

IC1 - screening assessment - emissions to air from the biofilter - confirm if sources are 250m to a sensitive receptor in accordance with M9 Environmental monitoring of bioaerosols at regulated facilities

Tremorfa Anaerobic Digestion facility has been in operation from February 2016.

The facility processes food waste kerbside collections via the local authorities.

The Anaerobic Digestion process treats the waste to produce gas for generating energy and produces a digestate that is used as a fertilizer.

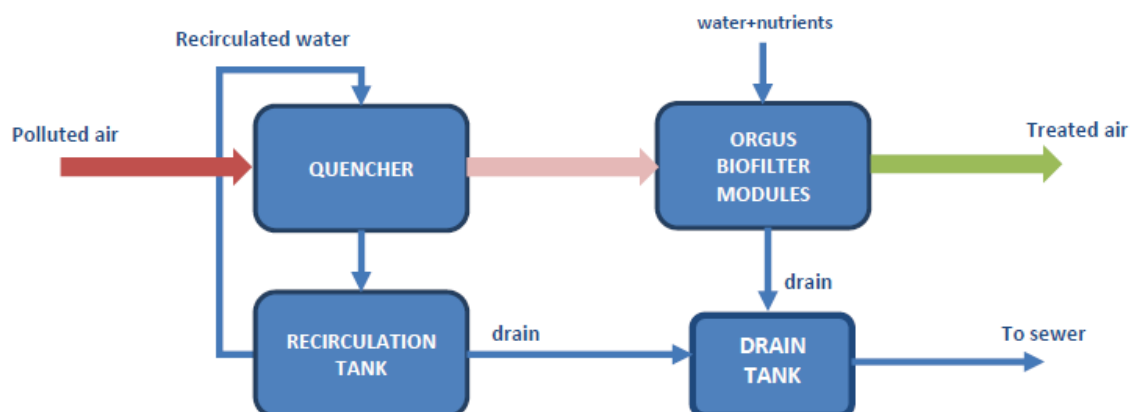
The processing of the food waste is undertaken in the Food Hall. This is a covered and closed building (automatic roller doors) which operates under a negative pressure, designed to control odours and any particulates arising from the waste to within the building.

Within the building there is duct/pipework, fitted with filters, that draws the air from within the food hall, through the odour control unit to be treated.

The air circulation of the food hall is maintained by the odour control unit. The fan associated with the odour control unit turns over the air in the food hall, approximately three times per hour during the day when the food waste is being processed. The odour control system draws odours and any associated particulates into the biofilter to treat and remove odours and particulates before being released to the atmosphere.

Biofilter – odour control treatment

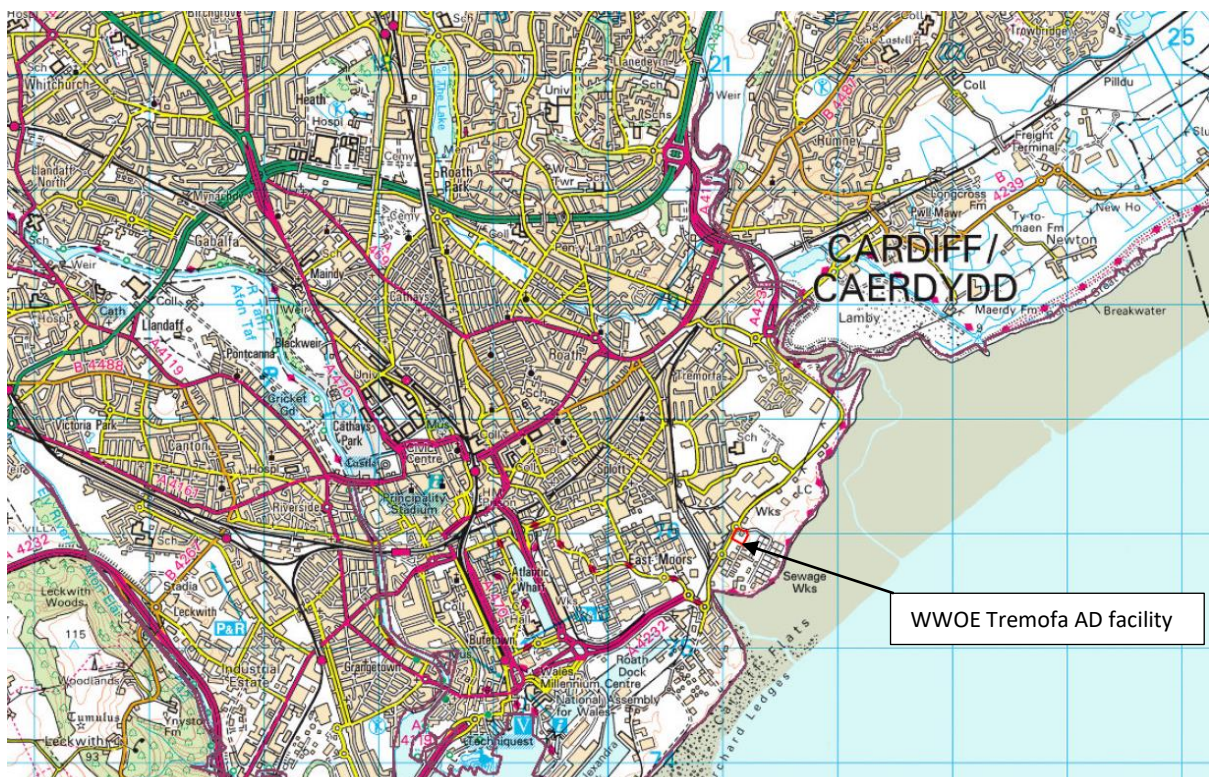
Below is a flow diagram of the odour control unit



