIS ID	EMIS 307	EMIS Title	December 2024 Odour Units		
EMIS Opened By	Zara Pedder	EMIS Status	Closed	Management Notification	
EMIS Assigned To	Zara Pedder	EMIS Category	Monitoring	Significant	
EMIS Reported To	Xabier Urresti	EMIS Priority	(2) Normal		
EMIS Opened Date	17/12/2024	EMIS Opened Time	11:04	Environmental Incident Risk	
EMIS Incident Date	3/12/2024	Incident Time	12:18	Low	
EMIS Completion Date	17/12/2024				

EMIS Details of Incident

An exceedance of odour concentration from biofilter 3 surface outlet 111 (540 odour units) and biofilter 4 surface outlet 110 (650 odour units).

Immediate Remedial Action Taken

Biofilter leachate system checks on biofilter 3 & 4 and targeted surface watering program for biofilter 3 surface outlet 111 & biofilter 4 surface outlet 110.

Description of Environmental Impact

None

Description of Events Leading up to the Incident

The Odour Unit monthly testing.

Contributing Factors / Immediate Causes

Unknown

Likely Underlying Cause

Unknown

Licence Condition 13(a)

The Licence Holder must operate and manage Biofilters 1, 2, 3 and 4 such that odour concentrations, when measured on the surface of each biofilter cell in accordance with condition 33(a), do not exceed 500 odour units.

Comments Zara Pedder

Apply biofilter 3 surface outlet 111 and biofilter 4 surface outlet 110 with a heavy watering regime to ensure the media is adequately "wetted".

Signature & Date 17/12/2024

Comments

Signature & Date

From:	Zara Pedder
To:	Info; Hayden Nebel
Subject:	Notification - RRG Licence L7799/2001/8 Condition 13(a)
Date:	Thursday, 19 December 2024 8:42:23 AM
Attachments:	02. EMIS307 Report - Dec 2024 Odour Units.pdf ResourceRecoveryGroup-Logo[HIRES]_landscapecolour_56a554db-c2a2-417d-b4f7-3500f4953902.png rrgcolour_fa4953d5-b79f-44f8-8f2f-08334fe46981.png rrgchristmas_bd012e90-32f6-4f15-85c5-aaecbc5096fc.png

Ref: L7799/2001/8
Attention: Hayden Nebal

Hello

As per Condition 13(a) of Licence L7799/2001/8, we wish to report odour unit exceedance survey for December 2024.

Condition 13(a) Odour Concentrations.

Please see attached for detail.

Should you have any queries related to the attached or need any further information, please do not hesitate to contact me on the below.

Zara Pedder
Manager Quality and Environment
T: (+61 8) 9256 9555 | 0410 669 270
E: zpedder@resourcerecoverygroup.com.au
W: **resourcerecoverygroup.com.au**

Resource Recovery Group
Recycle. Innovate. Educate.

Resource Recovery Group | ABN 28 965 675 752

Wishing you a safe & happy festive season.

Holiday Period Closure information:

***Canning Vale Centre** will close for the day on Wednesday 25 December 2024 and Wednesday 1 January 2025.*
***Booragoon Corporate office** will be closed from Monday 23 December 2024, reopening Thursday 2 January 2025.*

Resource Recovery Group
Recycle. Innovate. Educate.

From:	Info
To:	Zara Pedder
Subject:	02.2 Re: Notification - RRG Licence L7799/2001/8 Condition 13(a) - New Correspondence [SR-0174262]
Date:	Thursday, 19 December 2024 8:48:24 AM

Your ticket has been logged with ID **0174262**.

Thank you for your enquiry on **19/12/2024 8:45**. This auto-generated response confirms that the Department of Water and Environmental Regulation has received your email. As part of our Customer Service Charter, the department aims to reply to general correspondence and respond to general complaints within 10 business days of receipt.

Form 2

If you have submitted a Form 2 'Request for a Summary of Records in Respect of Land' under section 21 of the Contaminated Sites Act 2003, please be aware that all requests are dealt with on a first-come, first-served basis and cannot be prioritised. Due to the volume of requests received at any given time, the department may not be able to provide a response within 10 business days of receipt. To avoid delays please ensure you clearly identify the site, submit the correct payment ($44 for each Basic Summary of Records search i.e. 2 lots = $88) and pay using the department's online payment portal.

Please direct all future emails to info@dwer.wa.gov.au

Regards

Department of Water and Environmental Regulation

From:	Microsoft Outlook
To:	Info; Hayden Nebel
Subject:	Relayed: Notification - RRG Licence L7799/2001/8 Condition 13(a)
Date:	Thursday, 19 December 2024 8:42:03 AM
Attachments:	Notification - RRG Licence L779920018 Condition 13(a).msg

Delivery to these recipients or groups is complete, but no delivery notification was sent by the destination server:
Info (info@dwer.wa.gov.au) <mailto:info@dwer.wa.gov.au>
Hayden Nebel (hayden.nebel@dwer.wa.gov.au) <mailto:hayden.nebel@dwer.wa.gov.au>
Subject: Notification - RRG Licence L7799/2001/8 Condition 13(a)

EAQ Consulting

BIOFILTER ODOUR EMISSIONS COMPLIANCE REPORT

RESOURCE RECOVERY GROUP:
CANNING VALE CENTRE

Biofilter Odour Emissions Compliance Report

Prepared for: Resource Recovery Group

Resource Recovery Group
Recycle. Innovate. Educate.

Bannister Road
Canning Vale, Western Australia 6155

Project Ref: EAQ-24002

December 2024

EAQ Consulting

Environment | Air Quality

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Report Revision(s)				
Version(s)	**Description**	**Date**	**Author(s)**	**Reviewer(s)**
Draft_1.0	Internal Review	12.12.2024	J. Hurley	DSB
Final_1.0	Released to Client	12.12.2024	J. Hurley	

Approved for Release		
Name	**Position**	**File Reference**
John Hurley	Principal Consultant	EAQ24002 - RRG's CVC Biofilters Dec'24 Compliance Report_v1.0

Signature

The purpose of this technical report is to document the current performance of the CVC Biofilters for the process parameters of Temperature (^{0}C), Pressure (kPa), Velocity (m/s), Relative Humidity (%RH), Volumetric Flow (m^3/s) & (m^3/hr), Odour Concentration (ou), Biofilter Inlet Odour Emission Rates (ou.m^3/s), Biofilter Outlet Odour Emission Rates (ou.m^3/s) and Biofilter Surface Spatial Testing of Velocity (m/s) & Temperature (^{0}C).

Contents

Figures

Tables

1 Background & Scope

Environmental & Air Quality Consulting Pty Ltd (EAQ) was engaged by the Resource Recovery Group (RRG) to undertake its biofiltration odour compliance works at the RRG's Canning Vale Centre (CVC).

The compliance works were undertaken to evaluate the performance of the odour treatment biofilters at the CVC to determine if the biofilters are complaint with the facilities Prescribed Premises **Licence No. L7799/2001/8** issued pursuant to Part V of the *Environmental Protection Act 1986*.

The CVC site has three primary processes and associated process areas:

i. Materials Recovery Facility (MRF) of recyclables, handling and distribution;
ii. Green Waste Facility (GWF) receivables, handling, processing, and distribution; and
iii. FOGO Processing Facility (FPF) that receives, decontaminates, and transfers FOGO and municipal solid wastes (kerb side collections).

Of consideration is the FPF and its four (4) odour treatment biofilters of which two are currently offline and potentially scheduled for decommissioning (biofilters 1 and 2), and two are currently in operation (biofilters 3 and 4).

Biofilters 3 and 4 are divided into discrete treatment 'cells' resulting in four (4) treatment areas that are the basis of this odour compliance assessment.

1.1 Assessment Objective

The CVC is a Prescribed Premises pursuant to Schedule 1 of the *Environmental Protection Regulations 1987*. The following categories are relevant to the operations:

Category	Description	Capacity
67A	Composting manufacturing and soil blending	No more than 120,000 tonnes per year
61A	Solid waste facility	No more than 52,000 tonnes per year
62	Solid waste depot	30,000 tonnes per year

Licence Number L7799/2001/8 contains a range of legally binding conditions relevant to the operations.

Specifically, biofilter odour emissions to air are managed according to Licence Conditions 14, 15(a), (b) and (c), and Condition 16. Furthermore, Biofilter Monitoring must be undertaken in accordance with Conditions 36(a), (b) and (c), and Conditions 37(a) and (b).

Within Condition 37(a), *Table 4 – Biofilter performance*, Biofilter testing as required, where:

- Note 1: Quarterly Monitoring is required except where biofilters are shut down for periods of greater than 90 consecutive days; and

- Note 2: Monthly monitoring is required except where biofilters are shut down for periods greater than 28 consecutive days.

Performance parameters must also be collected in conjunction with the monthly biofilter compliance testing. These parameters are listed in **Table 1-1**.

Table 1-1: Biofilter Performance Compliance Requirements

Location	Parameter	Target	Limit
Inlet of each cell of Biofilters 1, 2, 3 and 4	Single Sample Odour Concentration (ou)	-	-
	Fan Velocity (m/s) & (% Rate)	-	-
	Pressure (kPa)	-	-
	Relative Humidity (% moisture) – taken from Dry & Wet Bulb Temperature Measurements	≥ 90%	≥ 85%
	Temperature (^{0}C)	≤ 40^{0}C	≤ 45^{0}C
Outlet of each cell of Biofilters 1, 2, 3 and 4 (using surface sampling hood)	Composite Sample Odour Concentration (ou)	-	≤ 500
	Temperature (^{0}C)	-	-
	Velocity (m/hr/m^2)	-	

2 FPF Extraction & Biofilter Fan Performance during Sampling

The following information presents the relevant fan performance and process conditions during the sampling activities that were undertaken onsite.

Tuesday, 3rd December 2024

- Sampling from Waste Transfer Building Biofilters 3&4 from 1125hrs onward, where:
  - Biofilter 3 Fan 111 under normal operations,
  - Biofilter 4 Fan 109 under normal operations, and
  - Biofilter 4 Fan 110 under normal operations.
- Only FOGO waste acceptance, screening and load-out through the FPF;
- No process odour onsite;
- No leachate odours onsite; and
- No odour complaints recorded.

2.1 Monitoring Exceptions

- Biofilter 3 Fan 112 OFF for Refurbishment.

2.2 Observations during Sampling

- Heightened odours from Fan Area 110 during odour sampling.

3 Odour & Process Parameter Results

The odour samples collected and the corresponding process parameters at the time of sampling are detailed in **Table 3-1**.

- Where there is a "-" within a cell of **Table 3-1** that data was not collected in accordance with maintenance activities and/or Condition 37(a) of the Licence.

The Green shaded cells present the Inlet relative humidity (%RH) entering each Biofilter fan area, and the Outlet odour concentrations (ou.m^3) emitted to atmosphere from each Biofilter surface fan area.

Table 3-2 summarises those data points with their respective errors applied.

Figures 3-1 and 3-2 present the graphed comparison of Inlet and Outlet biofilter odour concentrations for the annual period.

EAQ collected all odour samples for analysis.

Odour Analysis was undertaken by Emission Assessments at their NATA Accredited Odour Laboratory. Error results for the odour concentration analysis are reported on the Emission Assessments NATA Accredited Report which is presented in Appendix A at the end of this report.

Table 3-1: Biofilter Performance Compliance Results of Sampling and Testing

Fan/ Fan Area	Sampling Date	Sampling Time (hrs)	Average Inlet Velocity (m/s)	Average Inlet Flow Rate (m^3/hr)	% of Fan Design Volume Flow Rate	Measured Inlet Pressure (kPa)	Measured Inlet Temperature Dry Bulb (^{0}C)	Measured Inlet Temperature Wet Bulb (^{0}C)	**Measured Average Inlet Relative Humidity (%RH)**	Inlet Odour Concentration (ou)	**Biofilter Surface Odour Concentration (ou)**	Odour Emission Rate Destruction Efficiency (%)
111	03-12-2024	13:24	15.40	43,542	79.17%	0.54	28.1	28.1	**100.0**	3,100	**540**	82.6%
112		-	-	-	-	-	-	-	**-**	-	**-**	-
109		11:25	2.72	7,691	13.98%	0.03	28.0	28.0	**100.0**	3,800	**230**	93.9%
110		12:18	11.90	33,646	61.18%	2.53	28.4	28.4	**100.0**	3,800	**650**	82.9%

Table 3-2: Biofilter Performance Compliance Error Summary of Testing Results

Fan / Fan Area	Derived Average Inlet Velocity (m/s) Error: + / - 1.5%			Derived Average Inlet Flow Rate (m^3/hr) Error: + / - 1.5%			Measured Inlet Pressure (kPa) Error: + / - 1.0%			Measured Inlet Temp. Dry Bulb (^{0}C) Error + / - 1.1^{0}C & + / - 0.05%			Measured Inlet Temp. Wet Bulb (^{0}C) Error + / - 1.1^{0}C & + / - 0.05%		
111	15.17	***15.40***	15.63	42,889	***43,542***	44,196	0.53	***0.54***	0.54	27.0	***28.1***	29.2	27.0	***28.1***	29.2
112	-	**-**	-	-	**-**	-	-	**-**	-	-	**-**	-	-	**-**	-
109	2.68	***2.72***	2.76	7,575	***7,691***	7,806	0.03	***0.03***	0.03	26.9	***28.0***	29.1	26.9	***28.0***	29.1
110	11.72	***11.90***	12.08	33,142	***33,646***	34,151	2.50	***2.53***	2.56	27.3	***28.4***	29.5	27.3	***28.4***	29.5

n/c = not able to be calculated

NOTE: Odour Error is reported in the NATA Accredited Emission Assessments Odour Concentration Report in Appendix A

