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Natural Resources Wales permitting decisions

Dairy Partners (Cymru Wales) Limited - The Creamery, Aberarad Decision Document

Application for a Substantial Variation

The application number is: PAN-017188

The Applicant / Operator is: Dairy Partners (Cymru Wales) Limited

The Installation is located at: The Creamery, Aberarad, Newcastle Emlyn, Carmarthenshire, SA38 9DQ

We have decided to issue the variation for The Creamery, Aberarad operated by Dairy Partners (Cymru Wales) Limited. The variation number is EPR/WP3231NB/V004.

The applicant is Dairy Partners (Cymru Wales) Limited. We refer to Dairy Partners (Cymru Wales) Limited as both the “Operator” and the “Applicant” in this document.

We consider in reaching that decision we have taken into account all relevant considerations and legal requirements and that the permit will ensure that the appropriate level of environmental protection is provided.

Purpose of this document

This decision document:

- explains how the application has been determined
- provides a record of the decision-making process
- shows how all relevant factors have been taken into account

Unless the decision document specifies otherwise, we have accepted the Applicant’s proposals.

Structure of this document

- Table of contents
- Key issues of determination
- Annex 1 Improvement Conditions
- Annex 2 The consultation responses

Table of Contents

Contents

Glossary of acronyms and definitions used in this document

AMP – Accident Management Plan

BAT – Best Available Technique(s)

BOD – biological oxygen demand

BAT-AEL – BAT Associated Emission Level

BRef – BAT Reference Note

COD – chemical oxygen demand

CRoW – Countryside and Rights of Way Act 2000

DAA – Directly associated activity

DAF – Dissolved Air Flotation

DD – Decision document

ELV – Emission limit value

EMS – Environmental Management System

EPR – Environmental Permitting (England and Wales) Regulations 2016

ETP – Effluent Treatment Plant

GWP – Global warming potential

HRA – Habitat Regulations Assessment

IBC – Intermediate Bulk Container

IED – Industrial Emissions Directive (2010/75/EU)

LNG – Liquified Natural Gas

NRW – Natural Resources Wales

OPRA – Operator Performance Risk Appraisal

PAC – Polyaluminium chloride

PC – Process Contribution

PEC – Predicted Environmental Concentration

PFOA – perfluorooctanoic acid

PFOS – perfluorooctane sulfonate

PHW – Public Health Wales

PNEC – predicted no-effect concentration

PPS – Public Participation Statement

PR – Public register

RGN – Regulatory Guidance Note

RGS – Regulatory Guidance Series

SAC – Special Area of Conservation

SCL - Secondary Containment Lagoon

SGN – Sector Guidance Note

SMNR – Sustainable Management of Natural Resources

SPA – Special Protection Area

SSSI – Site of Special Scientific Interest

TGN – Technical Guidance Note

TSS – total suspended solids

WFD – Water Framework Directive

1. Outline of the application

The Operator has applied to vary their permit to upgrade the existing effluent treatment plant (ETP) at the installation. The upgraded ETP will still be covered under the current listed activities on the permit but the effluent treatment process will change as described in more detail in section 3.5.1 of this document. Old and new infrastructure will be utilised within the new ETP.

The Operator previously applied for this change in November 2020 (application number PAN-010733) but the variation was subsequently refused in June 2021 because we were not satisfied that the:

- proposed secondary containment measures met necessary BAT standards
- Operator had adequately assessed the odour impact of the ETP
- Proposed new open aeration tank met necessary BAT standards

For more information, refer to: PAN-010733 Dairy Partners Refusal Decision Document.pdf.

2. Our decision

Based on the information currently available to us we are currently minded to issue a permit to the Operator. This would, if issued, allow them to operate the Installation, subject to the conditions in the Permit.

This is a draft decision document, which accompanies a draft permit. The document is in draft at this stage, because we have yet to make a final decision. Before we make this decision, we want to explain our thinking to the public and other interested parties, to give them a chance to understand that thinking and, if they wish, to make relevant representations to us. We will make our final decision only after carefully taking into account any relevant matter raised in the responses we receive. Our decision is not finalised at this stage: although we believe we have covered all the relevant issues and reached a reasonable conclusion, our ultimate decision could yet be affected by this consultation. However, unless we receive information that leads us to alter the conditions in the draft Permit, or to refuse the application, we will issue the Permit in its current form.

This document explains our decision as accurately, comprehensively and plainly as possible. Achieving all three objectives is not always easy, and we would welcome any feedback as to how we might improve our decision documents in future. A lot of technical terms and acronyms are inevitable in a document of this nature: we have provided a glossary of acronyms near the front of the document, for ease of reference.

We consider that, in reaching our decision, we have taken into account all relevant considerations and legal requirements and that the permit will ensure that a high level of protection is provided for the environment and human health.

This application is to operate an installation which is subject principally to the Environmental Permitting Regulations 2016 (EPR) and is subject to the requirements of the Industrial Emissions Directive (IED). As the EPR regulator in Wales, we are required to determine any duly made permit application. This means that we must decide either to grant, or to refuse the variation based upon an objective assessment of the proposals against the detailed legal requirements of EPR. Our public participation statement[1] gives more information on what can, and cannot, be taken into account when making our permitting decision.

The application, and this decision document, only considers the permitting of the facility under EPR as described throughout the document. We only assess the installation and its impacts and cannot take into consideration indirect impacts which are not as a direct result of activity within the installation boundary.

Any proposed development and wider associated activity will be required to be compliant with all relevant and applicable law, for example, environmental law, health and safety law, planning law. This other legislation acts largely independently (although they may be inter-related). Such other matters are beyond both the scope of this document, and of our regulatory remit and expertise and are not relevant to our EPR permitting decision.

[1] Natural Resources Wales / Public participation: how you can take part in our permit and licence consultations

Ensuring compliance with all other regulation and obtaining any required consents (such as planning permission) is the responsibility of those undertaking the development and is regulated by the relevant appropriate authority for each. As separate and independent processes, obtaining one consent does not necessarily mean that another will be granted.

The permit contains many conditions taken from our standard Environmental Permit template including the relevant Annexes. We developed these conditions in consultation with industry, having regard to the legal requirements of the EPR and other relevant legislation. This document does not therefore include an explanation for these standard conditions. Where they are included in the permit, we have considered the application and accepted the details are sufficient and satisfactory to make the standard conditions appropriate.

This document should be read in conjunction with the application and supporting information and permit.

3. How we reached our decision

3.1 Receipt of Application

The application was accepted as duly made on 19/08/2022. This means we considered it was in the correct form and contained sufficient information for us to begin our determination, but not that it necessarily contained all the information we would need to complete that determination.

The Applicant made no claim for claim for commercial confidentiality. We have not received information in relation to the application that appears to be confidential in relation to any party.

3.2 Consultation

We carried out consultation on the application in accordance with the EPR, our statutory Public Participation Statement (PPS) and our Regulatory Guidance Note (RGN) 6 for Determinations involving Sites of High Public Interest.

3.2.1 Consultation on the application

A copy of the application and all other documents relevant to our determination (see below) are available for the public to view. Anyone wishing to see these documents could arrange for copies to be made.

We sent copies of the Application to the following bodies, which includes those with whom we have “Working Together Agreements”:

- Food Standards Agency
- Health and Safety Executive
- Public Health Wales
- Carmarthenshire County Council - Planning Department
- Carmarthenshire County Council - Environmental Health

These are bodies whose expertise, democratic accountability and/or local knowledge make it appropriate for us to seek their views directly.

An advert was also placed on our website. The consultation started on **02/09/2022** and ended on **30/09/2022.**

Further details along with a summary of consultation comments and our response to the representations we received can be found in Annex 2. We have taken all relevant representations into consideration in reaching our determination.

3.2.2 Draft decision consultation

We carried out a consultation on our draft decision. This is our standard process for substantial variations. This consultation began on **02/02/2023** and ended on **02/03/2023.**

3.3 Requests for Further Information

In order for us to be able to consider the application duly made, we needed more information. We requested the Applicant provide:

- Proof of payment for the application fee
- Updated application forms with the declaration signed by an appropriate person or a letter of authorisation
- An odour assessment
- A revised Odour Management Plan

- A revised Noise Management Plan
- A Flood Management Plan as referenced in the application
- A revised Containment Risk Assessment
- A Food and Drink Best Available Techniques (BAT) Assessment
- A revised ETP Layout Diagram
- Clarification on the proposed Total Suspended Solid (TSS) limit and process throughput

A letter requesting this information was sent to the Applicant on 06/07/2022 and the requested information was all received as of the 19/08/2022. Upon receipt of this information, we were able to consider the application duly made.

Further information was requested during determination by way of a Schedule 5 Notice requiring the Applicant to provide further information relating to the Containment Risk Assessment. The Schedule 5 Notice was sent on 29/09/2022 with a response date of 20/10/2022 which was afterward extended to 14/11/2022. A response to the Schedule 5 Notice was received on 14/11/2022.

Informal requests for information were made on 15/01/2023, 19/01/2023 and 24/01/2023 relating to the registered address of the Operator, decommissioning of the un-used ETP infrastructure, surfacing of the proposed containment system and site production in the event of ETP failure. Responses were received on 16/01/2023, 25/01/2022 and 27/01/2023.

A copy of the information notice and e-mails requesting further information were placed on our public register as were the responses when received.

3.4 The Legal Framework

The variation will be issued, under Regulation 20 of the EPR. The Environmental Permitting regime is a legal vehicle which delivers most of the relevant legal requirements for activities falling within its scope. In particular, the regulated facility is:

- an installation as described by the IED;

- subject to aspects of the Well-Being of Future Generations (Wales) Act 2015 and the Environment (Wales) Act 2016 which also have to be addressed.

We address the legal requirements directly where relevant in the body of this document.

NRW is satisfied that this decision is consistent with its general purpose of pursuing the sustainable management of natural resources (SMNR) in relation to Wales and applying the principles of SMNR. In particular, NRW acknowledges that it is a principle of sustainable management to take action to prevent significant damage to ecosystems. We consider that, in granting the permit a high level of protection will be delivered for the environment and human health through the operation of the Installation in accordance with the permit conditions. NRW is satisfied that this decision is compatible with its general purpose of pursuing the sustainable management of natural resources in relation to Wales and applying the principles of sustainable management of natural resources.

Environment Wales Act 2016 – Biodiversity and resilience of ecosystems duty
Section 6 of the Environment Wales Act 2016 requires that we seek to maintain and enhance biodiversity in the exercise of our functions, and in so doing promote the resilience of ecosystems, in a manner that is consistent with the proper exercise of our functions. NRW is satisfied that in this case we have taken into account and had due regard to this duty in so far as it is consistent with the function of determining an application for an EPR permit.

Well-Being of Future Generations (Wales) Act 2015
Natural Resources Wales is satisfied that this decision is consistent with its general purpose of pursuing the sustainable management of natural resources in relation to Wales and applying the principles of sustainable management of natural resources.

In particular, Natural Resources Wales acknowledges that the principles of sustainable management include making appropriate arrangements for public participation in decision making, taking account of all relevant evidence and gathering evidence in

respect of uncertainties, taking account of the short, medium and long term consequences of actions and taking account of the resilience of ecosystems.

Natural Resources Wales further acknowledges that is it an objective of sustainable management to maintain and enhance the resilience of ecosystems and the benefits they provide and, in so doing meet the needs of present generations of people without compromising the ability of future generations to meet their needs and contribute to the achievement of the well-being goals in section 4 of the Well-being of Future Generations (Wales) Act 2015.

Natural Resources Wales is satisfied that on the evidence the short, medium and long term consequences of granting a permit variation for the operation of this facility will not affect the resilience of ecosystems and is consistent with the well-being goals.

We have also had regard to the Clean Air Plan for Wales 2020 and consider that our decision complies with the Plan, and that no additional or different conditions are appropriate for this Permit.

