Cyfoeth Naturiol Cymru
Natural Resources Wales

Natural Resources Wales Permitting Decisions

Maelor Foods Limited
Maelor Poultry Processing Plant

Decision Document

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Application for a Substantial Variation

The application number is: PAN-020892

The permit variation number is: EPR/AB3591ZQ/V004

The Operator / operator is: Maelor Foods Limited

The Installation is located at: Maelor Poultry Processing Plant, Pickhill Lane, Cross Lanes, Wrexham, LL13 0UE

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.
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- 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 Operator's proposals.

Contents

Glossary of acronyms and definitions used in this document.

AQIA-air quality impact assessment

BAT-Best available techniques

EMS-Environmental Management System

EPR- Environmental permitting regulations

HRA-habitats regulatory assessment

IED-Industrial Emissions directive

SAC-Special area of conservation

SSSI-Site of special scientific interest

1. Executive summary

1.1. Application summary

Maelor Foods Limited have applied to vary their existing Installation Permit to increase their poultry processing facility capacity from 1 million birds per week to 2 million birds per week by installing a second processing line, a new module handling system and an additional chiller plant inside the existing buildings. The changes proposed include the upgrading and improvement of their existing effluent treatment plant to accept and treat increased volume of process effluent, which will increase the sites treated wastewater discharge volume into the River Dee.

1.2. Our decision

We are minded to issue the variation for Maelor Poultry Processing Plant operated by Maelor Foods Limited.

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.

2. Receipt of the application

The application was received on 20/02/2023**.** In order for us to be able to consider the application duly made, we needed more information. We requested the following:

- Accident Management Plan.
- More information to support Noise Impact Assessment and Background Noise Survey.
- Clarification on inconsistencies within supporting documents, and correct document versions / appendices submitted with the application.

A letter requesting this information was sent to the Operator on 27/04/2023. Upon receipt of this information, on 11/05/2023, we were able to consider the application duly made. 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.

3. Confidential information

The Operator made no claim for commercial confidentiality, and we have not received information in relation to the application that appears to be confidential in relation to any party.

4. Legislation

The variation will be issued, under Regulation 20 of the Environmental Permitting (England and Wales) Regulations 2016 (as amended) (EPR). The Environmental Permitting regime is a legal vehicle which delivers most of the relevant legal requirements for activities falling within its scope. In particular, the regulated facility is:

- an Installation as described by the IED;
- subject to aspects of the Well-Being of Future Generations (Wales) Act 2015 and the Environment (Wales) Act 2016 which also have to be addressed.

We address the legal requirements directly where relevant in the body of this document. NRW is satisfied that the decision on this application 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 issuing the variation 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.

As the EPR regulator in Wales, NRW are required to determine any duly made permit application. This means that we must decide either to grant, or to refuse the variation based upon an objective assessment of the proposals against the detailed legal requirements of EPR. Our public participation statement[1] gives more information on what can, and cannot, be taken into account when making our permitting decision.

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

Any proposed development and wider associated activities will be required to be compliant with all relevant and applicable law, for example, environmental law, health and safety law, planning law. This other legislation acts largely independently of EPR (although they may be inter-related). Such other matters are beyond both the scope of this document, and of our regulatory remit and expertise and are not relevant to our EPR permitting decision. Ensuring compliance with all other regulation and obtaining any required consents (such as planning permission) is the responsibility of those undertaking the development and is regulated by the relevant appropriate authority for each.

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

5. Consultation

5.1. Consultation on the Application

We have carried out consultation on the application in accordance with the Environment Permitting Regulations 2016 (EPR), Industrial Emissions Directive (IED), our statutory Public Participation Statement (PPS) and our Regulatory Guidance.

A copy of the application is available on the public register for anyone to view. We advertised the application to the public by a notice placed on our website directing people to the public register, advising them of how they could arrange for copies to be made if required and how they can provide comments.

We also consulted with the following bodies, which includes those with whom we have "Working Together Agreements":

- Health & Safety Executive;
- Public Health Wales;
- Wrexham County Borough Council – Planning department;
- Wrexham County Borough Council – Environmental Health department.

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

The consultation started 01/06/2023 and ended on 29/06/2023.

A summary of consultation comments and our response to the representations we received can be found in Annex 3. We have taken all relevant representations into consideration in reaching our decision.

5.2. Draft Permit Consultation

We are now carrying out consultation on our draft decision. This consultation will begin on XX/XX/XXXX and end on XX/XX/XXXX.

6. Requests for information

Further information was requested during determination by way of several Schedule 5 Notices requiring the Operator to provide further information relating to the technical details of their proposal.

6.1. First Schedule 5 Notice

The first Schedule 5 Notice was sent on 22/06/2023 with a deadline for response of 27/07/2023. Information requested related to a revised Noise Impact Assessment. The Operator subsequently requested a 3-month extension to provide a response to the notice. A revised deadline of 27/10/2023 was agreed.

