



ENVIRONMENTAL PERMIT APPLICATION
ODOUR MANAGEMENT PLAN

PEMBROKESHIRE ECO-PARK

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About WRAP

WRAP is a climate action NGO working around the globe to tackle the causes of the climate crisis and give the planet a sustainable future.

Our core purpose is to help you tackle climate change and protect our planet by changing the way things are produced, consumed, and disposed of.

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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 new Pembrokeshire Eco-Park near Milford Haven, 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.

Pembrokeshire 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 proposed operations, 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

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

- Provide a working document for on-site staff.

1.2 OMP Approach and Structure

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

- 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 2023 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 odour pollution (as a result of the proposed Site operations) at any nearby sensitive receptors.

² Document reference: '416.V00798.00039_Pembrokeshire Eco-Park_OIA', version 1, dated May 2023.

2.0 Sources, Releases and Impacts

This section provides an inventory of potential odour sources, release points, pathways and receptors relevant to the Eco-Park.

2.1 Description of Operations

The Eco Park will consist of a WTS, WRC and a Re-use Facility. Proposed operations at the site will be to accept and process up to 74,999 tonnes per annum (tpa) of non-hazardous and hazardous waste arising from household and commercial premises. The daily throughput limit for the site would be 300 tpa. Waste will be delivered via local authority collection vehicles to the WTS, or via commercial or resident's vehicles to the WRC.

PCC's fleet of waste collections vehicles will operate from the Site, therefore garage and workshop, re-fuelling, vehicle washing and parking facilities would be provided outside of the EP boundary.

The WTS would receive a range of waste types, comprising primarily:

- Residual waste;
- Mixed recyclables (such as cardboard, paper, plastics, mixed metals and food and beverage cartons);
- Food waste; and
- Absorbent Hygiene Products (AHP).

The WRC would receive a wide range of waste types, including:

- Residual waste;
- Recyclables;
- Green waste / wood;
- Bric-a-brac (i.e. textiles, books, shoes);
- Electronics;
- Scrap metal / appliances; and
- Furniture.

A full list of waste types to be received at the Site is presented in Appendix C.

The following treatment activities will be carried out within the recycling building at the WTS:

- Bulking for transfer;
- Automated and manual sorting;
- Separation; and
- Baling.

The following treatment activities will be carried out within the WRC area:

- Bulking for transfer;
- Manual sorting (i.e. of residual waste to remove recyclable material); and
- Separation.

All materials would be transferred off-site for processing, recovery, or disposal via third party hauliers or PCC haulage vehicles as appropriate.

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 Eco-Park is to apply Best Available Techniques (BAT) at all stages of the material transfer process. For this reason, the Eco-Park 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 potential odour sources associated with the Site operations are:

- Delivery of materials to the WTS and WRC;
- Material storage and handling at the WTS and WRC;
- Bulk export of materials from the WTS and WRC; and
- Recycling and Refuse Collection Vehicles (RRVs) and Commercial Collection Vehicles (CCVs) parked at the Site.

The significance of potential odours resulting from the range of waste types received at the Site are presented in Appendix C.

2.2.1 WTS Odour Sources

The waste types at the WTS which represent a potentially significant source of odours are:

- Residual waste;
- Food waste; and
- Absorbent Hygiene Products (AHP).

The remaining waste types received at the WTS (such as recyclables, glass, wood, scrap metal, and household batteries) would not represent a significant source of odours, in consideration of their negligible odour potential.

Residual waste would be stored within the designated bay within the Residual Waste Building. AHP waste would be stored within the designated skip/trailer within the Residual Waste Building. AHP waste received during the day can also be deposited within the designated bay, for subsequent transfer to the skip/trailer at the end of the day (representing a maximum retention time within the bay of less than 1 day (8hours)). The Residual Waste Building is an enclosed structure which would provide a level of containment to odours generated from the waste types stored.

Food waste will arrive on Site in pods/stillages within RRVs or trade waste vehicles. Food waste will be tipped into the designated food waste bay prior to transfer to the designated skip/trailer. All food waste will be loaded into the sealed container prior to the end of each day, so no food waste would be stored within the bay overnight (representing a maximum retention time in the bay of less than 1 day (8 hours)). Food waste is typically loaded into the sealed container throughout the working day to prevent an accumulation in the bay. The Recycling Building is an enclosed structure which would provide a level of containment to odours generated from the waste types stored.

2.2.2 WRC Odour Sources

The only waste type at the WRC which represents a potentially significant source of odours is residual waste.

In consideration of 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. In consideration of the above, green waste is not considered to represent a significant potential source of odours.

The remaining waste types received at the WRC (such as recyclables, bric-a-brac, scrap metal, and furniture) would not represent a significant source of odours, in consideration of their negligible odour potential.