3.5 The Installation

3.5.1 Description of the Installation and related issues

The permitted activities

The Installation is subject to the EPR because it carries out two activities listed in Part 1 of Schedule 1 of the EPR:

- Section 6.8 Part A(1)(e) – Treating and processing milk, the quantity of milk received being more than 200 tonnes per day (average value on an annual basis)
- Section 5.4 Part A(1)(a)(i) – Disposal of non-hazardous waste with a capacity exceeding 50 tonnes per day involving one or more of the following activities (i) biological treatment

An installation may also comprise “directly associated activities” (DAA), which at this Installation includes:

- Raw materials storage
- Intermediate storage of partly processed storage and packaging

- Steam generation
- Storage and handling of liquid cleaning chemicals
- Storage and handling of solid and liquid wastes
- Glycol refrigeration plant
- Storage and handling of Liquified Natural Gas
- Storage and handling of light fuel

Together, these listed and directly associated activities comprise the Installation.

This variation will not change any of the permitted activities listed on the permit as the operation of the ETP is already covered under Section 5.4 Part A(1)(a)(i) and no new DAAs are being added.

The Site

The Creamery is located in Aberarad, which is located south east of Newcastle Emlyn in Carmarthenshire. The installation is located within a mixed rural and residential area, with areas to the east and south predominantly rural and areas to north and west predominantly residential. The closest residential receptor is located immediately adjacent to the eastern edge of the installation boundary, there are also residential receptors located close to the northern and western boundaries.

The Afon Arad / River Arad runs directly through the middle of the site in a south to north direction and joins the Afon Teifi / River Teifi approximately 450 metres downstream of the site. The proposed new ETP has been constructed in the eastern proportion of the site, adjacent to the old ETP which will be decommissioned.

There is no change to the installation boundary or emission points as part of this variation to accommodate this additional plant. However, the Operator has confirmed that emission point W3, currently used for surface water drainage, will be decommissioned following the development of the proposed containment system. A plan is included in the permit and the Applicant is required to carry on the permitted activities within the site boundary.

What the installation does

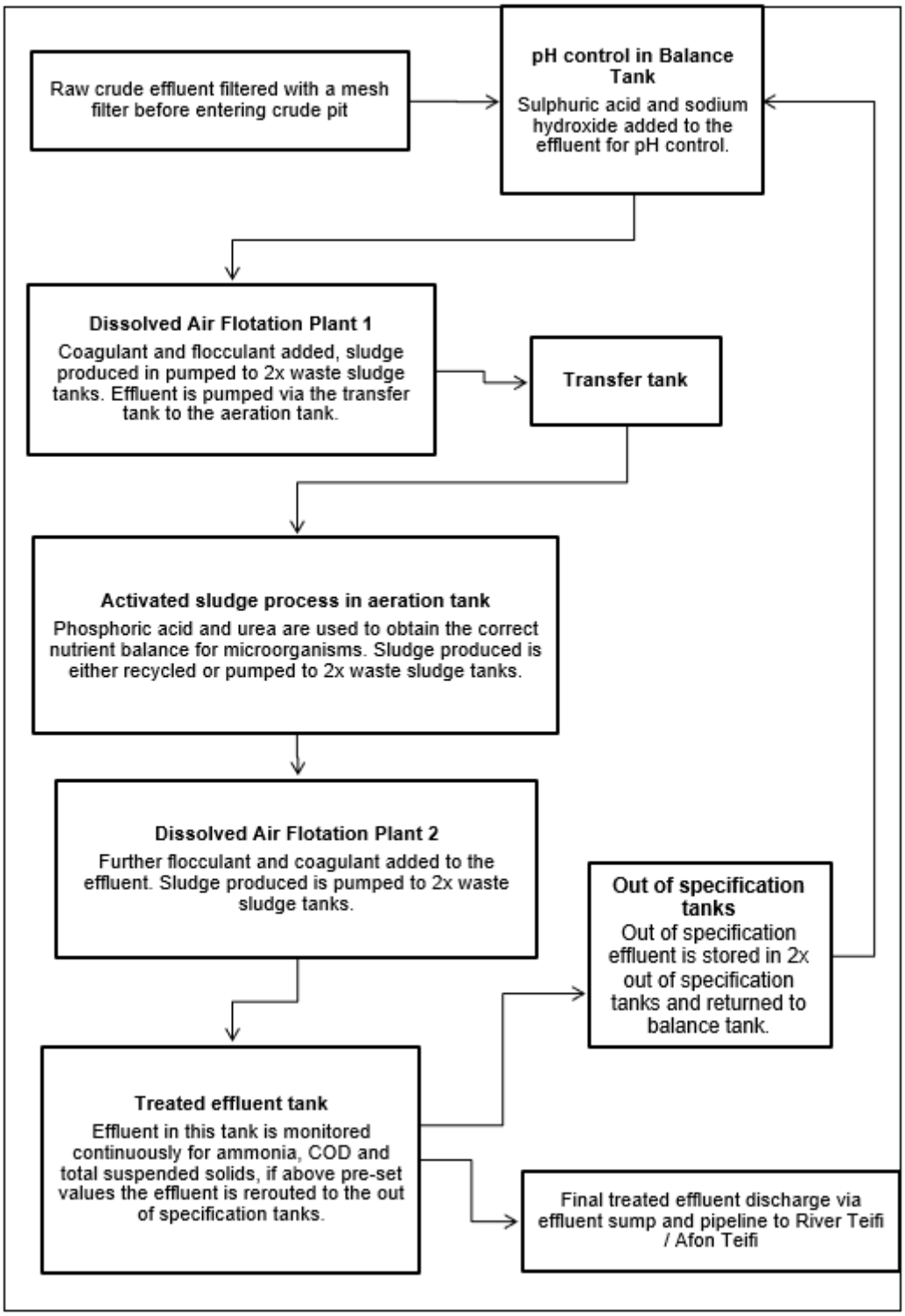
The installation treats and processes milk to produce cheese products. Milk is sourced predominantly from farms located in Wales and is used to manufacture mozzarella blocks and string cheese products. The current production capacity of the installation is 720 tonnes of milk received per day, the typical production throughput is 580 tonnes of milk received per day, there is no change to the production capacity or the production throughput as part of this variation. The installation uses a glycol refrigeration process, incorporating a 4700 litre (L) glycol storage tank. The installation operates two dual fuel boilers which use LNG as their primary fuel and light fuel oil as a back-up fuel. There are cryogenic storage tanks for storage of the LNG on site, storage is limited to 22.9 tonnes at any one time. The installation treats all process effluent including cleaning waters in the ETP prior to discharge via a pipeline to the Afon Teifi / River Teifi.

Proposed changes to the installation

The Operator has applied to vary the permit to upgrade the ETP. The effluent treatment process will change as part of the variation although as discussed, the EPR Schedule 5.4 activity remains the same. The maximum capacity of the new ETP is 900 m^3 of process effluent per day, the average process effluent volume treated in the ETP is 693 m^3 per day and the maximum process effluent volume treated (2019 – 2020) in the ETP is 873 m^3 per day. The discharge location will remain the same although the current permitted maximum discharge volume from the ETP will be reduced from 1050 m^3/day to 900 m^3/day as part of this variation as requested by the Operator.

The new treatment process employs filtering the raw crude effluent with an existing mesh filter prior to the effluent entering the existing crude effluent pit. The effluent is then pumped into a new balance tank (also referred to as a buffer tank) where pH control is completed using sodium hydroxide and sulphuric acid. The effluent is then pumped into the first Dissolved Air Flotation (DAF) plant where flocculant, coagulant and neutraliser are added, precipitated sludge is collected in the two sludge tanks prior to removal off-site. Following the first DAF plant, the effluent is pumped to a transfer tank then onto the aeration tank where an activated sludge process takes place. During the activated sludge process bacterial populations remove the biodegradable matter within the effluent and break this down to carbon dioxide and water. Phosphoric acid and urea are added during the process in order to achieve the correct nutrient

balance for the bacterial populations. Following the activated sludge process the effluent is pumped to a second DAF plant where further flocculant and coagulant are added to aid further biomass removal. The treated effluent is then pumped to the treated effluent tank where it is continuously monitored for ammonia, total suspended solids (TSS) and chemical oxygen demand (COD). If the effluent does not meet pre-set values for each parameter, it is pumped to the two out of specification tanks. Out of specification effluent is then pumped back to the balance tank for further treatment. If the effluent does meet the pre-set values, it is pumped to a final effluent sump prior to discharge via a pipeline to the Afon Teifi / River Teifi. Monitoring of the discharge effluent for permit requirements is completed at the final effluent sump prior to discharge. The new treatment process is displayed as a flow chart below.



The treatment process is continuous, but the new ETP has been designed with buffer storage capacity to hold 2 days of full production waste. Should this 2 day capacity be reached the Operator has confirmed that process effluent will be tankered off site for treatment.

There are no proposed changes to the emission points, monitoring points or site boundary as part of the variation, the new ETP is situated within the eastern proportion of the installation, within the current site boundary.

There are no other changes to operations at the installation as proposed part of this variation.

3.5.2 The site and its protection

Proposed site design: potentially polluting substances and prevention measures

The Operator has a duty to ensure that soil and groundwater are protected in order to meet the requirements of Articles 14 (1)(b), 14(1)(e) and 16(2) of the IED.

Due to the nature and quantities of liquids stored within the ETP, the pathway to and the sensitivity of the receptor, it is extremely important to ensure the liquids cannot escape control and enter land or water through accidents or incidents. The appropriate way to prevent this happening is through the use of appropriate containment measures.

The previous application for this variation was refused based on the application not including appropriate containment measures, refer to PAN-010733 Dairy Partners Refusal Decision Document.pdf for full description of original containment proposal and detailed reasons for refusal.

As part of this application, the Operator proposed a new secondary containment system, which will surround all the ETP above ground tanks, the system is referred to as a ‘Secondary Containment Lagoon’ (SCL).

The Operator has provided a full risk assessment of the primary, secondary and tertiary (where applicable) containment measures at the installation. Primary containment measures include the storage structures themselves. There are a number of tanks, pits or structures that contain liquids within the new ETP, old and new infrastructure is being utilised within the new ETP. Any existing infrastructure expected to be decommissioned has not been assessed. Secondary containment is separate to the primary containment and its purpose is to contain the contents of the primary

containment in the event of an escape of the contained liquid. Tertiary containment includes anything provided beyond secondary containment; it is also a line a defence for failure of secondary containment. The risk assessment has been produced in line with the recognised industry standard CIRIA C736 guidelines 'Containment systems for the prevention of pollution' and follows a source, pathway, receptor model. The Operator has also supplied detailed design drawings of the proposed SCL. A summary of the proposed design and assessment will be discussed below.

Underground infrastructure

Two underground pits, the crude pit and sludge pit, which were part of the old ETP are being utilised within the new ETP. Both of these pits receive raw dairy effluent from the dairy processing activity. The crude pit is 42 m^3 (42,000 L) in volume and the sludge pit is 30 m^3 (30,000 L) in volume. They are both constructed of concrete and brick and are located within 2 metres of the Afon Arad / River Arad. There is currently no secondary containment provided for either of these subsurface structures. Both are protected from flooding due to the wall being raised above the historical maximum river height. Level probes are also fitted to both of the pits to prevent overflow. An inspection and maintenance programme in place to prevent concrete erosion and wall damage. The Operator has not provided any justification as to why the pits are not provided with any secondary containment. Therefore, it is considered that improvements will be required to both pieces of these existing infrastructure in order to provide them with suitable secondary containment in line with what is considered BAT. As this infrastructure is existing, this will be considered during the separate full site review with the BAT Conclusions for the Food, Drink and Milk Industries, this is currently ongoing.

Another existing underground structure being utilised by the new ETP is the final effluent sump which receives treated effluent prior from the ETP for final discharge to the Afon Teifi / River Teifi, monitoring of the discharge is conducted at this sump. The sump is a 4 m^3 (4000 L) subsurface concrete walled pit. If the effluent does not meet pre-set values for each parameter, it is pumped to the two 'out of specification' tanks. An inspection and maintenance programme in place to prevent concrete erosion and wall damage. No secondary containment is provided for this subsurface structure, the Operator has not provided any justification as to why no secondary containment is

provided. Therefore, it is considered that improvements will be required to the sump in order to provide them with suitable secondary containment in line with what is considered BAT. As this infrastructure is existing, this will be considered during the separate full site review with the BAT Conclusions for the Food, Drink and Milk Industries, this is currently ongoing.

