



# Deep Moor Waste Transfer Station

## Environmental Risk Assessment

**Coastal UK Group Limited**

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## Table of Contents

<b>Basis of Report</b> .....	<b>i</b>
<b>1.0 Introduction</b> .....	<b>1</b>
1.1 Overview and Approach .....	1
<b>2.0 Site Setting and Receptors</b> .....	<b>2</b>
2.1 Site Setting.....	2
2.1.1 Industrial and Commercial.....	2
2.1.2 Local Transport Network .....	2
2.1.3 Surface Water Features .....	3
2.1.4 Agricultural and Open Land.....	3
2.1.5 Residential .....	3
2.2 Geology, Hydrogeology and Hydrology .....	3
2.2.1 Geology.....	3
2.2.2 Hydrogeology .....	3
2.2.3 Groundwater Vulnerability .....	3
2.2.4 Hydrology .....	3
2.3 Ecology .....	3
2.3.1 European/ Internationally Designated Sites.....	3
2.3.2 Nationally/Locally Designated Sites.....	4
2.3.3 Cultural Heritage .....	4
2.4 Identified Receptors .....	4
2.5 Windrose.....	5
<b>3.0 Environmental Risk Assessment</b> .....	<b>6</b>
<b>4.0 Conclusion</b> .....	<b>15</b>

## Tables in Text

Table 1 Immediate Land Uses Surrounding the Site .....	2
Table 2 Identified Receptors .....	4
Table 2 Odour Risk Assessment and Management Plan .....	7
Table 3 Noise Risk Assessment and Management Plan .....	8
Table 4 Fugitive Emissions Risk Assessment and Management Plan.....	9
Table 5 Accidents Risk Assessment and Management Plan .....	12

## Figures in Text

Figure 1 Windrose from Exeter Met Station (2015-2019) .....	5
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## Appendices

Appendix A      Bioaerosols Monitoring Report



## 1.0 Introduction

SLR Consulting Limited (SLR) has been instructed by Coastal UK Group Limited (Coastal) to prepare an application to vary the existing waste management licence (EAWML 100304) for Deep Moor Waste Transfer Station, located in Higher Bullen, St. Giles in the Wood, Torrington, Devon EX38 7JA (hereafter referred to as 'the Site').

This Environmental Risk Assessment (ERA) has been undertaken in accordance with the Environment Agency's (EA) guidance 'Risk assessments for your environmental permit' (November 2023).

It is a simple assessment of the risks to the environment and human health from accidents, noise and fugitive emissions that may be associated with the proposed changes to operations at the site. The aim of the assessment is to identify any significant risks and demonstrate that the risk of pollution or harm will be acceptable by implementing appropriate measures to manage these risks.

The risk assessment for your EP guidance requires that all receptors that are near to the site and could reasonably be affected by the activities are identified and considered as part of the ERA. Therefore, for the purpose of this report:

- A 2km radius has been adopted in reviewing potentially sensitive receptors of cultural and ecological importance; and
- A radius of 500m from the proposed permit boundary has been adopted for all other potentially sensitive receptors (for example, residential, commercial, industrial, agricultural and surface water receptors).

The aim of the assessment is to identify any significant risks resulting from the proposed changes to the permitted activities and demonstrate that the risk of pollution or harm will be acceptable by taking the appropriate measures to manage these risks. Full details of the proposed changes to the permitted activities can be found in the Non-Technical Summary, but in summary this variation application seeks to make the following changes to the existing permit:

- The installation and operation of two Advetec XO22 units
- The extension of the Site's permit boundary

### 1.1 Overview and Approach

The assessment is based on the risk assessment for a bespoke EP.

This section outlines the procedure that has been followed in the undertaking of the ERA for the site:

<b>Step One</b>	Identify risks and their sources for the site
<b>Step Two</b>	Identify receptors at risk from the site
<b>Step Three</b>	Identify pathways between sources and receptors
<b>Step Four</b>	Assess risks relevant to the site activities and determine if they can be screened out
<b>Step Five</b>	State measures proposed to control unacceptably high risks
<b>Step Six</b>	Present your assessment

Step One is a screening step to identify the potential risks to the environment from the proposed development. The EA Guidance identifies areas that the EA considers would likely require assessment for most sites as follows:

- Odour;



- Noise & Vibrations;
- Visible Emissions;
- Discharges such as to surface or groundwater;
- Release of bioaerosols;
- Fugitive Emissions (including dust, mud, litter and pests); and
- Accidents.

## 2.0 Site Setting and Receptors

Step Two identifies people or parts of the environment that could be affected (at potentially significant risk) by the activity. This section identifies the Site setting and potentially sensitive receptors in the vicinity of the Site.

### 2.1 Site Setting

Deep Moor Waste Transfer Station is located in Higher Bullen, St. Giles in the Wood, Torrington, Devon EX38 7JA (hereafter referred to as 'the Site') centred on National Grid Reference (NGR) SS 5276520904. It is situated approximately 3.5km northeast of Great Torrington town centre.

The site is located within a remote area and within Coastal's wider site ownership boundary including a landfill site, household waste recycling centre and composting facility. The Site lies upon restored landfill. Immediately to the north, west, south and east of the site boundary also lies restored landfill. To the east of the wider boundary lies the local road transport network that connects the Site to surrounding areas. The landscape surrounding the Site is primarily comprised of open/agricultural land. There are no residential properties within 500m of the Site; the nearest being 530m to the southwest.

The Site covers approximately 27 acres and can be accessed via a track off an unnamed road that runs perpendicular to Belle Vue Cross Rd (B3232). It lies within two local authorities- Devon County Council and Torridge District Council.

A summary of the immediate land uses in the vicinity of the Site are as follows:

**Table 1 Immediate Land Uses Surrounding the Site**

Direction	Land-Use
North	Open/Agricultural land
East	Industrial and Commercial Uses, local transport network beyond which lies open/agricultural land
South	Open/Agricultural land
West	Open/Agricultural land and local transport network

#### 2.1.1 Industrial and Commercial

The Site is located within Coastal's wider site ownership boundary which includes a landfill site, household waste recycling centre and composting facility. The closest industrial and commercial business is Coastal Recycling located 100m to the southeast of this Site.

#### 2.1.2 Local Transport Network

Belle Vue Cross Road (B3232) runs along the north of the Site approximately 665m at the closest point and B3227 runs along the south of the Site, approximately 565m at the closest point. There is an unnamed road that connects the two major roads.



### 2.1.3 Surface Water Features

The closest surface water feature is a stream located approximately 100m southeast of the Site. There is a pond located 560m southwest from the Site at the closest point.

### 2.1.4 Agricultural and Open Land

The Site lies upon restored landfill and is also surrounded by restored landfill immediately to the north, west, south and east of the Site boundary. Other agricultural and open areas lie adjacent to the north, west, east and south of Coastal's wider site ownership boundary, approximately 60m west of the Site at the closest point.

### 2.1.5 Residential

There are several residential properties to the west, northwest, north, northeast, east, south, southeast and southwest of the Site, the closest of which are approximately 530m to the southwest.

## 2.2 Geology, Hydrogeology and Hydrology

### 2.2.1 Geology

A review of the British Geological Survey (BGS)<sup>1</sup> mapping reveals that the part of the Site that the bays lie upon is underlain by a sedimentary bedrock of mudstone and siltstone from the Bude Formation, while just above this area, the Site is underlain by sandstone from the same formation. The Site lies upon restored landfill.