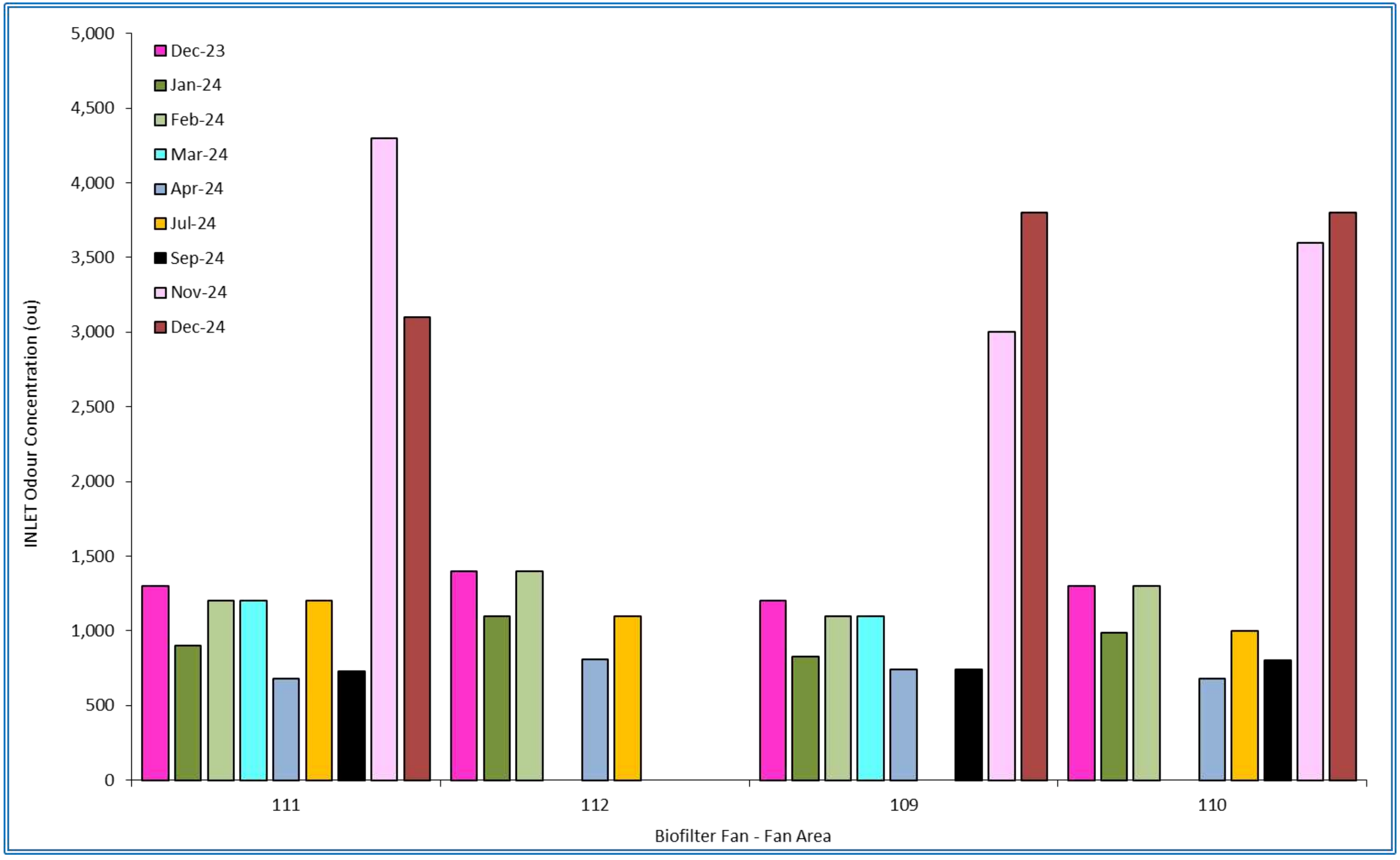


Figure 3-1: Annual Comparison of Biofilter Inlet Odour Concentrations

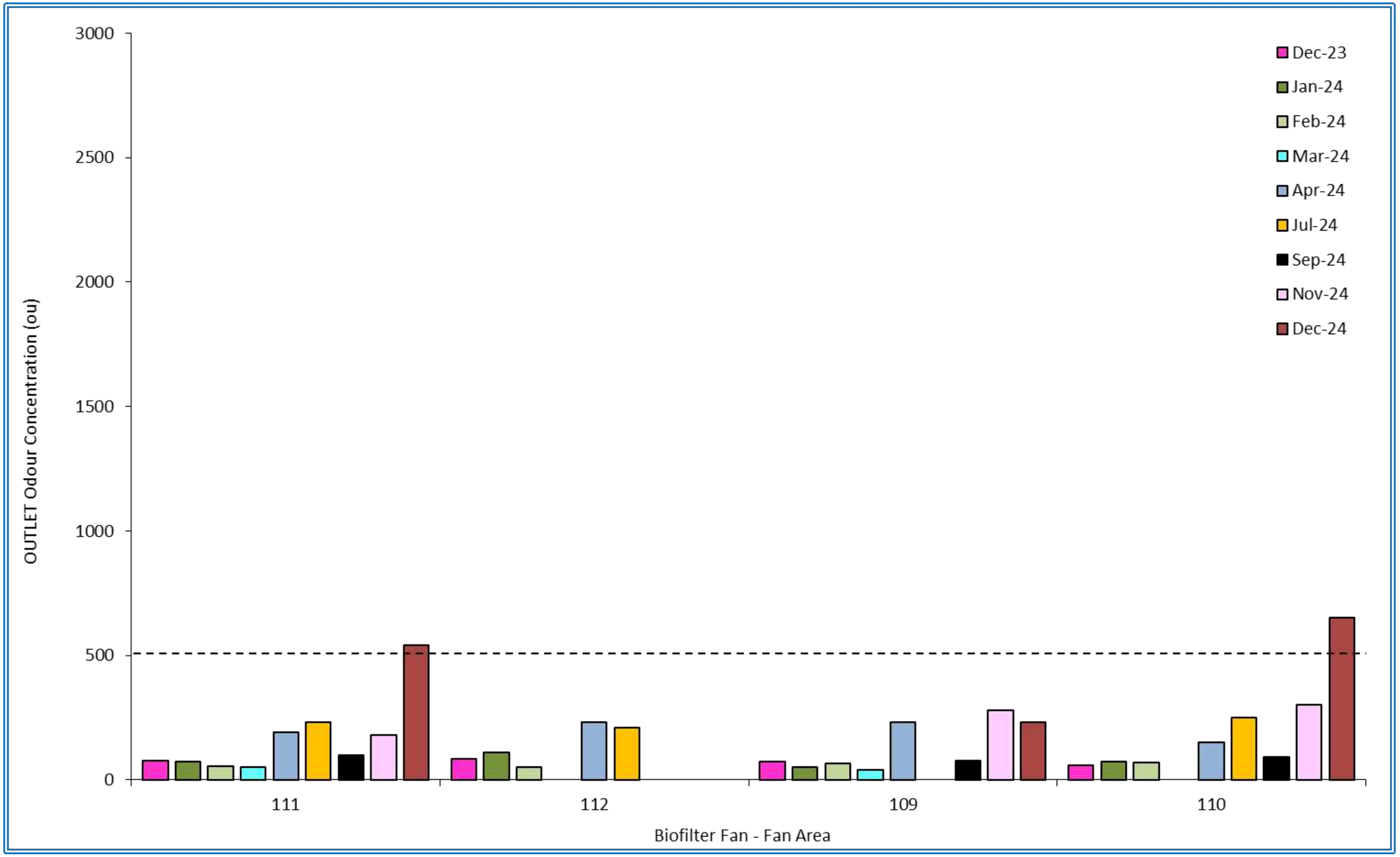


Figure 3-2: Annual Comparison of Biofilter Outlet Odour Concentrations

4 Biofilter Spatial Sampling Results

The histograms presented on the following pages represent the spatial variation for each of the operational biofilter fan areas. The measured velocity (m/s) has been converted into m/h and presented in each graph as measured from the surface sampling hood within the chimney exhaust.

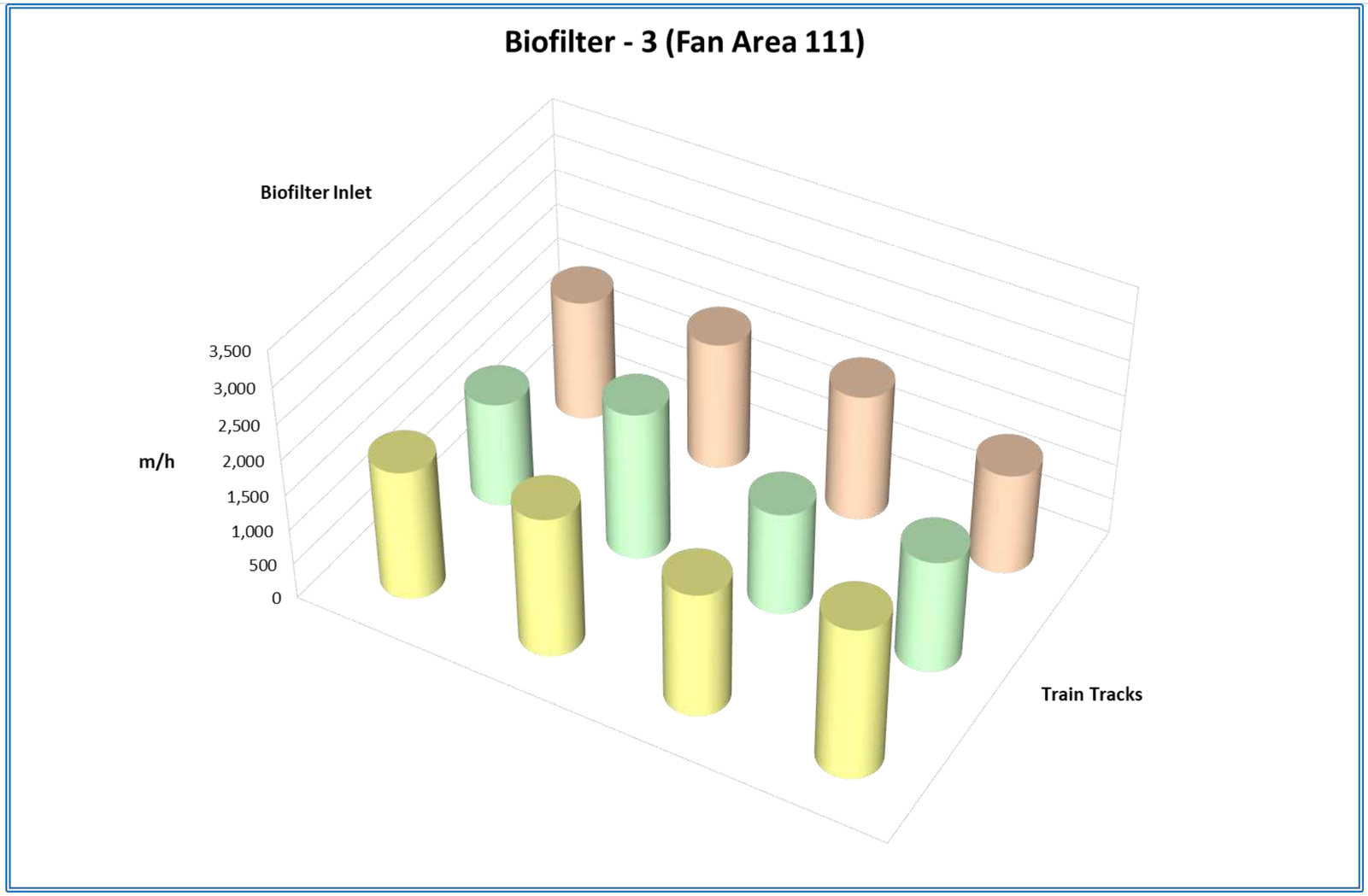
Below each graph is a table of measured surface emission temperatures (^{0}C) which were collected at the time of the velocity measurement. These temperatures were also measured from the surface sampling hood within the chimney exhaust.

Also below each graph is a Table of derived surface flows. The flows are first presented as a velocity in m/h which is then converted into m/h/m^2 representing the surface area of the surface sampling hood. This velocity per square metre is then multiplied out by the surface area of each Fan Area and then divided by the area ratio between the hood and the hoods' stack. The conversion gives a flow in m^3/h. Since the hood imparts a pressure on the air leaving the biofilter surface (typically within the range of 10-20Pa), the measured velocities may be lower than the actual velocity. Therefore, the derived Fan Area flow in m^3/h may be significantly less than the design flow of each Fan Areas' corresponding Fan, but still comparable to each other when utilising the same sampling hood across all four biofilters.

NOTE: The derived surface flows should not be compared to the inlet design flows of the fans. The purpose of the surface sampling method is to provide a representation of the spatial uniformity of air flow from the biofilters' surfaces. The measure of surface velocity using the hood and reduced area sampling stack is simply a tool to show the spatial variation of biofilter exhaust air flows and not explicitly a measure of actual flow.

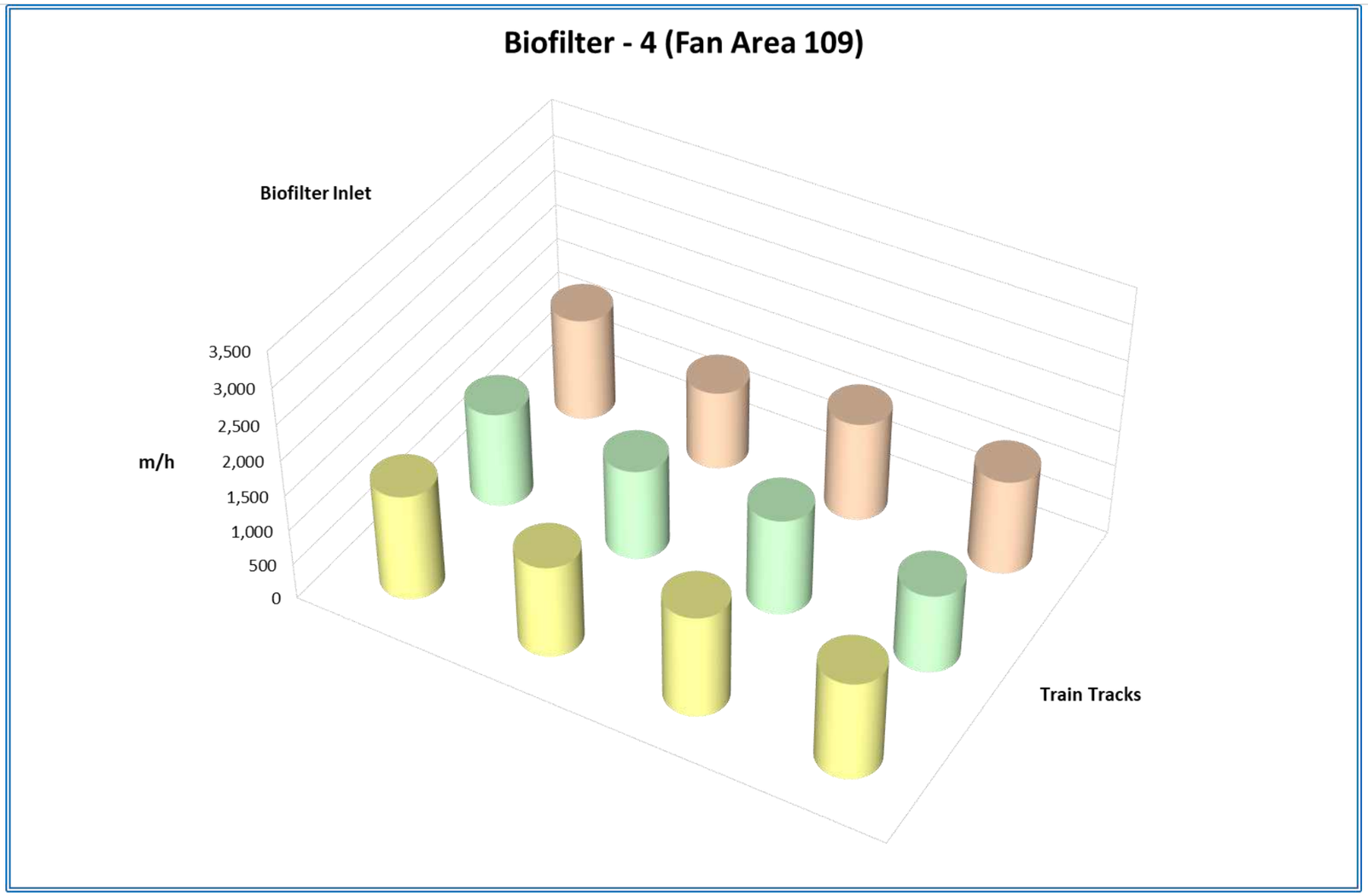
The measured velocity of air emitted from a biofilter is expected to show variation across the surface of each biofilter fan area since the movement of air within the biofilter media is not uniform in either direction or speed. Some areas may be slightly more compacted than others showing a 'depressed' exit velocity, whereas others may be the opposite. However, each of the individual measurement locations on the surface of each operational Fan Area has shown that air is passing through the biofilter, spread uniformly laterally, albeit at times under differing flow classes.

