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Natural Resources Wales permitting decisions

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

Decision Document

Refusal of a bespoke permit variation

We have decided to refuse the application to vary the environmental permit for The Creamery, Aberarad operated by Dairy Partners (Cymru Wales) Limited.

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.

The facility location is The Creamery, Aberarad, Newcastle Emlyn, Carmarthenshire, SA38 9DQ. We refer to this as “the installation” and “the site” in this document.

We consider in reaching that decision we have taken into account all relevant considerations and legal requirements.

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 and reasons for refusal
- Annex 1 The consultation responses

Table of Contents

Contents

Refusal of a bespoke permit variation	2
Purpose of this document	2
Structure of this document.....	2
Table of Contents	3
Contents	3
Glossary of acronyms and definitions used in this document.....	5
Key issues and reasons for refusal	7
1 Outline of application.....	7
2 Our decision	8
3 How we reached our decision	9
3.1 Receipt of Application	9
3.2 Consultation on the Application	9
3.3 Requests for Further Information	10
4 The Legal Framework.....	11
5 The Installation	12
5.1 Description of the Installation and related issues	12
5.2 The site and its protection	16
5.3 Operation of the Installation – general issues	28
6 Minimising the Installation’s environmental impact.....	35
6.1 Assessment of impact on air quality.....	36
6.2 Assessment of impact to surface and ground water	36
6.3 Fugitive emissions	40
6.4 Assessment of odour impact.....	41
6.5 Noise Assessment	44
6.6 Impact on Habitats sites, SSSIs and non-statutory conservation sites	49
Natura 2000/Ramsar sites	50
Assessment of Likely Significant Effect:	51
Appropriate assessment:	51
SSSI Assessment.....	51
Non-Statutory Conservation Sites Assessment	51
7 Setting ELVs and other Permit conditions	52
7.1 Translating BAT into Permit conditions	53
7.2 Monitoring.....	53
7.3 Reporting	54

OPRA.....	54
ANNEX 1: Consultation Reponses.....	55
A) Advertising and Consultation on the Application	55
1) Consultation Responses from Statutory and Non-Statutory Bodies.....	55
2) Consultation Responses from Members of the Public and Community Organisations	55
a) Representations from Local MP, Assembly Member (AM), Councillors and Parish / Town / Community Councils	56
b) Representations from Community and Other Organisations.....	56
c) Representations from Individual Members of the Public	60

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

CIRIA C736 – Containment systems for the prevention of pollution: Secondary, tertiary and other measures for industrial and commercial premises. 2014

CIP – Cleaning-in-place

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

HACCP – Hazard Analysis Critical Control Point

HRA – Habitat Regulations Assessment

IBC – Intermediate Bulk Container

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

LNG – Liquefied 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
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

Key issues and reasons for refusal

The key issues in this determination included:

- Emissions to water
- Noise
- Odour
- Best Available Techniques (BAT)

Particular issues include demonstrating BAT would be achieved within the proposal and demonstrating the odour impact has been adequately assessed. See summary of the proposed variation in Section 1 below, the outline of our decision in Section 2 and the detailed explanation in Sections 5.2.1 and 6.4.

1 Outline of application

This is a variation application to an existing Part A(1) installation permit. The Installation is subject to the Environmental Permitting Regulations (England and Wales) 2016 (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

The variation is to upgrade the existing Effluent Treatment Plant (ETP) at the installation, the existing ETP is proposed to be replaced by a new ETP. The effluent treatment process would change due to the variation although the EPR Schedule 5.4 activity would remain the same as biological treatment of non-hazardous waste. The maximum capacity of the proposed new ETP is 900 m³ of process effluent per day, the average process effluent volume treated in the existing ETP is 693 m³ per day, the maximum process effluent volume treated (2019 – 2020) in the existing ETP is 873 m³ per day. The current permitted maximum discharge volume from the existing ETP to the Afon Teifi / River Teifi is 1050 m³/day, proposed to be reduced to 900 m³/day due to the variation.

The proposed new effluent treatment process is described in Section 5.1.4 of this decision document.

Apart from the proposed new ETP, there are no other changes to operations proposed at the installation as part of the variation.

2 Our decision

Based on the information currently available to us we are refusing the permit variation application. There are multiple reasons for refusals.

The first reason for refusal is that, based on the information that has been provided to us, we are not satisfied that the Operator has demonstrated that the proposals meet the necessary standards as described in BAT. In particular that the proposed secondary containment measures do not meet the necessary BAT standards. Our assessment of the proposed secondary containment measures and further reasoning for the refusal are detailed in Section 5.2.1 of this document.

The second reason for refusal is that based on the information that has been provided to us, we are not satisfied that the Operator has adequately assessed the odour impact from the new ETP. Our assessment of the odour risk assessment and further reasoning for the refusal are detailed in Section 6.4 of this document.

The third reason for refusal is that based on the information that has been provided to us, we are not satisfied that the Operator has demonstrated that the proposals meet the necessary standards as described in BAT. In particular that the proposed open aeration tank does not meet the necessary BAT standards. Our assessment of the proposed open aeration tank and further reasoning for refusal are detailed in Section 6.4 of this document.

We acknowledge that operation of the new ETP will lead to improvements in water quality of discharged treated effluent to the Afon Teifi / River Teifi as explained in Section 6.2 of this document. However, we also consider that a failure of primary containment would lead to catastrophic pollution of the same watercourse, thereby indicating the importance of providing adequate secondary containment.

Notwithstanding this, it is a BAT requirement to provide adequate secondary containment as outlined in Section 5.2.1 of this document.

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. These requirements are retained law and transposed by EPR; therefore it is a legal requirement for the Operator to demonstrate BAT conclusions have been achieved. The Operator has not demonstrated the proposals meet necessary standards as described in BAT therefore we must refuse the variation.

3 How we reached our decision

3.1 Receipt of Application

The Application was accepted as duly made on 16 November 2020. 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 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 on the Application

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. This variation was deemed a normal variation therefore there was no requirement to complete a consultation, however we did carry out a consultation with the public by placing an advert on our external website, as local interest deemed it necessary. We did not carry out a consultation with any statutory or non-statutory bodies.

We advertised the Application by a notice placed on our website, which contained all the information required by the Industrial Emissions Directive (IED), including advising people where and when they could see a copy of the Application. The consultation

started on **26/11/2020** and ended on **25/12/2020**. Comments from the public were also received during the determination via e-mail outside of the consultation period.

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.

Further details along with a summary of consultation comments and our response to the representations we received can be found in Annex 1. We have taken all relevant representations into consideration in reaching our determination.

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 further information relating to the declaration, surface water pollution risk assessment, noise impact assessment, process production and treatment capacity and throughputs. Upon receipt of this information we were able to consider the application Duly Made.

During the determination, further information was also requested by way of three Schedule 5 Notices:

- Schedule 5 Notice (1) requested information relating to the noise impact assessment, it was sent on 09/12/2020 with a response date of 16/12/2020. The additional information supplied satisfied the requirements of the Schedule 5 Notice.
- Schedule 5 Notice (2) requested information relating to the containment measures and BAT assessment. It was sent on 27/01/2021 with a response date of 22/03/2021. The additional information supplied satisfied the requirements of the Schedule 5 Notice.
- Schedule 5 Notice (3) requested information relating to the odour risk assessment, management plan and BAT assessment. It was sent on 25/03/2021 with a response date of 23/04/2021. The additional information supplied did not satisfy the requirements of the Schedule 5 Notice. At this point it had already been decided that the permit application was being refused therefore we did not consider it necessary for the Operator to fully satisfy the requirements of the notice. The Operator had been given an additional opportunity to provide an adequate odour risk assessment and they failed to provide this for a second time.

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

4 The Legal Framework

The application is subject to the Environmental Permitting Regulations (England and Wales) 2016 (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 refusing the variation for the reasons explained within this document a high level of protection will be delivered for the environment and human health. Our SMNR function is exercisable only in so far as is consistent with the proper exercise of our functions. Our primary function that we are exercising is the determination of an EPR permit and we cannot issue an EPR permit because of reasons explained above including that the Operator has not demonstrated the proposals meet the necessary standards as described in BAT. Our SMNR function cannot overrule our primary function. 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. These requirements are retained law and transposed by EPR; therefore it is a legal requirement for the Operator to demonstrate BAT conclusions have been achieved.

We acknowledge that operation of the new ETP will lead to improvements in water quality of discharged treated effluent to the Afon Teifi / River Teifi as explained in Section 6.2 of this document. However, we also consider that a failure of primary

containment would lead to catastrophic pollution of the same watercourse, thereby indicating the importance of providing adequate secondary containment. Notwithstanding this, it is a BAT requirement to provide adequate secondary containment as outlined in Section 5.2.1 of this document. The Operator has not demonstrated the proposals meet necessary standards as described in BAT therefore we must refuse the variation.