Above ground infrastructure

The new ETP includes a series of above ground tanks for both the process itself and the raw materials used within the process. These include:

- Balance Tank
- Sulphuric acid, phosphoric acid and urea tanks
- Sodium hydroxide tank
- Coagulant bulk storage tank
- Dissolved Air Floatation Plants (1 and 2)
- Flocculant polymer storage (cationic and anionic)
- Sludge transfer tanks (x2)
- Aeration tank
- Out of specification tanks (x2)

The Secondary Containment Lagoon (SCL) is proposed to act as a bund surrounding all tanks that form part of the ETP, see below schematic (page 60).

The SCL will be comprised of a 1.3 m concrete bund wall which will form 58.3 % of the perimeter of the total containment system, an earthworks bund which will form 38.5 % and a ramped vehicle access which forms 3.2 %. The Applicant has confirmed that the interfaces between the bunding types have been designed to be waterproof. The concrete bund includes 2 x 1.2 m flood barrier systems (“Nautilus 400 Floor Barrier Systems”). The Applicant has submitted a ‘Storm and Flood Management Procedure’ which details how these are to be removed and replaced during extreme weather events, see section 3.6.3 for more information.

CIRIA C736 guidance recommends where there are two or more tanks, the recommended capacity of the bund is the greater of either:

- 110 % of the capacity of the largest tank within the bund or;

- 25 % of the total capacity of all the tanks within the bund, except where the tanks are hydraulically linked in which case they should be treated as if they were a single tank.

The largest tank within the SCL is the balance tank which has a capacity of 1,599 m^3, 110 % of this is 1,759 m^3. The total capacity of all the tanks within the SCL is 2,925 m^3, 25 % of this is 731 m^3. As shown, the 110 % capacity of the largest tank is larger than 25 % of the multi-tank capacity. The SCL will provide a capacity of 2,079 m^3 therefore meets the capacity rules of CIRIA C736 and provides a capacity in excess of 110 % of the largest tank volume situated within it.

The Applicant has also proposed a Tank Jetting Protection Shroud Barrier on an 18 metre section (43%) of the balance tank which is adjacent to the river. This will provide protection against tank failures on the upper sections of the tank which may project over the bund wall. The proposal is to provide jetting protection of up to a stand-off distance of 7.5m. This protection is in excess of that recommended in CIRIA C736 based on the tanks maximum fill levels and distance to bund wall (6.4m).

Tanks within the SCL will also have additional containment measures, for example:

- Sulphuric acid, phosphoric acid and urea will be stored in double walled polypropylene tanks
- DAF Tanks and Sludge Transfer Tanks will have their own concrete bunding (inside of the SCL)

Pipework is considered primary containment as a vessel that contains liquid and therefore also requires appropriate secondary containment. Pipework associated with the new ETP will be contained within the SCL described above.

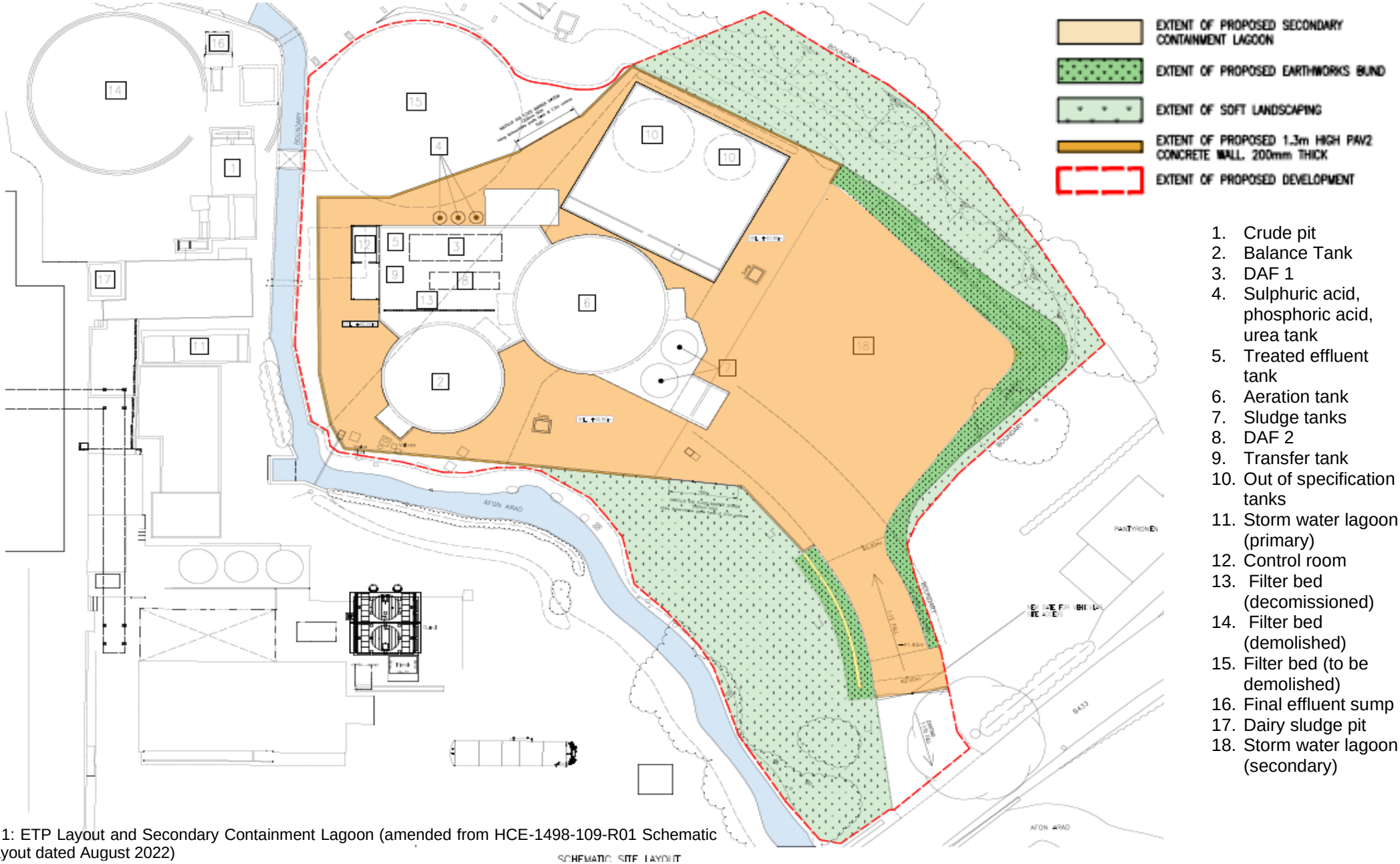


Figure 1: ETP Layout and Secondary Containment Lagoon (amended from HCE-1498-109-R01 Schematic Site Layout dated August 2022)

Surfacing

The new ETP tanks have been constructed upon concrete plinths. The Applicant has confirmed that hardstanding within the SCL will comply with CIRIA guidance. It is proposed that the areas surrounding the ETP within the SCL are to be surfaced with wire brushed concrete which will have waterproof joint detailing. The sulphuric acid, phosphoric acid and urea tanks are to be lifted and placed on the new concrete slab. The temporary flooding area is to be surfaced with 300 mm compacted gravel which is underlined with a High-density polyethylene (HDPE) impermeable liner (WERKIN Impermeable HDPE Geotextile). Sheets of this liner will be lapped in line with manufacturers recommendations to ensure a wasterproof joint is provided.

The Operator has confirmed there is no plans to replace or re-enforce the existing concrete slab which the 'out of specification' tanks are sat upon. These tanks and associated concrete slab are repurposed from the old ETP and it is anticipated this surfacing may require improvements. We have set an improvement condition requiring the Operator to undertake a review of the existing surfacing and to propose and undertake improvements where necessary (see Annex 1).

Drainage

The SCL will have a contained, segregated drainage system. Drainage will be managed with a series of ACO drains for the concrete hardstanding and filter drains for the gravelled areas. All drains will be connected to concrete sump chambers which will have a pump installed and will be operated automatically using a float valve. All surface water run-off within the SCL will be pumped into the balance tank and treated in the ETP before being discharged into the Afon Teifi / River Teifi. Therefore, any spills or leakages from any of the above ground tanks will be contained and routed to the head of the treatment process.

The existing borehole located within the SCL will be double sealed and have greased covers and gratings to prevent any leaks or spills entering groundwater.

Based upon the information in the application we are satisfied that the proposed containment system demonstrates that appropriate measures will be in place to prevent or where that is not practicable to minimise fugitive emissions to surface water

if primary containment measures should fail. As detailed above based on information provided to us, we consider the proposed SCL secondary containment system meets the CIRIA C736 standards and therefore we consider it BAT for the site.

3.6 Operation of the Installation – general issues

3.6.1 Administrative issues

The Applicant is the sole Operator of the Installation. We are satisfied that the Operator is the person who will have control over the operation of the Installation if the Permit were to be granted; and that the Operator will be able to operate the Installation so as to comply with the conditions included in the Permit, if issued. There is no change to the operator as part of this variation application.

We are satisfied that the Applicant's submitted OPRA profile is accurate. The OPRA score will be used as the basis for subsistence and other charging, in accordance with our Charging Scheme. OPRA is Natural Resources Wales method of ensuring application and subsistence fees are appropriate and proportionate for the level of regulation required. There is no change to the OPRA profile as part of this variation.

3.6.2 Management

The Applicant has stated in the Application that they will implement an Environmental Management System (EMS) that will meet the requirements for an EMS in our "*How to comply with your environmental permit guidance*". The Applicant submitted a summary of the EMS with their application. Although the EMS is not externally accredited to ISO14001 standard it has been developed to informally meet the requirements. The EMS contains clear role and responsibilities for staff at the installation, including the managing director and senior management team. The EMS contains standard operating procedures for processes at the installation. The EMS contains site environmental emergency procedures which are communicated to all staff and contractors. Internal auditing takes place on the EMS, which assess compliance with environmental legislation. The auditing schedule is based on a risk-based approach, all audits are carried out by competent personnel who are independent of the audited task. A review of the EMS is conducted annually and

ensure the EMS meets the requirements of environmental policy and legal requirements.

The Operator has stated the ETP is monitored by fully trained and competent effluent plant operators, there is also remote support built into the system which allows the manufacturer of the ETP to remotely monitor and operate the ETP or direct the onsite operative as required.

We are satisfied that appropriate management systems and management structures will be in place for this Installation, although we have requested updates are made to the Noise Management Plan and Accident Management Plan (see sections 3.7.5 and 3.6.3 respectively for more information). We are satisfied that sufficient resources are available to the Operator to ensure compliance with all the Permit conditions.

3.6.3 Accident management

In order to ensure that the management system proposed by the Applicant sufficiently manages the residual risk of accidents, permit condition 1.1.1a requires the implementation of a written management system which addresses the pollution risks associated with, amongst other things, accidents. The Applicant has submitted the section of their EMS that details the Accident Management Plan, this has been reviewed in line with the requirements set out in our "*How to comply with your environmental permit guidance*" and the Best Available Techniques (BAT) conclusions of the Food, Drink and Milk Industries BAT Reference note (BRef).

The location of the new ETP is classed as a high-risk flooding from a river (Afon Arad) as indicated by NRW flooding maps, this means that each year the area has a chance of flooding greater than 1 in 30 (3.3 %). As discussed in section 3.5.2, the proposed Secondary Containment Lagoon proposed as part of the application surrounds the entire ETP and drainage within this is sealed. Therefore, where surface water flooding occurs within the SCL as a result of heavy rainfall, water will be directed to the balance tank via the contained drainage system and be treated in the ETP before being discharged to the Afon Teifi / River Teifi. The new ETP has additional water storage as a result of the new balance tank (911 m^3) and the two out of specification tanks (1 x 250 m^3 and 1 x 100 m^3) and is designed to hold up to 2 days of process effluent.

These measures will help avoid and/or mitigate the risks posed by the ETP becoming flooded.

