



**The Environmental Permitting
(England and Wales) Regulations 2016**

**Permit EPR/BK6785IE
Walpole Materials Recycling Facility**

Odour Management Plan

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June 2023	1	Lisa Edmonds Permitting Manager	

Referenced Drawings (All drawings are available at Valencia's Intranet Drawing Office Index)

Drawing Number	Drawing Description
WALMRF3200	On Site and Off Site Monitoring Locations
WALMRF175	MRF Layout Plan
WALMRF150	Permitted Area (Landfill)

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1. Introduction

1.1. Odour Management Plan – Objectives

This document outlines the methods by which Valencia will systematically assess, reduce and prevent potentially odorous emissions from Walpole MRF. It provides the explicit list of '*appropriate measures*' required for effective odour management and control and serves to aid the decision-making process on the choice of controls, general site design and operational practice in line with current industry best practice. The odour management plan (OMP) is a working document with the specific aim of ensuring that:

- all potential odour sources are identified;
- odour impact is considered as part of routine inspections;
- odour is primarily controlled at source by good operational practices, the correct use and maintenance of plant, and operator training;
- all appropriate measures are taken to prevent or, where that is not reasonably practicable, to minimise odorous emissions to air from the installation that may be considered offensive at locations outside of the installation boundary;
- people outside of the site are not exposed to levels of odour that would result in annoyance;
- the risk of unplanned odour releasing incidents or accidents that would result in annoyance is minimised; and
- site developments take into account odour potential and potential impacts from work carried out

1.2. Key Reference Documents

The methodologies presented take account of Environment Agency (EA) guidance documentation, as detailed below:

- EA Technical Guidance Note H4 Odour Management (March 2011)
- EA Internal Guidance for the Regulation of Odour at Waste Management Facilities (version 3.0)
- The Environmental Permitting (England and Wales) Regulations 2016
- Regulating odour – a quick guide (163_12)
- Odour Regulation FAQ (Quick Guide 380_12)
- EA Guidance on How to comply with your environmental permit (v5, Document 433_11).

In addition, this document should be read in conjunction with the following internal Valencia site management documents:

- Valencia Policies and Procedures

2. Site Environmental Setting

2.1. Installation Details

Walpole MRF forms part of Walpole Waste Recovery Facility which comprises the following: waste MRF, wood recycling, street sweepings bay and open windrow composting, non-hazardous landfill with stabilised non-reactive hazardous waste cell and an anaerobic digester facility. This document refers to the waste MRF.

Walpole MRF is situated approximately 3.5km north of Bridgwater's nearest residential properties, and 1.5 kilometre north west of Puriton (NGR) ST 3149 4265. The site is located in a rural setting and is accessed via the Walpole Landfill perimeter road. The site is bound to the north by Walpole Landfill site and AD facility; to the south-west by Walpole compost facility; and to the east by the M5 and a railway line. South of the MRF are residential properties off Downend Road and a supermarket regional distribution centre at 1.2 and 3 km distant respectively. Pawlett village is 1.1km to the west, and a number of industrial units are to the north west, with some smaller residential units to the north of the River Huntspill. The MRF site is depicted in WAL175, and the wider permitted area is in WAL150.

2.2. Pathway Assessment

Local meteorological data is routinely recorded at the calibrated on-site weather station located at the Walpole Site Office. The predominant local wind direction is from the north-west. Wind directions from the north, and east-south-east directions occur infrequently.