The WRC comprises an impermeable area in which the permitted waste types would be received and stored in appropriate containers / waste trailers. Residual waste would be compacted and stored within two designated containers.

2.2.3 RRV and CCV Parking

When not in use, RRVs and CCVs are parked at the Site in the designated bays. Whilst the parking areas are located on site they do not constitute waste operations, and are therefore not included within the EP boundary. Therefore, the following is provided for context of the wider site only. There is potential for RRVs and CCVs to be a source of odours following use in collection operations as a result of waste residue retained in or on the vehicles.

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

In order to control fugitive odour emissions from parked RRVs and CCVs, the following cleaning regime is adopted during normal operations:

- CCVs/RRVs are cleaned once per week to guard against excessive build-up of aged waste material within the storage area(s) of empty CCVs;
- Food storage pods/stillages within the vehicles are cleaned (following collection operations) as required to remove residual food waste material; and
- Cleaning of RRVs or CCVs will be undertaken within the designated vehicle washing area.

Adoption of this cleaning regime controls odour emissions from empty RRVs and CCVs 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 CCVs parked at the Site can be considered negligible.

It should also be noted that the wash-water from the cleaning of the RRVs and CCVs would 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.

2.3 Release Points / Potential Odour Generation Sources

The release points for the odour sources detailed above are described in Table 2-1. The release points consider all unintentional non-emergency releases that may occur. Release occurrences considering an emergency are addressed in Section 4.0.

Table 2-1: Odour Generation Sources

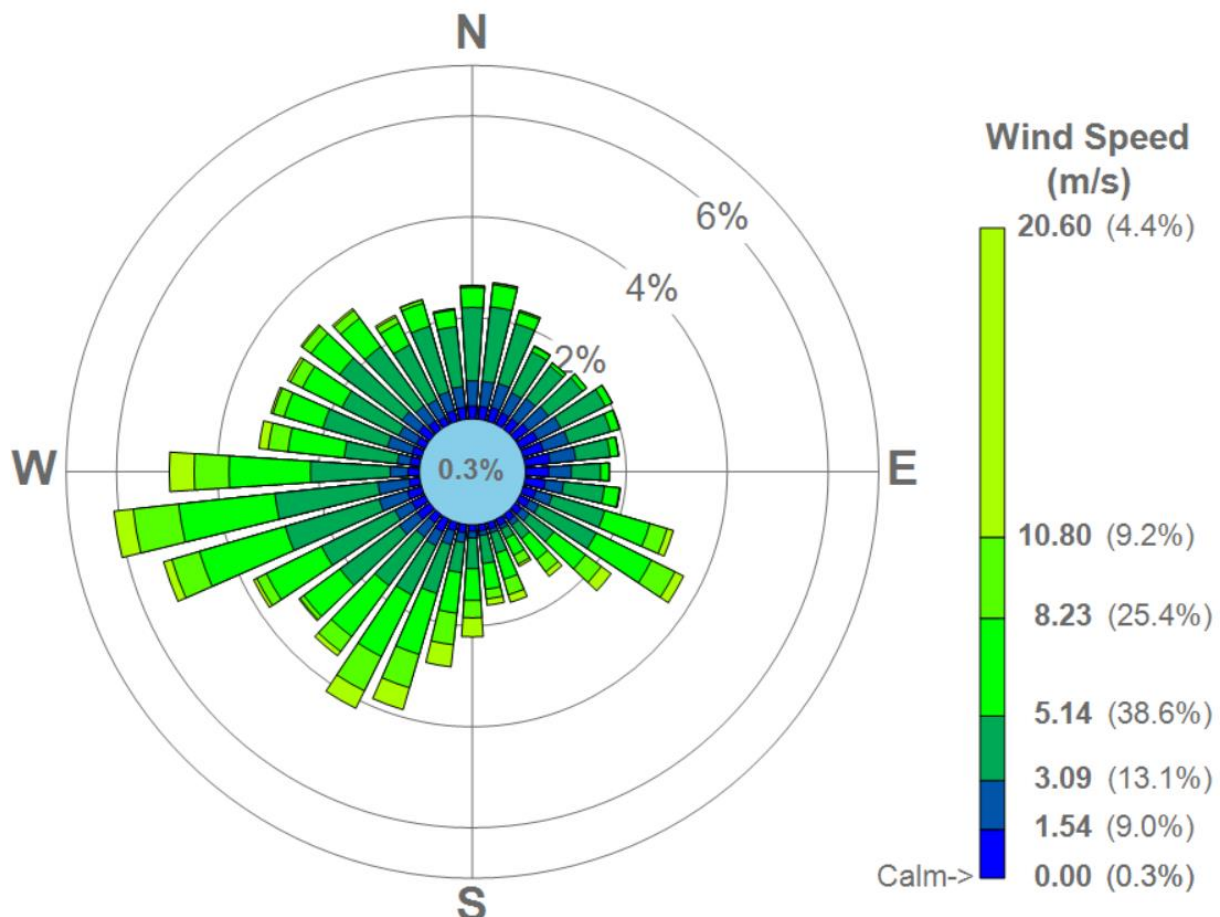
Operation Area	Waste Types	Storage Location	Associated Operations	Factors affecting Source	Odour Risk
WTS - Recycling Building	Food waste	Designated bay and skip/trailer within building	Receipt, storage and bulk export.	Undertaken within an enclosed building	Medium
WTS - Residual Waste Building	Residual and AHP waste	Designated bays and/or skip/trailer within building	Receipt, storage and bulk export.	Undertaken within an enclosed building	Medium
WRC – External waste containers	Residual waste	Designated external waste containers	Receipt, storage and bulk export. Manual sorting to remove recyclable material. Compaction prior to storage.	Local meteorological conditions Stored within container	Medium

