Odour Management Plan

Site details

Site name: **BV Dairy (Blackmore Vale Farm Cream Ltd)**

Site address: **Wincombe Lane, Shaftesbury, Dorset SP7 8QD**

Operator name: **BV Dairy**

Permit number: **EPR/HP3492EZ**

Who this plan is for

- Who should be made aware of this plan? Staff, Environment Agency Officer
- How will they be made aware? Briefing Note

Document owner

Document author: Paula Boult **Version number: 3**

List of revisions

Revision number	Revision authorised by	Date submitted to Environment Agency	Revision owner
3	Paula Boult	06/10/2025	Paula Boult

Contents

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1. Introduction

1.1 Site description

- brief description of type of site, e.g. abattoir, in-vessel composting (full details of operations to be described in Section 3)
- describe the site location, e.g. industrial area, countryside etc.
- state the days and hours of operation
- any other information you feel is relevant

The site is an Anaerobic Digester and CHP Engine within the grounds of the BV Dairy processing site (manufacturer of dairy products such as soft cheese and yogurts). BV Dairy is on the edge of the town with residential houses about 200m away to the west and northwest and open countryside on all other points. The Anaerobic Digester was installed to treat liquid waste from the processing site. The treated waste water goes to a Wessex Water treatment plant through the Shaftesbury town sewerage system. Excess digestate is tankered off site to be spread on land. The site is operating 24/7, 365 days a year.

1.2 Maintenance and review of the OMP

- who (Job Title) is responsible for the OMP and ensuring people are trained?
- where is the plan stored?
- state when the plan is reviewed
- what training have the staff on site received in order to implement the OMP?
- how often are they trained and who delivers the training?
- any other information you feel is relevant

The OMP is managed by the AD Plant Engineer/Operator. The plan is stored within the electronic management system and is accessible to all staff. The plan will be reviewed in the event of any changes to the equipment, systems or if an event has occurred.

Training is provided by the Technical or SHE Manager and comprises making the trainee full aware of the contents of this OMP and specifically the actions required to reduce and mitigate the production of odours. The plan will be re-trained in the event of any updates to the plan or any reported instances.

1.3 Relevant sector guidance on which this OMP is based

- Provide titles, sources and publication dates of all guidance referred to when writing this OMP

  1. *Environment Agency, 'H4 Odour Management Plan', March 2011*

- any other information you feel is relevant

  1. *BV Dairy has been certified to ISO14001 for approx. 12 years and the management systems developed also apply to the Anaerobic Digester*
  2. *Environment Agency, 'Appropriate measures for biological treatment', November 2024*