Given that odour sampling was also undertaken at each of these surface velocity locations, the results of the odour testing are a true reflection as to the performance of each biofilter.



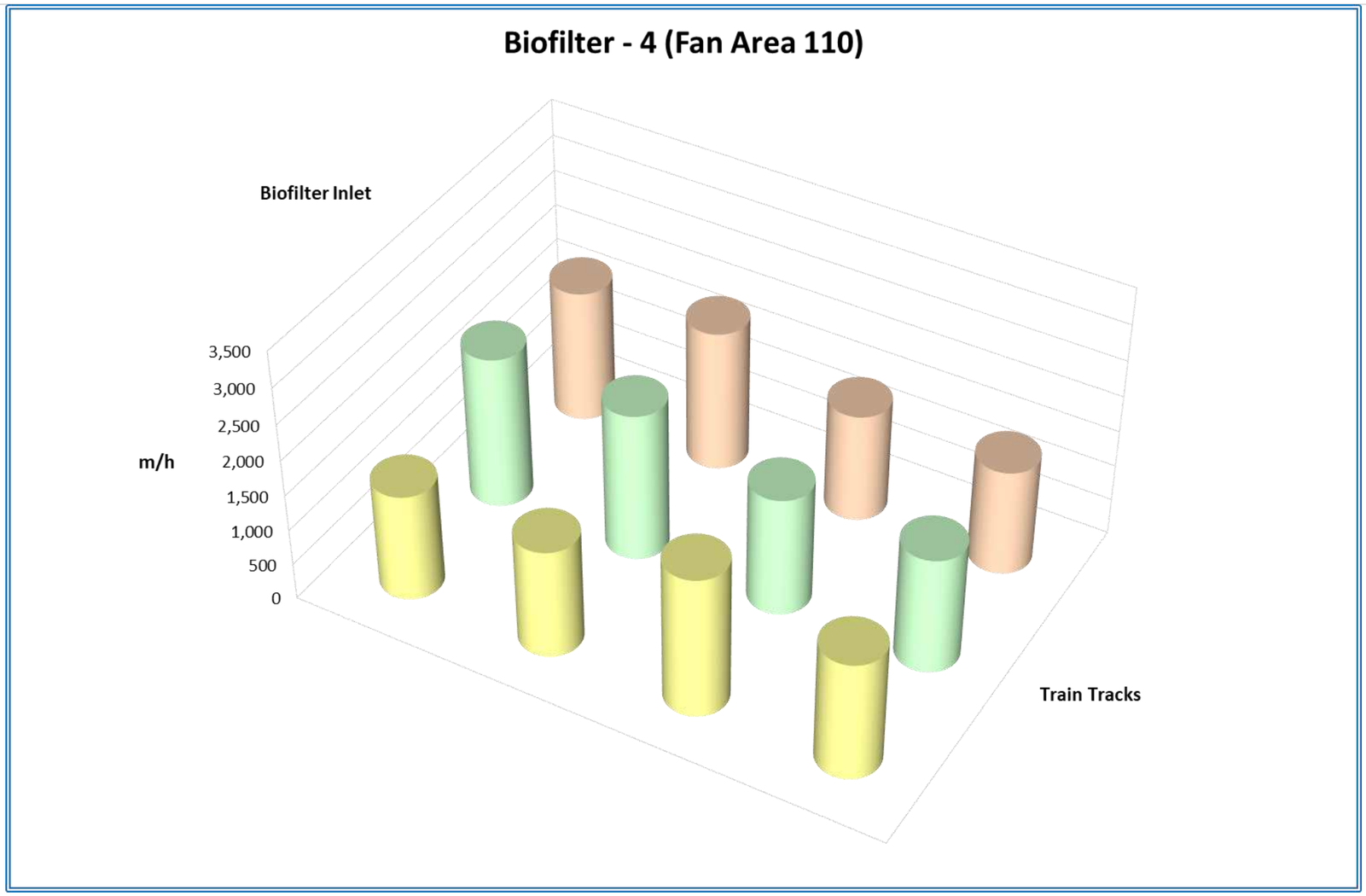
Surface Temperature Profile – Fan Area 111		
Front – adjacent to Aeration Building		
20.5	20.5	20.9
20.8	20.3	20.3
20.9	20.5	20.4
20.8	20.4	20.9
Rear – Train Tracks		

Average Surface Velocity (m/h)	Fan Area (m^2)	Average Surface Flow (m^3/h)	Average Surface Flow (scaled up) (m^3/h)
1,764	389	15,965	**43,542**



Surface Temperature Profile – Fan Area 109		
Front – adjacent to Aeration Building		
20.0	20.4	20.4
20.1	19.9	20.1
20.0	20.0	20.0
20.3	20.4	20.1
Rear – Train Tracks		

Average Surface Velocity (m/h)	Fan Area (m^2)	Average Surface Flow (m^3/h)	Average Surface Flow (scaled up) (m^3/h)
1,347	389	12,197	**7,691**



Surface Temperature Profile – Fan Area 110		
Front – adjacent to Aeration Building		
20.0	20.0	20.3
20.5	20.1	20.0
20.1	19.9	20.2
20.0	20.4	20.3
Rear – Train Tracks		

Average Surface Velocity (m/h)	Fan Area (m^2)	Average Surface Flow (m^3/h)	Average Surface Flow (scaled up) (m^3/h)
1,753	389	15,869	**33,646**

5 Evaluation & Summary of Compliance Results

The odour results during the December 2024 Monthly Biofilter compliance works are summarised as follows:

- Biofilter 3, Fan Area 111 had an outlet odour concentration of 540 odour units,
- Biofilter 4, Fan Area 110 had an outlet odour concentration of 650 odour units,
- Biofilter 4, Fan Area 109 had an outlet odour concentration < 500 odour units;
- All operational biofilter inlets had inlet temperatures $\leq 40^0$C; and
- All operational biofilter inlets had Relative Humidity's ≥ 85%RH.

The RRG's CVC had two (2) compliance exceedances in the form of heightened biofilter odour release from Fan Areas 111 and 110.

These exceedances were minor, although Fan Area 110 was notably more odorous across its surface at the front-end during the sampling.

It would be difficult to assume that Biofilter 3, Fan Area 111 would result in an odour complaint given this minor exceedance, especially since the 95% confidence range for odour analysis for Fan Area 111 was 420 – 720 odour units. Given the 95% confidence range, EAQ is of the view that Fan Area 111 was at the limit of exceedance rather than having a reliable exceedance of the 500 odour unit Limit.

For Biofilter 4, Fan Area 110 the 95% confidence range for odour analysis was 490 - 860 odour units. As a result, the exceedance for Fan Area 110 appears to be accurate.

5.1 Recommended Actions

Biofilters 3 and 4, Fan Areas 111 and 110 should undergo additional watering regimes to ensure the biofilter beds are sufficiently watered.

EAQ also recommends that both biofilters 3 and 4 are adequately drained to ensure no hydraulic blockages that may otherwise cause preferential pathway toward the front-end of these biofilters. This may explain the front-end heightened odour from Fan Area 110.

Appendix A: Odour Concentration Results

EMISSION ASSESSMENTS
AIR QUALITY

Environmental & Air Quality Consulting Pty Ltd

EAPL Ref: 2425-134

Biofilter Odour Analysis

11 December 2024

Reviewed By: **Regina Wheeler**
Technical Services Manager
B.Sc (Extractive Metallurgy)

Written & Authorised By: **Bryan Grant**
Principal - Air
B.Sc (NDip (Mech Eng) BSc Hons (Env Sci)

NATA

NATA Accredited Laboratory Number: 17108. Accredited for compliance with ISO/IEC 17025 – Testing.

NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration, inspection, proficiency testing scheme providers and reference materials producers reports and certificates

1 INTRODUCTION

Emission Assessments Pty Ltd was engaged by EAQ Consulting to undertake Odour analysis of a single sample from the inlet and outlet of four biofilters from a material composting facility.

Table i: Sample Details

Sample Number	Sample Location	Sample Date	Analysis Date/Time	Sample container
109_Outlet	Biofilter Outlet	03/12/2024	04/12/2024 07:43	Nalophan
110_Outlet	Biofilter Outlet	03/12/2024	04/12/2024 07:27	Nalophan
111_Outlet	Biofilter Outlet	03/12/2024	04/12/2024 07:57	Nalophan
PE BIO_OUT	PE BIO_OUT	03/12/2024	04/12/2024 08:09	Nalophan
109_Inlet	Biofilter Inlet	03/12/2024	04/12/2024 09:27	Nalophan
110_Inlet	Biofilter Inlet	03/12/2024	04/12/2024 09:38	Nalophan
111_Inlet	Biofilter Inlet	03/12/2024	04/12/2024 08:20	Nalophan
PE BIO_IN	PE BIO_IN	03/12/2024	04/12/2024 08:30	Nalophan

2 METHODOLOGY

2.1 OLFACTOMETRY

The odour samples were analysed in accordance with AS/NZS 4323.3. It is a laboratory-based delayed olfactometry testing standard that requires the following:

The use of air dilution apparatus (olfactometer) that meets the standard's design criteria including the delivery of a clean air supply for sample dilution,

- A minimum of four odour panel members after retrospective screening,
- The analyses to be performed in an odour-free room that meets the Standard's criteria,
- The analyses of the stored odour samples to be performed within 30 hours of their collection, and
- The presentation and determination of odour threshold by the Yes/No method.

The odour measurements conducted return individual threshold estimates (ITEs) as measured by an odour panel according to AS/NZS 4323.3. Samples are presented in a descending dilution series order over at least three rounds. After discarding measurements from the first round, the geometric mean of at least eight odour panellist ITEs after retrospective screening is used to calculate the sample odour concentration in odour units (ou).

2.2 OLFACTOMETER & PANEL PERFORMANCE

EAPL operate a Scentroid SM100i portable olfactometer that is fully compliant with AS4323.3 and with the international EN13725 standard. The device is connected to a tablet via Bluetooth, allowing for the recording of date, time, operating parameters and results. A sample is drawn using a vacuum

generated by the flow of compressed diluting/clean air through a venturi and precision orifice. The dilution ratio of clean air to sample air is controlled by a flow regulator valve, which utilises a servomotor. The operator can select from 15 discrete dilution ratios that are automatically presented per plate. The overall range of the unit is adjustable via changeable restrictor plates, which offer varying dilutions. EAPL utilises 5 dilution plates each with a range of 15 dilutions.

The odour panel members were selected and trained in olfactometric measurement by the methods promulgated in AS/NZS 4323.3. The odour panel members' olfactory sensitivity for n-butanol were within the range 20 ppb to 80 ppb with an antilog standard deviation of less than 2.3 (calculated as a logarithm). Prior to each panel session, a single measurement comprising three presentation rounds of the certified reference material (CRM) odorant, n-butanol, is performed. The result of the measurement is shown in **Table ii**.

Table ii: Panel Performance

Reference	Value
CRM type	n-butanol
CRM concentration (ppb)	12420
Session concentration result (ou)	480
Session threshold result (ppb/v)	26

A measuring history of at least 10 of the most recent ITEs are recorded, maintained and evaluated for the odour panel members prior to every panel session. The individual performance measures for each odour panel member in this session are presented below in **Table iii**.

Table iii: Odour Panellist Performance

Panellist ID	Compliance	Mean Concentration (ppb) 20 ≤ 10yITE ≤ 80	Standard Dev 10sITE ≤ 2.3
001	Yes	34	1.47
006	Yes	38	1.42
008	Yes	38	1.42
011	Yes	32	1.50

2.3 LABORATORY PERFORMANCE

Compliance with AS/NZS 4323.3 sensory quality criteria within the laboratory has been determined from at least ten test results over the last 12 months obtained using the CRM odorant n-butanol. Accuracy (Aod) reflects both the trueness (expressed as bias) and the precision (expressed as repeatability) compared with the accepted reference value (i.e., population mean) of n-butanol (i.e., 40 ppb). Repeatability (r) reflects the random error or the spread of test results around the measured mean value. Accuracy must not be greater than 0.217 on the logarithmic scale, which implies that the

mean of the test results must be within a factor of 1.65 of the accepted reference value of n-butanol in 95% of cases. Repeatability must not be over 0.477 on the logarithmic scale, which implies that the difference from the measured mean value must be within a factor of 3.00 in 95% of cases. The overall sensory performance benchmarks for the session date are presented in **Table iv.**

Table iv: Sensory Performance

Criteria	Value
Repeatability ($r \leq 0.477$)	0.386
Accuracy ($Aod \leq 0.217$)	0.092
Compliance	Yes

The Scentroid SM100i was calibrated on 05 November 2024 to an accuracy within the benchmarks outlined in **Table v** in accordance with AS4323.3 - Determination of odour concentration by dynamic olfactometry.

Table v: Olfactometer accuracy

Parameter	Measured value	Criterion	Compliance
Dilution accuracy (Ad)	0.046	≤0.20	Yes
Instability (Id)	3.9	≤5%	Yes
Port air flow	>20LPM	≥20 LPM	Yes

3 VARIATIONS TO PROTOCOLS

No variations observed.

4 RESULTS

Sample analysis details and odour concentration results are presented in Summary Table 1.

Table 1: Odour Concentration Results Summary

Sample Description	Sample ID	Valid ITEs	Pre- dilution	[Odour] (OU)	Lower limit 95% confidence (OU)	Upper limit 95% confidence (OU)
109_Outlet	Biofilter Outlet	8	None	**230**	180	310
110_Outlet	Biofilter Outlet	8	None	**650**	490	860
111_Outlet	Biofilter Outlet	8	None	**540**	410	720
PE BIO_OUT	PE BIO_OUT	8	None	320	240	420
109_Inlet	Biofilter Inlet	8	None	**3800**	2900	5000
110_Inlet	Biofilter Inlet	8	None	**3800**	2900	5000
111_Inlet	Biofilter Inlet	8	None	**3100**	2400	4100
PE BIO_IN	PE BIO_IN	8	None	3300	2500	4400

EAQ Consulting

ODOUR FIELD ASSESSMENT

RESOURCE RECOVERY GROUP: CANNING VALE CENTRE

Resource Recovery Group: Canning Vale Centre

Bannister Road
Canning Vale, Western Australia 6155

Prepared for: Southern Metropolitan Regional Council *T/a* Resource Recovery Group

Resource Recovery Group
Recycle. Innovate. Educate.

