ODOUR MANAGEMENT PLAN

ENVAR COMPOSTING LIMITED: WLC SITE
HAREFIELD COMPOSTING FACILITY
NEWYEARS GREEN LANE, UXBRIDGE

Executive Summary

This document is the Odour Management Plan for the Envar Composting Limited WLC site, Harefield Composting Facility, located on Newyears Green Lane, Harefield, Uxbridge.

The Odour Management Plan details the nature and source of potential odorous emissions from the site operations, the receptors which might be impacted through their creation, and the control measures in place to prevent or minimise their occurrence and impact.

Contents

Issue and Revision Record

Issue	Date	Author	Review / Authorise	Description
1		WRM		Original Document
2 – 9		WRM		Permit Application / Operational Updates
10	20/08/2019	WRM		Operational Update
11	14/03/2022	A. Owen / Envar	James Cooper and Sue Grundon	Update for Planning App. and Regular update to include in systems
11A	18/03/2022	A. Owen / Envar	James Cooper and Sue Grundon	Editorial Amendments

1. Introduction

This Odour Management Plan has been produced in accordance with Environment Agency (EA) guidance on Odour Management Plans[1] and EPR H4 Odour Management[2] and follows the general monitoring procedures detailed in Environment Agency guidance document Internal Guidance for the Regulation of Odour at Waste Management Facilities[3]. Reference has also been made to the Association for Organics Recycling Industry guide for the prevention and control of odours at biowaste processing facilities[4] and the Environment Agency document Technical Guidance on composting operations[5] and the consultation document on appropriate measures for biological waste treatment.

The EnVar Composting Limited (Envar) WLC site on Newyears Green Lane is permitted to undertake the following activities within their waste recovery facility:

- **In-Vessel Composting**: Composting of source segregated kerbside, civil amenity and commercial food and green wastes for the production of an organic soil improver certified to Publicly Available Specification 100 (PAS100) and the compost Quality Protocol (QP) (<75,000 Tpa).
- **Open Windrow Composting**: Composting of source segregated kerbside, civil amenity and commercial green wastes for the production of an organic soil improver certified to PAS100 and QP (<75,000 Tpa).
- **Waste Transfer**: Transfer of source segregated kerbside, civil amenity and commercial food and green wastes (<20,000 Tpa).

The current permitted throughput of the site operations is 95,000 Tpa, although current planning restrictions further limit the overall material throughput at the site.

This OMP is aimed at assisting the operator in effectively managing potential odour releases associated with the operations at Envar's WLC facility and minimisation of the risk of abnormal operational conditions, which could result in increased risk of odour generation at the site.

1.1 Structure of the Odour Management Plan

The structure of the OMP is laid out in accordance with the EA guidance and considers:

- Feedstock Inventory;
- Process Management;
- Evaporation;
- Containment and abatement;
- Dispersion;
- Sensitive Receptors; and
- Incidents and Emergencies.

1.2 Material Recovery Operations

Envar operate a resource recovery facility currently permitted to process up to 75,000 Tpa of non-hazardous green and food wastes primarily from kerbside collected, civic amenity and commercial waste streams. The site also operates a Waste Transfer Station (WTS) on the same site which has a separate environmental permit 20,000 Tpa.

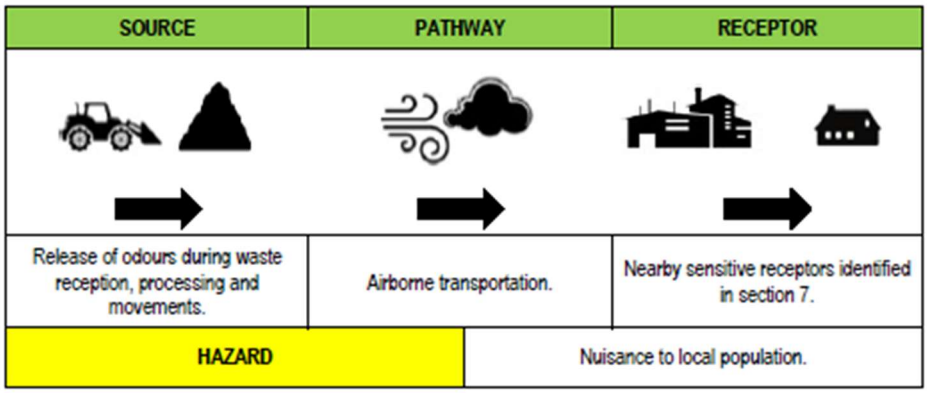
The recovery of organic waste has the potential to generate malodours from site operations. This odour management plan assesses likely sources of odour generation and sets out the good site practice and mitigation that is employed to minimise where reasonably practicable any odour emitted from site.

The likelihood and frequency of exposure to odour arising from the facility is determined by a combination of the magnitude of release, the prevailing meteorological conditions, and the distance and direction of receptors in relation to the facility. Each of these factors are discussed in the following sections.

1.3 Conceptual Model

The conceptual model for pollutant linkages identified for the release of odours from the composting facility is identified in Figure 1 below.

Figure 1 Conceptual Model for Pollutant Linkages



2. Feedstock Inventory

The site operates a waste recovery operation through the composting of source-segregated bio-degradable waste to produce quality compost that is quality assured to PAS100[6] and the compost Quality Protocol[7]. In order to understand the odour potential of the different waste streams that enter these processes, a feedstock inventory has been provided for the various waste types. Table 1 over page provides an assessment of each waste type by source of material, identifying the typical and abnormal compositions of those waste types and providing and overall odour potential of that feedstock based upon the likelihood of abnormal compositions being encountered at site.

Within regards to the waste reception, materials being received on site may be up to 2 weeks old; this is considered as fresh as it can be without asking the councils to increase the collection rounds from fortnightly to weekly. All waste entering the site is loaded onto vehicles for transfer within 24 hours.

Table 1 Assessment of Odour Potential from Feedstock Inventory

Waste Type	Waste Source	Typical Composition	Abnormal Composition	Likelihood	Odour Potential
Green Waste	Kerbside collected.	Mixture of grass clippings and woody plant material. Often several days old.	Mixture of grass clippings and woody plant material that has been stagnant for weeks.	Material is often received from these sources which is several days old.	**High** – Material may be wet and already started to degrade given the potential age of cut material.
	Civic amenity sites e.g. HWRC.	Mixture of grass clippings and woody plant material. Often several days old.	Mixture of grass clippings and woody plant material that has been stagnant for weeks. Seasonal exceptions e.g. Christmas trees.	Material is often received from these sources which is several days old.	**High** – Material may be wet and already started to degrade given the potential age of cut material.
	Commercial e.g. landscapers.	Fresh woody plant material and grass clippings / turf.	Large bulky tree stumps/logs. Large load of grass/turf.	Material usually delivered shortly after being collected.	Med – Material is typically fresh and mainly dry woody plant material.
Food Waste	Kerbside collected.	Mixture of all food types associated with kerbside collections which is several days old.	Mixture of food waste with a high moisture content that is several days old and has started to degrade.	Material is often received from these sources which is several days old.	**High** – Material is often wet and may have already started to degrade given the potential age of material.
	Commercial e.g. food	Mixture of different types of food waste in singular form and mixed type.	Mixture of food waste with a high moisture content that is several days old and has started to degrade.	Material is often received from these sources which is several days old.	**High** – Material is often wet and may have already started to degrade given the potential age of material.