5 The Installation

5.1 Description of the Installation and related issues

5.1.1 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”, which at this Installation includes:

- Steam generation
- Storage of raw materials
- Intermediate storage of partly processed materials
- Storage and packaging of finished products
- Storage and handling of liquid cleaning chemicals
- Storage and handling of solid and liquid wastes
- Glycol-based refrigeration plant
- Storage of Liquefied Natural Gas (LNG)
- Storage and handling of light fuel oil

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

5.1.2 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

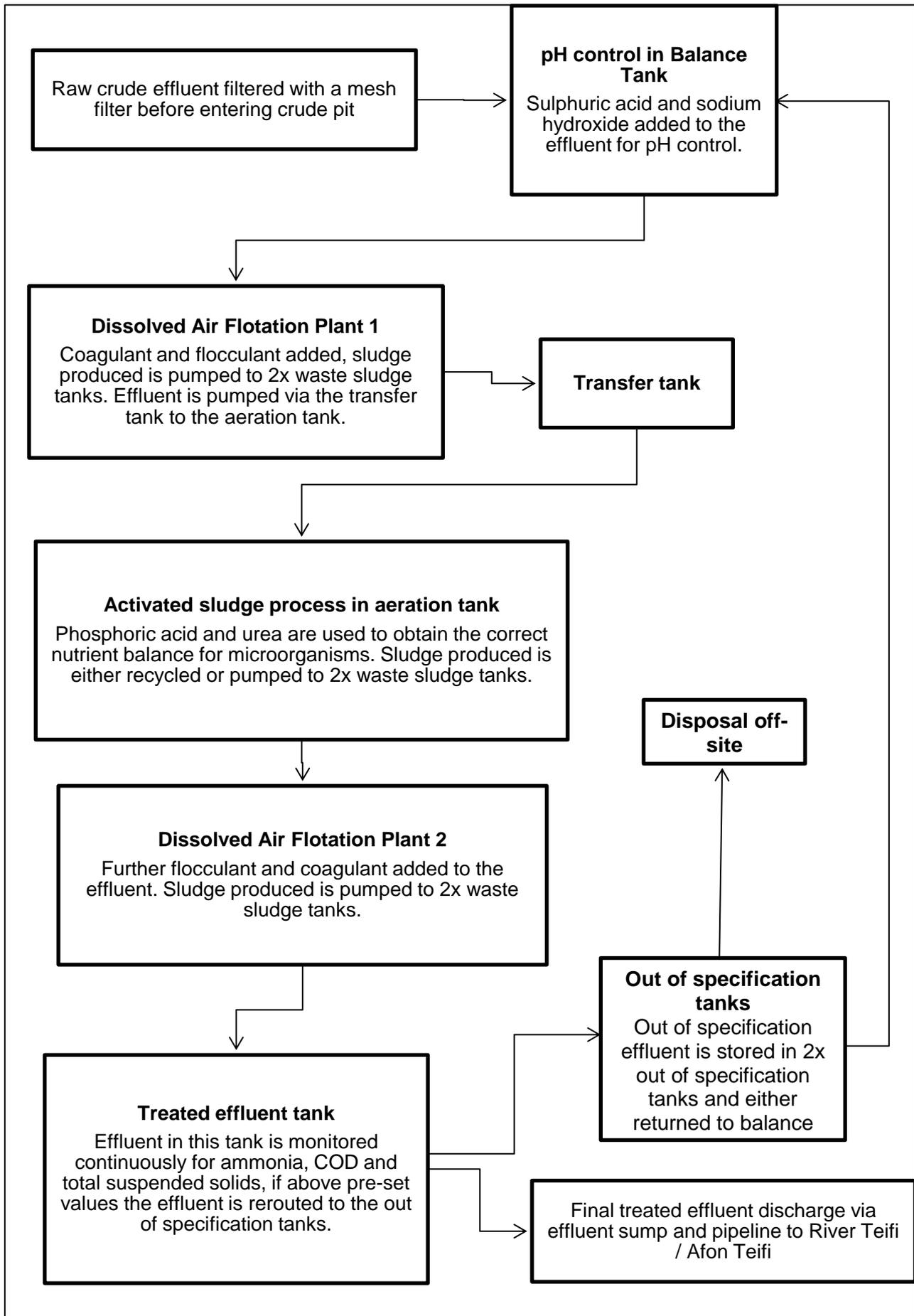
predominantly residential. The closest residential receptor is located immediately adjacent to the eastern edge of the installation boundary, there are also residential receptors located close to the northern and western boundaries. The Afon Arad runs directly through the site in a south to north direction, it joins the Afon Teifi / River Teifi as a tributary, approximately 400 m from the point where it leaves the installation. The new ETP has been constructed in the eastern proportion of the site, adjacent to the existing ETP which is proposed to be decommissioned once the new ETP is in service. There are no proposed changes to the installation boundary to accommodate the new ETP. There are no proposed changes to the emission points or monitoring points.

5.1.3 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 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 effluent treatment plant prior to discharge via a pipeline to the Afon Teifi / River Teifi.

5.1.4 What the Operator has applied to vary

The operator has proposed to upgrade the existing ETP which will be replaced by a new ETP. The effluent treatment process will change although the EPR Schedule 5.4 activity remains the same as biological treatment of non-hazardous waste. The maximum capacity of the new ETP is 900 m³ of process effluent per day, the average process effluent volume treated in the ETP is 693 m³ per day, the maximum process effluent volume treated (in 2019 – 2020) in the ETP was 873 m³ per day. The current permitted maximum discharge volume from the ETP to the Afon Teifi / River Teifi is 1050 m³/day, this is proposed to be reduced to 900 m³/day as part of the variation. The proposed new effluent treatment process employs both existing and new infrastructure and methods. The new treatment process is displayed as a flow chart with a detailed description below.



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 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 either pumped back to the balance tank or collected for disposal off-site, this decision is made dependant on the measured COD level of the out of specification effluent. 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 ETP has been designed with buffer storage capacity to hold process effluent prior to treatment, a total volume of 1,261 m³ storage is provided in the form of one balance tank (911 m³ volume) and the two out of specification tanks (1x 250 m³ and 1x 100 m³ volumes). If this was expected to be exceeded further process effluent would be tankered off site for treatment. There were 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.

Apart from the proposed new ETP, there are no other changes to operations proposed at the installation as part of the variation.

5.1.5 Key Issues in the determination

Our decision includes but is not limited to the following:

- Emissions to water
- Noise
- Odour
- Best Available Techniques

5.2 The site and its protection

5.2.1 Proposed site design: potentially polluting substances and prevention measures

Introduction to containment measures

There are a number of structures including piping, sub-surface and above-ground pits, tanks and containers that store liquids within the new ETP. There are chemicals stored within the new ETP which if released would be inherently damaging to the environment. Due to their chemical properties if these escape control and enter a watercourse then it is highly likely that they would cause severe harm to aquatic organisms. The chemicals may also be highly mobile in soil which could result in pollution of land and groundwater. There are pits and tanks that also store process effluent at different stages during the treatment process, ranging from untreated or raw crude process effluent to completely treated effluent. The process effluent from the cheese making process is largely made up of milk, which is damaging to watercourses due to its high level of biological oxygen demand (BOD), this depletes oxygen in the watercourse ultimately harming aquatic organisms. There are tanks that store waste sludge produced by the ETP process, the sludge may contain heavy metals, high levels of phosphorus and nitrogen and other organic compounds which may be harmful to aquatic organisms if these escape control and enter a watercourse and lead to pollution and contamination of land and groundwater.

As shown in Figures 1 and 2 below, the Afon Arad watercourse runs directly through the installation close to the area where the ETP is situated. Some of the structures are located extremely close to the watercourse. In particular, the balance tank is located within approximately 10 m of the Afon Arad and the aeration tank within approximately 25 metres. The Afon Arad is a tributary to the Afon Teifi / River Teifi Special Area of

Conservation (SAC) and Site of Special Scientific Interest (SSSI), it joins the Afon Teifi approximately 400 m from the point where it leaves the installation. Apart from the areas of impermeable concrete all areas within the proportion of the site where the ETP is situated is permeable stone-chip, in some areas the land slopes towards the Afon Arad, this demonstrates there is a short-run off time between the areas where the structures are located and the Afon Arad.

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. Such appropriate containment measures have not been included in the plans provided by the applicant.

