



Anaerobic Digester

Odour Management Plan



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Introduction

This plan outlines the odour management procedures put in place to control odorous emissions from BV Dairy's AD Plant, to minimise the risk of adverse odour impact on neighbouring dwelling houses which are within 200m of the site, and public footpaths in the area.

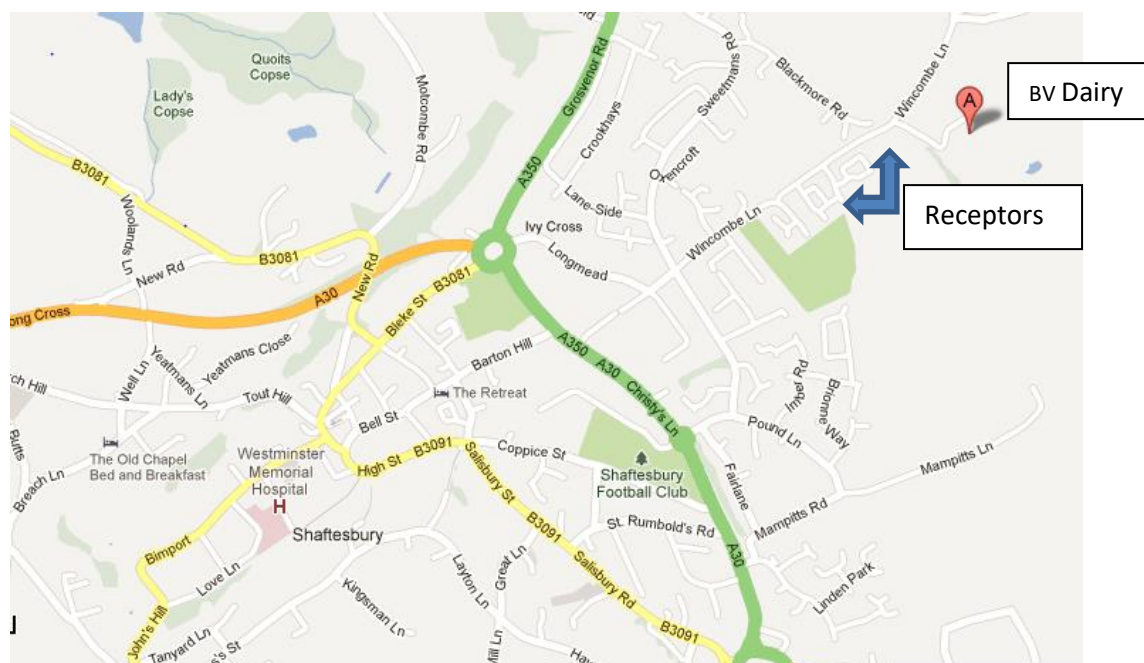
The primary reference used has been the Environment Agency H4 Odour Management Guidance March 2011 and the support documents are the accident and emergency plan BVD 4.4.7

The purpose of the plan is to:

- Establish the likely sources of odour arising from the Anaerobic Digestion operation.
- Set out the procedure at BV Dairy in order to prevent/minimise odour levels.
- Set out the procedure for dealing with any odour complaints.

Site Location and Description

BV Dairy is on the edge of Shaftesbury town, set in amongst agricultural fields but within a few hundred meters of a housing estate. The vicinity is known to be subject to intermittent agricultural odours.



Site Operations;

Waste Reception

The large majority of waste feed is our own Liquid Dairy waste in the form of product tippings, CIP rinsings and Permeate waste, directly from production, and sent to the AD

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waste storage tanks via [underground](#) pipework. [At present no waste from other sources is brought on to site](#)

Waste treatment

Once the waste is at the AD Plant it remains fully contained in tanks and pipework throughout its journey, until it reaches the effluent drain which is open to the air via a metal grilled cover,



[Or an open waste storage tank where digestate sludge is held for a max. of 12 hours before collection by Phillip Trim contractors for disposal.](#)

Likely sources

The generation of odour is an unavoidable consequence of producing organic waste at the tail end of our process. This is due to the release of a variety of volatile organic compounds which occurs due to the breakdown of organic compounds. We consider this odour to be sufficiently contained.

The odour potential of feedstock materials is irrelevant as all incoming feed is fully contained via pipework and enclosed tanks. We are only permitted to receive pasteurised liquid dairy waste.

Issue	Potential risk	Actions to minimise
AD Feed stock	All BV Dairy waste is sent via enclosed pipework system	NA
Storage Tank overflow, and venting	If level sensors are faulty there is a risk of an overflow	Visual awareness Recognition of any issue with the sensors due to knowledge of expected levels, daily checks, alarms sent to engineers mobile phones. All tanks are vented through water trap systems. Flow to tanks automatically stops from the factory if reached high level
Digestate Storage	Low	Digestate sludge is stored in

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		a dry container for a maximum of 12 hours and will be removed a minimum weekly
Effluent	Nil	The only time odour would be produced is if the CAF units fail and in this situation the effluent will be recirculated back to the Digester in an enclosed system
CHP Failure	Release of Biogas which contains methane and a very low level of H2S	In the CHP fails the level of gas in the dome is controlled by a flare which burns the the gas to atmosphere. This doesn't create an odour.
Dome damage in a major incident scenario	If the dome ruptured the Digestate liquor will release odour to the atmosphere whilst it is still reacting, this will slow down as the core temperature cools down and a sealing crust forms	Many factors have been put in place to prevent the dome rupturing e.g. catchpot emergency device, flare to burn excess gas. If this does occur the more efficient action is to allow the crust to form and 'cap' the digestate until the dome can be replaced, rather than empty the digester as the liquor disruption will magnify the odour.
Flood and fire and abnormal weather	Both fire and flood are highly unlikely and in the case of a fire, explosion would be the risk and this would invalidate odour issues. There is a large sink drain in the centre of the site which would prevent flooding and no entry to nearby water courses.	BV Dairy Fire risk assessment, Emergency plan

Pathways

Any potential released odours from the sources identified above are emitted to the air and have the potential to be conveyed to the nearby receptors via the atmosphere.

The extent to which the odour would be detectable and the intensity of the odour will depend upon:

- The nature and magnitude at the point source
- Wind direction and wind speed

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- Atmospheric turbulence.

Receptors

The Key receptors have been identified on the basis that the local residents will be more sensitive to odours reaching their homes than people walking in the fields where there is known to be general agricultural odours of manure spreading etc. the most salient receptors have been marked by arrows on the location map at the beginning of this report

Odour procedure

Despite the low likelihood of any risk of odour escaping from the AD Plant, daily checks are carried out on the Trade and Permeate feedstocks, the Digestate liquor, the Cavity Air flotation thickener sample, the final effluent and the digestate compost cake. These checks are recorded on the daily maintenance form and formally signed off.

If odour is present the onsite wind sock is to be used to determine and record the wind direction e.g. towards the local houses. Wind speed can also be assessed by the anemometer on the weather station to determine the likelihood of dispersal. The weather station is constantly online, recording meteorological conditions

If in doubt various people shall be used to determine if odour is present, as AD operators can suffer odour fatigue.

Any plant problems giving rise to odour are to be reported immediately to the Engineers and Odour issues are to be reported to the Environment Agency as routine 📞 External: 01258 483426

Complaints

Any complaints received will be reported on the Customer Complaints log and a Non-Conformance completed. The AD Plant Engineer and Technical manager will investigate in accordance with ISO 14001. All AD monitoring data will be reviewed to ascertain the cause.

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