First Milk Haverfordwest Creamery
Odour Management Plan

1 PURPOSE

To outline the methods by which First Milk and its effluent treatment partners will manage odour including sources, control measures, monitoring and response.

The odour management plan is a working document with the aim of ensuring that:

- Potential odour sources are identified.
- Odour impact is considered as part of routine inspections.
- Odour is primarily controlled at source by good operational practices, the correct use and maintenance of plant, and operator training.
- Appropriate measures are taken to prevent or, where that is not reasonably practicable, to reduce odorous emissions to air from the operation to nearby receptors.
- People outside of the site are not exposed to levels of odour that would result in annoyance.
- The risk of unplanned odour releasing incidents or accidents that would result in annoyance is minimized.
- Site developments consider odour potential and potential impacts from work carried out.

2 SCOPE

This document applies to the Haverfordwest Creamery and Haverfordwest Creamery Effluent Treatment Plant.

Note: for the purpose of clarity this document is split into two sections. This is done as the two areas of the site have distinct characteristics and are managed in slightly different ways.

A. Haverfordwest Creamery
B. Haverfordwest Creamery Effluent Treatment Plant

3 REFERENCE DOCUMENTS

The structure of this OMP has been revised on the basis of Environment Agency Guidance available at the website https://assets.publishing.service.gov.uk/media/5a7ba9a2ed915d1311060b16/geho0411btqm-e-e.pdf

4 DEFINITIONS

ETP – Effluent Treatment Plant

Odour - Guidance from the Department for Environment, Food and Rural Affairs (DEFRA) defines odour as follows: “An odour is the organoleptic attribute perceptible by the olfactory organ on sniffing certain volatile substances. It is a property of odorous substances that make them perceptible to our sense of smell. The term odour refers to the stimuli from a chemical compound that is volatilised in air. Odour is our perception of that sensation and we interpret what the odour means. Odours may be perceived as pleasant or unpleasant. The main concern with odour is its ability to cause a response in individuals that is considered to be objectionable or offensive.

Odours have the potential to trigger strong reactions for good reason. Pleasant odours can provide enjoyment and prompt responses such as those associated with appetite. Equally, unpleasant odours can be useful indicators to protect us from harm such as the ingestion of rotten food. These protective mechanisms are learnt throughout our lives. Whilst there is often agreement about what constitutes pleasant and unpleasant odours, there is a wide variation between individuals as to what is deemed unacceptable and what affects our quality of life."

5 RESPONSIBILITIES

PART A – THE HAVERFORDWEST CREAMERY

The responsibility overall for odour at the Creamery lies with the Site Director.
The responsibility for maintaining this procedures and reporting odour issues to NRW lie with the SHE Manager.
The responsibility for odour response lies with the Creamery Site Management Team (SMT).

PART B – THE HAVERFORDWEST CREAMERY EFFLUENT TREATMENT PLANT

The responsibility overall for odour at the Creamery ETP lies with the Site Director
The responsibility for maintaining this procedures and reporting odour issues to NRW lie with the SHE Manager
The control of odour shall be managed by the ETP manager.

