

Dairy Partners Wales

Noise Management Plan – New ETP

Drafted: 03 August 2022

Reviewed by John Potter, Dairy Partners HSE Lead, Newcastle Emlyn

Contents

Title
1. Introduction
2. Purpose
3. Guidance
4. Site Setting
5. Description of Site Operations
6. Products
7. Main Operations (with respect to the ETP)
8. Potential Noise Sources at ETP
9. Noise Control Measures
10. Good Operational Site Practices
11. Training
12. Maintenance
13. Monitoring
14. Explanation of Terms
15. Management Review
16. Managing Complaints
17. Noise Mitigations

Notes:

1. Introduction

Dairy Partners is a privately-owned company. The site at Newcastle Emlyn is a milk processing industrial site, the creamery specializes in the manufacture of mozzarella cheese for sale on the UK and international market.

The operations of the Newcastle Emlyn Creamery are permitted under an Environmental Installations Permit EPR/WP3231NB issued by Natural Resources Wales (NRW).

2. Purpose

This Noise Management Plan (NMP) is intended to be used as a reference working document for all staff. It outlines the main potential noise sources identified on site, specifically the new Effluent Treatment Plant (ETP), the mitigation measures implemented to reduce the risk of noise nuisance and the monitoring, maintenance and recording methods to be used during the lifetime of the site's operation.

The NMP has a dual function of showing how existing controls control noise release potential and identifying where improvements can be made.

3. Guidance

The table below outlines guidance documents that have been used to produce this Noise Management Plan.

This table will be updated as appropriate during every review to ensure the latest available guidance is consulted.

Guidance Documents	
Title	Document Issue Date / Version
How to Comply with your Environmental Permit	Oct 2014; v2.0
Noise Impact Assessment – New ETP	24 November 2021

4. Site Setting

The site is in Newcastle Emlyn, at grid reference SN 31672 40106 (SN316401), with the closest residential receptors located within 20 meters of the site boundary. The majority of the new ETP lies around 50m (at its closest point) from the nearest residential receptor.

5. Description of Site Operations

Operating Hours

The process is a 24/7 manufacturing process; however, the milk collection vehicles operate between 06:30 - 19:00 daily.

The wastewater plant operates in line with the manufacturing process; currently, sludge tankers visit the facility up to three times a week, with all tankers being loaded during the daytime hours and zero at night.

6. Products

The principal product from the installation is manufactured mozzarella in bulk blocks. However, the installation also produces a saleable by-product in the form of cream and whey product.

7. Main Operations (with respect to the ETP)

7.1 Wastewater Treatment Plant

The new wastewater treatment plant has been designed to treat and discharge up to 512m³ of wastewater per day to a discharge point located approximately 1km from the site into the River Teifi. The system has been constructed as follows:

7.2 Physical / Chemical Pre-treatment

The wastewater from Dairy Partners will be screened by an existing mesh filter and will be collected in a pump pit. From this pump pit it will be fed to the new balance tank by existing pumps. In the balance tank, 2-way pH correction is foreseen.

From the balance tank, the water will be pumped to the coagulation/flocculation/flotation system. In the pipe, flocculator, a coagulant, a neutraliser and a flocculant will be dosed for coagulation and flocculation of the suspended and emulsified pollution.

The flocks which are formed are separated by a Dissolved Air Floatation (DAF) unit. The sludge which is generated by the DAF unit will be pumped into the sludge tanks. The Redox DAF unit will be equipped with an automatic micro bubble diffuser cleaning system and is therefore clog-free.

The DAF unit will be equipped with a cover, operated by gas springs.

The treated water after the DAF system will be pumped to the biological treatment system.

7.3 FBR (Flotation Bio Reactor) Biological Treatment

In the biological treatment system, the pollution is decomposed by aerobic biological bacteria that live in flock-like colonies, called activated sludge.

The wastewater from the DAF is fed into a selector which is built inside the aeration tank. In the feed line to the selector, the turbidity of the water will be monitored. In case a pre-set level is exceeded, an alarm will be generated.

In the selector, the water is mixed with a set amount of activated sludge. In the selector tank the proper conditions exist for the activated sludge to absorb most of the dissolved pollution, which prevents excessive concentrations of filamentous bacteria to be formed. Phosphoric acid and urea will be dosed into the selector to obtain correct nutrient balance.

From the selector tank, the water flows into the aeration tank. In the aeration tank, the activated sludge bacteria utilize oxygen to decompose pollution into mainly carbon dioxide and water. The required oxygen is supplied by a bottom aeration system fed by blowers. The aeration grids can be lifted out for maintenance purposes.

