

Natural Resources Wales permitting decisions

Cambrian Pet Foods Limited – Llangadog Wet Pet Foods Plant Decision Document

Application for a Bespoke Permit

The application number is: PAN-006945

The Operator is: Cambrian Pet Foods Limited

The Installation is located at: Llangadog Wet Pet Foods Plant, Tywi Valley Food Park, Station Road, Llangadog, Carmarthenshire, SA19 9LN

We have decided to grant the permit in part, for Llangadog Wet Pet Foods Plant operated by Cambrian Pet Foods Limited. With part of the application being refused, as detailed below.

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

Purpose of this document

This decision document:

- explains how the application has been determined
- provides a record of the decision-making process
- shows how all relevant factors have been taken into account
- justifies the specific conditions in the permit other than those in our generic permit template.

Unless the decision document specifies otherwise, we have accepted the applicant's proposals.

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Key issues of the decision

The key issues in this determination included:

- Emissions to air
- Emissions to water
- Best Available Techniques

One particular issue was compliance with Best Available Techniques Associated Emission Levels (BAT-AELs) for direct emissions to a receiving water body published with the BAT Reference Document for Food, Drink and Milk Industries (2019).

See summary of the proposed application in Section 1 below, the outline of our decision in Section 2 and the detailed explanation in Section 7.1.

1 Outline of application

The installation is a newly permitted Part A(1) installation however has previously been regulated as a Part B installation by the Local Authority, Carmarthenshire County Council. Due to increases in production capacity the installation exceeds the thresholds of the Part A(1) activities therefore requires a Part A(1) installation permit which will be regulated by NRW. The Installation is subject to the Environmental Permitting Regulations 2016 (EPR) because it carries out two activities listed in Part 2 of Schedule 1 of the EPR:

- Section 6.8 A(1)(d) – Treatment and processing, other than exclusively packaging, of the following raw materials, whether previously processed or unprocessed, intended for the production of food or feed (where the weight of the finished product excludes packaging) (iii) animal and vegetable raw materials (other than milk only), both in combined and separate products, with a finished product production capacity in tonnes per day greater than – (aa) 75 if A is equal to 10 or more – where ‘A’ is the portion of animal material in percent of weight of the finished product production capacity.
- Section 5.4 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, and excluding activities covered by Council Directive 91/271/EEC concerning urban waste-water treatment (i) biological treatment.

The installation is also subject to Schedule 25A of EPR – Medium Combustion Plant (MCP) due to:

- 1x 10.2 MW thermal input natural gas fuelled boiler – classed as an existing MCP as put into operation before 20 December 2018.
- 1x 9.0 MW thermal input natural gas fuelled boiler used for back-up purposes only – classed as a limited operating hours new MCP as put into operation after 20 December 2018.

The site has an existing Consent to Discharge (Consent Number BG0002801) to discharge treated effluent into the Afon Tywi / River Tywi. As part of this application the discharge consent will be consolidated into the A(1) installation permit.

In addition to current operations that are already over the Part A(1) activity thresholds contained with EPR, the Operator proposed a substantial increase in discharge volume of treated effluent from the currently permitted 1000 m³/day to 1820 m³/day.

2 Our decision

We are minded to refuse one element of the application and issue the remaining aspects of the bespoke permit application. Specifically, the aspect to be refused is the proposed increase in discharge volume of treated effluent to the Afon Tywi / River Tywi from 1000 m³/day to 1820 m³/day, the permitted discharge volume will remain as 1000 m³/day as per the current Consent to Discharge (Consent Number BG0002801). The other aspects of the application as outlined above are included in the new bespoke permit.

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

This Application is to operate an installation which is subject principally to the Environmental Permitting (England and Wales) Regulations 2016 (EPR) and is subject to the requirements of the Industrial Emissions Directive (IED) and Medium Combustion Plant Directive (MCPD).

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

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

3 How we reached our decision

3.1 Receipt of Application

The Application was accepted as duly made on 10 March 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 Environment Permitting Regulations (EPR), our statutory Public Participation Statement (PPS) and our Regulatory Guidance Note RGN6 for Determinations involving Sites of High Public Interest.

Furthermore, we have also considered the Well-Being of Future Generations (Wales) Act 2015 and the Environment (Wales) Act 2016 during our assessment process.

We advertised the Application by a notice placed on our website, which contained all the information required by the EPR/IED, including advising people where and when they could see a copy of the Application. The consultation started **13 March 2020** and

ended **13 April 2020**. A copy of the Application and all other documents relevant to our determination are available for the public to view. Anyone wishing to see these documents could arrange for copies to be made.

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

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

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

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

3.2.1 Draft Permit Consultation

We are now carrying out a consultation on our draft decision. This consultation will begin on (insert date) and end on (insert date).

3.3 Requests for Further Information

The application was received on 11 September 2019 and was duly made as of 10 March 2020. In order for us to be able to consider the Application duly made, we needed more information. We requested further information relating to air emission risk assessments, water emission points, drainage plans, details of the Medium Combustion Plant and correct fees. Upon receipt of this information we were able to consider the application Duly Made.

Further information was also requested by way of four Schedule 5 Notices:

- Schedule 5 Notice (1) requested information relating to the air emissions risk assessment, it was sent on 06/04/20 with a response date of 09/04/20. The additional information supplied satisfied the requirements of the Schedule 5 Notice.

- Schedule 5 Notice (2) requested information relating to the Best Available Techniques (BAT) assessment, it was sent on 24/06/20 with a response date of 19/10/20. The additional information supplied did not satisfy the requirements of the Schedule 5 Notice therefore a further Schedule 5 Notice (4) was used to address the gaps in the assessment.
- Schedule 5 Notice (3) requested information relating to water quality assessments, the effluent treatment plant, medium combustion plant, site plan and emissions to air. The notice was sent on 11/08/20 with a response date of 25/08/20. The additional information supplied satisfied the requirements of the Schedule 5 Notice.
- Schedule 5 Notice (4) requested information relating to the BAT assessment, pet food production capacity and throughput, effluent treatment plant capacity and throughput and the chemical dosing process within the effluent treatment process. The notice was sent on 10/11/20 with a response date of 08/12/2020. The additional information supplied satisfied the requirements of the Schedule 5 Notice.

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 permit will be granted under Regulation 13 of the EPR. The Environmental Permitting regime is a legal vehicle which delivers most of the relevant legal requirements for activities falling within its scope. In particular, the regulated facility is:

- an *installation* as described by the IED;
- subject to aspects of the Well-Being of Future Generations (Wales) Act 2015 and the Environment (Wales) Act 2016 which also have to be addressed;
- subject to the Medium Combustion Plant Directive

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

decision is compatible with its general purpose of pursuing the sustainable management of natural resources in relation to Wales and applying the principles of sustainable management of natural resources

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 an activity listed in Part 2 of Schedule 1 of the EPR:

- Section 6.8 A(1)(d) – Treatment and processing, other than exclusively packaging, of the following raw materials, whether previously processed or unprocessed, intended for the production of food or feed (where the weight of the finished product excludes packaging) (iii) animal and vegetable raw materials (other than milk only), both in combined and separate products, with a finished product production capacity in tonnes per day greater than – (aa) 75 if A is equal to 10 or more – where ‘A’ is the portion of animal material in percent of weight of the finished product production capacity.
- Section 5.4 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, and excluding activities covered by Council Directive 91/271/EEC concerning urban waste-water treatment (i) biological treatment.

The installation is also subject to Schedule 25A of EPR – Medium Combustion Plant (MCP) due to:

- 1x 10.2 MW thermal input natural gas fuelled boiler – classed as an existing MCP as put into operation before 20 December 2018.
- 1x 9.0 MW thermal input natural gas fuelled boiler used for back-up purposes only – classed as a limited operating hours new MCP as put into operation after 20 December 2018.

The installation is not subject to Schedule 25B of EPR – Specified Generator as the two boilers do not produce electricity.

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

- Steam and electrical power supply – combustion sources
- Refrigeration plant that uses ammonia
- Storage and handling of wastes
- Refrigeration of raw materials, finished products and product wastes
- Storage and handling of cleaning chemicals
- Storage of heavy fuel oil for use in fork lift trucks

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

The operator also has a separate groundwater abstraction licence (Licence Serial No: WA/060/0001/005) to abstract water from five boreholes within the site. The operator also has a separate surface water abstraction licence (Licence Serial No. 22/60/1/0083) to abstract from one point from the Afon Tywi and another point from the Afon Bran (emergency use only). The purpose of both abstractions is for commercial, processing and washing operations and evaporative cooling.

5.1.2 The Site

Llangadog Pet Foods Plant is located west of the village centre of Llangadog and approximately 36 km north of Swansea city centre. The installation is located within the Tywi Valley Food Park which is predominantly industrial with the Llangadog railway station located in the centre. The surrounding areas are predominantly rural countryside with the Afon Tywi running north to south directly west of the installation, the Afon Bran flows in a westerly direction within the southern part of the installation to join the Afon Tywi. The closest residential receptor is located within 20 m of the north east of the installation boundary. The installation footprint is approximately 16 acres and is located on the former Llangadog creamery site. The installation is a newly permitted Part A(1) installation. However, it is an existing Part B installation which was previously regulated by the Local Authority. Due to increases in production capacity the installation exceeds the thresholds of the Part A(1) activities therefore requires a Part A(1) installation permit which will be regulated by NRW. The site has an existing Consent to Discharge (Consent Number BG0002801) as part of this application the discharge consent will be consolidated into the A(1) installation permit.

The Applicant has provided a plan which we consider is satisfactory, showing the extent of the site of the facility. A plan is included in the permit and the Operator is required to carry on the permitted activities within the site boundary.

5.1.3 What the Installation does

The installation manufactures canned (chunks and loaf) and tray pet food. This involves:

- Receiving, storage and initial preparation of the ingredients (meat, fish and dry ingredients)
- Main processing – breaking, mincing, mixing, emulsifying, extruding and cooking (sterilisation)
- Packing and storage of final products before onward distribution

Raw meat and fish are received either fresh (chilled) or frozen. The meat and fish are either stored in the cold store freezer or cold store chiller or moved into the main manufacturing building for processing. If the fresh meat and fish cannot be used immediately it undergoes breaking and mincing and is then frozen using eight ammonia chilled freezing plates, resultant frozen fish and meat blocks are stored in the cold store freezer. Dry ingredients (rice, cereals, powdered vitamins and minerals) are checked prior to acceptance and stored in the dry warehouse until required. There is no milling of dry ingredients carried out at the installation.

Meat and fish ingredients are broken down in a pre-breaker before mincing and mixing with the other dry ingredients. Once mixed the ingredients can either be directly used in the loaf and tray products or are extruded into a paste for making chunks for the chunk product. The paste is pre-cooked in a steam tunnel then cooled using water and cut into chunks which are added to cans with gravy or jelly, which is produced by mixing hot water with the ingredients. The chunk and loaf products are canned, coded using an inkjet printer and then cooked in one of six automated autoclaves/retorts in an automatic cooking cycle. Once cooked, the cans are cooled using cooling water, this water is recovered and used for wash-down activities. Air driers are used to remove excess liquid from the cans. The tray products are produced on a separate production line, using mixed ingredients and gravy to fill a tray. The trays are then sealed with a foil or film covering and then cooked in autoclaves/retorts. Finished cans and trays are automatically conveyed to the relevant packaging hall. Cans are labelled and packaged in a cardboard tray and film or cardboard box. Trays are usually provided with a cardboard sleeve before being boxed. Boxes of cans and trays are then

stored on pallets, shrink wrapped and labelled stored in the warehouse awaiting dispatch.

The installation operates a number of major plant and equipment that support the above main manufacturing process:

- Ammonia plant for refrigeration
- Combustion sources
- Cesspit and drainage systems
- Effluent treatment plant
- Laboratory

The ammonia plant has a capacity of 2 tonnes of ammonia and provides freezing to the eight plate freezers and refrigeration units provide chilling for the cold store chiller and freezer.

The installation has two natural gas-fuelled boilers that provide steam used in the autoclaves/retorts and the steam tunnel. The main boiler has a thermal input of 10.2 MW and is to be operated continuously (8760 hours per year), it is classed as an existing MCP. The second boiler is a back-up boiler and has a thermal input of 9.0 MW and is to be operated less than 500 hours per year, it is classed as a limited operating hours new MCP. The back-up boiler is expected to be used only when the main boiler is unavailable. Both boilers are currently located in separate areas of the site, however in the future they are expected to both be housed in the new boiler house where they will have separate flues that discharge through a common stack. A variation to the permit will be required once this relocation has been completed in order to reflect changes to the location and configuration of the stacks.

The installation is not connected to the municipal foul sewer network and is served by two separate drainage systems:

- All process effluent and surface water run-off from external surfaces is directed through the effluent treatment plant and then subsequently discharged to the Afon Tywi. The installation has a large balancing tank (LUBEK tank) which can store up to two days' worth of process effluent which allows the site to control short-term high flow situations such as heavy rainfall through the effluent treatment plant.

- Foul water from administrative areas is directed to a cesspit for storage prior to collection.

The effluent treatment plant (ETP) comprises of a 'Detritus Pit', a central LUBEK tank, a reception tank and a Dissolved Air Flotation (DAF) unit. All wastewater from the production processes, including wash-down, cooking (steam), cleaning water and uncontaminated surface water run-off is routed through the ETP. Wastewater from the DAF plant is routed to a centrifuge where a flocculent is added. The sludge that settles is dried, stored in a silo and disposed of as a cake. The remaining waste water is passed through an anaerobic filter bed, two separating towers and two external filter beds, then it is channelled into a pump house, through two settling towers and final clarifiers prior to discharge into the Afon Tywi. The process uses the following chemical additives: Aquatreat 600 (Polyaluminium chloride) and Midfloc A258B (anionic/non-ionic polyacrylamide). There is an existing discharge consent in place for discharge volume of 1000 m³/day, as part of the permit application the operator proposed an increase to 1820 m³/day, NRW is refusing the increase for reasons explained below, therefore the discharge volume will remain as 1000 m³/day as per the current discharge consent.

The installation also operates a laboratory where new recipes are developed and raw ingredients, finished products and waste water samples are analysed.

5.1.4 Key Issues in the Determination

The key issues arising during this determination included:

- Emissions to air
- Emissions to water
- Best available techniques
- Odour

We discuss these issues in more detail in this document.

5.2 The site and its protection

5.2.1 Assessment of site baseline condition report

The operator has submitted a site baseline condition report which was produced in line with H5 Site Condition Report guidance. The report contains all the required sections as demonstrated in the H5 Site Condition Report template, Sections 1 – 3

have been completed at permit application to provide information relating to the condition of the land at permit application. A comprehensive desk study review was completed, this detailed the environmental setting of the site, geology, hydrogeology, surface water, ecology, protected sites and history of pollution incidents and potential contamination. The installation is situated on a Secondary B aquifer relating to the bedrock, the site is not within a groundwater protection zone. The installation is located in the Afon Tywi flood plain and is within a Flood Zone 3 (land having a 1 in 100 or greater annual probability of river flooding).