Project Ref: EAQ-24002

December 2024

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Approved for Release		
Name	**Position**	**File Reference**
John Hurley	Principal Consultant	EAQ24002-OFA-(RRG-CVC)-ComplianceReport_Dec'24

Signature

Contents

Figures

Tables

Assessment Disclaimer:

This document presents the results of one or more Odour Field Assessments (OFAs); undertaken for the assessment of offsite ground level odour intensities downwind of the RRG's Canning Vale Centre according to the German Standard VDI 3940. The results presented herein are representative of the observations made during each OFA, and do not represent conditions outside of those OFA observation times.

1 Background & Scope

Environmental & Air Quality Consulting Pty Ltd (EAQ) was engaged by the Southern Metropolitan Regional Council trading as Resource Recovery Group (RRG) to undertake monthly Odour Field Assessment (OFA) compliance works downwind of the RRG's Canning Vale Centre (CVC).

The OFAs are undertaken as per the RRG's Government of Western Australia Department of Environment Regulation Licence (L7799/12001/8) **Condition 18(a)** for Prescribed Premises in accordance with the Environmental Regulation Act 1986, which states:

- The Licence Holder must implement the Odour Field Assessment (OFA): Methodology Statement (Environmental & Air Quality Consulting Pty Ltd).

The OFA compliance works involves calibrated and experienced odour assessors surveying the downwind surrounds of the CVC detailing observations of odour presence, odour character, odour intensity and frequency of observations emanating from the CVC.

The CVC site has three primary processes and associated process areas:

- Materials Recovery Facility (MRF) of recyclables handling and distribution;
- Green Waste Facility (GWF) receivals, handling and processing and distribution; and
- FOGO Processing Facility (FPF) of municipal and FOGO wastes (kerb side collections).

The MRF has negligible odour generation given at least 85% of all materials through the MRF are recyclables. There is a small fraction of putrescible waste recovered from the MRF at typically 15% annually, however; the putrescible fraction is recovered in finite amounts over the annual period.

The GWF operates within a daily timeframe where incoming residential greenwaste is temporarily stored and then transported off-site, or incoming commercial greenwaste is processed by way of grinding and downsizing before it is temporarily stored then removed from site. The GWF grinding and downsizing activities only occur within daytime working hours.

The FPF receives influent household general wastes and FOGO wastes via the tipping floor. The risk of odour emission from the tipping building is considered to be low given that there is no processing of these wastes that would otherwise generate malodours. The FPF building is maintained under negative pressure and captures and treats the low strength odours using biofiltration.

Of primary consideration for the OFAs are the GWF and FPF with respect to observable offsite odours. Although included in the OFA design, the MRF odours are not considered to be a risk for offsite odour impacts given the very low odour concentrations within the MRF. EAQ's trained and calibrated OFA assessors have extensive experience in assessing odours from the RRG's CVC and in particular the ability to discern the differing odour characters from the MRF, GWF and FPF processes.

1.1 OFA Compliance Objective

Assessments are based on the German Standard VDI 3940 "Measurement of Odour Impact by Field Inspection" where the standard prescribes the methods by which field technicians (odour assessors)

determine, define and document observed ground level odours and the manner in which the determination of these odours is defined in relation to odour character, frequency of odours observed and the odour intensity of those individual observations as a quantitative scale of measure. EAQ undertakes these OFAs following the VDI 3940 Plume Method [1]**.** Where ambient wind conditions shift notably during the survey period, EAQ often assesses an adjacent Assessment Area where applicable.

The objective of the OFA is to demonstrate compliance with **Condition 18(a)** and **Condition 20**. In achieving compliance with **Condition 20**, the outcomes of the OFA will demonstrate that the RRG's CVC has ensured:

- *….."that odour emitted from the premises does not unreasonably interfere with the health, welfare, convenience, comfort or amenity of any person who is not on the premises".*

[1] Measurement of odour impact by field inspection – Measurement of the impact frequency of recognizable odours Plume measurement. VDI 3940 Part 2. ICS 13.040.20.

2 OFA Assessment Details

Site of Assessment	Canning Vale Centre (CVC)
Survey Day & Date:	Friday, 6th December 2024
Start Time(s) of Survey Period:	0630hrs – 0920hrs
Average Wind Origin:	(Southeast)
BoM Wind Velocity throughout Survey:	5.28 – 8.33 m/s (19 – 30 km/h)
Survey Area(s):	Assessment Area 3
Field Assessors:	3
Laboratory Calibration Type:	*n*-butanol – Forced Choice Dynamic Olfactometry
Field Inspection Method Standard:	VDI 3940 (Part 2)
Description of Standard:	Measurement of odour impact by field inspection – Measurement of the impact frequency of recognizable odours Plume measurement
Field Inspection Method Standard:	VDI 3940 (Part 3)
Description of Standard:	Measurement of odour impact by field inspection – Determination of odour intensity and hedonic odour tone
Exceptions:	VDI 3940 (Part 3) Hedonic odour tone not assessed
Odour Key Descriptors (Quality):	A – Cardboard-Weak Rubbish Bin Odour (MRF Origin)
	B - Dry Cut Grass, Tobacco (GWF origin)
	C – Cool, Pine-Solvent, Garden Compost (FPF Bio's 3 & 4)

Table 2-1: OFA Pool of Assessor Details

Field I.D	Gender	Most Recent Calibration Result (ppb) [Acceptance Criteria 20 – 80 ppb)	Previous OFA Experience
1	Male	37.3	20
2	Male	61.4	1
3	Female	55.9	6
4	Female	64.3	23
5	Male	75.0	12
6	Male	49.6	1

3 CVC Process Details; Ambient Weather & Site Map

Table 3-1: RRG's CVC Operational Process Details

FOGO Processing Facility (FPF)	Materials Recovery Facility (MRF)
• > 1600hrs < 0800hrs - after hours (no receivals); • > 0800hrs < 1600hrs – organic waste receivals/trommeling/transfers; • No process odour observed outside of the FGF; • No leachate odours onsite; and • No odour complaints recorded.	• > 1600hrs < 0800hrs - after hours (no receivals); and; • > 0800hrs < 1600hrs - business as usual.
	Green Waste Facility (GWF)
	• > 1600hrs < 0800hrs - after hours (no receivals); and; • > 0800hrs < 1600hrs - business as usual.

Table 3-2: Ambient 10-minute Weather Observations (Jandakot AERO)

Start of 10-min	Wind Direction	Wind Speed (m/s)	Ambient Temp. (^{0}C)	Ambient Rel. Humidity (%RH)	Cloud Cover Range (8^{ths})
Fri 09:40 AWST	SE	5.28	23.5	40	
Fri 09:30 AWST	ESE	6.11	22.7	40	
Fri 09:20 AWST	SE	5.28	22.6	41	
Fri 09:10 AWST	E	6.67	22.3	42	
Fri 09:00 AWST	SE	7.22	22.3	41	
Fri 08:50 AWST	SE	7.78	21.8	42	
Fri 08:40 AWST	ESE	8.33	21.3	43	
Fri 08:30 AWST	ESE	8.33	21.4	46	
Fri 08:20 AWST	SE	7.78	21.2	45	
Fri 08:10 AWST	SE	6.67	20.8	46	2 - 4
Fri 08:00 AWST	ESE	7.22	20.1	48	
Fri 07:50 AWST	SE	7.78	19.7	48	
Fri 07:40 AWST	SE	6.67	19	50	
Fri 07:30 AWST	SE	6.11	19.2	51	
Fri 07:20 AWST	SE	6.11	18.6	51	
Fri 07:10 AWST	SE	6.67	18	53	
Fri 07:00 AWST	SE	5.28	18	53	
Fri 06:50 AWST	SE	5.28	17.8	55	
Fri 06:40 AWST	SE	5.28	17.6	55	

Figure 3-1: RRG's CVC Site Layout, Odour Source Origins & Descriptors

3.1 Discussion of OFA Results

The RRG's CVC OFA Survey undertaken in December 2024 from 0630hrs onward in Assessment Area 3 showed that no single measurement point was odour impacted given there were no observable CVC odours within the Assessment Area.

Additionally, the percentage odour times did not exceed the assessment criterion of 20% or greater for odour intensity observations of 2.

There is no composting of the FOGO wastes, only receivals and sorting inside the FOGO Processing Facility (FPF) using a separation trommel/sieve. The trommel removes the inorganic fraction and retrieves the organics which are transferred offsite for further processing.

In terms of continuous odour emissions at the CVC, two operational Biofilters (Biofilters 3 & 4) receive and treat extracted odours from the FPF and emit 'clean' biofilter odours. Where poor biofilter performance may occur, there may be untreated FPF odours released to atmosphere that may result in malodour observations offsite.

There were no CVC odours observed at offsite measurement locations during the December 2024 OFA within Assessment Area 3.

The RRG's CVC was compliant with:

- **Condition 18(a)**, where; "*The Licence Holder must implement the Odour Field Assessment (OFA): Methodology Statement (Environmental & Air Quality Consulting Pty Ltd)";* and
- **Condition 20**, where the CVC has demonstrated; *"…..that odour emitted from the premises does not unreasonably interfere with the health, welfare, convenience, comfort or amenity of any person who is not on the premises".*

Figure 3-2 to follow illustrates the OFA findings. **Table 3-3** lists the assessor times, locations and odour observations.

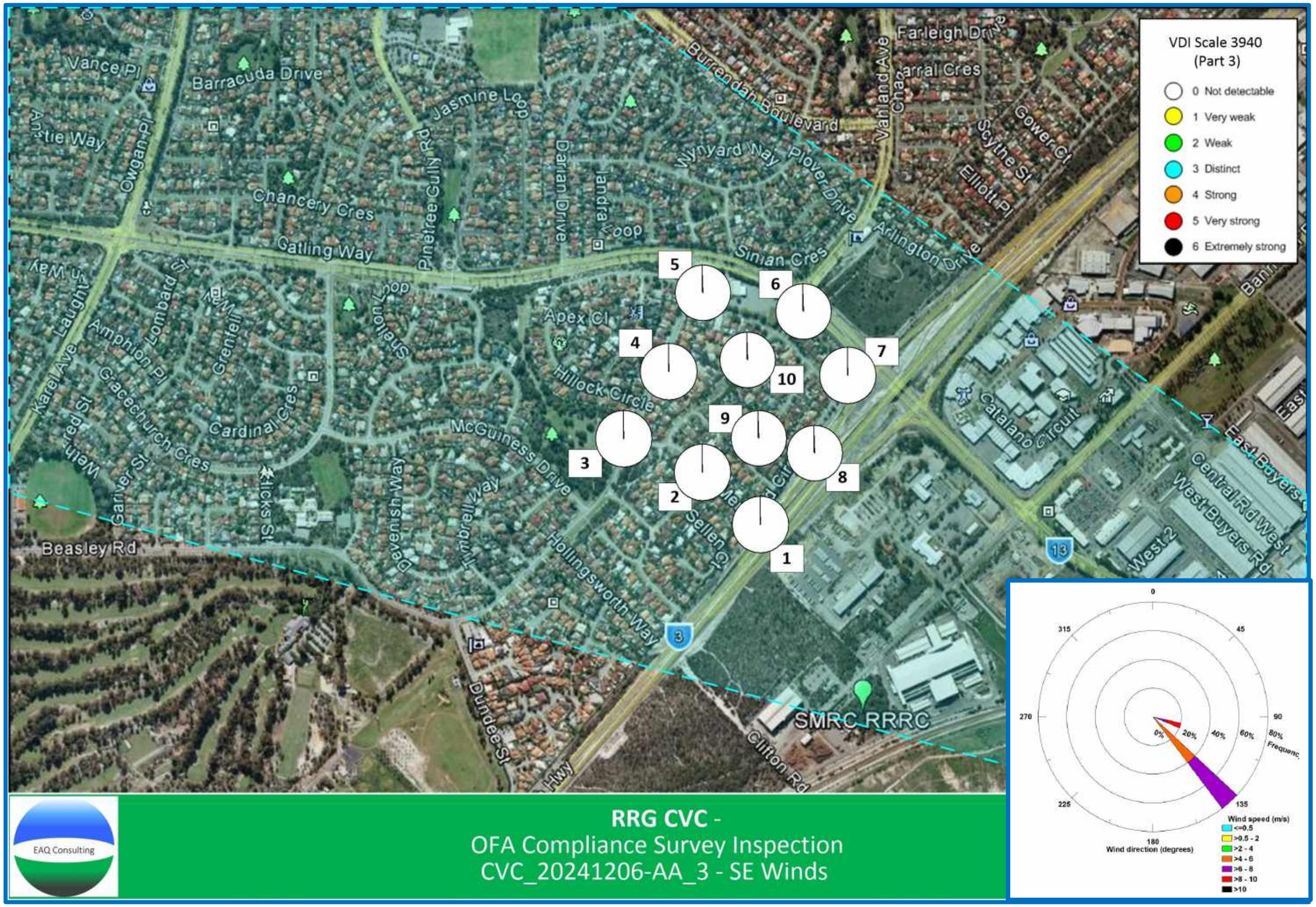

Figure 3-2: OFA Assessment Map Assessment Area 3

Table 3-3: OFA Frequency & Strength Observations Assessment Area 3

Survey Location	Assessor I.D.	Time	Intensity Count							>1
			0	1	2	3	4	5	6	
1	2	06:45	60	0	0	0	0	0	0	0.0%
	1	06:45	60	0	0	0	0	0	0	0.0%
	3	06:45	60	0	0	0	0	0	0	0.0%
2	2	06:58	60	0	0	0	0	0	0	0.0%
	1	06:58	60	0	0	0	0	0	0	0.0%
	3	06:58	60	0	0	0	0	0	0	0.0%
3	2	07:11	60	0	0	0	0	0	0	0.0%
	1	07:11	60	0	0	0	0	0	0	0.0%
	3	07:11	60	0	0	0	0	0	0	0.0%
4	2	07:24	60	0	0	0	0	0	0	0.0%
	1	07:24	60	0	0	0	0	0	0	0.0%
	3	07:24	60	0	0	0	0	0	0	0.0%
5	2	07:36	60	0	0	0	0	0	0	0.0%
	1	07:36	60	0	0	0	0	0	0	0.0%
	3	07:36	60	0	0	0	0	0	0	0.0%
6	2	07:49	60	0	0	0	0	0	0	0.0%
	1	07:49	60	0	0	0	0	0	0	0.0%
	3	07:49	60	0	0	0	0	0	0	0.0%
7	2	08:04	60	0	0	0	0	0	0	0.0%
	1	08:04	60	0	0	0	0	0	0	0.0%
	3	08:04	60	0	0	0	0	0	0	0.0%
8	2	08:17	60	0	0	0	0	0	0	0.0%
	1	08:17	60	0	0	0	0	0	0	0.0%
	3	08:17	60	0	0	0	0	0	0	0.0%
9	2	08:30	60	0	0	0	0	0	0	0.0%
	1	08:30	60	0	0	0	0	0	0	0.0%
	3	08:30	60	0	0	0	0	0	0	0.0%
10	2	08:42	60	0	0	0	0	0	0	0.0%
	1	08:42	60	0	0	0	0	0	0	0.0%
	3	08:42	60	0	0	0	0	0	0	0.0%
11	2	08:55	60	0	0	0	0	0	0	0.0%
	1	08:55	60	0	0	0	0	0	0	0.0%
	3	08:55	60	0	0	0	0	0	0	0.0%
12	2	09:09	60	0	0	0	0	0	0	0.0%
	1	09:09	60	0	0	0	0	0	0	0.0%
	3	09:09	60	0	0	0	0	0	0	0.0%

Section E – Details of non-compliance with licence condition			
Please use a separate page for each condition with which the licence holder was non-compliant at a time during the reporting period.			
Condition no:	13(a).	Date(s) of non-compliance:	February 2025
Details of non-compliance:			
As per the February Biofilter Report, odour concentrations for February 2025 exceeded 500 odour units from Biofilter 4 Fan Area 109 and Biofilter 4 Fan Area 110.			
What was the actual (or suspected) environmental impact of the non-compliance? **NOTE** – please attach maps or diagrams to provide insight into the precise location of where the non-compliance took place.			
No environmental impact identified due to the non-compliance.			
Cause (or suspected cause) of non-compliance:			
Inlet airflow was 'compromised' and there was not enough flow of air into Fan Area 109. Please see the attached Environmental Incident Investigation Report for complete details.			
Action taken to mitigate any adverse effects of non-compliance and prevent recurrence of the non-compliance:			
Immediate Remedial Action: Biofilter Inspection and modified biofilter watering duration. Please see attached Environmental Incident Investigation Report for complete details.			
Was this non-compliance previously reported to DWER?			
☒ Yes, and			
☐ Reported to DWER verbally		Date: / /	
☒ Reported to DWER in writing		Date: 08/07/2025	

RRG - Environmental Incident Investigation Report

EMIS ID: EMIS 309 | EMIS Title: February 2025 Odour Units

EMIS Opened By	Jhanvi Srivastava	EMIS Status	Closed	Management Notification	
EMIS Assigned To	Zara Pedder	EMIS Category	Monitoring	Significant	
EMIS Reported To	Zara Pedder	EMIS Priority	(2) Normal		
EMIS Opened Date	18/03/2025	EMIS Opened Time	10:14	Environmental Incident Risk	
EMIS Incident Date	27/02/2025	Incident Time	8:30	Low	
EMIS Completion Date	2/04/2025				

EMIS Details of Incident

During February 2025 Biofilter Odour Assessments, odour concentrations exceeded the licence limit of 500 odour units. Biofilter 4 Fan Area 109 had 610 odour units and Biofilter 4 Fan Area 110 had 650 odour units.