The separation of treated water and biomass is done by a second DAF unit. In the feed line to this DAF unit polymer will be dosed to enhance the separation of the activated sludge. Most of the activated sludge will be returned to the selector tank and aeration tank. A part of the sludge will be directed to the sludge tank as waste activated sludge, based on MLSS measurement in the aeration tank.

The effluent quality of the DAF will be monitored continuously. In case either the pre-set

Chemical Oxygen Demand (COD), Total Suspended Solids (TSS) or ammonia level is exceeded, the water will be led to a transfer tank, from where it will be pumped into the out of spec tanks. The present 250m³ and 150m³ tanks with mixers will be used for this purpose.

7.4 Cleaning Process

The cleaning process takes place after the manufacturing period with a production run lasting 18 hours and a clean cycle running for 6 hours.

Cleaning is in line with requirements for food manufacturing and washes are completed using caustic-based cleaning chemicals.

All plant washing is automated using Cleaning in Place (CIP) systems, with floors and walls washed down manually with a mixture of foam product and water.

8. Potential Noise Sources at ETP

A Noise Impact Assessment was carried out by an independent contractor on 24th November 2021. The contractor has specific expertise in acoustics, working in accordance with BS 4142:2014 and BS 8233:2014. Whilst the anticipated risk of adverse noise impact from the ETP was rated as being “low”, the report identified the following main noise sources:

- Pumps
- Fluid transmission through pipework
- X1 Knife Valve

9. Noise Control Measures

9.1 Procedures for Managing Noise

For some operational facilities, there are effective ways of reducing noise simply by being aware of its presence as an issue for the site, and by adopting appropriate procedures when carrying out everyday activities.

Such procedures can be collectively called “noise management” and can be particularly important where substantial noise control has been incorporated in a plant design.

The hierarchy for control should be to:

1. Prevent generation of noise at source by good design and maintenance.

2. Minimise or contain noise at source by observing good operational techniques and management practice.
3. Use physical barriers or enclosures to prevent transmission to other media.
4. Increase the distance between the source and receiver.
5. Sympathetic timing and control of unavoidably noisy operations.

Assuming that all management, operational and maintenance issues have been satisfactorily addressed, once noise has been generated, there are several physical factors involved in determining how it is propagated and how much reaches the receiver.

Noise levels at sensitive receptors can be minimised by:

- Reduction at source or 'low-noise' options
- Use of inherently quieter processes
- Ensuring adequate distance between the source and receiver
- Maximising natural screening, ie: buildings
- Re-orientating directional noise sources away from receptors
- The use of barriers between the source and receiver in determining the degree of control required, it is usual to calculate or measure the sound pressure level close to the source and, knowing the desired endpoint, calculate:
 - the attenuation provided by the environment at the sensitive location
 - the additional attenuation required

10. Good Operational Site Practices

There are several common-sense procedures that can help to reduce noise emissions. Although these tend to be specific to operations at a facility, some common examples are listed as follows:

- closing doors and windows in noisy buildings and using acoustic enclosures
- ensuring that generator or vehicle engine hatches are kept closed
- locating mobile plant away from noise-sensitive receivers
- avoiding dropping materials from a height
- switching off plant when not in use
- disabling any equipment/plant making excessive noise (if safe to do so) until a repair can be carried out to correct the noise source
- stockpiling materials (for example, containers) to provide acoustic screening between

noise sources and receivers

- considerate behaviour by the workforce, especially at night, to avoid or minimise shouting, whistling and others
- arranging delivery or on-site vehicle routes away from sensitive receivers
- use of “smart” reversing alarms which produce sound at a volume relative to the background level. For example, 5 or 10 dB above, rather than at a fixed volume; or using other safe systems of work which obviate the need for reversing alarms. Although the noise-reduction benefits of these practices can be difficult to quantify, they should form a routine part of best practice to reduce overall noise emissions

11. Training

The need for noise minimisation is widely advertised on site. As part of staff training and induction, it is explained to employees that they are to carry out their work with the minimal amount of noise possible especially if they are working outside.

12. Maintenance

12.1 Routine Maintenance of Plant

Noise generated in mechanical plant by the interaction of moving or rotating parts can increase over time as these parts wear. Specific acoustic attenuators may also degrade and wear out.

The following are some examples:

- Fans can run out of balance
- Bearings can wear and become noisy
- The perforations in duct attenuators can become clogged and the acoustic lining damaged
- Ducts and valves can chatter
- Acoustic enclosures (including building panels) may become damaged
- Vibrating machinery with rotating parts
- Friction on conveyors

All of these sources of increased noise could be avoided by ensuring a satisfactory standard of maintenance. All plant will be maintained in good working condition. Dairy Partners has an in-house maintenance team who are available 24hrs a day. The maintenance team are competent to maintain and repair all pieces of equipment/machinery on site (with the exception of leased

items, eg: delivery lorries).

