

V1.2

Powys County Council

North Powys Bulking Facility



Environmental Permit Application

Odour Management Plan

Project code: 416.00798.00038

Date: February 2023

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Contents

1.0	Introduction.....	3
1.1	OMP Objectives	3
1.2	OMP Approach and Structure	3
2.0	Sources, Releases and Impacts	5
2.1	Description of Operations	5
2.2	Potential Odour Sources	6
2.3	Received Materials	6
2.4	Stored Materials	8
2.5	RRV and RCV Parking	9
2.6	Removed Materials	9
2.7	Release Points / Potential Odour Generation Sources	9
2.8	Pathways.....	11
2.9	Receptors	11
3.0	Site Operations.....	15
3.1	Reception Building	15
3.2	Waste Acceptance Procedures.....	16
3.3	Material Storage and Transfer Control.....	16
3.4	Bulking Shed – Floor Cleaning.....	16
3.5	General Housekeeping	17
3.6	Loading and Bulk Removal of Material.....	17
3.7	Mitigation of Community Impacts	17
3.8	Monitoring and Maintenance.....	17
3.8.1	Monitoring Potential Odour Sources	17
3.8.2	Monitoring of Ambient Odours	18
3.8.3	Monitoring Meteorological Conditions	18
3.8.4	Recording of Results and Reporting.....	19
3.8.5	Notifying NRW	19
4.0	Contingencies	20
4.1	Receipt of Particularly Odorous Materials	20
4.2	Compromised Odour Containment.....	20
4.3	Bulking Facility Over-Capacity	21
4.4	Temporary Odorous Activities	21
4.5	Abnormal Meteorological Conditions.....	21
4.6	Detection of odour at the Site boundary or off-site during routine odour surveys or response to complaints	22
4.7	Out of Hours Contact Details	22
4.8	Receipt of an Odour Complaint	22
4.8.1	Complaint Logging	22
4.8.2	Complaint Investigation	23
5.0	Emergency Plans	24
5.1	Prolonged Mobile Plant Failure.....	24
5.2	Fire.....	24
5.2.1	Explosion	24
5.3	Major Spillage / Leak	24

5.4	Flooding.....	24
5.5	Power Failure	25
5.6	Staff Absence	25
5.7	Summary of Emergency Control Measures	25
6.0	Document Updates and Reviews / Management.....	27
6.1	Responsible Staff.....	27
6.2	General Procedures for Training and Competency of Staff	27
6.3	Odour Management Plan Review	27
	Appendix A: Accepted Waste Types.....	28
	Appendix B: Odour Assessment Form.....	30
	Appendix C: Odour Complaints Reporting Form.....	31
	Appendix D: Odour Survey Methodology.....	32

Tables & Figures

Table 2-1: Material Types - Typical Primary Chemical Odorants	7
Table 2-2: Accepted Waste Types	8
Table 2-3: Odour Generation Sources.....	9
Figure 2-1: NWP Meteorological Data Wind Rose 2015 – 2019 Average.....	11
Table 2-4: Sensitive Receptors.....	12
Figure 2-2: Receptor Overview	13
Figure 2-2: Receptors at Abermule Business Park	14
Table 5-1: Summary of Emergency Control Measures.....	25
Table A-1: Accepted Waste Types - Further Details	28

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1.0 Introduction

This Odour Management Plan (OMP) has been prepared to support the Environmental Permit (EP) application for the proposed North Powys Bulking Facility near Newtown, Powys, hereafter referred to as 'the Site'.

The Site will require an EP to be issued by Natural Resources Wales (NRW) before it can operate. NRW guidance Note *H4 Odour Management How to comply with your environmental permit*¹ (hereafter referred to as 'H4 Odour Guidance') describes how the IPPC Directive includes odour in the definition of pollution and requires that "[...] *all the appropriate preventive measures are taken against pollution [...]*".

This Directive has been transposed in the UK by the Environmental Permitting Regulations (EPR) and sites encompassed within these Regulations will have the following odour condition included within their permit:

Emissions from the activities shall be free from odour at levels likely to cause pollution outside the site, as perceived by an authorised officer of the Agency, unless the operator has used appropriate measures, including, but not limited to, those specified in an approved odour management plan, to prevent or where that is not practicable to minimise the odour.

Powys County Council (PCC) as the Operator must therefore employ the appropriate measures necessary to prevent odour pollution or minimise it when prevention is not practicable. The measures that are appropriate will depend on the industry sector and the site-specific circumstances of the bulking facility and will take costs and benefits into account.

1.1 OMP Objectives

As defined within the H4 Odour Guidance, the objectives of an OMP is to:

- Identify potentially significant odour sources at the facility and any foreseeable situations which may compromise the operator's ability to prevent and / or minimise odour releases from the proposed Site activities;
- Identify and employ appropriate methods, including monitoring and contingencies, to control and minimise odour pollution;
- Identify and employ appropriate control measures and actions that the operator will take to minimise the impact in the event that odour incidents occur;
- Prevent unacceptable odour pollution at all times;
- Reduce the risk of odour releasing accidents or incidents by anticipating them and planning accordingly; and
- Provide a working document for on-site staff.

1.2 OMP Approach and Structure

The methodologies presented take full account of NRW guidance documentation 'H4 Odour Management, how to comply with your environmental permit'. According to NRW guidelines an OMP should contain the following elements:

¹ Natural Resources Wales, *How to comply with your environmental permit. Additional guidance for H4 Odour Management*, Version 2.0, October 2014.

- An assessment of the risks of odour problems, from normal and abnormal situations, for example of weather, temperature, or breakdowns, as well as accident scenarios;
- The appropriate controls (both physical and management) needed to manage those risks;
- Suitable monitoring;
- Actions, contingencies and responsibilities when problems arise;
- Regular review of the effectiveness of odour control measures; and
- Emission limits (where appropriate).

The OMP is also required to include clear statements to demonstrate that the operator understands and accepts its responsibilities. In particular, it should show:

- That the Operator, either directly or through its contractors or subcontractors, ensures that equipment on Site is operated and maintained such that it is effective in the control of odour at all times;
- That the Operator is familiar with the characteristics of the processes and equipment on Site and have identified the areas of risk of emissions from odour;
- How the Operator will reduce or cease operations, if necessary, to avoid serious odour pollution;
- How the Operator will engage with neighbours to minimise their concerns and complaints; and
- How the Operator will respond to complaints.

An Odour Impact Assessment (OIA) was produced in 2022 as part of the permit application for the Site², and is a useful reference alongside this OMP. The results of the assessment indicate that, in accordance with NRW's H4 Odour Guidance, there is no risk of significant pollution (as a result of the bulking facility's operation) at all receptors.

² North Powys Bulking Facility Odour Impact Assessment, SLR Consulting Ltd, Project code: 416.00798.00038, May 2022.