An intrusive investigation of soil and groundwater was completed by Ramboll consultancy in June 2018, this supplemented historic baseline data collected in 2004 by Joynes Pike consultancy, collectively both results represent the baseline data. The investigation carried out by Ramboll included UKAS laboratory analysis of five soil samples and six groundwater samples for a suite of determinands and potential contaminants.

- Soil was analysed for: pH, metals, cyanide, speciated phenols, water soluble sulphate, total organic carbon, ammonia, speciated total petroleum hydrocarbons (TPH), polycyclic aromatic hydrocarbons (PAH), asbestos, volatile organic compounds (VOCs) and in one location polychlorinated biphenyls (PCBs)
- Groundwater was analysed for: pH, metals, TPH, PAH, VOCs, ammonia, sulphate, cyanide, phenol, hardness and in one location PCBs

As part of the soil intrusive investigation Ramboll has compared the analytical results against generic assessment criteria (GAC) to establish potential risks to human health considering a commercial / industrial site use. No elevated concentrations were detected in the soil samples and it was concluded there are no risks to human health have been identified from the analysis.

As part of the groundwater intrusive investigation Ramboll has compared the analytical results against freshwater environmental quality standards (EQS) and in the absence of an EQS they have used UK Drinking Water Standards (DWS). No elevated concentrations were detected in the groundwater samples although notable concentrations of metals, sulphate, PAH and semi volatile organic compounds (SVOCs) were found in both the Ramboll and Joynes Pike investigations.

- Metals were detected at low concentrations, the following were detected above the EQS or DWS; cadmium in borehole WS02, copper in four boreholes (BHA, BHB, BHC and AB2), zinc in three boreholes (BH1, BH7 and BHB), lead in one borehole (BH2) and nickel in four boreholes (BH1, BH2, BH7 and BH8).
- Total sulphate was detected at concentrations above the method reporting limit in most samples, the highest detected concentration slightly exceeded the respective DWS was from borehole BH7.
- PAH were detected in four of the six samples analysed in the Joynes Pike investigation, the highest concentration was detected in BH2, however as an EQS is not available for PAH a conservative DWS has been used, furthermore this elevated concentration was not detected during the Ramboll investigation therefore is considered to be localised and of historic origin.
- SVOCs were detected at low concentrations in two of the four samples analysed in the Joynes Pike investigation (BH1 and BH2), they were found to slightly exceed the EQS at these two locations.

Although some slightly elevated concentrations of determinands were detected in soil and groundwater these are likely attributed to the sites historic use as a creamery including fuel storage and use as a garage. No significant elevated concentrations were detected and no significant risk to receptors were identified from the concentrations detected. However, there are areas of the site present beneath buildings or in currently inaccessible areas where historical contamination may be present.

Therefore, no significant contamination has been identified to be present at the site based on the desktop review and ground investigation studies completed. We are satisfied the operator has provided a satisfactory description of the condition of the site. This decision was taken in accordance with our guidance on site condition reports – guidance and templates (H5).

5.2.2 Proposed site design: potentially polluting substances and prevention measures

The operator has a duty to ensure that soil and groundwater are protected in order to meet the requirements of Articles 14 (1)(b), 14(1)(e) and 16(2) of the IED. BAT Conclusion 19 of the Waste Treatment BRef Document (EU 2018) deals largely with

site design and prevention measures in order to reduce emissions to soil and water. The Operator has stated that preventative and reactive maintenance programmes are in place to ensure the condition of equipment and infrastructure and to prevent uncontrolled releases to surface water and ground. All production processes take place within contained buildings on impermeable surfacing therefore present a low risk to soil and water. Minimal handling of raw materials and other hazardous substances takes place in external areas. All waste generated are stored in segregated, secure, roofed and well organised dedicated storage areas, provided within suitable containment. The majority of waste (including hazardous waste) is stored internally and those stored externally are stored in sealed compactors. The site also has an established recycling programme in place. Waste derived from the process (waste meat and fish) is frozen and held in quarantined areas prior to collection by an approved contractor. Any connection areas for tankers are within bunds to stop drips from reaching concrete hardstanding. The site has an ammonia refrigeration plant with ability to store up to 2 tonnes of ammonia at any one time, the plant is monitored for leak detection using hand held monitors and fitted with ammonia detection alarms. The site also has a single 2500 Litre tank that stores diesel fuel for use in the fork-lift trucks, this tank is integrally bunded and manually dipped prior to fuel delivery to ensure the correct amount of diesel is delivered, with deliveries being fully supervised. The Operator has stated the tank is maintained in accordance with manufacturer's guidelines and the site's planned preventative maintenance programme. There is a spillage emergency response procedure in place which is part of the Operator's EMS. Any spillages on the site that enter the drainage system will be directed to the ETP as all surface water drainage and process effluent is processed in the ETP via an integrated drainage system.

In addition to all the operational measures and prevention measures that are in place at the site, the Operator is completing a full review of the drainage system and the containment measures at the site. As part of this the Operator will investigate the feasibility of separating the two water streams and connecting to the foul sewer system, drainage survey will also be conducted. The Operator will also investigate the feasibility of providing impermeable surface entirely in the ETP area and a sealed drainage system within that area. For more information see BAT 19 section of Annex 4 of this decision document. An Improvement Condition (IC2) has been set in order

for the Operator to update NRW on its progress with this investigative work and progress towards compliance with BAT conclusion 19 of the Waste Treatment BRef Document (EU 2018).

5.2.3 Closure and decommissioning

Permit condition 1.1.1 requires the Operator to have a written management system in place which identifies and minimises risks of pollution including those arising from closure.

At the definitive cessation of activities, the Operator has to satisfy us that the necessary measures have been taken so that the site ceases to pose a risk to soil or groundwater, taking into account both the baseline conditions and the site's current or approved future use. To do this, the Operator has to apply to us for surrender, which we will not grant unless and until we are satisfied that these requirements have been met.

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.

OPRA

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.

Relevant Convictions

NRW's COLINS Database has been checked to ensure that all relevant convictions have been declared. One record (COLINS Ref 4924) was found relating to Producer Responsibility Obligations (Packaging Waste) Regulations 1997, there are 6 cautions that were accepted, this case is from 2002 and is now closed. Cautions are not criminal convictions and are considered warnings.

Financial Provision

There is no known reason to consider that the operator will not be financially able to comply with the permit. The decision was taken in accordance with RGN 5 on Operator Competence.

5.3.2 Management

The operator has in place an Environmental Management System (EMS) that was produced in line with the requirements set out in “*How to comply with your environmental permit guidance*”. The operator submitted a summary of the EMS with their application and we have reviewed it in line with relevant guidance. The EMS follows the principal requirements of the ISO14001 standard although is not externally accredited.

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.

5.3.4 Accident management

In order to ensure that the management system proposed by the Applicant sufficiently manages the residual risk of accidents, permit condition 1.1.1a requires the implementation of a written management system which addresses the pollution risks associated with, amongst other things, accidents. The Applicant has stated they are currently updating the Accident Management Plan to ensure it meets the requirement of BAT conclusion 21 of the Waste Treatment BRef Document (EU 2018), therefore an improvement condition (IC3) has been included to ensure the updated Accident Management Plan is submitted to NRW for approval.

5.3.5 Site security

The installation is occupied with staff Monday to Friday from 05:00 to late. The site is locked when there are no staff present on site and there is a member of staff on standby throughout the night and over weekends. The site is secured by fencing and use of CCTV, personnel enter through turnstile gates which allow authorised access only. Any visitors and contractors enter through a reception area and are escorted by site personnel when on site. Due to the size of the facility and low staff numbers any persons trespassing throughout the day would be easily identified and escorted off-site. Having considered the information submitted in the Application, we are satisfied that appropriate infrastructure and procedures are in place to ensure that the site remains secure.

5.3.6 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 M1: Sampling requirements for stack emission monitoring
- Technical Guidance Note M5: Monitoring of stack emissions from medium combustion plants and specified generators
- Medium Combustion Plant and Specified Generator Permits: How to Comply (July 2019)
- Technical Guidance Note M18: Monitoring of discharges to water and sewer

Monitoring of point source emissions to air will be carried out in line with the monitoring requirements outlined in TGN M5 and will have MCERTS accreditation. No further additional controls for monitoring are required.

Current sampling of point source emissions to air are in line with the sampling requirements outlined in TGN M1. No further additional controls for sampling are required.

As the back-up boiler is a new Medium Combustion Plant (MCP), the site must adhere to the following operating techniques specific for MCP:

- Each MCP must be operated in accordance with the manufacturer's instruction and records must be made and retained to demonstrate this.
- The operator must keep periods of start-up and shut down of each MCP as short as possible.
- There must be no persistent emission of 'dark smoke' as defined in Section 3(1) of the Clean Air Act 1993.

The installation is being classed as an existing installation for purposes of the Best Available Techniques (BAT) assessment, this means the installation has until 4

December 2023 (main activity BRef) to comply with BAT conclusions of the following documents:

- Reference document on Best Available Techniques for Waste Treatment (2018)
- Reference document on Best Available Techniques for the Food, Drink and Milk Industries (2019)

The main activity is referenced in the Food, Drink and Milk Industries BAT reference document (BRef), the compliance date is 4 December 2023, which will also be the compliance date for the secondary BRef - Waste Treatment BRef.

We issued a Notice under Regulation 61(1) of EPR on 24 June 2020 requiring the Operator to provide information to demonstrate how the operation of their installation currently meets, or will subsequently meet, the revised standards described in the two relevant BAT Conclusions documents. The Regulation 61(1) Notice response from the Operator was received on 19 October 2020 and additional information was received on 08 December 2020.

BAT Conclusions for the Food, Drink and Milk Industries were published as Commission Implementing Decision EU 2018/1447 in the Official Journal of the EU on 5 December 2019. Annex 3 provides a record of decisions made in relation to each relevant BAT Conclusion applicable to the installation. This should be read in conjunction with the permit issued.

BAT Conclusions for the Waste Treatment were published as Commission Implementing Decision EU 2018/1447 in the Official Journal of the EU on 17 August 2018. Annex 4 provides a record of decisions made in relation to each relevant BAT Conclusion applicable to the installation. This should be read in conjunction with the permit issued.

Based on the information provided in the Regulation 61(1) response, we consider that we need to set improvement conditions, details of which can be found in Annex 1. We are using these conditions to require the operator to provide Natural Resources Wales with details that need to be established or confirmed during operations. The improvement conditions ensure compliance by 4 December 2023.

We have specified that the applicant must operate the permit in accordance with descriptions in the application, including all additional information received as part of the determination process. These are specified in the Operating Techniques table in the permit.

5.3.7 Efficient use of raw materials, water and energy

The primary process-related raw materials used at the installation include meat, fish and dry ingredients. The installation also uses maintenance related materials such as oils, lubricants and greases and chemicals such as water treatment chemicals, flocculent, refrigerant chemicals, sanitisers and detergents. The installation records the annual usage of raw materials and efficiency is measured using a tonne raw material/tonnes of finished product metric. The operator has recently completed a review of cleaning chemicals used at the installation which is an ongoing requirement of the installation BAT.

Water is a significant raw material used at the installation. Groundwater abstractions from five boreholes across the installation provide the water used during production processes and cleaning. Administrative buildings are supplied with mains water from Dŵr Cymru. The installation also has a surface water abstraction licence to abstract water from the Afon Tywi and Afon Bran, however this is currently not used. Approximately 50 % of the condensate from the autoclaves/retort is stored and reused as cleaning water, potential for more to be stored is currently limited by storage capacity. The use of cleaning water is further minimised by use of mobile chemical dosing units ensuring correct amount of water and chemical is used.

The installation is supplied with gas and electricity from the national grid. Natural gas is used by the combustion sources on site to steam generation for use in the production processes. Electricity is used in the manufacturing processes and by the associated plant and equipment. Diesel fuel is used to power forklifts and there is a diesel store on site. There are a number of areas where heat is recovered at the installation:

- Recovery of heat from the autoclaves/retorts through the use of heat exchangers
- Steam condensate is reused, and heat captured through a heat exchanger
- Regular maintenance of the freezer and fridge stores, freezer door closes automatically

- Temperature alarms are fitted to fridge and freezer stores
- Heat is recovered from the compressor through a heat exchanger

Energy usage of natural gas and electricity at the installation is monitored monthly and informs the annual consumption, energy efficiency is measured using a MWh/tonne of finished product metric.

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, electricity and diesel. This will enable Natural Resources Wales to monitor energy recovery efficiency at the Installation.

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

This requirement addresses wastes produced at the facility. The main wastes streams produced at the installation are:

1. Hazardous waste – a small amount of hazardous waste is generated and includes waste oil; empty chemical containers, laboratory wastes, fluorescent tubes; printer ink cartridges. The wastes are stored appropriately awaiting collection by a licensed waste contractor.
2. Non-hazardous waste – this consists of general domestic waste, cardboard, wooden pallets, plastic, cooked product waste, rejected raw materials, redundant totes and sludges from the ETP. The general domestic waste and cooked product waste is stored in a segregated skip awaiting weekly collection by a licensed waste contractor. Cardboard and plastic waste is recycled, and wooden pallets are sent off-site for re-use. Rejected raw materials (uncooked animal-derived waste) is frozen and stored awaiting collection in accordance with the Animal By-Products Regulation. The sludge generated by the ETP is mechanically formed into a cake and collected by a licensed waste contractor for incineration.

Having considered the information submitted in the Application, we are satisfied that the waste hierarchy referred to in Article 4 of the WFD 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 offsite 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 air
- Emissions to surface water
- Noise
- Odour

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, odour and emissions to air; however, it was unsatisfactory for emissions to surface water and required additional Natural Resources Wales assessment to make up the shortfall.

The operator has an existing water discharge activity (WDA) permit (permit number BG0002801) for the discharge of trade effluent which arises from manufacturing processes on site. As part of this application the WDA permit will be consolidated into their EPR permit. The operator has proposed an increase in discharge volume from 1000 m³/day to 1820 m³/day, NRW is refusing this part of the application for reasons explained below in Section 7.1 and the discharge volume will remain as 1000 m³/day. Therefore, our surface water risk assessment has been completed at the proposed

maximum permitted discharge volume of 1000 m³/day (existing discharge volume as per their existing discharge consent). The purpose of the assessment was to determine the impact of the existing discharge and ensure the current and any additional proposed limits are fit for purpose.

We will discuss the risk assessment in more detail as follows.

6.1 Assessment of Impact on Air Quality

This section of the decision document deals primarily with the dispersion modelling of emissions to air from the stack and its impact on local air quality.

The Applicant has assessed the Installation's potential emissions to air against the relevant air quality standards, and the potential impact upon human health. These assessments predict the potential effects on local air quality from the Installation's stack emission. The air impact assessments, and the dispersion modelling has been based on the Installation operating continuously at the relevant long-term or short-term emission limit values, i.e. the maximum permitted emission rate.

There are two emission points to air within the installation, both from the two natural gas fuelled boilers, one a main boiler and one a back-up. The applicant assessed the impact of emissions from the two boilers. To assess long-term impacts the main boiler has been assessed as operating continuously, the back-up boiler has not been included in this assessment as it will only be operational when the main boiler is unavailable. To assess short-term impacts both boilers have been included in the assessment, this is a conservative approach and is expected to over-estimate the short-term impacts, as simultaneous operation of both boilers is not expected to occur and if so, it would be for short periods of time.