The concrete bund as part of this structure includes 2 x 1.2 m flood barrier systems ("Nautilus 400 Floor Barrier Systems"). The Applicant has confirmed that it is intended these are to remain in-situ continuously except in the event of an extreme storm weather event (1 in 100 year + 30 % climate change storm occurrence) being predicted by the Met Office where they will be removed. The Applicant has submitted a 'Storm and Flood Management Procedure' which details how 48 hours before the event, tanks are to be inspected for leaks. Where leaks are detected, flood gates will not be removed, and emergency repairs will be carried out immediately. Where no leaks are detected and the flood barrier systems are removed, the ETP will be switched off and water levels in the SCL will be monitored to ensure flood water levels do not exceed pump level. NRW are to be informed prior to flood barrier systems being removed and re-instated. Should primary containment of the ETP tanks fail whilst the flood gates are removed (during a 1 in 100-year flood event) then it is acknowledged that harmful substances could enter the Afon Arad / River Arad. However, we consider this risk acceptable due to the extremely low anticipated frequency of the event.

The Accident Management Plan (AMP) has not been updated to incorporate or reference the Secondary Containment Lagoon or new procedures relating to the operation of the new flood barrier system and hence an Improvement Condition has been set in the permit requiring the Operator to update the AMP (see Annex 1).

3.6.4 Site security

The new ETP is located within the existing installation boundary, fencing secures the installation boundary and locked gates prevent unauthorised access. The site is constantly manned. Therefore, access to site is restricted and controlled. There are procedures contained within the Accident Management Plan (AMP) for accidents caused by unauthorised access. The ETP is an automated process therefore reducing risks of unauthorised persons gaining access. Having considered the information submitted in the application, we are satisfied that appropriate infrastructure and procedures will be in place prior to start up to ensure that the site remains secure.

3.6.5 Operating techniques

We have reviewed the techniques used by the Operator and compared these with the relevant guidance notes. The relevant guidance notes for this installation are:

- How to comply with your environmental permit (October 2014)
- Reference document on Best Available Techniques for the Food, Drink and Milk Industries (2019)
- Technical Guidance Note M18: Monitoring of discharges to water and sewer

The whole installation is subject to the BAT Conclusions for the Food, Drink and Milk Industries. There is a Section 5.4 activity listed within Table S1.1 of the permit relating to the Effluent Treatment Process of process effluent from the main activity. We consider this activity to be covered by the BAT conclusions with the Food, Drink and Milk BREF and therefore no additional assessment has been completed against the Waste Treatment BREF.

As part of this variation, we have only reviewed aspects that are changing (ETP). As there is a substantial upgrade of the existing ETP, the new ETP must achieve compliance with the BAT conclusions now. The whole installation is subject to a separate review with the BAT Conclusions for the Food, Drink and Milk Industries, this is currently ongoing.

The proposed techniques are in line with the benchmark techniques contained in the TGN and BRef Documents and we consider them to represent appropriate techniques for the facility. Where limited information has been provided by the Operator detailing how they meet certain BAT conclusions contained within the BRef documents, improvement conditions have been set, these are detailed in Annex 1.

In particular, as detailed above we consider the proposed secondary containment measures BAT. We are now satisfied due to a quantitative odour impact assessment, the risk of odour originating from the aeration tank is low and therefore are currently satisfied it represents BAT.

We have specified that the Operator must operate the permit in accordance with descriptions in the application including all additional information received as part of

the determination process. These are specified in the Operating Techniques table in the permit.

3.6.6 Efficient use of raw materials, water and energy

The raw materials associated with the ETP process are primarily dosing chemicals used for water treatment, there will also be use of maintenance related materials such as oils, lubricants and cleaning chemicals. Automatic dosing systems are employed within the new ETP, automated systems dose as required based on the parameters and composition of the effluent. The use of automatic dosing systems significantly reduces the unnecessary use of any dosing chemicals, as only what is needed is used. Amounts of dosing chemicals to be used in the plant have been predicted by the Operator.

All cleaning chemicals have been selected in line with food hygiene requirements, the Operator has stated the safest available chemicals are chosen and significant dilutions are carried out. The installation employs Cleaning-in-Place (CIP) where cleaning chemicals are recycled and reused, dry cleaning is also employed reducing the use of cleaning chemicals where possible, both of these methods are considered BAT. The Operator has stated there is monitoring of use of raw materials in place on a daily, monthly and annual basis which is reviewed by senior management, in addition, raw materials use is subject to cost analysis, there are significant cost benefits for the Operator to minimise the use of raw materials. The Operator is required to report raw material use under condition 4.2 and Schedule 4 of the permit. This will enable NRW to monitor raw material use at the installation.

Water is a significant raw material used in the ETP, for use in cleaning. Water is sourced from groundwater boreholes and from mains water to supply the installation. The Operator has stated that water for use in the ETP process is sourced from the factory process and made up of recirculated water not from a mains supply. Water within the production process is recovered and reused following treatment in a reverse osmosis plant, process water is reused in cleaning processes. Process water and uncontaminated surface water are segregated in separate drainage systems which significantly reduces volume of water requiring treatment in the ETP. The installation employs Cleaning-in-Place which reduces use of water through appropriate dosing of

cleaning chemicals, the use of dry cleaning further reduces use of wet cleaning and therefore use of water. Hoses and nozzles are fitted with squeeze handles reducing unnecessary use of water. All the methods mentioned are considered BAT. The Operator has stated there is monitoring of water use in place on a daily, monthly and annual basis which is reviewed by senior management. The Operator is required to report water use under condition 4.2 and Schedule 4 of the permit. This will enable NRW to monitor water use at the installation.

The installation is supplied with Liquified Natural Gas (LNG) for use in combustion sources and electricity from the national grid. Electricity is used in the ETP process by associated plant and equipment, such as by blowers and pumps. Between the existing ETP and the new ETP energy consumption is predicted to increase reflected by the much-improved treatment process. Although there is an increase there are a number of energy efficiency measures in place within the new ETP that are considered BAT:

- Pumps and pumping systems have been chosen and based on the actual flows through the plant based on 24/7 monitoring during design of the ETP. Therefore, pumps are not oversized and do not lead to unnecessary energy use. Pumps have variable speed drives.
- Pipework has been designed with minimal valves and bends and to the suitable diameter to reduce the energy used to move the effluent through the ETP process
- Energy efficient lighting systems using sensors
- Monitoring of equipment and process to identify deviations from normal operations which may increase energy use will enable notification and faster remedy
- Planned preventative maintenance schedule in place in line with manufacturer's specifications

The Operator is currently undertaking a full energy efficiency audit at the site as part of an existing improvement condition, the scope of the audit will be adjusted to include the new ETP. The Operator has also confirmed they have an energy efficiency plan in place, where key objectives and targets for energy use and efficiency will be identified during the use of the ETP, these will be reviewed annually as a minimum.

The Operator has stated there is monitoring of energy use in place on a daily, monthly and annual basis which is reviewed by senior management. The Operator is required to report energy usage under condition 4.2 and Schedule 4. The following parameters are required to be reported: natural gas and electricity, including energy use and specific usage (MWh/unit output). This will enable NRW to monitor energy recovery efficiency at the installation.

3.6.7 Avoidance, recovery or disposal of wastes produced by the activities

This requirement addresses wastes produced within the ETP process. The wastes produced by the ETP process primarily consists of:

- Treated effluent discharged to Afon Teifi / River Teifi
- Out of specification effluent
- Sludge from the treatment process
- Packaging wastes for treatment and cleaning chemicals

Disposal of the treated effluent via discharge to the Afon Teifi / River Teifi is regulated through the permit requirements. Out of specification effluent is stored within the two out-of-specification tanks. The ETP has been designed with buffer capacity to hold up to two days' worth of untreated effluent. Should this capacity be exceeded, the Operator has confirmed the untreated effluent would be tankered off.

Sludge is produced in the biological treatment process and is disposed of off-site via collection by tankers. It is expected most of the sludge will be disposed of for use in a local licensed Anaerobic Digestion (AD) facility via a licensed waste contractor, therefore being reused. Although some sludge will not be suitable for use in AD and this will be tested then spread on licensed land banks, the Operator has completed inspections at the landbanks to ensure suitable controls are in place to prevent contamination of watercourses. The Operator will ensure waste transfer notes clearly identify the disposal location of the sludge. Sludge waste from the ETP process is stored within a total of two sludge tanks. During collection of sludge by tankers the tanker connects to the tanks via an inline charcoal filter and within an area of impermeable surfacing with bunding. Therefore, spills during collection would be

contained within the bunded area (Secondary Containment Lagoon) and returned to the balance tank via the pumped sump drainage for treatment through the ETP process.

Packaging wastes from delivery of treatment and cleaning chemicals used in the ETP process are minimised through the use of bulk storage on site which reduces amount of packaging requiring disposal. Where smaller volumes of chemicals are used, they will be delivered in Intermediate Bulk Containers (IBCs) and connected directly to the dosing system. The Operator has stated that any packaging will not be stored on site, IBCs will be returned to the supplier for reuse, this is a system already in place and operational at the site.

The Operator is required to report waste disposal and/or recovery, generation of residues and generation of wastewater under condition 4.2 and Schedule 4. This enables NRW to monitor waste generation at the installation.

Having considered the information submitted in the Application, we are satisfied that the waste hierarchy referred to in Article 4 of the Waste Framework Directive will be applied to the generation of waste and that any waste generated will be treated in accordance with this Article.

We are satisfied that waste from the Installation that cannot be recovered will be disposed of off-site using a method that minimises any impact on the environment. Permit condition 1.4.1 will ensure that this position is maintained.

3.7 Minimising the Installation's environmental impact

Regulated activities can present different types of risk to the environment, these include odour, noise and vibration; accidents, fugitive emissions to air and water; as well as point source releases to air, water, sewer and discharges to ground or groundwater, global warming potential and generation of waste. All these factors are discussed in this and other sections of this document.

For this variation, the principal emissions are:

- Emissions to surface water

- Odour
- Noise

The next sections of this document explain how we have approached the critical issue of assessing the likely impact of emissions from the Installation on human health and the environment and what measures we are requiring ensuring a high level of protection.

We have reviewed the Operator's assessment of the environmental risk from the facility. The Operator's risk assessment is satisfactory for noise, odour, fugitive emissions and there is no change to the point source emissions to air as part of this variation therefore they have not been assessed. The Operator's risk assessment was unsatisfactory for emissions to surface water and required additional Natural Resources Wales's assessment to make up the shortfall as the Operator did not complete River Quality Planning (RQP) modelling.

3.7.1 Assessment of impact on air quality

There is no change to the point source emissions to air as part of this variation. Exhaust emissions from heavy vehicle movements servicing the ETP are not within the scope of the permit. Carbon dioxide (CO_2) is released from the aerobic respiration of bacteria during the ETP process, specifically within the activated sludge process. The aeration tank where the activated sludge process is carried out is an open tank and therefore not considered a point source emission point and emissions of CO_2 are considered fugitive or diffuse. Emissions of CO_2 and other greenhouse gases differ from those of other pollutants in that, except at gross levels, they have no localised environmental impact. Their impact is at a global level and in terms of climate change. We agree with the Operator's assessment that an activated sludge process represents BAT.

Current bioaerosol risk assessment and monitoring requirements at regulated facilities are based on epidemiological concerns identified by public health through occupational and health surveillance. Bioaerosols occur naturally ("ambient") from lots of sources and to date evidence has indicated that biowaste facilities could be net emitters of bioaerosols. In line with this it is NRW's policy in line with air modelling data and public health advice to only require risk assessment and monitoring from biowaste

facilities e.g., composting. Food and drink manufacturing sites are operated with strict biosecurity and Hazard Analysis Critical Control Point (HACCP) processes to ensure that the production process remains safe for the subsequent consumption of food. The key purpose of effluent treatment at a food manufacturing site is to reduce the level of suspended solids and proteins. Activated sludge will use coagulants, flocculants and pH adjustment to bind the “solids” to the microorganisms to produce large particles that can be removed as a sludge rather than aerosolised.

3.7.2 Assessment of impact to surface and ground water

There are no point source emissions to groundwater from the installation. There is a point source emission to the Afon Teifi / River Teifi from the installation. All process effluent from the cheese making process is treated in the ETP prior to travelling through a pipe to the discharge point into the Afon Teifi / River Teifi. The effluent treatment process is being changed as part of the variation although the EPR Schedule 5.4 activity remains the same as biological treatment of non-hazardous waste.

