

# Afan IED Permit Application

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<b>Project:</b>	Afan Sludge Treatment Centre		
<b>Our reference:</b>	100123523_BioRA_AFA September 2024		
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<b>Subject:</b>	Bioaerosol Screening Technical Note		

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## 1.1 Purpose

This technical note (TN) has been prepared to screen the requirement for a site specific bioaerosol risk assessment at the Afan Wastewater Treatment Works and Sludge Treatment Centre, herein referred to as 'the Site'. This screening assessment incorporates guidance from the Natural Resource Wales (NRW) Technical Guidance Note M17 (TGN M17)<sup>1</sup> and the Environment Agency (EA) TGN M9<sup>2</sup>. A site-specific bioaerosol risk assessment is relevant where

- a site requires a permit for the treatment of biological waste; and
- there are sensitive receptors within 250 metres of a bioaerosol emission source.

## 1.2 Background

Bioaerosols are naturally present in the air, but they are also associated with composting, anaerobic digestion and mechanical biological treatment, which are the main processes used to treat organic waste in the UK.

Bioaerosols are micro-organisms which are suspended in the air; these can include bacteria, fungi and viruses, or parts of living organisms, such as spores and plant pollen. Bioaerosols are microscopic with a low mass and so can easily be transported by the wind from their source to a receptor. Bioaerosols range in size from 0.02-100µm<sup>3</sup> but are generally smaller than 10µm in diameter so can easily be breathed into the human respiratory system where they can cause adverse health impacts such as respiratory and gastrointestinal illnesses. Especially relevant to waste treatment facilities are infections of the respiratory system caused by *Aspergillus fumigatus*, which can be fatal, especially for at-risk and immuno-compromised patients. Bioaerosols can also cause eye irritation and dermatitis if they come into contact with the eyes and skin.<sup>4</sup>

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<sup>1</sup> Natural Resource Wales (2014) Technical Guidance Note M17 (Monitoring) – Monitoring Particulate Matter in Ambient Air around Waste Facilities. Available online at: <https://naturalresources.wales/media/2145/technical-guidance-note-m17-monitoring-monitoring-particulate-matter-in-ambient-air-around-waste-facilities-saesneg-yn-unig.pdf>

<sup>2</sup> Environment Agency (2018) Technical Guidance Note (Monitoring) M9 – Environmental monitoring of bioaerosols at regulated facilities. Available online at: [https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/730226/M9\\_Environmental\\_monitoring\\_of\\_bioaerosols\\_at\\_regulated\\_facilities.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/730226/M9_Environmental_monitoring_of_bioaerosols_at_regulated_facilities.pdf)

<sup>3</sup> µm means micrometre which has a length of measurement equal to one millionth of a metre.

<sup>4</sup> Drew, G.H., Deacon, L.J., Pankhurst, L., Pollard, S.J.T. and Tyrrel, S.F. (2009). Guidance on the evaluation of bioaerosol risk assessments for composting facilities. Environment Agency.

### 1.3 Receptors

Figure **Error! No text of specified style in document..**1 presents the study area. The TGNs recommend a screening distance of 250m from bioaerosol emission sources to static receptor locations. Sensitive receptors are defined by the EA as:

*'permitted activities where people are likely to be for prolonged periods. This term would therefore apply to dwellings (including any associated gardens) and to many types of workplaces. We would not normally regard a place where people are likely to be present for less than 6 hours at one time as being a sensitive receptor. The term does not apply to those controlling the permitted facility, their staff when they are at work or to visitors to the facility, as their health is covered by Health and Safety at Work legislation, but would apply to dwellings occupied by the family of those controlling the facility.'*

The Site is surrounded by industrial premises to the north and east and by the Bristol Channel to the west and south. The Associated British Ports Port Talbot land is located to the northwest of the Site. The closest buildings at Port Talbot is the steelworks located approximately 350m east followed by the Tata offices located over 1km to the northwest of the Site boundary.

Outdoor works areas are present within 250m east of the Site although receptors would not be static and are unlikely to be present for more than six hours at one time.

A recreational area (Margam Sands) is situated approximately 30m southwest of the Site at its closest point. Given the land use surrounding Margam Sands is industrial, the enjoyment of amenity would not reasonably be expected and would likely prevent members of the public from being present regularly for more than six hours at a time. Margam Sands is typically used as a footpath and exposure is transient with people present at any given location for limited periods of time.

The nearest residential area to the Site is located approximately 2km to the east and is therefore beyond the 250m screening distance.