2.1 Feedstock Management

As identified in Table 1 there are various potential compositions for the waste types accepted onto site which have a medium-high odour potential. In order to manage the feedstock inputs an assessment of the variation by waste source by season is provided, the implication on odour generation potential and the management controls to mitigate odours. Table 2 over page, outlines the controls required at the waste feedstock stage.

Table 2 Feedstock Variation and Management Controls

Waste Source	Seasonal Variation	Odour Implication	Management Controls
Kerbside collected green waste.	**April – September:** Increasing grass clippings content (typically peaking at 40%+ in May-June from experience). Short, sharp, tonnage surges possible (e.g. collections around bank holiday weekends) Accordingly, loads increasingly compacted due to material density.	Degradation could begin rapidly. Excess nitrogen will form ammonia and odorous compounds.	Source additional "woody" / carbonaceous material in anticipation of warm, wet, weather when possible. In the event of sudden summer green waste "surge" overwhelming treatment capacity, broker material to other local compost facility.
	October - March: Increase in "woody" type materials (branches etc), resulting in higher C:N ratios.	Material unlikely likely to compost rapidly, so odour potential is decreased, but still present if stored too long.	Green waste loads from October to March containing large amounts of "woody" type materials (branches etc) may need to be blended together to improve C:N ratio.
Civil amenity green waste.	**April – September: I**ncreasing grass clippings content (peaking at 40%+ in May - June). Short, sharp, tonnage surges possible over bank holiday weekends. Accordingly, loads increasingly compacted due to material density, and contractors desire to maximise bin weights / payloads. Potential for waste to be kept in warm conditions prior to delivery (waste exposed to direct sunlight in site bins)	Degradation could begin rapidly. Excess nitrogen will form ammonia and odorous compounds. Increased risk of evaporation.	Source additional "woody" / carbonaceous material in anticipation of warm, wet, weather when possible. In the event of sudden summer green waste "surge" overwhelming treatment capacity, leading to green stockpile in reception area longer than 2 days, broker material to other local compost facility
	October - March: Increase in "woody" type materials (branches etc), resulting in higher C:N ratios. Potential for significant "spike" post-Christmas (disposal of Christmas trees).	Degradation could begin rapidly. Excess nitrogen will form ammonia and odorous compounds. Increased risk of evaporation.	Source additional "woody" / carbonaceous material in anticipation of warm, wet, weather when possible. In the event of sudden summer green waste "surge" overwhelming treatment capacity, leading to green stockpile in reception area longer than 2 days, broker material to other local compost facility
Commercial green waste.	**April – September:** Increasing grass clippings content (typically peaking at 40%+ in May – June from experience). Accordingly, loads increasingly compacted due to material density. Potential for waste to be kept in warm conditions prior to delivery (waste exposed to direct sunlight prior to delivery).	Material unlikely likely to compost rapidly, so odour potential is decreased, but still present if stored too long.	Adjust green to "woody" green waste ratios during October – March to meet desired C:N ratio. Green wastes loads may need to be blended together to improve C:N ratio.

Waste Source	Seasonal Variation	Odour Implication	Management Controls
Commercial green waste.	**October to March:** Increase in "woody" type materials (branches etc), resulting in higher C:N ratios.	Degradation could begin rapidly. Excess nitrogen will form ammonia and odorous compounds. Increased risk of evaporation.	Source additional "woody" / carbonaceous material in anticipation of warm, wet, weather when possible. In the event of sudden summer green waste "surge" overwhelming treatment capacity, leading to green stockpile in reception area longer than 2 days, broker material to other local compost facility.
Kerbside collected food waste.	Seasonal variation is minimal. Waste is collected in corn-starch liners from householders, most of which are sealed, reducing evaporation potential during warm weather. Waste produced over public holidays could be greater in amount and older / more compacted due to collection round disruptions.	The low C:N ratio of this waste (approx. 15) means it is highly susceptible to degradation with age. Treatment as soon as possible is crucial to prevent / minimise nitrogen volatilisation in the form of ammonia and other odours.	Ensure food waste is processed as soon as delivered to site. Food waste blended with less odorous \ carbonaceous material immediately following shredding. All IVC food waste material to be processed and loaded into vessels within 48 hours. Waste can be stored within the WTS for 24hrs. If material significantly odorous consider alternative disposal: landfill or other local composting facility.
Commercial food waste.	Some wastes are collected in corn-starch liners from customers. Liners will be sealed on collection, reducing evaporation potential during warm weather. Waste produced over public holidays could be variable: offices may produce less waste due to low staff levels, whilst pubs and restaurants could produce more due to increased business.	The low C:N ratio of this waste (approx. 15) means it is highly susceptible to degradation with age. Treatment as soon as possible is crucial to prevent / minimise nitrogen volatilisation in the form of ammonia and other odours.	Ensure food waste is processed as soon as delivered to site. Food waste blended with less odorous \ carbonaceous material immediately following shredding. All food waste material to be processed and loaded into vessels within 48 hours. Waste can be stored within the WTS for 24hrs. If material significantly odorous consider alternative disposal: landfill or other local composting facility.
Leachate tanks on maturation pad.	Seasonal variation in line with that of sanitised food and green waste, since these leachate tanks serve the maturation pad.	Potential for odour is medium given the high dilution factor from rainfall that lands on the pad.	The two leachate tanks are maintained at 80% capacity in order to minimise material that could potentially be odorous.
Site Cleaning and Maintenance.	Seasonal variation in line with other waste sources.	Potential for odour generation due to disturbing material through maintenance and cleaning in minimal.	Site maintenance and cleaning is conducted in line with site procedures and protocols.

3. Process Management

The following sections outline the waste recovery processes operated for the production of PAS100 compost through an in-vessel composting (IVC) and open windrow composting (OWC) facility. The monitoring parameters, critical limits, process controls and records at each stage within the recovery process for the minimisation of the production of odours are provided herein.

Please note, the processing of organic waste at the Envar WLC site is carried out in line with PAS100 and the QP.

3.1 Waste Reception

Refer to the site specific IMS for the sites waste acceptance procedure.

On arrival, vehicles are weighed on the site weighbridge and directed to the reception building where they unload into the specified tipping bay. Once offloaded, materials are inspected by site staff for contamination and any gross contamination removed by hand (i.e. large objects, plastics etc).

At the same time the operator undertakes a visual assessment of the likely carbon to nitrogen balance and the likely moisture content to identify the need for the incorporation of other materials i.e. cardboard, woody material, water. Sufficient stocks of oversize and woody materials will be kept onsite to adjust the feedstock. Should the stock of amendments run low the site will either screen some compost to replenish the supply or shred some appropriate clean wood waste. Should the site exhaust all supplies of amendment materials, and not be able to obtain any further supplies, deliveries of feed stocks needing amendment materials will cease.

The waste reception building is located on the main site, opposite the weighbridge. Green and food wastes are stored in the reception buildings within the southern portion of the site. The reception and storage location for the WTS is located to the rear of the reception hall in a designated area. With reference to the waste transfer station, the waste is tipped directly into the designated temporary storage bay located to the rear of the reception hall. Waste is held within the bay not above the maximum safe holding capacity of the bay, currently about 30 tonnes depending on density, for a maximum of 24-hours at any one time.