2. Receptors

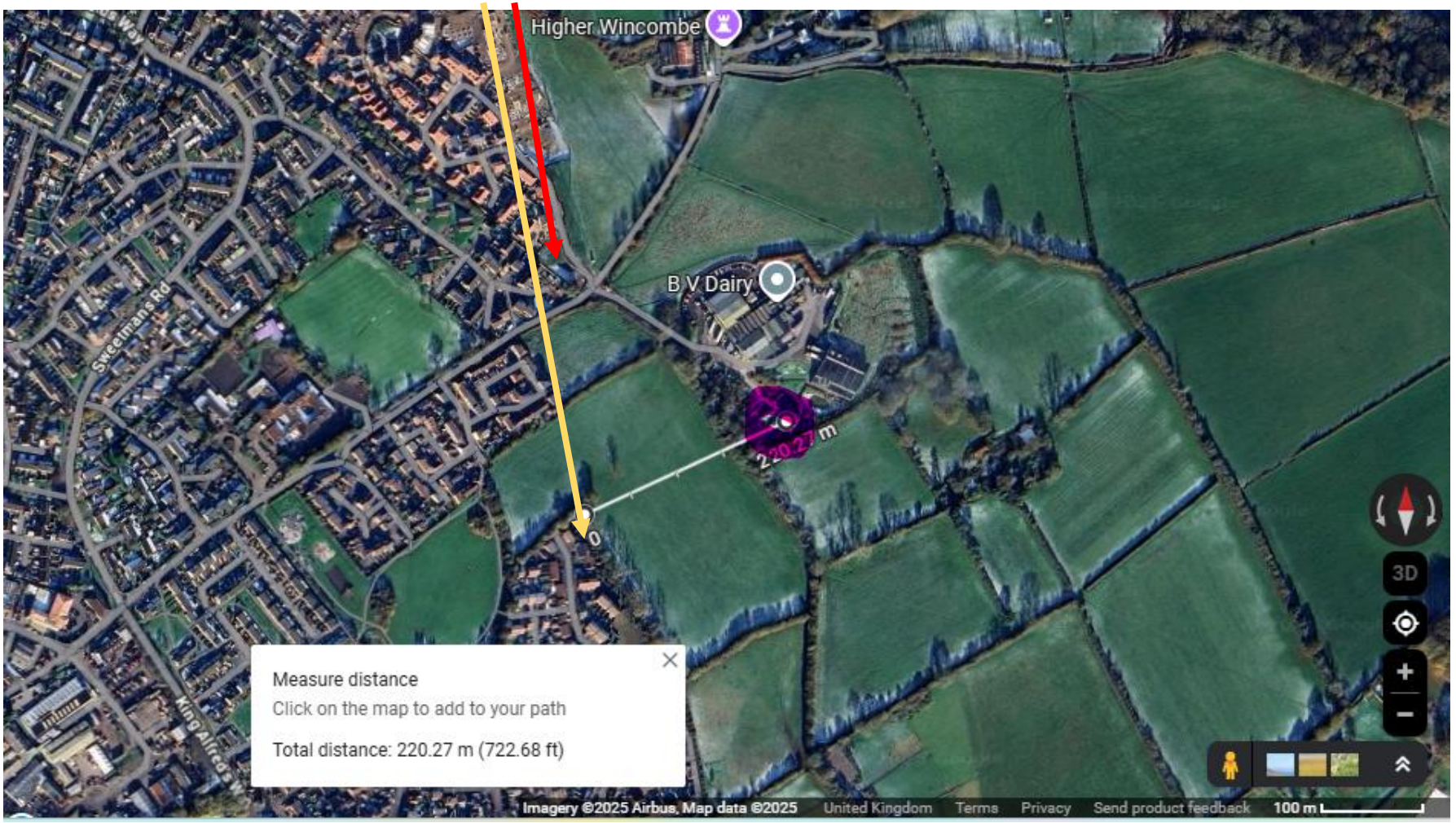
2.1. Receptor List

Table 2.1. Receptor list

Receptor reference (A, B, C etc. Use to label Fig 2.1)	**Land use e.g. house, school, hospital, commercial**	**Direction from site (North, South, East, West)**	**Approximate distance to site boundary (m)**	**Sensitivity to odour** Low (e.g. footpath/road) Medium (e.g. industrial / commercial workplace) High (e.g. housing / pub / hotel etc.)
A	Housing	Northwest	240	High
B	Housing	West	220	High

Figure 2.1 Map of site location and receptors

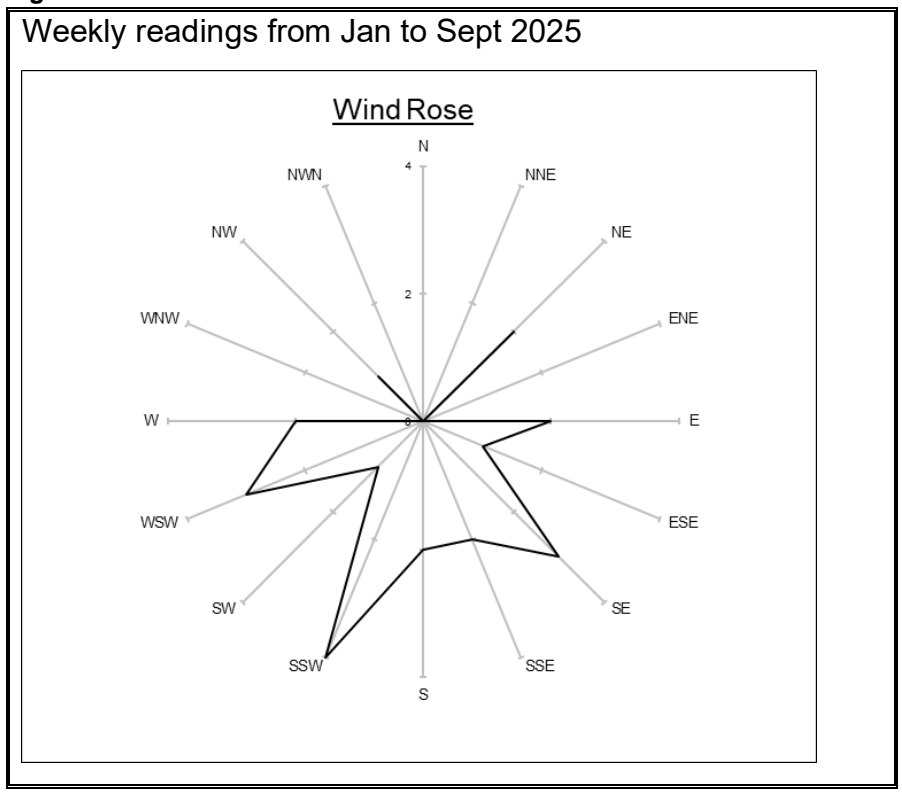
Receptors – Residential Housing A (Red) & B (yellow)