The Operator's initial response to the first Schedule 5 Notice was provided on 27/10/2023. The additional information supplied did not satisfy the requirements of the Schedule 5 Notice and so the Notice was re-issued on 15/11/2023 with additional information explaining why the initial response was not sufficient. The deadline for response date was extended to 13/12/2023. The Operator requested a further extension to provide the requested information, and a revised deadline of 31/01/2024 was agreed. The Operator's additional response was received on 31/01/2024 which we considered satisfied the request of the Schedule 5 Notice.

6.2. Second Schedule 5 Notice

A second Schedule 5 Notice was sent on 15/11/2023 with a deadline for response of 13/12/2023. Information requested related to CIRIA Assessment and the proposed secondary containment solution for the Effluent Treatment Plant.

The Operator's response to the Schedule 5 Notice was provided on 15/11/2023. The additional information supplied satisfied the requirements of the Schedule 5 Notice.

6.3. Third Schedule 5 Notice

A third Schedule 5 Notice was sent on 14/03/2024 with a deadline for response of 11/04/2024. Information requested related to Water Quality Assessment and modelling data.

The Operator's response to the Schedule 5 Notice was provided on 22/03/2024. The additional information supplied satisfied the requirements of the Schedule 5 Notice.

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

7. The Installation

7.1. The permitted activities

The regulated facility is currently an Installation which comprises the following activities listed in Part 2 of Schedule 1 to the Environmental Permitting Regulations:

- S6.8 A1 (b) Slaughtering of animals at a plant with a carcass production capacity of more than 50 tonnes per day;
- S6.8 A1 (d)(i) Treating and processing of animal raw materials intended for the production of food with a finished product production capacity of more than 75 tonnes per day;
- S5.4 A1 (a)(i) Disposal of non-hazardous waste in a facility with a capacity of more than 50 tonnes per day by biological treatment.

An installation also comprises "directly associated activities", which at this Installation include:

- Odour abatement plant;
- Chemical storage;
- Refrigeration plants;
- Water heating;
- Waste arisings handling and storage.

Together, these listed and directly associated activities comprise the Installation.
The variation will not add new installation activities to the site but will increase the through put of the existing permitted activities.

As the increase in Slaughtering of animals is above the threshold of more than 50 tonnes per day, the variation was deemed a substantial variation in line with our guidance RGN 8.

7.2. Changes to the installation

Maelor Poultry Processing Plant currently undertakes poultry slaughtering with a processing capacity (Phase 1) of 1 million birds per week. The installation includes a Wastewater Treatment Plant (WWTP) serving the processing plant, permitted to discharge up to 1,500m^3 of treated wastewater per day to the River Dee. The permit also includes a treating and processing activity for a cutting plant for processing of poultry portions (yet to be installed) up to 158 tonnes of product per day.

The changes requested by the Operator as part of this substantial permit variation are summarised below.

This substantial variation incorporates Phase 2, which will see the processing capacity double to 2 million birds per week with a second processing line to be installed inside the existing buildings. Under Phase 2 will also include the addition of flavourings / marinades to some whole bird products.

The existing bird reception and lairage are large enough to handle the additional live bird deliveries and the live bird holding building can accommodate the temporary holding of live bird delivery vehicles, pending unloading in the lairage during processing delays. A separate live bird holding building contingency is available to implement if required. A new module handling system will be installed inside the existing buildings.

Phase 2 will utilise the existing second gas stunning pit and the stunned birds will then go into Line 2 which will undertake bleed and defeather and subsequent steps as per Line 1. The defeather stage will be served by a second aeroscalder.

An additional 110% chilling capacity for whole birds is provided by a new fridge plant in the basement plus extra compressors and condenser added to the current plant.

The animal by-products (ABP) from Line 2 will be held in the existing ABP storage building which can accommodate sufficient trailers to ensure ABP are always stored inside prior to collection / dispatch. The existing blood tank will be used to hold the additional blood volume from Phase 2.
The wastewater arisings from the installation will increase by around 100%. Further capacity will be incorporated at the WWTP. Tertiary treatment is to be added to reduce emission concentrations by over 50% from current Phase 1 emission limits. Grey water volume for reuse will double and will be used within the module handling system.

The grey water usage will remain at around 25% of the overall water consumption. A sludge dewatering facility will be added at the WWTP to reduce the amount of sludge sent for offsite reuse.

Water consumption will increase proportionally to the birds/day rate and a second groundwater abstraction borehole will be utilised to supply potable water, subject to water abstraction licence approval.

The most odorous process areas are scalding / defeather and the ABP storage building. An additional chemical scrubber is to be added to treat the air to be extracted from these areas under Phase 2.