### 2.2.2 Hydrogeology

The bedrock underlying the site is identified as a Secondary A aquifer on the Multi-Agency Geographical Information for the Countryside (MAGIC) map<sup>2</sup>. These are defined as 'strategically important rock units that have high permeability and water storage capacity'.

Superficial drift is recorded as unproductive.

### 2.2.3 Groundwater Vulnerability

MAGIC map shows that the Site lies in an area of medium groundwater vulnerability.

#### 2.2.3.1 Source Protection Zones

The site is not located within a source protection zone.

### 2.2.4 Hydrology

The Flood Map for Planning<sup>3</sup> identifies the site as lying within a Flood Zone 1, defined as locations that have a low probability of flooding from rivers and the sea.

The nearest surface water receptor to the site is a pond located 645m southwest of the Site.

## 2.3 Ecology

### 2.3.1 European/ Internationally Designated Sites

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<sup>1</sup> British Geological Survey (BGS), available at [www.bgs.ac.uk](http://www.bgs.ac.uk), accessed in May 2024

<sup>2</sup> Multi-Agency Geographical Information for the Countryside Map, available at [www.magic.gov.uk](http://www.magic.gov.uk), accessed in May 2024

<sup>3</sup> Flood Map for Planning, available at <https://flood-map-for-planning.service.gov.uk/>, accessed July 2024



Review of MAGIC Map shows there are no Ramsar sites, Special Area of Conservation, Special Protection Areas, Sites of Special Scientific Interest (SSSI), or Marine Conservation zones located within 2km of the Site.

### 2.3.2 Nationally/Locally Designated Sites

Review of MAGIC shows there are no National Parks, Local Nature Reserves, National Nature Reserves, Areas of Outstanding Natural Beauty, and RSPB Reserves located within 2km of the Site.

#### 2.3.2.1 Biosphere Reserves

The Site is located within the North Devon biosphere reserve.

#### 2.3.2.2 Ancient Woodlands

There are ancient replanted woodlands approximately 990m and 1455m southeast of the Site.

### 2.3.3 Cultural Heritage

Review of MAGIC Map shows there are no Registered Parks and Gardens, World Heritage Sites or Registered Battlefields within 2km of the Site.

#### 2.3.3.1 Listed Building

There are several listed buildings located within 2km of the Site mainly concentrated to the south. The nearest listed building is a grade II listed building located approximately 670m southeast of the Site in High Bullen town centre.

#### 2.3.3.2 Scheduled Monument

There are several scheduled monuments located within 2km of the Site, mainly northwest of the Site, the closest of which is 670m from the Site boundary.

## 2.4 Identified Receptors

Table 2 and Drawing 003 identified receptors which are considered to be potentially sensitive and could reasonably be affected by activities at the Site.

**Table 2 Identified Receptors**

Receptor Name	Receptor Type	Direction from Site	Approximate Distance from Site Boundary at closest point (in metres)
<b>Human Receptors within 500m of the EP boundary as shown on Drawing 003</b>			
Torrington Recycling Centre	Industrial/Commercial	East	55
Coastal Recycling	Industrial/Commercial	Southeast	100
Unnamed Road	Local Transport Network	East	130
<b>Cultural and Ecological Receptors and European Designated Ecological Sites within 2km of the EP boundary as shown on Drawing 003</b>			
North Devon Biosphere	Biosphere Reserve	All directions	Adjacent
Grade II listed building	Listed Building	Southeast	670

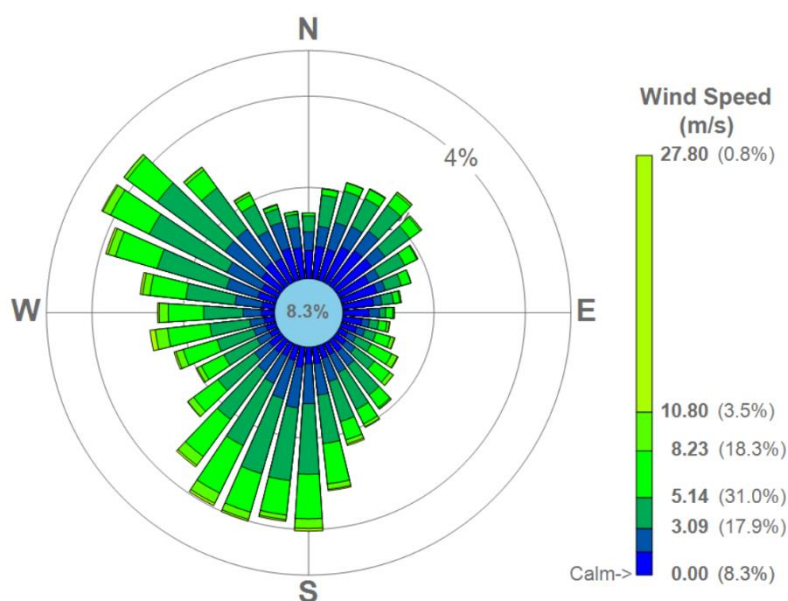




Receptor Name	Receptor Type	Direction from Site	Approximate Distance from Site Boundary at closest point (in metres)
Scheduled Monuments	Scheduled Monuments	Northwest	715
Unnamed Woodland	Ancient Replanted Woodland	Southeast	995
Unnamed Woodland	Ancient Replanted Woodland	Southeast	1475

## 2.5 Windrose

Figure 1 shows the wind patterns between 2015 and 2019 as identified by Exeter Airport No 2 Met station, located approximately 55km southeast of EX38 7JA. The most prominent wind directions are from the south and northwest. Winds from the north, northeast, southeast and east are relatively infrequent by comparison.



**Figure 1 Windrose from Exeter Met Station (2015-2019)**



### 3.0 Environmental Risk Assessment

Step Three identifies the potential pathways between source and receptor and where appropriate, the assessment demonstrates how the risk of pollution or harm can be mitigated by measures to manage these risks and/or block the pathways (Steps Four and Five). The following tables in accordance with EA guidance present the assessment in terms of hazards posed, receptors and pathways, along with management and residual risks for the following hazards:

- Odour;
- Noise & Vibrations;
- Visible Emissions;
- Bioaerosols;
- Discharge to surface or groundwater;
- Fugitive Emissions (including dust, mud, litter and pests); and
- Accidents.