The applicant has assessed the emissions to air from the installation using the H1 tool including the parameters carbon monoxide (CO) and oxides of nitrogen (NO and NO₂) (NO_x). Air dispersion modelling was completed for any parameters that did not screen out as insignificant in line with current NRW guidance. CO screened out as insignificant using the H1 tool. The H1 tool was submitted by the applicant and reviewed by NRW, we are in agreement with the conclusions that CO screens out as

insignificant and no further assessment is required. Detailed air dispersion modelling was completed for NO_x as this parameter did not screen out as insignificant through the use of the H1 tool.

The assumptions underpinning the model have been checked and are reasonably precautionary. The way in which the Applicant used dispersion models, its selection of input data, use of background data and the assumptions it made have been reviewed to establish the robustness of the Applicant's air impact assessment. The output from the model has then been used to inform further assessment of health impacts.

The applicant has used dispersion modelling software (ADMS 5) and have modelled using five years on meteorological data from the Sennybridge meteorological station. Emission limit values for the combustion sources were taken from monitoring measurements (main boiler) or the Medium Combustion Plant Directive (back-up boiler). Background values for pollutants have been sourced from DEFRA 2019 background maps using a relevant monitoring station. The applicant has modelled predicted impacts of long-term and short-term NO_x in line with relevant government guidance 'Air emissions risk assessment for your environmental permit', they have calculated the process contribution (PC) and predicted environmental concentration (PEC). Predicted impacts have been modelled at three sensitive human receptors, closest residential receptors are located approximately 20 m to the north west of the installation boundary.

Oxides of Nitrogen (NO and NO₂ expressed as NO₂) (NO_x)

A long-term critical level of 40 µg/m³ (annual) and short-term critical level of 200 µg/m³ (hourly) was assumed for NO_x. At sensitive receptor locations the maximum predicted long-term PC was >1 % (1.6 %) and long-term PEC <70 % (10.1 %) of the long-term critical level. Therefore, in accordance with NRW guidance the long-term impacts from NO_x can be considered as insignificant. At sensitive receptor locations the maximum predicted short-term PC was <10 % of the short-term critical level. Therefore, in accordance with NRW guidance the short-term impacts from NO_x can be considered insignificant.

We are satisfied that due to this proposal there are unlikely to be any exceedances of the long-term and short-term air quality standards for NO_x and CO at any of the sensitive receptors identified for the protection of human health.

6.2 Assessment of impact to surface water and groundwater

There are no discharges to ground from this installation. There is only a discharge to the Afon Tywi from the installation.

All process effluent from the pet food production process and uncontaminated surface water drainage is treated in the Effluent Treatment Plant (ETP) prior to travelling through a pipe to the discharge point: into the Afon Tywi. There is adequate buffer storage capacity in the form of a large balancing tank in the event of heavy rainfall, this tank can hold up to two days process effluent. There is an existing discharge consent in place for a discharge volume of 1000 m³/day, as part of the permit application the operator proposed an increase to 1820 m³/day and consolidate the existing discharge consent into the A(1) installation permit. NRW is refusing the increase for reasons explained in Section 7.1 and the discharge volume will remain as 1000 m³/day. Although the composition and volume of the discharge is not changing, a Water Framework Directive (WFD) compliance assessment was required to ensure any current limits were fit for purpose and ensure the additional limits for total phosphorus (as P), ammonia and total aluminium (as Al) were appropriate.

The surface water risk assessment provided by the applicant was unsatisfactory due to the following factors:

- Afon Tywi existing surface water quality data was not appropriate as was sourced from 2003 – 2005 despite there being more recent data available
- Afon Tywi existing surface water quality data did not include the determinant phosphorus; the background concentration was based on an assumption despite there being data available
- Afon Tywi existing surface water quality data was a limited data set
- 'No deterioration' conclusions were based on no change in WFD classification of the Afon Tywi only and did not consider significant 'in-class' deterioration (>10 %)
- There were no assessments completed against the Joint Nature Conservation Committee (JNCC) targets for the Afon Tywi SAC

Therefore, the surface water risk assessment provided by the applicant required additional assessment by NRW. The assessment undertaken by NRW was completed to determine and review the impact of the existing discharge on the receiving water and ensure the existing limits and any additional proposed limits are appropriate.

The existing river quality data utilised within the assessment has been taken from the 2021 WFD Phys-Chem data spreadsheet for the waterbody: GB110060036250, recent data from a sample point immediately downstream of the permitted discharge point was also utilised to review extant impact. The river flow data has been confirmed as accurate by the internal NRW Hydrology team. The following determinands 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)
- Chemical additives (Aquatreat 600 and Midfloc A258B)

The effluent treatment process uses the following chemical additives: Aquatreat 600 (Polyaluminium chloride) and Midfloc A258B (anionic/non-ionic polyacrylamide) used as a flocculation agent. These have both been assessed in the surface water risk assessment carried out by NRW. The assessment carried out for each determinant is explained separately below.

Aquatreat 600 (Polyaluminium chloride)

The primary pollutant associated with Polyaluminium chloride is aluminium. Although aluminium is not a specified pollutant within the H1 surface water risk assessment tool it can be assessed using screening tests by using a suitable Environmental Quality Standard (EQS). There are different EQS that can be used for aluminium dependant on the pH of the watercourse. The latest WFD data demonstrates the pH of the receiving watercourse is 7.6 therefore an EQS of 1000 µg/L (Maximum allowable concentration [MAC]) is applied for this assessment in line with guidance: EPR 7.01:

Water Discharge and Groundwater (from point source) Activity Permits. The H1 screening tests have been completed in line with those contained within guidance: Surface water pollution risk assessment for your environmental permit. Screening test 1 failed as the Release Concentration (RC) of the pollutant exceeds 10 % of the EQS. Screening test 2 passed as the process contribution (PC) was <4 % of the EQS and therefore no further assessment is required, and a limit of 1000 µg/L will be set in the permit.

Midfloc A258B (anionic/non-ionic polyacrylamide)

Anionic/Non-ionic polyacrylamides are considered to be low toxicity and have no hazard ratings, the Material Safety Data Sheet (MSDS) has been provided for the chemical additive and confirms the product does not contain any ingredients classified as hazardous to health or to the environment. Dosing levels of this chemical additive will be controlled through operational control through the Environment Management System and we will not be setting a numerical limit. Permit condition 1.1.1a requires the implementation of a written management system which addresses the pollution risks associated with, amongst other things, operations and maintenance of the facility.

pH

The pH limits of >6 and <8.5 will remain as per the current discharge consent. The latest WFD data demonstrates the pH of the receiving watercourse is 7.6, therefore this limit has been reviewed and agreed as appropriate in line with 'Acid Conditions Standards in Rivers' as published within the 2015 WFD Directions.

Temperature

As per the 2015 WFD 'Temperature Standards for Rivers', the 98%ile annual river temp for 'High' class in salmonid rivers should be 20 degrees Celsius, there should also be no increase/decrease in river temperature above 2 degrees Celsius. The current limit on the discharge consent is 29 degrees Celsius. Samples taken below the installation site (sample point of 'Towy Below Llangadog Creamery') remain below 20 degrees annually (peak of 16.4 degrees in July 2019), meaning the temperature remains in 'high' class. It is therefore proposed that the maximum limit of 29 degrees Celsius remains on the permit as a maximum.

Ammonia

As per the 2021 WFD Phys-Chem spreadsheet, the typology for this river regarding ammonia standards is 'Type 1'. The receiving watercourse 'GB110060036250 – Tywi (Llandovery Bran to Cothi Cofl)' is currently classed as 'high'. In order to maintain its

class, the 90%ile concentration downstream should remain below 0.10 mg/L as per the Type 1 WFD 'High' Status class boundary for Ammonia. The 90%ile concentration downstream of the discharge point is 0.041 mg/L which demonstrates the watercourse at the point of discharge is 'high' class for ammonia, meaning the current discharge of 1000 m³/day is not adversely affecting the watercourse. There is currently no limit for ammonia within the current discharge consent, therefore the operator has proposed a limit of 30 mg/L. Recognising the site has never discharged concentrations as high as 30 mg/L, modelling using River Quality Planning (RQP) software has been undertaken to determine the impact of this limit. The modelling determined the concentration downstream of the discharge point in the watercourse would be 0.054 mg/L which still ensures the WFD status remains 'high' class. Therefore, the proposed limit of 30 mg/L ammonia (absolute maximum) has been determined as appropriate and will ensure all river quality targets are met.

Biological oxygen demand (BOD)

As per the 2021 WFD Phys-Chem data the typology for this river regarding BOD standards is 'Type 1'. The receiving watercourse 'GB110060036250 – Tywi (Llandovery Bran to Cothi Cofl)' is currently classed as 'high'. In order to maintain its class, the 90%ile concentration downstream should remain below 3.0 mg/L as per the Type 1 WFD 'High' Status boundary for BOD. The 90%ile concentration downstream of the discharge point is 1.92 mg/L which demonstrates the watercourse at the point of discharge is 'high' class for BOD, meaning the current discharge of 1000 m³/day is not adversely affecting the watercourse. The limit of 40 mg/L will remain as per the current discharge consent and be retained in the permit. This limit ensures the WFD targets are met in the receiving watercourse and in line with 'No deterioration' policy, therefore it is an acceptable limit.

Total phosphorus (as P)

WFD targets and classifications for phosphorus are site specific and based on the altitude and alkalinity. The receiving watercourse at the discharge point (as per R.Towy Below Llangadog Creamery) is currently classified as 'high' class. In order to maintain its class, the mean concentration of phosphorus downstream should remain below 0.022 mg/L as per the 'UKTAG River Phosphorus Calculator 2021'. The concentration downstream of the discharge point is 0.01494 mg/L which demonstrates the watercourse at the point of discharge is 'high' class for phosphorus, meaning the current discharge of 1000 m³/day is not adversely affecting the watercourse. There is

currently no limit for phosphorus within the current discharge consent, therefore the operator has proposed an annual mean limit of 15 mg/L. This is the concentration the ETP is capable of reaching and is currently discharging shown by sampling data. Therefore, the proposed limit of 15 mg/L phosphorus (annual mean) has been decided as appropriate and will ensure all river quality targets are met. In addition, at the WFD classification point (which is 8.5 km downstream of the discharge point), data collected at the sample point for 'GB110060036250 – Tywi (Llandovery Bran to Coth confl)' classification shows a mean concentration of 13 µg/L. There is larger amount of data available at this point therefore offers a more comprehensive review of the current impact. There is no current limit in the existing discharge consent for phosphorus therefore setting this limit ensures improved regulation of the site including comprehensive monitoring. Furthermore, a limit of 2 mg/L total phosphorus will be in the permit from 04/12/2023 as per BAT Conclusion 12 published in the BAT Reference Document for the Food, Drink and Milk Industries. Therefore, a better-quality effluent will be discharged in the near future and will be an improvement on the current quality of the effluent being discharged.

Total suspended solids (TSS)

We have reviewed historical sample data for the effluent provided by the applicant, and it is proposed by us that the maximum limit currently on the discharge consent is reduced from 55 mg/L to 25 mg/L in line with the Guideline Standard set in the Freshwater Fish Directive (FFD). The FFD stipulates that TSS concentrations should not exceed a guideline annual mean of 25 mg/L for salmonoid spawning waters.

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 groundwater and surface water.

6.3 Emissions to sewer

There are no emissions to public sewer, the installation is not connected to the municipal sewer network. There are two separate drainage systems in place at the installation:

- The process effluent and surface water drainage system receives surface water runoff from external surfaces and wastewater from production processes which is directed through the ETP before final discharge to surface water, Afon Tywi.

- The foul water drainage system receives foul water from administrative areas and is directed to a cesspit for storage prior to collection by a licensed contractor.

6.4 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 and fugitive emissions to surface water.

- Fugitive emissions from dusts and particulates from the use of dry materials have been assessed to be low risk due to the handling of dry raw materials takes place inside and are delivered in sealed bags. In addition, the operator has stated the process does not use large quantities of dry raw materials therefore reducing the potential to generate dust emissions.
- Fugitive emissions from litter have been assessed to be low risk due to the waste management procedures that are employed at the installation. Daily inspections at the installation ensures the procedures are implemented.
- Fugitive emissions to surface water from surface water run-off have been assessed to be medium risk. There is no direct pathway between the drainage system and the surface water as all surface water run-off is directed through the effluent treatment plant, however there could be pathway due to poor drainage integrity. Risks are minimised through the minimal handling of raw materials and other hazardous substances outside in areas that could lead to surface water run-off contamination. Bunding is provided for the tanker connection to the sludge silo to provide secondary containment.

To ensure the integrity of the drainage system is intact the Operator has detailed they will complete a drainage survey as part of ongoing work to ensure compliance with BATc 19 of the Waste Treatment BRef Document (EU 2019). It is a requirement of BATc 19 of the Waste Treatment BRef to have adequate drainage infrastructure. An Improvement Condition (IC2) has been set regarding this BATc which requires the Operator to update NRW on its progress to compliance with this BATc.

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 fugitive emissions and to prevent pollution from fugitive emissions. Where further work is required this has been requested through an improvement condition.

6.5 Assessment of odour impact

Odour is identified as a key issue in the Food and Drink sector. Odour emissions can arise from cooking and drying processes, waste water treatment processes and leaks or accidental releases from ammonia plant used for cooling systems.

An odour risk assessment has been completed following the H1 risk assessment methodology by the applicant and assessed by us. The closest sensitive residential receptor is located <20 m from the north east installation boundary, the surrounding area is predominantly industrial and rural countryside. The risk assessment concluded that exposure of odour is likely from some of the sources mentioned above and there is expected to be a low level to moderate impact. As part of the regulation of the existing Part B permit Carmarthenshire County Council carried out odour monitoring around the site and have concluded it be classed as low risk, no odour complaints have been received by Carmarthenshire County Council and there has been no Environmental Permitting enforcement issues related with this site. The operator has an odour management plan in place which has been reviewed by us in line with Horizontal Guidance for Odour (H4) – Odour Management and the relevant sector guidance notes. The operator has identified the main sources of odour at the installation as:

- Receipt, handling and storage of raw materials
- Mixing and batching processes
- Canning and cooking processes
- Boiler emissions
- Storage and handling of wastes
- Effluent treatment plant – collection of sludge and venting of tankers
- Leak or accidental release from ammonia plant

In their odour management plan the operator has detailed a number of control measures that are employed including:

- Incoming raw materials are directly either frozen, chilled or used immediately
- All production processes (mixing, batching, cooking) takes place within enclosed building with doors kept closed
- Canned and tray products are cooked in their packaging which minimises odourous emissions during cooking
- The gas boilers are serviced under a maintenance program

- Any product waste is frozen and collected frozen
- General and recycling wastes stored in segregated covered containers and skips awaiting collection and frequent collections of wastes
- Storage of ETP sludge in enclosed silo, location of which is over 200 m from the closed sensitive receptor
- Leak detection and planned preventative maintenance program of the ammonia plant

Based upon the information in the application we are satisfied that the appropriate measures will be in place to prevent or where not practicable to minimise the effects of odour.