Immediate Remedial Action Taken

Biofilter Inspection and modified biofilter watering duration.

Description of Environmental Impact

No known environmental impact.

Description of Events Leading up to the Incident

Monthly Odour Unit Assessment.

Contributing Factors / Immediate Causes

The recommended actions in the EAQ February Report suggested that Biofilter 109 had an inlet airflow that was 'compromised' and suggested there was not enough flow of air into Fan Area 109. This was remedied prior to the February sampling period.
It is possible that the 'sudden' increase in airflow into Fan Area 109 from the recent January sampling period may be a factor in the increased odour emissions from Fan Area 109.
Results from the upcoming March sampling period will determine if Fan Area 109 is properly acclimatised to the reintroduction of normal airflows.
The exceedance of odour strength from Fan Area 110 is not readily explained, although there was an exceedance from Fan Area 110 during the December 2024 sampling period suggesting that Fan Area 110 may be due for refurbishment.

Likely Underlying Cause

Inlet airflow that was 'compromised' and there was not enough flow of air into Fan Area 109.

Licence Condition 13(a)

The Licence Holder must operate and manage Biofilters 1, 2, 3 and 4 such that odour concentrations, when measured on the surface of each biofilter cell in accordance with condition 33(a), do not exceed 500 odour units.

Jhanvi Srivastava

Signature & Date: 2/04/2025

Comments

Signature & Date

Jhanvi Srivastava

From: Jhanvi Srivastava
Sent: Tuesday, 8 July 2025 4:18 PM
To: Info; Hayden Nebel
Subject: Notification - RRG Licence L7799/2001/8 Condition 13(a)
Attachments: 03. EMIS309 Report - Feb 2024 Odour Units.pdf

Ref: L7799/2001/8
Attention: Hayden Nebal

Hello

As per Condition 13(a) of Licence L7799/2001/8, we wish to report odour unit exceedance survey for February 2025.

Condition 13(a) Odour Concentrations.

Please see attached for detail.

Should you have any queries related to the attached or need any further information, please do not hesitate to contact me on the below.

Jhanvi Srivastava

From: Info <info@dwer.wa.gov.au>
Sent: Tuesday, 8 July 2025 4:19 PM
To: Jhanvi Srivastava
Subject: Re: Notification - RRG Licence L7799/2001/8 Condition 13(a) - New Correspondence [SR-0206254]

Your ticket has been logged with ID **0206254**.

Thank you for your enquiry on **8/07/2025 16:19**. This auto-generated response confirms that the Department of Water and Environmental Regulation has received your email. As part of our Customer Service Charter, the department aims to reply to general correspondence and respond to general complaints within 10 business days of receipt.

Form 2

If you have submitted a Form 2 'Request for a Summary of Records in Respect of Land' under section 21 of the Contaminated Sites Act 2003, please be aware that all requests are dealt with on a first-come, first-served basis and cannot be prioritised. Due to the volume of requests received at any given time, the department may not be able to provide a response within 10 business days of receipt. To avoid delays please ensure you clearly identify the site, submit the correct payment ($44 for each Basic Summary of Records search i.e. 2 lots = $88) and pay using the department's online payment portal.

Please direct all future emails to info@dwer.wa.gov.au

Regards

Department of Water and Environmental Regulation

Jhanvi Srivastava

From: Microsoft Outlook <MicrosoftExchange329e71ec88ae4615bbc36ab6ce41109e@smrc.com.au>
To: Info; Hayden Nebel
Sent: Tuesday, 8 July 2025 4:18 PM
Subject: Relayed: Notification - RRG Licence L7799/2001/8 Condition 13(a)

Delivery to these recipients or groups is complete, but no delivery notification was sent by the destination server:

Info (info@dwer.wa.gov.au)

Hayden Nebel (hayden.nebel@dwer.wa.gov.au)

Subject: Notification - RRG Licence L7799/2001/8 Condition 13(a)

EAQ Consulting

BIOFILTER ODOUR EMISSIONS COMPLIANCE REPORT

RESOURCE RECOVERY GROUP:
CANNING VALE CENTRE

Biofilter Odour Emissions Compliance Report

Prepared for: Resource Recovery Group

Resource Recovery Group
Recycle. Innovate. Educate.

Bannister Road
Canning Vale, Western Australia 6155

Project Ref: EAQ-25001

March 2025

EAQ Consulting

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Report Revision(s)				
Version(s)	**Description**	**Date**	**Author(s)**	**Reviewer(s)**
Draft_1.0	Internal Review	14.03.2025	J. Hurley	DSB
Final_1.0	Released to Client	17.03.2025	J. Hurley	

Approved for Release		
Name	**Position**	**File Reference**
John Hurley	Principal Consultant	EAQ25001 - RRG's CVC Biofilters Feb'25 Compliance Report_v1.0

Signature

The purpose of this technical report is to document the current performance of the CVC Biofilters for the process parameters of Temperature (^{0}C), Pressure (kPa), Velocity (m/s), Relative Humidity (%RH), Volumetric Flow (m^3/s) & (m^3/hr), Odour Concentration (ou), Biofilter Inlet Odour Emission Rates (ou.m^3/s), Biofilter Outlet Odour Emission Rates (ou.m^3/s) and Biofilter Surface Spatial Testing of Velocity (m/s) & Temperature (^{0}C).

Contents

Figures

Tables

1 Background & Scope

Environmental & Air Quality Consulting Pty Ltd (EAQ) was engaged by the Resource Recovery Group (RRG) to undertake its biofiltration odour compliance works at the RRG's Canning Vale Centre (CVC).

The compliance works were undertaken to evaluate the performance of the odour treatment biofilters at the CVC to determine if the biofilters are complaint with the facilities Prescribed Premises **Licence No. L7799/2001/8** issued pursuant to Part V of the *Environmental Protection Act 1986*.

The CVC site has three primary processes and associated process areas:

i. Materials Recovery Facility (MRF) of recyclables, handling and distribution;
ii. Green Waste Facility (GWF) receivables, handling, processing, and distribution; and
iii. FOGO Processing Facility (FPF) that receives, decontaminates, and transfers FOGO and municipal solid wastes (kerb side collections).

Of consideration is the FPF and its four (4) odour treatment biofilters of which two are currently offline and potentially scheduled for decommissioning (biofilters 1 and 2), and two are currently in operation (biofilters 3 and 4).

Biofilters 3 and 4 are divided into discrete treatment 'cells' resulting in four (4) treatment areas that are the basis of this odour compliance assessment.

1.1 Assessment Objective

The CVC is a Prescribed Premises pursuant to Schedule 1 of the *Environmental Protection Regulations 1987*. The following categories are relevant to the operations:

Category	Description	Capacity
67A	Composting manufacturing and soil blending	No more than 120,000 tonnes per year
61A	Solid waste facility	No more than 52,000 tonnes per year
62	Solid waste depot	30,000 tonnes per year

Licence Number L7799/2001/8 contains a range of legally binding conditions relevant to the operations.

Specifically, biofilter odour emissions to air are managed according to Licence Conditions 14, 15(a), (b) and (c), and Condition 16. Furthermore, Biofilter Monitoring must be undertaken in accordance with Conditions 36(a), (b) and (c), and Conditions 37(a) and (b).

Within Condition 37(a), *Table 4 – Biofilter performance*, Biofilter testing as required, where:

- Note 1: Quarterly Monitoring is required except where biofilters are shut down for periods of greater than 90 consecutive days; and

- Note 2: Monthly monitoring is required except where biofilters are shut down for periods greater than 28 consecutive days.

Performance parameters must also be collected in conjunction with the monthly biofilter compliance testing. These parameters are listed in **Table 1-1**.

Table 1-1: Biofilter Performance Compliance Requirements

Location	Parameter	Target	Limit
Inlet of each cell of Biofilters 1, 2, 3 and 4	Single Sample Odour Concentration (ou)	-	-
	Fan Velocity (m/s) & (% Rate)	-	-
	Pressure (kPa)	-	-
	Relative Humidity (% moisture) – taken from Dry & Wet Bulb Temperature Measurements	≥ 90%	≥ 85%
	Temperature (^{0}C)	≤ 40^{0}C	≤ 45^{0}C
Outlet of each cell of Biofilters 1, 2, 3 and 4 (using surface sampling hood)	Composite Sample Odour Concentration (ou)	-	≤ 500
	Temperature (^{0}C)	-	-
	Velocity (m/hr/m^2)	-	

2 FPF Extraction & Biofilter Fan Performance during Sampling

The following information presents the relevant fan performance and process conditions during the sampling activities that were undertaken onsite.

Thursday, 27th February 2025

- Sampling from Waste Transfer Building Biofilters 3&4 from 0830hrs onward, where:
  - Biofilter 3 Fan 111 under normal operations,
  - Biofilter 4 Fan 109 under normal operations, and
  - Biofilter 4 Fan 110 under normal operations.
- Only FOGO waste acceptance, screening and load-out through the FPF;
- No process odour onsite;
- No leachate odours onsite; and
- No odour complaints recorded.

2.1 Monitoring Exceptions

- Biofilter 3 Fan 112 OFF for Wet Scrubber Maintenance & Refurbishment.

2.2 Observations during Sampling

- Surface ambient odour on Biofilter 4 was obvious toward the front half of each biofilter cell.

3 Odour & Process Parameter Results

The odour samples collected and the corresponding process parameters at the time of sampling are detailed in **Table 3-1**.

- Where there is a "-" within a cell of **Table 3-1** that data was not collected in accordance with maintenance activities and/or Condition 37(a) of the Licence.

The Green shaded cells present the Inlet relative humidity (%RH) entering each Biofilter fan area, and the Outlet odour concentrations (ou.m^3) emitted to atmosphere from each Biofilter surface fan area.

Table 3-2 summarises those data points with their respective errors applied.

Figures 3-1 and 3-2 present the graphed comparison of Inlet and Outlet biofilter odour concentrations for the annual period.

EAQ collected all odour samples for analysis.

Odour Analysis was undertaken by Emission Assessments at their NATA Accredited Odour Laboratory. Error results for the odour concentration analysis are reported on the Emission Assessments NATA Accredited Report which is presented in Appendix A at the end of this report.

Table 3-1: Biofilter Performance Compliance Results of Sampling and Testing

Fan/ Fan Area	Sampling Date	Sampling Time (hrs)	Average Inlet Velocity (m/s)	Average Inlet Flow Rate (m^3/hr)	% of Fan Design Volume Flow Rate	Measured Inlet Pressure (kPa)	Measured Inlet Temperature Dry Bulb (^{0}C)	Measured Inlet Temperature Wet Bulb (^{0}C)	**Measured Average Inlet Relative Humidity (%RH)**	Inlet Odour Concentration (ou)	**Biofilter Surface Odour Concentration (ou)**	Odour Emission Rate Destruction Efficiency (%)
111	27-02-2025	10:45	16.50	46,653	84.82%	0.66	27.5	27.5	**100.0**	3,700	**260**	93.0%
112		-	-	-	-	-	-	-	-	-	-	-
109		8:50	18.20	51,459	93.56%	0.68	27.2	27.0	**98.5**	1,100	**610**	44.5%
110		9:43	9.20	26,012	47.30%	2.55	27.1	26.8	**97.7**	4,000	**650**	83.8%

Table 3-2: Biofilter Performance Compliance Error Summary of Testing Results

Fan / Fan Area	Derived Average Inlet Velocity (m/s) Error: + / - 1.5%			Derived Average Inlet Flow Rate (m^3/hr) Error: + / - 1.5%			Measured Inlet Pressure (kPa) Error: + / - 1.0%			Measured Inlet Temp. Dry Bulb (^{0}C) Error + / - 1.1^{0}C & + / - 0.05%			Measured Inlet Temp. Wet Bulb (^{0}C) Error + / - 1.1^{0}C & + / - 0.05%		
111	16.25	***16.50***	16.75	45,953	***46,653***	47,352	0.65	***0.66***	0.66	26.4	***27.5***	28.6	26.4	***27.5***	28.6
112	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
109	17.93	***18.20***	18.47	50,687	***51,459***	52,231	0.68	***0.68***	0.69	26.1	***27.2***	28.3	25.9	***27.0***	28.1
110	9.06	***9.20***	9.34	25,622	***26,012***	26,403	2.52	***2.55***	2.58	26.0	***27.1***	28.2	25.7	***26.8***	27.9

n/c = not able to be calculated

NOTE: Odour Error is reported in the NATA Accredited Emission Assessments Odour Concentration Report in Appendix A