Table 3 Summary of Odour Potential and Process Controls for Waste Handling

WASTE RECEPTION				
Composting Process				
Potential Odour Issue	**Monitoring**	**Critical Limits**	**Process Controls**	**Records**
Delivery of moist highly nitrogenous material consisting of grass.	Visual Inspection.	Present.	Isolate feedstock from remaining material, add amendment such as woodchip or oversize material and mix thoroughly to open up and aerate the material. On completion, the blended material can be covered with woodchip or moistened screened compost which will aid in reducing any odorous emissions to the air.	Duty of Care Transfer Note.
Delivery of odorous material that is highly degraded which is not recoverable through mitigation measures.	Visual Inspection.	Present.	Reject load and inform waste supplier.	Duty of Care Transfer Note.
Feedstock material becoming odorous from storage prior to treatment.	Visual assessment and record sheets.	Feedstock shred within 96-hours of receipt and not stored over 1000 T.	Material will be shredded as soon as possible and within 96 hours of receipt. Stockpiled waste material shall not exceed 1000 T. Stockpiles will be “batch shredded” which will ensure that all the material available to be shred is processed, or failing that, the site will shred using a first in, first out system.	Batch record sheet.
Waste Transfer Process				
Potential Odour Issue	**Monitoring**	**Critical Limits**	**Process Controls**	**Records**
Delivery of moist highly smelly waste	Visual Inspection.	Present.	Isolate feedstock from remaining material.	Duty of Care Transfer Note.
Delivery of odorous material that is highly degraded which is not recoverable through mitigation measures.	Visual Inspection.	Present.	Reject load and inform waste supplier.	Duty of Care Transfer Note.
Feedstock material becoming odorous from storage prior to treatment.	Visual assessment and record sheets.	Feedstock transferred offsite within permit limits	Feedstock transferred offsite within permit limits	Batch record sheet.

3.1.1 Waste Transfer Rejected Loads

In the unlikely occurrence of loads requiring rejection there will be a requirement for holding material for a period of time prior to leaving the site. Depending on the contractual arrangements for the waste the material may be immediately segregated and loaded onto a vehicle owned by EnVar. Material can be rejected for different reasons, such as not being as described on the waste transfer note, being elevated in level of physical contamination, or being unsuitable for the composting process such as being too wet or too odorous. Storage limits will usually be set by the amount of waste to be rejected which is not expected to be above that of a usual delivery.

3.2 Waste Transfer Process

Waste is held within the storage bay for a maximum limits as per the permit prior to transfer from the site. Waste is transferred to large bulk lorries at regular intervals using a front loader shovel or similar mobile plant, and is weighed out prior to dispatch from the site.

3.3 Shredding

Following waste acceptance, a dedicated loading shovel is used to deposit the raw material into the hopper of the slow speed shredder. The operator can select different loads to achieve the required mix and additionally, the moisture content of the shredded material can be increased by spraying with leachate water captured from within the treatment tunnels or from the mat pad.

Material is batch shredded before being loaded into the IVC tunnels and therefore, obtaining the right carbon:nitrogen ratio during the shredding process is an important factor in reducing odour potential during the shredding and composting process. Typical C:N ratios of between 23:1 and 30:1 are optimal for the composting process. The site adopts an optimal range of 25:1 to 30:1, given the inclusion of food waste, which equates to approximately 1 part green (nitrogenous) waste to 3/4 parts brown (carbonous) waste.

Table 4 Summary of Odour Potential and Process Controls for Composting

PAS 100 Composting => Shredding				
Potential Odour Issue	**Monitoring**	**Critical Limits**	**Process Controls**	**Records**
Release of odours to the environment during shredding.	Visual Assessment.	Dry material by visual assessment.	All shredding with the waste reception hall. Should material entering the shredder be observed to be dry, tunnel leachate will be added to limit aerial dispersion.	Batch record sheet.
Odours released due to poor mix of feedstock materials.	Visual Assessment.	1:3/4 (green:brown) waste mix.	Waste selected for batch shredding is carried out by visual assessment of green:brown waste ratios. Where there is excessive green waste amounts, clean source-segregated wood or oversize material is added to obtain the desired C:N ratio.	Batch record sheet.
Odours released from storage of feedstocks prior to tunnel loading.	Visual Assessment.	Less than 250 tonnes	Waste awaiting loading into the tunnels shall not exceed 500 T and be loaded as soon as possible or within 72-hours of material being blended.	Batch record sheet.

3.4 In-Vessel Composting - Barrier 1

After shredding, the feedstock is transferred to the composting tunnels using a front loader. The composting pad consists of 16 tunnels forming barrier 1 and a further 16 tunnels forming barrier 2. The tunnels are loaded to a height of 2.5 metres and the retractable roof is closed.

The barrier 1 tunnels are actively aerated via pipes incorporated into the floor of the tunnels. A proportion of the air flow is recirculated through the tunnels and the temperature (in the compost) is continuously monitored to ensure compliance with the requirements of the Animal By-Products Regulations (ABPR). Once the ABPR temperature (and retention time) requirements have been achieved the material is transferred when next convenient.

If conditions within the barrier are thought to be in anaerobic conditions, a review of airflow and oxygen shall be undertaken, and appropriate measurements shall be undertaken of the fan speed and aeration system.

A 'squeeze' test, for all moisture testing of materials will be conducted using procedures in accordance with BS EN 12579 by a suitably trained site operative to check moisture content as follows:

The sample of the material is selected in accordance with the standard then grasped and clenched in a gloved hand for approximately ten seconds, then the hand is opened and the moisture content is assessed in line with the descriptions presented in Section 3.12.2 of this management plan.

A full description of the monitoring process is provided within the IMS PAS SOP Documents.

Table 5 Summary of Odour Potential and Process Controls for Barrier 1

PAS 100 Composting => Barrier 1				
Potential Odour Issue	**Monitoring**	**Critical Limits**	**Process Controls**	**Records**
Tunnel too wet leading to anaerobic conditions.	Moisture Monitoring.	Moisture Index: 1-2	The compost tunnels are free draining onto an enclosed drainage system to enable runoff from excessive moisture content. Aeration of tunnels will aid the drying of material to prevent high moisture levels occurring. If elevated moisture levels are encountered, additional air is introduced as soon as possible to fully aerate.	Batch record sheet.
Tunnel not in optimal temperature range for composting.	Temperature Monitoring.	Barrier 1: 60-80 ^{o}C.	Compost is formed into tunnels of adequate size in order to generate required temperatures during active composting phases. Should temperature become elevated above critical limits, tunnels will be flushed with fresh air as soon as possible to fully aerate.	Batch record sheet.
Tunnel becoming anaerobic due to lack of oxygen within the material.	Temperature and Moisture Monitoring.	Barrier 1: As above	Compost is fully aerated to ensure adequate levels of oxygen within the tunnels. Oxygen levels are directly related to temperature and moisture levels. Where these are elevated above critical limits, tunnels will be flushed with fresh air as soon as possible to fully aerate.	Batch record sheet.

3.5 In-Vessel Composting - Barrier 2

Biological activity is reduced in the Barrier 2 tunnels and these are supplied with re-circulated air by a single speed fan through a galvanised track running along the floor of the clamp. Monitoring of temperature is undertaken routinely and once the ABPR temperature (and retention time) requirements have been achieved. If temperatures rise to 80°C a manual valve is opened to allow ingress of external air. After typically 7-days in the barrier 2 clamps the material is cooled (by introducing fresh air), unloaded and transferred to the maturation pad.

A full description of the monitoring process is provided within the IMS PAS SOP Documents.