**Table 3 Odour Risk Assessment and Management Plan**

AT DO YOU DO THAT CAN HARM AND WHAT COULD BE HARMED			MANAGING THE RISK	ASSESSING THE RISK		
Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequences	What is the overall risk
What has the potential to cause harm?	What is at risk/What do I wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk? Who is responsible for what?	How likely is the contact?	What is the harm that can be caused?	What is the risk that still remains? The balance of probability and consequence
<p>Odour from the loading of waste into the two Advetec Units.</p> <p>Odour from the treatment of waste.</p> <p>Odour from the storage of waste.</p>	<p>Sensitive receptors listed in Table 2 including residential, commercial, agricultural and ecological receptors.</p>	<p>Air</p>	<p>The Site is located over 500m from the nearest receptor, the nearest being 530m to the southwest. Due to the significant distance from residential areas and areas of cultural and natural heritage, the risk of odour to sensitive receptors is considered low.</p> <p>The Advetec units will enable Coastal to process residual municipal waste and other non-hazardous wastes (including mixtures of materials) from mechanical treatment of wastes within 48 hours of receipt. This represents an improvement on the current situation, conferring a net benefit with respect to odour risk.</p> <p>Residual municipal waste from industrial and commercial sources is received at the waste transfer station and stored in a bay within the building adjacent to where the Advetec units are located.</p> <p>The holding bays where the waste is to be stored are located in close proximity to the hopper therefore minimising handling of waste. Only competent staff will handle waste using appropriate equipment.</p> <p>Waste will be loaded into the hopper which will be located external to the building. Vehicles will be used to transfer waste from the main building and into the hopper to be processed by the digesters.</p> <p>Floc generated by the machines will pass through an overband magnet and eddy current separator to remove ferrous and non-ferrous metals. The floc will be dry stored until collection / haulage off site. Floc exported from the Site will be stabilised and is therefore less of an odour risk compared to export of untreated residual municipal waste.</p> <p>The existing Site has no history of odour complaints.</p> <p>Drop heights of the waste into the hoppers will be minimised to prevent minimise handling of waste and therefore increased potential for odour.</p> <p>Due to the small scale of the aerobic digesters (less than 26 tonnes per day), the risk of odour is low.</p> <p>The digestion process is undertaken aerobically which limits odour generation compared to an anaerobic digestion process. The automatically controlled process ensures that anaerobic conditions will not develop within the vessel.</p> <p>Storage areas and the perimeter of the site is monitored daily for any unacceptable levels of odour. Any odour identified on site is recorded in the site diary, investigated by the site manager and remediated as soon as possible.</p>	<p>Low</p>	<p>Odour Nuisance and loss of amenity.</p>	<p>Low</p>



			Processing of residual municipal waste using the Advetec units will reduce the time it is stored on site, thereby resulting in a reduced risk of odour impact.			
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**Table 4 Noise Risk Assessment and Management Plan**

What do you do that can harm and what could be harmed			Managing the Risk	Assessing the Risk		
Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequences	What is the overall risk
What has the potential to cause harm?	What is at risk/What do I wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk? Who is responsible for what?	How likely is the contact?	What is the harm that can be caused?	What is the risk that still remains? The balance of probability and consequence
Noise associated with treatment in the two Advetec units.	Sensitive receptors listed in Table 2 including commercial, agricultural and ecological receptors.	Air	<p>Residual municipal waste from industrial and commercial sources and other non-hazardous wastes (including mixtures of materials) from the mechanical treatment of wastes is received at the waste transfer station and stored in a bay within the building adjacent to where the Advetec units are located. The waste transfer station is sited within a bunded area which attenuates noise.</p> <p>Noise pollution will be reduced compared to operation without the two digesters, as transport movements required to transfer the waste generated on site will be less frequent.</p> <p>The Advetec units will operate 24 hours a day. It is considered unlikely that significant noise or vibrations will be generated by the aerobic digesters due to their small scale (less than 26 tonnes per day) and the enclosed nature of the process.</p> <p>Drop heights of the waste into the hoppers will be minimised to minimise handling of waste and therefore reduce potential for noise.</p> <p>Moreover, the Site is located over 500m from the nearest sensitive receptor to noise. The existing Site has no history of noise complaints.</p> <p>To ensure that noise and vibrations are limited, the following management techniques will be implemented:</p> <ul style="list-style-type: none"> <li>• All plant and machinery will be operated and maintained in accordance with manufacturer's specifications;</li> <li>• Machinery will be operated so as to minimise noise;</li> <li>• Vehicles adhere to a speed limit on site; and</li> <li>• Site surfaces will be kept in good repair to minimise noise associated with uneven roads</li> </ul> <p>Daily auditory monitoring will be carried out by site personnel to identify any unacceptable levels of noise. A record of any adverse inspection findings will be made in the site diary. Remedial action will be taken in the event that noise from the site is detected at nearby sensitive receptor locations.</p> <p>The Site Manager will be responsible for managing emissions of noise on site.</p>	Low	Noise disturbance and loss of amenity.	Low



**Table 5 Fugitive Emissions Risk Assessment and Management Plan**

What do you do that can harm and what could be harmed			Managing the Risk	Assessing the Risk		
Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequences	What is the overall risk
What has the potential to cause harm?	What is at risk/What do I wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk? Who is responsible for what?	How likely is the contact?	What is the harm that can be caused?	What is the risk that still remains? The balance of probability and consequence
To Air:						
Dust from vehicle movements transferring residual waste (floc) off the site.	Sensitive receptors listed in Table 2 including commercial, agricultural and ecological receptors.	Air	<p>Residual municipal waste from industrial and commercial sources, and other non-hazardous wastes (including mixtures of materials) from the mechanical treatment of wastes is received at the waste transfer station and stored in a bay within the building adjacent to where the Advetec units are located.</p> <p>Use of the digester will result in a reduction in vehicle movements thereby reducing the potential for dust generation from this source.</p> <p>Vehicles transporting floc off-site will be loaded in the semi enclosed bay within the main building.</p> <p>The following measures will be used to minimise mobilisation of dust from vehicle movements:</p> <ul style="list-style-type: none"> <li>Road surfaces on Site will be maintained and regularly graded to maintain a smooth surface, which will manage and control dust;</li> <li>Dampening down of active/operational areas using a water bowser and spray, as and when required;</li> <li>Speed limits will be enforced to minimise the mobilisation of dust, and traffic calming measures installed to ensure speed limits are kept to; and</li> <li>Roads will be inspected throughout the working day to ensure they are being kept to a high standard.</li> </ul> <p>Daily visual inspections will be conducted in response to any complaints. If dust is deemed a nuisance from any of these inspections, mitigation measures will be enforced to reduce any dust emissions.</p> <p>The result of any inspections or investigations as a result of complaints will be recorded in the site diary.</p> <p>The Site Manager will be responsible for implementing risk management measures in accordance with operational and management procedures.</p>	Negligible	Nuisance and harm to human health	Low
Dust from processing, storage and transfer of waste	Sensitive receptors listed in Table 2 including commercial, agricultural and ecological receptors.	Air	<p>Residual municipal waste from industrial and commercial sources, and other non-hazardous wastes (including mixtures of materials) from the mechanical treatment of wastes is received at the waste transfer station and stored in a bay within the building adjacent to where the Advetec units are located.</p> <p>Waste will be loaded into a single hopper and shredder which will be located external to the bay the Advetec units are in. Following shredding, waste will be transferred to the digester via a fully enclosed auger. The two digesters will be located internally. After completion the post-process floc will be</p>	Negligible	Nuisance and harm to human health.	Low