The contaminated air is drawn from the food hall and initially ‘quenched’ – sprayed, before passing on and through the biofilter modules which comprise of coconut matting. The biofilter modules provides the biological environment for the polluted air to pass through and any particulates are removed, and the odour molecules of an organic nature treated. The treated air is finally released via a 16.5-meter stack.

Location of the Tremofa Anaerobic Digestion Facility

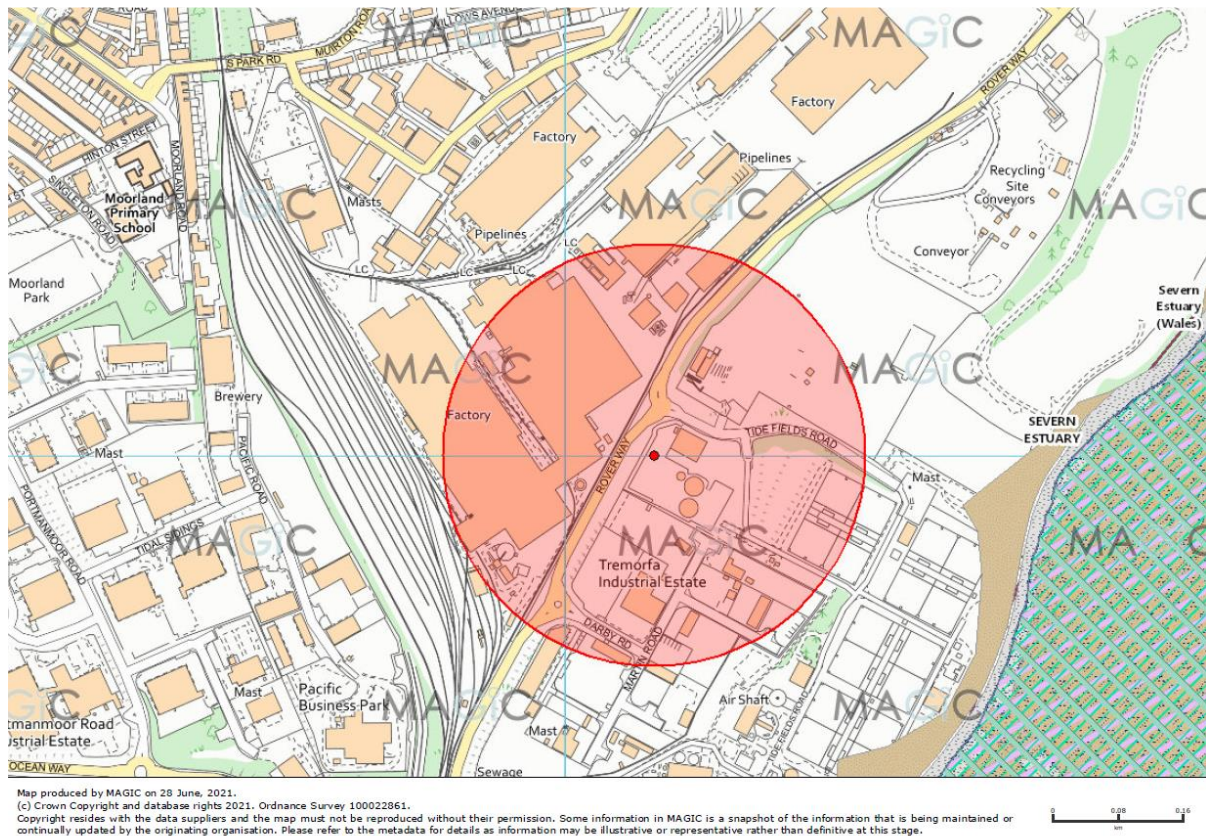
The Tremorfa Anaerobic digestion facility is located to the south east of Cardiff city centre, alongside the Severn Estuary.