6 OMP

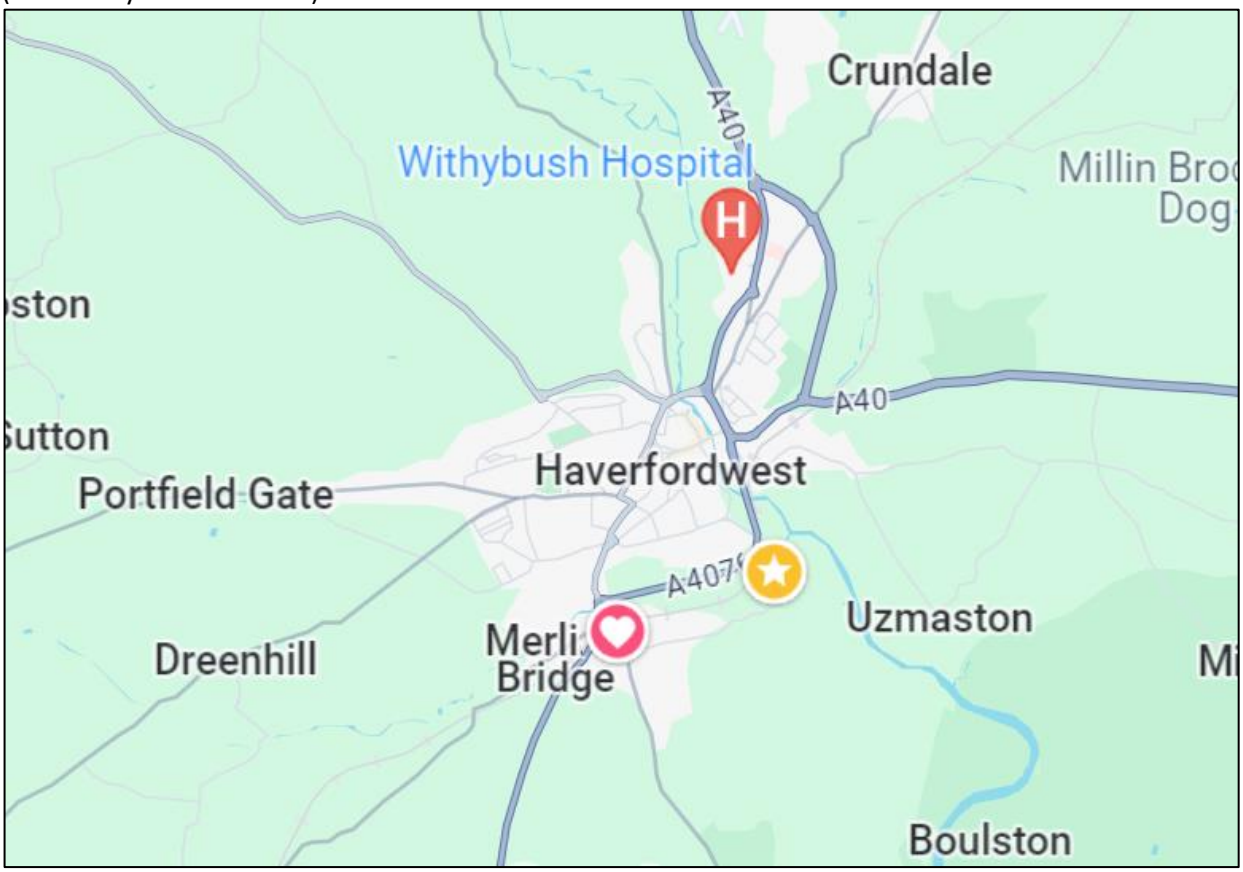
PART A – THE HAVERFORDWEST CREAMERY

6.A.1 Site environmental setting

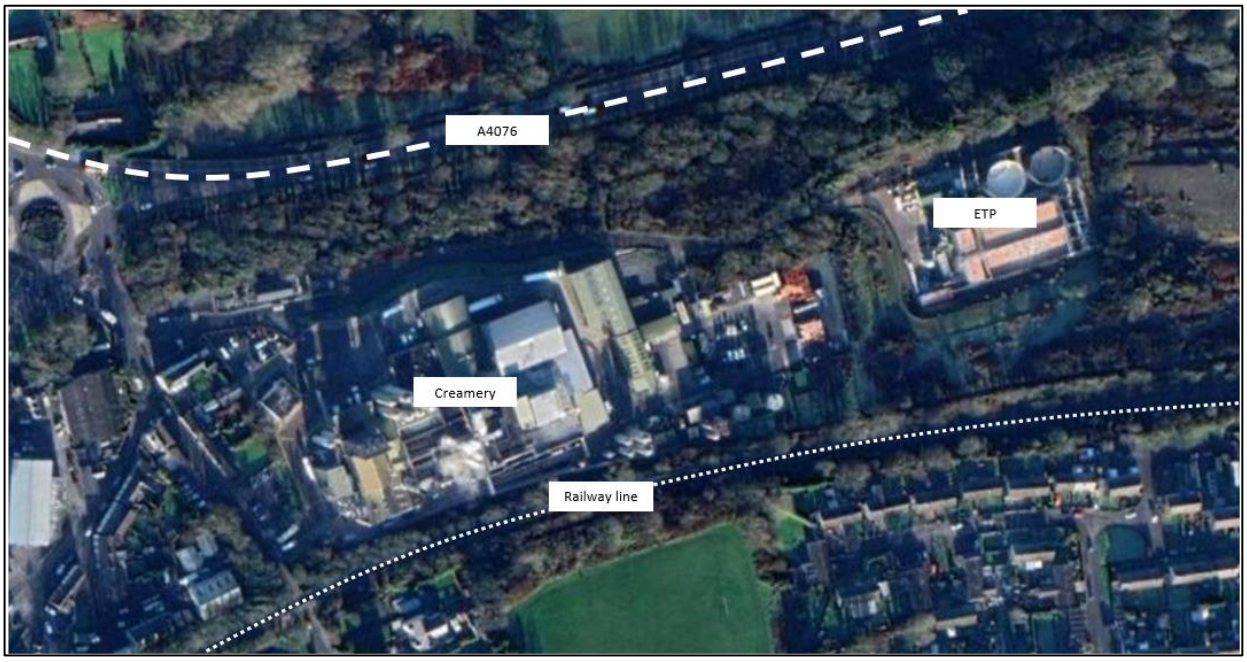
The Haverfordwest Creamery is located within the Merlin's Bridge area of the town of Haverfordwest. Merlin's Bridge is to the south of the town with the main commercial and residential areas to the north of the site.

North	Haverfordwest town
Northeast	Haverfordwest town
East	Dwr Cymru waste water treatment plant then agricultural land
Southeast	Merlin's Bridge residential housing then agricultural land
South	Merlin's Bridge residential housing then agricultural land
Southwest	Merlin's Bridge residential housing then agricultural land
West	Haverfordwest town residential housing then agricultural land
Northwest	Haverfordwest town residential housing then agricultural land

Site location:
(marked by the heart icon)



Site map:



6.A.2 Odour source(s)

There are no significantly odorous processes at the creamery.

Milk is delivered in tankers and transferred through a closed pipe system to silos located at the site. The silos are chilled and therefore no odour is produced. Any small-scale spillages that may occur at milk intake are promptly cleaned up by either the 3rd party hauliers or the Operations team with any liquid washed to effluent drains in the locality.

The plant is regularly walked with observations made on any leaks to:

a) prevent loss of product and

b) prevent any pooling of milk or whey products that could cause an odour issue.

The milk pasteurisation process is all carried out within enclosed plate heat exchangers that are themselves located within the building.

The cheese manufacture process itself is not an odorous one with milk moved to enclosed vats, cultures added and the milk put through a defined recipe process. The reminder of the cheese process is a draining conveyor to remove whey, a cheddaring tower, a salting conveyor where salt is added to the curd and then a block forming process whereby the curd is compacted into 20kg blocks ready to be shrink wrapped.

In the event that the site generates waste cheese, this is bagged and stored in dolavs before it is removed from site by a waste contractor. The volume of such waste is typically limited to 6 dolavs of waste given the capacity of the waste haulier's vehicle and as such the amount of this waste that is stored at the site at any time is limited.

The site has an ammonia plant as part of its refrigeration process. Leaks from this plant are very rare and in the event that there was a leak the system would draw out any released ammonia and vent it at high level meaning that dispersal minimizes the potential effect on neighbours.

6.A.3 Odour pathway

The principle mechanism for the transit of any odorous emissions from the site to nearby sensitive receptors is via ambient air. The distance and direction that these emissions will be carried is determined by the following factors:

- Source related pathways
- Meteorological conditions
- Topography

Source related pathways

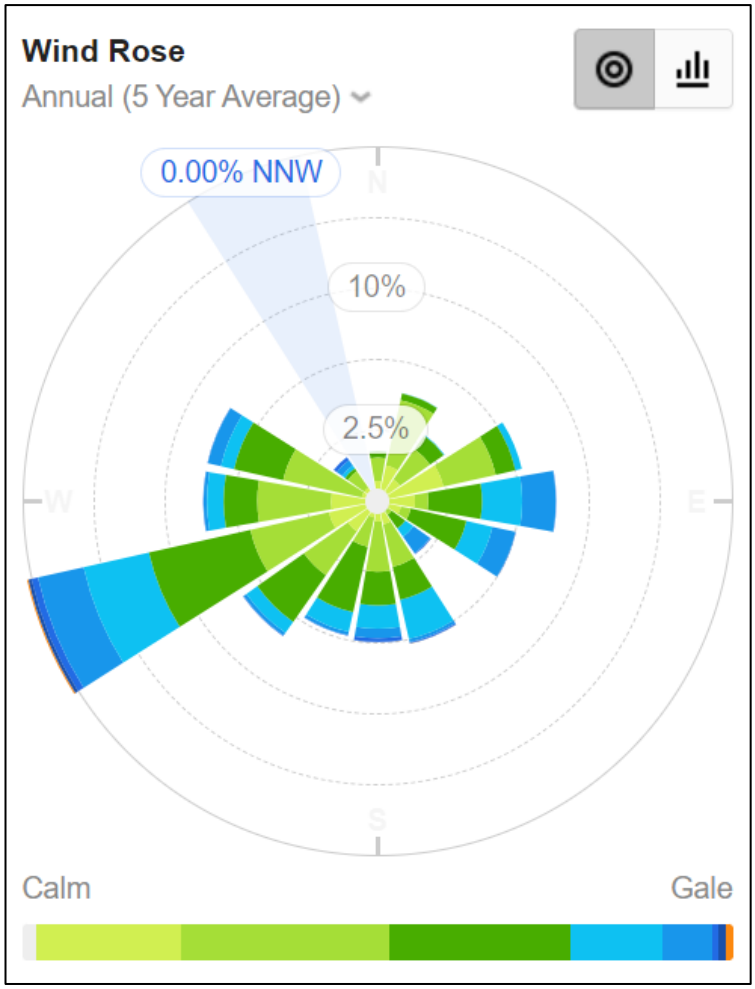
The pathway that an odorous emission takes from a site will depend upon the specific source and location it arises from. The nature of the source related pathway could also influence the scale of the resulting impact on a sensitive receptor.

Meteorological conditions

The main controlling factor in determining the pathway of odour is the ambient meteorological conditions. This is fundamental to the transportation of odour to sensitive receptors. Wind direction will determine which receptors will be affected and at what frequency.

Statistics based on weather station observations indicate that the prevailing winds are predominantly from the southeast. The rose diagram below demonstrates this.

Given the information presented in the wind rose it is considered that receptors to the northeast of the site are more likely to present as receptors to odour from the creamery were there to be a significant odour issue at the site.



Note: information taken from: https://wind.willyweather.co.uk/

Air temperature

Warm air may carry odours upwards by convection for their dispersion away from the site.

Adverse weather conditions

Unusual weather conditions are unlikely to have any impact in affecting the risk of odour emissions from the site.