2.0 Sources, Releases and Impacts

This section provides an inventory of potential odour sources, release points, pathways and receptors relevant to the bulking facility.

2.1 Description of Operations

The hours available to the bulking facility to operate are between 7am and 6pm Monday to Sunday (including bank holidays), however it is anticipated that the bulking facility will only be manned between 7am and 4pm Monday to Friday. The site would be operational over the weekend, but only to accept a small number of waste deliveries resulting from street waste collections (waste from public bins and litter picking), tipped by smaller PCC vehicles.

The North Powys Bulking Facility receives approximately 22,500 tonnes per annum (tpa) of waste, comprising primarily:

- Residual waste (including street cleaning litter and bulky waste);
- Food waste;
- Dry mixed recyclables (comprising paper cardboard, cans and plastic);
- Absorbent Hygiene Products (AHP);
- Glass; and
- Green waste

The Site would also receive smaller quantities of rags / textiles, Waste Electrical and Electronic Equipment (WEEE) and non-hazardous batteries ('batteries').

Further details regarding the types of material to be received at the Site (associated odour potential, retention time and maximum volume stored) are presented in Appendix A.

Material is received at the Site via road by a fleet of Recycling and Refuse Collection Vehicles (RRVs and RCVs). All waste types listed above, with the exception of green waste and glass, would be stored within the Bulking Shed, inside which all handling activities for these waste types take place.

Green waste and glass would be received and stored within their designated bays outside of the Bulking shed. Food waste would be deposited from the removable pods/stillages within the RCVs into the dedicated food waste bay. On Friday, food waste stored would be transferred into sealed skips (hinged lid with rubber seals) for storage over the weekend. AHP waste would be deposited within the dedicated bay and subsequently transferred into a sealed skip (hinged lid with rubber seals) at the end of each weekday.

The Bulking Shed will be accessed via five roller shutter doors located on the south-western side of the building, and process air from within the building will be extracted by five ventilation fans, fitted on the north-eastern wall (and 2 louvres are fitted on the south-west wall to facilitate airflow into the building when the doors are not in use). The Bulking Shed is maintained under negative pressure by the ventilation system at all times. The ventilation system has been designed to achieve a ventilation rate of approximately 1.5 air changes per hour (equating to an approximate extraction airflow

of 22,750m³/hr) during operational hours (7am and 6pm, Monday – Sunday). Outside of operational hours (between 6pm and 7am) the ventilation system would be in operation at a reduced rate. The higher ventilation rate applied during operational hours would minimise the potential for fugitive odours to be released from opening of the roller shutter doors during use. Further details on measures to reduce the potential for release of fugitive odours from access doors (such as speed limits for access to limit air displacement) are presented in Section 3.1. Outside of operational hours (6pm to 7am) the access doors would not be in use, therefore the reduced ventilation rate would be sufficient to maintain negative pressure within the building, thus minimising the potential for fugitive odours to be released.

When not in use, RRVs and RCVs are parked at the Site in the marked bays to the southwest of the Bulking Shed. There is potential for RRVs and RCVs to be a source of odours following use in collection operations as a result of waste residue retained in or on the vehicles. Therefore a cleaning regime is in place to control the level of waste residuals in or on the RRVs and RCVs (see section 2.5).

The Site also contains a number of facilities associated with supporting the fleet of RRVs and RCVs such as an office, welfare facilities, a weighbridge, a refuelling station and a staff carpark. None of these facilities are considered to pose a significant source of odour emissions.

2.2 Potential Odour Sources

The application of good working practices and process control is of fundamental importance in eliminating and minimising the quantities of odours formed on Site and their subsequent release to atmosphere. This section provides an inventory of all potential odour sources under the full range of normal operating conditions. The overall aim in the operation of the bulking facility is to apply Best Available Techniques (BAT) at all stages of the material transfer process. For this reason, the bulking facility is operated and managed in accordance with the accepted hierarchy of preferred controls, that is:

1. Prevent the formation or emission of odorous compounds in the first place;
2. Where this is not practicable, minimise the release of odour;
3. Abate excessive emissions; then
4. Dilute any residual odour by effective dispersion in the atmosphere.

The primary potential odour sources associated with the bulking facility operations are as follows:

- Delivery and bulk export of material types;
- Material types stored and handled within the Bulking Shed;
- Material types stored and handled outdoors; and
- RRVs and RCVs parked at the Site.

2.3 Received Materials

Material transfer can be an inherently odorous process; however, with the correct controls and working practices in place, odours can be contained and reduced appropriately. The sources of potential odour generation are:

- Tipping of received material;
- On-site storage of material; and
- Bulk export of material.

Dry mixed recyclables, glass, WEEE and batteries are associated with a negligible odour potential, and are therefore have not been considered within this OMP.

The odour potential of green waste is generally considered to be low. However, when considering the similarity of green waste odours to those currently present within the site setting (agricultural)³, the sensitivity of nearby residential receptors to green-waste type odours is likely to be low. Furthermore, the volume of the green waste storage bay at the Site is relatively small (approximately 184m³). In consideration of the above, green waste is not considered to represent a significant potential source of odours.

Typical chemical odorants associated with the main potentially odorous material types received are detailed in Table 2-1.

Table 2-1: Material Types - Typical Primary Chemical Odorants

Source	Odour Character ^(A)	Associated Odour Potential
Residual waste	Bottom of dustbin, rotten cabbage, fruity/citrus, acrid, sour, rotten, putrid.	Medium
Food waste	Putrid, sour, fishy, rotten vegetables, rotten meat.	Medium
AHPs	Faecal, putrid, sour, fishy.	Low
Rags / textiles	Musty, sour.	Low
Table note: (A) Defined in reference to Applied Environmental Research Centre Ltd, Guidance Manual for Landfill Managers on the Assessment and Control of Landfill Odours (October 2000).		

The associated odour potential of residual and food waste is generally considered to be medium-to-high. However, the odour monitoring exercise undertaken at the Rhayader bulking facility (to inform the odour modelling exercise) indicated that the residual and food waste received in the area has a relatively low odour potential.

The European Waste Codes (EWC) permitted to be received at the Site are detailed in Table 2-2. The permitted materials are detailed within the Environmental Management System (EMS) for the bulking facility.

³ Green waste is typically associated with a 'grassy' or 'musty' odour, similar to that experienced in agricultural areas.