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As part of the screening process, we have identified an area of a 250m radius from the biofilter stack.



Within the 250 m radius from the stack, we have determined if there are sensitive receptors and the sensitivity based on the following criteria.

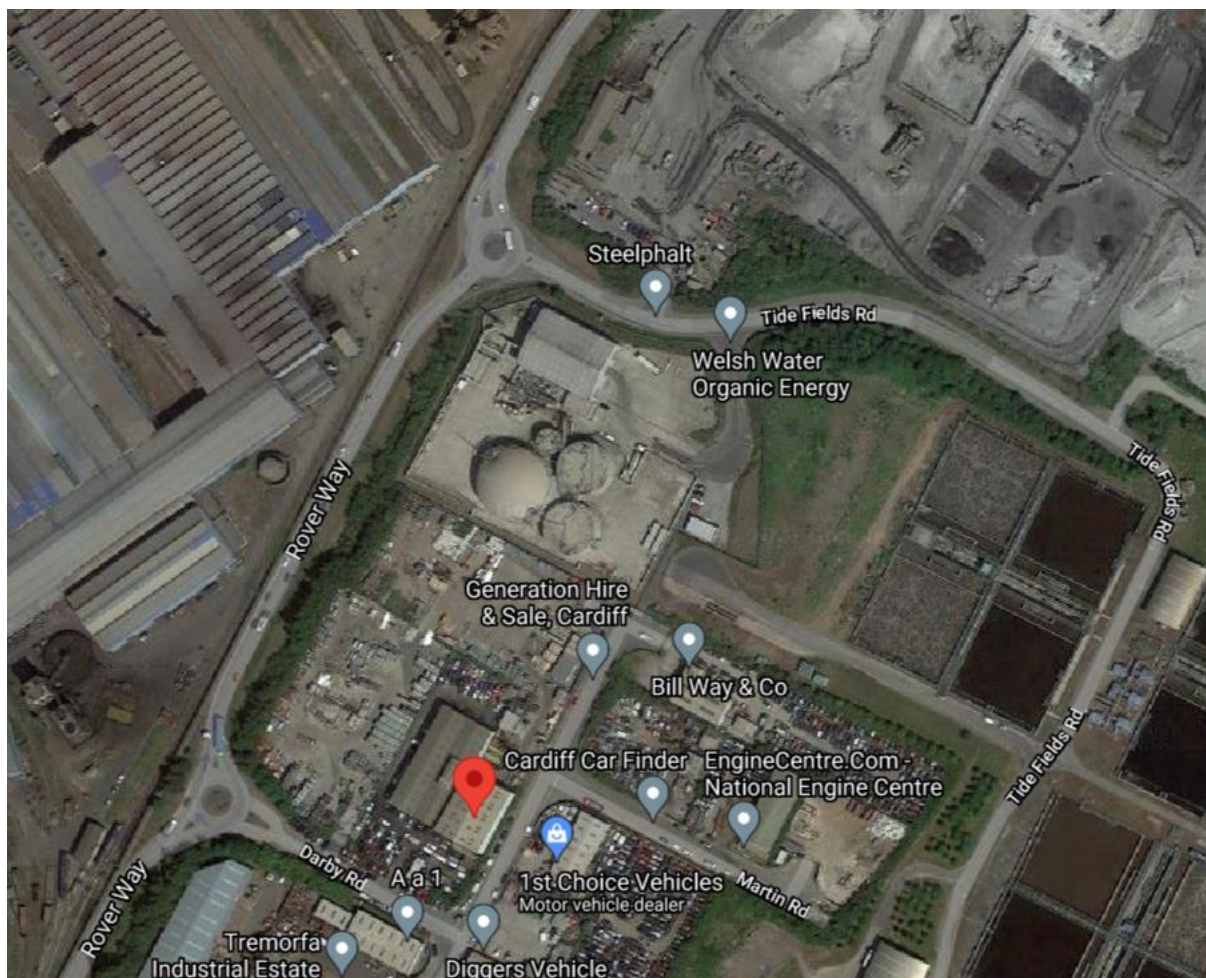
Sensitive Receptor	Sensitivity rating
Houses and residents, schools, Hospitals etc	High
Trade premises and factories, offices, industrial premises	Medium to low
Public footpaths /other amenities where the public will be in the vicinity for a short period of time.	Low

- Houses and residents, schools, Hospitals etc – there are no sensitive receptors of this nature within 250 meters of the site.
- Trade premises and factories, offices, industrial premises – there are industrial premises within 250m3 radius of the site, and the risk and sensitivity of these sites are assessed below.