6.A.4 Potential receptor locations

Ref	Receptor	Location (direction from site)	Approx. distance to the site boundary	Category	Sensitivity
R1	Pembroke Road	West of the site	50m	Residential & Commercial	High
R2	Pembrokeshire College	Northwest of the site Across the Merlin's Bridge roundabout	300m	Educational	Medium
R3	Dwellings on Merlin's Hill	Northwest of the site Across the A4076 and Merlin's Bridge roundabout	320m	Residential	High
R4	Dwellings in "Poet's Corner e.g. Shakespeare Close	Northeast of the site Across the A4076	390m	Residential	High
R5	Dwellings on Jenkins Close	Southeast of the site Across the adjacent railway line (Milford Haven-Carmarthen)	100m	Residential	High
R6	Dwellings on Pembroke Road inc residential home	South of the site	100m	Residential	High

Receptor locations map

Other potential sources of odour emissions have been identified as part of this review, which have been listed in the table below (note that this is not an exhaustive list).
Contributing factors include any industry or waste facility type that may generate offensive odour from operational processes within an approximate 500m radius of the site.

Company	Address	Type of business	Distance (m) from the site boundary
Dwr Cymru / Welsh Water	Longitude -4.963876724 Latitude 51.79256821	Wastewater treatment works	350m from ETP 490m from creamery boundary

6.A.5 Control measures

As described earlier in this document, there are no significantly odorous processes at the creamery.

As a result of the lack of significant odour sources at the Creamery, the site does not have any odour abetment installed to deal with emissions from the cheese and whey making process.

As noted in section 6.A.2 the plant is designed in such a way as to minimize the risk of odour emanating from its operations. Controls measures include:

- Milk delivery in closed tankers.
- Closed pipe system to transfer milk to closed silos and then onto the processing plant.
- Spillages cleared away.
- Regular walks of the plant by Engineering and Operations identifying leaks to a) prevent loss of product and b) prevent any pooling of milk or whey products that could cause an odour issue.
- Pasteurization carried out within enclosed heat exchangers.
- Milk processing takes place within buildings.
- Cheese making process itself is not an odorous one with milk moved to enclosed vats, cultures added and the milk put through a defined recipe process. The reminder of the cheese process is a draining conveyor to remove whey, a cheddaring tower, a salting conveyor where salt is added to the curd and then a block forming process whereby the curd is compacted into 20kg blocks ready to be shrink wrapped.
- Limited odour from the cheese making process itself.
- Prompt removal of waste from the process. In the event that the site generates waste cheese, this is bagged and stored in dolavs before it is removed from site by a waste contractor. The volume of such waste is typically limited to 6 dolavs of waste given the capacity of the waste haulier's vehicle and as such the amount of this waste that is stored at the site at any time is limited.
- The ammonia plant having automated fans which vent any leaks that may occur to a high level reducing the impact on neighbours.

More broadly, the main approach employed to minimise the risk of odour is to ensure that the site and its plant remain in the same operating condition and standard ongoing. To ensure that this takes place the site has a dedicated engineering function with the Head of Engineering sitting on the Senior Leadership Team of the site, reporting into the site director.

The engineering team have in place a planned maintenance program which is designed to ensure that the plant and its ancillary equipment is maintained effectively. In doing so the site ensures that there are no new odour sources introduced and that the low impact risk currently experienced is maintained.

Externally, the creamery employs a full-time Facilities Support Officer role who is responsible for the general upkeep of the external areas of the site and manages waste disposal from the site. Housekeeping and cleaning schedules ensure organic material does not adhere or aggregate in any areas of the site to produce an odour.

6.A.6 Monitoring

First Milk recognizes that it is important to assess any odorous emissions so that we can work out how effective our control measures are.

With respect to the Creamery the following has been designed to reflect the limited potential impact on the local community as expressed earlier in this document.

It has been determined that the most effective way to monitor the limited potential impact of odour from the Creamery is to carry out fence line monitoring of the site on a periodic basis.

Such monitoring shall be done using sniff testing of the ambient air.

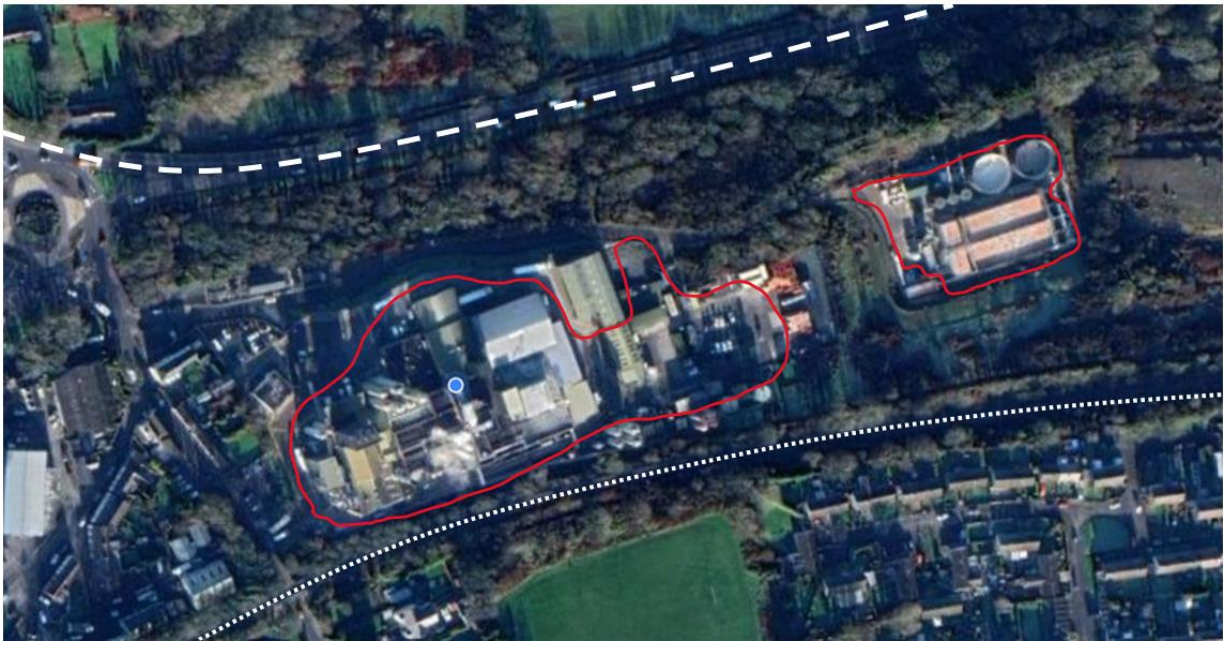
Sniff testing has been chosen as it is recognized that emissions are often greatly diluted from their point of release and are often below the detection limits of instruments but can still be detected by people.

To this end a “SHE – Inspection” has been created which constitutes a site wide external walk of the plant checking for odour at key locations around the site perimeter.

The site odour inspection is to be carried out on a 6 monthly basis given the current low risk associated with odour at the creamery. This, unless prompted by a significant change to the process at the Creamery, that prompts an intermediate review.

The site odour inspection shall be logged on to the online audit tool utilized by the creamery with records stored within the SHE department.

Odour monitoring walk route (marked in red):



It is recognized that in order to ensure the quality of the monitoring carried out that persons carrying out the monitoring should be adequately trained.

In order to ensure a degree of competence in recognizing the value of the monitoring it shall typically be carried out by the site SHE Manager.

In order to ensure that the SHE Manager and any other colleagues tasked with carrying out the assessment has a suitable level of sensitivity that person shall undergo sensitivity testing using a suitable “threshold test”.

Records of such testing shall be saved within the SHE department.

6.A.7 Complaints monitoring

In the event of a complaint being made to the site, the site shall make endeavors to explore the cause of the complaint. This typically will be in the form of a site walk to establish if there is any noticeable odour emanating from the site operations. This shall typically be immediately upon notification of the complaint.

In the event that there is a noticeable odour from the Creamery, this shall be discussed in the next appropriate management meeting and any potential actions to minimise the odour discussed and agreed.

The details of any such complaints shall be recorded on the “Odour Complaint Report form” which can be found as appendix 3 at the end of this document with details then entered onto the site Noise and Odour tracker retained within the SHE department.