Pink dot shows digester position

2.2. Wind rose and source of weather data

Figure 2.2. - Wind rose



Weather details are currently recorded weekly from the Met office website

3. Sources of odour and site processes

3.1 Odorous materials entering and leaving site

- how are deliveries made to the site e.g. road/rail/canal? *There are no deliveries to the site. The feedstock for the digester comes from the dairy processing site adjacent to the AD plant through enclosed underground pipework to the feed tanks. The feedstock is CIP rinsings, permeate and floor rinsings. The odour from these materials is minimal and they are fully contained from source to feeding into the digester*
- at what frequency does the site receive deliveries? *The feed from the factory is continuous*
- what kind of containers is the material received in? N/A
- are the vehicles sealed or covered? N/A
- are customers / vehicle drivers provided with any special instructions about odorous loads? N/A
- what protocol is in place for unacceptable materials being delivered? If you have a Waste Rejection Protocol this can be cross-referenced N/A
- any other information you feel is relevant. *No waste from other sources is brought to site.*

3.2 Odorous materials

Table 3.2 Odorous materials

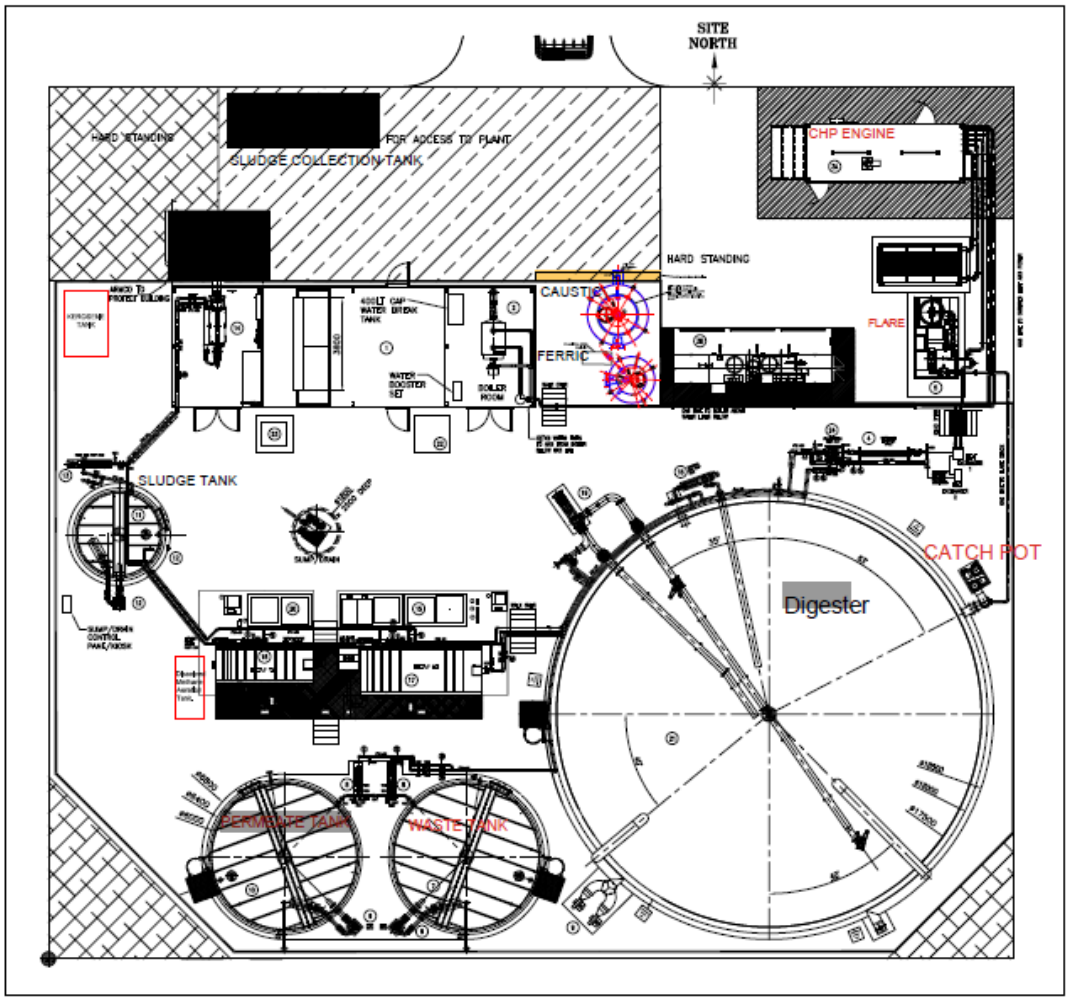
Odorous and potentially odorous material (any solid, liquid or gas)	Odour potential High Risk / Medium Risk / Low Risk	Maximum quantity on site at any given day (tonnes per day or litres per day)	Maximum time held on site (hours or days)	Location of odorous materials on site	Additional comments
AD Feedstock (waste and permeate tanks) (CIP rinsings, dairy waste)	Low Risk	200 tonnes	48 hours	Enclosed tanks	No odour issues ever been raised from the feedstock.
Excess digestate storage	Low Risk	28 tonnes	24 hours	Enclosed tanks	Excess is removed from site twice a week. Pumped into storage container day before collection
Treated effluent	Medium Risk	200 tonnes* continuous feed	N/A	DAF's and open sewer pit	*this is the discharge volume per day The effluent only has an unacceptable odour if the AD Plant fails and the effluent is therefore not adequately treated.
Gas produced in the dome (Methane and hydrogen sulphide)	Low Risk	N/A	N/A	Digester	The odour will only be released if the digester dome fails (not happened in last 10 years) or if the catch pot safety mechanism to prevent dome blowing off releases gas. The hydrogen sulphide level is controlled by dosing ferric chloride into the digester so under normal operating standards smell is not detectable