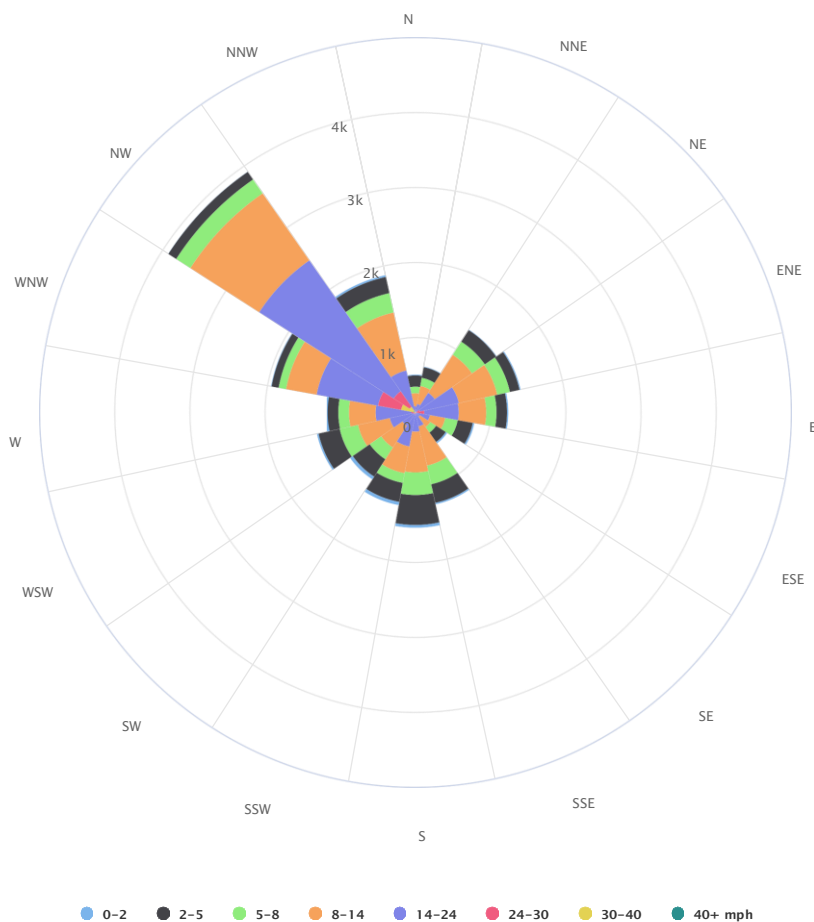


Figure 1: Wind rose displaying prevailing wind speed and direction at Walpole Recovery Facility

2.3. Potential Receptor Locations

A subjective review of the site’s environmental setting has highlighted potentially sensitive off-site receptors with regard to any odorous emissions from Walpole MRF. Potential receptor sensitivity has been assessed based on proximity to site, prevailing local weather conditions and associated complaint history. Receptor sensitivity remains under management review and is evaluated periodically. The identified receptors are as follows:

Receptor	Description	Dist. (km)	Dir. From site	Wind Frequency towards Receptor	Odour Sensitivity (High, Medium, Low)
Properties on Puriton Road	Residential Properties	1.2	South and West	Infrequent	H
Westmead Farm	Residential Property/Working Farm	1.4	West	Infrequent	M
Bannock Farm / Downend (Pawlett Road)	Residential Properties	0.9	South	Infrequent	H

Rye Farm (Batch Road East)	Residential Property / Working Farm	0.8m	South East	More frequent	M
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Table 1: Potential Receptor Locations and Odour Sensitivity

A plan showing the site's environmental setting and potentially sensitive off-site receptor locations is available in WAL-TS3200 (Odour Receptor Locations).

3. Site/Process Description

3.1. Introduction

This plan sets out the appropriate measures for odour management and control specifically at the MRF.

3.2. Facility Layout

The MRF building will be steel clad with an impermeable base. The floor will consist of a 200mm thick mesh reinforced concrete slab underlain with a bedding layer, impermeable membrane and Type 1 Granular Sub Base. The walls will be constructed of blockwork concrete and offer secondary containment. The building footprint is rectangular measuring approximately 78m x 41.6m and thus has an approximate floor area of 3,244m². The layout has been specified in WAL175.

The MRF will have two vehicle entrances and exits which will be fitted with fast acting roller doors and maintained in accordance with the manufacturer's instructions. Manual operation of the roller doors will be possible in the case of power failure to ensure containment of odours, dust and noise inside the building.

3.3. Process Description

The operation of the MRF will serve the receipt and bulking pending off-site transfer of domestic, commercial and industrial waste.

The annual throughput of the MRF building will be no more than 150,000 tonnes.

The MRF is open to accept and despatch waste between 07:00 – 20:00hrs Monday to Sunday.

4. Waste Transfer Odour Controls

In line with current industry best practice, the odour controls set out in the sections below will be used as the 'appropriate measures' to where possible prevent and minimise odour associated with site operations at the Walpole MRF.

4.1. Over-arching Management Responsibility

The site management will have responsibility for ensuring that potentially odorous emissions arising from the installation are minimised. Adequate staffing levels will be maintained at all times to ensure the effective operation of the facilities.

4.2. Identification of Potential Odour Sources

The waste management activity undertaken involves the short term, temporary storage of waste delivered into the MRF.