Under Phase 2 the current scrubber serving the WWTP will also be replaced with a larger unit with enhanced controls.

Hot water supply capacity will be increased by utilising heat recovery from various sources such as condensers and air compressors to supplement the existing boilers which have spare capacity. An additional boiler (512kWth) will serve the new aeroscalder on line 2.

Emission points to air will include 2 new emission points serving the exhausts from the 2nd chemical scrubber and the 2nd aeroscalder boiler. A new taller stack will be installed to disperse treated air from the replacement WWTP area scrubber.

8. Operation of the installation

8.1. Operator competence

The Operator is the sole operator of the Installation. We are satisfied that the Operator is the person who will continue to have control over the operation of the Installation after the variation is issued; and that they will be able to operate the Installation so as to comply with the conditions included in the permit, if issued. The decision was taken in accordance with EPR RGN 1 Understanding the meaning of operator[2].

8.2. Environmental Management System

The Operator has submitted a summary of their existing Environmental Management System (EMS) with their application, including operational plans which have been updated to address the changes covered in this variation application.

We have reviewed the application and 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.

The EMS includes an Environmental Emergency Response Plan which the Operator has submitted as part of this application. We have reviewed this and are satisfied that appropriate controls are in place to help reduce the occurrence and impact of any accidence that occur.

In order to ensure that the management system proposed by the Operator 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.

[2] RGN 1 Understanding the meaning of 'operator' (naturalresources.wales)

8.3. Operating Techniques

Installation activities and assessment of Best Available Techniques

The Operator has described the proposed equipment and operating techniques and compared these against the relevant guidance notes / Best Available Techniques conclusions (BATc) which for an installation of this type is as follows:

- 'How to comply with your environmental permit' V8, Natural Resources Wales October 2014;
- Slaughterhouses & Animal By Products BRef - Commission Implementing Decision (EU) 2023/2749 of 11 December 2023 establishing the best available techniques (BAT) conclusions, under Directive 2010/75/EU of the European Parliament and of the Council on industrial emissions, for slaughterhouses, animal by-products and/or edible co-products industries December 2023;
- Environment Agency Guidance EPR 6.11 Treating & Processing Poultry – March 2009;
- Food Drink & Milk (FDM) Bref and Commission Implementing Decision (EU) 2019/2031 of 12 November 2019 establishing best available techniques (BAT) conclusions for the food, drink and milk industries, under Directive 2010/75/EU of the European Parliament and of the Council.

We have reviewed the techniques proposed and consider them to represent BAT at this installation / meet the requirements.
We have specified that the Operator must operate the permit in accordance with descriptions in the application.

Efficient use of raw materials, water and energy

Having considered the information submitted in the application, we are satisfied that the Operator will ensure that raw energy, water energy is used as efficiently as possible.

The operator will be required to report energy usage under condition 4.2 and Schedule 4 of the permit.

9. The site

9.1. Site Plan

The Operator has provided an updated plan which we consider is satisfactory, showing the extent of the site of the facility and the existing and new emission points.

The updated plan is included in the permit and the operator will be required to carry on the permitted activities within the site boundary.

9.2. Site Condition Report

The proposal does not include the addition of any land and so a Site Condition Report was not required to support this application.

9.3. Site protection: 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.

As part of Phase 2, the Operator has proposed new secondary containment for the Wastewater Treatment Plant (WWTP).

The containment has been designed and will be installed in accordance with a Class 2 bund, as per guidelines in CIRIA C736 'Containment systems for the prevention of pollution'. The bund capacity is based 110% of the largest tank (Aeration Tank which is 1,780m^3). Therefore, the bund will be sized to contain 1,958m^3.

The Operator submitted updated site drainage plans, construction drawings providing detailed design. In order to allow vehicle access to the WWTP bunded area, the bunded area will be sloped away from the road entrance, with the entrance point is at the highest point to prevent rainwater / spills from escaping out of the WWTP area.

Two new concrete retaining walls are to be constructed to complete the WWTP area bunding. The new outer retaining wall (No1) will start from the WWTP access road entrance and join the existing 1m high concrete wall close to discharge point W1. The level falls to direct drainage / spills to the lower bunded area and into a 1.5m^3 sump pumping point from where it will be transferred into the raw effluent sump for processing through the WWTP.

The inner retaining wall (No 2) will be the same height as the top of the emergency pits (i.e., the floor level of the upper bunded area). This will provide a physical structure to facilitate the change in depth to the lower, deeper part of the bunded area.

All drainage inside the WWTP will collect in the raw effluent sump, either by gravity (upper area) or by pumping from the new sump pumping point (lower area).

The surface water drains leading to W2 and W3 are existing deep culverts with no direct drainage connections to the WWTP bunded area. The entire WWTP area will be concrete hardstanding so there will be no potential pathways into the surface water drainage or ground, in accordance with the CIRIA guidelines.