3.3 Overview of odorous processes and emissions

Provide a description (whether text / diagrams or tables) of the site layout and the processes carried out including the information in the bullet points below as a minimum. Use Figure 3.3 as a guide to show the site infrastructure relevant to any odorous processes carried out and the odour emission locations on your site e.g.

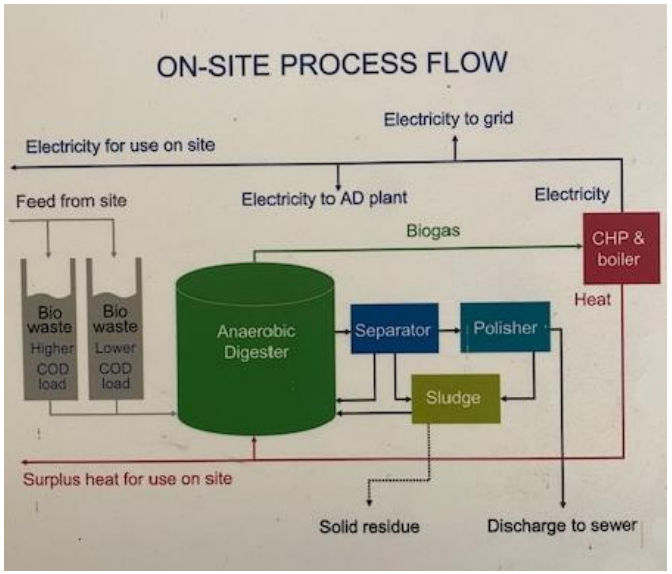
- name and type of buildings, - *see diagram*
- if applicable, describe the building air ventilation system – N/A
- loading and unloading areas, N/A
- storage areas, - *all enclosed tanks*
- windrows, (if composting site), N/A
- processing areas, *digester enclosed, DAF's lidded but can be opened to atmosphere*
- which activities have the most odour potential e.g. a food and drink site may receive low to medium material delivered to site but processing (cooking) will mean this becomes high risk, *release of hydrogen sulphide from digester*
- fixed plant and layout of equipment, e.g. trommel, conveyor etc, - *see diagram*
- locations of mobile plant, N/A
- odorous emission points, *see site diagram below*
- risk associated with activity e.g. high medium or low, - *low*
- any other information you feel is relevant *the feedstock is fresh from the factory and the volume produced each day will be fed into the digester or removed by tanker, therefore the likelihood of the feedstock going off and producing an unacceptable odour is very low*

Figure 3.3 – Site plan showing odorous process locations / odorous emissions / storage



Potential Odour release points

1. Digester and Catch Pot
2. Waste and Permeate tanks
3. Sludge and sludge collection tanks
4. Open Pit for treated effluent to Wessex Water