			<p>collected internally to be stored within a holding bay within the main building and dry stored until collection/ haulage off site.</p> <p>The Site is located over 500m from the nearest residential receptor, the nearest being 530m to the southwest.. Due to the significant distance from residential areas and areas of cultural and natural heritage, the risk to sensitive receptors is considered low.</p> <p>Daily visual inspections will be conducted in response to any complaints. If dust is deemed a nuisance from any of these inspections, mitigation measures will be enforced to reduce any dust emissions.</p> <p>The result of any inspections or investigations as a result of complaints will be recorded in the site diary.</p> <p>The Site Manager will be responsible for implementing risk management measures in accordance with operational and management procedures.</p>			
Bioaerosols released during aerobic digestion.	Sensitive receptors listed in Table 2 including commercial, agricultural and ecological receptors.	Air	<p>Ambient monitoring of bioaerosols at the site of Advetec's at Cribbs Causeway Shopping Centre installation found bio-aerosols to be below levels of detection or very low in all samples. The monitoring report is included within Appendix A.</p> <p>The Site is located over 500m from the nearest sensitive receptor to bioaerosols. Due to the significant distance from residential areas and areas of cultural and natural heritage, the risk to sensitive receptors is considered low.</p> <p>Daily visual inspections shall be undertaken at all areas of the site to check for conditions potentially affecting bioaerosol release. Records of the findings will be recorded in the sit diary.</p> <p>Operational areas and site surfaces shall be maintained in a clean condition; and processes shall take place in designated and controlled areas of the site.</p>	Negligible	Nuisance and harm to human health	Low
To Water:						
Contaminated run off from the Advetec units.	Sensitive receptors listed in Table 2 including commercial, agricultural and ecological receptors. Groundwater.	Land	<p>Residual municipal waste from industrial and commercial sources is received at the waste transfer station, and other non-hazardous wastes (including mixtures of materials) from the mechanical treatment of wastes and stored in a bay within the building adjacent to where the Advetec units are located.</p> <p>Waste will be loaded into a single hopper and shredder which will be located external to the bay the Advetec units will be in. Following shredding, waste will be transferred to the digester via a fully enclosed auger. The two digesters will be located internally. After completion the post-process floc will be collected internally to be stored within a holding bay within the main building and dry stored until collection/ haulage off site.</p> <p>All wastes to be treated will be solid. No liquid wastes will be accepted.</p> <p>The treatment process is exothermic. The heating of the waste during the treatment process causes it to dry out with the moisture extracted and treated via the carbon filter.</p> <p>Waste received will be low risk non-hazardous in nature.</p> <p>The aerobic digestion process does not use water.</p>	Low	Contamination	Low



			The Site Manager will be responsible for implementing risk management measures in accordance with operational and management procedures.			
Pests						
Birds, pests and insects attracted to waste stored and the residual floc produced from the Advetec units.	Sensitive receptors listed in Table 2 including commercial, agricultural and ecological receptors.	Land, Water and Air	<p>Residual municipal waste from industrial and commercial sources, and other non-hazardous wastes (including mixtures of materials) from the mechanical treatment of wastes is received at the waste transfer station and stored in a bay within the building adjacent to where the Advetec units are located.</p> <p>Addition of the Advetec units will reduce storage time for residual municipal waste on site thereby reducing the risk of attracting birds, pests or insects.</p> <p>Waste will be loaded into a single hopper and shredder which will be located external to the bay the Advetec units are in. Following shredding, waste will be transferred to the digester via a fully enclosed auger. The two digesters will be located internally. After completion the post-process floc will be collected internally to be stored within a holding bay within the main building and dry stored until collection/ haulage off site.</p> <p>Output floc will be devoid of organic material which might attract pests.</p> <p>Site personnel will conduct daily inspections of waste storage areas for signs of scavenging animals.</p> <p>If scavenging animals are spotted a licenced contractor is contacted to remove them and the offending waste type will be investigated and removed if necessary.</p> <p>The Site is located over 500m from the nearest residential receptor, the nearest being 530m to the southwest. Due to the significant distance from residential areas and areas of cultural and natural heritage, the risk to sensitive receptors is considered low.</p> <p>The Site Manager is responsible for management of scavenging animals.</p>	Low	Nuisance, potential risk to health	Very Low
Mud/Litter						
Litter from waste	Sensitive receptors listed in Table 2 including residential, commercial, agricultural recreational and ecological receptors.	Air	<p>Residual municipal waste from industrial and commercial sources, and other non-hazardous wastes (including mixtures of materials) from the mechanical treatment of wastes is received at the waste transfer station and stored in a bay within the building adjacent to where the Advetec units are located.</p> <p>Waste will be loaded into a single hopper and shredder which will be located external to the bay the Advetec units are in. Following shredding, waste will be transferred to the digester via a fully enclosed auger. The two digesters will be located internally. After completion the post-process floc will be collected internally to be stored within a holding bay within the main building and dry stored until collection/ haulage off site.</p> <p>The site will be inspected daily for signs of litter. The site benefits from good housekeeping. In the event that any litter is identified on site, it is cleared from the affected area.</p> <p>The Site Manager is responsible for managing emissions of litter on and off site.</p>	Low	Nuisance from litter. Dangerous conditions on roads.	Low



			The Site is located over 500m from the nearest residential receptor, the nearest being 530m to the southwest. Due to the significant distance from residential areas and areas of cultural and natural heritage, the risk to sensitive receptors is considered low.			
Mud from vehicle movements	Local Road Network	Transferral of mud on vehicles wheels	<p>Road surfaces and haul roads on Site will be maintained and will benefit from good housekeeping, to minimise the transfer of mud on Site.</p> <p>A road brush will be used when necessary to sweep the main access road. All site vehicles will be checked to ensure that they are clear of loose waste prior to leaving the site.</p> <p>In the event that mud, debris or waste arising from the Site is deposited outside the Site, the affected area will be cleaned immediately.</p> <p>Due to the reduction in the mass and volume of residual waste achieved by the aerobic digesters, transport of the waste off site will be infrequent and reduced compared to current arrangements. Therefore, the risk of mud being transferred off site is reduced.</p> <p>Good housekeeping will continue to be put in place by the site manager, which involves daily cleaning and inspections.</p> <p>The site is inspected daily for signs of litter, mud or waste. Any identified instances of mud, litter or waste are cleared immediately.</p> <p>The Site Manager is responsible for managing emissions of litter and mud on site.</p>	Low	Nuisance from mud. Dangerous conditions on roads.	Low

**Table 6 Accidents Risk Assessment and Management Plan**

What do you do that can harm and what could be harmed			Managing the Risk	Assessing the Risk		
Hazard	Receptor	Pathway	Risk Management	Probability of Exposure	Consequences	What is the overall risk
What has the potential to cause harm?	What is at risk/What do I wish to protect?	How can the hazard get to the receptor?	What measures will you take to reduce the risk? Who is responsible for what?	How likely is the contact?	What is the harm that can be caused?	What is the risk that still remains? The balance of probability and consequence
Unauthorised waste.	Sensitive receptors listed in Table 2 including, commercial, ecological and agricultural receptors.	<p>Air.</p> <p>Overland.</p> <p>Percolation through the ground.</p>	<p>Upon delivery waste is subject to strict waste acceptance procedures to identify, reject and/or segregate potentially non-conforming waste.</p> <p>Only waste authorised by the permit is accepted at the site.</p> <p>Residual municipal waste from industrial and commercial sources, and other non-hazardous wastes (including mixtures of materials) from the mechanical treatment of wastes is received at the waste transfer station and stored in a bay within the building adjacent to where the Advetec units are located.</p>	Low.	<p>Odour nuisance.</p> <p>Water contamination.</p>	Not significant.