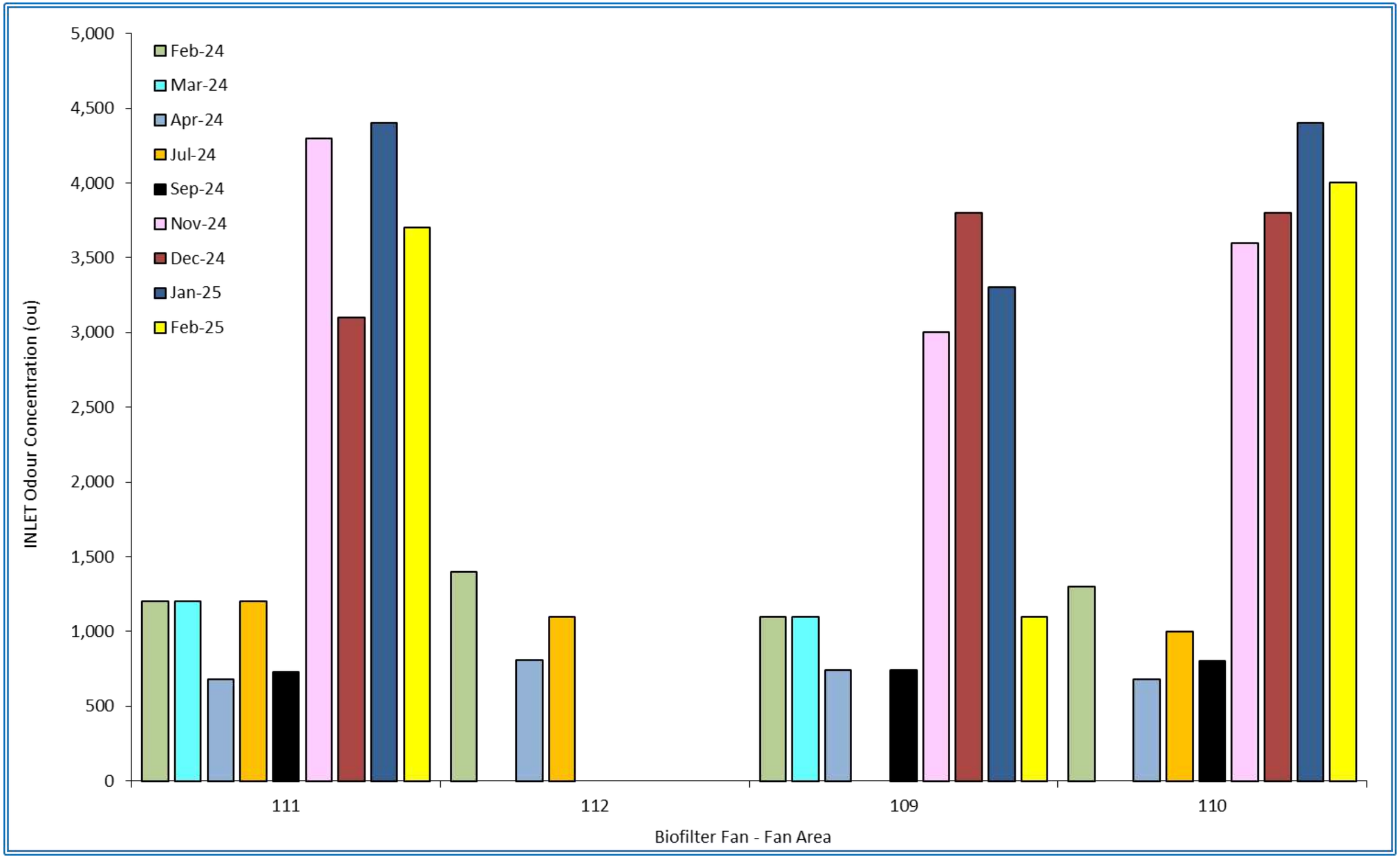


Figure 3-1: Annual Comparison of Biofilter Inlet Odour Concentrations

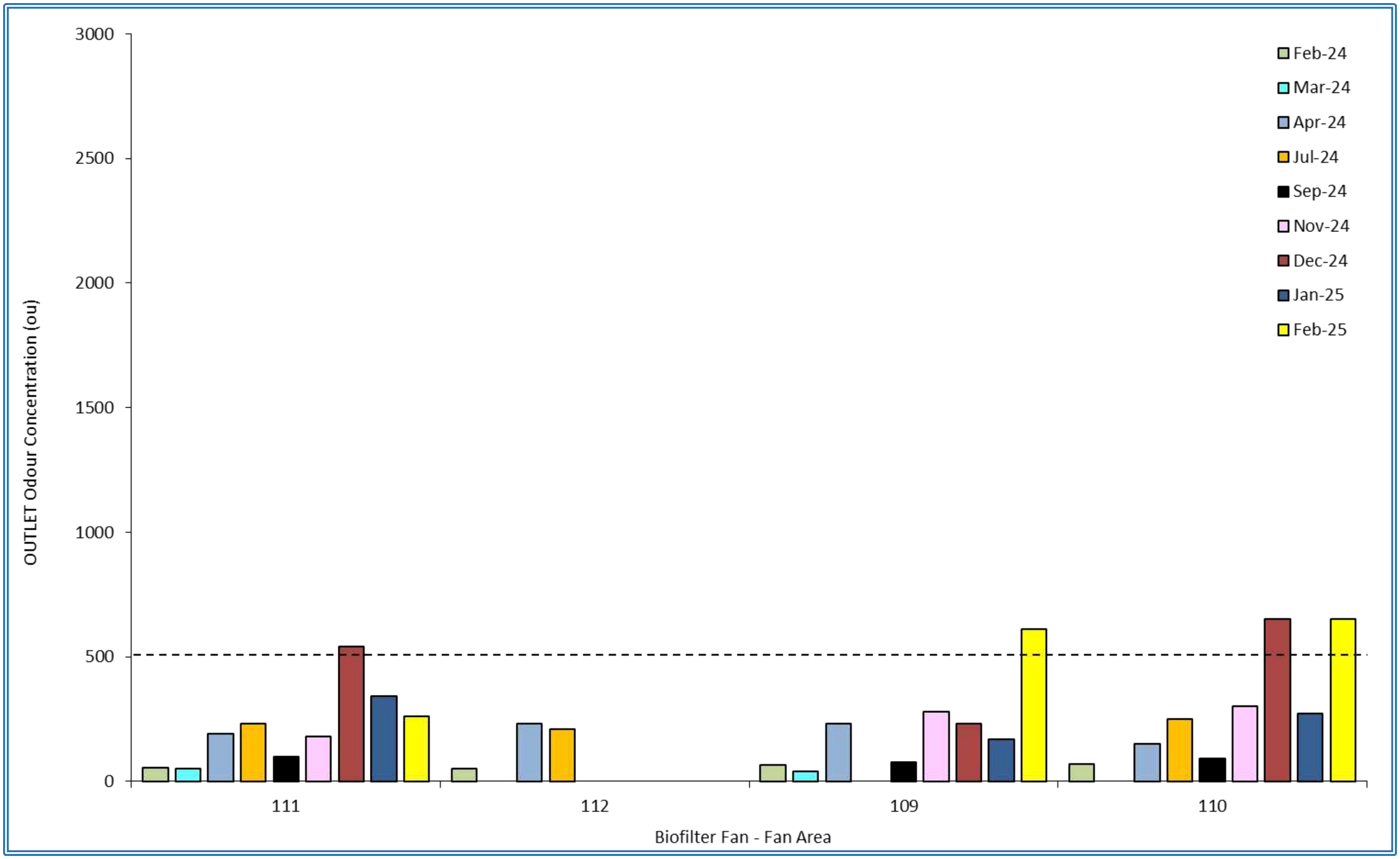


Figure 3-2: Annual Comparison of Biofilter Outlet Odour Concentrations

4 Biofilter Spatial Sampling Results

The histograms presented on the following pages represent the spatial variation for each of the operational biofilter fan areas. The measured velocity (m/s) has been converted into m/h and presented in each graph as measured from the surface sampling hood within the chimney exhaust.

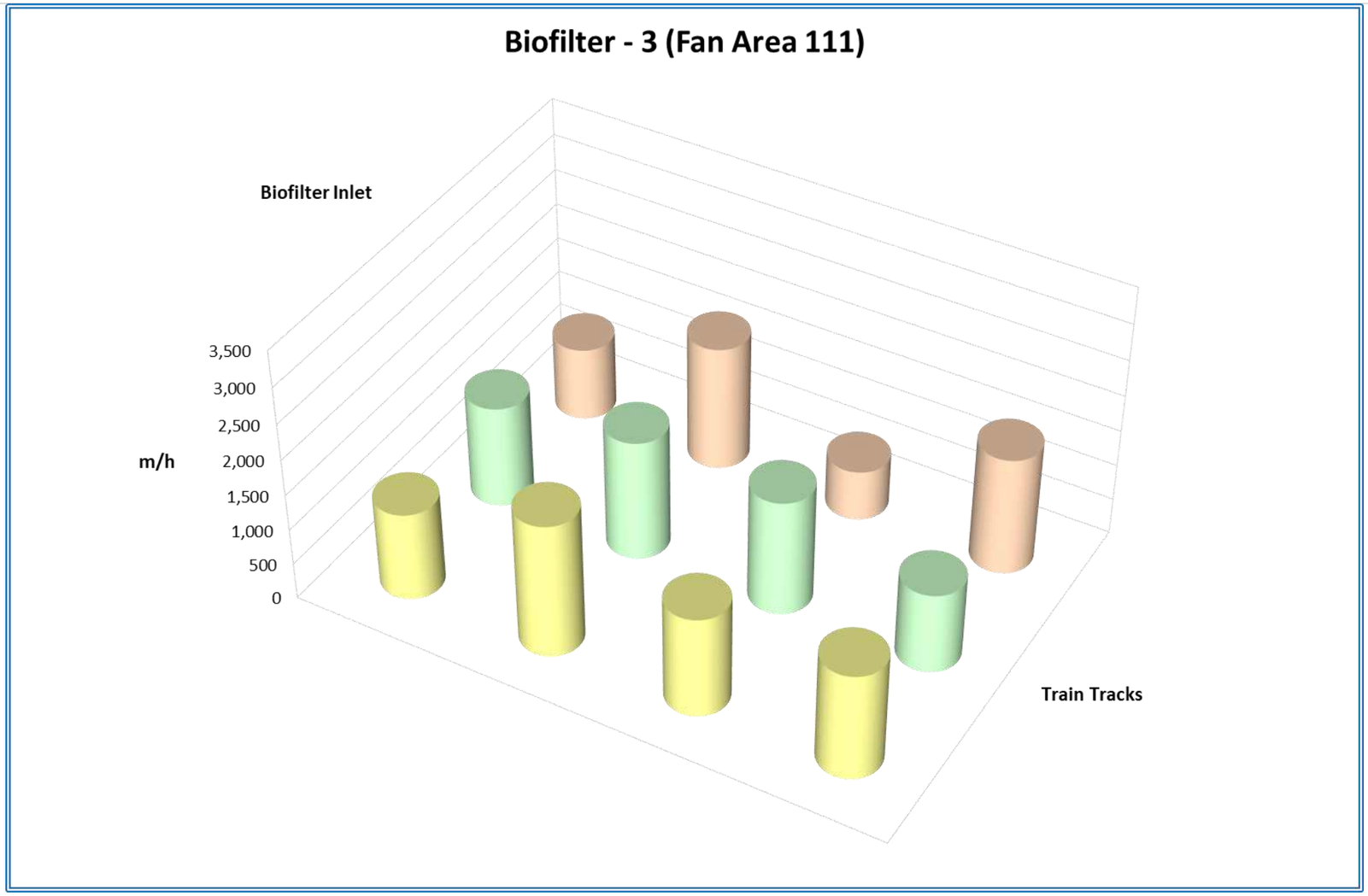
Below each graph is a table of measured surface emission temperatures (^{0}C) which were collected at the time of the velocity measurement. These temperatures were also measured from the surface sampling hood within the chimney exhaust.

Also below each graph is a Table of derived surface flows. The flows are first presented as a velocity in m/h which is then converted into m/h/m^2 representing the surface area of the surface sampling hood. This velocity per square metre is then multiplied out by the surface area of each Fan Area and then divided by the area ratio between the hood and the hoods' stack. The conversion gives a flow in m^3/h. Since the hood imparts pressure on the air leaving the biofilter surface (typically within the range of 10-20Pa), the measured velocities may be lower than the actual velocity. Therefore, the derived Fan Area flow in m^3/h may be significantly less than the design flow of each Fan Areas' corresponding Fan, but still comparable to each other when utilising the same sampling hood across all four biofilters.

NOTE: The derived surface flows should not be compared to the inlet design flows of the fans. The purpose of the surface sampling method is to provide a representation of the spatial uniformity of air flow from the biofilters' surfaces. The measure of surface velocity using the hood and reduced area sampling stack is simply a tool to show the spatial variation of biofilter exhaust air flows and not explicitly a measure of actual flow.

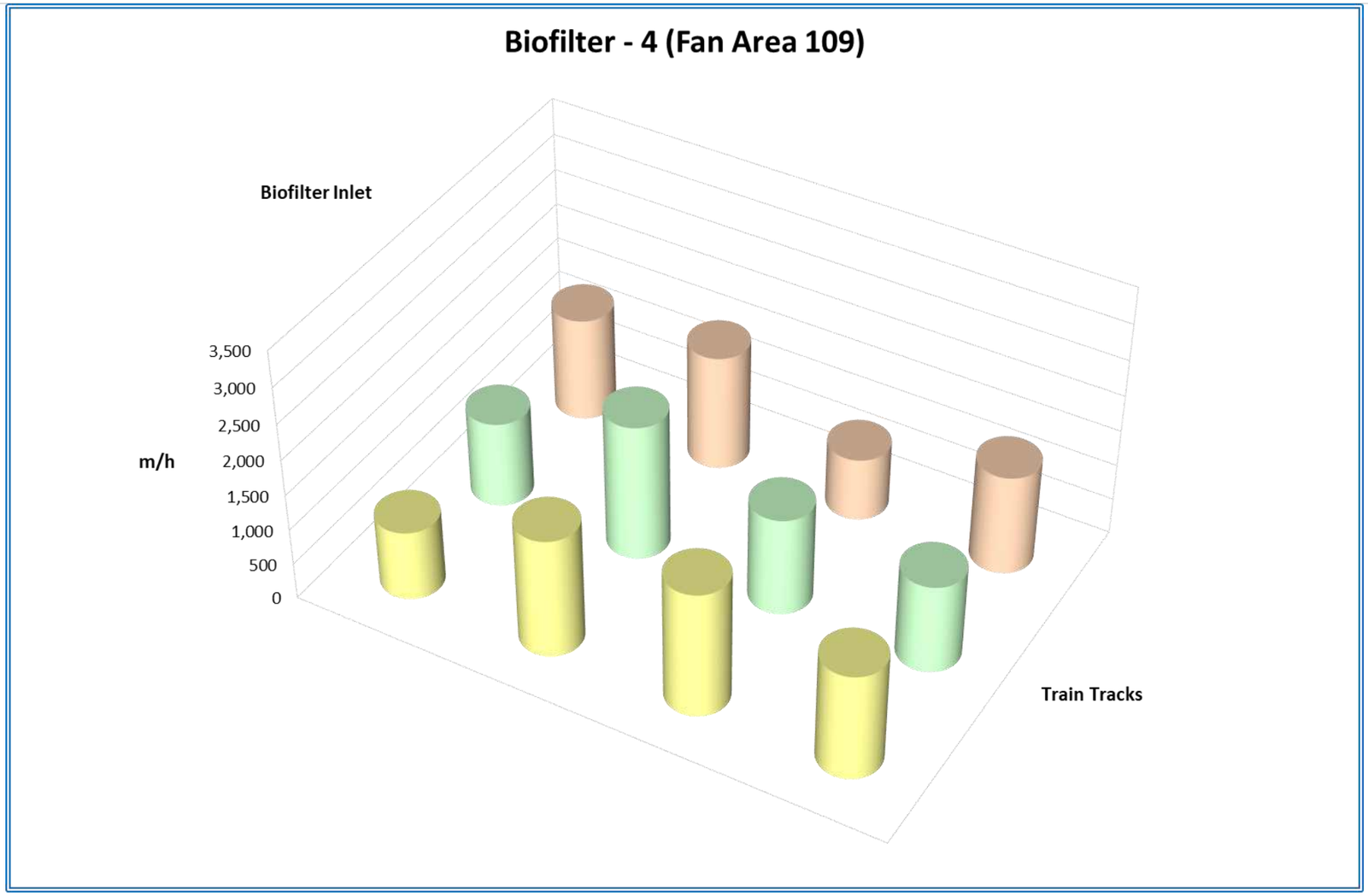
The measured velocity of air emitted from a biofilter is expected to show variation across the surface of each biofilter fan area since the movement of air within the biofilter media is not uniform in either direction or speed. Some areas may be slightly more compacted than others showing a 'depressed' exit velocity, whereas others may be the opposite. However, each of the individual measurement locations on the surface of each operational Fan Area has shown that air is passing through the biofilter, spread uniformly laterally, albeit at times under differing flow classes.