6.6 Noise Assessment

A noise risk assessment has been completed following the H1 risk assessment methodology by the applicant and assessed by us. The closest sensitive residential receptor is located <20 m from the north east installation boundary, the surrounding area is predominantly industrial and rural countryside. The risk assessment concluded that exposure of noise is considered unlikely and there is a low-level impact, in addition no noise complaints have been received by the operator. As part of the regulation of the existing Part B permit Carmarthenshire County Council, no noise complaints have been received by Carmarthenshire County Council and there has been no Environmental Permitting enforcement issues related with this site. The operator has a noise management plan in place which has been reviewed by us in line with Horizontal Guidance for Noise (H3) (part 2) – Noise Assessment and Control and the relevant sector guidance notes. The operator has identified the main sources of noise at the installation as:

- Movement of heavy goods vehicles (HGVs), forklift trucks and other vehicles within the installation
- Operation of ancillary plant (boiler, air compressors, chillers)
- Internal handling of raw materials and production equipment

In their noise management plan the operator has detailed a number of control measures that are employed including:

- Site speed limit for vehicles
- Deliveries are received in bulk quantities and delivery slots are allocated to minimise and restrict number of HGVs on the site or waiting outside the site

- Timing of deliveries and collections are limited to between 06:30 and 18:00 Monday to Friday
- The boilers, air compressors and chillers and production processes are all contained within buildings, either the main production building or the boiler house
- Planned preventative maintenance program is implemented through the EMS and the plant are maintained in line with manufacturers specifications
- Noise monitoring at five locations within the installation boundary
- All plant and production processes are located within enclosed building, integrity of containment buildings and doors are checked and maintained

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.

6.7 Impact on National Site Network¹/Ramsar 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 application and its potential to affect any of the sites has been carried out as part of the permit determination process. National Site Network¹/Ramsar sites, SSSIs and local nature sites will be discussed in detail separately below.

National Site Network¹/Ramsar sites

The following National Site Network¹/Ramsar sites are located within 10 km of the installation:

- Afon Tywi / River Tywi SAC UK0013010

An OGN 200 Form 1 (Habitats Regulation Assessment) was completed to assess the potential to affect the National Site Network¹ site, this is available on the public register a summary is given below.

¹ As per the amendment to Regulation 3 of the Conservation of Habitats and Species Regulations 2017: [The Conservation of Habitats and Species \(Amendment\) \(EU Exit\) Regulations 2019 \(legislation.gov.uk\)](https://www.legislation.gov.uk/uk/2017/101/section-3). National Site Network means the network of sites in the United Kingdom's territory consisting of such sites as – (a) immediately before exit day formed part of Natura 2000; or (b) at any time on or after exit day are European sites, European marine sites and European offshore marine sites for the purposes of any of the retained transposing regulations.

The principal emissions from the installation are emissions to air from combustion sources and emission to surface water of treated effluent from the effluent treatment plant.

Emissions to air

Emissions to air of NO_x from combustion sources has been assessed in the HRA in terms of toxic contamination from increased airborne NO_x concentrations and nitrogen deposition and acid deposition from increased airborne NO_x concentrations.

A long-term critical level of 30 µg/m³ NO_x (annual) and short-term critical level of 75 µg/m³ NO_x (daily) have been assumed for SAC Afon Tywi. The maximum long-term process contribution (PC) is <1 % of the long-term critical level therefore long-term impact from NO_x emissions can be considered insignificant. The maximum short-term PC is >10 % (18.5 %) of the short-term critical level. The maximum PEC (predicted environmental concentration) is 30.0 % of the short-term critical level and well below 100 % therefore there is unlikely to be an exceedance of the short-term critical level and the impact from the short-term NO_x emissions can be considered not significant.

The minimum nutrient nitrogen critical load value of 3 kgN/ha/yr has been assumed for SAC Afon Tywi as there are no values present on APIS to allow for this assessment the applicant has used the lowest possible critical load value. The maximum nitrogen deposition process contribution is <1 % of the lower critical load value, therefore long-term nutrient nitrogen enrichment impacts can be considered insignificant.

There are no acid deposition critical load values present on APIS to allow for the acid deposition assessment, therefore site-specific advice was sought from the NRW conservation technical specialists, who did not advise on any critical load values to be used.

Emissions to surface water

Emissions to surface water of treated effluent from the effluent treatment plant has been assessed in the HRA in terms of: toxic contamination from emissions of aluminium; 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.

Aluminium - Aluminium is present in Polyaluminium chloride which is used as part of the effluent treatment process. The applicant has completed a surface water risk assessment that has followed the recognised H1 methodology in line with .gov guidance. There are four initial screening tests and if the aluminium does not screen out further modelling is required. Screening test 1 failed as the Release Concentration (RC) of the pollutant exceeds 10 % of the EQS. Screening test 2 passed as the process contribution (PC) was <4 % of the EQS and therefore no further assessment is required, and a limit of 1000 µg/L will be set in the permit.

Elevated levels of ammonia and phosphorus can cause excess algae growth which can in turn reduce dissolved oxygen levels within the receiving watercourse. A review of the current water quality in the existing watercourse was undertaken to ensure the proposed emission limits were acceptable in terms of the Habitats Directive. The compliance targets in the receiving watercourse were set at the 'Common Standards Monitoring Guidance for Rivers' which applies to all riverine SACs these are the 'JNCC targets' as published on the JNCC website, the receiving watercourse is a designated SAC. Table 4 below shows the targets for ammonia and BOD and Table 5 shows the targets for phosphorus:

Table 4. Organic pollution targets

Attribute	Target
10%ile DO (% saturation)	85
Mean BOD (mg L ⁻¹)	1.5
90%ile total ammonia (NH ₃ -N, mg L ⁻¹)	0.25
95%ile un-ionised ammonia (NH ₃ -N, mg L ⁻¹)	0.025

Table 5. Proposed phosphorus targets (µg L⁻¹ SRP) for near-natural examples of SSSI/SAC river habitat.

River type			Headwater	River	Large river
High altitude (>80 metres)	Low alkalinity (<50 mg L ⁻¹ CaCO ₃)		5	10	20
	High alkalinity (>50 mg L ⁻¹ CaCO ₃)		7	15	25
Low altitude (<80 metres)	Low alkalinity (<50 mg L ⁻¹ CaCO ₃)		15	20	30
	High alkalinity (>50 mg L ⁻¹ CaCO ₃)	Chalk	20	30	40
		Clay	20	30	40

The Afon Tywi at the discharge point is classified as 'low alkalinity, low altitude river' therefore as per Table 5 the phosphorus target to maintain a 'near natural' river at the point of discharge is 20 µg/L annual mean concentration of phosphorus.

Ammonia - the 90 %ile total ammonia must be below the 0.25 stated target in Table 4 above. The background concentration of ammonia downstream of the discharge point is 90%ile of 0.041 mg/L, this **passes** the above JNCC target and confirms the existing discharge is not adversely affecting the watercourse. A limit of 30 mg/L will be set on the permit for ammonia as there is no limit for ammonia on the current discharge consent, modelling has been completed to demonstrate the impact of a 30 mg/L limit (daily maximum) for ammonia which draws the same conclusions as above – passes the JNCC target and ensures the WFD status of the waterbody remains high, therefore all river quality targets are met.

BOD - Mean BOD concentrations must be below the 1.5 mg/L stated target in Table 4 above. The background concentration of BOD downstream of the discharge is a mean of 1.47 mg/L, this passes the above JNCC target and confirms the existing discharge is not adversely affecting the watercourse. The limit of 40 mg/L for BOD is remaining as per the current discharge consent, at this concentration the JNCC targets and WFD targets are met.

Phosphorus – Maximum phosphorus concentrations (applied as a mean) must be below 40 µg/L to ensure JNCC **Maximum** SAC targets are met. However, the review was undertaken to ensure the phosphorus concentration (applied as a mean) is below 20 µg/L to maintain a '**near-natural**' SAC riverine habitat, as per the target stated in Table 5 above. The impact of the current discharge of 15 mg/L orthophosphate (as per historic effluent monitoring) has been reviewed to determine whether it is having a detrimental effect:

- The current concentration of Orthophosphate in the river at the discharge point is a mean of 14.94 µg/L (from 2019/2020 sample data), meaning the '**Near Natural**' JNCC SAC target is met with ample headroom remaining and demonstrating the current discharge is not jeopardising the target.
- The '**Near Natural**' classification is also reached at the downstream WFD classification point (which is 8.5 km downstream of the discharge point) as well as the discharge point. Data collected at the sample point for 'GB110060036250 - Tywi (Llandovery Bran to Cothi confl)' classification shows a mean of 13 µg/L. There is a lot more data available for this point so offers a more comprehensive review of current impact.

Therefore, a mean limit of 15 mg/L will be placed within the permit until 03/12/2023. This is acceptable as the JNCC Riverine SAC '**Near Natural**' target is met at both the

discharge point and the downstream reporting point. The effluent treatment plant has always discharged at this concentration and there is no evident adverse impact on the receiving watercourse in terms of WQ targets, setting a limit, however, will ensure better regulation of the site as phosphate is currently not limited in the existing standalone water discharge activity permit. Furthermore, a limit of 2 mg/L total phosphorus will be in the permit from 04/12/2023 as per BAT Conclusion 12 published in the BAT Reference Document for the Food, Drink and Milk Industries. Therefore, a better-quality effluent will be discharged in the near future and will be an improvement on the current quality of the effluent being discharged.

Temperature - As per the WFD (Standards and Classifications) Directions 2015, the 98%ile annual river temp for 'High' class in salmonid rivers should be 20 degrees Celsius, there should also be no increase/decrease in river temperature above 2 degrees Celsius. The current limit on the permit is 29 degrees Celsius. Samples taken below the installation site (sample point of 'Towy Below Llangadog Creamery') show temperature remains below 20 degrees annually (peak of 16.4 degrees in July 2019), meaning the temperature remains in 'high' class for salmonid waters. Therefore, no likely significant effect is expected from changes in thermal regime.

Total suspended solids - There is currently a limit of 55 mg/L for total suspended solids (TSS) on the discharge consent. From reviewing historical sample data of the effluent provided by the applicant, the annual average TSS concentration in the effluent was 35 mg/L in 2017 (with a max recording of 80 mg/L) and annual average of 5 mg/L in 2018 (with a max recording of 14 mg/L). It is proposed the maximum limit set on the permit is reduced to 25 mg/L this is in line with Guideline Standards set in the Freshwater Fish Directive (FFD). The FFD stipulates that TSS concentrations should not exceed a guideline annual mean of 25 mg/L for salmonid spawning waters. Therefore, no likely significant effect is expected from turbidity of siltation due to emissions of total suspended solids.

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

The assessment concluded the installation is not likely to have a significant effect on the site from both emissions to air and emissions to surface water, either alone or in combination with other plans and projects.

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 considered not likely to have a significant effect on any National Site Network/Ramsar site (As documented in section 3.2 of OGN 200 form 1, or section 5 if applicable).

SSSI Assessment

The following Sites of Special Scientific Interest (SSSI) are located within 2 km of the installation:

- Afon Tywi SSSI 32WPO
- Derwen-Fach Meadow SSSI 32WKH
- Chwarel Talar Wen 32WP8

An Appendix 4 Form (CRoW Act Assessment) was completed to assess the potential to affect the SSSI sites, this is available on the public register, a summary is given below.

Afon Tywi SSSI

The assessments completed in the Form 1 HRA section above for the Afon Tywi SAC are identical to those completed for the assessment of the impacts on the Afon Tywi SSSI. Therefore, the conclusion was that the installation is not likely to damage any of the flora, fauna or geological or physiological features which are of special interest for SSSI Afon Tywi.

Derwen-Fach Meadow SSSI

Only impacts from air emissions were assessed for the Derwen-Fach Meadow SSSI as there is no impact pathway for impacts from water emissions. Increased airborne NO_x concentrations, nutrient enrichment and acidification were assessed and discussed separately below.

A long-term critical level of 30 µg/m³ NO_x (annual) and short-term critical level of 75 µg/m³ NO_x (daily) have been assumed for SSSI Derwen-Fach Meadow. The maximum

long-term process contribution (PC) is <1 % of the long-term critical level therefore long-term impact from NO_x emissions can be considered insignificant. The maximum short-term PC is <10 % of the short-term critical level therefore the short-term impact from NO_x emissions can be considered insignificant.

The minimum nutrient nitrogen critical load value of 10 kgN/ha/yr has been assumed for SSSI Derwen-Fach Meadow. The maximum nitrogen deposition process contribution is <1 % of the lower critical load value, therefore long-term nutrient nitrogen enrichment impacts can be considered insignificant.

The acid deposition critical load value of 3.179 kEq/ha/yr (Max N) has been assumed for SSSI Derwen-Fach Meadow. The maximum acid deposition process contribution is <1% of the critical load value. Therefore, long term acid deposition impacts from NO_x emissions can be considered insignificant.

The assessment concluded that the installation is not likely to damage any of the flora, fauna or geological or physiological features which are of special interest for SSSI Derwen-Fach Meadow.

Chwarel Talar-Wen SSSI

The feature of special interest at Chwarel Talar-Wen SSSI is a geological feature therefore this feature is not expected to be sensitive to any impacts (air emissions or surface water emissions) from the installation, therefore no further assessment was completed.

The SSSI assessment concluded the installation is not likely to damage any of the features of any of the SSSI sites. The assessment was reviewed by an NRW conservation technical specialist who confirmed agreement with the conclusion.

Non-Statutory Sites Assessment

There are a total of 28 Ancient Woodlands located within 2 km of the installation, there are no National Nature Reserves, Local Nature Reserves or Local Wildlife Sites located within 2 km. In line with NRW guidance, for non-statutory sites assessment criteria considers whether an installation can cause significant pollution. If the process contribution for each pollutant is less than 100 % of the critical level of load, we

consider no significant pollution will be caused. The applicant has not included these sites in their air dispersion modelling report; however, they have included the SAC Afon Tywi as an ecological receptor which is located much closer to the installation than any of the Ancient Woodland sites. The maximum process contributions modelled were well below 100 % of the relevant critical levels or lowest critical loads therefore the impacts can be confidently expected to be insignificant at locations further away. The maximum process contributions modelled were at locations within the installation boundary.

7 Setting ELVs and other Permit conditions

Point source emissions to air

We have decided that emission limits should be set for the parameters listed in the permit. The following emission limits for point source emissions to air have been set for the main boiler:

- Oxides of Nitrogen (NO and NO₂ expressed as NO₂)

The emission limit value has been set in line with what has been included in the air dispersion modelling in the application. The emission limit value for NO_x is tighter than what is contained within MCPD therefore will apply. Emission limit values have not been set for the back-up boiler as it is classed as a limited operating hours MCP as operated for under 500 hours per year, this is in line with provisions contained within MCPD. The operating hours of the back-up boiler will be limited to 500 hours per year in the permit. It is considered that the emission limit value and operating hours restriction above will ensure that significant pollution of the environment is prevented and a high level of protection of the environment is secured.