Primary containment measures are the structures themselves that store the liquids including pipework, 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. An escape could happen due to a variety of reasons including; an overflow, leak, spill or catastrophic failure of primary containment. Tertiary containment includes anything provided beyond secondary containment; it is also a line a defence for failure of secondary containment. Secondary containment is often provided in the form of bunds. As defined in CIRIA C736: *'A bund is a facility (including walls and a base) built around an area where potentially polluting materials are handled, processed or stored, for the purposes of containing any unintended escape of material from that area until such time as remedial action can be taken. Bunds are usually structurally independent from the primary containment tank.'* How to Comply with your environmental permit version 8.0 (How to Comply) states *'all above-ground tanks containing liquids whose spillage could be harmful to the environment must be banded.'* Bunds should be designed and constructed in accordance with the following standards outlined in CIRIA C736 and How to Comply as set out below, amongst other requirements bunds must:

- Be impermeable and resistant to the stored materials
- Be designed to catch leaks from tanks or fittings

- Have a capacity greater than 110 % of the largest tank or 25 % of the total tankage, whichever is the larger. We refer to this as the 110 % / 25 % capacity rule. The calculation should use the maximum physical capacity of the tank or tanks. The required capacity of the bund should be calculated in line with CIRIA C736 and include the volume of stored inventory plus an allowance for rainwater and firefighting water (if applicable)
- Be regularly inspected for their condition

The definition above states ‘a bund is a facility built around an area...’ therefore, bunds must surround the whole perimeter of the primary containment, if the bund does not surround the whole perimeter by definition it is not considered a bund. The greater the distance of the bund wall and the primary containment the less is the risk of failure or bund overflow due to a surge effect, jetting or a damaged bund wall. It is stipulated in CIRIA C736 that for class 3 containment systems the bund wall should be situated so that no structure within the bund is closer to the wall than a distance equal to the structure’s own height. Designs should also minimise the potential for failure through jetting, where a jet of liquid has sufficient force that it projects over the bund wall. This can be achieved through increasing the distance between the primary containment and the bund wall, increasing the bund wall height and keeping the height of primary containment as low as possible.

BAT Conclusion 19 of the Waste Treatment BRef Document (EU 2018) states:

“In order to optimise water consumption, to reduce the volume of wastewater generated and to prevent or, where that is not practicable, to reduce emissions to soil and water, BAT is to use an appropriate combination of the techniques given below.”

One of the listed techniques we consider appropriate is: “(d) Techniques to reduce the likelihood and impact of overflows and failures from tanks and vessels”. Subsection (d) lists the following techniques: *“Depending on the risks posed by the liquids contained in tanks and vessels in terms of soil and/or water contamination, this includes techniques such as: overflow detectors, overflow pipes that are directed to a contained drainage system (i.e. the relevant secondary containment or another vessel); tanks for liquids that are located in a suitable secondary containment; the volume is normally sized to accommodate the loss of containment of the largest tank*

within the secondary containment; isolation of tanks, vessels and secondary containment (e.g. closing of valves).

Due to the risks posed by the liquids contained in the tanks in terms of soil and/or water contamination as outlined above, we consider it necessary for the Operator to implement techniques specified in subsection (d), in particular we consider it necessary for the Operator to locate tanks for liquids in suitable secondary containment. We define 'suitable' secondary containment as that described in CIRIA C736 and How to Comply, secondary containment includes bunds as described above.

The Operator has only partially completed a risk assessment of the primary, secondary and tertiary (where applicable) containment measures at the installation. The risk assessment follows a source, pathway, receptor model as specified in CIRIA C736 although it has not produced a site hazard rating, nor site risk rating or likelihood of loss of containment, therefore the class (1, 2 or 3) of containment has not been specified in the risk assessment. The Operator has not calculated the required secondary containment volume in line with CIRIA C736.

A summary and our assessment of the physical primary, secondary and tertiary containment measures present within the new ETP facility are given below as informed by the Operator's risk assessment and further correspondence with the Operator. Operational measures during accident and incidents are discussed as part of the assessment of the accident management plan in Section 5.3.3 of this decision document.

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. There are three areas of bunding within the new ETP, all three bunds are fitted with sumps and sealed drainage systems where spills would be recirculated through the treatment process via the balance tank. All new concrete infrastructure including concrete plinths and bunding have been constructed of impermeable concrete constructed to BS8500-

1:2015 standard. All joints have been sealed with an Aquaswell polyurethane sealant. The construction standards of the existing infrastructure is explained in detail below.

Included below are two plans of the tank locations and layout of the new ETP which have been provided by the Operator. Both show the same layout and location with Figure 2 slightly more detailed in terms of tank locations. There is infrastructure that makes up the new ETP situated on both the eastern and western sides of the Afon Arad as shown on the plans.