Table 2-2: Accepted Waste Types

Waste Code	Description of Waste
15 01 01	Paper and cardboard packaging
15 01 02	Plastic packaging
15 01 04	Metallic packaging
15 01 05	Composite Packaging
15 01 06	Mixed Packaging
15 01 07	Glass packaging
20 01 01	Paper and cardboard
20 01 02	Glass
20 01 08	Biodegradable kitchen and canteen waste
20 01 11	Textiles
20 01 34	Batteries and accumulators
20 01 36	Discarded electrical and electronic equipment other than those mentioned in 20 01 21, 20 01 23 and 20 01 35
20 01 39	Plastics
20 01 40	Metals
20 01 99	Separately collected fractions of municipal waste (AHPs comprising nappies and AHPs)
20 02 01	Biodegradable waste
20 03 01	Mixed municipal waste
20 03 03	Street-cleansing residues
20 03 07	Bulky waste

2.4 Stored Materials

The purpose of the Site is to receive material from local waste and recycling collections and to store the received materials prior to bulk removal off-site. Therefore, the storage time of materials at the Site is minimised as much as possible. The retention times for the different material types received, under normal operational conditions, are presented in Appendix A.

The waste storage bays are cleaned down by use of a pressure washer, where a discernible build-up of waste material is observed on the floor or retaining walls of the bays. The building floor is swept daily after loading and all bays and bay walls are cleaned/swept out three times per week. This will be monitored by site personnel during their usual duties. Removal of residual deposits helps to avoid decomposition of the organic material, mitigating residual odours. The wash water from the cleaning is considered to have a negligible odour potential due to the small volume of organics which would be suspended, as well as the temporary nature of these operations.

2.5 RRV and RCV Parking

When not in use, RRVs and RCVs are parked at the Site in the marked bays to the southwest of the Bulking Shed. Approximately 31 RRVs/RCVs would be parked at the Site.

There is potential for RRVs and RCVs to be a source of odours following use in collection operations as a result of waste residue retained in or on the vehicles.

In order to control fugitive odour emissions from parked RRVs and RCVs, the following cleaning regime is adopted:

- RCVs/RRVs are cleaned once per week to guard against excessive build-up of aged waste material within the storage area(s) of empty RCVs;
- Food storage pods/stillages within the vehicles are cleaned once per day (following collection operations) to remove residual food waste material; and
- Cleaning of RRVs or RCVs will be undertaken by use of a pressure washer within the 'wash area'.

Adoption of this cleaning regime controls odour emissions from empty RRVs and RCVs parked at the Site through removal of the residual organic material from the vehicles. Therefore through adherence to the cleaning regime outlined above, the odour potential from empty RRVs and RCVs parked at the Site can be considered negligible. It should also be noted that the wash-water from the cleaning of the RRVs and RCVs can be considered to have a negligible odour potential, in consideration of the small volume of odorous organics which would be suspended within the wash-water, as well as the temporary nature of these operations.

2.6 Removed Materials

Material is periodically removed from the Site in bulk within covered, enclosed or sheeted vehicles.

2.7 Release Points / Potential Odour Generation Sources

The release points for the odour sources detailed above are described in Table 2-3. The release points consider all unintentional non-emergency releases that may occur. Release occurrences considered an emergency are addressed in Section 4.0.

Table 2-3: Odour Generation Sources

Odour Generation Activity	Location	Waste Types	Factors affecting Source	Odour Risk
Delivery of material	Within Bulking Shed	Residual waste, food waste, AHP, dry mixed recyclables, textiles, WEEE and batteries.	Undertaken within the enclosed and ventilated Bulking Shed	Medium

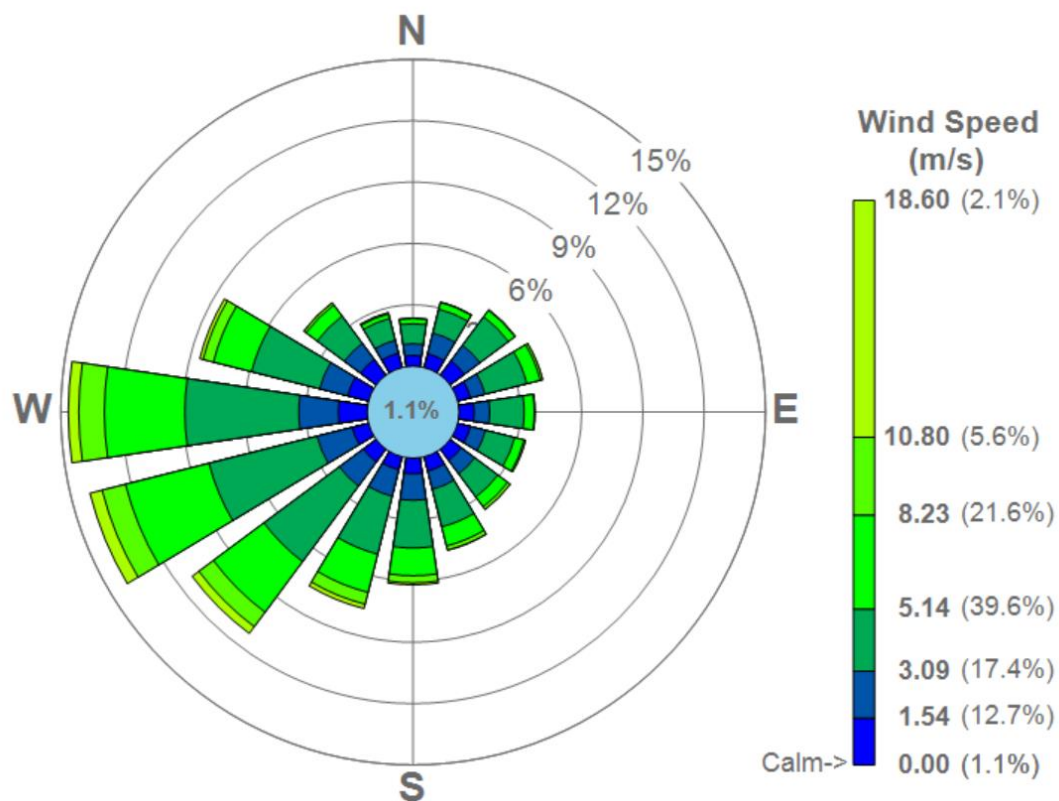
Odour Generation Activity	Location	Waste Types	Factors affecting Source	Odour Risk
	Outdoors within the relevant bays	Green waste and glass	Local meteorological conditions	Negligible
Storage of material within bays	Within Bulking Shed	Residual waste, food waste, AHP, dry mixed recyclables, textiles, WEEE and batteries.	Stored within the enclosed and ventilated Bulking Shed. Maximum retention times, as outlined in Appendix A, reduce potential for increases in odour potential from decomposition.	Medium
	Outdoors within the relevant bays	Green waste and glass	Local meteorological conditions	Negligible
Storage of food waste within skips (over the weekend only)	Within Bulking Shed	Food waste (stored for up to 72-hours over the weekend)	Odour potential may increase over retention period from decomposition. Stored within an enclosed skip, within the enclosed and ventilated Bulking Shed.	Medium
Storage of AHP within skip	Within Bulking Shed	AHP	Stored within an enclosed skip, within the enclosed and ventilated Bulking Shed	Low
Bulk removal of material	Within Bulking Shed	Residual waste, food waste, AHP, dry mixed recyclables, textiles, WEEE and batteries.	Undertaken within the enclosed and ventilated Bulking Shed	Medium
	Outdoors within the relevant bays	Green waste and glass	Local meteorological conditions	Low/negligible

2.8 Pathways

The pathway by which odours may impact upon receptor locations is a result of atmospheric dispersion. In general, high wind speeds lead to emitted odour being rapidly dispersed and diluted due to turbulence, and conversely low wind speeds inhibit the dilution of odours.