Table 6 Summary of Odour Potential and Process Controls for Barrier 2

PAS 100 Composting => Barrier 2				
Potential Odour Issue	**Monitoring**	**Critical Limits**	**Process Controls**	**Records**
Tunnel too wet leading to anaerobic conditions.	Moisture Monitoring.	Moisture Index: 1-2	The compost tunnels are free draining onto a concrete pad to enable runoff from excessive moisture content. Aeration of tunnels will aid the drying of material to prevent high moisture levels occurring. If elevated moisture levels are encountered, additional air is introduced as soon as possible to fully aerate.	Batch record sheet.
Tunnel not in optimal temperature range for composting.	Temperature Monitoring.	Barrier 2: 60-80 °C.	Compost is formed into tunnels of adequate size in order to generate required temperatures during active composting phases. Should temperature become elevated above critical limits, tunnels will be flushed with fresh air as soon as possible to fully aerate.	Batch record sheet.
Tunnel becoming anaerobic due to lack of oxygen within the material.	Temperature and Moisture Monitoring.	Barrier 2: As above	Where temperature levels are elevated, tunnels will be flushed with fresh air as soon as possible to fully aerate.	Batch record sheet.

3.6 Windrow Formation

Once the material has been through its ABPR requirements within the tunnels, the material will then be formed into windrows on the maturation pad where several batches are combined. The windrows are approximately 32.5 to 60m (l) x 6 m (w) x 4 m (h) in size and are left on the maturation pad for a minimum of 4 weeks during which time critical limits must be met for temperature and moisture levels as per the SOP for PAS100 compost.

Table 7 over page summarises the odour potential and process controls of windrows.

Table 7 Summary of Odour Potential and Process Controls for Windrows

PAS 100 Composting => Windrow Formation				
Potential Odour Issue	**Monitoring**	**Critical Limits**	**Process Controls**	**Records**
Release of odour during material transport to Maturation Pad.	Local Time.	Outside of core hours.	Where outside of core hours, material movements shall not take place.	Site Diary.
Oversize windrow leading to anaerobic conditions.	Visual Assessment.	1000 tonnes per row.	Material is formed into windrows not exceeding 1000 tonnes by way of visual assessment of volume and windrow dimension. Composting process is actively managed to PAS100 to ensure that material is progressing through the system to allow adequate space on the pad.	Batch record sheet.

3.7 Open-Air Windrow

The composting of source-segregated green and food waste is carried out in line with PAS100, with process monitoring critical limits routinely monitored. Completion of the sanitisation and stabilisation phases is recorded by date on the Batch Record Sheet. The critical limits are provided within the table below.

A full description of the monitoring process is provided within the IMS PAS SOP Documents.

Table 8 Summary of Odour Potential and Process Controls for Open Air Maturation

PAS 100 Composting => Open Air Maturation				
Potential Odour Issue	**Monitoring**	**Critical Limits**	**Process Controls**	**Records**
Windrow oxygen levels low leading to anaerobic conditions	Temperature and Moisture Monitoring.	As below	Oxygen levels are directly related to temperature and moisture levels. Where these are elevated above critical limits, windrows will be turned as soon as possible to fully aerate.	Batch record sheet.
Windrow too dry leading to slow process and pad backlog.	Moisture Monitoring.	Moisture Index: 5	Additions of water to compost should be done on a little and often basis. If additional moisture is required by monitoring moisture content less than the critical limit, fresh runoff water is applied directly to the windrow. Too much water should not be added as it will generate excessive runoff onto the composting pad.	Batch record sheet.
Windrow too wet leading to anaerobic conditions.	Moisture Monitoring.	Moisture Index: 1-2	The compost windrows are free draining onto a concrete pad to enable runoff from excessive moisture content. If elevated moisture levels are encountered, windrow is turned as soon as possible to fully aerate.	Batch record sheet
Windrow not in optimal temperature range for composting.	Temperature Monitoring.	45-65 ^{o}C.	Compost is formed into windrows of adequate size in order to generate required temperatures during active composting phases. Should temperature become elevated above critical limits, windrows will be turned as soon as possible to fully aerate.	Batch record sheet.
Evaporation from windrow surface.	Visual Assessment.	Large amounts of steam from windrow by visual assessment.	Should there be large amounts of steam visible from a composting windrow, the windrow will be turned as soon as possible in order to fully aerate.	Batch record sheet.
Release of odour during windrow turning.	Visual assessment and record sheets.	Twice in the stabilisation phase.	A regular turning regime is implemented in line with PAS100 that ensures aerobic conditions within the windrow. Turning is carried out regularly but can be increased should there be visual signs of a requirement to do so e.g. steaming windrow.	Batch record sheet.
	Local Time.	Outside of core hours.	Where outside of core hours, turning of compost windrows shall not take place.	Site Diary.

3.8 Screening

Screening of the compost following the active composting phase shall be carried out with a Trommel or Screener and results in a soil improver, certified to PAS 100 and the QP. Screening of the final product also removes contrary materials and produces a uniform sized product. The date(s) on which each batch is screened, and its batch code shall be recorded on the batch record sheet. Oversize material coming off the screener shall only be re-composted if visual assessment confirms that physical contaminants will not adversely affect the composting process or prevent effective control of compost quality (as stated in the quality policy). Addition of oversize material to a batch of composting material shall only be carried out when it is being formed. If the oversize material is too heavily contaminated for re-composting, it shall be turned into biomass or stored for cleaning up.

Screening of matured material can result in increased emissions due to agitation. However, screening is typically not a significant odour source unless the material has become anaerobic or is still actively composting. The latter is prevented through robust monitoring and management as identified in the table below.

Table 9 Summary of Odour Potential and Process Controls for Screening

PAS 100 Composting => Screening				
Potential Odour Issue	**Monitoring**	**Critical Limits**	**Process Controls**	**Records**
Release of odorous compounds to the atmosphere.	Monitoring records.	Composting process complete.	Compost that is to be screened shall only take place if the material has completed the active composting phase and met the critical limits throughout this period.	Batch record sheet.
	Local Time.	Outside of core hours.	Where outside of core hours, screening of compost shall cease.	Site Diary.

3.9 Product Storage

Products are stored on the storage pad to the south of the site, following screening ready for dispatch to the end markets. Each product batch is identifiable in its storage location by a with a unique product batch code. Each product batch contains compost from no greater than 6 batches and may be stored for a maximum of 6-months before dispatch to the customer.

During product storage there is not a significant source of odour generation given the age of material at this point following a full 8-week composting process. However, if oxygen, moisture and temperature are not controlled the biological processes can re-accelerate and result in the onset of anaerobic conditions. The process control is outlined below.

Table 10 Summary of Odour Potential and Process Controls for Storage

PAS 100 Composting => Product Storage				
Potential Odour Issue	**Monitoring**	**Critical Limits**	**Process Controls**	**Records**
Release of odorous from anaerobic product storage conditions.	Visual Assessment.	Steaming from product storage piles. Temperature: > 45 ^{o}C	Compost that is to be stored shall only be of material has completed the active composting phase and met the critical limits throughout this period. Should any visual signs of steaming from the product storage pile be identified, temperature readings are taken and if temperatures exceed the critical limit, stockpiles are turned to fully aerate.	Site Diary.

3.10 Site Infrastructure

The dedicated composting facility has infrastructure to control emissions from site at various stages of the process, namely leachate management and biofilter units.

3.10.1 Biofilter

The Barrier 1 vessel incorporate biofilters to abate odour generated during the most active stage of the compositing. The biofilters are constructed of woodchip; the dimensions of the biofilters are 14 m by 8 m by 3 m depth and receive an air flow rate of up to 0.465 m^3 s^{-1}.