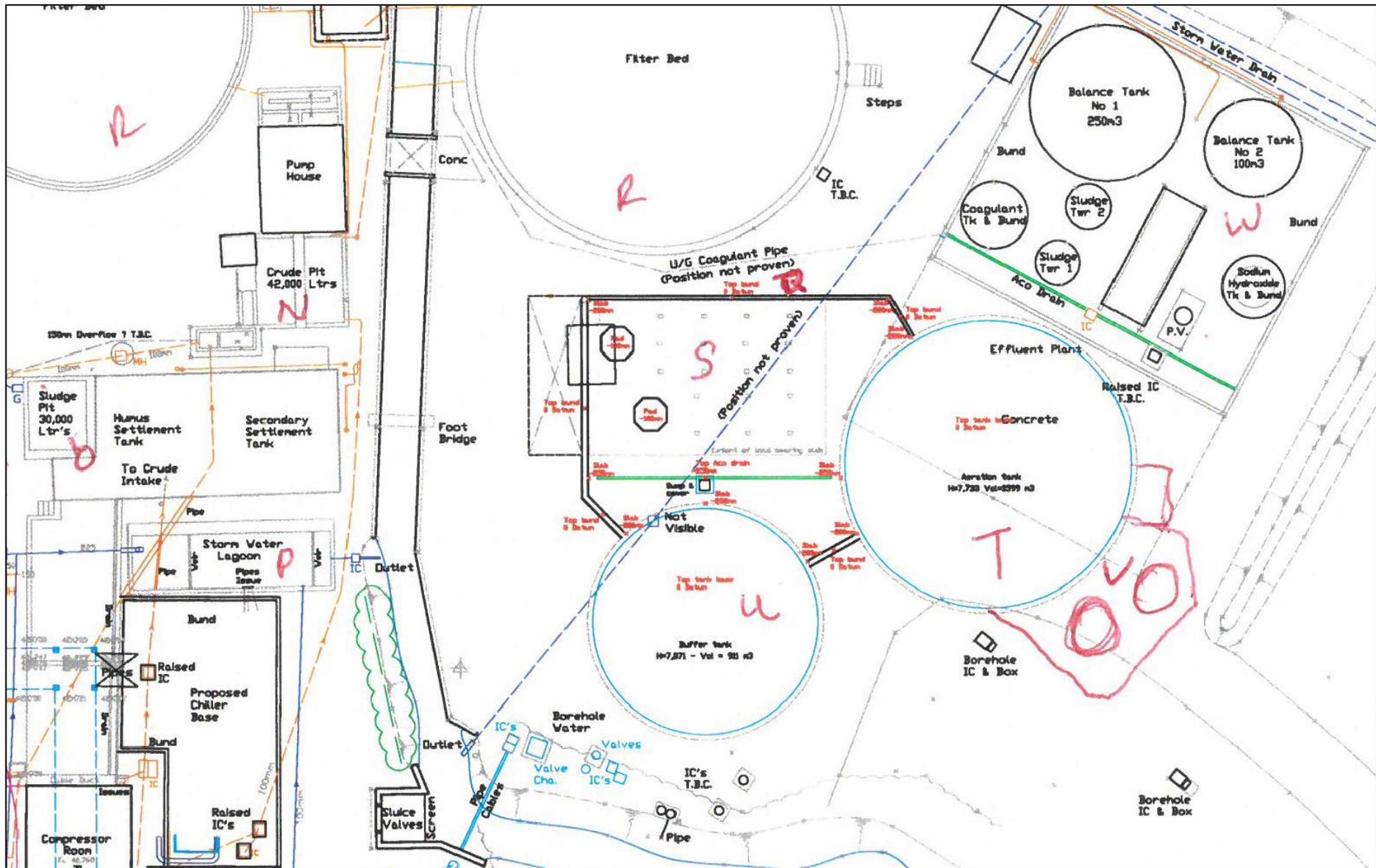


Figure 1: Plan 1 of new ETP

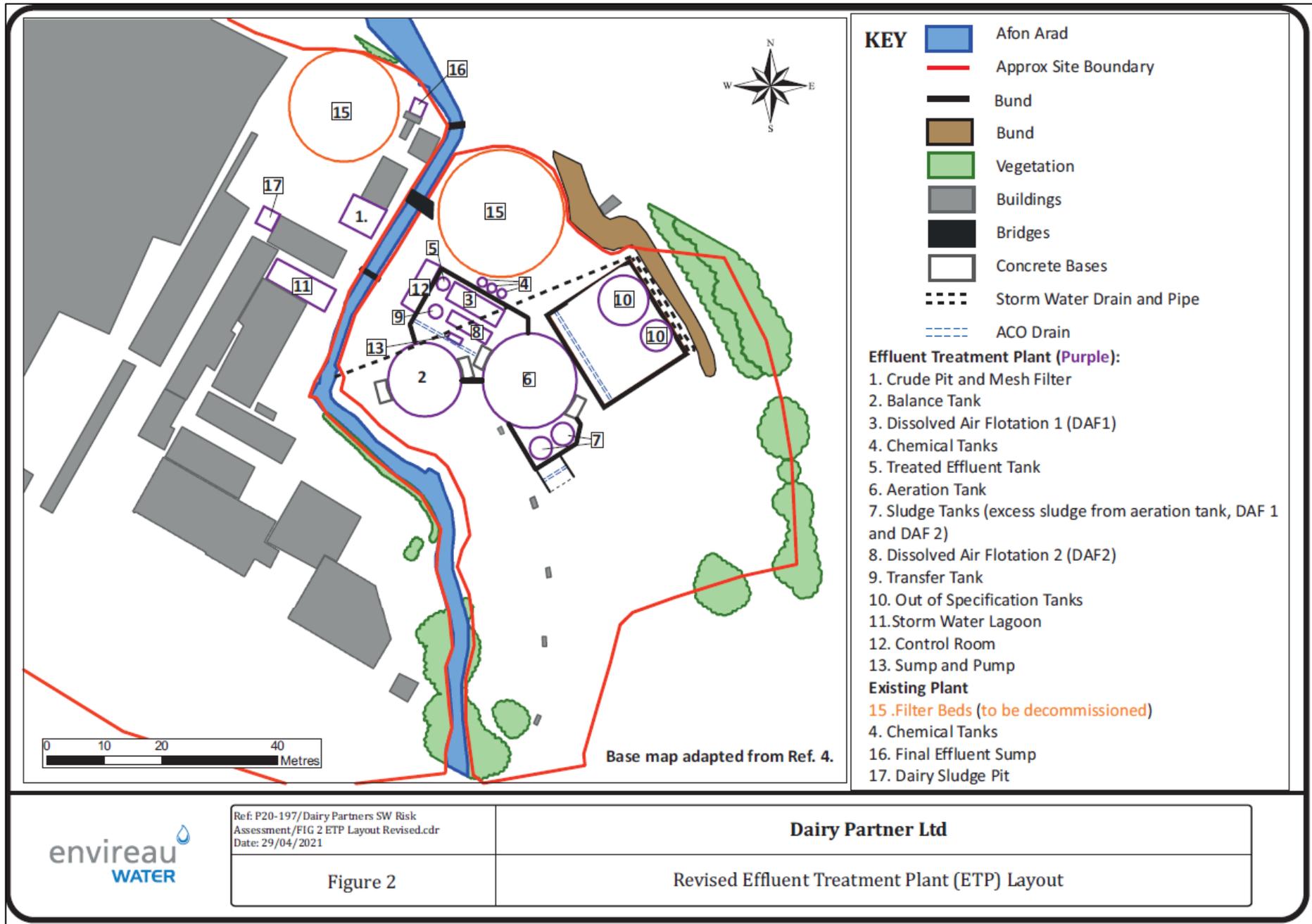


Figure 2: Plan 2 of new ETP

Aeration and balance tanks

The balance tank is new infrastructure and is an above-ground, single-walled stainless-steel tank with a volume capacity of 911 m³ (911,000 L). The balance tank will be used primarily to conduct pH control as one of the first stages in the treatment process. It can also be used to either hold untreated effluent or contain spillages from drainage sumps to be rerouted through the treatment process. The balance tank is indicated by Letter 'U' on Figure 1 and Number '2' on Figure 2. The aeration tank is an open, above-ground, 1599 m³ (1,590,000 L) in volume stainless steel single-walled tank. The aeration tank is indicated by Letter 'T' on Figure 1 and Number '6' on Figure 2. The aeration tank will be where the activated sludge process takes place. The Operator has confirmed that the balance tank and the aeration tank are hydraulically linked, therefore in line with CIRIA C736 should be considered one tank for the purposes of calculating the required volume of secondary containment.

The Operator has stated that approximately 75 % of the circumference of the balance tank is unbunded and over 80 % of the circumference of the aeration tank is unbunded. The Operator has confirmed that due to the heights of both the aeration and balance tanks they are unable to provide secondary containment with at least 110 % capacity. The Operator has suggested the following proposal:

1. Providing a multi-tank bund which would bund around the aeration tank and the balance tank and at best provide 25 % capacity of both tanks. The multi-tank bund itself would not provide 25 % capacity, this would be achieved through the use of the other bunded area 'W' as indicated on Figure 1 and the out of specification tanks. The actual capacity of the proposed bund itself has not been specified by the Operator. No plans nor specifications have been provided for this proposed bund, nor any calculations to confirm 25 % capacity can be achieved. Therefore, in our view this proposal remains largely speculative.

We do not consider the current arrangement BAT as large proportions of each tank remain unbunded with no secondary containment provided. We do not consider we have sufficient information to confirm the specified capacity of the proposed arrangement would indeed be achieved. Notwithstanding this we do not consider the proposal BAT as the proposed 'at-best' capacity of the secondary containment is not adequate as outlined above in the introduction. We consider it BAT to provide

secondary containment with at least 110 % capacity of the largest tank or 25 % of the multi-tank volume, whichever is larger. The Operator has not proposed this standard either through current arrangements or their proposed arrangement. The Operator has not provided a reasonable justification that the current or proposed arrangements are BAT, nor have they provided a reasonable justification as to why it is not practicable to provide BAT. Therefore, the variation application is refused on the basis.

Sludge tanks (two)

These tanks (numbered '7' in Figure 2) will store sludge produced by the activated sludge process in the aeration tank and the two DAF units. Both sludge tanks are new and above ground, polypropylene tanks, both 30 m³ (30,000 L) in volume. The area where the tanker connects to the tanks is within the new bunded area, therefore any small spills during loading or unloading would be contained within the bunded area. There is also a small slab of impermeable concrete provided outside of the bunded area for the tanker to situate on. There are contradictions in the application regarding these tanks, the Operator stated in the risk assessment that the sludge tanks are double skinned then later stated they are not double skinned. The Operator has stated they are located within a bund and therefore we assume this is proposed secondary containment and rather not a second skin as initially thought. The Operator has not specified the actual capacity of the proposed bund (labelled 'V' in Figure 1) although has stated the bund does not provide at least 110 % capacity of one tank or 25 % capacity of both tanks.

Based on the information currently available to us we do not consider the two new tanks to be provided with suitable secondary containment in line with what we consider BAT as outlined in the introduction. The Operator has not proposed any improvements to the current secondary containment measures, nor have they provided reasonable justifications that the current arrangement is BAT or why it is not practicable to provide BAT. Therefore, the variation application is further refused on that basis.

Crude and sludge pits

These two pits are both existing infrastructure being utilised within the new ETP facility. Both of these pits receive raw dairy effluent from the dairy processing activity. The crude pit is 42 m³ (42,000 L) in volume (numbered 1 on Figure 2) and the sludge pit is

30 m³ (30,000 L) in volume (numbered 17 on Figure 2). They are located below ground and are constructed of concrete and brick, they are located within 2 m of the Afon 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, the Operator has stated for both of the pits the volume of wastewater in the pits is rarely more than 50 % of total volume. There is 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.

Final effluent sump

The final effluent sump receives treated effluent prior from the ETP for final discharge to the Afon Teifi / River Teifi, monitoring of the discharge is conducted at the sump. The sump is existing infrastructure and a 4 m³ (4000 L) subsurface concrete walled pit, numbered '16' on Figure 2. 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.

Sulphuric acid, phosphoric acid, urea tanks

All three tanks are above-ground, 1.2 m³ (1200 L) volume double walled polypropylene tanks. They are indicated by number (4) in Figure 2 above, they are located outside of the bunded area (labelled 'S' on Figure 1) and are located on an impermeable concrete plinth. The Operator has stated these tanks are integrally bunded and has confirmed the second skin will provide containment with 110 % capacity of the primary containment. The Operator has also confirmed the second skin is structurally independent of the primary skin. The Operator has stated the tanks are refilled directly from delivery using pipework, where the chemicals are piped directly from delivery into the tanks. The Operator has stated there are 'trays' located beneath where the pipe connects to the tanks, although any capacity of trays has not been confirmed, whether

the pipe itself has secondary containment has also not been specified. The Operator has stated there is no bunding or spill kerbs provided around these tanks to contain spills during refilling or other incidents. Based on the information currently available to us we consider improvements will be required in order to provide a spill kerb around the tanks in order to contain spills. The containment of pipework is discussed below.