Point source emissions to surface water

We have decided that emission limits should be set for the parameters listed in the permit. The following emission limits for point source emissions to surface water have been set effective until 3 December 2023:

- Oil and grease - none visible
- pH – minimum 6, maximum 8.5
- Temperature – 29 °C (maximum)
- Aluminium – 1.0 mg/L (maximum)
- Biological Oxygen Demand (BOD) – 40 mg/L (maximum)
- Total phosphorus – 15 mg/L (annual mean)

- Ammonia – 30 mg/L (maximum)
- Total suspended solids – 25 mg/L (maximum)
- Maximum daily discharge volume – 1000 m³/day (maximum)

The emission limit values have been set in line with what has been included and assessed in the surface water pollution risk assessment as detailed above. The existing discharge is being treated as existing for the purposes of the BAT assessment therefore BAT-AELs will not apply until 4 December 2023.

The following emission limits for point source emissions to surface water have been set effective from 4 December 2023:

- Oil and grease – none visible
- pH – minimum 6, maximum 8.5
- Temperature – 29 °C (maximum)
- Aluminium – 1.0 mg/L (maximum)
- Biological Oxygen Demand (BOD) – 40 mg/L (maximum)
- Chemical Oxygen Demand (COD) – 100 mg/L (maximum)
- Total phosphorus – 2.0 mg/L (maximum)
- Total nitrogen – 20 mg/L (maximum)
- Total suspended solids – 25 mg/L
- Maximum daily discharge volume – 1000 m³/day

These emission limit values have been set in line with the BAT-AELs contained within BATc12 of the Food, Drink and Milk Industries BRef Document (EU 2019). These emission limit values will apply from 4 December 2023 which is the compliance date for this BRef document, it contains lower limits for total phosphorus and additional limits for total nitrogen and chemical oxygen demand. 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. Although not specified in the BAT conclusions, the limit for BOD remains from 4 December 2023 in order to prevent any backsliding. The limit for ammonia (30 mg/L) has been removed from 4 December 2023 as a total nitrogen limit (20 mg/L) has been added and therefore the ammonia limit is considered no longer required.

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. The installation is being treated as existing for the purposes of the BAT assessment therefore has until 4 December to comply with the BAT Conclusions of the Food, Drink and Milk Industries BRef Document (EU 2019). The Operator applied for a substantial increase in discharge volume from 1000 m³/day to 1820 m³/day, as this is a substantial variation to current operations it would be required to be able to achieve compliance with the BATc and any BAT-AELs now. The Operator has confirmed they cannot meet the BAT-AEL for Total phosphorus contained within BAT conclusion 12 of the Food, Drink and Milk Industries BRef Document (EU 2019). The Operator has requested a total phosphorus limit of 15 mg/L (average) as this is the limit they state that they can achieve utilising the current ETP demonstrated by monitoring records, the BAT-AEL for total phosphorus is 2.0 mg/L. Therefore, as the Operator cannot meet the BAT-AEL the substantial increase in discharge volume is being refused and the permitted discharge volume will remain as 1000 m³/day.

For further information on how BAT compliance has been achieved, see annex 3 and 4 for detailed descriptions on how the Operator achieves compliance with each BATc, where compliance will not be achieved or limited information has been provided by the Operator, improvement conditions have been set.

7.2 Monitoring

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

For emissions to air, the methods for periodic monitoring are in accordance with the Technical Guidance Note M5: Monitoring of stack emissions from medium combustion plants and specified generators.

For emissions to surface water, the methods for continuous and periodic monitoring are in accordance with M18: Monitoring of discharges to surface water and sewer. Monitoring frequencies have been set in line with BAT requirements. Currently the Operator does not have an MCERTS flow meter in place to monitor flow from the ETP although they have detailed plans to install one, therefore an improvement condition (IC5) has been included to ensure the Operator does install the MCERTS flow meter and to update NRW on progress in the interim and when installed. Monitoring frequencies until 3 December 2023 have been imposed in line with current practices and monitoring frequencies from 4 December have been imposed in line with BAT requirements.

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

7.3 Reporting

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

OPRA

The agreed OPRA score at the installation is 83. This will form the basis for ongoing subsistence fees. As the installation includes one new MCP this will attract an additional fixed subsistence fee.

ANNEX 1: Improvement Conditions

The improvement conditions that have been set can be seen in Table S1.3 presented below. The reasons why these were set are explained herein:

- IC1 – this is a requirement of BATc 2 and BATc 3 for Waste Treatment, BATc 2 of Food, Drink and Milk Industries and relates to providing and maintaining an inventory of waste water, this involves characterisation of the process effluent that is introduced into the ETP. The Operator was requested to provide detail on how they meet this BATc and the Operator responded detailing that this work is to be completed in the future, therefore this IC has been set in order for the Operator to update NRW on its progress towards compliance with these BAT conclusions.
- IC2 – this is a requirement of BATc 19 for Waste Treatment. The Operator was requested to provide detail on how they meet this BATc and the Operator responded detailing that this work is to be completed in the future, therefore this IC has been set in order for the Operator to update NRW on its progress towards compliance with this BAT conclusion.
- IC3 – this is a requirement of BATc 1 and 21 for Waste Treatment. The Operator was requested to provide an accident management plan in Schedule 5 Notice (4). The Operator responded detailed that their current accident management plan did not meet BAT requirements and they are currently in the process of updating the plan to incorporate all the BAT requirements. Therefore, this IC has been set in order for the Operator to provide the updated accident management plan to NRW for approval. The deadline date has been set earlier than BAT compliance date as the Operator failed to provide an accident management plan within the application and it is pivotal to the management of the facility.
- IC4 – this is a requirement of BATc 12 for the Food, Drink and Milk Industries. The Operator was requested to provide detail on how they meet this BATc and the Operator responded that they are currently unable to comply with the BAT-AEL for Total phosphorus contained within BATc 12. The Operator is currently taking steps to investigate and further work to enable compliance by December 2023. Therefore, this IC has been included in order for the Operator to provide further detail on how this will be achieved by the compliance date following the additional investigate work.
- IC5(a) and (b) – this improvement condition has been set in order for the Operator to install an accredited MCERTS flow meter to measure flow from the ETP and provide an interim report and final report to NRW. The Operator confirmed they do not

currently have an MCERTS flow meter in place and are currently in the process of investigation the installation of one. It is a requirement of TGN M18: Monitoring of discharges to sewer and water to have an MCERTS flow meter in place.

- IC6 – this is a requirement of BATc 1 for Waste Treatment and BATc 1 of Food, Drink and Milk Industries and relates to a number of requirements of the Environment Management System in order to achieve BAT. The Operator detailed that work is ongoing to address this therefore an IC has been set in order for the Operator to provide an EMS that meets the BAT requirements. The deadline date has been set earlier than BAT compliance date as the Operator failed to provide a suitable EMS that incorporated the requirements of the BAT conclusions within the application and it is pivotal to the management of the facility.
- IC7 – this is a requirement of BATc 23 for Waste Treatment and relates to an energy balance record. The Operator detailed that work is ongoing to address this therefore an IC has been set in order for the Operator to complete an Energy Balance Record.
- IC8 – this is a requirement of BATc 1 and BATc 24 for Waste Treatment and relates to a residues management plan. The Operator has not submitted a residues management plan although details a number of techniques in place at the installation. The Operator detailed that work is ongoing to address this therefore an IC has been set in order for the Operator to produce and provide a residues management plan.

ANNEX 2: 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

Response Received from Hywel Dda University Health Board / Bwrdd Iechyd Prifysgol Hywel Dda	
Brief summary of issues raised:	Summary of action taken / how this has been covered
No grounds for objection provided the site is operated in line with current sector guidance.	Operating techniques have been reviewed in line with current sector guidance and BRef documents, and wherever inadequate, improvement conditions have been added to require appropriate standards.
Recommend the operator seeks suitable accreditation for the environmental management system.	It is not a requirement that the operator must have ISO14001 accreditation for their Environment Management System, although their EMS has been assessed against BAT requirements.
The regulator should be satisfied that the controls proposed are suitable to minimise the release of process odours.	See section 5.5 for explanation
The regulator should be satisfied with the noise controls proposed by the applicant.	See section 5.6 for explanation

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

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

None received

Brief summary of issues raised:	Summary of action taken / how this has been covered
N/A	N/A

b) Representations from Community and Other Organisations

None received	
Brief summary of issues raised:	Summary of action taken / how this has been covered
N/A	N/A

c) Representations from Individual Members of the Public

None received	
Brief summary of issues raised:	Summary of action taken / how this has been covered
N/A	N/A

DRAFT

ANNEX 3: Decision checklist regarding relevant BAT Conclusions for Food, Drink and Milk Industries

BAT Conclusions for the Food, Drink and Milk Industries were published as Commission Implementing Decision EU 2019/2031 in the Official Journal of the EU on 4 December 2019. There are 37 BAT Conclusions. This checklist provides a record of decisions made in relation to each relevant BAT Conclusion applicable to the installation. This annex should be read in conjunction with the permit.

All BAT Conclusions arising are listed by number in order below;

BATc number	Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
OVERALL ENVIRONMENTAL PERFORMANCE		
1	Environment Management System (EMS) – <u>ALL</u> of the following:	
	I.	Commitment, leadership and accountability of the management, including senior management for the implementation of an effective EMS
	II.	An analysis that includes the determination of the organisation's context, the identification of the needs and expectations of interested parties, the identification of characteristics of the installation that are associated with possible risks for the environment (or human health) as well as of the applicable legal requirements relating to the environment.
	III.	Development of an environmental policy that includes the continuous improvement of the environmental performance of the installation
Currently Compliant An overview of the Environment Management System (EMS) has been included in the permit application as evidence the following BATc are met. The EMS is developed in line with the requirements set out in ISO14001 although is not externally accredited.		

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	IV.	establishing objectives and performance indicators in relation to significant environmental aspects, including safeguarding compliance with applicable legal requirements;	
	V.	Planning and implementing the necessary procedures and actions (including corrective and preventive actions where needed), to achieve the environmental objectives and avoid environmental risks;	
	VI.	Determination of structures, roles and responsibilities in relation to environmental aspects and objectives and provision of the financial and human resources needed;	
	VII.	Ensuring the necessary competence and awareness of staff whose work may affect the environmental performance of the installation (e.g. by providing information and training);	
	VIII.	Internal and external communication	
	IX.	Fostering employee involvement in good environmental management practices;	
	X.	Establishing and maintaining a management manual and written procedures to control activities with significant environmental impact as well as relevant records;	
	XI.	Effective operational planning and process control;	
	XII.	Implementation of appropriate maintenance programmes;	
	XIII.	Emergency preparedness and response protocols, including the prevention and/or mitigation of the adverse (environmental) impacts of emergency situations;	
	XIV.	When (re)designing a (new) installation or a part thereof, consideration of its environmental impacts throughout its life,	
			Compliant in the future

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
		which includes construction, maintenance, operation and decommissioning;	The Operator has stated any changes to the process, site layout and infrastructure will be undertaken with consideration to environmental impact at the design stage using the 'management of change' process. The Operator has stated this will form part of the EMS and BATc will be achieved by the compliance deadline. An Improvement Condition (IC6) has been set in order for the Operator to update its existing EMS to incorporate these requirements.
	XV.	Implementation of a monitoring and measurement programme, if necessary, information can be found in the Reference Report on Monitoring of Emissions to Air and Water from IED Installations;	Currently Compliant All monitoring of emissions to water and emissions to air will be in line with IED permit requirements
	XVI.	Application of sectoral benchmarking on a regular basis;	Compliant in the future The Operator has stated annual reviews of the EMS will be undertaken and will include the review and assessment developments within the sector relating to improving best practice, sustainability and environmental improvements. The Operator has stated they will document the annual reviews and elements of this are already being completed however are not formally documented currently. The Operator has stated this will be formally documented and BATc will be achieved by the compliance date. An Improvement Condition

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
			(IC6) has been set in order for the Operator to update its existing EMS to incorporate these requirements.
	XVII.	Periodic independent (as far as practicable) internal auditing and periodic independent external auditing in order to assess the environmental performance and to determine whether or not the EMS conforms to planned arrangements and has been properly implemented and maintained;	Currently Compliant See sections above
	XVIII.	Evaluation of causes of nonconformities, implementation of corrective actions in response to nonconformities, review of the effectiveness of corrective actions, and determination of whether similar nonconformities exist or could potentially occur;	Currently Compliant See sections above
	XIX.	Periodic review, by senior management, of the EMS and its continuing suitability, adequacy and effectiveness;	Currently Compliant See sections above
	XX.	Following and taking into account the development of cleaner techniques.	Compliant in the future The Operator has stated any changes to the process, site layout and infrastructure will be undertaken with consideration to environmental impact at the design stage using the 'management of change' process. The Operator has stated this will form part of the EMS and BATc will be achieved by the compliance deadline. An Improvement Condition (IC6) has been set in order for the Operator to update its existing EMS to incorporate these requirements.
	(i)	Noise Management Plan (BAT 13)	Currently Compliant

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
			A Noise Management Plan has been submitted with the permit application. See BAT 13
	(ii)	Odour Management Plan (BAT 15)	Currently Compliant An Odour Management Plan has been submitted with the permit application. See BAT 15
	(iii)	Inventory of water, energy and raw materials consumption as well as of waste water and waste gas streams (BAT 2)	Compliant in the future See BAT 2 below
	(iv)	Energy Efficiency Plan (BAT 6a)	Currently Compliant The Operator has stated further work is needed to ensure energy efficiency meets BAT, however the Operator does measure electricity and natural gas on a monthly basis as part of the EMS and reported to senior management for review and action if required. Energy usage will be achieved through reporting requirements in IED permit.
2	Establish and maintain a waste water and waste gas inventory as part of the EMS - <u>ALL</u> of the following:		
	<i>Information about the food, drink and milk production processes, including;</i>		
	I.(a)	simplified process flow sheets that show the origin of the emissions	Currently Compliant The Operator has provided process flow sheets as part of application.
	I.(b)	descriptions of process-integrated techniques and waste water/waste gas treatment techniques to prevent or reduce emissions, including their performance	Currently Compliant The Operator has provided descriptions as part of application.

BATc number	Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
II.	Information about water consumption and usage and identification of actions to reduce water consumption and waste water volume (BAT 7)	Currently Compliant The Operator measures water usage and consumption on a monthly basis as part of the EMS, reviewed by senior management and actioned if required. Use of this information to calculate production efficiency and setting of KPIs.
Information on quantity and characteristics of the waste water streams, such as:		
III.(a)	Average values and variability of flow, pH and temperature	Compliant in the future
III.(b)	Average concentration and load values of relevant pollutants/parameters (e.g. TOC/COD, nitrogen species, phosphorus, chloride, conductivity) and their variability	The Operator has stated that assessments of average values and variability of flows, pH, temperature and conductivity, COD, BOD, nitrogen, phosphorus and metals is being undertaken however only at the point of discharge to surface water. There is currently no information on the characteristics of the waste water stream going into the ETP. The Operator has stated a review of the process effluent and surface water discharges will be carried out and they have proposed to introduce additional monitoring locations to obtain greater understanding of the effluent composition. The Operator has stated BAT will be achieved by the compliance deadline. An improvement condition (IC1) has been set in order for the Operator to provide an update to NRW on progress to compliance with this BATc.