Under 'normal' operational conditions, municipal solid waste is considered to have a moderate odour potential. Somerset Waste Partnership require a high level of recycling so putrescible waste is removed from the municipal solid waste stream at source by residents, as a result of food waste collections taking place at the kerbside and delivered to Biffa's Walpole AD facility. This is intended achieve a higher level of recycling and reduce the odour potential of waste coming into the site. Viridor's Walpole Transfer station receives kerbside municipal waste. It is recognised that this odour potential may be affected by the age of the waste when it is received at the site, as material delivered to the MRF is predominantly from business and not normally of a similar nature to biodegradable municipal waste, the potential for odorous waste receipt is low. No significant change in seasonal odour potential is expected with regard to off-site odour risk.

Onward transfer of wastes will be on a first in, first out basis and within 72 hours of arrival at site. The premise of operation will be that waste in the MRF will be kept to a minimum at any one time. Waste storage bays will be entirely emptied of waste during collections, to ensure that old waste is not left within the facility.

Waste Feedstock Inventory

Key waste streams received at the site are detailed below. Assessment of the associated odour potential under 'normal' operational conditions is provided.

Waste Description	Odour Potential (High, Medium, Low)
Municipal Solid Waste	M
Commercial & Industrial (C&I)	L

Table 2: Key Waste Streams and their Odour Potential

In addition to the potential odour sources specified above, the following adjacent potential odour sources have also been identified. These include emissions from adjacent waste management activities which are managed by Valencia and Biffa under permit EPR/BK6785IE. Odour from these operations are managed in accordance with the Permit and Valencia management systems: The location and good management of this facility mean that no OMP has been required to date.

- i. Non-hazardous landfill and landfill gas management (Walpole Landfill);

- ii. Walpole Open Windrow Composting;
- iii. Emissions from Walpole Anaerobic Digester; and,
- iv. Emissions from agricultural activities in the surrounding area e.g. muck spreading.

4.3. Containment of Activities

MRF waste management activities are carried out within the confines of the MRF building.

Most vehicles arriving at the MRF will be enclosed. Waste is discharged from delivery vehicles and loaded into articulated vehicle trailers within the enclosed MRF building. The period of time required for discharge and loading of wastes will be minimised wherever possible.

4.4. Odour Management Sprays

Odour management sprays are not used at the Walpole MRF. The requirement to use odour neutralising agents around sensitive areas of the installation or during specific activities remains subject to on-going review by the site management team.

4.5. Waste Reception and Storage

All waste received at the site is initially assessed by the weighbridge operator to ensure it complies with the waste transfer note description and the permitted waste types for the facility. Any unauthorised waste that has not been unloaded will be refused access to the site. Further details of waste acceptance procedures are contained within the Valencia's waste acceptance procedure.

Most waste is transported to the MRF in enclosed waste delivery vehicles. Waste shall be discharged from the delivery vehicle directly onto the floor within the MRF building and consolidated by mobile plant after visual inspection.

Most incoming waste will be from from commercial and industrial sources. Waste types received at the site should not exhibit significant malodorous properties under normal operating conditions. Where it is necessary to receive potentially odorous materials at the site (such as old/wet putrescible waste on an infrequent basis) the wastes will be loaded onto the next available vehicle, ensuring that odorous waste is sent for recovery at the ERF promptly and thus removing the potential for an odorous emission.

Normal storage within the MRF will be around 800 tonnes but this may increase to around 1400 tonnes during a bank holiday weekend.

4.6. Removal of Waste from Site

Onward transfer of waste will be on a first in, first out basis controlled by efficient use of the space within the MRF and the sequential acceptance of waste into specific bays. Waste will be rotated– the oldest waste will be removed first and the bays will be emptied entirely in rotation to ensure that no residual waste remains in the bays. Once an economically viable load has built up, waste will be removed from site.

Waste transport vehicles removing the waste from site will be loaded and sheeted within the enclosed MRF to create containment of the waste prior to leaving the MRF building. Wastes movements between the MRF and landfill will be on Dumpers which, containing low odour potential non-combustible waste, will be unsheeted.

4.7. Planned Temporary Odorous Activities

If it is necessary to undertake planned temporary actions that have an associated high risk of significant off-site odour (e.g. removal of odorous unauthorised waste from site), site management will contact the Environment Agency and any high risk potential receptors prior to such actions commence to advise them of:

- the operation being undertaken
- the reason(s) for doing so
- planned additional odour mitigation measures;
- and timescales for completion

Consideration will be given to the prevailing weather conditions when undertaking such activities in order to minimise any potential off-site odour impact.