12.2 New Machinery and Tools

All new machinery/tools will be assessed for noise using manufacturer's specifications before purchase and installation.

Upon receipt of the new machinery/tools the operations manager will ensure that the equipment has been added into the preventative maintenance programme.

12.3 Planned Works

The maintenance team is instructed to carry out any potential noisy works between 08:00 – 20:00hrs, where possible.

13. Monitoring

All operational staff will be responsible for reporting any noise problems immediately to the site manager or the night-time supervisor / team leader.

Noise monitoring of outer areas will be undertaken four times during any 24-hour period. Any excess noise emissions will be detailed in the daily production report.

The inspections shall be undertaken as follows:

- The individual will walk slowly on the tour in silence
- The individual will ensure the boundary fence is followed, and additional attention is paid to those areas near sensitive receptors

14. Explanation of Terms

A faint noise is one that is slight and not easy to notice.

A distinct noise is when the character of the noise can be recognized. A strong noise is one that produces a strong response by an individual.

If applicable, a note should be made of the persistence and character of any noise. Observations including time, date, wind direction, temperature, wind strength, wind direction, intensity,

noise type and sensitivity will be recorded in the daily checklist form. Site operating conditions at the time of survey will also be recorded, enabling the identification of any 'abnormal' site operating conditions such as downtime for refurbishment or maintenance.

Should a distinct noise be identified by the engineer, the site management team will be informed, and a meeting convened as soon as practically possible. Efforts will be made to identify the likely source of noise and a corrective action plan formulated.

Wherever a distinct noise is identified, noise inspectors will be chosen from office-based staff that are unlikely to suffer from adaptation to noise, to complete further investigation works.

Adaptation to noise is when a person gets used to (adapt to) a noise and so may be unable to detect a noise. All staff responsible for assessing noise will receive appropriate and adequate training from the site management on the noise inspection procedure. Each inspector carrying out noise assessments will be initially accompanied by a more experienced member of site management to ensure that the nature and offensiveness of any noise detected are being perceived similarly. A record of this training will be kept in the site office.

Those members of staff who have a cold, hearing loss and/or tinnitus will not be used to carry out noise assessments.

An overall review/trending of complaints and highlighted noise from daily noise monitoring surveys will be conducted on quarterly basis. It will also be reviewed in response to a request from Natural Resources Wales or if there have been more than ten substantiated complaints.

15. Management Review

This Noise Management Plan will be reviewed at least annually to ensure that it remains valid and current. It will also be reviewed in response to a request from the Natural Resources Wales or if there have been three or more substantiated complaints in a six-month period.

16. Managing Complaints

Any noise complaint received at the Newcastle Emlyn Creamery will be handled by the Site Manager or night-time supervisor / team leader.

After details of the complaint have been complied, the cause(s) will be investigated, with reference to:

- The activities taking place on site at the time
- The timing of the complaint (whether weekday, weekend, daytime, evening, etc)
- The weather conditions at the time

The likely reasons for the complaint will be investigated and the complainant will be contacted if contact details are provided and feedback has been requested.

If the source of noise has been found and the complaint substantiated, the feasibility of making changes to the activities responsible for the complaint will be considered.

Where any changes are made, this Noise Management Plan will be updated accordingly.

17. Noise Mitigations

To mitigate the potential noise impact from the new ETP, the following steps will be taken with immediate effect:

1. Installation of the new ETP has significantly reduced the quantity of waste tankers required at the site. Vehicle movements have been greatly reduced which has led to a subsequent reduction in noise at the ETP.
2. A scheduled maintenance programme is currently in-use for the ETP. Regular planned maintenance will reduce the risk of equipment failure and possible excessive noise caused by defective components.
3. All ETP faults are immediately reported to the site engineering team to ensure swift rectification, thereby minimising possible excess noise.
4. Any equipment/plant generating excessive noise shall be disabled (if safe to do so) until appropriate repair is undertaken to rectify the issue.
5. The ETP is subject to continual monitoring by waste treatment staff and/or the engineering team. This includes the monitoring of noise levels.
6. Dairy Partners will mandate an independent Noise Impact Assessment (NIA) be carried out on the site, including the ETP, at least once in any calendar year.

7. Regular site inspections carried out by the site Health, Safety and Environmental Manager to include noise emission measurements being taken at the ETP to monitor for excessive noise levels which may adversely impact residential receptors. A Sauter SU 130 handheld sound meter is currently utilised on site.
8. Ensure all complaints relating to noise are handled as per the steps detailed in Para 16, 'Managing Complaints'.

