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# Appendix C1 Odour Management Plan

3 Pages

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## Penhesgyn Landfill - Odour Management Plan

### 1. Introduction

The objective of this Odour Management Plan (OMP) is to prevent emissions of odour from the site in such quantities or concentrations that are likely to cause pollution of the environment or harm to human health or serious detriment to the amenity of the locality. The OMP considers the requirements of the Environment Agency's Odour Guidance<sup>1</sup>.

Potential odours arising from Penhesgyn landfill during the aftercare period will be derived from landfill gas generated within the waste. This OMP outlines how the company seeks to minimise and control odorous emissions from site.

There are other waste management operations to the south east of the landfill area (eg the waste transfer station and civic amenity site) which will continue in operation. These activities (which are not associated with the landfill and are covered by separate waste management licences) have the potential to generate odour.

### 2. Odour Prevention

Regular olfactory monitoring (smelling) will be carried out by the following people:

- CGMAC when undertaking perimeter landfill gas monitoring; and
- Biogas during well balancing.

This monitoring will alert the need for remedial actions to be taken to minimise odours to an acceptable level. Reducing odour to an acceptable level means reducing it to a level that will not cause a nuisance to receptors.

Due to the limited number of receptors within 500 m of the site (4 residential properties), it is considered highly unlikely that odour will be a problem. This is because odour will be primarily controlled by completion of capping and active gas control. To prevent odorous emissions from the site becoming a nuisance the landfill gas and leachate management systems will be closely monitored.

Measures employed to prevent odorous emissions from landfill gas becoming a nuisance are as follows:

- The whole of the site will be capped and restored, thus preventing significant gas emissions from the surface of the site;
- The release of unpleasant odours from the biodegrading waste is minimised by active extraction of landfill gas;
- Landfill gas which is extracted at Penhesgyn is currently combusted within a high temperature flare. The flare is designed to combust at temperatures that destroy trace components in the landfill gas that would otherwise give rise to odour;

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<sup>1</sup> Environment Agency, 2002. Internal Guidance for the Regulation of Odour at Waste Management Facilities.

- Odour monitoring will be undertaken at the flares and extraction wells to establish if there are any malfunctions that might lead to odours being emitted. If odours are detected from the gas flares, the remedial actions described in Section 4 will be implemented.

### 3. Odour Monitoring

If Biogas or CGMAC staff identify specific sources of odour, they will report immediately to the CGMAC Operations Manager. The occurrence will be recorded on the Odour Assessment Report form (refer to Appendix C2) and in the site diary. The same applies if a complaint is received from individuals outside the site boundary. Details of the date, time, location and nature of the odour will be recorded and the incident investigated. Any remedial actions taken to mitigate against the odorous emissions will also be recorded in the site diary; remedial actions are discussed in Section 4 of the OMP.

If odorous emissions are detected, in such quantities or concentrations that are likely to cause pollution of the environment or harm to human health or serious detriment to the amenity of the locality, then the relevant operational controls and procedures will be implemented; refer to Section 4. The assessment shall be recorded on the Odour Assessment Report form in terms of odour intensity and extent in accordance with the following general descriptions, which will include an assessment of other off-site odour sources:

#### Intensity:

1. No detectable odour;
2. Faint odour (barely detectable, need to stand still and inhale facing into the wind);
3. Moderate odour (odour easily detected while walking and breathing normally, possibly offensive);
4. Strong odour (bearable, but offensive odour);
5. Very strong odour (unbearable and offensive).

#### Extent:

1. No detectable odour;
2. Local and impersistent (only detected during brief periods when wind drops or blows);
3. Impersistent as above, but detected away from the site boundary;
4. Persistent, but fairly localised;
5. Persistent and pervasive up to 50 m from the site boundary;
6. Persistent and widespread (odour detected >50 m from the site boundary).

The date, time and duration of the assessment shall be recorded, together with a description of the odour and the prevailing meteorological conditions.

All monitoring data will be made available to the Environment Agency upon request.

#### 4. Remedial Actions

The odour control measures that will be implemented in response to an identified odour issue will be dependant upon the appropriate response to the specific issue. Measures could include re-sealing of wells on site or re-balancing the gas extraction field etc.

It is considered unlikely that the use of odour counteractants or neutralisers will need to be used at Penhesgyn, due to the preventative measures that are taken; refer to Section 2 and due to the fact that there are very few receptors to odour in the vicinity of the site.

If the flare generates odours, the source of the problem will be investigated and the gas collection system will be adjusted, or other remedial action taken as appropriate. This may include changing the gas mixture, flame temperature or residence time. If the problem can not be resolved by immediate operational changes to the collection system the plant causing the problem will shut down until the problem is rectified.

There are few properties within close proximity to the landfill site and therefore, few receptors to offensive odours. The closest property is Penhesgyn Hall, at a distance of approximately 220 m from the southern site boundary. Given the landfill gas control practices that are employed at the landfill site, odour is not considered to represent a problem to the management of the landfill and preventative measures are likely to be taken before remedial actions are required.

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# Appendix C2 Odour Assessment Report Form

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**Odour Assessment Report**

Site:			Personnel:		
Date:	Assessment Start Time:		Assessment Finish Time:		
Atmospheric and ground conditions:					
Additional comments:					
Monitoring Location	Odour Intensity	Odour Extent	Location Sensitivity	External sources of odour	Internal sources of odour

**Classification Guide:***Odour Intensity*

- 1 No detectable odour
- 2 Faint odour (barely detectable, need to stand still and inhale facing the wind)
- 3 Moderate odour (odour easily detected while walking and breathing normally)
- 4 Strong odour (bearable, but offensive odour)
- 5 Very strong odour (not bearable)

*Odour Extent (assuming odour detectable, if not then 0)*

- 1 Local and impersistent (only detected during brief periods when wind drops or blows)
- 2 Impersistent as above, but detected away from site boundary
- 3 Persistent, but fairly localised
- 4 Persistent and pervasive up to 50 m from the site boundary
- 5 Persistent and widespread (odour detected >50 m from site boundary)

*Location Sensitivity (assuming detectable, if not then 0)*

- 1 Remote (no housing, commercial/industrial premises or public area within 500 m)
- 2 Low sensitivity (no housing etc. within 100 m of area affected by odour)
- 3 Moderate sensitivity (housing etc. within 100 m of area affected by odour)
- 4 High sensitivity (housing etc. within area affected by odour)
- 5 Extra sensitive (complaints arising from residents within area affected by odour)