			<p>Following deposit, the waste will be visually inspected to remove any visible non-conforming materials. Waste will then be loaded into the hopper which will be located external to the building. The outputs from the aerobic digesters will then be passed by an overband magnet and eddy current separator to remove ferrous and non-ferrous metals.</p> <p>Waste which is identified to be incompatible with the Site's waste acceptance criteria will also be recorded and separated. This waste is quarantined, recorded and removed from Site at the earliest opportunity, to a suitably licenced facility. Records of non-compliant waste received at the Site will be kept in the Site diary, and include details on:</p> <ul style="list-style-type: none"> <li>• the quantity;</li> <li>• characteristics;</li> <li>• List of Waste (LoW) code; and</li> <li>• delivery date and time.</li> </ul> <p>Wastes are not accepted unless the Site is adequately resourced to receive the waste.</p> <p>There are no proposed changes to the site's waste acceptance procedures as a result of this permit variation application.</p> <p>The Site Manager is responsible for ensuring risk management measures, monitoring, inspections and reporting are undertaken in accordance with the Permit and the site's EMS and Operational Procedures.</p>			
Failure of equipment/ operator error.	Sensitive receptors listed in Table 2 including, commercial, ecological and agricultural receptors.	Land and water.	<p>All machinery and equipment will be maintained and operated in accordance with the manufacturer's specifications and inspected on a regular basis for loss of integrity.</p> <p>In the event of a failure of the Advetec equipment, residual municipal waste will be handled in accordance with the site's current arrangements.</p> <p>Any incidents are recorded in the site diary and action is taken as soon as is practicably possible to remedy any problems.</p> <p>The Site Manager is responsible for ensuring risk management measures, monitoring, inspections and reporting are undertaken in accordance with the Permit and the site's EMS and operational procedures.</p>	Low.	Contamination of land, surface water and ground water.	Not significant.
Leakage of fuel and oils	Local surface water features including rivers, streams and drains. Groundwater.	Land	<p>There is no use or storage of oils and liquid fuels associated with the Advetec aerobic digesters. Management to prevent and mitigate risk associated with leakage of fuel and oils will be carried out in accordance with Coastal's existing Environmental Management Procedures.</p>	Medium	Contamination of surroundings	Low
Fire	Sensitive receptors listed in Table 2 including, commercial, ecological and agricultural receptors.	Air and Land	<p>Floc will be collected into an internal holding bay within the waste transfer station building and dry stored until collection/ haulage off site.</p> <p>Permitted activities do not include the burning of waste.</p> <p>An internal temperature monitor continually assesses the temperature of the aerobic digesters. The temperature measurements can be accessed via cloud-based portal. The system is programmed with alerts and alarms to notify the user of any temperature related risks.</p> <p>In the event of events such as arson and vandalism the incident is recorded in the site log and reported to the relevant authority. Site security measures are</p>	Low	Harm to human health, harm to operations, pollution of surroundings.	Low



			<p>reviewed and improved where necessary. Deep Moor Waste Transfer Station benefits from restricted access and CCTV.</p> <p>For further information on prevention and management of fire's associated with operation of the digesters, please refer to the Site's Fire Prevention Plan.</p>			
<p>Flooding</p>	<p>Sensitive receptors listed in Table 2 including residential, commercial, agricultural recreational and ecological receptors.</p> <p>Site personnel.</p>	<p>Land</p>	<p>The site lies in a Flood Zone 1, which is classified as "Land having a less than 1 in 1,000 annual probability of river or sea flooding".</p> <p>The Site Manager is responsible for the management of the site in the event of flooding.</p>	<p>Low</p>	<p>Harm to human health, contamination of groundwater and surface water.</p>	<p>Low</p>
<p>Security and Vandalism</p>	<p>Sensitive receptors listed in Table 2 including residential, commercial, agricultural recreational and ecological receptors.</p>	<p>Air, Land and Water</p>	<p>In order to prevent unauthorised access, the Site has 24 hour monitored CCTV provision. The site also benefits from fencing and locked gates. Only authorised personnel will have access to the site.</p> <p>The site is inspected at the commencement of each working day. Any defects or damage which compromise the integrity of the fencing and gates are made secure by temporary repair by the end of the working day. Permanent repairs are affected as soon as practicable.</p> <p>In the event that damage is sustained, repairs are made by the end of the working day. If this is not possible, suitable measures will be taken to prevent any unauthorised access to the site and permanent repairs are affected as soon as practicable.</p> <p>The Site Manager will be responsible for managing security on site. This includes inspecting the site at the commencement of each day.</p> <p>All inspections, any defects, damage or repairs is recorded in the site diary.</p>	<p>Low</p>	<p>Nuisance, Contamination and harm to human health.</p>	<p>Low</p>



## 4.0 Conclusion

To conclude, this ERA has been undertaken in accordance with EA guidance. The assessment is provided as part of the permit variation application for Deep Moor Waste Transfer Station (EAWML 100304).

The qualitative risk assessment has considered that the proposed variations to the environmental permit for the site will not pose a significant risk of harm to sensitive receptors in the vicinity of the site predominantly due to both the small scale of the aerobic digestion activity and the location of the Advetec units within a semi enclosed building.

The assessment concludes that with the implementation of the risk management measures described above, potential hazards from the proposed variations are not likely to be significant and no further assessment is required.





# Appendix A    Bioaerosols Monitoring Report

**Deep Moor Waste Transfer Station**

**Environmental Risk Assessment**

**Coastal UK Group Limited**

SLR Project No.: 416.065462.00001

21 August 2024

# AMBIENT BIOAEROSOLS MONITORING

**Cribbs Causeway**

Prepared for: Advetec Holdings Ltd

SLR Ref: 416.11977.00001  
Version No: 1  
October 2021



## BASIS OF REPORT

This document has been prepared by SLR Consulting Limited with reasonable skill, care and diligence, and taking account of the manpower, timescales and resources devoted to it by agreement with Advetec Holdings Ltd (the Client) as part or all of the services it has been appointed by the Client to carry out. It is subject to the terms and conditions of that appointment.

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## CONTENTS

<b>1.0 INTRODUCTION</b> .....	<b>1</b>
1.1 Site Background .....	1
1.2 Scope and Objectives .....	1
<b>2.0 HYGIENE STANDARDS</b> .....	<b>2</b>
2.1 Control of Substances Hazardous to Health (COSHH) regulations .....	2
2.2 Environment Agency – Technical Guidance Note (Monitoring) M9 .....	2
<b>3.0 METHODOLOGY &amp; APPROACH</b> .....	<b>3</b>
3.1 Aerosol Sampling Approach .....	3
3.1.1 Static Monitoring .....	3
3.2 Monitoring Locations .....	3
3.3 Site Operations .....	5
<b>4.0 RESULTS</b> .....	<b>6</b>
<b>5.0 BIOAEROSOLS RISK ASSESSMENT</b> .....	<b>7</b>
5.1 Onsite Risk Assessment .....	7
5.2 Offsite Risk Assessment .....	7
5.3 Mitigation .....	7
<b>6.0 CONCLUSIONS</b> .....	<b>8</b>

## DOCUMENT REFERENCES

### TABLES

Table 2-1 Applicable Hygiene Standards .....	2
Table 3-1 Monitoring Locations .....	3
Table 3-2 Aerobic Digestion Facility Monitoring Details .....	5
Table 4-1 Ambient Bioaerosol Results .....	6

### APPENDICES

- Appendix A: Laboratory Analysis Reports
- Appendix B: Photo Locations

## 1.0 INTRODUCTION

SLR Consulting Ltd (SLR) has been commissioned by Advetec holdings Ltd (Advetec) to undertake Ambient bioaerosol monitoring within and on the Permit Boundary of a newly installed Aerobic Digester (AD) at Cribbs Causeway, (the 'Site'). This report presents the results obtained from the monitoring campaign undertaken on the 7<sup>th</sup> October 2021.

### 1.1 Site Background

The Site is located in an industrial location approximately 8km north of Bristol. The area surrounding the Site is predominantly industrial land and associated Cribbs Causeway shopping centre (a commercial shopping centre).

The AD unit receives solid food and general waste biproducts from the Site. During treatment, the volume, mass, and moisture content of the waste is reduced, enabling easier handling of the product during export from the Site.

### 1.2 Scope and Objectives

The objective of the study was to first quantify the bioaerosol emissions from the digestion process, followed by investigation of the likely on and offsite impact of the operations. The offsite impact assessment will be described on a separate report following an air dispersion modelling study.