The current permitted maximum discharge volume from the ETP to the Afon Teifi / River Teifi is 1050 m^3/day, this is proposed to be reduced to 900 m3/day as part of this variation.

A Water Framework Directive (WFD) compliance assessment was completed for the previous application (PAN-010733) which concluded the proposal had no potential to cause deterioration of any water body or prevent a water body or WFD Protected Area from meeting its objectives. Although the proposal for this application had not changed in terms of water quality discharged, a new WFD assessment was required to assess the impact of the proposal against current guidance and targets. The new WFD compliance assessment is available on the public register to view, see here: PAN-017188 - WFD Compliance Assessment (1).pdf. A summary of the findings is given below.

A number of new parameters are present in the new discharge, the concentrations of many existing parameters are proposed to be reduced reflecting the much improved water quality of the discharge following the introduction of a new and modern effluent

treatment process. The new ETP will lead to improvements in water quality of discharged treated effluent to the Afon Teifi / River Teifi.

For the previous application, the surface water risk assessment provided by the Applicant was unsatisfactory due to the following factors:

- Afon Teifi existing surface water quality data was not appropriate as was sourced from one sample at three locations
- The applicant had not used River Quality Planning (RQP) software to model impacts of sanitary determinands
- The applicant had not assessed all of the chemical additives used in the effluent treatment plant

Therefore, the surface water risk assessment provided by the Applicant required additional modelling and assessment by NRW. The assessment undertaken by NRW was completed to determine the impact of the proposed new discharge on the receiving water and compare the impact with the existing discharge. We scrutinised the modelling and assessment done for the previous application as part of this WFD Compliance Assessment to check if the conclusions still apply. We have concluded they are still applicable. See WFD Compliance Assessment for more information. The assessment carried out ensured any limits added and/or varied in the permit were appropriate and in accordance with WFD targets.

The current limits on the permit are as follows:

- Maximum daily discharge volume: 1050 m^3/day (Maximum)
- Temperature: 21 degrees Celsius (Maximum)
- Chemical oxygen demand (COD): 120 mg/L (Maximum)
- Total suspended solids (TSS): 50 mg/L (Maximum)
- Ammonia as N: 22 mg/L (Maximum)
- Nitrite as N: 3 mg/L (Maximum)
- Mercury: 0.5 µg/L (Maximum)
- Cadmium: 0.01 mg/L (Maximum)

The proposed limits in accordance with the ETP specifications and BAT requirements

are as follows:

- Maximum daily discharge volume: 900 m^3/day (Maximum)
- Temperature: 21 degrees Celsius (Maximum)
- Chemical oxygen demand (COD): 110 mg/L (Maximum)
- Total suspended solids (TSS): 30 mg/L (Maximum)
- Ammonia as N: 10 mg/L (Maximum)
- Nitrite as N: 1.0 mg/L (Maximum)
- Mercury: 0.5 µg/L (Maximum)
- Cadmium: 0.525 µg/L (Maximum)
- Total nitrogen: 20 mg/L (Maximum)
- Total phosphate as P: 1.0 mg/L (Maximum)
- Total aluminium as Al: 1.0 mg/L (Maximum)
- pH: minimum 6, maximum 9 (Minimum and Maximum)
- Biological oxygen demand (BOD): 20 mg/L (Maximum)

The existing upstream river quality data utilised within the assessment has been taken from the 2012 - 2014 WFD Phys-Chem data spreadsheet for the waterbody: GB110062043564 Teifi – Afon Clettwr to Afon Ceri from the sample point 'Teifi – Henllan Bridge'. This sample point is 6 km upstream from the discharge point and presents the most applicable background concentration data for use within the assessment.

The river flow data has been confirmed as accurate by the internal NRW Hydrology team. The following determinands and parameters have been assessed in the assessment:

- pH
- Temperature
- Ammonia
- Biological oxygen demand (BOD)
- Total phosphorus (as P)
- Total suspended solids (TSS)
- Total aluminium (as Al)
- Mercury

- Cadmium

The effluent treatment process uses the following chemical additives:

- ClearFlo C36 – Polyaluminium chloride (PAC)
- Anionic and cationic emulsion polymers – used as flocculants/coagulants
- Urea (CH4N2O) and phosphoric acid (H3PO4) used as dosing chemicals to ensure
  correct nutrient balance in the activated sludge process
- ClearFlo-pH-SA-D50% (sulphuric acid H2SO4) and ClearFlo-pH-SH-U-32% (sodium
- hydroxide NaOH) used for pH control

All of these chemical additives have been assessed in the WFD compliance assessment carried out by NRW. Based upon the information in the application and further assessment undertaken by NRW, we are satisfied that the appropriate measures will be in place to prevent pollution of surface water from the point source emission to surface water. The WFD Compliance Assessment has concluded there is no risk of deterioration or prevention of the water body achieving its objectives as a result of the proposal, either alone or in combination/cumulative, and no further consideration under the WFD Regulations 2017 is required in order to determine the application.

Impact on the Afon Arad / River Arad as a result of ETP primary containment failure has been assessed in section 3.5.1.

Based upon the information in the application and further assessment by NRW, we are satisfied that the appropriate measures will be in place to prevent pollution of surface water from the point source emission to surface water.

3.7.3 Fugitive emissions

A risk assessment has been completed following the H1 risk assessment methodology by the operator and assessed by us. The Operator has included fugitive emissions such as dust, litter, pests and fugitive emissions to surface water and land.

Fugitive emissions from dusts and particulates from the operation of the ETP are not expected to be significant due to the nature of its operation there are not many potential sources of dust generation. Generation of dusts from vehicle movements that service the ETP have been considered as medium risk. There are a number of procedures in place to reduce generation of dusts such as limited speed limit on site.

As part of this variation there is a large reduction in amount of vehicles movements. The use of bulk chemical storage will reduce chemical deliveries and tanker movements will be reduced as there will be limited need to tanker-off effluent with the upgraded plant, vehicle movements will be reduced approximately from 6 per day to 1 per day. There is limited potential for generation of dusts from wastes from the ETP as wastes consist of sludge (wet) and raw materials packaging which is either not stored on site and returned to suppliers or stored and connected directly to the dosing system. Any other wastes arising from the site processes are stored in covered containers or inside buildings prior to removal removing the risk of dusts arising from storing waste outside in uncovered containers.

Fugitive emissions from the generation of litter are not expected to be significant and considered low risk from the operation of the ETP. There is unlikely to be generation of litter from the operation of the ETP and is more likely to be from staff or contractors entering site including in vehicles. There are procedures in place to undertake regular inspections in order to identify and remove any litter and debris.

Fugitive emissions from pests from the operation of the ETP are not expected to be significant and considered low risk. The Operator has stated there is a pest control management plan in place which considers the use of rat boxes among other control procedures. There are well-established procedures in place that include regular inspection and monitoring of pests and inspection and maintenance of boundary fencing and buildings to prevent access of pests to site. Waste is stored in enclosed containers or inside a building prior to collection therefore cannot be accessed by scavengers. Sludge waste from the ETP process is stored within the sealed sludge tanks. During collection of sludge by tankers for transfer off-site the tanker must connect to an inline charcoal filter rather than directly to the tank therefore minimising escape of odours that would attract pests.

In the event of a power supply failure, all plant machinery shuts down. Therefore, fugitive emissions of polluting substances as a result of the ETP monitoring failing without power is not expected to be significant and is considered low risk.

Fugitive emissions to surface water and land include emissions to the Afon Arad and surrounding land situated within close proximity to the ETP. The emissions could be caused by a range of incidents including flooding of the treatment area, spillages of effluent, chemicals or sludge and loss of containment. The location of the new ETP is classed as a high-risk flooding from a river (Afon Arad) area as indicated by NRW flooding maps, this means that each year the area has a chance of flooding greater than 1 in 30 (3.3 %). Uncontaminated surface water run-off (rainwater) could become contaminated from spillage of chemicals, effluent or sludge and during heavy flooding conditions could be washed off site and into the Afon Arad or surrounding ground. To minimise spillages the Operator has stated the activities are to be managed and operated in accordance with their management system and procedures for spillages are contained within their Accident Management Plan. See section 5.3.3 for the assessment of the accident management plan.

Physical measures in the form of a ‘Secondary Containment Lagoon’, a bund surrounding all ETP above ground tanks, has been proposed protect from fugitive emissions to surface water and land. For the full assessment of containment see section 3.5.2 of this decision document.

As detailed above and in other sections of this decision document we are satisfied that the appropriate measures (operational and physical measures) will be in place to prevent pollution of surface water from the point source emission to surface water.

3.7.4 Assessment of odour impact

Odour is identified as a key issue in the Food and Drink sector. Only potential odour emissions from the new ETP infrastructure have been assessed as part of this variation.

The closest sensitive residential receptor is located directly adjacent to the eastern edge of the installation boundary, the surrounding area is predominantly mixed residential and rural. The ETP is located in the eastern proportion of the site, therefore near to the closest residential receptor.

The previous application for this proposal (PAN-01733) was refused partly due to reasons related to odour. In summary, these included The Operator:

- not adequately assessing the odour impact from the new ETP and.
- Lack of justification the open aeration tank met necessary BAT standards

Refer to PAN-010733 Dairy Partners Refusal Decision Document.pdf for more information.

Odour Impact Assessment

The Applicant has submitted an odour assessment which presents the results of a quantitative on-site field odour assessment (sniff testing survey) which has been used to assess the odour impact from the new ETP. The assessment of odour impacts is limited to potential odour sources from the new ETP.

The assessment presented the most recent field odour survey in accordance with the methodology set out in IAQM Guidance on the Assessment of Odours for Planning (2018) which agrees with NRW's Horizontal Guidance Note (HGN) 4.

Sniff testing was carried out at 6 locations: 5 near the installation boundary and the closest residential receptor to the ETP.

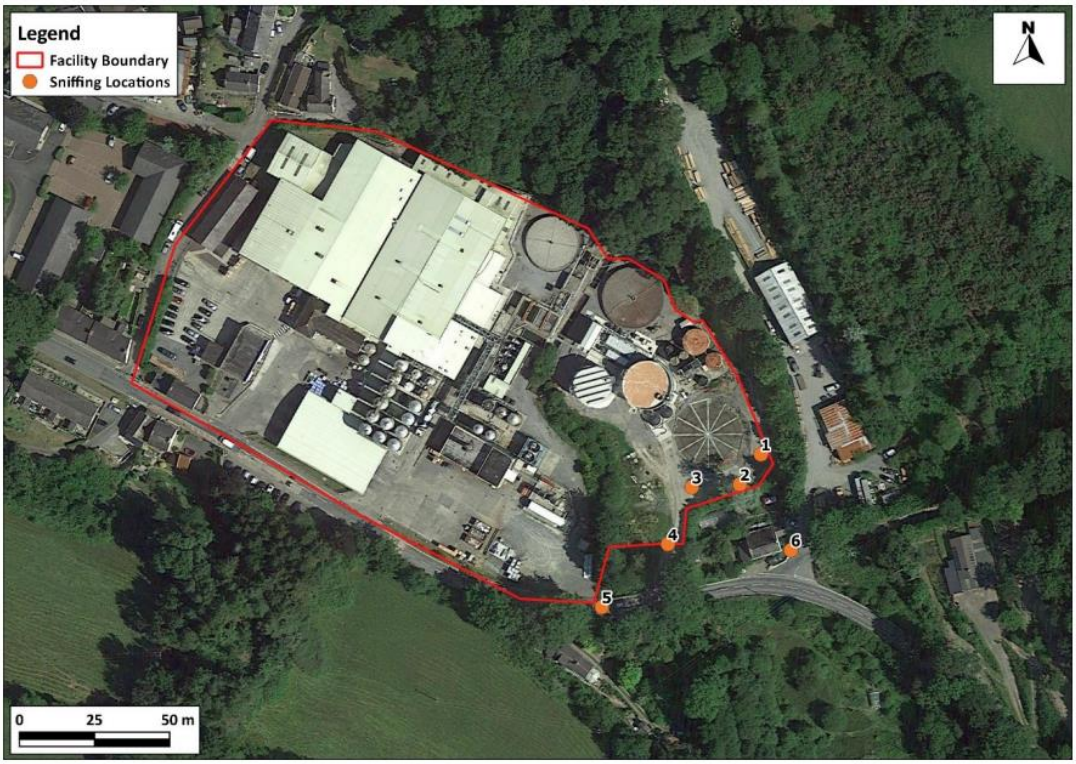


Figure 2: Sniff testing locations (Technical Notes: Dairy Partners (Cyrmu Wales Ltd) Odour Assessment, February 2022).