6.A.8 Emergency plans / Fugitive emissions

6.A.8.1 General

This section considers the potential for accidents (or incidents) which would result in the loss of control of odorous substances and could have an unacceptable short-term impact on the local community.

The Creamery operates 24/7 and as such an emergency is not anticipated to occur when there is no attendance on site.

6.A.8.2 Breakdown of Process Equipment and Plant

The breakdown of the creamery processing equipment may cause increased levels of waste from the site. To combat the risk of potential increased odour, increased waste collections shall be arranged to ensure the buildup of any waste is minimized.

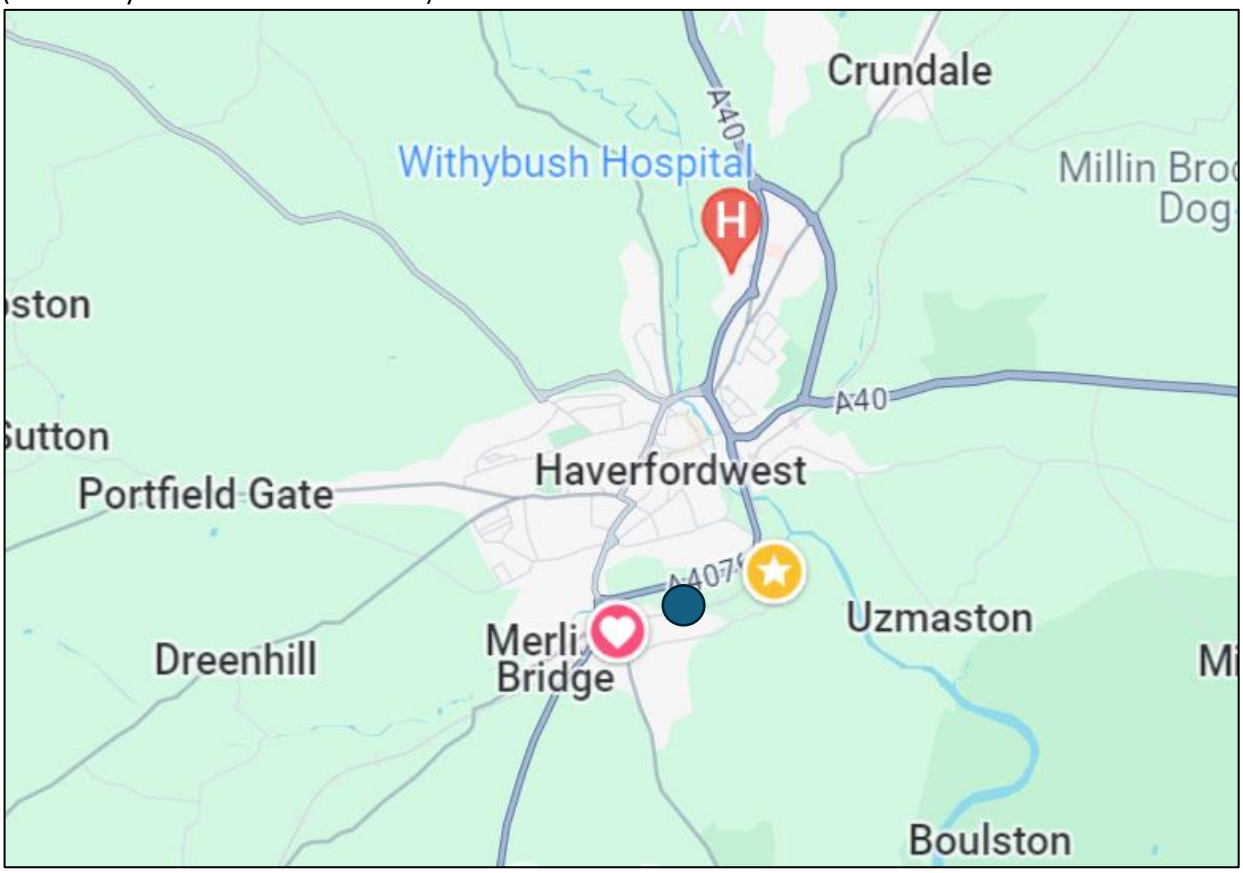
PART B – THE HAVERFORDWEST CREAMERY EFFLUENT TREATMENT PLANT

6.B.1 Site environmental setting

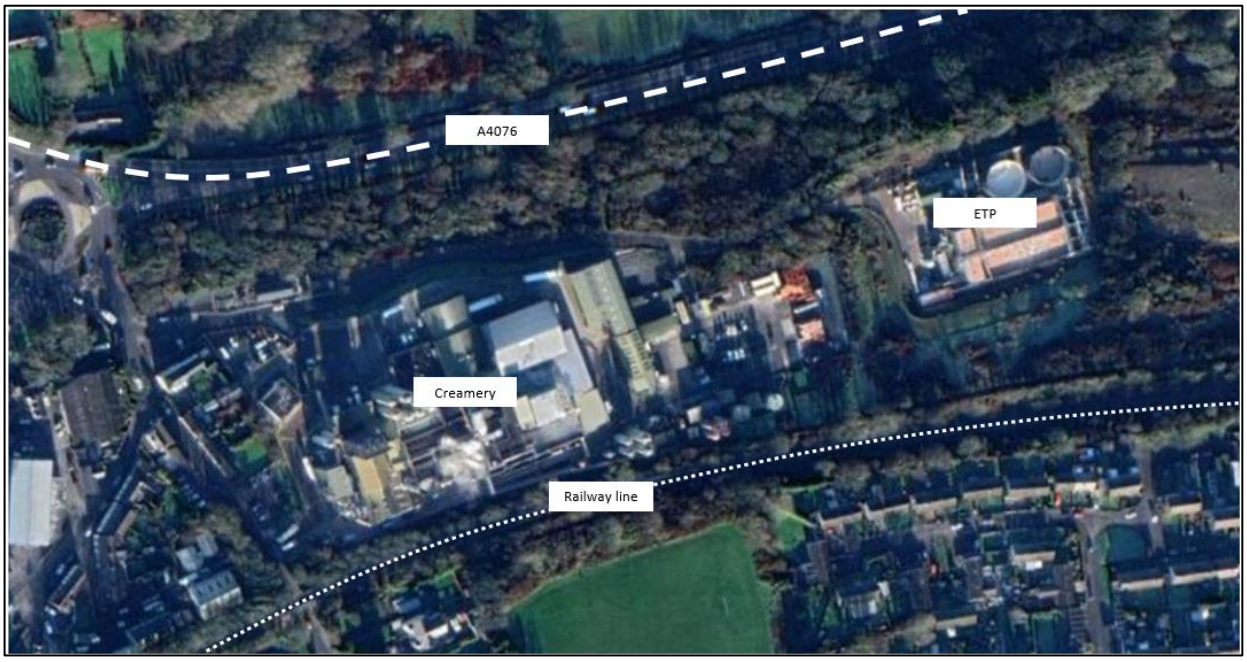
The Haverfordwest Creamery ETP is located within the Merlin's Bridge area of the town of Haverfordwest. Merlin's Bridge is to the south of the town with the main commercial and residential areas to the north of the site.