We have decided to include a pre-operational condition within the permit requiring the operator to submit to NRW a report, prepared by a qualified engineer (or equivalent) confirming that the proposed containment system has been constructed to the standards and descriptions provided within the application.

Based upon the information in the application and following discharge of the pre-operational condition, we are satisfied appropriate measures will be in place to protect the site and its surroundings from polluting substances.

10. Environmental Risk Assessment

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 have been considered during are determination and the relevant risks from this proposal are discussed in this and other sections of this document.

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

In line with our guidance, the Operator has provided an environmental risk assessment with the application which identifies and the sources of key risks from the variation,

possible pathways and receptors. This risk assessment and further assessments provided by the Operator and/or completed by NRW will be discussed in further detail below.

10.1. Assessment of impact on air quality

This section of the decision document deals primarily with the dispersion modelling of the point source emissions to atmosphere and their impact on local air quality.

The Operator has assessed the Installation's potential emissions to air against the relevant air quality standards, and the potential impact upon human health in line with relevant guidance[3]. These assessments predict the potential effects on local air quality from the Installation's stack emissions.

The Installation currently comprises four boilers. One additional boiler (Aeroscalder 2) which will have a thermal input capacity of 512kWth input is proposed as part of the expansion of the facility.

The air impact assessment, and the dispersion modelling has been based on the Installation operating continuously at the relevant long-term or short-term emission limit values.

The submitted Air Quality Impact Assessment (AQIA) and Odour Impact Assessment (OIA) included fifteen residential receptors while the AQIA included an additional ten environmental receptors covering five habitat sites for assessment of impacts. The AQIA dispersion modelling considered the short term 99.79th percentile of NO_2 hourly averages and the annual long term NO_2 averages for comparison against the associated National Air Quality Objectives (AQOs) at residential receptors while the predicted annual and daily (24 hour) average NOx at habitat receptors was compared against the Environmental Standards for the protection of conservation areas.

[3] Air emissions risk assessment for your environmental permit - GOV.UK (www.gov.uk)

Submitted modelling was carried out in CERC's Atmospheric Dispersion Modelling System (ADMS) Version 5.2.4 using five years (2017 to 2021) of meteorological data and included the effects of nearby buildings and terrain.

Two scenarios were considered in the submitted modelling:

- Total emissions from existing normal operating conditions (comprising 4 boilers);
- Total emissions from proposed operations following implementation of upgrades required to accommodate the processing capacity increase (comprising 5 boilers).

The total predicted short term and long-term process contributions (PCs) of NO2 at residential receptors are below 10% and 1% of the associated AQOs respectively. Our check modelling broadly agrees with the results presented.

The predicted long (annual) and short term (24 hour) PCs at habitat receptors' are all below 1% of the long and short term environmental standards for protected conservation areas respectively. While our check modelling indicated that the predicted short-term PC may exceed 1% at the River Dee and Bala Lake SSSI and SAC (short term: 3.6%), this remains below 10% of the short term environmental standard for protected conservation areas. We have determined that our check modelling did not indicate that the Predicted Environmental Concentrations (PEC) were likely to exceed 70% of the long- and short-term environmental standards at any receptor. While we identified additional receptors within the required screening distance not assessed in the submitted report, our check modelling indicated that the PC was less than 100% of the environmental standard in all cases for both long- and short-term predictions.

The PC of nitrogen deposition (N-dep) at habitat receptors is below 1% of the lower critical load (CLo) with the exception of three receptors representing the River Dee and Bala Lake SSSI and SAC (maximum: 2.4%). The AQIA report submitted indicated that the PC due to emissions from the new boiler alone account for less than 1% of the N-dep critical load at these three receptors (maximum: 0.4%).Our checks indicate

that while the maximum PC may exceed 1% of the N-dep CLo at the River Dee and Bala Lake SSSI and SAC (maximum: 2.8%), the contribution from the proposed new boiler alone is unlikely to exceed 1% of the CLo.

With the exception of woodland associated with the Midland Meres & Mosses Ramsar, the modelled habitat receptors are not sensitive to acidification due to nitrogen deposition with the PC from the submitted modelling at these relevant receptor locations less than 1% of the associated CLo for acidity (maximum: <0.1%). Our check modelling broadly agrees with the submitted results for acidity due to nitrogen deposition at habitat receptors.

Emission limits

As the new boiler (Aeroscalder 2) which will have a thermal input capacity of 512kWth, this boiler falls below the Medium Combustion Plant Directive 1MWth threshold, therefore no emission limits apply.

10.2. Assessment of impact to surface and ground water

The variation application includes proposals to upgrade and improve the Installations existing effluent treatment plant to accept and treat increased arisings of effluent, which will result in an overall increase in the sites treated wastewater discharge volume into the River Dee.