Sodium hydroxide and Polyaluminium Chloride (PAC) storage

Both the sodium hydroxide and PAC are stored in above-ground, polypropylene, 1 m³ (1000 L) volume Intermediate Bulk Containers (IBCs). The Operator has stated they have two IBCs of sodium hydroxide and one IBC of PAC. Each IBC is bunded with its own IBC bund which has a capacity of 1100 m³ therefore provides 110 % capacity of the IBC. The IBCs and IBC bunds are located on a concrete plinth outside of the bunded area indicated 'S' on Figure 1 and are located near to the area marked 'Q' on Figure 1. The Operator has stated the chemicals are filled directly from delivery using pipework which feeds directly into the IBC. The Operator has not confirmed if there is a spill kerb provided around these tanks to contain spills during refilling, incidents or jetting failures, nor have they confirmed if there is secondary containment for pipework. We consider improvements may be required to provide a spill kerb system to ensure any spills and any jetting failures are contained. The containment of pipework is discussed below.

Flocculant polymer storage

There are contradictions in the application regarding the storage of the two flocculant polymers. The Operator stated in the risk assessment that flocculant polymers are stored in single walled, polypropylene, 0.025 m³ (25 L) drums and secondary containment is provided by an IBC bunded pallet. The Operator later stated the polymers are stored 0.050 m³ (50 L) drums and stored in a cabinet which provides 110 % containment capacity. The Operator has stated when not in use the drums are stored in a 'shed' adjacent to and outside of bunded area marked 'W' on Figure 1. However, we are not clear on where the drums are stored when in use. Therefore we have insufficient information to determine whether the polymers are provided with appropriate secondary containment.

Out of specification tanks (two)

The existing bunded area marked 'W' on Figure 1 is proposed to provide secondary containment for two existing tanks that are being repurposed as the out-of-specification tanks. One is 100 m³ in volume, the other 250 m³ in volume, both tanks are numbered '10' on Figure 2. Both are above-ground, single-walled stainless-steel tanks. Both tanks are fitted with high level probes to prevent overflow. All other tanks currently situated within the bunded area and represented on the figures will be decommissioned. The surfacing of the existing bunded area is currently unknown, therefore we are unable to determine if the surfacing standards comply with those outlined in CIRIA C736. The capacity of the bund does not meet the 110 % / 25 % capacity rule as 110 % capacity of the largest tank is 275 m³, the 25 % capacity of both tanks is 87.5 m³. The Operator has confirmed the capacity of the bund is approximately 72.2 m³. The Operator has not proposed any improvements to the bund nor has provided any justification as to why the 110 % / 25 % capacity rule is not achieved. We consider improvements will be required in order to ensure the capacity of the bund is in line with what is considered BAT as outlined above. Investigations will also be required to determine the surfacing standard to ensure it is in line with standards outlined in CIRIA C736.

Bunded area 'S'

The new bunded area marked 'S' on Figure 1 provides secondary containment for the following tanks:

- Dissolved Air Flotation Plant (DAF 1) – above ground, stainless steel, 36.4 m³ volume tank, numbered '3' on Figure 2
- Dissolved Air Flotation Plant (DAF 2) – above ground, stainless steel, 18.3 m³ volume tank, numbered '8' on Figure 2
- Transfer tank – above ground, single-walled polypropylene, 3.1 m³ volume tank, numbered '9' on Figure 2
- Treated effluent tank - above ground, single-walled polypropylene, 3.4 m³ volume tank, numbered '5' on Figure 2

The bunded area is not within a location exposed to vehicle movements. The bund is fitted with a sump where any spills within the bund would be pumped to the balance tank and be recirculated through the ETP process. The approximate capacity of the bund has been confirmed by the Operator as 45.42 m³. The multi-tank capacity within

the bund is 61.2 m³, the largest tank within the bund is DAF 1 at a volume of 36.4 m³. Therefore 110 % of the largest tank capacity is 40.04 m³ and 25 % of the multi-tank capacity is 15.3 m³. The bund provides greater than 110 % capacity of the largest tank situated within the bund which is a greater capacity than 25 % capacity of the multi-tank volume, however any additional allowance above 110 % capacity for rainwater has not been calculated. Notwithstanding this we consider this bund to be appropriate secondary containment for the four mentioned tanks. Regarding the aeration and balance tanks we do not consider it a bund as it does not surround each of the tanks as detailed above.

Pipework

There is existing and new pipework that is used within the new ETP. Pipework is considered primary containment as a vessel that contains liquid therefore requires appropriate secondary containment as outlined above. As outlined in How to Comply pipework should be routed within bunded areas with no penetration of contained surfaces.

The existing drainage infrastructure is being utilised to connect the cheese production area to the ETP, the Operator has confirmed this is in a suitable condition due to recent drainage surveys including CCTV surveys. Drainage mapping and plans have been updated to reflect the current drainage systems.

The Operator has provided limited information regarding containment measures for any new pipework installed at the new ETP. However, due to a recent visit to the site by the regulatory compliance officer it has been confirmed there are deficiencies regarding secondary containment of new pipework. There are multiple areas of piping provided with no secondary containment, with lengths of above-ground pipework situated over permeable stone chip areas. The Operator has not provided a justification as to why some new pipework is provided with no secondary containment. Therefore it is considered improvements will be required in order to provide all new pipework with appropriate secondary containment measures.

5.3 Operation of the Installation – general issues

5.3.1 Administrative issues

The Applicant is the sole Operator of the Installation. We are satisfied that the Applicant is the person who will have control over the operation of the Installation if the Permit were to be granted; and that the Applicant 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.

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 due to this variation.

5.3.2 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, and that sufficient resources are available to the Operator to ensure compliance with all the Permit conditions.

5.3.3 Accident management

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*”, Food, Drink and Milk Industries BRef Document (EU 2019) and the Waste Treatment BRef Document (EU 2018).

As part of the Accident Management Plan the Operator has in place a flood management plan which details procedures and operational measures in place to avoid and/or mitigate the risks posed by flooding of the ETP area. A flood management plan has been submitted by the Operator within the application and assessed by us, having considered the information submitted in the Application, we are satisfied that appropriate operational measures will be in place to manage the risks of flooding of the new ETP.

Commissioning of the new ETP is considered a period where accidents maybe more likely to occur, including odour emissions. Therefore, we would consider a commissioning plan to be produced by the Operator. A commissioning plan has not been submitted as part of the application; therefore we would consider if a permit were to be issued setting an improvement or pre-operational condition in order for the Operator to provide this.

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.

5.3.4 Site security

The new ETP is located within the existing installation boundary, fencing secures the installation boundary and locked gates prevent unauthorised access. Therefore access to the site is restricted and controlled. Maintenance of boundary fencing and buildings ensures they are in working order preventing access to site. There are

procedures contained within the Accident Management Plan 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.

5.3.5 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 Waste Treatment (2018)
- Reference document on Best Available Techniques for the Food, Drink and Milk Industries (2019)
- Technical Guidance Note (TGN) M18: Monitoring of discharges to water and sewer

The waste treatment activity [Section 5.4 A(1)(a)(i)] (the ETP) is subject to the BAT Conclusions for Waste Treatment, no other activities at the installation are subject to these BAT Conclusions. 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 the BAT Conclusions for the Food, Drink and Milk Industries, however as part of this variation we have only reviewed aspects that are substantially changing (ETP). The whole installation is subject to a separate review with the BAT Conclusions for the Food, Drink and Milk Industries, this is due to begin in coming months.

The secondary containment measures proposed by the Operator we do not consider are BAT, for reasons explained in Section 5.2.1 of this document. We are also not satisfied that the use of the open aeration tank represents BAT due to the Operator's lack of justification. All other proposed techniques unless detailed within this decision document 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.

5.3.6 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. 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 enables 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 CIP 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. 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 enables NRW to monitor water use at the installation.

The installation is supplied with Liquefied 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 has been 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 enables NRW to monitor energy recovery efficiency at the installation.

5.3.7 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. The volume of wastewater requiring treatment and subsequently discharged is reduced by the use of segregated drainage systems for process effluent and uncontaminated surface water. 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 process effluent, if exceeded additional process effluent would be tankered off-site for treatment.

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 small spills during collection would be contained within the bunded area and returned to the balance tank via the pumped sump drainage for treatment through the ETP process. However, for reasons explained in Section 5.2.1 we do not consider the bunded area appropriate secondary containment for the two tanks.

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 also has in place a residues management plan as per requirement of BAT conclusions 1 and 24 of the Waste Treatment BRef Document (EU 2018).