Prevailing wind directions are considered in assessing the likelihood and management of emission risks. As there are no meteorological stations in proximity to the Site which are considered to be representative of the Site location, Numerical Weather Prediction (NWP) meteorological data based on the Site location (which was acquired for the Site for the odour modelling study) has been utilised. Wind speed and direction data for the years 2015 – 2019 (inclusive) is presented in Figure 2-1. It shows the prevailing wind to be from the western and south-western sectors. As such, the potential impact of emissions is likely to be greater to the east north-east of the Site.

Figure 2-1: NWP Meteorological Data Wind Rose 2015 – 2019 Average



2.9 Receptors

The likelihood and frequency of exposure to odour arising from the facility is determined by the magnitude of release, the prevailing meteorological conditions and the distance and direction of receptors in relation to the facility.

Potentially sensitive receptor locations for odour are typically defined as locations where people spend time and expect a reasonable level of amenity. Therefore, residential properties are generally regarded as receptors of high sensitivity.

There are a number of sensitive receptors in proximity to the Site, the closest of which are located on Abermule Business Park, a consented development which bounds the Site to the northeast, which is currently under construction. A number of isolated farmhouses are located off the A483 and B4386, located within 50m of the permit boundary. Beyond, Abermule extends to the north-east of the Site, with the closest residential properties located within 300m (along Court Close), as well as further isolated properties in all directions.

Reference should be made to Table 2-4 for presentation of sensitive receptors surrounding the bulking facility .

Table 2-4: Sensitive Receptors

Receptor	Receptor Type	Receptor Sensitivity	Distance from:	
			Permit Boundary	Odour Source
DR1	Farm	High	50m	135m
DR2	Farm	High	215m	295m
DR3	Farm	High	400m	480m
DR4	Residential dwelling	High	300m	400m
DR5	Residential dwelling	High	400m	405m
DR6	Farm	High	600m	680m
DR7	Farm	High	720m	740m
DR8	Residential dwelling	High	580m	585m
DR9	Residential dwelling	High	790m	900m
DR10	Residential dwelling	High	840m	940m
DR11	Residential dwelling	High	760m	830m
DR12	Commercial / retail premises	Medium	5m	28m
DR13	Commercial / retail premises	Medium	5m	28m
DR14	Commercial / retail premises	Medium	5m	28m
DR15	Commercial / retail premises	Medium	5m	28m
DR16	Commercial / retail premises	Medium	5m	28m
DR17	Commercial / retail premises	Medium	4m	28m

The discrete receptors presented within Table 2-4 is not an exhaustive list, the closest sensitive receptors in each direction surrounding the Site have been identified.

The receptor sensitivity has been determined in reference to the IAQM Odour Guidance⁴ in which residential dwellings are determined to be of a 'high' sensitivity to odours and farms as 'low sensitivity to odours. However, in order to provide a suitably conservative approach within this assessment, farms have been determined as 'high' sensitivity.

Reference should be made to Figure 2-2 and Figure 2-3 for an illustration of the identified sensitive receptors relative to the Site. The permit boundary is outlined in red, the Bulking Shed in blue and the Abermule Business Park (DR12-17) in green.

Figure 2-2: Receptor Overview



⁴ Best Available Techniques (BAT) Reference Document for Waste Treatment, European Commission, 2018.

Figure 2-2: Receptors at Abermule Business Park



3.0 Site Operations

The overall aim of the OMP is to ensure that *All Appropriate Measures* are applied; for this reason, the facility is operated and managed in accordance with the accepted hierarchy of preferred controls, that is:

1. Prevent the formation or emission of odorous compounds in the first place; and
2. Where this is not practicable, minimise the release of odour.

3.1 Reception Building

The receipt, bulking and bulk export of residual and food waste only takes place within the Bulking Shed, where a greater degree of containment of odours is provided. Residual and food waste received would be tipped directly into the designated bays. Residual and food waste are typically received at the Site on weekdays from 11am. Export of residual and food waste is undertaken at around 10am on weekdays. On Fridays, food waste received is deposited directly into the sealed food waste skips (hinged lid with rubber seals), prior to sealing of the skips for storage for up to 72-hours over the weekend period (subsequent export on Monday at around 10am).

AHP waste is deposited within the dedicated bay and subsequently transferred into a dedicated sealed skip (hinged lid with rubber seals) at the end of each weekday.

Textiles collected as part of the local waste collections would be deposited within a dedicated storage container located within the Bulking Shed.

The associated retention times for each material type are outlined in Appendix A.

Wash down of the bays would be undertaken as detailed in Section 2.4.

An extraction system is in place within the Bulking Shed, as detailed in Section 2.1, creating an area of negative pressure within the building, minimising release of fugitive odours when any of the five roller shutter doors are in use.

The roller shutter doors remain closed with the exception of when vehicles enter and exit as far as practicable. A policy and procedure for the management of these doors is incorporated into the Site working plan/operating procedures and training is provided to all relevant staff to ensure that:

- Where possible only one door is open at any one time;
- Where possible, doors are only opened to allow vehicles and mobile plant to enter the reception building once the vehicle is aligned to reverse;
- Vehicles are to reverse slowly into the building (i.e. <5mph) to minimise air displacement;
- The opening of doors to permit vehicles to leave the bulking facility only occurs once the driver has signalled confirmation that they are ready to exit. Once the vehicle has safely exited the building the doors are immediately lowered (if another vehicle is not waiting to tip) to close behind it; and
- In the event that two vehicles arrive at the Site at the same time the site operative will instruct the vehicles which doors to enter by.

3.2 Waste Acceptance Procedures

In general, residual and food waste received has the potential to arrive at the Site in an advanced state of decomposition. However it considered unlikely that waste received at the Site would arrive in such a state, in consideration of the following:

- wastes received at this site are from Local Authority waste collections from household sources and trade co-collections
- waste collections are undertaken weekly or fortnightly
- waste is received directly at the Site following collections (i.e. no prior retention time at another site).
- during the monitoring study undertake at Rhayader, no waste deliveries were observed to be in an advanced state of decomposition.