2.4 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. The nearest meteorological recording station to the Site is Milford Haven Conservancy Boar ('Milford Haven'), located approximately 4km south of the Site. In reference to the 2018 to 2022 metrological data acquired from this recording station for the odour modelling study, the prevailing winds in the Site locale are from the west and south-west. As such, the potential impact of emissions is likely to be greater to the east north-east of the Site. A composite wind rose from Milford Haven meteorological recording station, showing the frequency of wind speed and direction, is presented in Figure 2-1.

Figure 2-1: Milford Haven Recording Station Wind Rose (2018 - 2022 average)



2.5 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.

There are a number of sensitive receptors in proximity to the Site, the closest of which is an existing holiday let located approximately 80m north of the Site boundary at Robeston Cross and an existing residential property located approximately 100m northwest of the Site boundary at Robeston West. A number of isolated residential properties and farmhouses are located at a distance 280m or more to the northwest of the permit boundary. Puma Energy, an industrial facility, borders the Site to the south.

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

Table 2-2: Sensitive Receptors

Receptor	Receptor Type	Receptor Sensitivity	Distance from:	
			Permit Boundary	Odour Source
DR1	Holiday let	High	80m	120m
DR2	Residential dwelling	High	100m	220m
DR3	Residential dwelling	High	280m	400m
DR4	Residential dwelling	High	410m	560m
DR5	Residential dwelling	High	590m	660m
Puma Energy	Industrial	Low	At boundary	120m
Phase 2: PCC Eco-Park Parking, and welfare area	Industrial	Low	At boundary	100m

The discrete receptors above do not represent an exhaustive list; the closest sensitive receptors in each direction surrounding the Site have been identified.

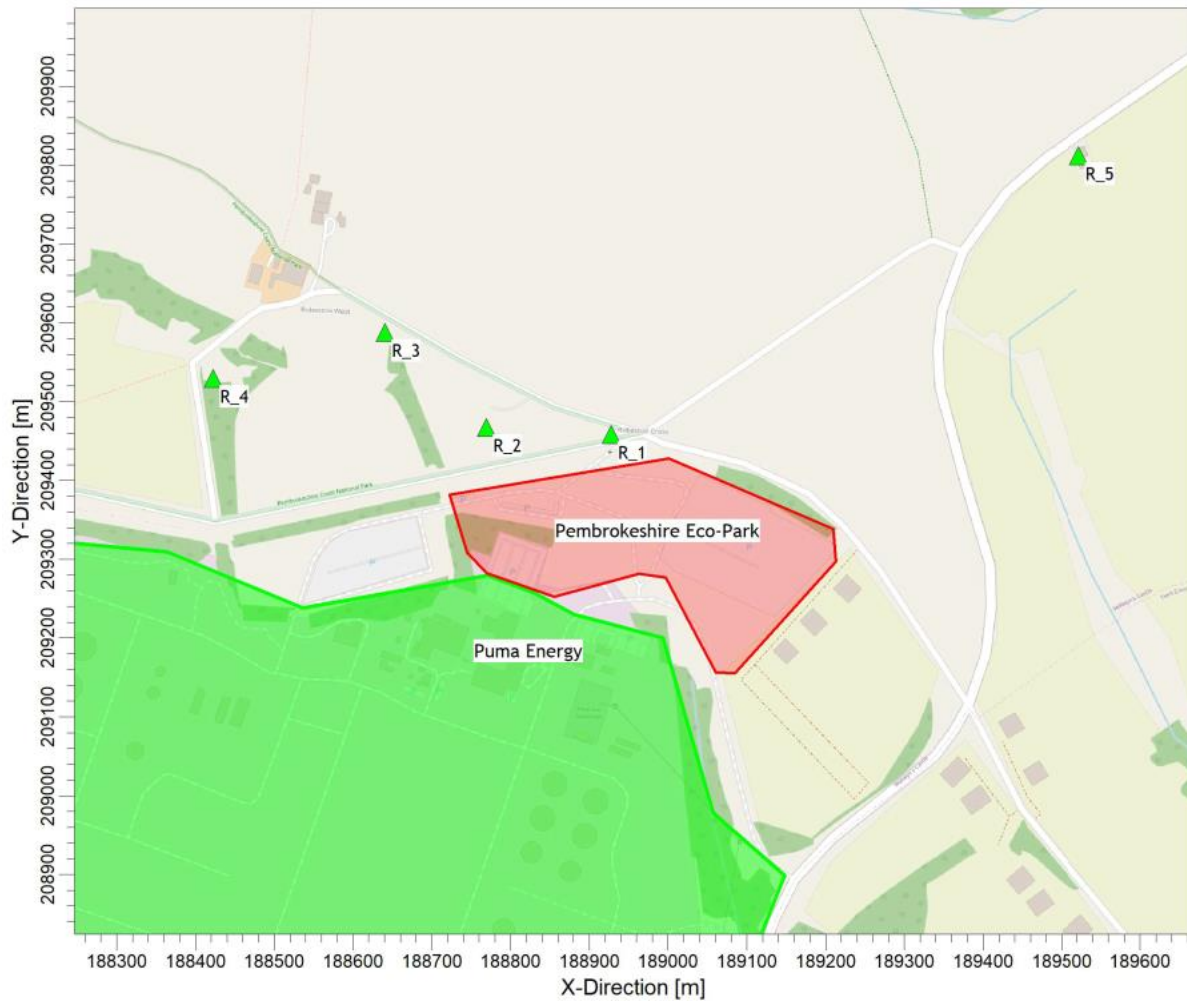
The receptor sensitivity has been determined in reference to the IAQM Odour Guidance⁴ in which residential dwellings are determined to be of a 'high' sensitivity to odours and farms