Management of the bio-filter includes moisture and temperature monitoring, performance monitoring and the establishment of a maintenance schedule. The efficacy of the biofilter will be reviewed at least annually in line with the specification. The performance of the biofilters will be reported to the Environment Agency following.

When working at maximum capacity the biofilter system will require regular inspection, monitoring and maintenance.

The above-mentioned operating procedures will ensure the following monitoring and maintenance will be conducted:

- A regular visual inspection of the condition of the biofilter media shall be conducted by a trained operative, to identify areas of drying, weed growth, compaction, shrinkage of the bed, cracks and fissures, etc. The results will be recorded on the site diary and electronic compliance system and any remedial action taken as necessary.
- There shall be regular monitoring of temperature and moisture levels of the biofilters.

Table 11 Summary of Odour Potential and Process Controls for Biofilters

PAS 100 Composting => Biofilters				
Potential Odour Issue	**Monitoring**	**Critical Limits**	**Process Controls**	**Records**
Biofilter too dry leading ineffective absorption of odorous compounds.	Moisture Monitoring.	Visually dusty	Additions of water to the biofilter should be done on a little and often basis. Water is added to the biofilter routinely to prevent drying out. Too much water should not be added as it will generate excessive runoff and potentially flood the biofilter media.	Electronic Compliance Software
Biofilter too wet leading to anaerobic conditions.	Moisture Monitoring.	Saturated	Warm air from the IVC is constantly fed through the biofilter. Should moisture levels exceed the critical limit for the biofilter, air will be purged through the aeration system to dry the biofilter material out.	Electronic Compliance Software
Biofilter not in optimal temperature range for performance.	Temperature Monitoring.	> 45 °C.	Elevated temperature readings indicate that biodegradation of biofilter media is occurring. Should temperature become elevated above critical limits, media will be inspected and replaced as required.	Electronic Compliance Software

3.10.2 Integral Drainage System

The in-vessel bays are connected to an integral drainage system which drain all processing phase leachate and runoff waters on the southern portion of the site. Concrete falls direct leachate to drains which feed separate leachate storage tanks. Routine monitoring is carried out to ensure tanks are operating below maximum capacity.

Table 12 Summary of Odour Potential and Process Controls for Drains

PAS 100 Composting => Drainage System				
Potential Odour Issue	**Monitoring**	**Critical Limits**	**Process Controls**	**Records**
Release of odours from overflowing leachate storage tanks.	Dip reading.	< 90 % Capacity.	In order to prevent the overflowing of leachate storage tanks, the tanks are fitted with a monitoring system which level. The site is maintained so as tank capacity is held sufficient for the site.	Site Diary.
Blocking of drains leading to pooling of leachate on concrete surfacing.	Visual Assessment.	Particulate blockages.	Weekly site inspections are made to ensure that no drains are blocked by loose material. Where identified, material is swept up immediately and re-processed as soon as practicably possible.	Site Diary.

3.11 Housekeeping

The Envar WLC site management system includes details of maintenance and housekeeping schedules. Housekeeping and cleaning schedules ensure organic material does not adhere or aggregate in any areas of the site to produce an odour.

The IVC reception building will also be cleaned in line with the site and business IMS procedures, to prevent odour and / or attraction of pests. The management system also includes the Maintenance and Inspection Schedules for the aeration system and the biofilters.

3.12 Process Monitoring

Additional information regarding the specific monitoring regimes for the waste treatment processes are presented within the sites Standard Operating Procedures.

3.12.1 Temperature

Temperature monitoring is carried out during the in-vessel stage and during maturation on the maturation pad. Details of the systems employed are identified over page.

Table 13 Temperature Monitoring Regime

Process Stage	Monitoring Procedure
In-Vessel (Barrier 1 and 2)	Automated logging probe within tunnel monitors every 15 mins at 7 points per batch.
Open Air (Maturation)	Handheld temperature probe/compost manager measuring 6 points per windrow 1m below windrow surface.

3.12.2 Moisture

Moisture is assessed using compost manager. Where this is not working a squeeze test will be used.

A 'squeeze' test, for all moisture testing of the organic waste material, will be conducted using procedures in accordance with BS EN 12579 by a suitably trained site operative to check moisture content as follows:

The sample of the material is selected in accordance with the standard then grasped and clenched in a gloved hand for approximately ten seconds, then the hand is opened, and the moisture content assessed using the information below.

Table 14 Moisture Assessment Index

Index No.	Sample Moisture Behaviour	Interpretation
1	Water seeps out	Too wet
2	More than one droplet appears	Too wet
3	One droplet appears	OK
4	Compost particles remain packed together and no droplets appear	OK
5	Compost particles fall away from each other	Too dry

3.13 Contingency Planning

Should the above process controls fail at any point within the processing of wastes through either of the operational processes, an investigation will be carried out to determine the cause of failure. A full review of this Odour Management Plan will be conducted, and process controls (including critical limits) will be amended as required. The EA will be informed of the process failure and proposed investigation period and contingency measures.

3.14 Internal Odour Assessment and Monitoring

Envar Composting Limited will undertake odour checks at 6 points around the perimeter of their WLC site on Newyears Green Lane (see Annex A which is referred to in the site diary), on a daily basis. Findings will be recorded in the Odour Assessment Report (Annex A which is incorporated into the site diary) or noted in the site diary. The odour assessor may not be subject to significant compost odour in the 30 minutes prior to the assessment. This is to ensure that the assessor is not suffering from odour fatigue and will be sensitive to composting odours. Any odours found to be present onsite will be recorded and their source investigated, and steps will be taken to mitigate the sources of odours using the strategies to control odour as outlined above. The internal monitoring procedure, including a survey of odour reports will be re-assessed on a yearly basis during management review, unless the number of odour incidents warrants additional reviews.

3.14.1 Passive Odour Management

There will be daily scraping up of any remaining material in 'dirty' operational areas to minimise, where reasonably practicable, any materials that are left on edges or corners of the site. The site operates to a standard operating procedure and to BSI PAS 100:2018 whereby material on site is batched and traceable. Batches will be monitored for temperature once they have been placed in the maturation stockpile. Through undertaking recognised best practice Envar will minimise any opportunities for odour generation from their WLC site.

A mobile mist system may be used to supress odours associated with the OWC process if all other odour management techniques have failed.

Envar schedule deliveries to their WLC site so that there isn't a build-up of vehicles on site. This means each delivery of waste can be accepted onto site in the fastest possible time. Waste deliveries that are accepted are unloaded into the reception hall immediately to prevent the vehicle from sitting on site with a full load of waste. The vehicles carrying the waste reverse into the reception hall.

3.15 General Measures

In an effort to mitigate against the release of odour from site activities the following measures will be implemented:

- skips will be covered to and from site and in storage.
- unmanaged and unmonitored stockpiles will be avoided where possible;
- wheel cleaning will be conducted on all vehicles exiting site.
- roads will be dampened down or swept during periods of dry weather if required.

4. Evaporation

Evaporation from the open-air composting system is likely to be prevalent given the nature of the process and external location. Over the 3 - 4 weeks of managed optional maturation, compost moisture levels can drop from 65 % to 40 % representing a loss (predominantly of moisture) of the total weight of the windrow. The moisture within the compost is lost to the atmosphere through evaporation from the surface of the windrow and may be the vector for odorous chemicals to enter the atmosphere. As detailed within Section 3 there are several process controls in place to minimise the evaporation potential of the composting processes.