'Unplanned' temporary odorous activities (e.g. in the event of a site emergency) will be addressed immediately in accordance with the Action Plan set out in Section 6.2 below.

4.8. Plant and Equipment

The site management will ensure that sufficient plant and equipment is maintained at the facility to adequately handle all delivered waste in an efficient and, wherever possible, odour-free manner.

All plant and equipment shall be maintained in good working order and in accordance to the supplier's or manufacturer's recommendations. Plant operators shall be responsible for the daily and weekly vehicle checks of their respective machines. Any defects shall be reported to the site management promptly and rectified as soon as possible. Records will be retained on the operator maintenance check and defect sheets.

4.9. Surface Water/Leachate Management

The MRF building will include impermeable flooring draining to a sealed drainage system. Any potential process water generated within the MRF building is collected by the building's impermeable surface and contained within the MRF drainage system and dirty water tank, although very limited process water or leachate is expected. This water is held in the dirty water tank prior to being taken off site for disposal at a suitably permitted facility and will be of a suitable size and standard to meet the requirements specified in the Fire Prevention Plan Guidance.

4.10. Housekeeping

Site roads, the yard and the MRF floor will be swept at regular intervals to prevent the accumulation of dusty or muddy material. General housekeeping will be undertaken daily and checks will be carried out to ensure smooth and efficient running of the site. Mobile plant will be subject to regular inspections to ensure waste does not accumulate on the machine.

Site infrastructure shall be inspected for damage and wear by the site management or appointed responsible person at pre-defined intervals.

In the event that residue of a particularly odorous waste remains on the floor of the MRF, wash down of the affected area will be carried out. Dirty water from the process will be contained in the MRF's contained drainage system and removed to an appropriately permitted facility

4.11. Training

All Valencia personnel working at the facility will be subject to a formal documented training programme in accordance with Company procedures. Matters relating to site environmental management and control form part of this core training programme for all individuals.

The preferred standard for third party specialist monitoring contractors completing subjective odour surveys will be formal assessment for odour sensitivity and detection threshold at a specialist facility (e.g. Silsoe Institute, or equivalent) in order to demonstrate suitability for this subjective monitoring role.

4.12. Community Liaison

Valencia operates an open-door policy and members of the public are welcome to visit the site to view operations and to discuss any issues with the site management team at prearranged times. Valencia also organises the Community Liaison Group and formal meetings are scheduled at intervals agreed with the local community. Site odour performance and community feedback is included as a routine agenda item.

Site contact details and emergency (out-of-hours) numbers are shown on the site identification board and Company website and are provided to the Community

Liaison Group. Direct feedback to the site is encouraged at all times in relation to any perceived issues associated with operational activities.

4.13. Emergency Response

Valencia's Emergency Response Procedure is made available to all site staff. In the event of a site emergency, the site management will be notified without delay. The relevant action for odour control will be implemented by the responsible person(s).

5. Odour Monitoring

5.1. Meteorological Conditions

A correctly installed, calibrated and maintained meteorological station is located at the nearby Walpole Site Office and is set up to measure and record weather conditions (including atmospheric pressure, wind speed and wind direction at regular automated intervals).

In promoting proactive management of the risks arising at the site, site management will also maintain an awareness of the local weekly weather forecast,

5.2. Regular Inspection/Olfactory Monitoring

All installation personnel are responsible for reporting any odour problems. The site management will be notified immediately of any detected odours that are considered to have the potential to give rise to an off-site odour impact.

The site management will ensure that routine inspections are made of the waste MRF building during operational periods in order to identify any odour sources and if necessary to establish whether any odours are discernible at the perimeter of the installation.

All staff responsible for assessing odour will receive training from the site management on the odour inspection procedure.

In the event that the MRF operation gives rise to persistent and repeated off site odour which causes a nuisance to neighbouring sensitive receptors, an inspection programme will be established and will be undertaken as follows:

1. The responsible person will visit each of the specified installation boundary monitoring locations;
2. The responsible person will stand still and breathe deeply facing upwind for a period up to 1 minute.
3. If odour is detected, but can only be detected in this manner, the odour 'intensity' should be recorded as 2 (faint). If odour is detected while walking or breathing normally, the intensity should be recorded as at least 3 (moderate).
4. The site management will be notified immediately of any detected odours that are assigned an on-site odour intensity >3. This will trigger a

supplementary off-site odour survey at any downwind off-site potential receptors.