A water quality modelling assessment was submitted with the application. The assessment used the Environment Agency's River Quality Planning (RQP) Monte Carlo tool to model the effect of the discharge on the downstream river quality, specifically for determinands: BOD, ammonia, orthophosphate, iron, chloride, and pH. A mass balance spreadsheet tool was used to model the resultant river temperature downstream of the discharge.

The assessment results were based on proposed discharge flows for an mean daily average of 2,400 m^3/day and a maximum daily flow of 3,120 m^3/day, with discharge quality based on the concentrations expected with additional tertiary treatment in place at the site.

Iron and chloride were assessed using the H1 tool and screened out of any further investigation and did not require modelling using RQP.

The river quality modelling assessment showed that the predicted impact of increased discharge, that had undergone tertiary treatment, was small, with a <4% decrease predicted in downstream BOD, ammonia, and orthophosphate concentrations when compared to the current discharge. No change was observed in pH. Modelled downstream river concentrations for the four determinands assessed were lower than the face value of the relevant river standard.
The monthly temperature modelling showed a very small increase (to the second decimal place) in river temperature for the current and proposed discharges, under both average and Q95 (low) flow conditions in the river.

The assessment results show a slight improvement in river quality for BOD, ammonia, and orthophosphate downstream of the proposed increased when compared to the impact of the current discharge on the river.

The River Dee is designated as a SAC and has phosphorous standards set in NRW's draft SAC management plan which vary for different stretches of the river. A SAC Habitats Assessment was submitted by the Operator to support their application.

The Chester Weir to Ceiriog stretch of the River Dee, into which the sites current effluent discharges into, will receive a small increase in treated sewage volume discharged to the River Dee of 6.25m^3/day.

The discharge volume from the Sewage Treatment Plant (STP) will be 0.2% of the total volume to be discharged from the onsite wastewater effluent treatment plant (ETP) (3,120m^3/day) serving the factory.

Our check modelling broadly agrees with the submitted results and conclusions made within the assessment, that in all cases the level of deterioration for Ammonia, BOD and Phosphate are within acceptable levels to ensure continued compliance and safeguarding of the current WFD class.

A Water Framework Directive (WFD) Compliance Assessment has been completed and it has been concluded that the activity us considered as having no risk of causing deterioration or preventing any water body or WFD Protected Area from reaching its objectives. This assessment is available on the public register to view.

Modelling also showed that the additional input of phosphorus is within acceptable levels for a passing SAC, meeting current guidance for assessment of discharges to a phosphorus sensitive SAC catchment, with additional loading being less than 3% of the SAC phosphorus target.

Therefore, the limits proposed by the Operator as detailed within their application for BOD 10mg/l, ammonia 2mg/l and phosphorus 1000ug/l (1mg/l) are considered acceptable.

The variation application does not include any changes proposed to clean uncontaminated surface water drainage to surface waters which will remain as listed on the permit as point source emission W2.

Emission Limits

We have decided that emission limits should be set for the parameters listed in the permit. Details of the emission limits set are detailed within Section 12 below.

Based upon the information in the application we are satisfied that the appropriate measures will be in place to prevent pollution of ground and surface water.

10.3. Emissions to sewer

The site does not include any discharges to sewer.

10.4. Fugitive emissions

The Operator has identified that the primary potential sources of fugitive emissions from the site will remain the Lairage, Effluent Plant Open Sources, Effluent Plant Covered Sources, Chiller Plant, ABP storage and handling areas. There is also a low potential of fugitive emissions of dust from the Lairage when doors are opened for

vehicle access and egress. The application details measures which will be in place for preventing and minimising fugitive emissions.

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.

Permit condition 3.2.1 requires that emissions of substances not controlled by emission limits (i.e., fugitive emissions) shall not cause pollution. Condition 3.2.2 requires that a management plan shall be developed if pollution is subsequently identified.

10.5. Assessment of odour impact

There are sensitive receptors within the vicinity of the Installation. The Operator has identified the following additional sources of odour in their environmental risk assessments from the changes proposed:

- additional chemical scrubber with associated fifteen metre stack to treat processing line emissions;
- upgrading of chemical scrubber with associated fifteen metre stack to treat wastewater treatment plant (WWTP);
- new sludge dewatering plant.

An Odour Impact Assessment (OIA) and associated dispersion modelling (prepared by RSK Environment Ltd) was submitted with the application.

Submitted modelling was carried out in CERC's Atmospheric Dispersion Modelling System (ADMS) Version 5.2.4 using five years (2017 to 2021) of meteorological data and included the effects of nearby buildings and terrain. Two scenarios were considered in the submitted modelling:

- Total emissions from existing normal operating conditions.

- Total emissions from proposed operations following implementation of upgrades required to accommodate the processing capacity increase.