In summary, the process controls include the moisture monitoring of PAS100 compost to ensure that the composting process is in line with industry guidelines. This will prevent an overly wet windrow being formed on the composting pad which could lead to elevated levels of evaporation from the site. In addition, the PAS100 compost is regularly turned in order to fully aerate and incorporate material from the windrow surface, core and basal zones. This turning, in addition to other process controls, will prevent the creation of anaerobic conditions which can result in the production of odorous compounds which could then be lost to the atmosphere through evaporation. In order to reduce the additional potential for odour nuisance during the management of the active composting process, turning of compost will not occur whilst the wind is blowing from a westerly or north-westerly direction if this may result in significant odours being carried off-site, and so will be actively monitored during these periods.

5. Containment and Abatement

The site currently employs containment techniques during the IVC facility phase and abatement techniques during the open-air maturation phase, for the control of odours. Details of both systems are outlined below.

5.1 IVC Containment System

The facility processed air is passed through biofilters to abate odour generated during the most active stage of the compositing process. The biofilters are constructed of chipped oversize material (effectively woodchip); the dimensions of the biofilters are 14 m (l) x 8 m(w) x 3 m (d) and receive an air flow rate of up to 0.465 m^3 s^{-1}.

The media in the biofilters will, over time, require both remixing and replenishment and ultimately replacement, to maintain the level of odour abatement. Whilst the need for such operations will be driven by the findings of the routine performance monitoring, the need for additional material to be added to the biofilters should also be assessed on an annual basis to ensure the depth of media is adequate.

During media replacement, a quantity of the existing media will be incorporated into the replacement media to ensure rapid establishment of a suitable microbial population. The frequency of routine emissions monitoring should be increased for 1-month following media replacement.

Given the open windrow maturation system employed on site, there is little scope for a containment system at present time on the maturation pad. Should there be a change to the site operational procedures, the inclusion of containment systems will be assessed against the effectiveness of such a system and cost of installation.

5.2 Waste Transfer Station

Access to the waste reception hall is by loading doors which are kept shut during non-operational hours. Odours generated from the transfer station is generally not detectable even within the building as it is not putrescible.

6.0 Dispersion

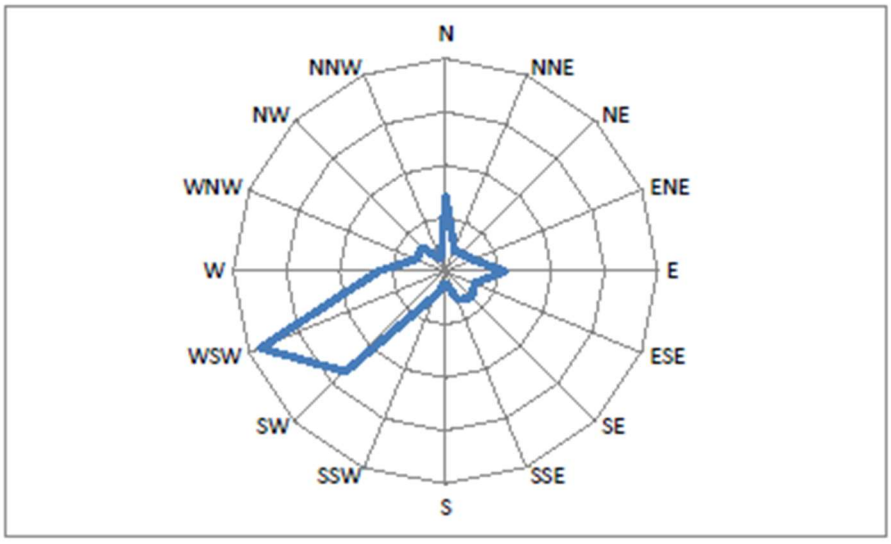
The following section identifies the prevailing weather conditions on site, in particular the wind direction, in order to predict the path of likely aerial dispersion of odours generated on site.

Information on wind direction has been derived from the on-site weather station between 2008 and 2011 (data collected automatically every 15 minutes). This data is illustrated by the wind rose in Figure 2. Wind data is downloaded daily as part of the routine monitoring on site. Sixteen-point wind directions are provided below. Note that calm days are also included to provide a complete data record.

Table 15 Wind Direction Data

Direction (from)	**N**	**NNE**	**NE**	**ENE**	**E**	**ESE**	**SE**	**SSE**	
% Occurrence	7	2	2	3	6	3	3	3	
Direction (from)	**S**	**SSW**	**SW**	**WSW**	**W**	**WNW**	**NW**	**NNW**	**Calm**
% Occurrence	1	2	13	19	6	3	3	1	21

Figure 2 Wind Direction Rose for Envar WLC Site Weather Station 2008-2011



Envar Composting Limited operate a Davis Vantage 2 weather station at their WLC site. The station records wind speed and direction, temperature, relative humidity, and rainfall, and enables the site management team to monitor site specific weather conditions.

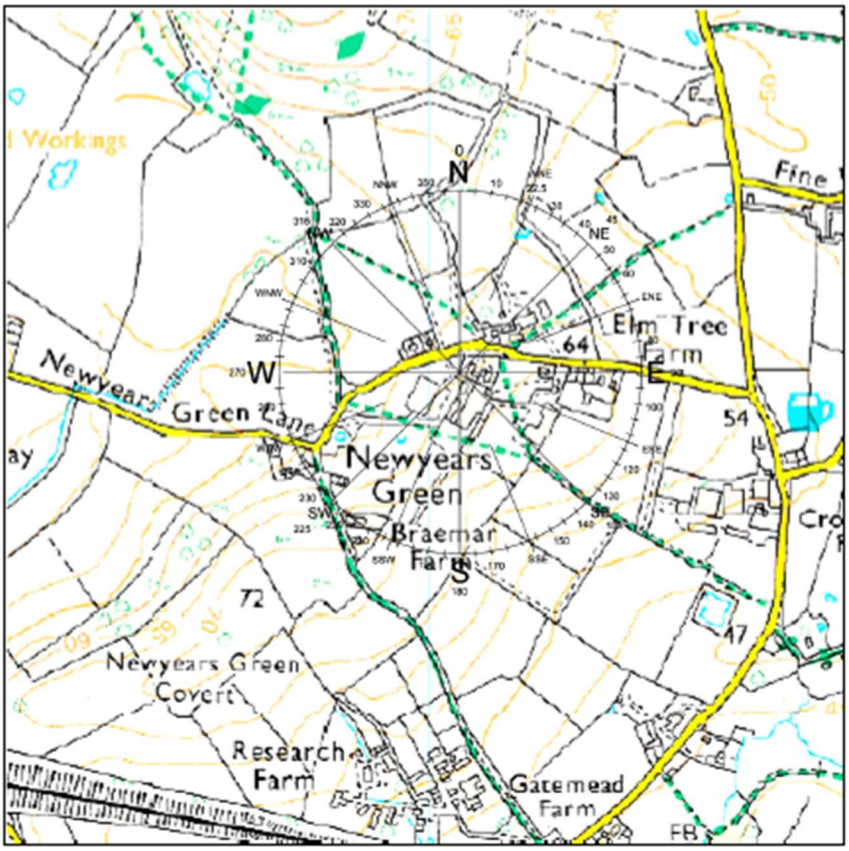
7. Sensitive Receptors

There are several potential sensitive receptors within 250 m of the main waste reception hall, sanitisation phase in-vessel processing and maturation pad. The distance from the processing tunnels by wind direction are provided in Table 16 and are shown on a map of the local area in Figure 3 with compass directions provided.