The maximum amount of time for material to be stored prior to being sent off-site for onward recovery or disposal is outlined in Appendix A.

Waste acceptance procedures are followed as per details provided within the EMS. This includes a procedure for how to manage rejected loads and the completion of a rejected load form.

Certain materials accepted receive priority in the bulking facility process, these include:

- Any materials designated as high risk on Site;
- Materials which are classified as having a high odour risk potential; and
- When the site operative is alerted to material being particularly odorous.

During peak operational periods, if the anticipated tonnage has been accepted for the facility for that day, the facility only accepts additional materials following an evaluation of likely tonnages over the coming days to ensure that a backlog of material in storage in the reception building does not occur.

3.3 Material Storage and Transfer Control

Under normal operational conditions material delivered to the Site is stored for a range of maximum time frames as detailed in Appendix A.

The site operates on a 'first in, first out' basis. Material is deposited on alternate sides of the material specific bay and emptied at least 4 times per week starting with the material that was accepted first. For example, material is deposited into the left side of the bay on Monday and the right side on Tuesday. It is then removed from the left side first followed by the right and the process repeats like this. Therefore, stock rotation is not required.

3.4 Bulking Shed – Floor Cleaning

The incoming waste vehicles carrying residual and food waste reverse into the relevant storage bays and unload within the Bulking Shed. However, there may be occasions, where material is tipped onto the floor in front of the bays for inspection prior to transfer into the relevant storage bays. There may also be occasions where driver error leads to material falling onto the floor of the tipping area.

The Bulking Shed floor is swept daily and washed down weekly. Cleaning takes place during off-peak periods where possible to minimise disruption to material deliveries.

3.5 General Housekeeping

Regular cleaning of operational areas such as the waste bays is undertaken. Site haul roads and drainage channels are cleared out to minimise odour generation from degrading residual waste materials on these surfaces. Building floors are swept daily after loading up material and all bay floors and walls are cleaned/swept three times per week. Additionally, all operational areas of the Site are swept as and when required in line with the daily inspections and appropriate remedial and corrective action will be implemented as soon as practicable. Checks are carried out by site operatives to ensure that there is no old material stuck between building walls and bays or in corners. Where a build-up of material is identified it will be cleaned up as soon as possible.

3.6 Loading and Bulk Removal of Material

Loading of the most odorous material types (residual waste, food waste and AHP) is undertaken within the Bulking Shed. Loading of green waste and glass (with a lower associated odour potential) is undertaken outside.

All waste transfer vehicles leaving the bulking facility are securely sheeted (or enclosed) at all times.

3.7 Mitigation of Community Impacts

The following measures are adopted to ensure a 'good neighbour' approach to local residents:

- Engagement with local residents and stakeholders;
- A telephone number has been made available for residents to contact PCC;
- Engagement with local residents should odour problems be anticipated to keep the public informed of progress, remedial measures and timescales;
- Responding to odour complaints promptly and keeping the complainant informed of outcome of investigation; and
- Meetings to be held with local residents if required in discussion with NRW.

3.8 Monitoring and Maintenance

Monitoring of process controls, odour containment, odorous releases, and dispersion pathways are as described in the sections below.

3.8.1 Monitoring Potential Odour Sources

The material as received and stored is monitored in the following ways:

- The material is subject to document checks at the weighbridge to ensure it conforms to the Waste Acceptance Procedure;
- The material is subject to visual inspection as part of the material reception protocols, and whenever practicable olfactory checks, to ensure all materials conform to the agreed Waste Acceptance Procedure;

- The Site Supervisor and site operatives are responsible for visually monitoring and noting the placement of received material to ensure older material is processed as a priority; and
- The Site Supervisor and site operatives monitor, via sniff-test, to determine whether particularly malodorous loads require removal from Site during the next available material collection.

3.8.2 *Monitoring of Ambient Odours*

Monitoring of ambient odours from the Site provides a broad indication of the effectiveness of the odour management as a whole, i.e. odour minimisation and containment. This is a reactive process and should be considered as a final indicator of odour control effectiveness.

The assessment is “*sensory*” in that the human nose is used as the detector – a sound approach considering that no analytical instrument can give unified measure of a complex mixture of compounds in the same way that a human experiences odour.

Sniff testing is employed for the following reasons:

- As part of a survey at the Site boundary during normal operations, to confirm the effective performance of odour management measures in place;
- At the Site boundary during periods of adverse meteorological conditions (i.e. hot, still days with winds blowing towards nearby receptors), breakdowns or during other abnormal events to evaluate the effectiveness of the control measures in place and the likelihood that odour complaints could be received; and
- In the event that complaints are received, at the locations of sensitive receptors as part of the complaint investigation procedure outlined in the complaints form in Appendix C (detailed in Section 4.8).

‘Sniff tests’ will follow the procedure detailed within Appendix D as set out in NRW’s H4 Guidance and will be undertaken:

- Weekly by trained site management with any issues recorded in the Site logbook;
- On a monthly basis by a team member (non-Bulking Shed based team member) accompanying the Site Supervisor and results recorded; and
- On a reactive basis by an appointed monitoring company. This allows for monitoring to be undertaken outside of the operational hours of the Site. A monitoring company could be appointed to undertake scheduled periodic monitoring, or ‘reactive’ monitoring (i.e. in response to odour complaints received) as required.

3.8.3 *Monitoring Meteorological Conditions*

The Site Supervisor or other designated responsible person records daily weather conditions in the Site Diary, sourced from the site’s weather station. PCC intend to install a weather station on site prior to the commencement of operations because the nearest meteorological recording stations are located a considerable distance from the site and have significantly differing characteristics.

The recording of meteorological data is an effective management tool and can be used for the following reasons:

- During routine operations, (to assess odour impacts) to plan where boundary monitoring should be focussed;
- During abnormal events (i.e. breakdown) to predict where odour impacts could occur; and
- In the investigation of odour complaints or to verify community observations.

3.8.4 Recording of Results and Reporting

Daily records are maintained and include the following details (where applicable):

- Results of inspections and any olfactory monitoring carried out by site personnel;
- Weather conditions including wind direction (automatically recorded and stored electronically);
- Operational problems including date, time, duration and cause of problem;
- Complaints received including address (if available); and
- Details of corrective actions taken and any subsequent changes to operational procedures.

The weekly sniff tests undertaken are recorded on the Odour Monitoring Form presented in Appendix B which will be filed and kept on Site for inspection by NRW as and when required.

In the event that odour is detected at the Site boundary, this will be noted in the Site diary and the Site Supervisor will be informed to allow for appropriate steps to be taken to mitigate the odour. The results of the daily odour monitoring will not be reported to NRW unless required by the EP.