⁴ Guidance on the assessment of odour for planning, Impacts Institute of Air Quality Management, v1.1, July 2018.

as 'low sensitivity to odours. However, in order to provide a suitably conservative approach within this assessment, farms have been determined as 'high' sensitivity.

Figure 2-2 illustrates the sensitive receptors (green triangle markers), Puma Energy facility (green shaded area), permit boundary (red outline), WTS area (blue shaded area) and WRC area (orange shaded area).

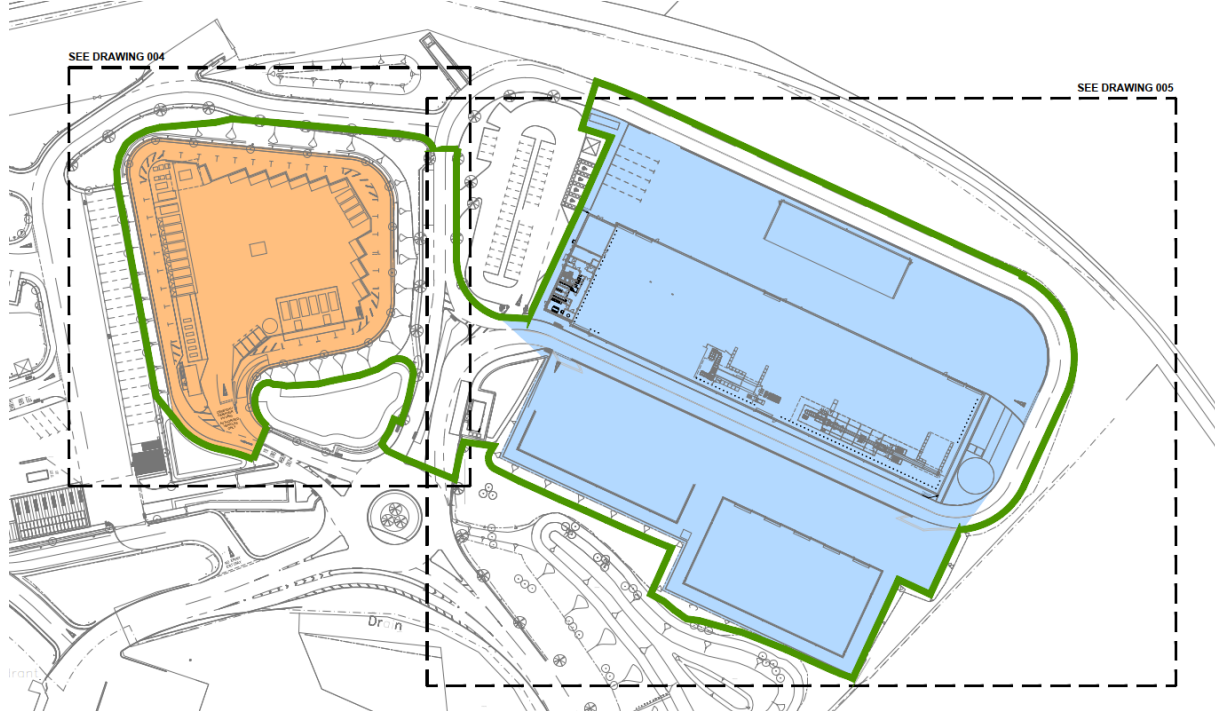
Figure 2-2: Sensitive Receptors



3.0 Site Operations

The layout of the Site is presented in Figure 3-1 below. The permit boundary is outlined in green, the WTS area is shaded in blue, and the WRC is shaded in yellow.