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.

6 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 an installation of this kind, 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 to ensure 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 and 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' assessment to make up the shortfall as the Operator did not complete River Quality Planning (RQP) modelling. The Operator's risk assessment for odour was not satisfactory as was found to be inaccurate, the Operator was asked to revise and resubmit the risk assessment for odour during the determination. We will discuss the risk assessment in more detail as follows.

6.1 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 environmental permit. Carbon dioxide (CO₂) 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 CO₂ are considered fugitive or diffuse. Emissions of CO₂ 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 for the waste treatment process.

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.

6.2 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. As part of this variation the existing ETP is being upgraded and replaced by a new ETP, once operational the existing ETP will be decommissioned. The effluent treatment process has changed as part of the variation although the EPR Schedule 5.4 activity remains the same as biological treatment of non-hazardous waste. The maximum capacity of the new ETP is 900 m³ of process effluent per day, the average process effluent volume treated in the ETP is 693 m³ per day. The current permitted maximum discharge volume from the ETP to the Afon Teifi / River Teifi is 1050 m³/day, this is proposed to be reduced to 900 m³/day as part of this variation. A Water Framework Directive (WFD) compliance assessment has been completed to assess the composition of the discharge from the new process. The WFD compliance assessment is available on the public register to view, a summary of the findings are 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. We acknowledge that operation of the new ETP will lead to improvements in water quality of discharged treated effluent to the Afon Teifi / River Teifi. However, we also consider that a failure of primary containment would lead to catastrophic pollution of the same watercourse, thereby indicating the importance of providing adequate secondary containment. Notwithstanding this, it is a BAT requirement to provide adequate secondary containment as outlined in Section 5.2.1 of this document. 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. These requirements are retained law and transposed by EPR; therefore it is a legal requirement for the Operator to demonstrate BAT conclusions have been achieved. The Operator has not demonstrated the proposals meet necessary standards as described in BAT therefore we must refuse the variation.

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 assessment by NRW. The assessment undertaken by NRW was completed to determine the impact of the proposed new discharge on the receiving water and in addition compare with the impact of the existing discharge. 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 m³/day (Maximum)
- Temperature: 21 degrees celcius (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 m³/day (Maximum)
- Temperature: 21 degrees celcius (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 assessments.

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 ($\text{CH}_4\text{N}_2\text{O}$) and phosphoric acid (H_3PO_4) used as dosing chemicals to ensure correct nutrient balance in the activated sludge process
- ClearFlo-pH-SA-D50% (sulphuric acid H_2SO_4) 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.

6.3 Fugitive emissions

A fugitive emissions 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 in IBCs 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.

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. The Operator has in place a flood management plan which will form part of the accident management plan. See Section 5.3.3 for the assessment of the accident management plan.

Physical measures can protect from fugitive emissions to surface water and land, these include primary, secondary and tertiary containment measures. For the full assessment of the primary, secondary and where applicable tertiary containment measures see Section 5.2.1 of this decision document.

6.4 Assessment of odour impact

Odour impacts are a key issue for installations in the Food and Drink sector. Odour emissions can arise from cheese production processes and waste water treatment

processes, only potential odour emissions from the ETP have been considered as part of this variation as this is the only process that is proposed to change at the installation.

The initial odour risk assessment completed and submitted in the application was found during the determination to be inaccurate as stated all tanks within the proposed new ETP are enclosed whereas the aeration tank is in fact proposed to be an open tank. The aeration tank is where the activated sludge process takes place therefore has the potential to be a significant source of odour. Through a Schedule 5 Notice, the Operator was given the opportunity to revise the odour risk assessment and complete an accurate odour risk assessment and odour management plan including the open aeration tank as a potential source of odour. However, the revised odour risk assessment remains inadequate for reasons explained in detail below.

The key potential odour sources within the new ETP are:

- Open aeration tank where activated sludge process is carried out
- Sludge removal by road tankers from the two sludge tanks

The Operator did initially identify one of the open DAF plants as a source of odour, however they have carried out mitigation in the form of a moveable cover, therefore the DAF unit is now enclosed. We consider this mitigation appropriate for that element of the ETP and therefore this source of odour will not be discussed any further.

The Operator has in place control measures in order to reduce odours during sludge removal from the two sludge tanks, this includes the use of charcoal filters on the outlet of the tanks and the inlet of the tanker. We consider this control measure appropriate and demonstrates BAT.

As detailed the ETP is situated in the eastern proportion of the installation. The closest sensitive residential receptor is located immediately adjacent to the south-eastern boundary of the installation, approximately 35 m from the open aeration tank and 30 m from where the sludge removal takes place. There has been previous complaints regarding odour from the installation.

An amended odour risk assessment and odour management plan has been completed. The Operator has stated *'the aeration tank does not generate odour in the same way as the sludge this will only become an issue if the bacteria in the tank were to fail.'* They have stated that it does not generate odour in the same way as the sludge, which can be extremely odorous, this is not the same as stating that the odour will be zero. Yet they have not quantified the odour and thus have not adequately assessed the risk. The Operator has not supported their statement with any evidence nor has submitted any suitable quantitative odour impact assessment. Furthermore, the Operator has not estimated how frequently an event will occur when bacterial performance is below optimum, nor have they provided any information relating to how long it would take to rectify operational issues nor provided any information relating to the likelihood of more odour being emitted during this period.

Based on the information currently available to us, we are not satisfied the risk assessment and subsequent odour management plan is adequate. It is the applicant's responsibility to demonstrate that the odour from the new ETP is not significant, however we haven't received any suitable evidence of this as of yet. Therefore, we are not satisfied due to the Operator's inadequate risk assessment that during normal operations that the odour from the new ETP will be not significant. Therefore, the variation application is further refused on that basis.

We are also not satisfied that the use of the open aeration tank represents BAT due to the Operator's lack of justification. BAT Conclusion 14 of the Waste Treatment BRef states:

In order to prevent or, where that is not practicable, to reduce diffuse emissions to air, in particular of dust, organic compounds and odour, BAT is to use an appropriate combination of the techniques given below. Depending on the risk posed by the waste in terms of diffuse emissions to air, BAT 14d is especially relevant.

BAT 14(d) Containment, collection and treatment of diffuse emissions. This includes techniques such as

- storing, treating and handling waste and material that may generate diffuse emissions in enclosed buildings and/or enclosed equipment*
- maintaining the enclosed equipment or buildings under an adequate pressure*

- collecting and directing the emissions to an appropriate abatement system via an air extraction system and/or air suction system close to the emission sources

The Operator has stated in their response that BAT 14(d) is 'No Requirement' and has not provided any information of how BAT 14(d) is achieved, nor have they justified the deviation from BAT 14(d) through the use of an open waste treatment tank.

How to comply with your environmental permit version 8.0 states:

Appropriate measures to reduce odour problems include:

- enclosing smelly materials and activities in a building or vessels

Sector Guidance Note SGN S5.06 states:

Indicative BAT requirements for waste storage:

47 – As a general rule, no open-topped tanks, vessels or pits should be used for storage or treatment of hazardous or liquid wastes. Exceptions would require justification in the permit application.

The Operator has not justified the use of an open tank for the activated sludge process represents BAT, therefore with the insufficient information currently available to us we are not satisfied the use of the open aeration tank represents BAT. Therefore, the variation application is further refused on that basis.

6.5 Noise Assessment

Noise is a key issue at the installation, there is a substantiated noise problem attracting frequent complaints from local residential receptors. There are a number of noise sources at the site including cheese production processes, cooling processes and vehicle movements. The noise impact and monitoring assessment submitted by the Operator only assessed noise from the new ETP and compared it to the existing ETP, the assessment did not include noise sources from other areas of the installation. As there is an improvement and reduction in noise levels signified by the operation of the new ETP, we agree this is a reasonable assessment.

The Operator has submitted a noise impact and monitoring assessment in two parts. The first part submitted in June 2020 was a noise impact assessment and modelled

predicted noise levels from the new ETP at four closest noise sensitive receptors. The second part submitted in October 2020 was a noise monitoring assessment which measured and compared noise levels of the new and existing ETP at the two closest noise sensitive receptors. The second part of the assessment was completed following a number of mitigation measures that were employed as recommended by the first assessment. The following mitigation measures have been employed following the first modelling assessment:

- Acoustic lagging around the blower pipe, the pipe was identified as the dominant noise source from the ETP in the first assessment
- Acoustic louvres have been added to the western elevation of the Blower house
- Penetrations around the blower pipe and cable trays have been sealed
- Alterations have been made to the pipework within the Blower house to reduce amount of turbulent air

The second part includes a full monitoring assessment following implementation of mitigation measures, this effectively supersedes any predictive modelling performed in the first part of the assessment and the first part of the assessment submitted in June 2020 will not be discussed any further.