Given that odour sampling was also undertaken at each of these surface velocity locations, the results of the odour testing are a true reflection as to the performance of each biofilter.



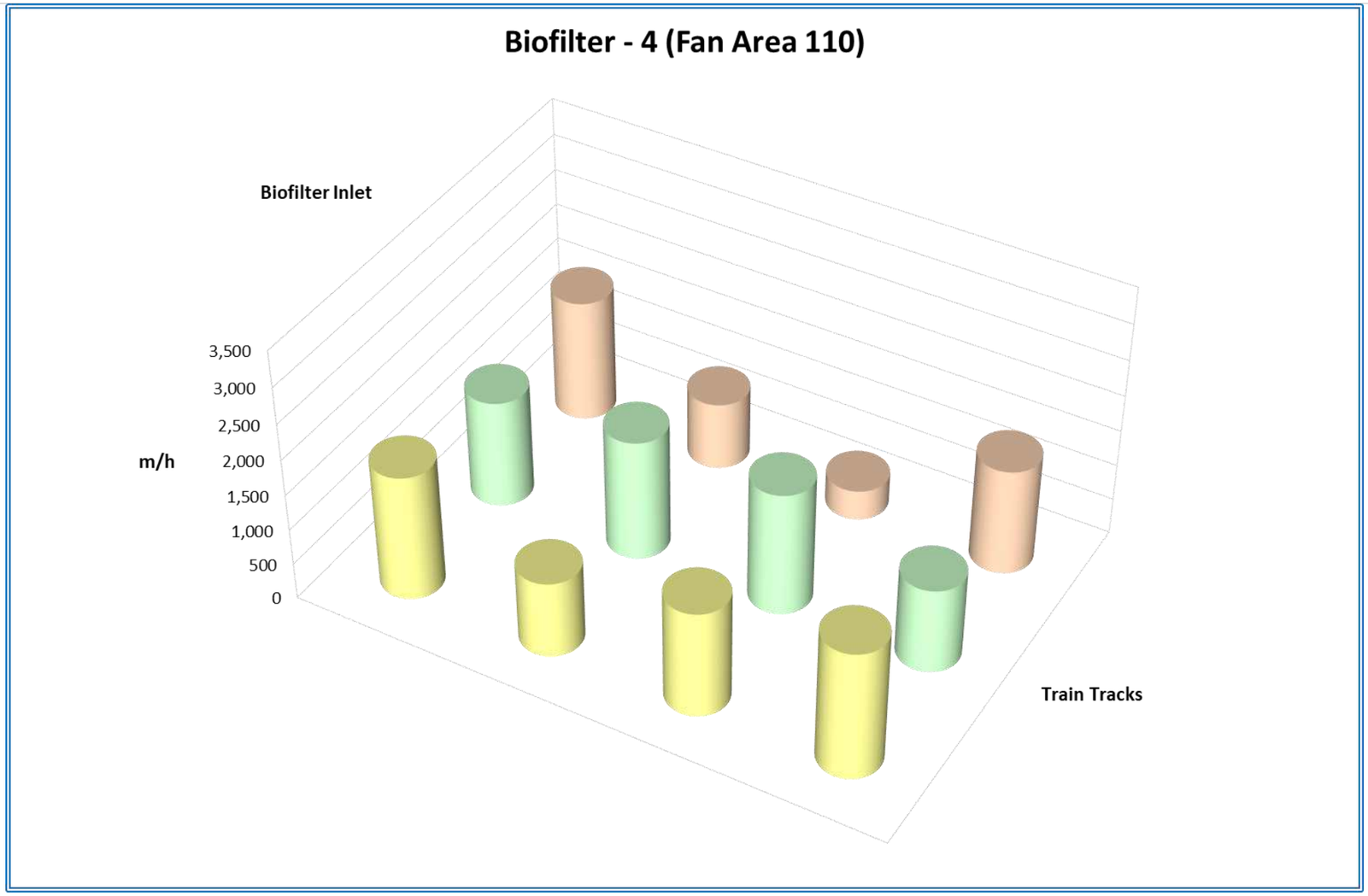
Surface Temperature Profile – Fan Area 111		
Front – adjacent to Aeration Building		
21.3	21.6	21.4
21.8	21.8	21.6
22.0	22.0	21.5
21.5	21.3	21.6
Rear – Train Tracks		

Average Surface Velocity (m/h)	Fan Area (m^2)	Average Surface Flow (m^3/h)	Average Surface Flow (scaled up) (m^3/h)
1,422	389	12,871	**46,653**



Surface Temperature Profile – Fan Area 109		
Front – adjacent to Aeration Building		
21.6	21.5	21.7
20.5	21.5	19.9
22.0	21.5	21.4
20.7	21.7	21.5
Rear – Train Tracks		

Average Surface Velocity (m/h)	Fan Area (m^2)	Average Surface Flow (m^3/h)	Average Surface Flow (scaled up) (m^3/h)
1,420	389	12,850	**51,459**



Surface Temperature Profile – Fan Area 110		
Front – adjacent to Aeration Building		
21.4	21.4	22.0
21.6	22.0	22.0
21.8	22.0	21.6
21.8	21.0	20.9
Rear – Train Tracks		

Average Surface Velocity (m/h)	Fan Area (m^2)	Average Surface Flow (m^3/h)	Average Surface Flow (scaled up) (m^3/h)
1,404	389	12,713	**26,012**

5 Evaluation & Summary of Compliance Results

The odour results during the February 2025 Monthly Biofilter compliance works are summarised as follows:

- All operational biofilter inlets had inlet temperatures $\leq 40^0$C,
- All operational biofilter inlets had Relative Humidity's ≥ 85%RH,
- Biofilter surface outlet 111 had an outlet odour concentration of < 500 odour units, and
- Biofilter surface outlets 109 and 110 both had outlet odour concentrations exceeding 500 odour units.

The exceedances of surface odour concentrations from Biofilter Fan Areas 109 and 110 (i.e., Biofilter 4), whilst exceeding the licensing Limit, does not translate into offsite malodour observations.

As a result, the RRG's CVC had two compliance exceedances during the February 2025 sampling event.

5.1 Recommended Actions

In recent sampling periods, Biofilter 109 had an inlet airflow that was 'compromised' and suggested there was not enough flow of air into Fan Area 109. This was remedied prior to the February sampling period.

It is possible that the 'sudden' increase in airflow into Fan Area 109 from the recent January sampling period may be a factor in the increased odour emissions from Fan Area 109.

Results from the upcoming March sampling period will determine if Fan Area 109 is properly acclimatised to the reintroduction of normal airflows.

The exceedance of odour strength from Fan Area 110 is not readily explained, although there was an exceedance from Fan Area 110 during the December 2024 sampling period suggesting that Fan Area 110 may be due for refurbishment.

Appendix A: Odour Concentration Results

EMISSION ASSESSMENTS
AIR QUALITY

Environmental & Air Quality Consulting Pty Ltd

EAPL Ref: 2425-166

Odour Analysis

14 March 2025

Written By: **Marta Mazzetto**
Environmental Scientist
B.Sc (Environmental Sciences and Technology), MSc (Marine Biology)

Reviewed and Authorised By: **Regina Wheeler**
Technical Services Manager
B.Sc (Extractive Metallurgy)

NATA

NATA Accredited Laboratory
Number: 17108. Accredited for compliance with ISO/IEC 17025 – Testing.

NATA is a signatory to the ILAC Mutual Recognition Arrangement for the mutual recognition of the equivalence of testing, medical testing, calibration, inspection, proficiency testing scheme providers and reference materials producers reports and certificates

1 INTRODUCTION

Emission Assessments Pty Ltd was engaged by EAQ Consulting to undertake analysis of six odour bag samples.

Table i: Sample Details

Sample Number	Sample Location	Sample Date	Analysis Date/Time	Sample container
OUTLET 109	OUTLET 109	27/02/2025	28/02/2025 08:48	Nalophan
OUTLET 110	OUTLET 110	27/02/2025	28/02/2025 09:35	Nalophan
OUTLET 111	OUTLET 111	27/02/2025	28/02/2025 10:16	Nalophan
INLET 109	INLET 109	27/02/2025	28/02/2025 11:08	Nalophan
INLET 110	INLET 110	27/02/2025	28/02/2025 11:56	Nalophan
INLET 111	INLET 111	27/02/2025	28/02/2025 12:45	Nalophan

2 METHODOLOGY

2.1 OLFACTOMETRY

The odour samples were analysed in accordance with AS/NZS 4323.3. It is a laboratory-based delayed olfactometry testing standard that requires the following:

The use of air dilution apparatus (olfactometer) that meets the standard's design criteria including the delivery of a clean air supply for sample dilution,

- A minimum of four odour panel members after retrospective screening,
- The analyses to be performed in an odour-free room that meets the Standard's criteria,
- The analyses of the stored odour samples to be performed within 30 hours of their collection, and
- The presentation and determination of odour threshold by the Yes/No method.

The odour measurements conducted return individual threshold estimates (ITEs) as measured by an odour panel according to AS/NZS 4323.3. Samples are presented in a descending dilution series order over at least three rounds. After discarding measurements from the first round, the geometric mean of at least eight odour panellist ITEs after retrospective screening is used to calculate the sample odour concentration in odour units (ou).

2.2 OLFACTOMETER & PANEL PERFORMANCE

EAPL operate a Scentroid SM100i olfactometer that is fully compliant with AS4323.3 and with the international EN13725 standard. The device is connected to a tablet via Bluetooth, allowing for the recording of date, time, operating parameters and results. A sample is drawn using a vacuum generated by the flow of compressed diluting/clean air through a venturi and precision orifice. The dilution ratio of clean air to sample air is controlled by a flow regulator valve, which utilises a

servomotor. The operator can select from 15 discrete dilution ratios that are automatically presented per plate. The overall range of the unit is adjustable via changeable restrictor plates, which offer varying dilutions. EAPL utilises 5 dilution plates each with a range of 15 dilutions.

The odour panel members were selected and trained in olfactometric measurement by the methods promulgated in AS/NZS 4323.3. The odour panel members' olfactory sensitivity for n-butanol were within the range 20 ppb to 80 ppb with an antilog standard deviation of less than 2.3 (calculated as a logarithm). Prior to each panel session, a single measurement comprising three presentation rounds of the certified reference material (CRM) odorant, n-butanol, is performed. The result of the measurement is shown in **Table ii**.

Table ii: Panel Performance

Reference	Value
CRM type	n-butanol
CRM concentration (ppb)	12420
Session concentration result (ou)	400
Session threshold result (ppb/v)	31

A measuring history of at least 10 of the most recent ITEs are recorded, maintained and evaluated for the odour panel members prior to every panel session. The individual performance measures for each odour panel member in this session are presented below in **Table iii**.

Table iii: Odour Panellist Performance

Panellist ID	Compliance	Mean Concentration (ppb) 20 ≤ 10ylTE ≤ 80	Standard Dev 10slTE ≤ 2.3
002	Yes	51	2.15
008	Yes	34	1.46
010	Yes	40	1.74
011	Yes	38	1.63

2.3 LABORATORY PERFORMANCE

Compliance with AS/NZS 4323.3 sensory quality criteria within the laboratory has been determined from at least ten test results over the last 12 months obtained using the CRM odorant n-butanol. Accuracy (Aod) reflects both the trueness (expressed as bias) and the precision (expressed as repeatability) compared with the accepted reference value (i.e., population mean) of n-butanol (i.e., 40 ppb). Repeatability (r) reflects the random error or the spread of test results around the measured mean value. Accuracy must not be greater than 0.217 on the logarithmic scale, which implies that the mean of the test results must be within a factor of 1.65 of the accepted reference value of n-butanol in 95% of cases. Repeatability must not be over 0.477 on the logarithmic scale, which implies that the

difference from the measured mean value must be within a factor of 3.00 in 95% of cases. The overall sensory performance benchmarks for the session date are presented in **Table iv.**

Table iv: Sensory Performance

Criteria	Value
Repeatability ($r \leq 0.477$)	0.379
Accuracy ($Aod \leq 0.217$)	0.10
Compliance	Yes

The Scentroid SM100i was calibrated on 30 January 2025 to an accuracy within the benchmarks outlined in **Table v** in accordance with AS4323.3 - Determination of odour concentration by dynamic olfactometry.

Table v: Olfactometer accuracy

Parameter	Measured value	Criterion	Compliance
Dilution accuracy (Ad)	0.024	≤0.20	Yes
Instability (Id)	2.5	≤5%	Yes
Port air flow	>20LPM	≥20 LPM	Yes

3 VARIATIONS TO PROTOCOLS

No variations observed.

4 RESULTS

Sample analysis details and odour concentration results are presented in Summary Table 1.

Table 1: Odour Concentration Results Summary

Sample Description	Sample ID	Valid ITEs	Pre- dilution	[Odour] (OU)	Lower limit 95% confidence (OU)	Upper limit 95% confidence (OU)
OUTLET 109	OUTLET 109	8	None	**610**	460	800
OUTLET 110	OUTLET 110	8	None	**650**	490	860
OUTLET 111	OUTLET 111	8	None	**260**	200	350
INLET 109	INLET 109	8	None	**1100**	830	1400
INLET 110	INLET 110	8	None	**4000**	3000	5200
INLET 111	INLET 111	8	None	**3700**	2800	4900

EAQ Consulting

ODOUR FIELD ASSESSMENT

RESOURCE RECOVERY GROUP: CANNING VALE CENTRE

Resource Recovery Group: Canning Vale Centre

Bannister Road
Canning Vale, Western Australia 6155

Prepared for: Resource Recovery Group

Resource Recovery Group
Recycle. Innovate. Educate.