North	Haverfordwest town
Northeast	Haverfordwest town
East	Dwr Cymru waste water treatment plant then Agricultural land
Southeast	Merlin's Bridge residential housing then agricultural land
South	Merlin's Bridge residential housing then agricultural land
Southwest	Merlin's Bridge residential housing then agricultural land
West	Haverfordwest town residential housing then agricultural land
Northwest	Haverfordwest town residential housing then agricultural land

Site location:
(marked by the blue circle icon icon)



Site map:



6.B.2 Odour source(s)

Odour may be released during the following activities:

Location	Activity / process	Condition	Hedonic score	Risk
Influent sump	Influent entering the ETP from the creamery	Normal	-1	Low
Balance tank	Open top balance tank that holds creamery effluent prior to processing (1,800,000L)	Normal	-1	Low
DAF 1	Effluent treated in the primary DAF unit (50m3)	Normal	-1	Low
DAF 1	Effluent treated in the primary DAF unit (50m3)	Abnormal	-2	Medium
Aeration Lanes	Settling of influent within the aeration lanes (2 x 1,000,000L)	Normal	-1	Low
Aeration Lanes	Settling of influent within the aeration lanes (2 x 1,000,000L)	Abnormal	-2	Medium

DAF 2	Treated effluent from aeration lanes treated in the primary DAF unit (110m3)	Normal	-1	Low
DAF 2	Effluent treated in the primary DAF unit (110m3)	Abnormal	-2	Medium
Treated divert tank	Open top tank that holds treated effluent for re-processing (1,800,000L capacity but typically kept at close to empty)	Normal	-1	Low
Sludge thickener	Operation of the sludge thickener	Normal	n/a	Low
Sludge tanks	Storage of sludge within tank (140,000L)	Normal	0	Low
Sludge tanks	Transfer of sludge from sludge tank to road tanker (140,000L)	Normal	-2	Low
All areas	Accidental leaks or spillages of effluent onto hard standing	Abnormal	-1	Low
Waste skip	Waste from ETP activities stored before collection.	Normal	-2	Low

6.B.3 Odour pathway

The principal mechanism for the transit of any odorous emissions from the site to nearby sensitive receptors is via ambient air. The distance and direction that these emissions will be carried is determined by the following factors:

- Source related pathways
- Meteorological conditions
- Topography

Source related pathways

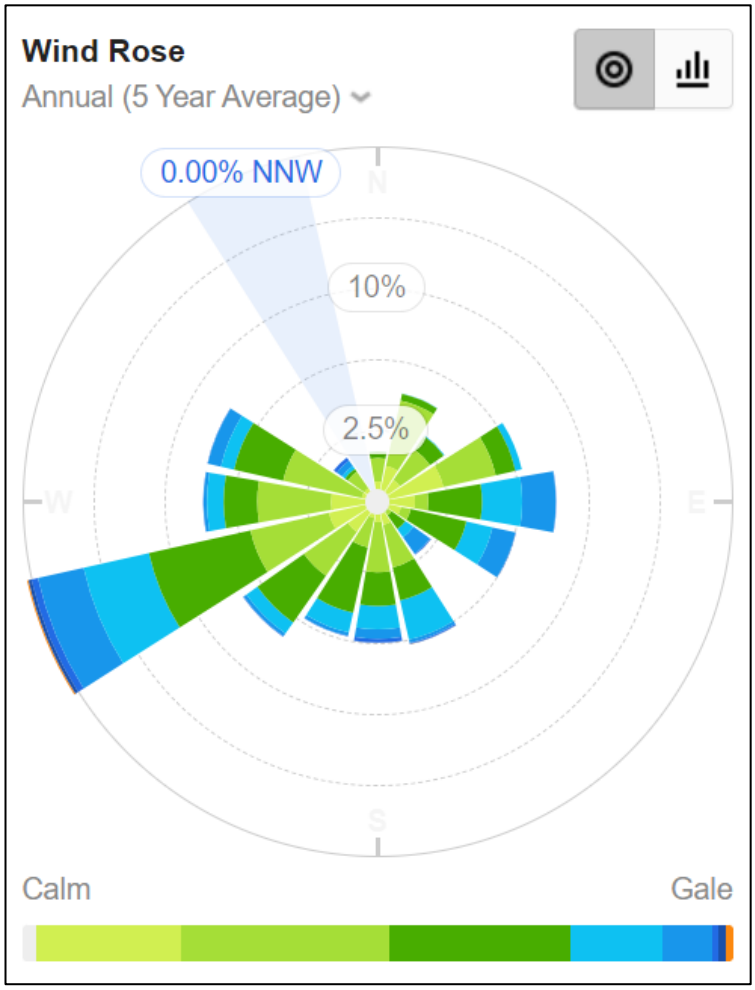
The pathway that an odorous emission takes from a site will depend upon the specific source and location it arises from. The nature of the source related pathway could also influence the scale of the resulting impact on a sensitive receptor.

Meteorological conditions

The main controlling factor in determining the pathway of odour is the ambient meteorological conditions. This is fundamental to the transportation of odour to sensitive receptors. Wind direction will determine which receptors will be affected and at what frequency.

Statistics based on weather station observations indicate that the prevailing winds are predominantly from the south east. The rose diagram below demonstrates this.

Given the information presented in the wind rose it is considered that receptors to the northeast of the ETP site are more likely to present as receptors to odour from the ETP were there to be a significant odour issue at the site.



Note: information taken from: https://wind.willyweather.co.uk/

Air temperature

Warm air may carry odours upwards by convection for their dispersion away from the site.

Adverse weather conditions

Unusual weather conditions are unlikely to have any impact in affecting the risk of odour emissions from the site.

6.B.4 Potential receptor locations

Ref	Receptor	Location (direction from site)	Approx. distance to the site boundary	Category	Sensitivity
R1	Pembroke Road	West of the site	50m	Residential & Commercial	High
R2	Pembrokeshire College	Northwest of the site Across the Merlin's Bridge roundabout	300m	Educational	Medium
R3	Dwellings on Merlin's Hill	Northwest of the site Across the A4076 and Merlin's Bridge roundabout	320m	Residential	High
R4	Dwellings in "Poet's Corner e.g. Shakespeare Close	Northeast of the site Across the A4076	390m	Residential	High
R5	Dwellings on Jenkins Close	Southeast of the site Across the adjacent railway line (Milford Haven-Carmarthen)	100m	Residential	High
R6	Dwellings on Pembroke Road inc residential home	South of the site	100m	Residential	High

Receptor locations map

Other potential sources of odour emissions have been identified as part of this review, which have been listed in the table below (note that this is not an exhaustive list).
Contributing factors include any industry or waste facility type that may generate offensive odour from operational processes within an approximate 500m radius of the site.

Company	Address	Type of business	Distance (m) from the site boundary
Dwr Cymru / Welsh Water	Longitude -4.963876724 Latitude 51.79256821	Wastewater treatment works	350m from ETP 490m from creamery boundary

6.B.5 Control measures

AOL will have responsibility for ensuring that nuisances and hazards arising from the facility due to odour are minimised. Regular meetings are held to discuss current and planned site operations, during the assessment of operations odour management is discussed where it is expected to have an impact.

Physical and management measures have been included to control odour at the ETP. These are discussed below.