5. Observations including time, date, weather conditions, odour type, location, intensity, extent and sensitivity will be recorded on the Odour Survey Log Sheet (Appendix I). 'Abnormal' site operating conditions at the time of the survey e.g. infrastructure installation/refurbishment, etc. should also be recorded.

6. Odour Action Plan

6.1. Odour Complaint Investigation

The following actions will be taken on receipt of an external odour complaint:

- 6.1.1. The responsible person receiving the complaint at the site will initially record the key details on Valencia's Incident Management System (IMS) in accordance with Valencia's Complaints, Feedback and Requests Procedure. Key information will be recorded at this time in order to facilitate further suitable investigation.

- 6.1.2. Site Management will be informed of the odour complaint as soon as possible, including the location, time and date of the complaint being lodged (where available).

In recognising that odour can be transient and short-lived, timely notification of odour complaints directly from the complainant and / or the Environment Agency is imperative to allow for appropriate investigation. If the odour complaint occurred more than 12 hours before notification is provided to Valencia, it may not be possible to fully investigate or substantiate the complaint. Valencia will, however, complete and record a complaint investigation, as set out below, as appropriate.

- 6.1.3. If the complaint is received within 12 hours of the incident, site management (or an appointed representative) will visit the complaint location as soon as practicable in order to subjectively determine odour presence or absence. Opportunities to meet the complainant to discuss the matter directly will be pursued, wherever possible, provided the complainant is happy to do so.

- 6.1.4. If an odour is present at the complaint location, the key 'FIDOL' criteria will be assessed as follows:

Frequency – is the odour intermittent or persistent; is there a history of complaints at this location?

Intensity – is the odour faint, moderate, strong, or very strong?

Duration – how long is the odour present at this location?

Offensiveness – provide a description of the odour; is it high, moderate, or low offensiveness?

Location – is the odour present at a remote or highly sensitive location; is the odour plume localised or widespread?

[See also: 'Classification Systems', Appendix I]

6.1.5. The site management will subsequently undertake the following further assessment process:

- Review of the operations at the site prior to and at the time of the complaint;
- Review of the environmental control systems operative prior to and at the time of the complaint;
- Review of the meteorological conditions (wind speed/wind direction/rainfall/atmospheric pressure) prior to and at the time of the complaint – to establish whether a pathway can be established between the site and the complainant;
- Review of the previous complaint history at the location identified.

6.1.6. The odour complaint will be substantiated (or otherwise) by the site management (or appointed representative) in accordance with the following (in order of priority):

- i) The Environment Agency has visited the complaint location and has provided confirmation that the odour exists, is significant and is attributable to Walpole MRF;
- ii) The site management (or appointed representative) has visited the complaint location and has provided confirmation that the odour exists, is significant (based on the FIDOL assessment above) and is attributable to Walpole MRF.

Valencia will contact the Environment Agency to discuss any substantiated complaint incident as soon as possible following receipt of the details, allowing sufficient time for the above investigation to be completed. The target response period during the normal working week is 48 hours from complaint receipt. If the necessary contact details are available and direct feedback has been requested, Valencia will also contact the complainant directly to discuss the issue, the findings of the subsequent investigation and any actions arising.

6.2. Action Plan

Odour 'non-conformances' may be determined at the site as follows:

- Receipt of an odour complaint that is attributable to the MRF;
- Detection of significant off site odour that relates to Walpole MRF during routine odour surveys

In the event that either of the above odour 'non-conformances' are determined at the site, the following actions shall be taken:

Responsible Person(s):

Valencia's primary point of contact will be the site management for the facility on all matters associated with site operations and environmental performance. In the event that the site management is unavailable or non-contactable, the contingency management staff to be contacted will be as follows:

- 2nd call to: Operations Manager
- Thereafter: Environment Team

Actions:

1. The site management will be informed.
2. Thereafter the site management will co-ordinate with (where appropriate):

Externally: Environment Agency Officer (*central Agency call centre if outside working hours*)

Internally: Senior Manager, Environment Team, Site Staff

3. If the incident relates to receipt of an external complaint, an investigation will be completed in accordance with Section 6.1, above.
4. If not previously undertaken, the site management (or appropriate responsible person) will undertake an investigation in order to determine the likely cause(s) of the off-site odour. Upon identification of the likely odour source(s), the appropriate corrective and preventative measures will be identified, as detailed above in Section 4.