In summary, the scope of this report consists of the following:

- Description of sampling and monitoring methodology for bioaerosols;
- presentation of results;
- comparison of results against COSHH WELs; and
- observations and conclusions.



## 2.0 HYGIENE STANDARDS

### 2.1 Control of Substances Hazardous to Health (COSHH) regulations

Currently there is no Health and Safety Executive limit on occupational bioaerosol exposure, however, it is important for employers to monitor bioaerosol levels at facilities to ensure compliance with the Control of Substances Hazardous to Health (COSHH) regulations<sup>1</sup>.

After research was carried out by operators in the United Kingdom, an *Upper Assessment Threshold* value of 500,000 cfu/m<sup>3</sup> was set for Total Microorganisms (Total Bacteria + Total Fungi). As well as the Upper Assessment Threshold, two further levels were established: the *Internal Trigger Level*, set at 50,000 cfu/m<sup>3</sup> and the *Internal Control Level*, set at 10,000 cfu/m<sup>3</sup>. These thresholds are summarised in Table 2-1 below.

**Table 2-1**  
**Applicable Hygiene Standards**

Assessment Threshold Levels	
Internal Control Level	10,000 cfu/m <sup>3</sup>
Internal Trigger Level	50,000 cfu/m <sup>3</sup>
Upper Assessment Threshold	500,000 cfu/m <sup>3</sup>

Advanced investigation will be required when the *Internal Control Level* is exceeded and actions to reduce biological agents entering the body should be taken upon exceedances of the *Internal Trigger Level*.

### 2.2 Environment Agency – Technical Guidance Note (Monitoring) M9

The Environment Agency Technical Guidance Note (Monitoring) M9<sup>2</sup> provides a standardised approach for bioaerosols monitoring for both ambient and point source emissions. M9 sets a limit of 1,000 CFU/m<sup>3</sup> for Total mesophilic bacteria, and a limit of 500 CFU/m<sup>3</sup> for *Aspergillus fumigatus*.

<sup>1</sup> Control of Substances Hazardous to Health Regulations (COSHH) 1994.

<sup>2</sup> Technical Guidance Note (Monitoring) M9, Environmental monitoring of bioaerosols at regulated facilities, July 2018.

## 3.0 METHODOLOGY & APPROACH

### 3.1 Bioaerosol Sampling Approach

Monitoring for bioaerosol was undertaken using fixed place, static monitoring to determine general ambient levels. Monitoring was undertaken during the day of the 7<sup>th</sup> October 2021.

#### 3.1.1 Static Monitoring

Bioaerosols monitoring was undertaken in general accordance with Methods of Determination of Hazardous Substances (MDHS) 14/4<sup>3</sup> 'General methods for sampling and gravimetric analysis of respirable, thoracic and inhalable aerosols'.

The samples were collected using a 25mm polycarbonate filter attached to an Institute of Occupational Medicine (IOM) sampling head. The sampling head was mounted at breathing height where practicable and attached to a calibrated personal sampling pump. The pump was set to a rate of 2.0l/min (+/-0.1l/min). Sampling pumps were calibrated before and after monitoring using an SKC 393-0334 rotameter, serial no. 14533442.

Monitoring was undertaken for approximately 60 minutes and samples were sent to a UKAS accredited laboratory for analysis where Total Mesophilic Bacteria (Total Viable Count - TVC) and Aspergillus Fumigatus concentrations were obtained.

### 3.2 Monitoring Locations

Monitoring locations were defined and agreed in principle prior to the monitoring date and adjusted slightly on the day of the sampling visit. All monitoring locations were static, predominantly sited around the digester and the outlet of the Odour Control Unit (OCU). Further locations were sited in front of the Local Extraction Ventilation (LEV) system. A summary of the monitored locations is listed in Table 3-1 and presented in Figure 3-1. Monitoring location photos can be found in Annex B.

**Table 3-1**  
**Monitoring Locations**

Location No.	Details
1	LEV Location 1
2	LEV Location 2
3	LEV Location 3
4	Permit boundary – West of product bin
5	Permit boundary – Northwest of product bin
6	Carbon filter outlet
7	Permit boundary – North of digestion chamber
8	Permit boundary – East of loading hopper (raw waste input)
9	Permit boundary – South of digestion chamber
10	Permit boundary – Southwest of product bin

<sup>3</sup> Health and Safety Executive. MDHS 14/4 General methods for sampling and gravimetric analysis of respirable, thoracic and inhalable aerosols. 2014.

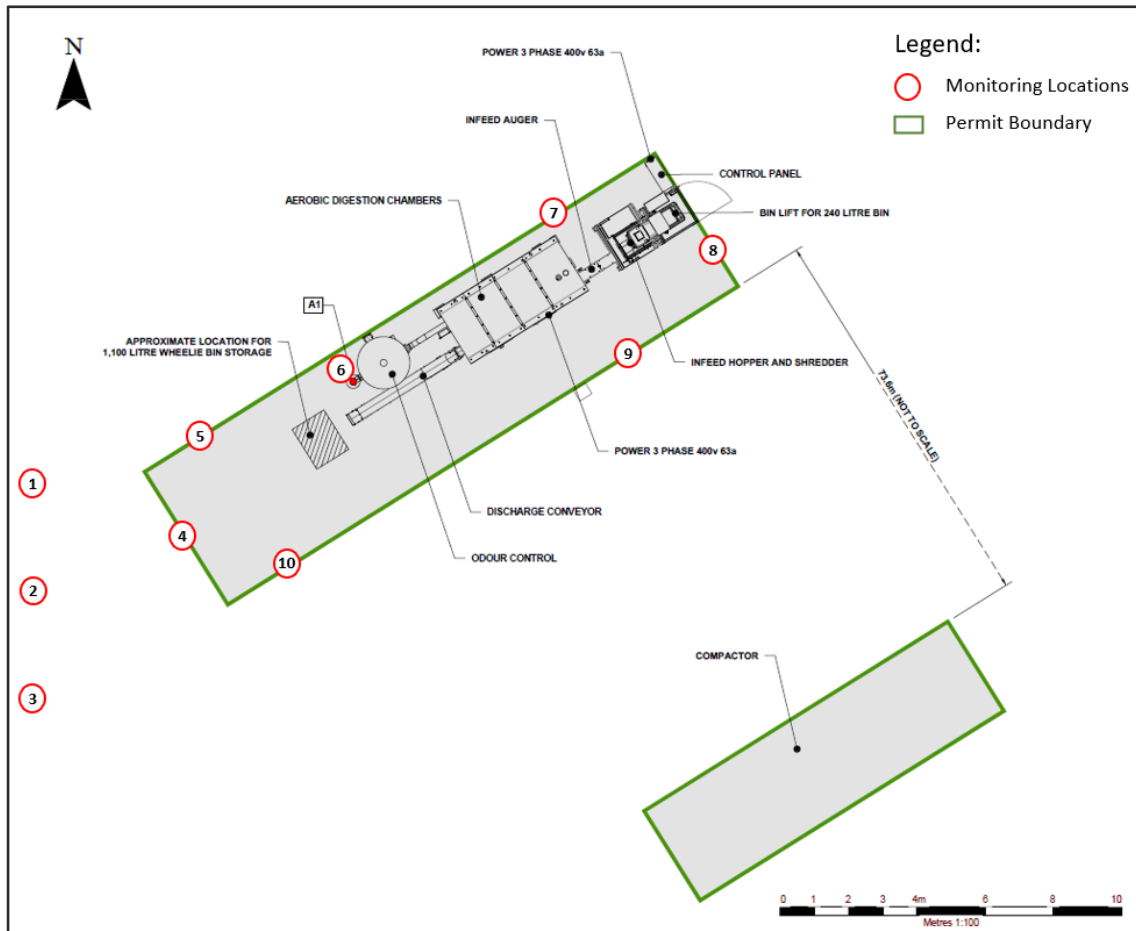


Figure 3-1  
Monitoring Locations

Further details of the monitoring locations are listed below in Table 3-2. Sample numbers have been displayed in order of sampling time.

