

Powerfuel Portland Limited
Portland ERF
Odour Mitigation Strategy

1 Introduction

The Environmental Permit (EP) application for the Portland ERF (the Facility) was submitted to the Environment Agency in December 2020. At the time that the application was submitted, the nearest odour sensitive receptor was located over 600 m from the installation boundary.

The Bibby Stockholm (“the barge”) arrived at Portland Port on 17th July 2023 and is contracted to remain at the Port for 18 months. Whilst the contract end date occurs some years before the ERF would be operational, the Environment Agency has requested that the Bibby Stockholm be included as a sensitive receptor in relation to potential odour effects.

Within this note, an explanation is provided for the odour mitigation strategy and the assessment of odour impacts from the Facility, giving particular consideration to the barge.

It should be noted that the only point of ‘high-sensitivity’ is the barge, and not the wider areas of the Port.

2 Odour Strategy

The most significant risk of off-site odour impacts associated with the Facility is from the handling and storage of waste prior to processing. Details of the measures proposed to be incorporated into the design of the Facility to minimise odour impacts are contained in section 2.4.3 of the Supporting Information documentation submitted with the EP application. However, these have also been extracted below:

Odour will be controlled and contained within the waste reception area by maintaining these areas at a negative pressure. Air from the waste reception areas (bale storage area and waste storage bunker) will be extracted to be used as combustion air within the waste incineration plant.

During normal operation of the Facility, daily inspections will be undertaken to monitor for odour and will include the following:

- waste reception area;
- external boundary;
- monitoring the position of louvres; and
- monitoring combustion air flow, with odorous air extracted via the boiler and the stack.

During periods of shutdown the frequency of the above inspections would be extended, including monitoring combustion air flow if the Induced Draft fan operation can be maintained, for instance during periods of maintenance. In addition, during shutdown, a daily ‘sniff test’ and inspection around the boundary of the Facility would be conducted.

In addition to the above, it is also worthwhile noting, and as explained in more detail within this note that:

1. Incoming waste will be stored within a dedicated waste reception and storage area.
2. The waste reception and storage area and all incoming waste handling activities will be undertaken within a fully enclosed building.
3. Under normal operation, potentially odorous air from waste storage areas will be combusted as 'combustion air' within the waste incineration process.

Overall, the above is considered to represent BAT for the abatement of odour.

3 Odour mitigation measures

The following odour mitigation measures have been allowed for within the design and operation of the Facility:

- Incoming waste
 - The Facility will process a mix of baled and loose waste/RDF. The baled waste will be wrapped which will contain potential odours.
 - During normal operation, the waste reception area, waste bunker and the volume above the waste bunker will be maintained under slight negative pressure to reduce any emissions of odour, dust or litter, with fast acting shutter doors to the entrance/exit of the waste reception area to be kept closed when no waste deliveries are occurring.
- To reduce or prevent impacts from odour emissions from door openings and building structure:
 - The waste reception area, waste bunker and the volume above the waste bunker will be maintained under slight negative pressure to reduce any emissions of odour, dust or litter, with fast acting shutter doors to the entrance/exit of the waste reception area to be kept closed when no waste deliveries are occurring.
 - Access to the waste reception hall is located on the northern elevation and is located nearly 500m from the barge.
- To prevent or reduce odour emissions from the process during normal operation:
 - During normal operation, negative pressure will be maintained by drawing the combustion air from above the waste bunker, so that odours and airborne dust are drawn from the bunker into the combustion process (thus preventing their escape to atmosphere). Waste feed hoppers will be designed to ensure that emissions of dust and odour are minimised. By ensuring that the hopper dimensions exceed those of the grab, the potential for stray items of waste accumulating on the floor, and for dust and waste to be blown from the hoppers, will be minimised.
 - Bunker management procedures (mixing and periodic emptying and cleaning) will be developed and implemented to avoid the development of anaerobic conditions in the waste storage bunker, which could generate odorous emissions.
 - The Industrial Emissions Directive (IED) requires that any combustion gases passing through a waste incineration plant must experience a temperature of 850°C or more for at least two seconds. Due to the high temperature experienced by the flue gases, almost all odorous chemicals would be destroyed. Any surviving volatile odorous chemicals would be absorbed by the powdered activated carbon in the flue gas treatment system and captured on the bag filters.
- To prevent or reduce odour emissions from the process during periods of shutdown:

- In the event of a shutdown, which might result in waste being held in the waste bunker for a period of time, the doors to the waste bunker will be kept shut. If necessary fresh waste will be used to cap older waste to minimise odours.
 - The quantities of fuel within the bunker will be run down prior to periods of planned maintenance, until there is minimal waste retained within the bunker. In addition, during short periods of unplanned maintenance, the doors to the building will be closed to prevent the escape of odour.
 - Should an extended period of unplanned shutdown occur, there will be facilities in place for waste to be back-loaded from the bunker if required for transport off-site to suitable waste treatment facilities. An open truck will be positioned on the designated backloading area. The operator in the control room will then use the crane grab to fill the tipper on the truck via the proposed backloading hopper.
 - During periods when the Facility is offline, where practicable, negative pressure will be maintained by using the ID fan to draw air from above the waste bunker into the boiler and release from the stack to aid dispersion of potential pollutants.
 - With regard to the residues generated by the process:
 - Incinerator bottom ash (IBA) will have reached in excess of 500°C during combustion, and that it will have a Loss on Ignition (LOI) of less than 5% or a Total Organic Carbon of less than 3%, as required by the IED. Therefore, no organic or putrescible solid material would be present within the IBA. Therefore, there will not be any discernible odours from the handling, storage and transport of IBA.
 - Air Pollution Control residues (APCr) will be stored in a silo. APCr will consist of:
 - fly ash which will have reached a temperature of 850°C or higher during combustion within the boiler; and
 - the flue gas treatment chemicals (lime or activated carbon) dosed within the FGT system.
- Therefore, no organic or putrescible solid material will be present within the APCr. Consequently, odours will not be generated from the handling, storage and transport of APCr.