Project Ref: EAQ-25001

February 2025

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Environment | Air Quality

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Report Revision(s)				
Version(s)	**Description**	**Date**	**Author(s)**	**Reviewer(s)**
Draft_1.0	Internal Review	13.02.2025	J. Hurley	DSB
Final	Released to Client	13.02.2025	J. Hurley	

Approved for Release		
Name	**Position**	**File Reference**
John Hurley	Principal Consultant	EAQ25001-OFA-(RRG-CVC)-ComplianceReport_Feb'25

Signature

Contents

Figures

Tables

Assessment Disclaimer:

This document presents the results of one or more Odour Field Assessments (OFAs); undertaken for the assessment of offsite ground level odour intensities downwind of the RRG Canning Vale Centre (CVC) according to the German Standard VDI 3940. The results presented herein are representative of the observations made during each OFA, and do not represent conditions outside of those OFA observation times.

1 Background & Scope

Environmental & Air Quality Consulting Pty Ltd (EAQ) was engaged by the Resource Recovery Group (RRG) to undertake monthly Odour Field Assessment (OFA) compliance works downwind of the RRG's Canning Vale Centre (CVC).

The OFAs are undertaken as per the RRG's Government of Western Australia Department of Environment Regulation Licence (L7799/2001/8) **Condition 18(a)** for Prescribed Premises in accordance with the Environmental Regulation Act 1986, which states:

- The Licence Holder must implement the Odour Field Assessment (OFA): Methodology Statement (Environmental & Air Quality Consulting Pty Ltd).

The OFA compliance works involves calibrated and experienced odour assessors surveying the downwind surrounds of the CVC detailing observations of odour presence, odour character, odour intensity and frequency of observations emanating from the CVC.

The CVC site has three primary processes and associated process areas:

- Materials Recovery Facility (MRF) of recyclables handling and distribution;
- Green Waste Facility (GWF) receivals, handling and processing and distribution; and
- FOGO Processing Facility (FPF) of municipal and FOGO wastes (kerb side collections).

The MRF has negligible odour generation given at least 85% of all materials through the MRF are recyclables. There is a small fraction of putrescible waste recovered from the MRF at typically 15% annually, however; the putrescible fraction is recovered in finite amounts over the annual period.

The GWF operates within a daily timeframe where incoming residential greenwaste is temporarily stored and then transported off-site, or incoming commercial greenwaste is processed by way of grinding and downsizing before it is temporarily stored then removed from site. The GWF grinding and downsizing activities only occur within daytime working hours.

The FPF receives influent household general wastes and FOGO wastes via the tipping floor. The risk of odour emission from the tipping building is considered to be low given that there is no processing of these wastes that would otherwise generate malodours. The FPF building is maintained under negative pressure and captures and treats the low strength odours using biofiltration.

Of primary consideration for the OFAs are the GWF and FPF with respect to observable offsite odours. Although included in the OFA design, the MRF odours are not considered to be a risk for offsite odour impacts given the very low odour concentrations within the MRF. EAQ's trained and calibrated OFA assessors have extensive experience in assessing odours from the RRG's CVC and in particular the ability to discern the differing odour characters from the MRF, GWF and FPF processes.

1.1 OFA Compliance Objective

Assessments are based on the German Standard VDI 3940 "Measurement of Odour Impact by Field Inspection" where the standard prescribes the methods by which field technicians (odour assessors)

determine, define and document observed ground level odours and the manner in which the determination of these odours is defined in relation to odour character, frequency of odours observed and the odour intensity of those individual observations as a quantitative scale of measure. EAQ undertakes these OFAs following the VDI 3940 Plume Method [1]**.** Where ambient wind conditions shift notably during the survey period, EAQ often assesses an adjacent Assessment Area where applicable.

The objective of the OFA is to demonstrate compliance with **Condition 18(a)** and **Condition 20**. In achieving compliance with **Condition 20**, the outcomes of the OFA will demonstrate that the RRG's CVC has ensured:

- *….."that odour emitted from the premises does not unreasonably interfere with the health, welfare, convenience, comfort or amenity of any person who is not on the premises".*

[1] Measurement of odour impact by field inspection – Measurement of the impact frequency of recognizable odours Plume measurement. VDI 3940 Part 2. ICS 13.040.20.

2 OFA Assessment Details

Site of Assessment	Canning Vale Centre (CVC)
Survey Day & Date:	Thursday 13th February 2025
Start Time(s) of Survey Period:	0630hrs – 0900hrs
Average Wind Origin:	(South-East & South-South-Easterlies 146.25^0 – 168.75^0)
BoM Wind Velocity throughout Survey:	0.00 – 3.61 m/s (0 – 13 km/h)
Survey Area(s):	Assessment Area 4
Field Assessors:	3
Laboratory Calibration Type:	*n*-butanol – Forced Choice Dynamic Olfactometry
Field Inspection Method Standard:	VDI 3940 (Part 2)
Description of Standard:	Measurement of odour impact by field inspection – Measurement of the impact frequency of recognizable odours Plume measurement
Field Inspection Method Standard:	VDI 3940 (Part 3)
Description of Standard:	Measurement of odour impact by field inspection – Determination of odour intensity and hedonic odour tone
Exceptions:	VDI 3940 (Part 3) Hedonic odour tone not assessed
Odour Key Descriptors (Quality):	A – Cardboard-Weak Rubbish Bin Odour (MRF Origin)
	B - Dry Cut Grass, Tobacco (GWF origin)
	C – Cool, Pine-Solvent, Garden Compost (WCF Bio's 3 & 4)

Table 2-1: OFA Pool of Assessor Details

Assessor I.D.	Gender	Recent Calibration Result (ppb) [Acceptance Criteria 20 – 80 ppb)	Previous OFA Experience
1	Male	37.3	21
2	Male	61.4	1
3	Female	55.9	7
4	Female	64.3	24
5	Male	75.0	13
6	Male	49.6	1

3 CVC Process Details; Ambient Weather & Site Map

Table 3-1: RRG's CVC Operational Process Details

FOGO Processing Facility (FPF)	Materials Recovery Facility (MRF)
• > 1600hrs < 0800hrs - after hours (no receivals); • > 0800hrs < 1600hrs – organic waste receivals/trommeling/transfers; • No process odour observed outside of the FGF; • No leachate odours onsite; and • No odour complaints recorded.	• > 1600hrs < 0800hrs - after hours (no receivals); and; • > 0800hrs < 1600hrs - business as usual. **Green Waste Facility (GWF)** • > 1600hrs < 0800hrs - after hours (no receivals); and; • > 0800hrs < 1600hrs - business as usual.

Table 3-2: Ambient 10-minute Weather Observations (Jandakot)

Start of 10-min	Wind Direction	Wind Speed (m/s)	Ambient Temp. (^{0}C)	Ambient Rel. Humidity (%RH)
Thu 09:00 AWST	SSE	3.61	19.3	56
Thu 08:50 AWST	SSE	1.94	18.2	58
Thu 08:40 AWST	SSE	3.06	17.6	59
Thu 08:30 AWST	SSE	3.61	17.7	59
Thu 08:20 AWST	SSE	1.94	17.3	62
Thu 08:10 AWST	SSE	3.06	17	62
Thu 08:00 AWST	SSE	1.94	16.6	62
Thu 07:50 AWST	SSE	1.94	16	66
Thu 07:40 AWST	SSE	2.50	15.3	68
Thu 07:30 AWST	Calms	0.00	14.9	69
Thu 07:20 AWST	Calms	0.00	14.4	71
Thu 07:10 AWST	Calms	0.00	13.6	74
Thu 07:00 AWST	Calms	0.00	12.7	78
Thu 06:50 AWST	Calms	0.00	11.8	80
Thu 06:40 AWST	Calms	0.00	11.1	81
Thu 06:30 AWST	Calms	0.00	10.9	83

Figure 3-1: RRG's CVC Site Layout, Odour Source Origins & Descriptors

3.1 Discussion of OFA Results

The RRG's CVC OFA Survey undertaken in February 2025 from 0630hrs onward in Assessment Area 4 showed that no single measurement point was odour impacted since the respective percentage odour times did not exceed the criterion of 20% or greater for odour intensity observations of 2.

Consequently, the percentage odour times did not exceed the assessment criterion of 20% or greater for odour intensity observations of 2.

There is no composting of the FOGO wastes, only receivals and sorting inside the FOGO Processing Facility (FPF) using a separation trommel/sieve. The trommel removes the inorganic fraction and retrieves the organics which are transferred offsite for further processing.

In terms of continuous odour emissions at the CVC, two operational Biofilters (Biofilters 3 & 4) receive and treat extracted odours from the FPF and emit 'clean' biofilter odours. Where poor biofilter performance may occur, there may be untreated FPF odours released to atmosphere that may result in malodour observations offsite.

There were no CVC odours observed at offsite measurement locations during the February 2025 OFA within Assessment Area 4.

The RRG's CVC was compliant with:

- **Condition 18(a)**, where; "*The Licence Holder must implement the Odour Field Assessment (OFA): Methodology Statement (Environmental & Air Quality Consulting Pty Ltd)";* and
- **Condition 20**, where the CVC has demonstrated; *"…..that odour emitted from the premises does not unreasonably interfere with the health, welfare, convenience, comfort or amenity of any person who is not on the premises".*

The following **Figure(s)** illustrate the OFA findings. **Table 3-3** lists the assessor times, locations and odour observations.

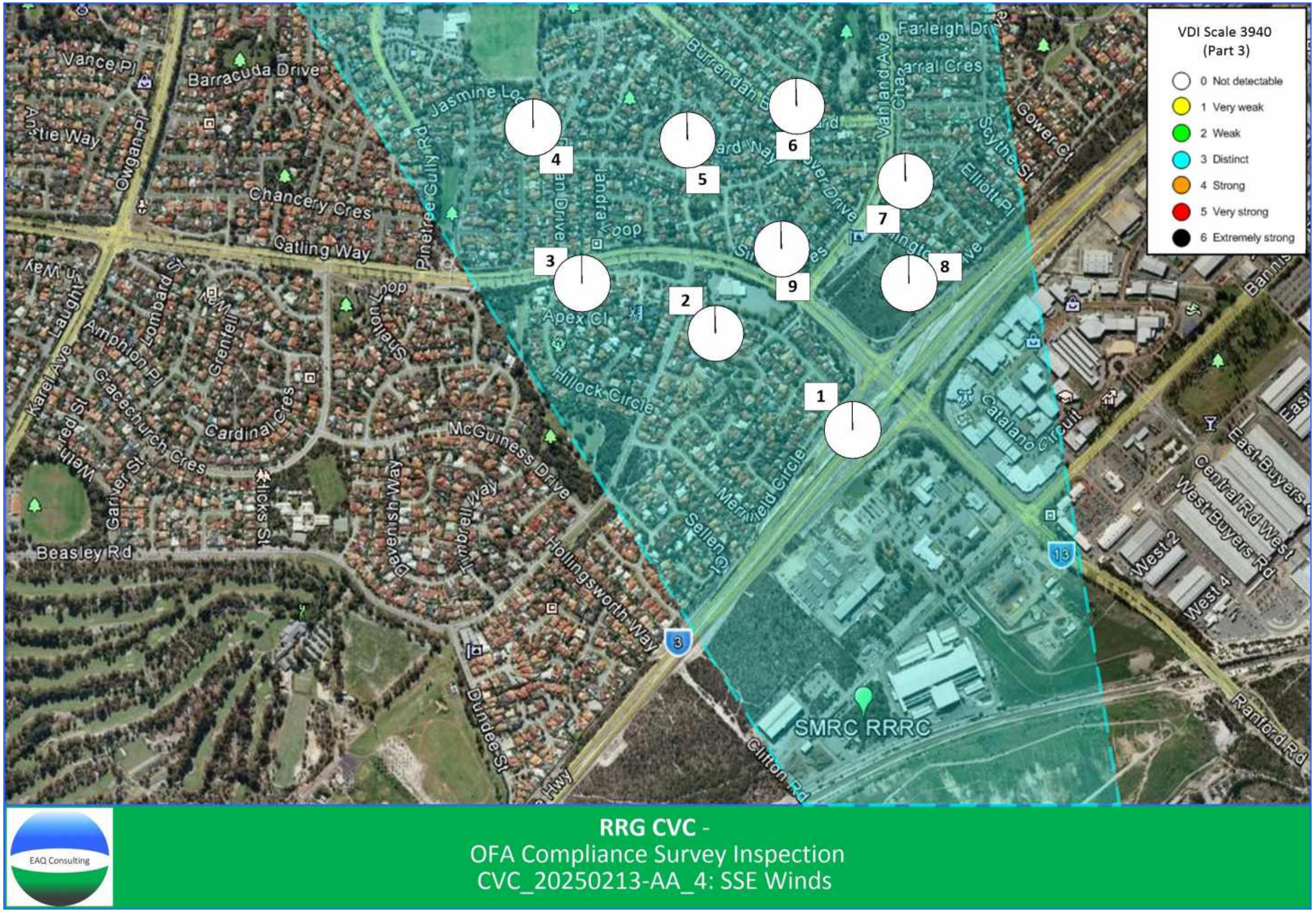

Figure 3-2: OFA Assessment Map - Assessment Area 4

Table 3-3: OFA Frequency & Strength Observations Assessment Area 4

Survey Location	Assessor I.D.	Time	Intensity Count							>1	Cloud
			0	1	2	3	4	5	6		
1	2	06:55	60	0	0	0	0	0	0	0.0%	0
	1	06:55	60	0	0	0	0	0	0	0.0%	
	3	06:55	60	0	0	0	0	0	0	0.0%	
2	2	07:07	60	0	0	0	0	0	0	0.0%	0
	1	07:07	60	0	0	0	0	0	0	0.0%	
	3	07:07	60	0	0	0	0	0	0	0.0%	
3	2	07:21	60	0	0	0	0	0	0	0.0%	0
	1	07:21	60	0	0	0	0	0	0	0.0%	
	3	07:21	60	0	0	0	0	0	0	0.0%	
4	2	07:33	60	0	0	0	0	0	0	0.0%	0
	1	07:33	60	0	0	0	0	0	0	0.0%	
	3	07:33	60	0	0	0	0	0	0	0.0%	
5	2	07:46	60	0	0	0	0	0	0	0.0%	3
	1	07:46	60	0	0	0	0	0	0	0.0%	
	3	07:46	60	0	0	0	0	0	0	0.0%	
6	2	07:59	60	0	0	0	0	0	0	0.0%	7
	1	07:59	60	0	0	0	0	0	0	0.0%	
	3	07:59	60	0	0	0	0	0	0	0.0%	
7	2	08:12	60	0	0	0	0	0	0	0.0%	8
	1	08:12	60	0	0	0	0	0	0	0.0%	
	3	08:12	60	0	0	0	0	0	0	0.0%	
8	2	08:24	60	0	0	0	0	0	0	0.0%	8
	1	08:24	60	0	0	0	0	0	0	0.0%	
	3	08:24	60	0	0	0	0	0	0	0.0%	
9	2	08:37	60	0	0	0	0	0	0	0.0%	8
	1	08:37	60	0	0	0	0	0	0	0.0%	
	3	08:37	60	0	0	0	0	0	0	0.0%	