Figure 3-1: Site layout (Drawing 003)



Further to the general description of operations in Section 2.1, specific operational detail is provided in the sections below.

3.1 Hours of Operation

Waste collections (via RRVs and CCVs) and ongoing haulage of transferred materials would typically be undertaken at the WTS from 07:00 to 17:00, Monday to Friday. To ensure continuity of service, the Site would occasional be operational (and waste collections would be undertaken) on Saturdays and Sundays, public holidays and over the Christmas and New Year period.

It is anticipated that the WRC will be operational between 6:30 and 20:00 for 7-days per week in the summer and 5-days per week in the winter. During the summer the WRC would be open to the public for waste deliveries between 08:00 and 18:00. During the winter the WRC would be open to the public for waste deliveries between 08:00 and sunset.

3.2 Receipt of Materials

Material would be received at the WTS via road by a fleet of RRVs and CCVs. Inspection of source-segregated material collections would be undertaken at collection points. In addition to this, loads carried by RRVs and CCVs would be inspected for any contaminants or hot loads prior to being directed to the WTS to offload.

Food waste will arrive on Site in pods/stillages within RRVs or trade waste vehicles. Food waste will be tipped into the designated food waste bay prior to transfer to the designated skip/trailer (representing a maximum retention time in the bay of less than 1 day (8-hours). The skip/trailer would typically be removed from the Site several times each day on weekdays, and (and replaced with an empty skip/trailer) would be in place for up to 72-hours over the weekend, prior to removal.

Material is received at the WRC via private vehicles and deposited within the appropriate waste storage areas. Material would also be received via commercial vehicles, which would be visually inspected for contaminants or hot loads before depositing load, in accordance with the commercial waste policy and procedure.

3.3 Containment

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.

The WTS area will comprise three distinct operational areas: the Recycling Building, the Residual Waste Building and the External Waste Bays. The waste types and operations within these areas are summarised in Table 3-1 below.

Table 3-1: WTS Waste Types and Operations

Operation Area	Waste Types Received	Storage Location	Associated Operations
Recycling Building	Food waste	Designated bay and skip / trailer within building	Receipt, storage and bulk export
	Cardboard	Designated bay within building	Receipt, storage and baling prior to bulk export
	News and Pams (wastepaper)	Designated bay within building	Receipt, storage and baling prior to bulk export
	Mixed metals, plastics, and food and beverage cartons	Designated bay within building	Receipt, storage, manual / automated sorting (to remove cartons) and baling prior to bulk export

	Household batteries, WEEE and textiles	Designated storage bins within building	Receipt, storage and bulk export
Residual Waste Building	Residual waste and AHP waste	Designated bay and/or skip / trailer within building	Receipt, storage and bulk export
	Glass	Designated external covered bay	Receipt, storage and reduced in size (by lifting and moving (storage and loading operations)) prior to bulk export
External Sheltered and Covered Waste Bays	Wood, scrap metal, rigid plastics, carpets and tyres	Designated external covered bay	Receipt, storage and bulk export Wood waste reduced in size by lifting and moving (storage and loading operations).

Food waste will arrive on Site in pods/stillages within RRVs or trade waste vehicles. Food waste will be tipped into the designated food waste bay prior to transfer to the designated skip/trailer.

Vehicles would gain access to the Recycling Building via seven roller shutter doors; five on the northern and two on the southern façade of the building. It is anticipated that a maximum of two doors will be open for no more than 15 minutes (25%) within an hour. Passive ventilation (facilitated by louvres on the northern and southern walls of the building) would facilitate air changes within the building when the doors are closed.

Vehicles would gain access to the Residual Waste Building via five roller shutter doors on the northern façade of the building. It is anticipated that all doors will be closed during glass handling and overall must be open for no more than 30 minutes (50%) within an hour. Passive ventilation (facilitated by louvres on the northern and southern walls of the building) would facilitate air changes within the building when the doors are closed.

The WRC area will comprise an outdoor impermeable area and covered waste bays (e.g. compactor shed) in which the permitted waste types would be received and stored in appropriate containers/trailers or bays.