BATc number	Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	Information on characteristics of waste gas streams, such as:	
IV.(a)	Mean and variability of:	Currently Compliant The only waste gas stream is from combustion sources (2x natural gas boilers). The Operator has stated annual servicing checks by the manufacturer are completed: NOx, O ₂ , CO, total particulate matter (dust), moisture, gas flow, temperature and efficiency. NOx and CO monitoring will be required within the IED permit.
	Flow	
	temperature	
IV.(b)	Mean concentration, load and variability of relevant substances:	
	Dust	
	TVOC	
	CO	
	NOx	
IV.(c)	SOx	Not Applicable No waste gas treatment system in place. Only waste gas stream is from combustion sources.
	Presence of other substances that may affect the waste gas treatment system or plant safety:	
	O ₂	
	Water vapour	
	Dust	
V.	Information about energy consumption and usage, the quantity of raw materials used, as well as the quantity and characteristics of residues generated, and identification of actions for continuous improvement of resource efficiency (BAT 6 and BAT 10)	Currently Compliant The Operator currently monitors energy consumption (electricity and natural gas) monthly as part of the EMS and reported to senior management for review. The Operator currently monitors waste generated (volume, waste type and destination) monthly as part of the EMS. Energy usage, water usage, raw

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
			materials and generation of residues will be required within the IED permit.
	VI.	Identification and implementation of an appropriate monitoring strategy with the aim of increasing resource efficiency, taking into account energy, water and raw materials consumption. Monitoring can include direct measurements, calculations or recording with an appropriate frequency. The monitoring is broken down at the most appropriate level (e.g. at process or plant/installation level).	Currently Compliant The Operator monitors energy, water and raw materials consumption on a monthly and annual basis as part of the EMS. Results of the monitoring are used to calculate production efficiency in terms of waste and raw materials and utility usage per tonne of finished product. The Operator sets and monitors KPIs for this.
MONITORING			
3	For relevant emissions to water as identified by the inventory of waste water streams (BAT 2): monitor key process parameters at key locations		
	Key process parameters		
	Waste water flow		Currently Compliant The Operator currently monitors waste water flow as per their current discharge consent requirements.
	pH		Currently Compliant The Operator currently monitors pH as per their current discharge consent requirements.
	Temperature		Currently Compliant The Operator currently monitors temperature as per their current discharge consent requirements.

BATc number	Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	Key monitoring locations	
	Pre-treatment inlet and/or outlet	Not completed, although BAT is considered achieved as the Operator is monitoring prior to the discharge point.
	Final treatment inlet	Not completed, although BAT is considered achieved as the Operator is monitoring prior to the discharge point.
	Discharge point (to the environment)	Currently Compliant They monitor the above parameters at the 'V notch' prior to discharge to the environment.
	Other location	Not completed, although BAT is considered achieved as the Operator is monitoring prior to the discharge point.
4	<i>Monitoring of water emissions: monitor emissions to water with at least the frequency given below and in accordance with EN standards:</i>	
	Refer to monitoring emissions to water table in BRef document	Compliant in the future The Operator carries out the following monitoring: COD – Daily Total Suspended Solids – Daily BOD - Monthly Additional monitoring is carried out: Total phosphorus - Daily Nitrate – Daily

BATc number	Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
		Any additional monitoring requirements required by the BATc will be implemented through the IED permit.
5	Refer to monitoring emissions to air table in BRef document Monitoring parameters depend on sector	Not Applicable None listed for relevant sector/specific process not relevant.
6	Energy Efficiency: BAT is to use 6a and appropriate combination of common techniques	
	a Energy Efficiency Plan	Currently Compliant Energy efficiency, measurements of electricity and natural gas consumption are monitored and evaluated as part of the EMS, monitored on a monthly basis.
	b Use of common techniques	Currently Compliant Use of a heat exchanger to capture heat. Compressor fitted with a heat exchanger and heat used to warm incoming water for steam generation. Waste heat from ammonia plant is used to melt surfaces of frozen blocks of raw materials. The Operator has stated further energy efficiency measures are to be investigated.
7	Water consumption and waste water discharge BAT is to use 7a and one or a combination of techniques in b to k	
	a Water recycling and/or reuse	Currently Compliant Approximately 50 % of condensate from the Retort/autoclaves is stored and reused as cleaning water (sequential reuse). The potential

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
			to further reuse water is restricted by storage capacity.
	b	Optimisation of water flow	No information provided on this BATc, although BAT is considered achieved as one or a combination of the listed techniques.
	c	Optimisation of water nozzles and hoses	Currently Compliant All hoses are fitted with triggers with automatic shut off to prevent water waste.
	d	Segregation of water streams	Not Applicable The site has an integrated drainage system where uncontaminated surface water and process effluent runs through the ETP prior to discharge to surface water. The Operator has stated they will investigate the feasibility of separating the two systems however may be restricted due to existing site layout and constraints and may prove cost prohibitive.
	e	Dry cleaning	Currently Compliant Dry cleaning of equipment is undertaken prior to using a hose.
	f	Pigging system for pipes	No information provided on this BATc, although BAT is considered achieved as one or a combination of the listed techniques.
	g	High-pressure cleaning	No information provided on this BATc, although BAT is considered achieved as one or a combination of the listed techniques.

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	h	Optimisation of chemical dosing and water use in cleaning-in-place (CIP)	Currently Compliant Although the site does not use CIP, the use of cleaning water is minimised through the use of mobile chemical dosing units, ensuring the correct amount of water and chemical is used.
	i	Low-pressure foam and/or gel cleaning	No information provided on this BATc, although BAT is considered achieved as one or a combination of the listed techniques.
	j	Optimised design and construction of equipment and process areas	Currently Compliant Baskets are in place within the drains outside the meat preparation area, this is emptied as required and any content frozen in the designated waste area until collection. Process line are mostly automated, and conveyors are enclosed to minimise spillage and droppage.
	k	Cleaning of equipment as soon as possible	Currently Compliant Cleaning schedules are optimised through production planning which ensures product lines are run for as long as possible, reducing changeovers and need for washdowns.
8	Harmful substances. BAT is to use one or a combination of the techniques given below:		
	a	Proper selection of cleaning chemicals and/or disinfectants	The use of and types of cleaning chemicals has recently been reviewed at the site. Mobile chemical dosing units are employed.
	b	Reuse of cleaning chemicals in cleaning-in-place CIP	The site does not employ CIP, however, does use mobile chemical dosing units.
	c	Dry cleaning	Currently Compliant

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
			Dry cleaning of equipment is undertaken prior to using a hose. Employees are made aware of importance of this via Environmental Awareness Training.
	d	Optimised design and construction of equipment and process areas	Currently Compliant Baskets are in place within the drains outside the meat preparation area, this is emptied as required and any content frozen in the designated waste area until collection. Process lines are mostly automated, and conveyors are enclosed to minimise spillage and droppage.
9	BAT is to use refrigerants without ozone depletion potential and with a low global warming potential		Currently Compliant The site uses ammonia as a refrigerant. Ammonia listed as a suitable refrigerant in the BRef document.
10	Increase resource efficiency, use one or a combination of the techniques given below		
	a	Anaerobic digestion	No information provided on this BATc, although BAT is considered achieved as one or a combination of the listed techniques.
	b	Use of residues	Currently Compliant Cardboard is recycled at the site. Waste meat and fish is sent off-site for rendering purposes. Pallets are collected by a contractor for re-use. Some spillages can be reused and reworked into the product.
	C	Separation of residues	Currently Compliant A basket is in place within the drain outside the meat preparation area in order to separate the

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
			waste streams. The basket is emptied, and any contents are frozen in the designated waste container until collection. Meat and fish that drops to the floor, is swept up and collected, frozen and quarantines as 'floor waste'. Process lines are generally automated, and conveyors are enclosed to minimise spillages and droppage. Some spillages can be reused and reworked into the product.
	D	Recovery and reuse of residues from pasteuriser	No information provided on this BATc, although BAT is considered achieved as one or a combination of the listed techniques.
	e	Phosphorus recovery as struvite	No information provided on this BATc, although BAT is considered achieved as one or a combination of the listed techniques.
	f	Use of waste water for land spreading	No information provided on this BATc, although BAT is considered achieved as one or a combination of the listed techniques.
EMISSIONS TO WATER			
11	Prevent uncontrolled emissions to water, provide an appropriate buffer storage capacity for waste water		Currently Compliant The ETP utilises a large diversion tank (LUBEK tank) to hold effluent prior to treatment. This would provide an adequate buffer in case of a spillage from anywhere on site or firefighting water (as surface water drains the ETP). The capacity is approximately 440 m ³ and the LUBEK tank can be tankered off site if the ETP was unable to process. The Detritus pit has a

BATc number	Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
		capacity of 120 m ³ and the four settling towers (4x 400 m ³) providing an adequate storage capacity for waste waters.
12	Reduce emissions to water, use an appropriate combination of the techniques given below	
	a	Equalisation
	b	Neutralisation
	c	Physical separation
	d	Aerobic and/or anaerobic treatment
	e	Nitrification and/or denitrification
	f	Partial nitrification
	g	Phosphorus recovery as struvite
	h	Precipitation
	i	Enhanced biological phosphorus removal
	j	Coagulation and flocculation
	k	Sedimentation
	l	Filtration
	m	Flotation
BAT-AELs for direct emissions to a receiving water body.		
Table 1 and associated notes. Associated monitoring given in BAT 4.		
Chemical oxygen demand COD	25 – 100 mg/L	Currently Compliant Mean concentration of BOD in the effluent is 18.94 mg/L. COD is higher than BOD with 0.1 – 0.3 BOD to COD ratio typically seen in final effluent, to give a predicted maximum concentration of approximately 60 mg/L,

BATc number	Summary of BAT Conclusion requirement		Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
			therefore able to meet the BAT-AEL. COD BAT-AEL and monitoring will be imposed as part of the permit requirements by 2023.
	Total suspended solids TSS	4 – 50 mg/L	Currently Compliant The mean concentration of TSS in the treated effluent is 5 mg/L, therefore Operator is able to meet BAT-AEL.
	Total nitrogen	2 – 20 mg/L	Compliant in the future Total nitrogen is made up of free ammonia and ammonium, nitrite, nitrate and organic nitrogen compounds. The site currently monitors ammoniacal nitrogen and nitrate which existing data shows are mean concentration of 0.0196 mg/L and 0.128 mg/L. Therefore, it is expected the Operator will be able to meet the BAT-AEL for Total Nitrogen. It will be imposed as part of the permit requirements by 2023. An improvement condition (IC4) has been set in order for the Operator to update NRW with progress to compliance with this BATc.
	Total phosphorus	0.2 – 2.0 mg/L	Compliant in the future The Operator has stated they currently cannot comply with the BAT-AEL for Total phosphorus as the mean concentration of phosphorus in the treated effluent is 15 mg/L. The Operator has stated further investigation work is needed to locate the source of phosphorus in the process effluent (related to waste water inventory BAT

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
			2) and hope to eliminate the source completely, if this is not possible further phosphorus removal will be employed and they are planning to be fully compliant with the BAT-AEL by 2023 compliance date. The BAT-AEL will be imposed as part of the permit requirements from the compliance date in 2023 as detailed in Schedule 3(b) of the permit. See sections 7.1 of this decision document for more information. An improvement condition (IC4) has been set in order for the Operator to update NRW with progress to compliance with this BATc.
NOISE			
13	Set up, implement, and regularly review a Noise Management Plan (as part of the EMS) where nuisance is expected and/or has been substantiated. Include ALL of the following:		
	I.	Protocol with actions and timelines	Currently Compliant The Operator has detailed a number of protocols with actions and timelines within the NMP.
	II.	Noise emissions monitoring protocol	Currently Compliant The Operator has detailed that routine monitoring of noise is carried out by the technical department at the site where they carry out routine 'walkovers' daily at the two closest locations to residential receptors.

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	III.	Noise complaint response plan/protocol	Currently Compliant The Operator has an established complaints system in place, they are collected, registered and validated as detailed in the NMP.
	IV.	Noise reduction programme	Currently Compliant There is a noise source inventory which details means of control of the noise sources. The Operator has detailed a number of working practices that are used to minimise noise. Planned preventative maintenance programme is in place on all plant and equipment in order to prevent noise and maintaining effective control measures. All the process is contained within process buildings the Operator has stated the integrity of buildings are maintained continuously to ensure proper containment. The Operator has detailed measures that are taken during abnormal events.
14	Techniques to prevent, or where not practicable reduce noise and vibration emissions. Use one or a combination of the following:		
	a.	Appropriate location of equipment and buildings	Currently Compliant Operator has stated that all process plant, ammonia plant, compressor and boilers are located within enclosed buildings.
	b.	Operational measures – see examples	Currently Compliant Operator has stated that deliveries and collections are planned to occur between 06:30

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
			and 18:00. All plant is maintained as per manufacturer's specifications.
	c.	Low-noise equipment – see examples	Currently Compliant Operator has stated the use of compressors as low-noise equipment.
	d.	Noise control equipment – see examples	Not Applicable All process plant is located within enclosed buildings
	e.	Noise abatement – see examples	Not Applicable All process plant is located within enclosed buildings
ODOUR			
15	Set up, implement, and regularly review an Odour Management Plan (as part of the EMS) where nuisance is expected and/or has been substantiated. Include ALL of the following:		
	I.	Protocol with actions and timelines	Currently Compliant The Operator has detailed a number of protocols with actions and timelines within the OMP.
	II.	Odour monitoring protocol	Currently Compliant The Operator has detailed that routine monitoring of odours is carried out using 'sniff tests' at a number of locations around the site, two locations are monitored locations at two closest points to residential receptors.
	III.	Odour complaint response plan/protocol	Currently Compliant

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
			The Operator has an established complaints system in place, they are collected, registered and validated as detailed in the NMP.
	IV.	Odour prevention and reduction programme	Currently Compliant There is an odour source inventory which details means of control of the odour sources. The Operator has detailed a number of working practices that are used to minimise odour releases. Planned preventative maintenance programme is in place on all plant and equipment in order to prevent odours and maintaining effective control measures. All the process is contained within process buildings the Operator has stated the integrity of buildings are maintained continuously to ensure proper containment. The Operator has detailed measures that are taken during abnormal events.
BAT CONCLUSIONS FOR ANIMAL FEED			
N/A Indicative	Indicative environmental performance levels for specific energy consumption <i>Table 2 and footnotes</i>		
	Compound feed	0.01 – 0.10 MWh/tonne of products	Not Applicable No compound feed production
	Dry pet food	0.39 – 0.50 MWh/tonne of products	Not Applicable No dry pet food production

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	Wet pet food	0.33 – 0.85 MWh/tonne of products	Not applicable – Indicative values only The Operator has stated the following metrics: 3.84 MWh/tonne of product (Natural gas) and 0.92 MWh/tonne of product (Electricity).
16	Increase energy efficiency in green fodder processing use an appropriate combination of the techniques specified in BAT 6 and of the techniques given below:		Not Applicable No green fodder processing
	a	Use of predried fodder	Not Applicable No green fodder processing
	b	Recycling of waste gas from the dryer	Not Applicable No green fodder processing
	c	Use of waste heat for predrying	Not Applicable No green fodder processing
N/A Indicative	Indicative environmental performance levels for specific waste water discharge Table 3		
	Wet pet food	1.3 – 2.4 m ³ /tonne of products	Not applicable – Indicative values only The Operator has stated that due to an integrated drainage system where the surface water is collected with the process effluent and all treated in the ETP, currently it is not possible to calculate this metric accurately. Including all surface water drainage, the metric is 5.55 m ³ /tonne of product however it is likely to be less than this figure.
17	Reduce channelled dust emissions to air, use one of the techniques given below:		
	a	Bag filter	Not Applicable