The Operator based odour emission rates for the processing line scrubber emissions on measured odour concentrations from January 2022 while emissions from the WWTP scrubber were based on measurements from 2018. All other open-source emissions have been based on library data for similar processes in the wastewater treatment industry.

The OIA and associated dispersion modelling considered impacts at the same fifteen residential receptors included in the AQIA and compared the 98th percentile of predicted hourly impacts at each receptor against benchmark odour concentrations assigned to each receptor based on the consultant's assessment of the associated receptor sensitivity, with residential receptors assigned the benchmark of 1.5 to 3.0 ouE/m^3.

The modelling concluded that the predicted 98th percentile of hourly odour concentrations over five years at nearby residential receptors does not exceed the odour benchmark for the most offensive odours of 1.5 OUE/m^3.

While our check modelling indicated that there was a possibility that the 1.5 OUE/m^3 benchmark for the most offensive odours may be exceeded at three residential receptors identified, none exceeded the 3 OUE/m^3 benchmark for moderately offensive odours (maximum: 2.17 OUE/m^3).

Our check modelling broadly agrees with the Operators' submitted results and conclusions.

The Operator has submitted an Odour Management Plan (OMP) which details various measures to minimise and mitigate odour issues.

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.

Condition 3.3.1 in the permit will also require that emissions from the activities are free from odour at levels likely to cause pollution outside the site. We are satisfied that this will be sufficiently protective in conjunction with the measures described by the Operator for minimising odour at the installation.

10.6. Noise and vibration assessment

There are sensitive receptors within the vicinity of the installation. The Operator has identified new sources of noise as a result of the changes proposed in their environmental risk assessment. The primary sources include exhausts from the Cooling System; Louvres exhausts; HVAC units; Aeration Blowers & Pumps – Effluent Treatment Plant; and the new Scrubber Unit.

Noise Impact Assessment Modelling was submitted with the application but following initial assessment, additional information was request.

After several iterations submitted, a final revised Noise Impact Assessment was subsequently submitted on 27/10/2023 and final draft on the 31/01/2024 (see section 6.1 for more detail). Our assessment has been based on this revised assessment.

Our primary concerns with initial iterations of the Noise Impact Assessment, were that the whole plant noise hadn't been considered in the assessment; the background sound levels used in the assessment included the existing site operations; justification for acoustic penalties were not sufficient; further context was required around the impact; and a small number of other minor issues. The revised Noise Impact Assessment has addressed all of the relevant concerns listed above.

The results from the revised Noise Impact Assessment show that the existing site currently causes an adverse impact at receptors, and the variation to double the capacity will further increase this impact at a number of sensitive receptors. As a result,

the assessment has proposed significant noise mitigation measures be installed on site, to reduce the impact at all receptors.

If mitigation is installed as detailed in this assessment, then the impact from the future site (expansion included) will likely be lower than the current operations. This will show a betterment for the site and surrounding area. However, this is contingent on all of the mitigation detailed in this assessment being installed as described, therefore a Pre-Operational Condition has been included within the permit to ensure proposed mitigation measures are installed. A further Improvement Condition has also been included requiring the Operator to undertake further assessment once mitigation measures are in place and Phase 2 Operations have commenced, in order to establish if actual noise emissions are as per predicted levels within the application.

Our assessment concludes that overall, we agree with the consultant's conclusions that predicted noise impacts as a result of the proposed site are likely to cause an adverse or significant adverse impact at the receptors assessed without additional mitigation, however, this can be dramatically reduced with the proposed mitigation.

The Operator has submitted a Noise Management Plan (NMP) which details various measures to minimize and mitigate noise issues.

The NMP will be incorporated into the operating techniques section of the permit.

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 noise.

Conditions 3.4.1 of the permit requires noise from the activities to be below that which could cause pollution outside the site. We are satisfied that this will be sufficiently protective in conjunction with the measures described by the Operator for minimising noise at the installation.

11. Impact on National Site Network Sites, SSSIs and non-statutory sites

The Operator has used conservative screening distance criteria to identify relevant protected conservation sites which could be at risk from the proposal. We are in agreement with the screening distances used.

A full assessment of the variation application and its potential to affect the identified sites has been carried out as part of the permit determination process. National Site Network sites, Sites of Special Scientific Interest (SSSI) and non-statutory conservation sites will be discussed separately below.

11.1. The National Site Network

The following National Site Network sites are located within 1 km of the installation:

- River Dee and Bala Lake SAC UK0030252

The potential for the project to affect the following Natura 2000 sites was also initially considered, but were ruled out without further consideration:

- Johnstown Newt Site SAC UK0030173.
- Midland Meres and Mosses Ramsar UK11080.

These two sites were ruled out as whilst there is a theoretical pathway via atmosphere from the proposed new boiler, the impacts were screened out requiring no further assessment, as the distance to these two sites are over 7 kilometres, and beyond the screening distance of 750 meters for a combustion unit with a thermal input of less than 2 MWth. There is also no impact pathway for effluent discharge as there is no hydraulicly linked to these sites from the Installation.