3.8.5 Notifying NRW

In the event that an accident or incident occurs, PCC will notify NRW as soon as practicably possible using the emergency 24hr phone line (0300 065 3000). The Site Supervisor or Waste & Recycling Area Manager will also notify NRW should any complaints be received directly to the Site and advise what remedial measures have been undertaken. Copies of any complaints will be made available for NRW to review.

4.0 Contingencies

In accordance with NRW's Guidance on OMPs, contingency plans have been defined to react to situations where monitoring indicates that a potential odour source is not completely under control, or that adverse impact has occurred.

This includes accidents (or incidents) which would result in the loss of control of odorous substances and have the potential to cause an unacceptable short-term impact on the local community but are not considered an emergency situation.

4.1 Receipt of Particularly Odorous Materials

It is considered unlikely that any material received is of sufficient magnitude to cause unacceptable odour impacts outside the Site boundary. However, should any particularly odorous materials be received, these loads will be isolated within the non-conforming waste quarantine area (within the container it was delivered in) and removed from Site as soon as possible (target of 24-hours), minimising retention-time.

It is not possible to ensure that repeat problematic loads are not accepted for most waste streams because it is not possible to distinguish which households have deposited which wastes. However, it is possible to identify if trade customers have deposited problematic, non-household wastes because they are serviced as per contracts. Details of which businesses are serviced on which day are held on site. To ensure that repeat problematic loads are not accepted, the councils' trade waste team will liaise with customers regularly. They will call and/or visit customers if any problematic materials are identified within loads to ensure that this does not continue.

4.2 Compromised Odour Containment

Odour containment may be compromised by damage to the building fabric or doors (extraction is dealt with separately).

In the case of a roller door motor malfunction, the doors will be operated manually whilst repairs are undertaken.

If doors are stuck open or building fabric is damaged, then the following contingency measures will be implemented:

- Arrangements made to re-establish containment;
- Requirement for more odorous activities reviewed and suspended as appropriate e.g. loading/unloading; and
- Minimise the presence of odorous materials e.g. transferring existing material off-site as soon as practicable.

Odour surveys will be undertaken 3 times a day until an effective fix is implemented. If odour detected during surveys is considered likely to lead to adverse impacts at sensitive receptors, then consideration will be given to ceasing material acceptance if this would alleviate the problem. NRW and neighbours will be notified of the investigations and actions being taken.

4.3 Bulking Facility Over-Capacity

Each day a review will be carried out of the stock in comparison to expected incoming material and material removal. Lines drawn on the inside of each bay mark the maximum quantity of material to be stored in that location. This will determine the available capacity and the ability to receive material.

In the event that the material storage areas are not considered to have sufficient capacity, the Site Supervisor will consider the option for diverting incoming material to other waste management facilities to prevent build-up of material beyond capacity.

4.4 Temporary Odorous Activities

No routine temporary odorous activities are anticipated to occur at the Site under normal operating conditions. However, it is noted that temporary odorous activities could occur as a result of equipment malfunction or breakdown or (i.e. jamming of roller shutter doors and subsequent repairs). Should any temporary odorous activities be undertaken at the Site, the Site Supervisor or Waste & Recycling Area Manager will contact NRW and other interested parties (e.g. residents) before such actions are taken to advise them of the operation being undertaken and that any odour will be of a temporary nature.

Additional control measures will incorporate:

- Where practicable, timing operations when the prevailing wind direction is away from the nearby sensitive receptors; and
- Ensuring prompt re-establishment of containment.

If such operations unavoidably coincide with unfavourable meteorological conditions (i.e. warm and still conditions) additional off-site odour monitoring will be undertaken to clarify the significance of offsite impact.

4.5 Abnormal Meteorological Conditions

Extreme meteorological conditions that promote the generation of odour and inhibit its effective dispersion, specifically high temperatures and stable conditions, may result in increased risk of impact at receptor locations.

Contingency measures to minimise the risk of unacceptable odour exposure at receptor locations during these conditions, will include but not be limited to consideration of:

- More frequent assessment of the level of containment afforded by the Bulking Shed (i.e. any significant gaps where fugitive emissions might be released to atmosphere);
- More frequent assessment and/or maintenance of the ventilation system within the Bulking Shed (i.e. checking of ventilation rates against design specification⁵, cleaning); and
- Reviewing requirements for activities that involve building door opening and reduce frequency and duration of door opening if practicable.

⁵ 1.5 air changes per hour, equivalent to 22,750m³/hr between all 5 fans.

4.6 Detection of odour at the Site boundary or off-site during routine odour surveys or response to complaints

The olfactory survey methodology as detailed in Appendix D will be followed and the likely source(s) of the detected odour identified by determining the sources of greatest odour intensity, contingency actions will be implemented as identified above.

The first assessment of an odour at the Site boundary will be whether the odour has or is likely to leave Site, if it has not and is not likely to leave Site the problem that caused the odour shall be remedied to prevent continuation of odour. All information regarding action taken will be recorded on the external odour assessment sheet (Appendix B).

If an odour at a level which is likely to cause pollution (i.e. high intensity and/or offensiveness) is likely to leave the Site boundary or has already left the Site boundary, the Site Supervisor or representative will be notified immediately.

The olfactory survey will be repeated on consecutive days after initiation of corrective actions, until odour has reduced to an acceptable level.

NRW will be informed in line with EP requirements.

4.7 Out of Hours Contact Details

An Emergency Duty Standby Number will be made available which will always be answered in the event of an emergency.

4.8 Receipt of an Odour Complaint

4.8.1 Complaint Logging

A phone number for members of the public to contact PCC with any complaints will be visible on the Site board at the entrance. Following the receipt of a complaint PCC will endeavour to contact the complainant to provide feedback on actions taken to both assess the event and convey any remedial actions.

All complaints will be recorded on an Odour Complaint Form such as that presented in Appendix C and forwarded onto the Site's NRW Officer. Information that will be recorded will include the following:

- Date and time at which the odour complaint was received and detected;
- Location / address of complainant (where provided); and
- A description of the odour observed by the complainant (where provided).

Following an odour complaint, a trained member of staff will undertake a sniff test, recording the results on an Odour Monitoring Form such as that presented in Appendix B. Where possible the sniff test will be undertaken by a member of staff that does not routinely work within the Bulking Shed and will not therefore be accustomed to the characteristic malodours that might arise from the Site. If an odour (which can be attributed to the Site operations) is encountered during the sniff test, the source of the detected odours will be investigated by site management and the outcome recorded.

Investigations will include the likely source and cause of the odour and a review of the meteorological data. Suitable remedial action will be investigated, where required. The complainant will be informed of any action taken and all actions will be recorded.