Key items for consideration will be as follows:

- Material inputs – change in waste type, volume, odour characteristics;
 - Waste reception hall – building integrity, housekeeping;
 - Failure of external utility supply – electricity;
 - Mechanical breakdown – pumps;
 - Procedural failure (human error);
 - Short-term abnormal weather patterns – wind direction, temperature, inversions; and,
 - Abnormal operating conditions – temporary odorous activities
5. Upon identification of the likely odour source(s), the appropriate corrective and preventative measures will be identified and implemented under the direction of the site management. Additional support and technical expertise will be provided by internal / external technical specialists, as required.
 6. In the event that sustained or significant plant or process failure occurs, waste feedstock material will be diverted to alternative off-site facilities. In extreme conditions, operations will temporarily cease through close liaison with the Environment Agency.
 7. The OMP will be reviewed in line with Section 7, below, in order to ensure it continues to represent 'all appropriate measures'.

6.3. Timescales

In the event that it proves impracticable to carry out adequate remedial measures within 5 working days, the site management will agree with the Environment Agency the proposed actions and the timescales for their completion.

6.4. Records

Details of odour 'non-conformances' including subsequent investigations, timescales and remedial measures taken, and notifications of the relevant internal and external bodies shall be recorded by the site management on the IMS or Daily Site Log as appropriate, and copies shall be maintained within the site office.

6.5. Additional Supportive Odour Monitoring

The requirement for (and frequency of) additional supportive odour monitoring will be agreed between the site management and the Environment Team. This may include, but not be limited to:

- on-site subjective odour inspections;
- site perimeter subjective odour inspections; and
- off-site subjective odour inspections.

7. Document Audit and Review

7.1. Review Requirement and Timescale

While operations continue at the site that could give rise to the generation of odour, this odour management plan will be formally reviewed at minimum bi-annual intervals to ensure it continues to reflect the ongoing site status and associated sensitivity/risk. Any required changes to the conditions set out within this document will be formally agreed with the Environment Agency prior to their implementation.

7.2. Audit

The processes described in this document will be audited by Valencia in accordance with the Company's auditing procedures.

7.3. Review and Plan Update

This management plan sets out the appropriate measures Valencia will undertake in controlling any odorous or potentially odorous activities from the facility. If, on review of the performance of the facility, Valencia and/or the Environment Agency propose to seek revision of this plan, then the following course of action will be undertaken by both parties:

1. In potentially critical circumstances where Valencia recognises the requirement for the immediate implementation of changes to the management plan to prevent or reduce significant odorous emissions, these

changes will be discussed with the Environment Agency without delay but may be actioned by Valencia ahead of formal agreement with the Environment Agency.

2. Where Valencia proposes changes to the management plan that involve a more strategic and/or phased approach rather than a need for immediate implementation, a formal proposal will be submitted by Valencia to the Environment Agency setting out the specific issues arising from document review, and the options/issues requiring Valencia's further attention following Agency approval. The Environment Agency will review Valencia's submission/updated management plan and confirm they are satisfied with the proposed changes. Where possible, the response should be within 28 days of receipt of Valencia's submission. The agreed required changes will then form the future 'appropriate measures' for the site with regard to odour management and control.
3. Where changes to the management plan are proposed by the Environment Agency, these will be discussed with Valencia setting out the Environment Agency's clear expectation from the changes in addition to timescales for their implementation. It is recognised that these changes may range from matters that require immediate implementation to those that may be implemented over an extended timeframe. In each case, the required changes will be discussed with Valencia and an appropriate action plan agreed. Valencia will (wherever possible) undertake the identified changes in accordance with the timescales proposed for the work, at which point the updated 'appropriate measures' will take effect.

-----[END]-----

Appendix I –Odour Survey Log Sheets

On-Site Odour Survey Log

Sheet

Survey Ref No:

Site: Walpole MRF

Station Date of Monitoring:.....

Conducted by:

Routine Survey/Complaint Investigation *(delete as appropriate)*

Weather Conditions *(please note conditions at start and end of survey, if different)*

Description	Wind Direction	Wind Force ¹	Temperature (°C)	Atm Pressure (mb)	Ground Conditions	Air Stability ²

¹ Referenced to the Beaufort wind scale from 0/1 = calm/light air to 8/9 = gale/strong gale

² Referenced to Pasquill stability categories from A = very unstable to F/G = very stable

Location Code	Location	Time	Intensity*	Odour Description	Odour Offensiveness	Extent	Sensitivity	Suspected Source	Source VWM Controlled (Y/N)	Comments
WPOD105	West of MRF									
WPOD106	East of MRF									
WPOD107	South of MRF									
WPOD108	South West of MRF									

*See attached 'Classification Systems' for additional information.