Location	Activity / process	Condition	Controls / comment	Hedonic score	Risk
Influent sump	Influent entering the ETP from the creamery	Normal	Influent sump is located below ground level with a relatively small grate opening. Influent is pumped from the sump into the balance tanks as it arrives at the ETP. tanks as it arrives at the ETP. As a result odour from this location is limited.	-1	Low
Balance tank	Open top balance tank that holds creamery effluent prior to processing (1,800,000L)	Normal	None	-1	Low
DAF 1	Effluent treated in the primary DAF unit (50m3)	Normal	Enclosed DAF unit, removeable cover to allow for maintenance. Flow of influent through the DAF is continual at a rate of 80-100m3 per hour, therefore residence time is kept to a minimum and as such odour risk is limited.	-1	Low
DAF 1	Effluent treated in the primary DAF unit (50m3)	Abnormal	In the event of a breakdown of the DAF 1 unit the entire ETP stops processing. Storage capacity is provided by the balance tank however repair work would then be prioritised given the functioning of the ETP is critical to the creamery operation. In terms of volume, volume in DAF1 is limited (50m3) minimizing the risk of significant odour from the equipment during any breakdown or planned pause.	-2	Medium

Aeration Lanes	Settling of influent within the aeration lanes (2 x 1,000,000L)	Normal	None Odour risk from the aeration lanes is limited. The influent from the creamery generally does not present an overly unpleasant / offensive odour and as such the process at the ETP under normal operation follows suit.	-1	Low
Aeration Lanes	Settling of influent within the aeration lanes (2 x 1,000,000L)	Abnormal	In the event that the diffusers to the aeration lanes failed, there could be opportunity for the effluent stored in the lane to turn anaerobic over an extended period of time. In this instance the ETP would install temporary floating aerators to the lane(s) to mitigate this and ensure treatment could continue.	-2	Medium
DAF 2	Treated effluent from aeration lanes treated in the primary DAF unit (110m3)	Normal	Flow of influent through the DAF is continual at a rate of 80-100m3 per hour, therefore residence time is kept to a minimum and as such odour risk is limited.	-1	Low
DAF 2	Effluent treated in the primary DAF unit (110m3)	Abnormal	In the event of a breakdown of the DAF 2 unit the entire ETP stops processing. Storage capacity is provided by the balance tank however repair work would then be prioritised given the functioning of the ETP is critical to the creamery operation. In terms of volume, volume in DAF2 is limited (approx. 110m3) minimizing the risk of significant odour from the equipment during any breakdown or planned pause.	-2	Medium
Treated divert tank	Open top tank that holds treated effluent for re-processing (1,800,000L capacity but typically kept at close to empty)	Normal	None Typically, the treated divert tank is kept empty to provide capacity should a volume of treated effluent require being sent to the tank. Once filled, the ETP operators set in place a plan to move over a proportion of the volume into the balance tank each day for further treatment until lowered back to empty.	-1	Low
Sludge thickener	Operation of the sludge thickener	Normal	Filter on sludge thickener drum (note, at time of document update the sludge thickener is not in use so no odour impact present)	n/a	Low
Sludge tanks	Storage of sludge within tank (140,000L)	Normal	The tank is sealed with a cover limiting the risk of any odour while sludge is stored	0	Low

Sludge tanks	Transfer of sludge from sludge tank to road tanker (140,000L)	Normal	The use of passive activated charcoal filters on sludge tanker outlet valves when transfer takes place. The charcoal filters act to filter the displaced air from the tankers which is the potential source of odour from this process. The carbon filter material is checked monthly with a gas monitor to check for any signs there is a breakdown of the filter material (H2S monitoring). Replacement of the filter material is then carried out either when such a sign is noted or on an annual basis, whichever presents earlier. Material is readily sourced with an approximate 2-3 day delivery time. Is it considered therefore appropriate to order on requirement rather than stock a volume of filter material at the site.	-2	Low
All areas	Accidental leaks or spillages of effluent onto hard standing	Abnormal	The plant is regularly walked with observations made on any leaks to: a) prevent loss of effluent b) prevent any pooling of effluent that could cause an odour issue. Any small-scale spillages that may occur at the ETP are promptly cleaned up by the site operator with any liquid washed to drains in the locality which recirculate into the ETP.	-1	Low
Waste skip	Waste from ETP activities stored before collection.	Normal	In normal operation the site generates waste. Typically this is in the form of components and hardware rather than anything that would create significant odour. Waste from the communal kitchen area is bagged and stored in the skip before it is removed from site by a waste contractor. The volume of waste is limited to 2 skips maximum given the storage space at site and as such the amount of this waste that is stored at the site at any time is limited.	-2	Low

All waste unloading, loading, treatment and storage will be undertaken in accordance with AOL operating procedures.

The Weather Station installed on site will be utilised to understand wind direction and speed before any operational or maintenance activities are undertaken that could give rise to an increase in odour levels around the site. This

information will allow the operators to minimise the impact on any sensitive receptors and undertake work when conditions are most favourable.

If at any time it is necessary to undertake temporary actions that are likely to cause elevated levels of odour, AOL or the FM SHE Manager will contact the NRW and any other interested parties before such actions are taken to inform them of the operations being undertaken and that elevated levels of odour may be encountered. Where practical such tasks will be completed when the prevailing wind direction is away from sensitive receptors.

Cleaning schedules are in place to ensure potential odour points such as the DAF Unit are kept free from any build-up, cleaning schedule will take into consideration weather conditions and seasonal changes.

Any small-scale spillages that may occur within the ETP boundary are promptly cleaned up by the operating team, at the ETP with any effluent liquid washed to effluent drains in the ETP. Spill kits are in place located near to the ETP office building for any spillages that require a containment and disposal rather than directing into the ETP process.

The Balance Tank has been substantially reviewed. A cost benefit analysis was undertaken and submitted to NRW in March 2016. The conclusion of this analysis was to conclude that the covering of the Balance tank did not meet with BATNEEC principles. Furthermore, the impact on odour was calculated to be minimal at best.

6.B.6 Monitoring

First Milk and the ETP operator AOL, recognise that it is important to assess any odorous emissions so that we can work out how effective our control measures are.

It has been determined that the most effective way to monitor the limited potential impact of odour from the ETP is to:

i) Carry out daily monitoring of the ETP by the ETP operating team
ii) Include within the fence line monitoring of the site on a periodic basis.

Such monitoring shall be done using sniff testing of the ambient air.

Sniff testing has been chosen as it is recognized that emissions are often greatly diluted from their point of release and are often below the detection limits of instruments but can still be detected by people.

6.B.6.1 Daily monitoring

Weather conditions (wind direction and speed) are recorded at the ETP Daily. This is done daily as part of the completion of the Daily Operations Log (BOF-002). This will enable potential odour issues to be predicted and necessary remedial actions implemented. It will also allow staff to plan activities which could have an adverse impact on the odour levels to limit the impact on the surrounding area.

All AOL and operational staff will be responsible for reporting any odour problems immediately to the AOL Regional Operations and Maintenance Manager or the FM SHE Manager.

During normal operation of the ETP, Odour levels are recorded on the BOF-002 – Daily operations log – this is completed twice daily by the operations staff by means of a sniff test. This test is a simple walk of the site as part normal operating duties. Given the small size of the site and lack of significant odour concerns at the ETP this is considered the most appropriate regular monitoring of the plant.

In order to ensure that the colleagues tasked with carrying out the sniff tests have a suitable level of sensitivity those persons shall undergo sensitivity testing using a suitable “threshold test”.

6.B.6.2 Fence line monitoring

The ETP is captured within the fence line monitoring of the site carried out on a periodic basis. This also serves to ensure that sniff tests are carried out by those other than colleagues who work at the ETP and in that environment.

Such monitoring is done using sniff testing of the ambient air.