Should no odours (which can be attributed to the Site operations) be observed, a record of the sniff test will be made, the meteorological conditions will be checked, a report provided to NRW and suitable feedback provided to the complainant.

4.8.2 Complaint Investigation

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

1. The Site Supervisor will be informed of the odour complaint as soon as possible, including the location, time and date (if reported) of the complaint being lodged;
2. The Site Supervisor and/or Waste & Recycling Area Manager (or any appointed representative) will undertake the following assessment process:

- Review of the operations and control systems at the Site prior to and at the time of the complaint to include:
 - Determine if material was being received at the bulking facility at the time of the complaint;
 - Determine if highly odorous material was being received, stored or removed at the time of the complaint;
 - Determine if any abnormal operating conditions were occurring;
 - Determine if any accidents or incidents requiring contingency actions were being undertaken; and
 - Determine if any emergency situations existed at the time.
- Review of the meteorological conditions (wind speed) prior to and at the time of the complaint – to establish whether a pathway can be established between the Site and the complainant; and / or
- Review the previous history of complaints at the location identified.

The Site Supervisor (or appointed representative) will visit the complaint location as soon as is possible in order to subjectively determine odour presence / absence and, if present, odour characteristics and intensity in accordance with the procedure detailed in Appendix D and complete a complaint form such as the one presented in Appendix C.

NRW will be informed in line with the EP requirements.

5.0 Emergency Plans

This section details the emergency actions that will be undertaken in case of accidents (or incidents) which could result in the loss of control of odorous substances and could have an unacceptable short-term impact on the local community.

The section considers the emergency scenarios, measures taken to minimise their occurrence and short-term measures to minimise impacts.

5.1 Prolonged Mobile Plant Failure

In the unforeseeable event of complete site mobile plant failure for a prolonged period (greater than the agreed maximum material retention time of 5 days), PPC would engage with a suitable vendor to lease suitable mobile plant as a replacement for the required period. Consideration will also be given to the diversion of incoming material to alternative permitted facilities.

5.2 Fire

Emergency Action Plans are detailed within the approved Fire Prevention & Mitigation Plan (FP&MP) for the Site that provides procedures for handling fires.

With regard to management of odour impact, the key principles are prompt responses that contain the fire and attempt to extinguish it, minimise damage to containment and extraction infrastructure.

NRW will be informed of any such an occurrence, information would be made available to local residents if requested by NRW with regard to the measures being taken and the timescale to completion.

5.2.1 Explosion

The risk of the explosion is considered to be extremely low.

5.3 Major Spillage / Leak

Details of emergency procedures to be initiated in case of a failure of containment and major spillage / leaks are detailed in the EMS for the Site.

NRW will be informed of any such an occurrence, information will be made available to local residents if requested by NRW with regard to the measures being taken and the timescale to completion.

5.4 Flooding

The risk of flooding is considered to be extremely unlikely due to the drainage arrangements on the Site. If the Site becomes flooded, this will inhibit effective storage of material. Material will be removed where possible for storage or processing elsewhere.

Widespread flooding may prevent access to Site. In such a situation, no further material will be accepted at the Site and priority will be given to removal of stored material (where possible).

Reference should be made to the Environmental Risk Assessment for further detail on the risk of flooding.

5.5 Power Failure

The bulking facility emergency systems have battery backups which will be sufficient to ensure operations can continue in the event of an external power cut.

5.6 Staff Absence

Short-term staff shortages (such as a few days illness) will not affect the ability of the Site to operate effectively as other staff members can be reassigned to critical operations. In the event of prolonged absence of staff members, temporary staff will be recruited and appropriately trained to fulfil non-critical roles whilst other more experienced staff members are reassigned.

5.7 Summary of Emergency Control Measures

To ensure adequate mitigation measures are in place to address all possible odour emission scenarios, the various scenarios and their response measures are presented in Table 5-1.

Table 5-1: Summary of Emergency Control Measures

Scenario	Emergency Operations	Location	Likely effect on emissions inventory	Contingency / Control Measures
Prolonged breakdown (i.e. mobile plant, roller shutter doors or ventilation system)	Emergency	Whole Site	Risk of increased impact from area of Site where normal operations are affected during and after breakdown	A supply of spares critical to the operations will be kept on site. To promptly undertake any repairs, plant will be hired if required. If unavailable, the relevant operations will be suspended if necessary. Contingency arrangement for diversion of incoming material will be implemented if required.
Fire	Emergency	Whole Site	Risk of impact from any area of the Site affected by fire	Fire risk procedures adopted. Further receipt of material will be reduced or suspended until fire is under control and site has been deemed safe and operation is restored.
Flood	Emergency	Whole Site	Risk of increased	If flooding should occur and material is submerged,

Scenario	Emergency Operations	Location	Likely effect on emissions inventory	Contingency / Control Measures
			impact from Site where normal operations are affected during and after flood	there is a high likelihood of rapid onset of degradation and anaerobic conditions. Submerged material will be immediately removed from Site (if possible).
Transfer failure	Emergency	Whole Site	Increased emissions from stored material exceeding the agreed retention period	Operating procedures in place to prevent breach of material retention timescales. Operating first in first out principle during normal operations. In emergency situation site will liaise with NRW and agree an action plan.

6.0 Document Updates and Reviews / Management

6.1 Responsible Staff

The Site has a well-defined and formally documented management structure for managing the impacts. It is the responsibility of every manager/supervisor, with the support of the environmental professionals, to identify environmental risks that are relevant to the Site and determine if a particular activity or service is environmentally significant.

Once identified, it is the responsibility of the Site Supervisor to highlight the significant aspects to all relevant employees and contractors. The Site Supervisor is also responsible for monitoring and managing all activities under PCC's control to improve environmental performance.

Work instructions, job descriptions and procedures exist for critical areas of PCC's activities and have been issued to or made available to personnel responsible for undertaking these tasks.

Further information on the role of staff members and responsibility for odour management is detailed within the specific EMS for the Site.

6.2 General Procedures for Training and Competency of Staff

Staff competency and the need for training is continually assessed by the Site Supervisor and the Waste & Recycling Area Manager and under all circumstances will be reviewed (at least) annually and formally recorded within the EMS.

6.3 Odour Management Plan Review

This OMP is a controlled document, and forms part of the EMS. A comprehensive record of the results of the monitoring and inspection programme contained within this OMP will also form part of the EMS.

The specification for the periodic review and update of the OMP will be set out within the EMS. In line with the recommendations of NRW's H4 Odour Management guidance, this takes place on an annual basis, as a minimum.

However, the OMP is intended to be a live document which serves as a reference during daily operations, and as such would be updated on a more frequent basis should the following occur:

- Significant changes are made to the plant or operational practices;
- There is a change to the management structure, designation of responsibility or training provision;
- NRW requests that the OMP is updated in their role as regulator; or
- Complaints are received, which on subsequent investigation result in the identification of further control measures or remedial action, in addition to those set out within this OMP.