Sludge removal has been identified as a key source of odour. Two sniff tests were undertaken within a single day (10/02/02022), with one sniff test undertaken during sludge tanker filling and one taken after sludge tanker filling. 30 observations for each test were recorded at each location. The new ETP was operational during testing.

During the sludge tanker filling, the assessment concluded that recognisable and detectable odours were infrequent downwind of the ETP. Any detectable odours were described as ‘light’ and no detectable odour was identified at the residential receptor. It was concluded that there was negligible impact at 5 of the locations, with a slight adverse impact at one location which was inside the installation boundary (location 2).

Tests conducted after sludge export did detect more frequent odours downwind of the ETP, but these were still considered to be of low intensity. No odour was detected at locations outside of the installation boundary. It was concluded there is a predicted negligible impact at three of the locations, and a slight adverse impact at three locations (2, 3 and 4). It was noted that impacts at location 2 might also result in a slight adverse impact of the garden of residential location 6, however it is unlikely these will be present at high intensities based upon the results of the survey. A noticeable

increase in odour at location 4 was detected and investigated. It was found that the DAF tanks were being observed by operators with the tank covers open which is believed to be the source of the odour.

The assessment concluded odours detected on site to be generally infrequent and low in intensity, with elevated odours only being detected for very short durations.

Odour Risk Assessment

The results of the odour assessment discussed above, other assessments and further site visits carried out by a specialised odour consultant have been used to inform a stand-alone odour risk assessment for the new ETP following the H1 risk assessment methodology.

The key potential odour sources from the new ETP were identified as:

- Open aeration tank
- DAF tanks (1 & 2)
- Crude and sludge pits
- Sludge exports
- Spillages, plant breakdowns and plant maintenance

The risk assessment concluded that exposure of odour from the ETP was low from all potential sources when considering mitigation measures listed in the risk assessment and included in the Odour Management Plan (OMP) are adhered to. These will be discussed further in the section below

Odour Management Plan

The Operator has an odour management plan in place specifically for the ETP. The Odour Management Plan has been reviewed by us in line with Horizontal Guidance for Odour (H4) – Odour Management and the relevant BAT conclusions of the Food, Drink and Milk Industries BRef document (EU 2019). The OMP addresses the sources of odour identified in the risk assessment.

The open aeration tank was not identified as a significant source of odour in the OMP. The tank is raised several meters from ground level which improves dispersion. When operating efficiently, odours of high intensity and offensiveness will not be generated. The tank will be continuously monitored to ensure the process is operating correctly (Total Suspended Solids, oxygen, pH, ammonia). Should the process fail elevated levels of odour may occur, the OMP includes contingencies mitigation measures which would be implemented. The OMP also details specific control measures should the aeration tank fail by specifying third party licensed tankers will be on site to remove the waste in this instance.

We consider the Operator has adequately justified the open aeration tank not being considered a significant source of odour which addresses our previous concerns in relation to lack of a justification the aeration tank represents BAT. On-site field odour assessment results support this conclusion where results showed odour from the ETP was low in intensity and infrequent. The Operator has also proposed suitable mitigation measures should failure of the aeration tank occur.

Odour from the treatment of process effluent in both DAF plants will be mitigated using source specific physical odour control measures in the form of movable covers. These will reduce the escape of odours but allow maintained where required.

Charcoal filters have been fitted to the sludge tank outlet valves on the DAF plants. The tanker would connect to the filters as opposed to the tank itself minimising escape of odours. The tanker itself is also fitted a dedicated carbon odour control unit to treat odorous displaced air from the tankers during sludge export operations. The OMP details maintenance procedures for these control measures to ensure they work as expected.

Sheet covers on the crude and sludge pits reduce the exposed area and provide containment of odours. Perimeter gaps are present to prevent accumulation of odour air within the pits headspace to ensure odour releases are kept to a low level when the covers are removed. The sludge pit will be cleaned daily to prevent the build-up of odorous sludge in the tank.

All drains on site will be covered to avoid any odour emissions from the enclosed drainage system.

Management control measures to prevent odour from the ETP include all waste unloading, treatment and storage to be undertaking in accordance with operating procedures and management documents.

The Operator has stated that daily 'sniff' monitoring and inspections will be undertaken where a member of staff will walk around the site boundary to detect odour. Following detection of odour at the site boundary a site inspection will be performed to locate the source of odour which will enable corrective and further preventative action to be carried out. Daily inspections will include weather and site operating conditions and be recorded using Odour Report Forms as part of the Odour Management Plan. The Operator has detailed a number of contingency measures in the case of elevated odour levels are identified either by receipt of an odour complaint or detection of odour from the daily monitoring inspections. Where elevated odour levels are identified, the event will be recorded and categorised as to the severity, the Operator will investigate and report to NRW if required. Contingency measures include:

- Identification of the odour source by carrying out a range of check at potential odour sources
- Mitigation of odour sources includes complete shutdown of the ETP, with adequate sludge removal in place and diverted effluent
- Completing further odour assessments once improvements are completed
- Retraining of employees
- Review of operating procedures and control measures mentioned above

The Operator has stated these contingency measures will also be employed during accidents and incidents such as abnormal meteorological conditions, breakdown of process equipment or plant or human error. The Operator has stated that outside of normal operating hours a nominated representative of the management team will attend site within two hours of the notification, the process for remediation is identical to that employed above.

The requirement for full quantitative odour modelling was considered. However, as the ETP is operational and the results from this assessment and assessments completed for the previous application and this application (as well as assessments in-between although not part of this current permit application) have concluded the ETP will result no increased risk of odour, it was not considered necessary in this instance.

Refusal reasons relating to odour for the previous application have been addressed in this application and given the quantitative assessment we are now satisfied the risk of odour impacts from the ETP is low and thus the Operator has suitably justified the use of an open aeration tank represents BAT. Notwithstanding this, it is acknowledged that odour is an issue at the site although we consider the source is unlikely to be the new ETP. Therefore, based upon the information in the application we are satisfied that the appropriate measures will be in place to prevent or where not practicable to minimise the effects of odour from the ETP. Condition 3.3.1 of the permit requires that emissions from the activities are free from odour at levels likely to cause pollution outside the site.

3.7.5 Noise Assessment

Noise Impact Assessment

Noise is a key issue at the installation, there is a substantiated noise problem attracting frequent complaints from local residential receptors. There are several noise sources at the site including cheese production processes, cooling processes and vehicle movements.

For the previous application the Operator submitted a noise impact assessment which concluded the operation of the new ETP offers a reduction in noise levels at the two closest noise sensitive receptors compared to the operation of the existing ETP. NRW agreed with this conclusion (see PAN-010733 Dairy Partners Refusal Decision Document.pdf. Section 6.5 for more information).

The new ETP is now fully operational and for the purposes of this application, the Operator has submitted a new noise impact assessment to demonstrate there has not been a significant increase in ambient noise levels. As with assessment submitted for the previous assessments, the assessment does not include noise sources from other

areas of the installation. As there is an anticipated improvement and reduction in noise levels signified by the operation of the new ETP, we agree this is a reasonable approach.

The updated assessment been assessed and scrutinised by internal NRW noise specialists. The assessment has been reviewed in accordance with the assessment criteria of BS4142:2015+A1:2019 *'Methods for rating and assessing industrial and commercial sound'.*

The assessment assessed the impact on noise levels at two receptor locations, NSR 1 and NSR 2. The two receptor locations are those closest situated to the ETP, with one (NSR 1) located immediately adjacent to the eastern boundary of the installation. It is recognised that there are other potential receptors surrounding the installation boundary, but it is considered the two chosen for the purpose of this assessment will represent worst case impacts.

Figure 3: Map showing location of noise sensitive receptors NSR 1 and NSR 2 in relation to the ETP.

In line with BS1412, the assessment involved comparing the predicted noise emissions ('rating levels' $L_{Ar,Tr}$) to the measured background level outside the sensitive receptor location. The focus of the assessment was to establish whether the sound from the new ETP has improved at receptors round the Facility/

A baseline sound survey was conducted which involved fixed position noise monitors at two locations at the installation boundary to monitor noise emissions over a 24-hour period to determine background sound levels. All other plant and equipment at the site continued to operate as normal throughout the survey, therefore noise levels from the rest of the installation are included in the baseline background levels.

A noise survey was carried out on 17th November 2021 and measured noise at variation positions around the new ETP and surrounding area. The ETP was fully operational. This survey data was then used to calibrate 3-D noise mapping to predict noise emissions from the new ETP at NSR 1 and NSR 2 but also at receptors to the north, north-east and south-west (NSR 3, 4, and 5 respectively).

The results of the modelling predicted that the predicted specific noise levels from the new ETP are lower than the predicted specific noise levels from the old ETP. The assessment also notes that results from the new ETP are also lower than previously recorded (July 2020) as a result if mitigation applied to the blower house/blower pipe. Results are shown below:

Noise-Sensitive Receptor	Predicted Specific Noise Level L_{Aeq} (dB)
NSR 1	42
NSR 2	37
NSR 3	15
NSR 4	26
NSR 5	21

Table 1: Predicted specific noise levels outside of NSR windows from the old ETP

Noise-Sensitive Receptor	Predicted Specific Noise Level L_{Aeq} (dB)
NSR 1	32
NSR 2	34
NSR 3	23
NSR 4	25
NSR 5	17

Table 2: Predicted specific noise levels outside of NSR windows from the new ETP

In line with BS 4142:2014, the Applicant has then applied a rating level penalty to the specific noise level to account for characteristics such as tonality, impulsivity, intermittency or if the noise is generally distinguishable from other noise sources.

Although it was noted no tonality was observed during the noise survey, the Applicant applied a 2 dB at NRS 1 penalty for tonality as a worst-case scenario as tonality has been observed during previous surveys. This was not applied at NSR 2 where tonal quality was not (and has not) been observed. A 3 dB penalty was applied to both NSRs for intermittency to account for audible intermittent noise from a ‘knife valve’ in the new ETP. No penalty has been applied for impulsive noise sources. Therefore, a 5 dB penalty has been applied at NSR 1 (tonality and intermittency) and 3 dB penalty has been applied at NSR 2 (intermittency only).

Results have been compared to the background sound level, see below table. Note that background sound levels have been estimated for NSRs 3-5.

Noise-Sensitive Receptor	Specific Sound Level $L_{Aeq,Tr}$ (dB)	Penalty (dB)	Rating Level $L_{Ar,Tr}$ (dB)	Background Sound Level $L_{A90,Tr}$ (dB)	Difference (dB)
NSR 1	32	+5	37	44	-7
NSR 2	34	+3	37	42	-5
NSR 3	23	0	23	≈35	-12
NSR 4	25	0	25	≈35	-10
NSR 5	17	0	17	≈30	-13

Table 3: Predicted rating levels outside nearby NSRs

BS414 states that the lower the rating level (i.e., predicted noise emissions) is relative to the measured background level, the less likely it is that the specific sound source will have an adverse impact.

As shown in the above table, results indicated that predicted rating levels are all 6dB below the representative background level at all receptors. The assessment concluded likelihood of adverse impact of noise pollution from the new ETP to be low.

Based on the information provided, NRW agree the new ETP offers a reduction in noise levels at the two closest noise sensitive receptors compared to the operation of the existing ETP. In addition, with the use of the new ETP, the number of HGV tankers servicing the ETP will greatly reduce, approximately from the current 6 tanker movements over 24 hours a day to 1 tanker movement per day only during daytime, further reducing noise at the site.