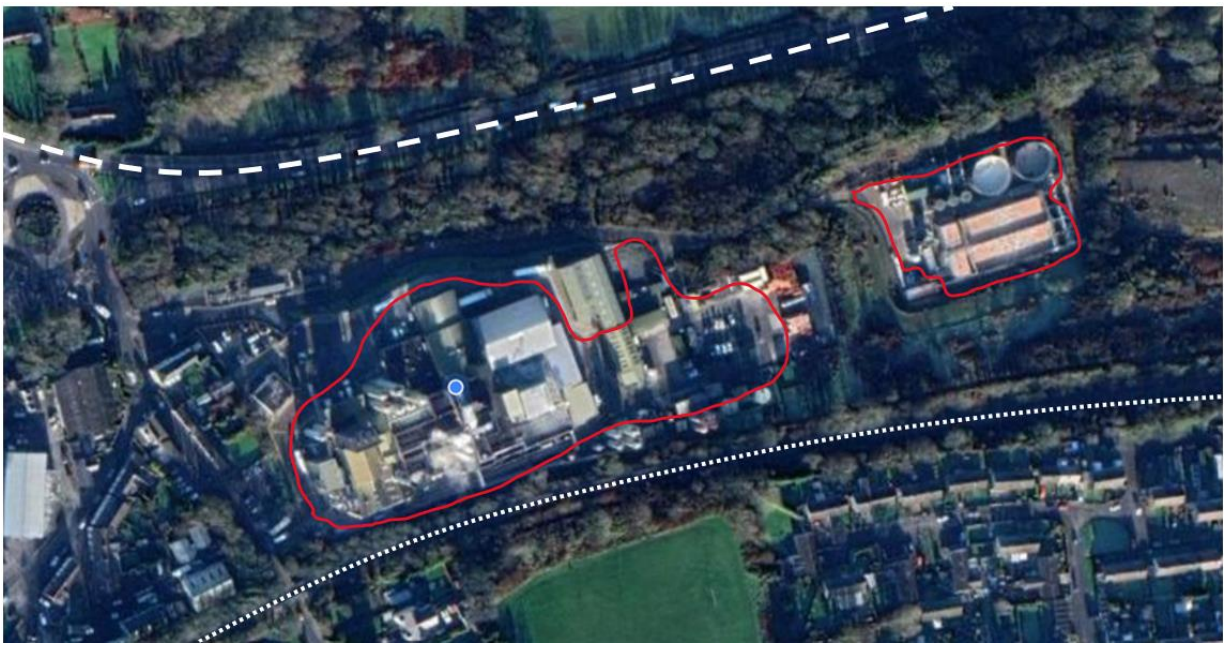
Sniff testing has been chosen as it is recognized that emissions are often greatly diluted from their point of release and are often below the detection limits of instruments but can still be detected by people.

As described earlier in the creamery section of the odour management plan, a “SHE – Inspection” has been created which constitutes a site wide external walk of the plant checking for odour at key locations around the site perimeter.

The site odour inspection is to be carried out on a 6 monthly basis given the current low risk associated with odour at the creamery. This, unless prompted by a significant change to the process at the Creamery or ETP that prompts an intermediate review.

The site odour inspection shall be logged on the online audit tool utilized by the creamery with records stored within the SHE department.

Odour monitoring walk route (marked in red):



It is recognized that in order to ensure the quality of the monitoring carried out that persons carrying out the monitoring should be adequately trained.

In order to ensure a degree of competence in recognizing the value of the monitoring it shall typically be carried out by the site SHE Manager.

In order to ensure that the SHE Manager and any other colleagues tasked with carrying out the assessment has a suitable level of sensitivity that person shall undergo sensitivity testing using a suitable "threshold test".

Records of such testing shall be saved within the SHE department.

6.B.7 Complaints monitoring

AOL will use forms as designated within their Environmental Management System to record complaints, which will be completed by the AOL Operations team.

As part of the Management System, a customer care and complaints procedure will be implemented. The customer care and complaints procedure apply to all complaints, feedback and requests made by third parties regarding AOL operational activities, environmental, health and safety performance or quality of service/product.

All complaints from third parties including Customer (FM), statutory authorities, members of the public, and internal clients will be forwarded to the AOL Operations team to action as below and recorded onto an online incident reports database (CAT TOOL) within 72 hours.

AOL will ensure that:

- The complaint is investigated to identify the cause, if necessary, this may involve direct communication with the complainant.
- In the event of elevated levels of odour being detected, the presence of 'abnormal' on-site activity is assessed and if necessary, preventative action is taken that will prevent a reoccurrence of the same problem. These actions must be documented.
- The Complainant will be contacted and given information on the investigations conducted and actions taken as appropriate.
- Where a complaint or query is likely to involve a statutory authority, the emergency services, an insurance company, or the media, The AOL Director will be informed.
- Complaints involving a location with Local Authority Contracts will be reported in line with specific Contract requirements and timescales. Local procedures may need to be in place to ensure these are adhered to.
- All complaints are reported to FM and discussed at site meetings.
- If the investigation indicates that the complaint has not been justified this will be clearly recorded on the Incident Report. All complaints will be logged.
- AOL 24/7 Response line: 07398 427105

6.B.8 Elevated Odour Levels

Any elevated levels of odour identified by the monitoring programme detailed in 6.B.6 and the customer care and complaints procedure identified in 6.B.7 will be mitigated as follows:

AOL will carry out a range of checks to identify the source of the odour to ensure that the plant is operational and is operating within normal parameters.

AOL will also review the equipment at the source of the odour to ensure the plant is being operated to the manufacturer's specifications.

Any issues identified above will be rectified by the AOL Operations team immediately where possible. Where the solution may take longer to resolve e.g., failure of a piece of the plant that may take several days/weeks to refurbish/replace, temporary mitigation shall be used to minimise the impact of the odour immediately.

To further mitigate the elevated odour levels, the following actions shall also be considered:

- Once the improvements identified by AOL have been completed, the manager will commission a further odour assessment to ensure that the improvements have addressed the source of the elevated levels. If the elevated levels are still present, then the operator will repeat the request for improvements and subsequent assessments until the limits are met.

- If operational failings are identified, retraining of employees will take place to ensure that all employees operate to the required standards. If the failings are identified as part of the operating techniques, then the problem will be raised as part of the review of control measures.

- In the event of loss of power to the ETP causing temporary shutdown of the plant, AOL will follow the site Contingency Plan to ensure the plant is brought back online as soon as possible, and hence minimise the risk of potential odours as a result of the shut-down.

- In the event of a serious incident requiring the complete shutdown of the plant for an extended period, AOL will ensure that adequate waste removal plans are in place for sludge or diverted effluent.

- AOL & the First Milk team will ensure a close liaison with the NRW throughout all stages of the process following the identification of elevated odour levels being identified.

6.B.9 Reporting Measures

In the event of elevated levels of odour being identified, the event will be reported to AOL Operations team.

All performance failures will be categorised as follows:

- Minor event: quick fix possible, locally resolved.
- Medium event: brief disruption to service, Management intervention required.
- Major event: significant disruption to service significant disruption to service.

Each non-conformance category has a given deadline for rectification. These are as follows:

- Minor target of 2hrs
- Medium target of 12hrs
- Major target of 24hrs

The AOL Operations team will investigate the performance failure event within 2 working hours and, if necessary, will report the event to the NRW. Once the issue has been resolved, the corrective action taken will be entered onto the system (CAT TOOL) and the issue will be closed.
Details of the CAT Tool and form used can be found in appendix 2.

Any odour complaint received into the ETP management team (AOL) shall be escalated the First Milk Senior Management team, typically via the creamery SHE Manager.

In the event that there is a noticeable odour from ETP, this shall be discussed in the next appropriate management meeting and any potential actions identified by the AOL team to minimise the odour discussed.

The details of any such complaints shall be recorded on the "Odour Complaint Report form" which can be found as appendix 3 at the end of this document with details then also entered onto the site Noise and Odour tracker retained within the SHE department.

6.B.10 Emergency plans / Fugitive emissions

6.B.10.1 General

This section considers the potential for accidents (or incidents) which would result in the loss of control of odorous substances and could have an unacceptable short-term impact on the local community.

Should an emergency occur outside of normal operating hours; a nominated representative will be at the ETP within 1.5 hours of notification.

Should an emergency occur out of hours, the nominated representative will contact the operations and maintenance manager as appropriate, via mobile telephone.

The focus of any actions taken at that stage will be to ensure that the ETP is brought back to normal operating conditions in the shortest timeframe possible ensuring that this is done safely. In achieving this objective the impact of any ongoing odourous issue would be limited.

It is not possible to list an exhaustive range of actions that could be taken, however the typical actions would revolve around an investigative approach to understand the issue and then a repair of the part or parts that may have failed. This typically can be done with the spares held on site. If these were not available, then contact would be made with appropriate suppliers to source the required items at pace to resolve the identified issue.