The noise monitoring assessment has 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 monitoring assessment assessed the impact of noise from the ETP, equipment and activities associated with the operation of the proposed new ETP. The assessment assessed the impact of daytime noise levels at two receptor locations, NSR 1 and NSR 2. The two receptor locations are situated closest to the ETP, with one (NSR 1) located immediately adjacent to the eastern boundary of the installation, therefore the assessment of noise levels at these two receptors will represent worst case impacts. Although the ETP is expected to operate 24 hours a day, the assessment did not assess the impact of night-time noise levels, the justification being that background sound levels remain stable across both the day and the night-time periods. The new ETP represents an improvement when compared to the existing ETP, therefore in this scenario we agree this is a suitable approach.

The noise survey was carried out on the morning of 20th October 2020 and included the following surveys:

- Both new and existing ETP switched off to establish a baseline background sound levels
- The existing ETP in operation with the new ETP switched off
- The new ETP in operation with the existing ETP switched off
- Additional monitoring within the new ETP to review the effectiveness of the mitigation measures that had been installed

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. Short measurements of 5-minutes were completed and are deemed acceptable as both the new and existing ETP run at a constant capacity, previous longer surveys indicated that noise levels remain steady throughout the day and the night-time periods. The comparison measurements were carried out during the same period and wind speed and direction were consistent across the monitoring survey. During the monitoring survey when the new ETP was switched on it was set to run with the blower house plant running at a worst-case capacity of 100 % although in reality it is expected to run with a capacity of 55 – 60 %, therefore the measurements of the new ETP represents a worst-case scenario. Measurements were timed to avoid influence from the road traffic noise and to avoid influence from tankers servicing the existing ETP, therefore baseline levels are only attributed to the continuous noise generated by the site and not other external noise sources. No tonal penalties were applied to the assessment as the new ETP was barely perceptible at the receptors, we are in agreement with this approach.

The results from the monitoring survey are included below:

Table 2.1 – Summary of measured noise levels at NSRs 1 and 2

Existing ETP	New ETP	Measured baseline noise level dB LA90		Subjective notes
		NSR 1	NSR 2	
Off	Off	49	47	Noise predominantly from the chillers and cooling tower pumps
On	Off	52	49	As per above + closest pumps at the existing ETP clearly audible
Off	On	49	47	Broadband noise from the new ETP just perceptible but not dominant against the chillers and cooling tower pumps.

The results indicate that the existing ETP is 3 dB above the baseline sound level at NSR 1 and 2 dB above the baseline sound level at NSR 2. The results indicate that the new ETP does not exceed the baseline sound level at either NSR 1 or NSR 2 and is therefore quieter than the existing ETP. The measurements taken from within the new ETP show that the installed mitigation measures have reduced the sound levels from various aspects of the plant, resulting in an overall reduction in sound from the new ETP compared to when no mitigation measures were in place. The comparison of measurements of the dominant noise source (blower pipe) shows that the mitigation has reduced the noise levels from around 72 dB LAeq (running at 60 % capacity) to 58 dB LAeq (running at 100 % capacity). The following conclusion was made that the total noise contribution from the new ETP at NSR 1 is anticipated to be <40 dB LAeq which is consistent with the results demonstrated above that a contribution of 40 dB LAeq would not significantly affect a pre-existing baseline of 49 dB LA90. We conclude this is a reasonable assumption to make and demonstrates the rating level of the new ETP is below the existing background sound levels.

In conclusion, 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. 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.

The Operator has a noise management plan in place which has been updated to include 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 relevant BAT conclusions of the Waste Treatment BRef document (EU 2018) and the Food, Drink and Milk Industries BRef document (EU 2019). The updated noise management plan includes the whole installation including the new ETP, only changes made relating to the new ETP have been assessed as part of this variation, all other control measures have not been assessed. In the Noise Management Plan the Operator has identified the main sources of noise in the ETP process as:

- Sludge collections by tanker
- Noise from large vehicles servicing the ETP
- Motors and pumps within the ETP

The Operator has detailed a number of control measures for the sources of noise including but not limited to:

- Sludge collections are scheduled between 0900 and 1700 hours
- Use of dedicated members of staff as operators of the ETP ensuring operational control of the ETP
- Planned preventative maintenance programme in place and carried out by competent staff members who are available 24/7
- Deliveries of raw materials for use in the ETP are made between 0700 and 1700 hours
- Vehicles will turn off engines and not idle once on site
- Pumps have been positioned within an enclosed building with additional attenuation and noise screening
- Mitigation measures mentioned above have been employed, including acoustic lagging and louvres

The Operator has detailed a number of contingency measures that would be employed in event of abnormal conditions causing increased noise levels:

- All breakdowns will be repaired immediately
- Suppliers, hauliers and waste contractor are notified in the event of an ETP breakdown to prevent arrival of vehicles
- In the event of major work being undertaken which is likely to cause significant noise neighbouring residents will be notified in advance

The Operator has stated that twice daily noise monitoring of the factory and outer areas will be carried out. This will be carried out by a slow walk around the installation boundary and at nearby residential receptors by a trained and appropriate staff member. The Operator has a procedure for ranking noise in terms of impact and if a certain level of impact is identified, identification of the noise source and corrective action will be carried out. Information of the survey will be recorded using daily checklist forms, this includes meteorological conditions and operating conditions at the installation to enable identification of abnormal site operating conditions. The Operator has a complaints procedure already in place at the site which is part of the EMS. The procedure includes recording the complaint, investigating the cause and carrying out any feasible changes if required. The Operator has stated the noise management plan will be reviewed at least annually and will also be reviewed in response to a request by NRW or if there has been more than ten substantiated complaints per calendar month.

In conclusion, we are satisfied that the new ETP is unlikely to lead to increased noise levels at the two closest noise sensitive receptors above the existing baseline noise levels at the site, the operation of the new ETP is unlikely to contribute further to an already substantiated noise problem at the installation. Although if the permit were to be issued we would consider setting an improvement condition in order for the Operator to confirm the findings of the noise assessment during operation of the ETP. The large reduction in HGV movements servicing the new ETP will further lessen the disturbance and nuisance experienced by noise sensitive receptors from the existing ETP operations. The updated Noise Management Plan has been reviewed and based upon the information in the application we are satisfied that the appropriate measures will be in place to prevent or where that is not practicable to minimise the effects of noise from the operation of the new ETP.

6.6 Impact on Habitats sites, 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. Natura 2000/Ramsar sites, SSSIs and non-statutory conservation sites will be discussed separately below.

Natura 2000/Ramsar sites

The following Natura 2000/Ramsar 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 the Natura 2000 site, this is available on the public register to view and a summary is given below. The principal emission that has been assessed is the point source emission 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 emission 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 and concluded there are no in-combination effects.

Assessment of Likely Significant Effect:

The project has been screened for likelihood of significant effects and, taking account of the advice received from protected sites advisors, is was considered likely to have a significant effect on any Natura 2000/Ramsar site, due their being an impact pathway.

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.

SSSI Assessment

The following Sites of Special Scientific Interest (SSSI) 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 effect the SSSI sites, this is available to view on the public register, a summary is given below.

Afon Teifi / River Teifi SSSI

The assessments completed in the Natura 2000/Ramsar 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 to Old Cilgwyn and Cae Heslop SSSI for the water emissions. 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.

7 Setting ELVs and other Permit conditions

As the variation is being refused for reasons explained above we will not be issuing a permit. We have considered setting ELVs and other permit conditions in the determination and if a permit were to be issued we would consider the following emission limits should be set:

- Maximum daily discharge volume: 900 m³/day
- Temperature: 21 degrees celcius
- 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 would be set in line with the specifications of the ETP 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 BAT-AELs contained within the secondary BRef: Waste Treatment BRef Document (EU 2018) are either the same or less stringent and there are no additional parameters required, therefore the BAT-AELs have been taken from the main activity BRef (Food, Drink and Milk Industries). There is 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 considered as part of this variation as no other point source emissions are proposed to change due to the variation.

7.1 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 are contained within the Waste Treatment BRef Document (EU 2018) and Food, Drink and Milk Industries BRef Document (EU 2019).

7.2 Monitoring

As the variation is being refused for reasons explained above we will not be issuing a varied permit. We have considered monitoring requirements in the determination and if a varied permit were to be issued we would consider the following monitoring requirements should be imposed in order to demonstrate compliance with the proposed emission limits:

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

For point source 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 we are satisfied that the monitoring techniques, personnel and equipment employed by the Operator will have either MCERTS certification or MCERTS accreditation as appropriate.

7.3 Reporting

As the variation is being refused for reasons explained above we will not be issuing a permit. We have considered reporting requirements in the determination 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.