**Table 3-2**  
**Aerobic Digestion Facility Monitoring Details**

Location		IOM Head ID.	Pump ID	Run Time (hr:min)	Flow (l/min)	Volume (L)
No.	Details					
4	Permit boundary – West of product bin	14	AQ0004	01:00	2.0	120
5	Permit boundary – Northwest of product bin	4	AQ0005	01:00	2.0	120
6	Carbon filter outlet	7	AQ0002	01:00	2.0	120
9	Permit boundary – South of digestion chamber	11	AQ0003	01:00	2.0	120
10	Permit boundary – Southwest of product bin	16	AQ0001	01:00	2.0	120
1	LEV Location 1	12	AQ0004	01:00	2.0	120
2	LEV Location 2	2	AQ0005	01:00	2.0	120
3	LEV Location 3	9	AQ0002	01:00	2.0	120
7	Permit boundary – North of digestion chamber	1	AQ0003	01:00	2.0	120
8	Permit boundary – East of loading hopper (raw waste input)	5	AQ0001	01:00	2.0	120

### 3.3 Site Operations

The following notes and observations were made regarding operations during the monitoring to provide Advetec with context to the results:

- The AD unit was loaded approximately 1 hour prior to commencement on the monitoring and was fully operational throughout the duration of the monitoring period. The unit was loaded once during the monitoring period.
- There is currently a build up of raw, general waste and food waste. This may have impacted the results for both analytes from Location 5, 7 and 8. Photo examples of the build up can be found in Annex B.
- The LEV system was not operational during the monitoring period due to maintenance of the fire alarm system.
- The carbon filter media was replaced approximately 3 months prior to the monitoring date.

## 4.0 RESULTS

Monitoring was undertaken during the day on the 7<sup>th</sup> October 2021. The weather during the monitoring period was overcast and dry. Monitored concentrations of TVC and Aspergillus Fumigatus are presented in Table 4-1 below, with the laboratory reports included within Appendix A.

**Table 4-1**  
**Ambient Bioaerosol Results**

Location		Start Time (hh:mm)	End Time (hh:mm)	TVC (cfu/m <sup>3</sup> )	Asp. Fumigatus (cfu/m <sup>3</sup> )
No.	Details				
4	Permit boundary – West of product bin	09:30	10:30	< 8	< 8
5	Permit boundary – Northwest of product bin	09:30	10:30	24	< 8
6	Carbon filter outlet	09:30	10:30	48	< 8
9	Permit boundary – South of digestion chamber	09:30	10:30	< 7	< 8
10	Permit boundary – Southwest of product bin	09:30	10:30	< 8	< 8
1	LEV Location 1	10:41	11:41	< 8	< 8
2	LEV Location 2	10:41	11:41	< 8	< 8
3	LEV Location 3	10:41	11:41	< 8	< 8
7	Permit boundary – North of digestion chamber	10:41	11:41	< 8	< 8
8	Permit boundary – East of loading hopper (raw waste input)	10:41	11:41	< 8	< 8

\* Results for Aspergillus Fumigatus for all locations were below the LOD of 8 cfu/m<sup>3</sup>.

## 5.0 BIOAEROSOLS RISK ASSESSMENT

The Environment Agency Technical Guidance Note M9 states the following in relation to bioaerosols risk assessment:

### 1. Scope

[...]

*Bioaerosol monitoring can have a role to play in environmental risk assessment, and in assessing whether the control measures in place at a facility are maintaining bioaerosols at acceptable levels. We will include bioaerosol monitoring requirements as an environmental permit condition, where appropriate.”*

This section will review the monitoring data in conjunction with the M9 regulatory limits and COSHH trigger levels.

### 5.1 Onsite Risk Assessment

On review of the monitoring data in Section 4.0, the results show that for all locations, the concentrations of TVC and Aspergillus Fumigatus were below the respective regulatory limits and trigger levels listed in Section 2.0 during the monitoring period.

### 5.2 Offsite Risk Assessment

On review of the monitoring data in Section 4.0, the results show that for all LEV locations, the concentrations of TVC and Aspergillus Fumigatus were below the respective regulatory limits and trigger levels listed in Section 2.0 during the monitoring period. Therefore, the offsite impact in terms of bioaerosols emissions on nearby receptors is considered negligible.

### 5.3 Mitigation

The following measures have the objective of reducing/maintaining low bioaerosol emissions resulting from the AD operations:

- A high level of site cleanliness will be maintained (i.e. spillages are to be cleared on an ad-hoc basis and not left in situ).
- The level of raw waste build-up (i.e. waste that has not been inputted into the shredder for treatment) will be kept to a minimum at all times.
- A proactive approach to carbon media replacement. Carbon media should be tested to establish an appropriate replacement frequency. Media should then be replaced before saturation occurs.

## 6.0 CONCLUSIONS

The enclosed laboratory results (seen in Appendix A) indicate that at the time of sampling:

- Results for Total Viable Count (TVC) did not exceed the Internal Control Level at any of the monitored locations.
- Results for Aspergillus Fumigatus did not exceed the Internal Control Level at any of the monitored locations.
- Results for Total Viable Count (TVC) did not exceed the ambient air bioaerosol concentration limit of 1,000 cfu/m<sup>3</sup> set by the Environment Agency at any of the monitored locations.
- Results for Aspergillus Fumigatus did not exceed the ambient air bioaerosol concentration limit of 500 cfu/m<sup>3</sup> set by the Environment Agency at any of the monitored locations.

# APPENDIX A

## Laboratory Analysis Reports



### SOUTHERN MICROBIOLOGICAL SERVICES LTD

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Mr. I Castezubi  
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7 Wormal Park  
Menmarsh Road  
Worminghall  
HP18 9PH

### TEST REPORT

SLR Consulting Ltd Environmental Filters PO: 416-5651

Report Reference: 1211000973  
Date Reported: 11 October 2021  
Page 1 of 2

SMS Reference	Date Tested	Sample Code	Sample Details	Ltrs of Air filtered	Further Details 2	TVC cfu/m3 (2 day pr)	Asp fumigatus cfu/m3
1211007174	07/10/21	4	On: 09:30 Off: 10:30 2L/m	120	---	< 8 cfu/m3	< 8 cfu/m3
1211007175	07/10/21	5	On: 09:30 Off: 10:30 2L/m	120	---	24 cfu/m3	< 8 cfu/m3
1211007176	07/10/21	6	On: 09:30 Off: 10:30 2L/m	120	---	48 cfu/m3	< 8 cfu/m3
1211007177	07/10/21	9	On: 09:30 Off: 10:30 2L/m	120	---	< 7 cfu/m3	< 8 cfu/m3
1211007178	07/10/21	10	On: 09:30 Off: 10:30 2L/m	120	---	8 cfu/m3	< 8 cfu/m3
1211007179	07/10/21	1	On: 10:41 Off: 11:41 2L/m	120	---	< 8 cfu/m3	< 8 cfu/m3



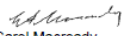
SLR Consulting Ltd Environmental Filters PO: 416-5651