4 Risk Assessment

An assessment of odour risk was provided within the Environmental Risk Assessment submitted in support of the EP application. This has been revised to take into consideration the proximity of the barge to the Facility (refer to Table 1).

As set out in the risk assessment, releases of odour from the Facility will not have a significant impact on the barge, or any other sensitive receptors within the Port of Portland.

Table 1 - Assessment of odour risk from the Portland ERF

What Do You Do That Can Harm and What Could Be Harmed?			Managing The Risk	Assessing The Risk		
Hazard	Receptor	Pathway	Risk Management	Possibility of Exposure	Consequence	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? If it occurs who is responsible for what?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains? The balance and probability and consequence.
Odorous emissions may occur during the delivery of waste, reception of waste and the storage and handling of waste prior to processing	Immediate area. The nearest receptor (the barge) to the installation is located approximately 300 m to the west of the installation boundary.	Air- Easterly winds only occur for 6% of the time.	All wastes received at the Facility will be unloaded inside the enclosed waste reception area. Wastes will be processed on a first-in, first-out principle. The reception hall will be retained at negative pressure. Potentially odorous air within waste reception area will be combusted within the ERF.	Minimal.	Odour annoyance will have more impact in the summer, when temperatures are higher and people are outdoors and more likely to be exposed to odour.	Not significant if managed well.
The escape of odorous emissions from the building during periods of planned shutdown	Immediate area. The nearest receptor (the barge) to the installation is located approximately 300 m to the west of the installation boundary.	Air- Easterly winds only occur for 6% of the time.	During periods of planned shutdown, waste stored within the waste reception area will be minimised. Where practicable, odorous air from the waste reception area will be released to atmosphere via the stack.	Minimal	Odour annoyance, which will more impact in the summer, when temperatures are higher and people are outdoors and more likely to be exposed to odour.	Not significant due to the management systems in place.

What Do You Do That Can Harm and What Could Be Harmed?			Managing The Risk	Assessing The Risk		
Hazard	Receptor	Pathway	Risk Management	Possibility of Exposure	Consequence	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? If it occurs who is responsible for what?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains? The balance and probability and consequence.
			Sniff tests will be undertaken around the perimeter of the installation boundary and any additional locations requested by the Port.			
The escape of odorous emissions from the building during periods of unplanned shutdown	Immediate area. The nearest receptor (the barge) to the installation is located approximately 300 m to the west of the installation boundary.	Air- Easterly winds only occur for 6% of the time.	During periods of unplanned shutdown, the doors to the waste reception area will be kept closed to prevent the escape of odour. Where practicable, odorous air from the waste reception area will be released to atmosphere via the stack. Sniff tests will be undertaken around the perimeter of the installation boundary and any additional locations requested by the Port.	Highly unlikely for a period of unplanned shutdown to coincide with winds from an easterly direction	Odour annoyance, which will more impact in the summer, when temperatures are higher and people are outdoors and more likely to be exposed to odour.	Not significant due to the mitigation measures in place.

What Do You Do That Can Harm and What Could Be Harmed?			Managing The Risk	Assessing The Risk		
Hazard	Receptor	Pathway	Risk Management	Possibility of Exposure	Consequence	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? If it occurs who is responsible for what?	How likely is this contact?	What is the harm that can be caused?	What is the risk that still remains? The balance and probability and consequence.
An extended period of unplanned shutdown	Immediate area. The nearest receptor (the barge) to the installation is located approximately 300 m to the west of the installation boundary.	Air- Easterly winds only occur for 6% of the time.	During periods of unplanned shutdown, the doors to the waste reception area will be kept closed to prevent the escape of odour. Sniff tests will be undertaken around the perimeter of the installation boundary and any additional locations requested by the Port. During an extended unplanned shutdown, if required, waste will be backloaded from the bunker for transfer off-site to a suitably licenced waste management facility.	Minimal	Odour annoyance, which will more impact in the summer, when temperatures are higher and people are outdoors and more likely to be exposed to odour.	Not significant due to the management systems in place.

5 Conclusions

As set out within this note, the Facility has been designed to mitigate the impact of odour on the Port of Portland, including the barge.

As explained within this note, the design of the Facility includes a number of mitigation measures to mitigate odour impacts within the Port during periods of normal operation and shutdown. As set out in the environmental risk assessment, the mitigation measures are not expected to result in significant odour impacts on sensitive receptors, including the barge.

Powerfuel understands that an Odour Management Plan is not a mandatory requirement for waste incineration plants, such as the Facility. In the event that it is identified that the operation of the Facility gives rise to unacceptable odour impacts to any areas of the Port, not just the barge, Powerfuel is committed to developing and implementing an Odour Management Plan to identify additional measures to further mitigate odour impacts.

We trust that the information contained within this note addresses the concerns raised regarding potential odour impacts from the ERF on the Bibby Stockholm.

Yours sincerely

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