Noise Risk Assessment

The Operator has provided a risk assessment for the new ETP following the H1 methodology which includes assessment of noise.

The key potential noise sources from the ETP were identified as:

- General operations
- Maintenance activity
- Removal of sludge

- General vehicle movements
- Blowers on aeration tank

The risk assessment concluded that risk noise pollution from the ETP was low from all potential sources when considering mitigation measures listed in the risk assessment and included in the Noise Management Plan (NMP) are adhered to. These will be discussed further in the section below.

Noise Management Plan

The Operator has submitted a noise management plan in place specifically for the new ETP. The Noise Management Plan has been reviewed by us in line with Horizontal Guidance for Noise (H3) – Noise Assessment and Control and the Food, Drink and Milk Industries BRef document (EU 2019). We are not satisfied that it has been sufficiently updated to include the appropriate measures for managing noise emissions from the ETP as detailed in other sections of the application. Therefore, whilst we are satisfied that the new ETP is unlikely to lead to increased noise levels or contribute further to an already substantiated noise problem at the installation we have set an improvement condition requiring the Operator to update the Noise Management Plan (see Annex 1). Furthermore, the whole installation permit review will consider the noise control measures at the whole site and whether they meet the necessary BAT standards.

3.7.6 Impact on National Site Network, SSSIs and non-statutory conservation sites

The installation is within the relevant screening distance criteria for protected conservation sites. A full assessment of the variation application and its potential to affect any of the sites has been carried out as part of the permit determination process. National Site Network sites, Sites of Special Scientific Interest (SSSI) and non-statutory conservation sites will be discussed separately below

National Site Network

The following National Site Network sites are located within 10 km of the installation:

- Afon Teifi / River Teifi SAC UK0012670

An OGN 200 Form 1 Habitat Regulations Assessment (HRA) was completed to assess the potential to affect this, this is available on the public register to view, see here: PAN-017188 Dairy Partners OGN200 Form 1 HRA.pdf. A summary is given below.

The principal emissions that have been assessed are emissions to surface water of treated effluent from the new effluent treatment plant. A number of new parameters are present in the new discharge, the concentrations of many existing parameters are proposed to be reduced reflecting the much-improved water quality of the discharge following the introduction of a new and modern effluent treatment process.

The point source emissions to surface water of treated effluent from the effluent treatment plant has been assessed in the HRA in terms of: toxic contamination from emissions of aluminium, mercury, cadmium and all other chemical additives; nutrient enrichment from emissions of phosphorus, BOD and ammonia; acidification from the pH of the discharge; changes in thermal regime from the temperature of the discharge and turbidity and siltation from emissions of total suspended solids. There was determined to be no impact pathway from the following impacts:

- Changes in salinity regime – there is no saline content within the effluent
- Habitat loss – there is no destructive work occurring at the SAC as part of the proposal as the discharge pipe is already in-situ.
- Physical damage – there is no destructive work occurring at the SAC as part of the proposal as the discharge pipe is already in-situ.
- Smothering – there is no change to air emissions from the installation as part of the variation
- Entrapment – there is no changes to water abstraction activity as part of this variation
- Disturbance (noise) – noise is not expected to be significant at the SAC due to the operation of the new ETP, noise levels are expected to be reduced between the existing ETP and new ETP

In accordance with OGN200, an in-combination assessment was completed with other plans and projects which concluded there are no in-combination effects.

Appropriate assessment:

In light of the conclusions of an appropriate assessment and taking account of the advice received from protected sites advisors, it has been established that the project will not adversely affect the integrity of any Natura 2000/Ramsar site, taking into account any conditions or restrictions as applicable, either alone or in-combination with other plans and projects. (As documented in section 4 of OGN 200 form 1, and section 5 if applicable).

SSSI Assessment

The following SSSIs are located within 2 km of the installation:

- Afon Teifi / River Teifi SSSI 32WLU
- Old Cilgwyn and Cae Heslop 32WGK

An Appendix 4 Form (CRoW Act Assessment) was completed to assess the potential to affect the SSSI sites, this is available to view on the public register, see here: PAN-017188 - Dairy Partners CRoW Act Appendix 4 Form.pdf. A summary is given below.

Afon Teifi / River Teifi SSSI

The assessments completed in the National Site Network section above for the Afon Teifi / River Teifi SAC are identical to those completed for the assessment of the impacts on the Afon Teifi / River Teifi SSSI. Therefore, the conclusion was that the proposal is not likely to damage any of the flora, fauna or geological or physiological features which are of special interest for Afon Teifi / River Teifi SSSI.

Old Cilgwyn and Cae Heslop SSSI

There is no impact pathway from this proposal to Old Cilgwyn and Cae Heslop SSSI. Therefore, the conclusion was that the proposal is not likely to damage any of the flora, fauna or geological or physiological features which are of special interest for Old Cilgwyn and Cae Heslop SSSI.

Non-Statutory Conservation Sites Assessment

There are no non-statutory conservation sites within the screening distance of 2 km of the installation.

3.8 Setting ELVs and other Permit conditions

We have decided that emission limits should be set for the parameters listed in the permit. The following emission limits for point source emissions to surface water have been set effective from permit issue:

- Maximum daily discharge volume: 900 m^3/day
- Temperature: 21 degrees Celsius
- Chemical oxygen demand (COD): 110 mg/L
- Total suspended solids (TSS): 30 mg/L
- Ammonia as N: 10 mg/L
- Nitrite as N: 1.0 mg/L
- Mercury: 0.5 µg/L
- Cadmium: 0.525 µg/L
- Total nitrogen: 20 mg/L
- Total phosphate as P: 1.0 mg/L
- Total aluminium as Al: 1.0 mg/L
- pH: minimum 6, maximum 9
- Biological oxygen demand (BOD): 20 mg/L

The emission limit values have been set in line with the specifications of the ETP, our assessment and in line with Best Available Techniques – Associated Emission Levels (BAT-AELs) contained within BAT conclusion 12 of the Food, Drink and Milk Industries BRef Document (EU 2019).

The varied permit includes additional monitoring required for Chloride (Cl^-) as specified in BAT conclusion 4 of the Food, Drink and Milk Industries BRef document (EU 2019), however there is no BAT-AEL set.

No other emission limits have been set or changed as part of this variation as no other point source emissions have changed as part of this variation.

3.9 Translating BAT into Permit conditions

Article 14(3) of IED states that BAT conclusions shall be the reference for permit conditions. Article 15(3) further requires that under normal operating conditions;

emissions do not exceed the emission levels associated with the best available techniques as laid down in the decisions on BAT conclusions.

BAT conclusions set out specific limits that the operator must comply with, modelling and ETP specifications has been used to demonstrate the Operator can comply with the emission limits described as BAT. As the proposed ETP is new plant, the Operator is required to achieve compliance with the BAT conclusions and BAT-AELs now. The relevant BAT conclusions for the new ETP and contained within the Food, Drink and Milk Industries BRef Document (EU 2019). In our previous determination we considered the Waste Treatment BRef Document (EU 2018) a secondary BRef, however we now consider the ETP activity is suitably covered by the Food, Drink and Milk Industries BRef Document (EU 2019) as no additional, separate assessment against the Waste Treatment BRef Document (EU 2018) is required.

3.10 Monitoring

We have decided that monitoring should be carried out for the parameters listed in Schedule 3 of the permit using the methods and to the frequencies specified in those tables. These monitoring requirements have been imposed in order to demonstrate compliance with the emissions limits in the permit.

There are no changes to point source emissions to air, sewer or land as part of this variation, therefore have not been assessed.

For emissions to surface water, the methods for continuous and periodic monitoring are in accordance with M18: Monitoring of discharges to surface water and sewer and in line with BAT requirements set out in the Food, Drink and Milk BRef Document (EU 2019). Monitoring frequencies have been considered in line with BAT requirements.

Based on the information in the Application and the requirements set in the conditions of the permit we are satisfied that the monitoring techniques, personnel and equipment employed by the Operator will have either MCERTS certification or MCERTS accreditation as appropriate.

3.11 Reporting

We have specified the reporting requirements in Schedule 4 of the Permit to ensure data is reported to enable timely review by Natural Resources Wales to ensure compliance with permit conditions and to monitor the efficiency of material use and waste recovery at the installation.

New reporting forms have been issued as part of this variation.

3.12 OPRA

The agreed OPRA score at the installation is 99. This will form the basis for ongoing subsistence fees. The OPRA score has not changed following this variation.

ANNEX 1: Improvement Conditions

Table S1.3 Improvement program requirements		
IC14	The Operator shall update its existing Noise Management Plan to incorporate all the activities now covered by this permit in accordance with BAT 1 and BAT 13 of the BAT conclusions for Food Drink and Milk, under Directive 2010/75/EU of the European Parliament and of the Council. The Operator shall submit the updated Environment Management System to Natural Resources Wales for approval by the date specified	09/09/2023
IC15	The Operator shall update its existing Accident Management Plan to incorporate all the activities now covered by this permit in accordance with BAT 1 of the BAT conclusions for Food Drink and Milk, under Directive 2010/75/EU of the European Parliament and of the Council. The Operator shall submit the updated Environment Management System to Natural Resources Wales for approval by the date specified.	09/09/2023
IC16	The Operator shall submit a written report to Natural Resources Wales for written approval. The report shall review the surfacing underlying and surrounding the effluent treatment plant's two 'out of specification' tanks. The report shall consider surface thickness, strength, reinforcement, materials of construction and permeability of the surfacing and if the surfacing will prevent pollution to surface water and groundwater in the event of a leak, spill or catastrophic failure of the tanks. The report should reference the CIRIA C736 guidance. If the assessment identifies a risk to surface water and groundwater the report should outline improvements required and an implementation plan including timescales. The Operator shall submit the report to Natural Resources Wales for approval by the date specified. Any improvements required shall be implemented in accordance with the implementation timetable approved in writing by Natural Resources Wales.	09/09/2023

ANNEX 2: Consultation Reponses

A) Advertising and Consultation on the Application

The Application has been advertised and consulted upon in accordance with Natural Resources Wales Public Participation Statement. The way in which this has been carried out along with the results of our consultation and how we have taken consultation responses into account in reaching our draft decision is summarised in this Annex.

1) Consultation Responses from Statutory and Non-Statutory Bodies

None received.

2) Consultation Responses from Members of the Public and Community Organisations

A number of the issues raised during the consultation process are outside Natural Resources Wales remit in reaching its permitting decisions. Specifically, questions were raised which fall within the jurisdiction of the planning system, both on the development of planning policy and the grant of planning permission. Guidance on the interaction between planning and pollution control is given in PPS23 / Planning Policy Wales. It says that the planning and pollution control systems are separate but complementary. We are only able to take into account those issues, which fall within regulatory scope of the Environmental Permitting Regulations.

Comments and questions were also raised that relate to aspects of the installation that are not in scope of this variation application. We are only able to take into account issues presented by the variation application; each variation must be determined on its own merits.

Comments were received in the form of three separate documents from three respondents who are all part of one community group. We have grouped similar issues together and shown how the issue raised was addressed.

a) Representations from Local MP, Assembly Member (AM), Councillors and Parish / Town / Community Councils

None received.

b) Representations from Community and Other Organisations

Response Received from: Arad Community Action Group	
Brief summary of issues raised:	**Summary of action taken / how this has been covered**
Comments relating to future impacts of major site redevelopment and production increase at the installation.	These matters are not for consideration as part of this variation application as this application is determined on its own merits. The Operator has confirmed there is no increase in production capacity as part of this variation.
Comments relating to NRWs regulatory compliance monitoring of the installation.	These comments relate to the effectiveness of the ongoing compliance monitoring of the installation, therefore are not relevant to the permitting decision.
Comments relating to the new ETP being built and operated without the variation to the Environmental Permit or Planning Permission being secured first.	These comments relate to the compliance monitoring of the installation, therefore are not relevant to the permitting decision. Comments relating to Planning Permission are not relevant to the permitting decision.
Concerns inadequate containment of chemicals, flooding of the open aeration tank and drainage issues might pollute the Afon Arad.	See section 3.5.2 of this document for the assessment of the Operators new containment proposal which addresses containment and drainage.