6.B.10.2 Abnormal Meteorological Conditions

Abnormal meteorological conditions such as low wind strength, low pressure, high temperatures may promote elevated levels of odour either on the site or at nearby sensitive receptors. A wind direction towards sensitive receptors may increase odour levels. Conversely very low wind strength and temperature inversions may minimise dispersion and potentially create a build-up of odour. High temperatures may also increase emissions.

The mitigation measures to be undertaken in the event of abnormal meteorological conditions are the same as the contingency mitigation measures detailed in section 4.

6.B.10.3 Breakdown of Process Equipment and Plant

The breakdown of the Effluent Treatment process or abatement equipment may cause elevated levels of odour to be created due to the build-up of waste or the failure of control equipment.

The mitigation measures to be undertaken in the event of process breakdown are the same as the contingency mitigation measures detailed in 6.B.8.

6.B10.4 Staffing Issues

Human error and accidents may cause elevated levels of odour to be created either through the stopping or breakdown of the process or the failure of control equipment.

The mitigation measures to be undertaken in the event of staffing issues are the same as the contingency mitigation measures detailed in Section 5.3. The Unit Emergency Plan for accident/injury will also provide further detail on the procedures to be undertaken in the case of an accident at the site.

7 COMMUNITY ENGAGEMENT

First Milk recognizes that its operations have the potential to impact receptors in the local community.

To this end the company engages with Pembrokeshire County Council on odour issues and has attended an odour action group set up between the council and Dwr Cymru to actively participate in any concerns raised by local residents.

The site also independently engages with local councilors and residents where there have been concerns raised in the past and has hosted on site tours of the facility to demonstrate the operation and engage with local residents so that they can differentiate between the Creamery operation and the nearby sewerage works.

8 MAINTENANCE & REVIEW

The site odour management plan shall be maintained by the site SHE Manager and ETP Site Manager respectively.

The odour management plan shall be stored within the site N drive to allow access to all members of the team who may need to refer to it.

A copy shall be shared with the ETP operational team for holding at the ETP itself.

The site odour management plan shall be reviewed on an annual basis unless there is a significant change to the process at either the Creamery or ETP that prompts an intermediate review.

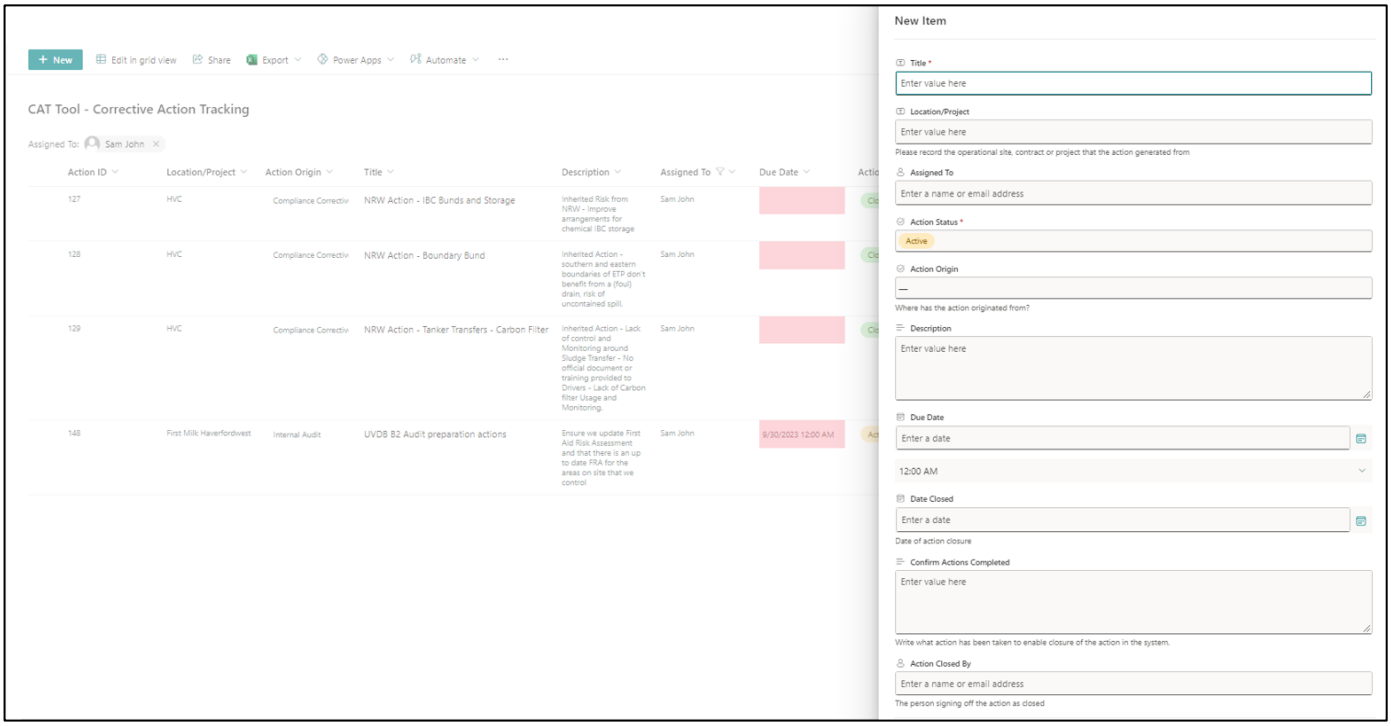
9 APPENDICES

Appendix 1 – Hedonic scale used in assessment of odour as art of the document.

Taken from Olfactory Characterization of Typical Odorous Pollutants Part I: Relationship Between the Hedonic Tone and Odor Concentration by Jiayin Li, in Atmopshere, 2019.

Hedonic Tone	Verbal Description
−4	extremely unpleasant
−3	moderate unpleasant
−2	unpleasant
−1	slightly unpleasant
0	neutral
1	slightly pleasant
2	pleasant
3	moderate pleasant
4	extremely pleasant

Appendix 2 – AOL CAT Tool.



Appendix 3 - Odour complaint report form

Odour Complaint Report Form

Time and date of complaint:	Name and address of complainant:
Telephone number of complainant:	

Date of odour:	
Time of odour:	
Location of odour, if not at above address:	
Weather conditions (i.e., dry, rain, fog, snow):	
Temperature (very warm, warm, mild, cold or degrees if known):	
Wind strength (none, light, steady, strong, gusting):	
Wind direction (eg from NE):	
Complainant's description of odour: o What does it smell like?	
o Intensity (see below):	
o Duration (time):	
o Constant or intermittent in this period:	
o Does the complainant have any other comments about the odour?	
Are there any other complaints relating to the installation, or to that location? (either previously or relating to the same exposure):	
Any other relevant information:	
Do you accept that odour likely to be from your activities?	
What was happening on site at the time the odour occurred?	
Operating conditions at time the odour occurred (eg flow rate, pressure at inlet and pressure at outlet):	
Actions taken:	

Form completed by:	Date	Signed

Intensity

0 No odour
1 Very faint odour
2 Faint odour
3 Distinct odour
4 Strong odour
5 Very strong odour
6 Extremely strong odour

10 Version control

Ver.No.	Page(s)	Section(s)	Amendment detail	Amended by	Date
1	n/a	n/a	Original document	n/a	n/a
2	10	Tech amendments	Addition of technical amendments section	Severn Trent Services	22.07.2016
3	All	All	Document fully reviewed and revised into a Creamery and ETP Odour Management Plan	Neil Shawcross	17.05.2023
4	All	All	Document amended to take into consideration the recommendations from NRW as part of their Environmental Permit IC7 review.	Neil Shawcross	09.02.2024