Table 16 Distance to Nearest Identified Sensitive Receptors

Wind Direction (To)	Occurrence (%)	Nearest Sensitive Receptor	Distance From Site (m)
N	1	St Leonard's Farm	100
NNE	2	St Leonard's Farm	100
NE	13	-	>250
ENE	19	-	>250
E	6	Elm Tree Farm	85
ESE	3	Elm Tree Farm	85
SE	3	-	>250
SSE	1	-	>250
S	7	-	>250
SSW	2	-	>250
SW	2	Braemar Farm	240
WSW	3	New Years Green Farm	240
W	6	-	>250
WNW	3	-	>250
NW	3	Residential - New Years Green Lane	Adjacent
NNW	3	-	>250

Figure 3 Map of Neighbouring Sensitive Receptors



7.1 Dispersal Control

There are potential residential sensitive receptors within close proximity of the site in several directions. As such it would not be a practical solution to restrict material movements by wind direction. The surrounding receptors are residential, therefore control of material movements will most effectively be undertaken by timing them around core hours.

Core hours are those times outside of which residents are most likely to be at home i.e. normal working hours (07:30 to 17:00 - Monday to Friday and 09:00 to 13:00 Saturday). Windrow turning, screening and material movements should be restricted to core hours where possible.

7.2 Community Engagement

If an action is being considered that may cause temporary odour, outside of the normal operational procedures identified previously then, before such action is taken the Operations Manager will be informed. The EA and neighbours who may be affected will be contacted to advise them of the operation being undertaken, and that any increase in odour will be of a temporary nature.

All complaints will be recorded and actioned in accordance with the complaints procedure (Envar MS 1.13). Feedback will be given to any complainants on the findings of odour investigations when / if they are known. A summary will be provided of any remedial measures taken to rectify odour problems and ensure that the problem has been suitably resolved.

7.3 Responsibilities

Day to day operational responsibility for the open windrow and IVC facility is maintained by the site's competent persons, the Operations Manager or the Regional Operations Manager.

In the event of an odour incident the odour accident plan will come into force which will initially deal with the accident, the causes and consequences of the accident, and then look to mitigate any potential odour issues which may have resulted from the accident.

7.4 Management of Complaints

The Envar WLC site maintains a complaints procedure (Envar MS 1.13) to ensure that any issues, including those of odour nuisance, are dealt with quickly and effectively.

Any complaints relating to the odour of the site will be taken seriously and channelled through a senior member of staff, typically the Operations Manager. Once the complaint has been documented in the QMS-Complaint's log, which may be an electronic system, the Operations Manager will investigate the complaint and the site activities and respond to the complainant outlining any findings and actions taken to mitigate the source of odours. Any complaints, investigations and mitigating actions undertaken will be documented in the compliance system.

The compliance system will be fully reviewed no less than annually by the Company Directors.

Receipt of more than five odour complaints within a 1-hour period during normal composting operations is treated as an exceptional circumstance and shall be immediately investigated. An investigation shall be initiated into the cause of the complaint, and this will involve as necessary:

- An olfactory survey as outlined below;
- An examination of the site activities at the time of the complaint;
- An examination of the meteorological conditions at the time of the complaint; and
- A review of the effectiveness of operational and odour control procedures.

The findings of the investigation will be documented in the QMS-Complaints Log. If the complaint is validated it will be treated as an exceedance of the control level. The outcome of the investigation will determine the corrective actions to be implemented.

7.4.1 Detection of Moderate Odour During Olfactory Survey

Detection of a “distinct odour” (3+) on the odour scale (Annex A) will initiate a more extensive olfactory survey to determine the extent of the odour plume. The Operations Manager (or another senior member of staff) will be notified immediately, and the olfactory survey will continue to attempt to determine the scope and extent of the odour plume, as follows:

- A suitable location downwind of the Envar WLC site and a potentially sensitive receptor at which the odour plume is unlikely to extend will be selected for assessment;
- The surveyor will progress toward the composting facility until a composting odour is perceived; and
- Assessment points perpendicular to the plume axis and equidistant from the composting site will then be monitored, subject to access requirements.

Once an odour is confirmed, an investigation will be initiated into the source of the odour. This shall involve as necessary:

- A review of the site activities at the Envar WLC site and other nearby potential sources at the time of the olfactory survey;
- Other potential sources of the odour
- A review of the meteorological conditions at the time of the olfactory survey; and
- A review of the effectiveness of process operations and odour control procedures.

7.4.2 Corrective Actions

The procedure for corrective and preventative action (Corrective & Preventative Action), will be used to address any validated odour complaint. In doing so the following shall be considered:

- Alteration to waste reception procedures and odour control measures employed;
- Effectiveness of methods used to mix waste to achieve a compost of suitable structure and moisture for composting and to avoid formation of anaerobic conditions;
- Review of compost process monitoring results;
- Turning frequencies and meteorological conditions, under which turning should be carried out;
- Consider the removal of material from site where it is responsible for unacceptable off-site impacts;
- Activities that are necessary to bring the process back under control shall not be suspended without detailed consideration of risks; and
- Update of OMP if new procedures are created.

7.4.3 Reporting

Exceedance of the off-site odour control level will be investigated (as described above) and recorded in accordance with current procedures. This includes documenting the following information:

- The nature of the incident;
- Date of occurrence(s);
- Results of the investigation;
- Details of responses / action plan(s) implemented; and
- The event must be marked within the site incident log.

The report will be made available to the Environment Agency upon request.

7.4.4 Review of Control Mechanisms

A full review, taking note of all the internal odour report forms and external complaints will be made on an annual basis, or as necessary after an odour incident in order to assess the suitability of the site's operational procedures and OMP. As required, findings from the review will then be incorporated into an updated plan, which will replace this document.

8.0 Incidents and Emergencies

In accordance with the requirements of Environment Agency's Technical Guidance Note H4, types of failure or abnormal events considered to have the potential to result in an odour impact have been considered. These have been identified as abnormal meteorological conditions and failure of aspects of the composting process during any of the process stages previously described. Failure and abnormal event scenarios with response requirements are summarised below.

8.1 Machinery Breakdown

Breakdown of processing or aeration equipment may result in a delay in processing the material received or the turning of windrows. The magnitude of any impacts will depend on the length of time of the breakdown, the type and volume of waste received and the prevailing meteorological conditions, but could potentially result in elevated odour concentrations at receptor locations.

The potential failure would be minimised through routine maintenance of equipment, servicing in accordance with manufacturers guidelines, provision of adequate spares, and a service level agreement to replace plant (or source hire plant) within a working 48-hours.

In the event of machinery breakdown, the service provider will be immediately informed and called in to repair as required. All repairs or replacement machinery will be made within 48-hours as per the service agreement. This does not affect site operations as no stage within the treatment process requires a holding period of less than 48-hours. (working hours)

Spare components are stored on site for the IVC abatement system. An overview of machinery and equipment employed across the site is itemised below with information on the impact of odour potential and contingency plans for replacement.