A Habitat Regulations Assessment (HRA) was completed to assess the potential to affect any of the sites identified. In light of the conclusions of an appropriate assessment and taking account of the advice received from NRW's protected sites

advisors, it has been established that the project will not adversely affect the integrity of any National Site Network site, taking into account any conditions or restrictions as applicable, either alone or in-combination with other plans and projects (as documented in section 4 of OGN 200 Form 1, and section 5). The full assessment is available to view on the public register.

11.2. Sites of Special Scientific Interest (SSSI)

The following SSSIs are located within 1 km of the installation:

- Afon Dyfrdwy (River Dee).

As a Section 28G Authority as defined in the Countryside Rights of Way Act 2000 permitting teams within NRW has a legal duty, under Section 28I of the Wildlife and Countryside Act 1981, to consult with NRW for formal advice when permitting an activity which has been determined to be likely to damage the features of a SSSI.

To determine if consultation is required, a SSSI Assessment was completed. The assessment concluded that the proposed permission is not likely to damage any of the flora, fauna or geological or physiological features which are of special interest.

A copy of the assessment (PAN-020892 Appendix 4 assessment) is available to view on the public register.

12. The Permit Conditions

12.1. Incorporating the variation

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

These descriptions have been specified in the Operating Techniques table (Table S1.2) in the permit.

12.2. Emission Limits

Article 14(3) of IED states that BAT conclusions shall be the reference for permit conditions. Article 15(3) further requires that under normal operating conditions; emissions do not exceed the emission levels associated with the best available techniques as laid down in the decisions on BAT conclusions.

BAT conclusions set out specific limits that the operator must comply with. Modelling has been used to demonstrate that the operator will be able to comply with the emission limits described as BAT.

There are no emission limits required for combustion units sized less than 1MW thermal input capacity. We have therefore not included any emission limits for the new boiler.
There are also no emission limits associated with the new scrubbers.

There are however emission limits required for emissions to surface water from the effluent treatment plant (emission point referenced W1). Emission limits have been set tighter than the limits set out within the BAT conclusions in order to address the SAC phosphorous standards and NRW's policy of no additional pollutant loading on the river.

Tertiary treatment to be installed (in the form of a membrane bioreactor plant will be added and will replace the existing clarifier tank and final filter) will reduced current emissions, thus providing a betterment to the current emissions.

Current permit limits are as follows:

- Current average daily flow 1,200 m^3/day
- Current maximum daily flow 1,500 m^3/day
- BOD 20 mg/l
- Total suspended solids 30 mg/l
- Ammonia 5 mg/l
- Orthophosphate 2.5 mg/l

- pH 6 to 9
- Iron - mg/l
- Chloride - mg/l
- Temperature 30 °C

Proposed new limits for discharge to surface waters will be:

- Proposed average daily flow 2,400 m^3/day
- Proposed maximum daily flow 3,120 m^3/day
- BOD 10 mg/l
- Total suspended solids 15 mg/l
- Ammonia 2 mg/l
- Orthophosphate 1 mg/l
- pH 6 to 9
- Iron - mg/l
- Chloride - mg/l
- Temperature 30 °C

12.3. Monitoring

We have incorporated the changes to the emissions from site within the tables listed in Schedule 3 of the permit. The new point source emissions to air have been included within Table S3.1 however no monitoring requirements have been set.

12.4. 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.

12.5. Pre-operational conditions

Based on the information in the application, we consider that we need to impose pre-operational (PO) conditions. Details of the pre-operational conditions used can be found in Annex 1. We have included two new pre-operational conditions which require approval prior to Phase 2 Operations commencing. These are as follows;

PO3 requires the Operator to install all noise abatement and mitigation measures as proposed within document reference Maelor Foods Ltd. Second Sch 5 RESPONSE Final For Issue Ver 1.3, (dated 29/01/2024) prior to Phase 2 operations commencing.

PO4 requires the Operator to submit for written approval (by Natural Resources Wales) a report by a qualified engineer (or equivalent) confirming that the proposed containment system has been constructed to the standards and descriptions provided in the documents reference: Response to Schedule 5 dated 15.11.2023 - WWTP bund & site drainage 01122023; Schedule 5 No2 Appendix 3 – proposed retaining wall plan – Ref 13483-001 – Rev F; Schedule 5 No2 Appendix 4 – proposed retaining wall plan advising proposed storage Rev D; and Schedule 5 No2 Appendix 2 - WWTP Phase 2 Layout Plan. The report should reference the CIRIA 736 guidance. The operator shall submit the report to Natural Resources Wales for approval prior to Phase 2 operations commencing.