Biowaste higher COD = permeate

Biowaste lower COD = trade

Separator/Polisher = DAF's (Dissolved air flotation)

4. Control measures and process monitoring

4.1 Appropriate measures / BAT

Table 4.1 Monitoring procedures for appropriate measures/ BAT

Odorous and potentially odorous process / material	Control measures (Appropriate Measure / BAT)	Monitoring frequency	Monitoring procedure and optimum process parameters	Trigger level	Action taken if outside optimum process parameters
AD Feedstock	Transferred at all times through enclosed pipe-work and tanks	Checked daily	Visual daily check that no leaks	Leaks found	Source of leak rectified as soon as possible
AD Feedstock tanks	Tanks have level sensors to control the height in the tanks	Automatic	Height of tanks checked daily	High level in tank detected	SCADA alert sent to AD Plant Engineer and Manager. Once high level reached the pumping of feedstock from the factory will stop to prevent the tanks overflowing through the outlets
Digestate storage (sludge tank)	Tank enclosed. Level sensor to control the height	Automatic	Height of tank checked daily, manually transferred to Sludge Collection tank	Tank at high level	Alerts to AD Plant engineer. DAF's stopped automatically to prevent further digestate being fed into the sludge tank

Digestate storage (sludge collection tank)	Tank enclosed. Manual check on height	Checked before and after manually filing the tank	Tank filled twice a week before collection. Filling is manually activated on a timer so shouldn't overflow the tank	Tank full	If tank full arrange tanker collection through Third Party haulier.
Treated effluent to Wessex Water	DAF's would be stopped and untreated effluent would be transferred back to the digester	Tested daily. Visually monitored throughout the day	Composite sample for 24 hours discharge tested daily. COD value <1000mg/l	COD >1000mg/l or visually black discharge	DAF's stopped and untreated effluent sent back to digester. If discharge black investigate polymer addition to determine why not separating correctly

5. Odour reporting

5.1 Complaints reporting

Any complaints will be logged through the Non-conformance system in Epicor (electronic ERP System). The Non-Conformance is logged electronically by the SHE or Technical Manager and it is assigned to the person responsible for investigation, determination of root cause and establishing immediate corrective actions and preventative actions. Any complaints not resolvable within 48 hours will be reported to the Environment Agency

5.2 Community engagement

Interaction will be by letter to the individual properties or through a residents group if it's formation is deemed necessary.

5.3 Pro-active odour monitoring

Area is checked daily by the AD Plant Engineer/Operator and recorded. Any unacceptable odours are reported for further action

5.4 Reactive odour monitoring

No reports of odour ever received from receptors. However should this occur, the source of the odour will be determined and a full investigation will be conducted and remediation measures undertaken in accordance with 'complaints reporting' above.

6. Abnormal events

Table 6.1 Abnormal events

Abnormal event	Recovery steps
Digester microbe failure	Re-seed digester, recovery can take up to 8 weeks depending on microbe activity, some waste will be fed into the digester to aid microbe growth. Excess waste will tankered off site for animal feed, land spreading (under deployment) or treatment at other digesters
Dome damage	New dome to be ordered (6 week lead time). In meantime the digester will be let to form a 'crust' which will contain any odour that is released from untreated waste. The microbes will keep reacting during this time. Excess waste will tankered off site for animal feed, land spreading (under deployment) or treatment at other digesters
Flood/abnormal weather	Any flooding will be contained through the bund. There is a pit in the centre of the site that pumps treated waste to Wessex Water. Excess waste will be tankered off site for animal feed, land spreading (under deployment) or treatment at other digesters As all waste storage is in enclosed tanks there is no risk of release to water courses.
Fire	Recovery will depend on the extent of the fire. While recovering excess waste will be tankered off site to animal feed, spreading on land or other digester
Equipment Breakdown	Critical spares are held for all equipment such as pumps, valves and sensors that would stop the flow of waste in to and out of the plant. Excess waste will be tankered off site for animal feed, land spreading (under deployment) or treatment at other digesters
Power failure	In the event of a power failure the whole plant will stop as will the flow of feedstock from the factory. Once power has been re-stored the plant is checked to ensure that there are no pumps that have tripped when re-starting. The DAF's are then monitored to ensure that the separation is happening and that the polymer is flowing correctly. Additional tankers will be remove excess waste while the plant is recovering.
Loss of water	If water is lost the polymer can not be diluted. The DAF's are stopped until the water supply has resumed. Excess waste is tankered off site while the DAF separation is recovered.