The risk of odour emissions is significantly reduced as both the recycling and residual buildings are enclosed structures which provides a level of containment to odours generated from the waste types stored. The containment within a building ensures waste is shaded even within summer months, so the temperatures will be less than for outdoor areas. Passive ventilation of the buildings (facilitated by louvres on the northern and southern walls of the recycling and residual buildings) would facilitate air changes within the building when the doors are closed. During operational activities, when food waste or AHP

waste is held within a bay, the containerisation of materials will be prioritised. There is also a limited number of residential receptors within a 500m radius of the site.

3.4 Waste Acceptance Procedures

Loads carried by RCVs and CCVs would be inspected for any contaminants or hot loads prior to being directed to the WTS to offload.

Household waste, prior to acceptance of waste at the site, is subject to an initial check at the kerbside by collection crews to identify any non-conforming items or waste types. The Local Authority informs its households and commercial customers about the Local Authority's waste collection services, what waste is accepted and in which waste stream. Wastes that contain non-conforming materials are not collected and the householder is informed why.

Material received at the WRC via commercial vehicles is visually inspected for contaminants or hot loads before depositing load, in accordance with the commercial waste policy and procedure.

On delivery to the WTS, the waste is inspected again as it is tipped into the waste bay, before being mixed with any existing waste piles, to ensure the waste type conforms to the site permit and to identify any non-conforming items, potential signs of fire, or excessively dusty or odorous material.

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 received at the WTS would be designated as a priority for bulk export, including:

- Any materials designated as 'high-risk' following inspection;
- Materials which are classified as having a high odour risk potential following inspection; and
- Where a site operative is alerted to stored material becoming particularly odorous or high-risk.

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 at the WTS/WRC does not occur.

3.5 Material Storage and Transfer Control

The anticipated retention time of materials at the Site (i.e. period from material receipt to export) during typical operations and during exceptional circumstances is presented in

Table 3-2 below. This is not an exhaustive list of material types; only materials which are identified to be a significant source of odours are presented.

Table 3-2: Typical Material Retention Times

Odour Source	Retention Time	
	Typical	Exceptional Circumstances
Residual waste at WTS	24-hours	72-hours
Food waste (within bay)	8-hours	N/A – food waste would always be removed from the bay.
Food waste (within skip/trailer)	3 days	7 days
AHP waste bay	8-hours	N/A – AHP waste would always be removed from the bay.
AHP waste skip/trailer	7 days	14 days
Residual waste at WRC	4 days	8 days

3.6 Cleaning Operations

The incoming waste vehicles carrying residual and AHP waste would reverse and unload into the relevant storage bays within the Residual Waste Building. 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 some material being deposited outside of the relevant bays.

The incoming waste vehicles carrying food waste reverse and unload into either the food waste bay within the Recycling Building. However, there may be occasions, where material is tipped onto the floor in front of the food waste bay for inspection prior to transfer into the food waste bay. There may also be occasions where driver error leads to material falling onto the floor surrounding the food waste trailer/skip.

As such, the floor within both the Recycling Building and Residual Waste Building is swept and washed-down quarterly (3-month interval), or as-required where a significant build-up of residual material is identified. These cleaning operations takes place during off-peak periods where possible to minimise disruption to material deliveries.

When not in use, RRVs and CCVs are parked at the Site in the designated bays. There is potential for RRVs and CCVs 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 CCVs, the cleaning regime outlined in Section 2.2.3 is adopted.

3.7 General Housekeeping

Regular cleaning of operational areas within the WTS and WRC is undertaken. Site haul roads and drainage channels are cleared out to minimise odour generation from degrading residual waste materials on these surfaces. Additionally, all operational areas of the Site are swept as and when required, in line with the daily inspections. Where required, 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, in bays or in corners. Where a build-up of material is identified it will be cleaned up as soon as practicable. Walkways are in place behind bays to ensure staff can gain access for cleaning.

3.8 Loading and Bulk Removal of Material

All materials would be periodically transferred off-site for processing, recovery, or disposal via third party hauliers or PCC haulage vehicles as appropriate.

Loading of the most odorous material types at the WTS (residual waste, food waste and AHP) is undertaken within the Recycling Building and Residual Waste Building. Export of residual waste at the WRC is undertaken with minimal agitation of the waste; residual waste is stored within containers which can be directly loaded onto export vehicles.

All waste transfer vehicles leaving the Eco-Park are securely sheeted (or enclosed) at all times.

3.9 Mitigation of Community Impacts

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

- A phone number for members of the public to contact PCC will be visible on the Site board at the entrance; and
- Responding to odour complaints promptly and keeping the complainant informed of outcome of investigation.

3.10 Monitoring and Maintenance

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

3.10.1 Monitoring Potential Odour Sources

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

- The material is subject to document checks at the weighbridge to ensure it conforms to the Waste Acceptance Procedures;
- The material is subject to visual inspection as part of the Waste Acceptance Procedures, as outlined in Section 3.4;
- The Site Manager and/or suitably trained delegated persons will monitor, via sniff-test, to determine whether particularly malodorous loads require removal from Site during the next available material collection, as outlined in Section 3.4.