- Public footpaths /other amenities - there are public foot paths along Rover Way and Tide Fields Road which the site is located alongside, but due to the heavily industrial nature of the area there is little public foot traffic along these routes.

Assessment of Trade premises and industrial premises within 250m radius of the Biofilter stack.

Receptor	Business type	Distance from Biofilter
Steelphalt	Weighbridge	100m North
Generation Hire and Sale	scaffolding suppliers, portacabin offices and yard storage	120m south east
Bill and Way	car dismantlers, covered building and open storage yard	190m east
Aa1/Bayliss Metals	Car dismantler, outside storage and covered building	210 m south
Cardiff Car Finder/Engine centre	Car storage area/dismantlers	215m east
1 st Choice Vehicles	car servicing and repair	220m south east



The primary emission source of bioaerosols is potentially from the Biofilter sack

– the following source-pathway-receptors have been identified –

Primary Source	Hazard	Transport mechanism/Pathway	Receptors
Biofilter - odour control unit and emissions Stack	Possible nuisance, irritation, illness due to exposure to bioaerosols	Atmospheric deposition – possible inhalation and contact with skin	Industrial trade premises within 250 m of the biofilter stack

The following risk assessment was undertaken –

Receptor	Source	Harm	Pathway	Likelihood	severity	overall risk	mitigation	residual risk
Steelphalt	Biofilter Stack	local receptors are industrial premises where people will be working and potentially affected by emissions from the biofilter - potential harm to human health respiratory irritation and illness, skin contact irritation	Atmospheric dispersion from the biofilter stack	Low	Low	Low	Bioaerosols will likely be released from processing the food waste within the food hall. The food hall is a covered building/automatic roller doors/negative air pressure and the hall is serviced by the odour control unit to capture odours air/compounds/particles. These are treated through the odour control unit and the treated air dispersed via the 16.5 meter stack. The odour control unit is checked daily and serviced annually. Odour checks are also carried out daily on the whole site and points on the OCU.	Very Low
Generation Hire and Sale				Low	Low	Low		Very Low
Bill and Way				Low	Low	Low		Very Low
Aa1/Bayliss Metals				Low	Low	Low		Very Low
Cardiff Car Finder/Engine centre				Low	Low	Low		Very Low
1 st Choice Vehicles				Low	Low	Low		Very Low

Conclusion

The location of Tremorfa AD facility is in an inherently industrial area. The closest residential area, Tremorfa, is 600 m North of the AD site and biofilter.

The immediate surrounding industrial area is mainly steel manufacturing (Celsa) and car breakers yards. The closest receptor Steelphalt, which makes asphalt products, is approximately 100m North to the site, and the Steelphalt weighbridge is the only part of the site which is manned that falls within a 250m radius of the biofilter.

The definition of a sensitive receptor as stated in the Waste treatment BAT -

Sensitive Receptor – Area which needs special protection, such as

- Residential Areas
- Areas where human activities are carried out (e.g., neighbouring workplaces, schools, day-care centres, recreational areas, hospitals, and nursing homes).

Due to the industrial nature of the surrounding area, there are no sensitive receptors as defined above. We have considered workplaces, but these are industrial, mainly heavy industry based and no significant office-based workplaces. These sites are not highly populated, and a risk assessment carried out to determine the potential risk, and as detailed above, the risk and impact of bioaerosol emissions from the Tremorfa AD site on local receptors is very low.

We have concluded the risk is very low due to low numbers of people working in the mainly industrial area and low exposure to bioaerosols.

The main source of bioaerosols is when the food waste is processed. This is carried out and contained within the food hall. The food hall is a covered/closed building operating under negative pressure when the food waste is being processed. The air from the food hall is drawn into the OCU – biofilter and treated to remove odours. The treated air is dispersed via the stack.

The odour control unit (OCU) has been in operation for 5 years and since WWOE have operated the site from 2018 there have been no odour complaints (do not have the information prior to 2018). The Biofilter is monitored daily for key parameters (pH, moisture, pressure etc) and odour. The Biofilter is serviced annually, and general maintenance is carried out by the site as required. Within the next 12 months (2021 -2022) the coconut husk media will be assessed and replaced if required.

Therefore, we have concluded taking into account the nature of the local receptors and industrial area and the operation of the processing of the food waste and the maintenance of the biofilter that a Site specific bioaerosol risk assessment (SSBRA) is not required.