Table 17 Machinery Breakdown Contingency Actions

Equipment	Location	Odour Impact	Contingency Plan
Shredder (fleet in the Envar company)	IVC and Compost Pad	**Low** Prevention of shredding does not in itself lead to increased odour generation.	Three shredders are currently on site, the likelihood of all three breaking down is quite small. The shredder can be moved around site where required. **Emergency Action** However, if breakdown prevents processing stockpiles within the limits identified in Section 3 then material reception will cease (see Section 8.5).
Loading Shovel x5	IVC and Compost Pad	**Low** Prevention of material movement does not itself lead to increased odour generation.	Five machines to adequately cover site operations should one breakdown. Prevention of material movement at the OWC site are not adversely affected at this timescale. Prevention of material movement at the IVC site are not adversely affected at this timescale, all material held within contained infrastructure. **Emergency Action** However, if breakdown prevents processing stockpiles within limits identified in Section 3 then material reception will cease (see Section 8.5).
Screener	OWC Pad	**Low** Prevention of screening material does not in itself lead to increased odour generation.	Service arrangement for plant repair or replacement within 48hrs. Does not affect holding times for material awaiting screening.
Air Handling System (fans, pumps, ducting).	IVC	**Med** Failure of air handling system can prevent air being extracted from the tunnels and reception shed leading to build up of odours within the contained system.	Spare components stored on site for immediate replacement as required. Flow rate within the system is monitored to ensure that the air system is drawing air through the ducting and biofilters. Engineers are called to repair/replace fault. If fault cannot be fixed within 48hrs from identification, then the emergency action plan is implemented.

8.2 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. The magnitude of any impact will depend on the length of the absence, the number of staff absent at any one time, and the seniority of the staff member, but could potentially result in elevated odour concentrations at receptor locations should process controls not be managed effectively.

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. If widespread illness occurs amongst staff members (such as food poisoning), the delivery of waste to the site will be suspended until sufficient staff are present to operate the site. If prolonged, widespread absence occurs, the operators would contact alternative operators, such as other composting site operators for emergency assistance.

8.3 Flooding

If the site becomes flooded, this will inhibit effective aeration of the materials to be composted and therefore increase the risk of anaerobic conditions. The composting pad is elevated from the surrounding area, so would not flood under any circumstances. Widespread flooding might prevent access to site, although this is very unlikely given the close proximity of the operators to the site.

In a flooding situation, no further waste would be able to access the site and priority would be given to ensuring the on-going effective processing of the wastes already received. Where wastes are saturated and cannot be processed due to flood waters, it will be disposed of from site to an alternative and suitably licensed waste management facility.

8.4 Fire

Fire at a composting site can spontaneously occur if the composting material is allowed to become too dry, equally it could be a result of accident or mechanical failures, arson or even a lightning strike. As with all fires the immediate response would be the responsibility of the Fire Brigade and odour would not be the primary concern. Once the fire has been extinguished however, there is likely to be a quantity of saturated waste material that could become anaerobic and odorous.

A Fire Risk Assessment has been undertaken for the site and a Fire Prevention Plan is maintained. Appropriate firefighting equipment is also provided and staff have received relevant training and partake in a bi-annual fire drill. These control measures significantly reduce the likelihood of such an event.

Any waterlogged material present on site would be remixed with applicable dry feedstock and would be reprocessed. Where waste is saturated and cannot be processed due to flood waters, waste will be disposed of from site to an alternative and suitably licensed waste management facility. Any burnt waste material will be deemed suitable for re-composting and will be composted.

Depending on the severity of the fire, site critical equipment may have been damaged and no further reception or processing of wastes would be undertaken until such losses have been rectified and the recommencement of processing can be agreed with the EA. If equipment will be inoperable for extended periods of time, consideration will be given to the removal of material from site until repairs are affected.

8.5 Site at Full Capacity

When the site is operating close to full capacity resources can occasionally be stretched during busy periods and the potential for odours to occur can increase at these times if materials are not processed as soon as is required within the process controls.

In the event that the site reaches its maximum capacity, the Site Manager will divert any further incoming waste materials from the site to neighbouring facilities that are able to process the same types of waste materials until such a time when the site can resume operations within its normal operating capacity. If their capacity is also reached then extra resource may be brought in to continue operation.

8.6 Odour Accident Management Plan

Procedures are in place as identified in Table 18 below for the management of odour accidents. The identified accident, potential for occurrence and anticipated consequences is discussed. A set of actions to be taken in order of priority is also presented and will be carried out by the site operatives and management in the event of an odour accident occurring.

Table 18 Odour Accident Management Plan

Accident Type	Potential Occurrence	Consequences	Actions
Plant or equipment failure.	Seldom. Stringent preventative maintenance procedures in place to ensure all machinery remains functioning	• If waste materials are not processed or a long period compaction reduces the available oxygen this will lead to odours.	• Inform management • Establish time frame for repairs to be undertaken • Hire or source an alternative piece of equipment. • If no replacements are available divert waste materials to another site. • Inform the EA if necessary • Record and review the incident.
Fire - contaminated water and polluting smoke.	Extremely rarely. Moisture content of delivered materials and temperature profile of process restricts excessive heat generation.	• Potentially polluting liquids flowing onto hard standing and leachate collection area where they will have the potential to generate odours. • Polluting smoke. • Exploding of fuel containers. • Wind dispersal of pollutants.	• Raise alarm on-site. • Ensure personnel evacuated and accounted for from danger area. • Ensure all staff are alerted. • Call fire service and other emergency services as required. • Inform site management. • If necessary, inform EA. • Post member of staff at entrance to site to direct emergency services. • Liaise and follow instructions of emergency team making them aware of any hazards on-site. • Consult site register for COSHH if appropriate. • Prevent fire waters causing pollution on-site. • Excess water should be removed from site to prevent odours. • Address potential odour issue in waterlogged compost on northern pad by spreading the compost thinly on the pad and adding additional course material (screened oversize) to it in order to aid the drainage of water and retention of airspaces. • Record and review incident.

ANNEX A: Form 1 – Odour Assessment Report (Version 4 31/01/2022)

Date:		**Weather Conditions:**	
Temperature:		**Assessor:**	
Wind Strength:		**Start Time:**	
Wind Speed:		**Finish Time:**	

Location		**Observations**			
		Intensity	**Extent**	**Description**	**Source**
On-Site Locations	1 - Leachate Tanks				
	2 - Maturation Pad				
	3 - NYG Lane Exit				
	4 - Eastern Boundary				
	5 – Area 1 Vessels				
	6 – Area 2 Vessels				
Off-Site Locations	7- Tile Kiln Lane				
	8 – Glovers Grove				
	9 – Fine Bush Lane				
	10 – Howletts Lane				
Comments:					
Key:	Where odour is present, classify the intensity as follows: 0: No Odour 1: Very faint odour 2: Faint Odour 3: Distinct Odour 4: Strong Odour 5: Very Strong Odour 6: Extremely Strong Odour Where odour is present, classify the extent of the odour: I – Intermittent P – Persistent				

9. References

1. Appendix 8 of Application for an environmental permit - Guidance notes on part B3 new bespoke installation permit. EPB3 Version 1, January 2010. Environment Agency.

2. Environment Agency Technical Guidance Note H4 – Odour management.

3. Environment Agency. Odour Guidance, Internal Guidance for the Regulation of Odour at Waste Management Facilities VERSION 3.0. (July 2002).

4. The Compost Association. An industry guide for the prevention and control of odours at biowastes processing facilities. Jeremy Jacobs, Nick Sauer and E. Jane Gilbert (2007).

5. Environment Agency. Technical Guidance on composting operations Version 3.0. October 2001.

6. BSi (2011) PAS 100: Specification for Composted Materials. British Standards Institution: London.

7. WRAP (2008) The quality protocol for the production and use of quality compost from source-segregated biodegradable waste. Waste and Resources Action Programme: Oxon.