3.10.2 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 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 (i.e. familiarisation of the method outlined in Appendix D) site management with any issues recorded in the Site logbook;
- On a monthly basis by an additional member of staff accompanying the Site Manager, with results compared and recorded; and
- On a reactive basis by an appointed monitoring company or through utilisation of staff from other PCC sites. 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.

3.10.3 Monitoring Meteorological Conditions

The Site Manager or other designated responsible person records daily weather conditions in the Site Diary, sourced from publicly available data from the nearby Milford Haven meteorological recording station. If it is identified that meteorological trends often differ in the Site locale to that recorded at the Milford Haven meteorological recording station, installation of an on-site meteorological station should be considered.

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.

3.10.4 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;
- Operational problems including date, time, duration and cause of problem;
- Complaints received including address (if available); and
- Details on whether the complaint can be substantiated (i.e. nature of odours can be linked to this Site, or whether odours may be linked to an external odour source such as agriculture); 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 an odour is detected at the Site boundary (which can be attributed to the Site operations), this will be noted in the Site diary and the Site Manager will be informed to allow for appropriate steps to be taken to mitigate the odour. The results of the odour monitoring will not be reported to NRW unless required by the EP.

3.10.5 Notifying NRW

In the event that an accident or incident occurs, PCC will notify NRW as soon as practicably possible using the emergency 24-hour phone line (0300 065 3000). The Site Manager, or appointed representative, 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 an empty waste bay and established as a quarantine area (ideally still within the container it was delivered in) and removed from Site as soon as possible (target of 24-hours, with a maximum of 72-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.

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 daily 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 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 Manager 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 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 any offsite odours detected.

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 Recycling Building and Residual Waste Building (i.e. any significant gaps where fugitive emissions might be released to atmosphere); and
- Reviewing requirements for activities that involve door opening and reduce frequency and duration of door opening if practicable.

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 Manager (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/or the Complaints Record Form within the EMS: 'EMS 2.07') 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 WTS buildings (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 the Site Management Team 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 during the test will be checked;
- A report would be provided to NRW; and
- Suitable feedback would be provided to the complainant.

4.8.2 Complaint Investigation

The following actions (aligning with those presented within the EMS Complaints Procedure: 'EMS 2.06') will be taken upon receipt of an odour complaint:

1. The Site Manager 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 Manager (or an 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:
 - Determine if material was being received at the Site 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 that time.

- Review of the meteorological conditions (wind speed and direction) 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 Manager (or appointed representative) will visit the complaint location as soon as practicable in order to subjectively determine odour presence / absence and. If presence of an odour which could be attributed to the Site operations is detectable, the odour characteristics and intensity would be determined in accordance with the procedure detailed in Appendix D, and a complaint form (such as the one presented in Appendix C) would be filled-out.

Should odour complaints be received from multiple complainants within a short period (i.e. a few days) then the Site Manager should consider temporary cessation of odorous activities whilst the likely source of these odour complaints is investigated at the earliest opportunity. Should the source of odours be determined to be coming from the site (following the measures outlined in Section 4.8.1 above) then remedial actions should be undertaken to rectify this. Should the source of odours be determined to be **not** coming from the site, then activities can recommence. Due to the diverse range of potential scenarios in which this might occur, it would be up to the judgement of the Site Manager to determine where such measures may or may not be necessary.

Where required, 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 times), PCC 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.

5.3 Explosion

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

5.4 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.

5.5 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.

5.6 Power Failure

The Eco-Park emergency systems have an on-site backup generator which will be sufficient to ensure operations can continue in the event of an external power cut.

5.7 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.

5.8 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 or relocated from other PCC facility if required. If unavailable, the relevant operations will be suspended if necessary. Contingency

Scenario	Emergency Operations	Location	Likely effect on emissions inventory	Contingency / Control Measures
				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 impact from Site where normal operations are affected during and after flood	If flooding should occur and material is submerged, 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 Manager to highlight the significant aspects to all relevant employees and contractors. The Site Manager 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 Manager and the Waste and under all circumstances will be reviewed (at least) annually and formally recorded within the EMS.

Staff are familiarised with the content of the OMP as part of the induction process, or as a specific training exercise. Refresher training is provided every two years or whenever the OMP is updated / following an incident (whichever is sooner). The OMP is made available to all site staff a reference document, either electronically or via a hard copy retained within the site office.