OFF-SITE ODOUR SURVEY LOG

Site: Walpole MRF

Date of Monitoring:

Conducted by:

Routine Survey/Complaint Investigation *(delete as appropriate)*

Weather Conditions *(please note conditions at start and end of survey, if different):*

	Description	Wind Direction	Wind force ¹	Temperature (°C)	Atm Pressure (mb)	Ground Conditions	Air Stability ²
Start							
End							
¹ Referenced to the Beaufort wind scale from 0/1 = calm/light air to 8/9 = gale/strong gale ² Referenced to Pasquill stability categories from A = very unstable to F/G = very stable							

Off-Site Odour Survey Log

Location Code	Location name	Time	Intensity	Odour Description	Odour Offensiveness	Extent	Sensitivity	Suspected Source	Source VWM Controlled (Y/N)?	Comments
WLMP1	Pawlett Road S ST 314 417									
WLMP2	Batch Road (E) (Rye Farm) ST 319 425									
WLMP3	Site entrance Puriton Road SSW ST 30589 42313									
WLMP4	Westmead Farm (S W) ST 30521 42439									
WLMP5	Tyre Bale entrance ST 31601 43180									
Use Classification scheme below										

Appendix I – Classification Systems

Meteorological Data

The Beaufort Wind Scale			
Force	Description	Observation	mph
0	Calm	Smoke rises vertically	0
1	Light air	Smoke drifts in wind direction; wind vanes not moved	1-3
2	Light breeze	Wind felt on face, leaves rustle; wind vanes moved	4-7
3	Gentle breeze	Leaves and small twigs in constant motion	8-12
4	Moderate breeze	Raises dust and paper; small branches are moved	13-18
5	Fresh breeze	Small leafy trees swayed; medium branches moved	19-24
6	Strong breeze	Large branches moved; umbrellas used with difficulty	25-31
7	Near gale	Whole trees moving; walking against wind inconvenient	32-38
8	Gale	Twigs break off trees; walking generally impeded	39-46
9	Strong gale	Slight structural damage occurs	47-54

Assessment of Pasquill Stability Categories					
Surface wind speed	Sunshine			Night Time	
	Strong	Moderate	Slight	Thickly overcast or >1/2 cloud cover	<3/8 cloud cover
m.p.h.					
<4.5	A	A-B	B	-	G
4.5-6.7	A-B	B	C	E	F
6.7-11.2	B	B-C	C	D	E
11.2-13.4	C	C-D	D	D	D
>13.4	C	D	D	D	D

Notes:

- Strong sunshine corresponds to a sunny midday in midsummer
- Slight sunshine corresponds to a sunny midday in midwinter
- "Night time" is defined as the period one hour before sunset to one hour after dawn
- Wind speed should be estimated by reference to the Beaufort scale
- Pasquill categories are from A = very unstable to F/G = very stable

Odour Character Key

Descriptors	Value	Intensity
A - acidic	0	No detectable odour
B - acrid	1	Very Faint odour - need to stand still, face the wind and inhale to detect
C - agricultural	2	Faint odour
D - ammoniacal	3	Distinct odour - detectable when walking & breathing normally
E - cabbagey	4	Strong odour
F - dustbin	5	Very strong odour
G - eggy/sulphurous	6	Extremely strong odour
H - fruity		
I - landfill gas	Value	Extent
J - mains gas	1	Local and transient - only detected for brief periods at the site boundary when the wind drops or blows
K - oily	2	Transient - as 1, above, but detected away from the site boundary
L - putrid	3	Persistent but fairly localised
M - pungent	4	Persistent and pervasive up to 50m away from site boundary
N - rotten	5	Persistent and widespread - detected >50m away from site
O - sickly		
P - sour	Value	Sensitivity
Q - sweet	Low	e.g. footpath, road
R - compost	Medium	e.g. industrial or commercial workplaces
	High	e.g. housing, pub / hotel
	Value	Offensiveness
	1	Less/potentially offensive
	2	Moderately offensive
	3	Most/highly offensive

Appendix II – Drawings