BATc number		Summary of BAT Conclusion requirement		Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
				No channelled emissions to air at the installation apart from combustion sources
	b	Cyclone		Not Applicable No channelled emissions to air at the installation apart from combustion sources
	BAT-AELs for channelled dust emissions to air from grinding and pellet cooling in compound feed manufacture Table 4 and its supporting notes. Monitoring requirements are outlined in BAT 5			
	Dust – grinding	New plant: <2 – 5 mg/N ³	Existing plant: <2 – 10 mg/Nm ³	Not Applicable No grinding in compound feed manufacture
	Dust – Pellet cooling	<2 – 30 mg/Nm ³		Not Applicable No pellet cooling in compound feed manufacture
BAT CONCLUSIONS FOR MEAT PROCESSING				
N/A Indicative	Indicative environmental performance levels for specific energy consumption Table 16 and footnotes			
	0.25 – 2.6 MWh/tonne of raw materials			The Operator has not provided this information; however, the metrics are indicative only.
	Indicative environmental performance levels for specific waste water discharge Table 17 and footnotes			
	1.5 – 8.0 m ³ /tonne of raw materials			The Operator has not provided this information; however, the metrics are indicative only.
29	Reduce channelled emissions of organic compounds to air from meat smoking, use one or a combination of the techniques given below			
	a.	Adsorption		Not Applicable

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	b.	Thermal oxidation	Not Applicable
	c.	Wet scrubber	Not Applicable
	d.	Use of purified smoke	Not Applicable
	BAT-AEL for channelled TVOC emissions to air from a smoke chamber Table 18 and footnotes, associated monitoring is given in BAT 5		
	TVOC	3 – 50 mg/Nm ³	Not Applicable

ANNEX 4: Decision checklist regarding relevant BAT Conclusions for Waste Treatment

BAT Conclusions for the Waste Treatment BRef were published as Commission Implementing Decision EU 2018/1147 in the Official Journal of the EU on 17 August 2018. There are 53 BAT Conclusions. This checklist provides a record of decisions made in relation to each relevant BAT Conclusion applicable to the installation. This annex should be read in conjunction with the permit.

All BAT Conclusions arising are listed by number in order below;

BATc number		Summary of BAT Conclusion requirement		Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant	
OVERALL ENVIRONMENTAL PERFORMANCE					
1	Environment Management System (EMS) – <u>ALL</u> of the following:				
	I.	Management commitment			Currently Compliant An overview of the Environment Management System (EMS) has been included in the permit application as evidence the following BATc are met. The EMS is developed in line with the requirements set out in ISO14001 although is not externally accredited.
	II.	Environmental policy development including CI of performance			
	III.	Planning and implementing procedures & targets in conjunction with financial planning & investment			
	IV.	Implementation of procedures			
		(a) Structure & responsibility			
		(b) Recruitment, training, awareness & competence			
		(c) Communication			
		(d) Employee involvement			
		(e) Documentation			
		(f) Effective process control			
		(g) Maintenance programmes			
(h) Emergency preparedness & response					

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
		(i) Safeguarding compliance with environmental legislation	
	V.	Checking performance and taking corrective action	
		(a) Monitoring & measurement	
		(b) Corrective and preventive action	
		(c) Maintenance of records	
		(d) Independent (where practicable) internal or external EMS auditing	
	VI.	Senior management review of EMS	Compliant in the future The Operator has stated any changes to the process, site layout and infrastructure will be undertaken with consideration to environmental impact at the design stage using the 'management of change' process. The Operator has stated this will form part of the EMS and BATc will be achieved by the compliance deadline. An Improvement Condition (IC6) has been set in order for the Operator to update its existing EMS to incorporate these requirements.
	VII.	Following development of cleaner technologies	
	VIII.	Whole life cycle considerations when designing a new plant i.e. impacts from eventual decommissioning and throughout its operating life	
			Compliant in the future The Operator has stated any changes to the process, site layout and infrastructure will be undertaken with consideration to environmental impact at the design stage using the 'management of change' process. The Operator has stated this will form part of the EMS and BATc will be achieved by the compliance deadline. An Improvement Condition (IC6) has been set in order for the Operator to update its existing EMS to incorporate these requirements.

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	IX.	Regular sectoral bench marking	Compliant in the future The Operator has stated annual reviews of the EMS will be undertaken and will include the review and assessment developments within the sector relating to improving best practice, sustainability and environmental improvements. The Operator has stated they will document the annual reviews and elements of this are already being completed however are not formally documented currently. The Operator has stated this will be formally documented and BATc will be achieved by the compliance date. An Improvement Condition (IC6) has been set in order for the Operator to update its existing EMS to incorporate these requirements.
	X.	Waste stream management (BAT 2)	Compliant in the future See BAT 2 below
	XI.	Inventory of waste water & waste gas streams (BAT 3)	Compliant in the future See BAT 3 below
	XII.	Residues Management Plan – S6.5	Compliant in the future The Operator has stated that all waste residues are monitored, and appropriate reuse, recycling or disposal options are sourced. The Operator conducts regular reviews of the waste and their destinations to ensure the best environmental options are being used. The reviews will be documented as part of the EMS. An Improvement Condition (IC8) has been set in order for the Operator to produce a residues management plan in accordance with this BATc.
	XIII.	Accident Management Plan – S6.5	Compliant in the future

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
			See BAT 21
	XIV.	Odour Management Plan (BAT 12)	Currently Compliant An Odour Management Plan has been submitted with the permit application. See BAT 12.
	XV.	Noise & Vibration Management Plan (BAT 17)	Currently Compliant A Noise and Vibration Management Plan has been submitted with the permit application. See BAT 17.
2	Improving overall environmental performance – <u>ALL</u> of the following:		
	a.	Set up and implement waste characterisation & pre-acceptance procedures	Compliant in the future Most of BAT 2 is not applicable to the installation as they do not accept waste as part of the waste treatment activity and only treat process effluent from the pet food production activity. Although BAT 2(a) is relevant. There is currently no information on the characteristics of the waste water stream going into the ETP. The Operator has stated a review of the process effluent and surface water discharges will be carried out and they have proposed to introduce additional monitoring locations to obtain greater understanding of the effluent composition. The Operator has stated BAT will be achieved by the compliance deadline. An improvement condition (IC1) has been set in order for the Operator to update NRW with progress to compliance with this BATc.
	b.	Set up and implement waste acceptance procedures	Not Applicable Only one waste type processed which is process effluent. Inventory is achieved through BAT 3 and composition remains consistent.

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	c.	Set up and implement a waste tracking system & inventory	Not Applicable Only one waste type processed which is process effluent. Inventory is achieved through BAT 3 and composition remains consistent.
	d.	Set up and implement an output quality management system	Not Applicable Monitoring of the discharge effluent is carried out.
	e.	Ensure waste segregation	Not Applicable Only one type of waste is treated in the ETP – process effluent
	f.	Ensure waste compatibility prior to mixing or blending	Not Applicable No mixing or blending
	g.	Sort solid incoming waste – S6.4	Not Applicable No incoming solid waste
3	Establish and maintain a waste water and waste gas inventory as part of the EMS - <u>ALL</u> of the following:		
	Information on characteristics of waste and waste treatment processes		
	(i)(a)	simplified process flow sheets showing emission sources	Currently Compliant The Operator has provided process flow sheets as part of application.
	(i)(b)	Process-integrated and waste water/waste gas treatment descriptions including performance	Currently Compliant The Operator has provided descriptions as part of application.
	Information on characteristics of waste water streams		
	(ii)(a)	Mean and variability of:	Compliant in the future The Operator has stated that assessments of average values and variability of flows, pH, temperature and conductivity, COD, BOD, nitrogen, phosphorus and metals is being undertaken however only at the point of discharge
		Flow	
		pH	
		Temperature	
		Conductivity	

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	(ii)(b)	Mean concentration, load and variability of:	to surface water. There is currently no information on the characteristics of the waste water stream going into the ETP. The Operator has stated a review of the process effluent and surface water discharges will be carried out and they have proposed to introduce additional monitoring locations to obtain greater understanding of the effluent composition. The Operator has stated BAT will be achieved by the compliance deadline. An improvement condition (IC1) has been set in order for the Operator to update NRW with progress to compliance with this BATc.
		Total suspended solids	
		COD/TOC	
		Nitrogen species	
		Phosphorous	
		Metals	
		Priority substances/micropollutants	
		Any other relevant compounds	
	(ii)(c)	Bioeliminability data (see BAT 52):	
		BOD	Not Applicable
		BOD to COD ratio	Not Applicable
		Zahn-Wellens test	Not Applicable
		Biological inhibition potential	Not Applicable
	Information on characteristics of waste gas streams		
	(iii)(a)	Mean and variability of:	
		Flow	Not Applicable
		temperature	Not Applicable
	(iii)(b)	Mean concentration, load and variability of relevant substances:	
		Organic compounds	Not Applicable
POPs e.g. PCBs		Not Applicable	
Any other relevant compounds		Not Applicable	
(iii)(c)	Flammability	Not Applicable	
	Lower and Higher Explosive Limits	Not Applicable	

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
		Reactivity	Not Applicable
	(iii)(d)	<i>Presence of other substances that may affect the gas treatment system or plant safety:</i>	
		O2	Not Applicable
		N2	Not Applicable
		Water vapour	Not Applicable
		Dust	Not Applicable
4	Reducing environmental risk associated with waste storage – ALL of the following:		
	a.	Optimised storage location	Currently Compliant Waste is stored in dedicated storage location.
	b.	Adequate storage capacity	Currently Compliant Adequate waste storage for waste waters is available by use of Detritus pit and settling towers, up to two days' worth of process effluent can be stored.
	c.	Safe storage operation	Currently Compliant Storage containers used are fit for purpose and located in a dedicated storage area.
	d.	Separate area for storage & handling of packaged hazardous waste	Currently Compliant Dedicated segregated containers for each waste. Not treating hazardous waste in the ETP.
5	Set up and implement procedures to reduce the environmental risk associated with handling and transfer of waste - include following elements:		
	Carried out by competent staff		Currently Compliant See BAT1
	Duly documented, validated and verified		Currently Compliant See BAT1
	Spill prevention, detection and mitigation measures		Currently Compliant

BATc number	Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
		See BAT1
	Take precautions when mixing or blending wastes	Not Applicable There is no mixing or blending
	Procedures are risk-based and consider likelihood of accidents, incidents and their environmental impact	Currently Compliant See BAT1
MONITORING		
6	Relevant emissions to water: monitor key process parameters at key locations	
	Key process parameters	
	Waste water flow	Currently Compliant The Operator currently monitors waste water flow as per their current discharge consent requirements.
	pH	Currently Compliant The Operator currently monitors pH as per their current discharge consent requirements.
	Temperature	Currently Compliant The Operator currently monitors temperature as per their current discharge consent requirements.
	Conductivity	Currently Compliant The Operator currently monitors conductivity prior to discharge.
	BOD	Currently Compliant The Operator currently monitors BOD monthly at the 'V notch' prior to discharge to the environment.
	Other process parameters	Currently Compliant

BATc number	Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
		Total suspended solids are monitored as part of current discharge consent requirements. Total phosphorus, total nitrogen, COD and aluminium will be added to the new permit compliance from 2023.
	Key monitoring locations	
	Pre-treatment inlet and/or outlet	Not completed although BAT is considered achieved as Operator is monitoring prior to discharge point.
	Final treatment inlet	Not completed although BAT is considered achieved as Operator is monitoring prior to discharge point.
	Discharge point (to the environment)	Currently Compliant They monitor the above parameters at the 'V notch' prior to discharge to the environment.
	Other location	Not completed although BAT is considered achieved as Operator is monitoring prior to discharge point.
7	Monitoring emissions to water (refer to table) Monitoring parameters depend on waste treatment process(es) involved	Compliant in the future Monitoring requirements will be implemented through the permit within Schedule 3b of the permit.
8	Monitoring emissions to air (refer to table) Monitoring parameters depend on waste treatment process(es) involved	Not Applicable No point source emissions to air from ETP
9	Monitoring diffuse emissions of organic compounds to air from processes involving solvents. Use one or a combination of the following:	
	a	Measurement – S6.2 descriptions Not Applicable No point source emissions to air from ETP
	b	Emissions factor calculation Not Applicable No point source emissions to air from ETP
	c	Mass balance calculation Not Applicable No point source emissions to air from ETP

BATc number	Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
10	Periodically monitor odour emissions where nuisance is expected and/or has been substantiated (monitoring frequency is outlined in BAT 12)	
	Use EN standards e.g. 13725 or 16841	Not Applicable Odour nuisance is not expected or has been substantiated from the ETP. No previous complaints relating to odour from the installation.
	Use equivalent methods e.g. ISO / national / international monitoring standards	Not Applicable Odour nuisance is not expected or has been substantiated from the ETP. No previous complaints relating to odour from the installation.
11	Annual monitoring for:	
	- Water, energy and raw materials	Compliant now Annual monitoring for water, energy and raw materials is implemented through permit requirements.
	- Generation of residues and waste water	Compliant in the future Annual monitoring for generation of residues and water will be implemented through the permit requirements through Schedule 4b of the permit.
EMISSIONS TO AIR		
12	Set up, implement and review an Odour Management Plan (as part of the site EMS) where nuisance is expected and/or has been substantiated. Include <u>ALL</u> of the following:	
	Protocol containing actions and timelines	Not Applicable Odour nuisance is not expected or has been substantiated from the ETP. No previous complaints relating to odour from the installation.

BATc number	Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	Protocol for conducting odour monitoring (BAT 10)	Not Applicable Odour nuisance is not expected or has been substantiated from the ETP. No previous complaints relating to odour from the installation.
	Protocol for response to odour incidents/complaints	Not Applicable Odour nuisance is not expected or has been substantiated from the ETP. No previous complaints relating to odour from the installation.
	Odour prevention and reduction programme	Not Applicable Odour nuisance is not expected or has been substantiated from the ETP. No previous complaints relating to odour from the installation.
13	Techniques to prevent, or where not practicable reduce odour emissions. Use one or a combination of the following:	
	a.	Minimising residence times (open systems only) Not Applicable Not an open treatment system
	b.	Use chemical treatment (N/A if desired output is hampered) Not Applicable
	c.	Optimising aerobic treatment – see examples. Refer to BAT 36 for wastes other than water-based liquid waste. Not Applicable Not aerobic treatment
14	Techniques to prevent, or where not practicable reduce diffuse emissions to air, in particular of dust, organic compounds and odour. Use one or a combination of the following:	
	a.	Minimising potential diffuse emission sources – see examples Currently Compliant The Operator has stated that any raw materials are delivered in sealed packaging and remain in the packaging until ready for use, they are opened within the process building.