Appendix A: Accepted Waste Types

Table A-1: Accepted Waste Types - Further Details

Waste Code	Description of Waste	Maximum Volume Stored (m ³)	Estimated Tonnage	Storage Time	Storage Location	Associated Odour Potential
200301	Residual waste	207	8300	4 Days	Bunded area located within Bulking Shed in designated bays, containers or skips	Medium
200303	Street cleaning litter		300	4 Days		Medium
200307	Bulky waste		100	4 Days		Low / negligible
200111	Textiles	0.912	271	1 Week		Low
200108	Food waste bay (and volume of 2 skips)	84.4 (and two skips: 26)	3100	24 hrs (weekdays) 72 hrs (weekend)		Medium
200199	Absorbent Hygiene Products	22.5 (and one skip: 13)	2000	1 Week		Low
150102, 150104, 200139 and 200140	Cans and plastic (including composite packaging)	331.4 (within 2 bays)	1400	5 Days		Negligible
15 01 01 and 200101	Paper and cardboard	191.5	2000	4 Days	Bunded area located Outdoors within designated bays	Negligible
15 01 07, 19 12 05 and 200102	Glass	182.6	2400	4 Days		Negligible
200201	Green waste	184	4500	4 Days		Negligible
20 01 34	Batteries	1.69	14	3 Months	Within the Bulking Shed in designated containers	Negligible
20 01 36	WEEE	1.69	Variable	3 Months		Negligible

The odour potential of the different types of material have been determined in reference to the odour monitoring study, as well as monitoring data from a range of sites around the UK, IAQM Odour Guidance and Waste Sector Guidance⁶. The general trend observed is that the lower the organic content of the waste type, the lower the odour potential (and also the inverse).

Green waste is an exception in that it is comprised almost entirely of organic matter but has a low odour potential. However, when considering the similarity of green waste odours to those currently present within the site setting (agricultural), the sensitivity of nearby residential receptors to green-waste type odours is likely to be low, therefore the associated odour potential has been considered 'low'.

⁶ *Best Available Techniques (BAT) Reference Document for Waste Treatment, European Commission, 2018.*

Appendix B: Odour Assessment Form

Background Information			
Person Undertaking Survey (& Position)			
Date:		Time:	
Description of Wind Strength (i.e. strong, gusty)			
Wind Direction			
Weather (i.e. sunny, overcast)			
Temperature (degree Celsius)			
Survey Results			
Location	Intensity (1-6) (see below)	Persistence (A-E) (see below)	Odour Characteristic (e.g. waste, farm, fuel etc)
Northern boundary			
Eastern boundary			
Southern Boundary			
Western Boundary			
Closest Property			
If odour is strong / persistent additional information to be detailed below			
Intensity			
1	No detectable odour		
2	Faint odour (barely noticeable)		
3	Moderate odour (odour easily detected)		
4	Strong odour (bearable but offensive)		
5	Very strong odour (instinct to walk away)		
6	Extremely strong odour highly likely to cause annoyance (May induce nausea)		
Persistence			
A	Occasional	Less than 10% of the time	
B	Intermittent	10-30% of the time	
C	Frequent	30-50% of the time	
D	Persistent	50-75% of the time	
E	Constant	>75% of the time	
10			
If during the survey the odour is strong or persistent at any location on the Site boundary, the following information requires completion regarding plant operation.			
Waste Delivery	Has material recently been delivered to Site?		
	If yes, were the correct procedures followed?		

Appendix C: Odour Complaints Reporting Form

Installation to which complaint relates:	Date recorded:	Ref No:	
Name and address of caller:			
Tel No. of caller:			
Location of caller in relation to installation:			
Time and date of complaint:			
Date, time and duration of offending odour:			
Caller's description of odour, e.g. comparison with other odours, strong/weak, continuous, fluctuating:			
Has the caller any other comments about the offending odour?			
Weather conditions (e.g. dry, rain fog, snow):			
Wind strength and direction (e.g. light, steady, strong, gusting):			
Any previous complaints relating to this odour?			
Any other relevant information:			
Potential odour sources that could give rise to the complaint:			
Operating conditions at the time offending odour occurred – e.g. removing material from bays, deliveries, receipt of potentially odorous materials, work to temporary capping area, for example			
<u>Follow up</u>			
Date and time caller contacted:			
Action taken:			
Amendment required to Odour Management Plan (Y/N, if Y provide details)			
Form completed by:		Signed:	

Appendix D: Odour Survey Methodology

The exact locations for offsite monitoring are selected based on the prevailing wind direction and proximity to receptors.

The monitoring will be extended to the surrounding locality if odour likely to cause annoyance is detected at the Site boundary.

At each location observations shall be made concerning odour intensity, persistence and character, time, date, weather conditions and any 'abnormal' Site operating conditions at the time of the survey. Surveys shall be carried out in accordance with the monitoring protocol contained within NRW's H4 Odour Guidance.

The odour assessor should not be subject to significant Site odours in the 30-minutes prior to the assessment, or food, drink or cigarettes within the last hour. This is to ensure that monitors are not suffering from odour fatigue and will be sensitive to Site odours. Furthermore, the following exclusions shall apply:

- Staff members that are regularly exposed to Site odours for longer than 30 minutes; and
- Any staff members known or suspected of having a very poor sense of smell should not be used for odour monitoring.

The inspections shall be undertaken as follows:

1. The person should walk slowly and breathe normally and begin their assessment at areas of expected low odour concentration, i.e. upwind of the Site, and should move to areas of high odour concentration. If odour is detected while walking, the intensity should be recorded as at least 3 (distinct), or higher.
2. If an odour cannot be detected whilst walking, the person should periodically stand still and inhale deeply facing upwind. If odour is then detected, but can only be detected in this manner, the odour 'intensity' should be recorded as 2 (faint).
3. Following detection of any odour of intensity 3 or above at the Site boundary during an odour inspection, the following measures will be taken:
 - The olfactory survey will deviate to determine the extent of plume downwind (at or above an intensity level 3) and at potential receptors affected. Contingency measures outlined in Section 5.0 will be followed; and
 - An on-site inspection shall be carried out seeking to trace any observed odour back to source so that the appropriate corrective and/or preventative action can be taken (with regard to Contingency Measures detailed in Section 5.0).

On-site inspections would be undertaken by continuing the olfactory survey methodology onto the Site to inspect all potential odour sources.

The Site Supervisor and/or Waste & Recycling Area Manager shall be notified immediately of any detected odours that are considered to have the potential to give rise to significant off-site odour impact (intensity 3 at a receptor location). The contingency measures detailed within Section 4.0 will be followed.

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