Report Reference: 1211000973  
Date Reported: 11 October 2021  
Page 2 of 2

SMS Reference	Date Tested	Sample Code	Sample Details	Ltrs of Air filtered	Further Details <sub>2</sub>	TVC cfu/m <sup>3</sup> (2 day pr)	Asp fumigatus cfu/m <sup>3</sup>
1211007180	07/10/21	2	On: 10:41 Off: 11:41 2L/m	120	---	< 8 cfu/m <sup>3</sup>	< 8 cfu/m <sup>3</sup>
1211007181	07/10/21	3	On: 10:41 Off: 11:41 2L/m	120	---	< 8 cfu/m <sup>3</sup>	< 8 cfu/m <sup>3</sup>
1211007182	07/10/21	7	On: 10:41 Off: 11:41 2L/m	120	---	8 cfu/m <sup>3</sup>	< 8 cfu/m <sup>3</sup>
1211007183	07/10/21	8	On: 10:41 Off: 11:41 2L/m	120	---	< 8 cfu/m <sup>3</sup>	< 8 cfu/m <sup>3</sup>

Unless otherwise indicated, all samples were received in good condition, tests were performed at the above address and results apply to the sample as received. Date tested equals date received.

Re-issued report with PO No.

  
Carol Macready  
Technical Administration Manager

\* Tests marked with a \* in this report are not included in the UKAS Accreditation Schedule for our laboratory

## APPENDIX B

### Monitoring Locations

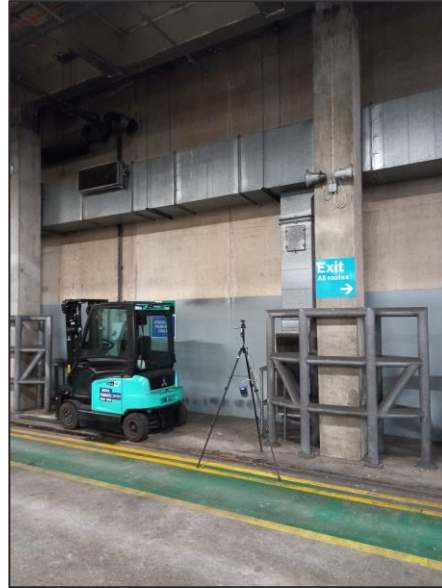
LEV Location 1



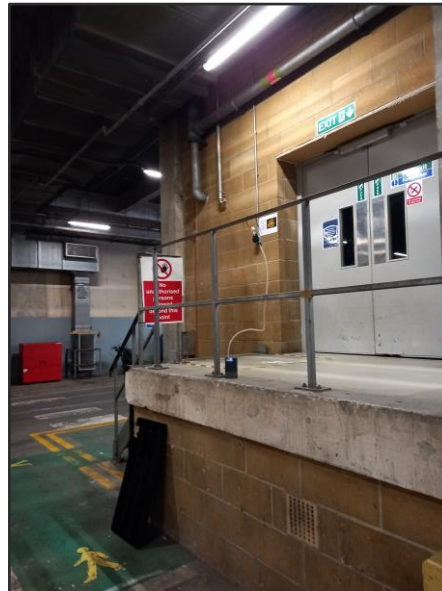
LEV Location 2



LEV Location 3



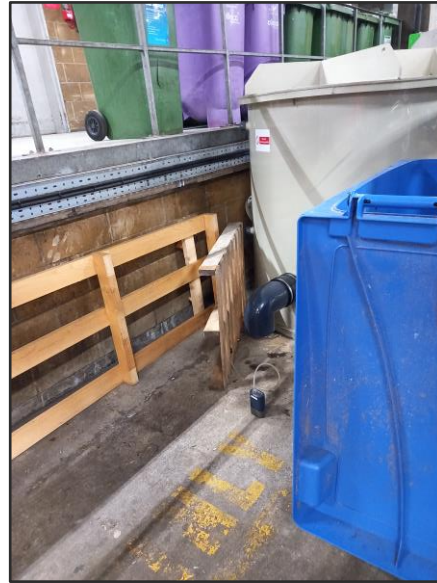
Permit boundary –  
West of product bin



Permit boundary –  
Northwest of product  
bin



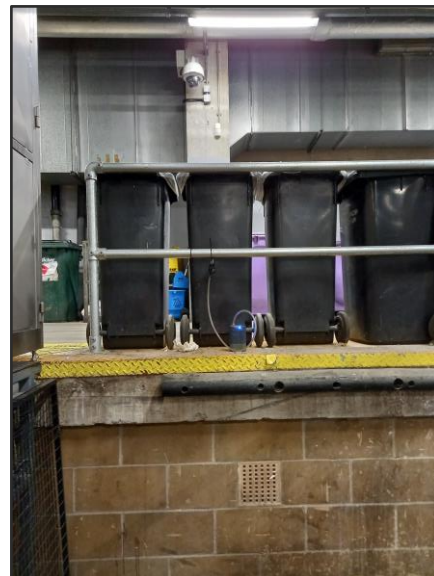
Carbon filter outlet



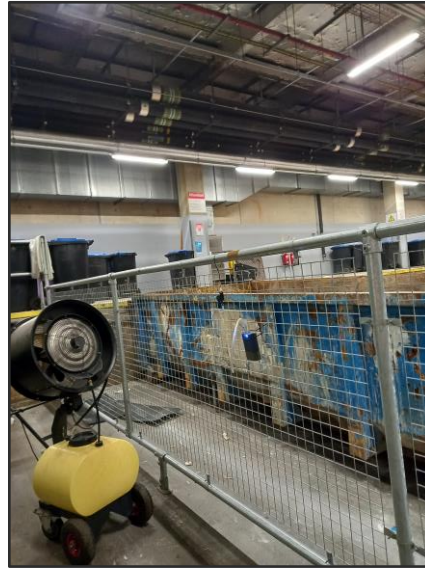
Permit boundary –  
North of digestion  
chamber



Permit boundary –  
East of loading hopper  
(raw waste input)



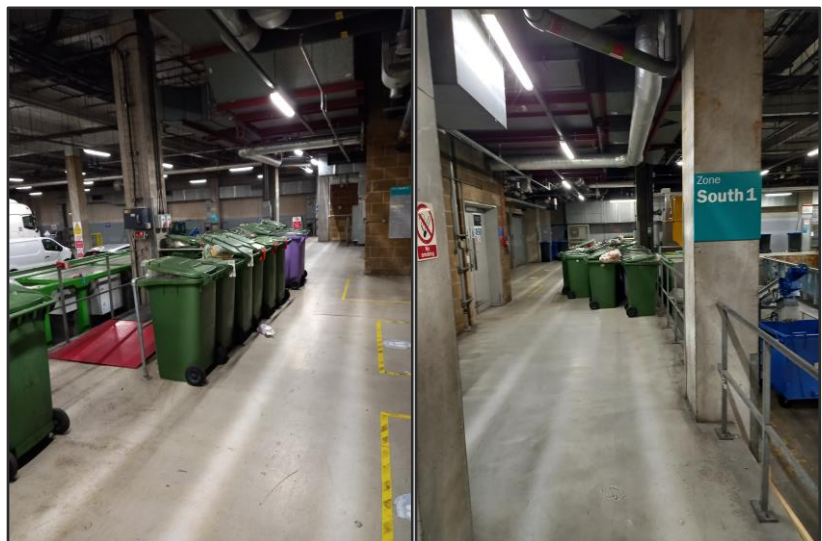
Permit boundary –  
South of digestion  
chamber



Permit boundary –  
Southwest of product  
bin



General/food waste  
build up



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