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	b.	Select and use high-integrity equipment – see examples	No information provided on this BATc, although BAT is considered achieved as one or a combination of the listed techniques.
	c.	Corrosion prevention – see examples	No information provided on this BATc, although BAT is considered achieved as one or a combination of the listed techniques.
	d.	Containment, collection and treatment of diffuse emissions – see examples	Currently Compliant The Operator has stated diffuse emissions are prevented by containment as the vast majority of activities are undertaken within enclosed building and access points to buildings remain closed unless in use.
	e.	Dampening (with water or fog)	No information provided on this BATc, although BAT is considered achieved as one or a combination of the listed techniques.
	f.	Maintenance – see examples	No information provided on this BATc, although BAT is considered achieved as one or a combination of the listed techniques.
	g.	Cleaning of waste treatment and storage areas – see examples	No information provided on this BATc, although BAT is considered achieved as one or a combination of the listed techniques.
	h.	Leak Detection and Repair (LDAR) programme for organics – S6.2	No information provided on this BATc, although BAT is considered achieved as one or a combination of the listed techniques.
15	Use flaring only for safety reasons or non-routine operating conditions (OTNOC). Use <u>both</u> of the following:		
	a.	Correct plant design – see examples	Not Applicable No flare in use
	b.	Plant management including gas system balancing and advanced process control	Not applicable No flare in use

BATc number	Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
16	Reduce emissions to air when flaring is unavoidable. Use <u>both</u> of the following:	
	a.	Correct design of flaring devices – see examples
	b.	Monitoring and recording as part of flare management – see examples
		Not applicable No flare in use
		Not applicable No flare in use
NOISE AND VIBRATIONS		
17	Set up, implement, and regularly review a Noise and Vibration Management Plan (as part of the EMS) where nuisance is expected and/or has been substantiated. Include <u>ALL</u> of the following:	
	I.	Protocol with actions and timelines
	II.	Noise and vibration monitoring plan/protocol
	III.	Noise & vibration complaint response plan/protocol
	IV.	Noise and vibration reduction programme
		Not Applicable Noise nuisance is not expected or has been substantiated from the ETP. No previous complaints relating to noise from the installation.
		Not Applicable Noise nuisance is not expected or has been substantiated from the ETP. No previous complaints relating to noise from the installation.

BATc number	Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
18	Techniques to prevent, or where not practicable reduce noise and vibration emissions. Use one or a combination of the following:	
	a.	Appropriate location of equipment and buildings
	Currently Compliant Operator has stated that all process plant, ammonia plant, compressor and boilers are located within enclosed buildings.	
	b.	Operational measures – see examples
	Currently Compliant Operator has stated that deliveries and collections are planned to occur between 06:30 and 18:00. All plant is maintained as per manufacturer's specifications.	
	c.	Low-noise equipment – see examples
Currently Compliant Operator has stated the use of compressors as low-noise equipment.		
d.	Noise & vibration control equipment – see examples	Not Applicable All process plant is located within enclosed buildings
e.	Noise attenuation – see examples	Not Applicable All process plant is located within enclosed buildings
EMISSIONS TO WATER		
19	Optimise water consumption, reduce waste water generation and prevent or where not practicable reduce emissions to soil and water. Use an appropriate combination of the following:	
	a.	Water management – see examples
Currently Compliant The Operator has stated they reuse approximately 50 % of condensate for use as cleaning water, any further reuse is restricted by storage capacity. Use of mobile chemical dosing units further reduces use of cleaning water as ensures the correct amount of water and cleaning chemical		

BATc number	Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
		<p>is used. Optimised cleaning schedules reduce the requirement for washdowns. Hoses are fitted with automatic trigger shut-off. Dry cleaning of equipment is carried out first to reduce the use of water. The Operator has stated the monitor water use against a Key Performance Indicator. (KPI)</p>
	b.	Water recirculation Currently Compliant The Operator has stated they reuse approximately 50 % of condensate for use as cleaning water.
	c.	Impermeable surface Not compliant The Operator has stated there is currently no impermeable surfacing around the ETP, although are investigating the feasibility to install impermeable surfacing. An Improvement Condition (IC 2) has been included for the Operator to update NRW on progress towards compliance with this BATc.
	d.	Reduce likelihood and impact of tank/vessel overflows and failures – see examples Compliant in the future The Operator has stated they are currently investigating leak detection and failure analysis of the ETP. The Operator has stated that visual checks are undertaken, and these will be formalised in addition to additional ways of detecting leaks. An Improvement Condition (IC 2) has been included for the Operator to update NRW on progress towards compliance with this BATc.
	e.	Roofing of waste storage and treatment areas Currently Compliant All wastes stored for collection are stored in sealed compactors, hazardous wastes are stored internally.

BATc number	Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
f.	Segregation of water streams (being mindful of existing plant constraints)	Not compliant The current drainage system at the site involves uncontaminated surface water runoff and process effluent passing through the ETP for treatment. The Operator has begun an investigation as to whether it is feasible to separate the two systems or in fact discharge to foul sewer. It may be constrained by existing site layout and therefore would be come not applicable. An Improvement Condition (IC 2) has been included for the Operator to update NRW on progress towards compliance with this BATc.
g.	Adequate drainage infrastructure	Compliant in the future The current drainage system at the site involves uncontaminated surface water runoff and process effluent passing through the ETP for treatment. The Operator has stated drainage surveys will be conducted as part of the whole ETP process review investigation. An Improvement Condition (IC 2) has been included for the Operator to update NRW on progress towards compliance with this BATc.
h.	Design and maintenance provisions to allow risk-based leak detection and repair. Minimise use of underground components.	Currently Compliant Planned preventative maintenance is in place to identify leaks and initiate any repairs. Pumps have back-ups if one was to fail.
i.	Appropriate buffer storage capacity (being mindful of existing plant constraints)	Currently Compliant There is buffer storage available, with the total capacity being 3529 m ³ in the form of: Reception pit 900 m ³ , LUBEK tank 909 m ³ , Detritus 120 m ³ and Effluent towers 1600 m ³ . There is further work being completed by the Operator at

BATc number	Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
		investigating the feasibility of separating the two drainage systems (uncontaminated and process effluent) as currently both flow through the ETP.
20	Treat waste water using a combination of:	
	<i>Preliminary, primary and general treatment</i>	
	a.	Equalisation
	b.	Neutralisation
	c.	Physical separation Currently Compliant The Operator uses a 'detritus pit' which removes grit, silt and some organic matter.
	<i>Physico-chemical treatment</i>	
	d.	Adsorption Not applicable
	e.	Distillation/rectification Not applicable
	f.	Precipitation Not applicable
	g.	Chemical oxidation Not applicable
	h.	Chemical reduction Not applicable
	i.	Evaporation Not applicable
	j.	Ion exchange Not applicable
	k.	Stripping Not applicable
	<i>Biological treatment</i>	
	l.	Activated sludge process No information provided on this BATc, although BAT is considered achieved as a combination of the listed techniques.
	m.	Membrane bioreactor Currently Compliant The Operator uses an anaerobic filter media which is a fixed bed of bacterial biofilm is formed.

BATc number	Summary of BAT Conclusion requirement		Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	Nitrogen removal		
	n.	Nitrification/denitrification (where biological treatment used)	No information provided on this BATc, although BAT is considered achieved as a combination of the listed techniques.
	Solids removal		
	o.	Coagulation and flocculation	Currently Compliant The Operator uses two chemicals for flocculation and coagulation.
	p.	Sedimentation	Currently Compliant The Operator uses settling towers and final clarifiers.
	q.	Filtration (sand, micro, ultra)	Currently Compliant The Operator uses anaerobic filter beds and two external filter beds.
	r.	Flotation	Currently Compliant DAF – Dissolved Air Flotation unit is employed in the ETP
	BAT-AELs for DIRECT discharges to a receiving waterbody (mg/l)		
	Table 6.1 and its supporting notes. Monitoring requirements are outlined in BAT 7		
	TOC	10.0-60 10-100 for water-based liquid waste	Not applicable Use of BAT-AELs from main activity BRef, those contained within the main activity BRef are either the same or tighter. No additional parameters have been identified in the secondary BRef that need to be considered.
	COD (TOC is preferred)	30-180 30-300 for water-based liquid waste	Not applicable Use of BAT-AELs from main activity BRef

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	Suspended solids	5.0-60	Not applicable Use of BAT-AELs from main activity BRef
	HOI	0.5-10 applying to specific waste treatments	Not applicable
	Total N	1-25 for biological treatment and waste oil re-refining 10-60 for water-based liquid waste	Not applicable Use of BAT-AELs from main activity BRef
	Total P	0.3-2 for biological treatment 1-3 for water-based liquid waste	Not applicable Use of BAT-AELs from main activity BRef
	Phenol	0.05-0.2 for waste oil re-refining and physio-chemical treatment of waste with CV 0.05-0.3 for water-based liquid waste	Not applicable
	Free CN-	0.02-0.1 for water-based liquid waste	Not applicable
	AOX	0.2-1 for water-based liquid waste	Not applicable
	Metals & Metalloids – specific waste treatments as listed in Table 6.1		Not applicable
	As	0.01-0.05	
	Cd	0.01-0.05	
	Cr	0.01-0.15	
	Cu	0.05-0.5	
	Pb	0.05-0.1	
	Ni	0.05-0.5	
	Hg	0.5-5	

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	Zn	0.1-1	Not applicable
	Metals & Metalloids – treatment of water-based liquid waste		
	As	0.01-0.1	
	Cd	0.01-0.1	
	Cr	0.01-0.3	
	Hexavalent Cr [Cr(VI)]	0.01-0.1	
	Cu	0.05-0.5	
	Pb	0.05-0.3	
	Ni	0.05-1	
	Hg	1.0-10	
	Zn	0.1-2	
	BAT-AELs for INDIRECT discharges to a receiving waterbody (mg/l)		
	Table 6.2 and its supporting notes. Monitoring requirements are outlined in BAT 7		
	HOI	0.5-10 applying to specific waste treatments	Not applicable, no indirect discharges.
	Free CN-	0.02-0.1 for water-based liquid waste	Not applicable
	AOX	0.2-1 for water-based liquid waste	Not applicable
	Metals & Metalloids – specific waste treatments as listed in Table 6.2		Not applicable
	As	0.01-0.05	
	Cd	0.01-0.05	

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	Cr	0.01-0.15	Not applicable
	Cu	0.05-0.5	
	Pb	0.05-0.1	
	Ni	0.05-0.5	
	Hg	0.5-5	
	Zn	0.1-1	
	Metals & Metalloids – treatment of water-based liquid waste		
	As	0.01-0.1	
	Cd	0.01-0.1	
	Cr	0.01-0.3	
	Hexavalent Cr [Cr(VI)]	0.01-0.1	
	Cu	0.05-0.5	
	Pb	0.05-0.3	
	Ni	0.05-1	
	Hg	1.0-10	
	Zn	0.1-2	
EMISSIONS FROM ACCIDENTS AND INCIDENTS			
21	Techniques to prevent or limit the environmental consequences of accidents and incidents, as part of the Accident Management Plan. Use ALL of the following:		

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	a.	Protection measures – see examples	Compliant in the future The Operator has stated the Accident Management Plan does not currently meet BAT, therefore will be updated to meet the BAT requirements. An Improvement Condition IC3 has been included to ensure the Accident Management Plan is updated and meets the requirements of BAT.
	b.	Management of incidental or accidental emissions	
	c.	Incident/accident registration and assessment system – see examples	
MATERIAL EFFICIENCY			
22	Use materials efficiently by substituting materials with waste e.g. waste acids/alkalis for pH adjustment, fly ashes for binders		Not applicable
ENERGY EFFICIENCY			
23	Use energy efficiently by using both of the following techniques:		
	a.	Energy efficiency plan	Currently Compliant Energy efficiency, measurements of electricity and natural gas consumption are monitored and evaluated as part of the EMS, monitored on a monthly basis.
	b.	Energy balance record	Compliant in the future The Operator has stated further work needs to be done on producing an energy balance record. IC7 has been set in order for the Operator to provide information on how they meet the BATc.
REUSE OF PACKAGING			

BATc number	Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
24	Maximise the reuse of packaging as part of a Residues Management Plan (see BAT 1 XII.)	Compliant in the future The Operator has stated that all waste residues are monitored, and appropriate reuse, recycling or disposal options are sourced. The Operator conducts regular reviews of the waste and their destinations to ensure the best environmental options are being used. The reviews will be documented as part of the EMS, although currently no formal residues management plan has been submitted as part of the application, therefore an Improvement Condition (IC8) has been included in order for the Operator to product and submit a residues management plan.
BIOLOGICAL TREATMENT OF WASTE (GENERAL BAT)		
33	Reduce odour emissions and improve overall environmental performance by selecting the waste input (to ensure its suitability for biological treatment). See also BAT 2	Complaint in the future See BAT 2 above
34	Reduce emissions to air of dust, organic compounds and odorous compounds (including H2S & NH3) by using one or a combination of the following techniques:	
	a.	Adsorption – see S6.1
	Not Applicable No channelled emissions to air from ETP	
	b.	Biofilter – see S6.1
	Not Applicable No channelled emissions to air from ETP	
	c.	Fabric filter – see S6.1.
	Not Applicable No channelled emissions to air from ETP	
	d.	Thermal oxidation – see S6.1
Not Applicable		

BATc number		Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
			No channelled emissions to air from ETP
	e.	Wet scrubbing – see S6.1	Not Applicable No channelled emissions to air from ETP
	BAT-AEL for channelled NH₃, odour, dust and TVOC emissions to air from the biological treatment of waste (mg/Nm³) (ou_E/m³) <i>Table 6.7 and its supporting notes. Monitoring requirements are outlined in BAT 8</i>		
	NH ₃	0.3-20	Not Applicable No channelled emissions to air from ETP
	Odour	200-1000	Not Applicable No channelled emissions to air from ETP
	Dust	2.0-5.0	Not Applicable No channelled emissions to air from ETP
	TVOC	5.0-40	Not Applicable No channelled emissions to air from ETP
	Reduce the generation of waste water and reduce water usage by using ALL of the following:		
35	a.	Segregation of water streams (see also BAT 19f)	Not Compliant See BAT 19 above, an Improvement Condition (IC 2) has been included for the Operator to update NRW on progress towards compliance with this BATc.
	b.	Water recirculation	Currently Compliant See BAT19 above.
	c.	Minimisation of the generation of leachate	Not Applicable
BIOLOGICAL TREATMENT OF WASTE: AEROBIC METHODS			
36	Reduce emissions to air and improve overall environmental performance by monitoring and/or controlling key waste and process parameters. Include following elements:		

BATc number	Summary of BAT Conclusion requirement	Status/comment One of the following: Not Applicable, Currently Compliant, Compliant in the future (within 4 years of publication of BAT conclusions), Not Compliant
	Waste input characteristics e.g. C to N ratio, particle size	Not Applicable – one waste stream to the ETP
	Temperature and moisture content within windrows (Moisture monitoring not needed for enclosed processes where H&S issues have been identified)	Not Applicable – not composting
	Aeration of the windrow	Not Applicable – not composting
	Windrow porosity, height and width	Not Applicable – not composting
37	Reduce diffuse emissions to air of dust, odour and bioaerosols from open-air treatment steps. Use <u>ONE OR BOTH</u> of the following techniques:	
	a.	Use of semi-permeable membrane covers
	b.	Adaptation of operations to the meteorological conditions
Not Applicable – no open air		Not Applicable – no open air