OPRA

The agreed OPRA score at the installation is 134. This will form the basis for ongoing subsistence fees.

ANNEX 1: Consultation Responses

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. Copies of all consultation responses have been placed on Natural Resources Wales public register.

1) Consultation Responses from Statutory and Non-Statutory Bodies

No consultation completed with statutory and non-statutory bodies. There was no requirement as this is a normal variation. This decision was in accordance with Natural Resources Wales Public Participation Statement

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 one respondent, 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

No response received	
Brief summary of issues raised:	Summary of action taken / how this has been covered
None	None

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 Carmarthenshire County Council Local Planning Authority and their management of the planning process, including lack of consultation and enforcement position.	Comments relating to the effectiveness and efficiency of Carmarthenshire County Council Local Planning Authority are not relevant nor pertinent to the permitting decision.
Current and future impacts of major site redevelopment and production intensification at the installation. NRW should consider the variation application in the context of a major site redevelopment and production intensification initiated in 2017.	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.
Low environmental performance of the Operator and implementation of their Environment Management System and OPRA profile.	Continual monitoring of the Operator's environmental performance is achieved through the ongoing regulatory compliance of the installation. NRW are fully aware the Operator has a low environmental performance rating. The permit continues to set protective limits on emissions from the site and these will continue to be regulated. OPRA is a method that NRW use to ensure application and subsistence fees are appropriate and proportionate for the level of regulation required. OPRA has been used to determine the application fee for this application, the information contained with OPRA is not pertinent to nor considered within the determination.
Comments relating to NRW's 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.

Environment Management System	See Section 5.3 of this document for the assessment of the operation of the installation, including the environment management system, accident management and operating techniques.
Staff training and capability	See Section 5.3 of this document for the assessment of the operation of the installation, including the environment management system, accident management and operating techniques. Condition 1.1.1(b) in the permit requires the Operator to manage and operate the activities using sufficient competent persons and resources, we are satisfied this condition is suitably protective.
Noise <ul style="list-style-type: none"> • noise impacts in excess of WHO recommended levels • comments relating to noise assessments in the application and their accuracy of true operations 	See Section 6.5 of this document for assessment of noise impacts as a result of the variation. WHO guidelines consider impact of environmental noise and do not explicitly consider industrial noise as an environmental noise source. See Section 6.5 of this document for assessment of the noise management plan.
Outstanding noise and vibration issues at the site not related to operation of the new ETP	Outstanding noise issues at the site not relating to the operation of the new ETP are not for consideration as part of this variation application as this application is determined on its own merits.
Outstanding noise issues at the site due to operation of the existing ETP	See Section 6.5 of this document for assessment of noise impacts as a result of the variation. Noise impacts from operation of the existing ETP have not been considered in the assessment.
Comments relating specifically to documents that are not part of the application, namely documents: 'Environment Management Plan'; 'BAT Noise Audit' and 'NRW Compliance Assessment Report'.	These comments have not been considered as these documents do not make up part of the application.
Accident and incident management, emergency procedures.	See Section 5.2 of this document for assessment of the site design, including containment measures and maintenance schedules. See Section 5.3.3 of this document for assessment of accident management.
Fire and explosion risk and impacts from storage of dosing chemicals used in the ETP	The dosing chemicals are not flammable nor explosive. A fire prevention and mitigation plan is not required for this waste treatment activity as per NRW guidance 'Fire Prevention & Mitigation Plan Guidance – Waste Management'. Risks from fire and explosion may be covered in The Dangerous Substances and Explosive Atmospheres Regulations 2002

	<p>(DSEAR) regulated by the Health and Safety Executive (HSE).</p> <p>See Section 5.3.3 of this document for assessment of accident management.</p>
Impacts on Afon Arad from unpermitted discharge, spillages, overflows, catastrophic failures.	<p>See section 6.2 of this document for assessment of impact to surface water.</p> <p>See Section 5.2 of this document for assessment of the site design, including containment measures.</p> <p>See Section 5.3.3 of this document for assessment of accident management at the installation.</p> <p>The Operator is not permitted to discharge treated effluent to sewer. The Operator is permitted to discharge uncontaminated surface water to the Afon Arad, the Operator is not permitted to discharge treated effluent, spillage or overflows to the Afon Arad.</p>
Habitat improvements required for Afon Arad	This matter is outside of the scope of the environmental permit. It may be within scope of the planning process.
Afon Arad not conducive to supporting wildlife	This matter is outside of the scope of the environmental permit. It may be within scope of the planning process.
Previous pollution incidents of Afon Arad and Afon Teifi / River Teifi	NRW are fully aware the Operator has been involved in surface water pollution incidents; action has been taken. There is ongoing enforcement action regarding the incident in May/June 2020. 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.
Water quality of treated effluent	See section 6.2 of this document for assessment of impact to surface water.
Containment measures, bunding and drainage infrastructure	See Section 5.2 of this document for assessment of the site design including containment measures and drainage infrastructure.
Accident management of spillages, overflows and catastrophic failure	See Section 5.3.3 of this document for assessment of accident management at the installation.
Water abstraction activities at the installation	Water abstraction activities are not regulated by this environmental permit; therefore these matters are outside of the scope of the environmental permit.
Flood consequences assessment and flood risk	<p>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.</p> <p>See Section 5.3.3 of this document for assessment of accident management at the installation.</p>

Air emissions and air quality	See Section 6.1 of this document for assessment of impact on air quality.
Construction and site redesign of new ETP	All matters relating to construction of the ETP and site design are outside of the scope of the environmental permit. It may be within the scope of the planning process.
Construction and purpose of large area of reinforced concrete 'turning circle' and other eastern areas of the installation	Matters relating to the construction and purpose of the 'turning circle' are outside of the scope of the environmental permit. It may be within scope of the planning process.
Odour impacts and management	See Section 6.4 of this document for the assessment of odour impact. Perceived odour incidents relate to the ongoing compliance monitoring of the installation, therefore are not relevant to the permitting decision.
Site access, design and off-site traffic.	Site access and design, operational hours of working and off-site traffic are matters outside of the scope of the environmental permit. It may be within the scope of the planning process.
Location of ETP, it's visual impact and loss of amenity	These matters are outside of the scope of the environmental permit. It may be within scope of the planning process.
Lighting and light pollution	This matter is outside of the scope of the environmental permit. It may be within scope of the planning process.
Comments on spelling mistakes, grammatical errors and poorly written application documents.	These matters are not pertinent to the permitting decision.
Question reduction in tankers if new ETP has not been commissioned yet.	This question is not pertinent to the permitting decision.
Unclear how the new ETP will operate and its impacts.	See Section 5.1.4 of this document for descriptions of how the ETP will operate. See Section 5 of this document for the assessment of its environmental impacts.
Waste handling, storage and removal	See Section 5.3 of this document for assessment of the operating techniques in place at the ETP. See Section 4.3.7 for assessment of waste handling, storage and removal.
Carbon footprint of the ETP and the whole installation and their climate change contribution.	See Section 5.3.6 of this document for assessment of use of raw materials, water and energy. See Section 6.1 of this document for assessment of emissions of carbon dioxide from the new ETP. Assessment of the whole installation is not for consideration as part of this variation as this application is determined on its own merits.
Comments relating to other plant and areas of the installation that are not changing as a result of this variation	These matters are not for consideration as part of this variation application as this application is determined on its own merits.
Site plan is unclear and outdated, aerial pictures are misleading.	This matter is not pertinent to the permitting decision as the site plan that is currently on

	the permit is not changing as part of the variation.
Question whether energy efficiency reports have been completed by dates as specified in the current permit.	This matter relates to the ongoing compliance monitoring of the installation, therefore are not relevant to the permitting decision.
Perceived planning errors	Not relevant to our determination
Pests	Condition 3.6 in the permit requires the activities to not give rise to the presence of pests which are likely to cause pollution, hazard of annoyance outside the boundary of the site. We are satisfied this condition is suitably protective.
Decommissioning of the old ETP	This matter is within scope of the ongoing compliance monitoring of the installation, therefore not relevant to the permitting decision.
Lack of Environmental Impact Assessment (EIA)	This matter is outside of the scope of the environmental permit. It may be within scope of the planning process.
Capacity of the new ETP	See Section 5.1.4 for information on the capacity of the ETP. The treatment capacity of the ETP is sufficient to process average and maximum volumes of process effluent. Any future increase in process effluent is not for consideration as part of this variation application as this application is determined on its own merits. The discharge volume of treated effluent to the Afon Teifi is limited to the ETP treatment capacity in the permit.
Commissioning of the new ETP	See Section 5.3.3 of this document for assessment of accident management at the installation.

c) Representations from Individual Members of the Public

No responses received	
Brief summary of issues raised:	Summary of action taken / how this has been covered
None	None