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: Odour Potential of Waste Types

Material Type	Storage Area Location	Anticipated Maximum Material Retention Time (during normal operations)	Approximate Maximum Storage Volume (m³)	Associated Odour Potential	Significant Potential Source of Odours?
Food Waste (bay)	WTS: within Recycling Building	8-hours	25	Medium-to-high (dependant on retention time)	Yes
Food Waste (skip/trailer)		72-hours	110		
Loose Film		1-week	98	Negligible	No
Cardboard		72-hours	130	Negligible	No
Paper		1-week	130	Negligible	No
Loose Paper Bay		1-week	150	Negligible	No
Baled Cardboard		1-week	160	Negligible	No
Loose Cardboard		72-hours	120	Negligible	No
Baled Aluminium		1-month	70.2	Negligible	No
Baled Plastic		1-month	115.6	Negligible	No
Baled Steel		1-month	115.6	Negligible	No
Baled Cartons		6-months	115.6	Negligible	No
Red Bag (mixed recyclables)		72-hours	310	Negligible	No
Baled Carpets	WTS: external bays	3-months	210	Negligible	No
Wood		1-week	230	Negligible	No
Mattresses		1-month	216	Negligible	No
Rigid Plastic		3-months	120	Negligible	No
Tyres Bay		6-months	230	Negligible	No
Scrap Metal Bay		1-month	230	Negligible	No
UPVC Bay		6-months	230	Negligible	No
Baled Plastic Film Bay		3-months	210	Negligible	No
Residual waste	WTS: within Residual Waste Building	72-hours	650	Medium	Yes
AHP (bay)		8-hours	220	Medium-to-low	Yes
AHP (skip/trailer)		14-days	110		yes
Glass		1-week	135	Negligible	No
Residual Waste	WRC: external bays/skips	4-days	50	Medium	Yes
Green Waste		72-hours	30	Low	No
Books		7-days	1	Negligible	No
Cans and Plastics		7-days	1	Negligible	No
Cardboard		7-days	25	Negligible	No

Material Type	Storage Area Location	Anticipated Maximum Material Retention Time (during normal operations)	Approximate Maximum Storage Volume (m ³)	Associated Odour Potential	Significant Potential Source of Odours?
Carpets		21-days	20	Negligible	No
Furniture - Reusable		7-days	30	Negligible	No
Furniture – Non - Reusable		7-days	30	Negligible	No
Flo Tubes		60-days	<1	Negligible	No
Gas Bottles		30-days	Bottle cage	Negligible	No
Inert/ Rubble		21-days	20yd ³ skip	Negligible	No
Litter Recycling (Bulking)		7-days	1	Negligible	No
Mattresses		7-days	30	Negligible	No
Mixed Glass		30-days	15	Negligible	No
Newspapers & Magazines		60-days	25	Negligible	No
Paints		14-days	30	Negligible	No
Paper		7-days	1	Negligible	No
Plastic – Hard/Rigid		14-days	30	Negligible	No
Plasterboard		42-days	30	Negligible	No
Scrap Metal		14-days	30	Negligible	No
Tetrapaks		90-days	1	Negligible	No
Textiles/ Clothing/ Shoes		7-days	1	Negligible	No
Tyres		60-days	30	Negligible	No
WEEE - CRT		14-days	TV Stillage	Negligible	No
WEEE LDA and Fridge Freezers		21-days	30	Negligible	No
WEEE SDA		14-days	15	Negligible	No
Wood/ MDF		72-hours	30	Negligible	No
UPVC		42-days	30	Negligible	No

The odour potential of the different types of material has been determined in reference to recent odour monitoring studies, as well as monitoring data from a range of sites around the UK, the IAQM Odour Guidance and Waste Sector Guidance⁵. 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 is typically associated with a low odour potential. When considering the similarity of green

⁵ Best Available Techniques (BAT) Reference Document for Waste Treatment, European Commission, 2018.

waste odours to the agricultural odours likely to be currently present within the site setting, the sensitivity of nearby residential receptors to green-waste type odours is likely to be low. Therefore the green waste is not considered a significant potential source of odours (within the site locale).

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)
North boundary			
East boundary			
South Boundary			
West Boundary			
Closest Property			
If odour is strong / persistent additional information to be detailed below:			
Intensity			
0	No detectable odour		
1	Very faint odour (some doubt as to whether the odour is actually present)		
2	Faint odour (barely noticeable)		
3	Distinct 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	
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	Was waste received at the Site during the period the complaint was received?		
	If yes, were the correct waste acceptance procedures followed?		
Waste Processing	Were waste processing operations undertaken during the period the complaint was received?		
Waste Storage	Any unusual waste storage operations (i.e. increased volumes, alternative storage location, etc)?		
	If yes, provide details		

Appendix C: Odour Complaints Reporting Form

Pembrokeshire Eco-Park: Odour Complaints Recording Form			
Reference number:			
Date:			
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?			
Site Research into Complaint			
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 (i.e. any unusual operations?):			
Follow Up			
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; 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 4.0).

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

The Site 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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