Concerns regarding perceived odour pollution from the new ETP, specifically the open aeration tank. Reports of complaints relating to odour being reported to NRW.	See section 3.7.4 of this document for assessment of odour impact of the ETP, including the open aeration tank. Perceived odour incidents relate to the ongoing compliance monitoring of the installation, therefore are not relevant to the permitting decision.
Comments relating to the noise management plan only being relevant to the ETP.	Matters other than those relating to the ETP are not for consideration as part of this application. Following this variation, noise management plans and conditions relating to the whole site will continue to apply.
Comments relating to the Noise Impact Assessment: • only being relevant to the ETP • using an inappropriate background level • not assessing all relevant receptors • indicating noise impacts in excess of WHO recommended levels • not considering the impact of HGV movements	Matters other than those relating to the ETP are not for consideration as part of this application. Please see section 3.7.5 of this document for our assessment of the Noise Impact Assessment. WHO guidelines consider impact of environmental noise and do not explicitly consider industrial noise as an environmental noise source. HGV movements within the installation have been considered. See section 3.7.5 of this document. HGV movements outside of the installation boundary are not relevant to the permitting decision.
Comments relating to the Odour Impact Assessment: • not assessing all receptors surrounding the site • not assessing odour impacts in summer months • the methodology used Concerns odour mitigation measures are not effective.	Please see section 3.7.4 of this document for our assessment of the Odour Impact Assessment. The application has been determined based on the information provided.
Concerns regarding odour impact should ETP breakdown	See section 3.6.3 of this document for assessment of accident management at the installation.
Requests for NRW to ascertain if the open aeration tank is a source of odour pollution and a flooding risk during high rainfall events.	Please see section 3.7.4 of this document for our assessment of the Odour Impact Assessment.

	The whole ETP will be switched off during extreme events (1 in 100 year). For intermediate events associated with high rainfall the ETP has high capacity for storage (2 full days of untreated effluent) and the Operator has confirmed if this storage is exceeded, untreated effluent will be tankered off.
Queries as to if the secondary containment measures meet NRW requirements.	See section 3.5.2 of this document for our assessment of the containment measures proposed by the Operator.
Comments relating to 'Odour Review Document', 'Anchem Boiler Report', and 'Lanson Microbe Ltd Report'.	These comments have not been considered as these documents do not make up part of the application.
Comments relating to Flood Consequence Assessment.	All matters relating to the flood consequences assessment and subsequent flood risk are outside of the scope of the environmental permit. They may be within scope of the planning process. See section 3.6.3 of this document for assessment of accident management at the installation.
Comments relating to the positioning of the ETP and visual impact.	These matters are outside of the scope of the environmental permit. It may be within scope of the planning process.
Comments relating to the suitability of the Environmental Management Systems.	See section 3.6 of this document for the assessment of the operation of the installation, including the environment management system, accident management and operating techniques.
Request for a mass balance analysis of chemicals used on site due to concerns about chemical contamination of the Afon Arad.	The permit will impose limits on specific parameters discharge of the effluent treatment to protect surface water features. See section 3.7.2 of this document for more information. Pollution as a result of spills or leakages of the chemicals will be mitigated by the containment measures proposed by the Operator. See section 3.5.2 of this document for more information.
Concerns regarding the content of the Environmental Risk Assessment submitted.	The Environmental Risk Assessments submitted follows the recognised methodology for environmental permitting. Together with the relating further assessments and management plans, we are satisfied what has been submitted is

	suitable for this purpose of this permit application.
Comments regarding the containment design and the Containment Risk Assessment submitted.	See section 3.5.2 of this document for description of the new proposed Secondary Containment Lagoon (including drainage, surfacing and operation of flood gates) and assessment of containment measures. See section 3.7.2 of this document for assessment of impact to surface water.
Comments regarding access to and visual impact of the Secondary Containment Lagoon.	This matter is outside of the scope of the environmental permit. It may be within scope of the planning process.
Request for clarification on new bunding design.	See section 3.5.2 of this document for full description of the 'Secondary Containment Lagoon'.
Request for an action plan to protect the Afon Arad.	This is not considered necessary to support this permit application. See section 3.7.2 of this document for assessment of impact to surface water. The containment systems proposed is considered sufficient to protect the Afon Arad from leakages, spills or failure of primary containment.
Comments regarding the construction of the new containment measures.	This matter is outside of the scope of the environmental permit. It may be within scope of the planning process.
Concerns regarding surface water pollution incidents since the new ETP has been operational (July 2021 and September 2022).	NRW are aware the Operator has been involved in surface water pollution incidents; action has been taken. There is ongoing enforcement action regarding the incidents at the site. The permit continues to set protective limits on emissions from the site and these will continue to be regulated. The Operator is only permitted to discharge uncontaminated surface water to the Afon Arad.
Concerns regarding impact on wildlife.	See section 3.7.6 of this document for assessment of impact of ETP discharge National Site Network, SSSIs and non-statutory conservation sites.
Requirement for a microbial risk of bioaerosols for the aeration tank.	See section 3.7.1 of this document for discussion on bioaerosols.
Concerns regarding current chemical delivery and storage.	This matter is regarding the ongoing compliance monitoring of the installation,

	therefore not relevant to the permitting decision. The Operator has proposed chemicals used for the ETP are to be stored withing the 'Secondary Containment Lagoon', see section 3.5.2 of this document for more information.
Comments regarding light pollution.	This matter is outside of the scope of the environmental permit. It may be within scope of the planning process.
Comments regarding mains water supply.	This matter is outside of the scope of the environmental permit.
Queries as to how the monitor equipment in the ETP should fail in the event of a power outage.	See section 3.6.3 of this document for assessment of accident management at the installation.
Comments relating to suitability of installations location.	These matters are outside of the scope of the environmental permit. It may be within scope of the planning process.
Concerns regarding effectiveness of odour mitigation measures and monitoring.	See section 3.7.4 of this document for assessment of the Operators Odour Management Plan which will be conditioned in the permit as an operating technique. Condition 3.3.1 in the permit will also require that emissions from the activities are free from odour at levels likely to cause pollution outside the site.
Comments relating to previous lack of notification from the Operator in the event of temporary actions which are likely to cause elevated levels of odour.	This matter is regarding the ongoing compliance monitoring of the installation, therefore not relevant to the permitting decision.
Concerns the Operators complaints procedure is not suitable as complaints are made directly to NRW and contact details are not shared.	The Operators complaints procedure is for complaints made directly to the site. Complaints made to NRW will be dealt with in line with current procedures.
Query regarding health and safety of staff during flood events.	These matters are outside of the scope of the environmental permit.
Query regarding status of demolition of old ETP infrastructure.	This matter is outside of the scope of the environmental permit. It may be within scope of the planning process.

Query regarding removal of 'Out of Specification Tanks'.	The 'Out of Specification Tanks' form part of the new ETP. See section 3.5.2 of this document for full description of ETP infrastructure.

c) Representations from Individual Members of the Public

None received.

B) Advertising and Consultation on the Draft Decision

We advertised our draft decision (to issue the variation) to give an opportunity for the public to view the draft decision documents and raise any concerns or bring to our attention any relevant information that we have not already considered in making our draft decision.

Comments were received from the same community group which provided a response to the initial application advertisement and consultation.

This time comments were received as a single document which represented a response from the whole community group. We have grouped similar issues together and shown how the issue raised has been addressed.

Response Received from: Arad Community Action Group	
Brief summary of issues raised:	**Summary of action taken / how this has been covered**
Concerns regarding assertations made by the Operator in the application.	The Operator has signed a declaration stating all information in the application is true to the best of their knowledge and belief and false or misleading statements may lead to prosecution.
Comments relating to an increase in nature and severity of pollution incidents since the new ETP come into operation.	Perceived incidents relate to the compliance monitoring of the installation, therefore are not relevant to the permitting decision. We are satisfied that the proposal is unlikely to lead to increased risk of pollution incidents based on the information provided with the application. The varied permit will ensure that the appropriate level of environmental protection is provided.

Comments relating to increases in the site's future production capacity.	The Operator has confirmed that there is no increase in production capacity as part of this variation. We cannot assess impacts which do not form part of the application proposal.
Comments regarding lack of detail on standards or mitigation requirements to be achieved to minimise disruption and noise during construction of Secondary Containment Lagoon.	This matter is outside of the scope of the environmental permit. It may be within scope of the planning process.
A request for targets and requirements to be placed on the Operator to ensure quality of life, health and wellbeing of the local community is safeguarded in line with the Well-Being of Future Generation (Wales) Act 2015 and the Environment (Wales) Act 2016 (for the ETP and the whole facility).	See section 3.4 of this document for information on how the Well-Being of Future Generation (Wales) Act 2015 and the Environment (Wales) Act 2016 has been taken into account during the determination of this variation application. As set out in this document, the varied permit sets standards the Operator must meet in order to safeguard the environment (e.g., providing a containment system as detailed in this application) and the local community (e.g., conditions specifying the activities should be free from odour at levels likely to cause pollution outside of the site). Matters other than those relating to the ETP are not for consideration as part of this application.
Queries as to why a permit has been granted where the Operator has previously failed to provide secondary containment and adequate noise mitigation. Request for an explanation as to why the Operator has been allowed to Operate the ETP without the environmental permit variation in place.	These comments relate to the compliance monitoring of the installation, therefore are not relevant to the permitting decision. This application has been determined on its own merits.
Concerns regarding the own Operators Environmental Management System. Recommendations for the Operator to have an accredited EMS.	See section 3.6 of this document for the assessment of the operation of the installation, including the environment management system, accident management and operating techniques. It is not a permitting requirement for an Operator to have an accredited EMS.
Comments relating to the Operator needing to be benchmarked against similar facilities in terms of	The ETP has been assessed against BAT standards and the relevant limits have been implemented in the varied permit,

environmental performance, corporate responsibility and BAT.	see section 3.9 of this document for more information. A whole installation permit review will consider the whole site and whether the necessary BAT standards have been or will be met. This will be started following this variation being granted.
Comments relating to the scale, design and impact of construction activity on local residence.	This matter is outside of the scope of the environmental permit. It may be within scope of the planning process.
Queries relating to where information on primary failure of the ETP tanks is within the document.	We note a typo in section 3.7.2 of this document which referred the reader back to section 3.7.2. This should have read Section 3.5.2 which assess the impact of primary containment failure on the Afon Arad / River Arad by assessing the suitability of the secondary and tertiary containment measures proposed as part of the application. This has now been updated.
Queries as to why any ETP discharge from the ETP is going into the Afon Arad / River Arad.	We note a typo in section 3.5.2 of this document which states water will be discharged into the Afon Arad / River Arad from the ETP. All process effluent from the ETP will be discharged into the Afon Teifi / River Teifi. This has now been updated.
Queries regarding volume being discharged and impacts during bad weather events.	The permit limits the effluent volume discharged to 900 m^3 per day. This is a reduction from the previously permitted 1050 m^3 per day. The Operator will be required to comply with the limit regardless of weather events. See section 3.6.3 of this document for assessment of accident management at the installation during extreme weather events.
Comments relating to previous pollution incidents.	These comments relate to the compliance monitoring of the installation, therefore are not relevant to the permitting decision.
Comments relating to Odour to the methodology used in the Applicant's Odour Impact Assessment.	See section 3.7.4 of this document for our assessment of the Odour Impact Assessment.
Concern the aeration tank has wrongly been identified as not being a source of	The carbon filters have been implemented on sludge tankers for when sludge is

odour when carbon filters have had to be fitted for when pumping from it.	pumped out from the sludge tanks, not the aeration tank, see section 3.7.2 of this document for more information.
Comments relating to the Planning Permission application and planning permission remit.	These matters are not for consideration as part of this permitting variation application. This application has been determined on its own merits.
Comments relating to air emissions from the aeration tank.	See section 3.7.1 of this document for our assessment of air emissions.
Comments relating to the use of LNG and site security.	These matters are not for consideration as part of this variation application. The application has been determined on its own merits.
Comments relating to the sludge pits and domestic water.	These comments relate to the facility's existing infrastructure and operation and are not for consideration as part of this application.
Comments relating to light pollution.	This matter is outside of the scope of the environmental permit. It may be within scope of the planning process.