Previous pre-operational measures referenced within the permit have been completed, thus Table S1.4A has been updated to reference PO1 and PO2 as Complete.

12.6. Improvement conditions

Based on the information in the application, we consider that we need to impose improvement conditions (IC). Details of the improvement condition included can be found at Annex 2.

We have included an Improvement Condition (IC4) requiring the Operator to undertake a BS 4142:2014+A1:2019 Noise Impact Assessment following the successful commissioning and establishment of routine steady operation[4] of Phase 2.

The Operator shall undertake a BS 4142:2014+A1:2019 noise impact assessment following guidance set out in Noise and Vibration Management: Environmental Permits

[4] Routine steady operation is defined as “normal operation” consists of any operation of the plant not including shut-down and abnormal operation, unless additional definitions are agreed in writing with Natural Resources Wales

and Method implementation document (MID) for BS 4142, to demonstrate that impacts do not exceed those specified in the Noise report “Document Reference Maelor Foods Ltd. Second Sch 5 RESPONSE Final For Issue Ver 1.3” dated 29/01/2024. Upon completion of the work, a written report shall be submitted to Natural Resources Wales for approval.

Previous Improvement conditions referenced within the permit have been deemed complete, thus Table S1.3 has also been updated to reference IC1, IC2 and IC3 as Completed.

13. OPRA

The OPRA score has not changed as a result of this variation which remains as a score of 83.

ANNEX 1: Pre-Operational Conditions

Pre-Operational Conditions PO3 and PO4 have been included within the permit.

Table S1.4A Pre-operational measures	
Reference	Pre-operational measures
PO3	The Operator shall install all noise abatement and mitigation measures proposed within document reference Maelor Foods Ltd. Second Sch 5 RESPONSE Final For Issue Ver 1.3, (dated 29/01/2024) prior to Phase 2 Operations Commencing. Upon completion of the work, a written report shall be submitted to Natural Resources Wales for approval
PO4	The operator shall submit for written approval a report by a qualified engineer (or equivalent) confirming that the proposed containment system has been constructed to the standards and descriptions provided in the documents reference: • Response to Schedule 5 dated 15.11.2023 - WWTP bund & site drainage 01122023; • Schedule 5 No2 Appendix 3 – proposed retaining wall plan – Ref 13483-001 – Rev F; • Schedule 5 No2 Appendix 4 – proposed retaining wall plan advising proposed storage Rev D; and • Schedule 5 No2 Appendix 2 - WWTP Phase 2 Layout Plan. The report should reference the CIRIA 736 guidance. The operator shall submit the report to Natural Resources Wales for approval prior to Phase 2 Operations commencing

ANNEX 2: Improvement Conditions

The Improvement Condition IC4 have been included within the permit.

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
IC4	Following successful commissioning and establishment of routine steady operation1 of phase 2, the Operator shall undertake a BS 4142:2014+A1:2019 noise impact assessment following guidance set out in Noise and Vibration Management: Environmental Permits and Method implementation document (MID) for BS 4142, to demonstrate that impacts do not exceed those specified in the Noise report "Document Reference Maelor Foods Ltd. Second Sch 5 RESPONSE Final For Issue Ver 1.3" dated 29/01/2024. Upon completion of the work, a written report shall be submitted to Natural Resources Wales for approval.	Within six months from routine steady operation of Phase 2 Operations Commencing

ANNEX 3: Consultation Reponses

1. Advertising and consultation on the Application

The application has been advertised and consulted upon in accordance with Natural Resources Wales Public Participation Statement. Responses to this consultation and how we have taken consultation responses into account in reaching our draft decision is summarised in this Annex.

Consultation Responses from Statutory and Non-Statutory Bodies

Response Received from Public Health Wales	
Brief summary of issues raised:	**Summary of action taken / how this has been covered**
Best Available Techniques (BAT) and management controls	Providing the information submitted within the application is accurate and BAT is applied, PHW have no grounds for objection. BAT Assessment was carried out as part of NRW's determination of the variation application
Environmental Management System	PHW suggested that an accredited Environmental Management System (EMS) be implemented to address regulatory requirements. A summary of the site's existing EMS was submitted with the variation application, along with operational documents which were updated to address the changes covered within the variation application. The updated EMS operational documents were reviewed as part of the permit determination process and the revised documents referenced within Table S1.2 of the permit.

Consultation Responses from Members of the Public and Community Organisations

None Received.

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

Response Received from	
Brief summary of issues raised:	**Summary of action taken / how this has been covered**

Representations from Community and Other Organisations

Response Received from	
Brief summary of issues raised:	**Summary of action taken / how this has been covered**

Representations from Individual Members of the Public

Response Received from	
Brief summary of issues raised:	**Summary of action taken / how this has been covered**

2. Advertising and consultation on the draft decision

To be completed after draft consultation has ended.