Cyfoeth Naturiol Cymru
Natural Resources Wales

Natural Resources Wales permitting decisions

Mr William Bedell (Neuadd Isaf Poultry Farm)

Decision Document

Contents

Substantial Variation

The variation number is: EPR/HP3836MG/V006

The Operator is: Mr William Bedell

The Installation is located at: Neuadd Isaf Poultry Farm, Penybont, Llandrindod Wells, Powys, LD1 5SW

This document concerns an application made under the Environmental Permitting (England and Wales) Regulations 2016 (EPR) to vary an existing environmental permit. This is a draft decision document, which accompanies a draft permit.

It explains how we have considered the operator's application, and why we have included the specific conditions in the draft permit we are proposing to issue to the operator. It is our record of our decision-making process, to show how we have taken into account all relevant factors in reaching our position.

The document is in draft at this stage, because we have yet to make a final decision. Before we make this decision we want to explain our decision to the public and other interested parties, to give them a chance to make relevant representations to us. We will make our final decision only after taking into account any relevant representations.

We have are minded to issue the variation for Neuadd Isaf Poultry Farm operated by Mr William Bedell.

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 Operator's proposals.

1. Receipt of application

The application was accepted as duly made on **21/02/2022.** This means we considered it was in the correct form and contained sufficient information for us to begin our determination, but not that it necessarily contained all the information we would need to complete that determination.

1.1. Confidential information

The applicant made a claim for commercial confidentiality for information submitted in response to a Schedule 5 Notice information request. We have accepted the applicants claim for commercial confidentiality (see Notice dated 23/09/2022).

2. Requests for further information.

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

- site drainage plan
- an odour assessment
- ammonia modelling files and;
- a manure management plan.

A letter requesting this information was sent to the applicant on 15/02/2022 and the requested information was provided on the 18/02/2022. Upon receipt of this information, we were able to consider the application duly made.

Further information was requested during determination by way of a Schedule 5 Notice requiring the applicant to provide further information relating to the Odour Modelling. The Schedule 5 Notice was sent on 26/07/2022 with a response date of 23/08/2022. The applicant's initial response to the Schedule 5 Notice was provided on 26/07/2022. The additional information supplied did not satisfy the requirements of the Schedule 5 Notice and so the Notice was re-issued on 23/08/2022 with additional annotations explaining why the information provided was not sufficient. The response date was extended to 13/09/2022. The applicant provided further information on 07/09/2022 (which was requested to be commercially confidential – see section 1.1) and

21/09/2022 which we considered satisfied the request of the Schedule 5 Notice (see section 10.3 for more information).

Several informal information requests were also made via email. These related to the Odour Assessment, proposed heat exchangers and drainage of clean uncontaminated water.

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

3. Consultation

The consultation requirements were identified and implemented. The decision was taken in accordance with RGN 6 High Profile Sites, our Public Participation Statement and our Working Together Agreements.

3.1 Consultation on the application

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

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

- Health & Safety Executive
- Public Health Wales
- Food Standards Agency
- Powys County Council – planning department
- Powys County 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 on the duly made application started on **22/02/2022** and ended on **22/03/2022**. An advert was also placed on our website.

Further details along with 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 determination.

3.2 Draft Permit Consultation

Our public participation statement[1] gives more information on what can, and cannot, be taken into account when making our permitting decision.

We are now carrying out a consultation on our draft decision. This is our standard process for substantial variations. This consultation began on **10/07/2025** and will end on **14/08/2025**.

4. Outline of the Application

The existing permit allows for the rearing of up to 170,900 broiler birds. This substantial variation is to vary this permit to increase the number of broiler birds permitted to 258,000. To accommodate this increase, 2 new buildings are to be built which will house 53,000 birds each (106,000 birds in total). The capacity for the existing buildings 1-4 will be amended , which will now house a maximum of 152,000 birds, a reduction on what was previously permitted (170,900).

The 2 new buildings will have air scrubbing systems installed. The main purpose of these wet scrubbers is to reduce ammonia emissions, but they will also reduce odour emission and other pollutants. In addition, it is proposed that new heat exchangers ("Multi-heat heating system") will be installed to the existing and new buildings which will be used for both pre-warming and heating the buildings during the crop cycle. The new heating system is intended to reduce ammonia emissions overall by reducing moisture in the sheds compared to the existing conventional direct heating systems (see section 10.1). The hot water delivered and used by the heat exchangers will be heated using the existing biomass boilers with generator back-up.

This variation will result in a reduction in ammonia emissions to air from the installation overall, as the emissions from the new buildings (5 and 6) with abatement are

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

predicted to be smaller than the reduction in emissions from the existing buildings (1-4) achieved with the new heating system.

5. The Facility

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

- Section 6.9 A(1)(a) - Rearing of poultry or pigs intensively in an installation with more than 40,000 places for poultry.

The limit of this activity will be changed on the permit as a result of this variation whereby the maximum number of broilers permitted will be increased from 170,900 to 258,000.

An installation may also comprise “directly associated activities”, which at the existing facility included:

- Biomass boiler
- Carcass incineration

As part of this variation, the following directly associated activities will also be added:

- Air scrubbers
- Dirty water storage
- Heat exchangers
- Feed silos
- Generator with bunded fuel tank
- Liquid Petroleum Gas tanks
- Chemical store

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

6. Operation of the Installation - Management

The applicant has stated in the application that following the variation they will have in place an Environmental Management System (EMS) that will meet the requirements

for an EMS in our guidance. The applicant submitted a summary of the EMS with their application which we consider satisfactory.

7. Legislation

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

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

We address the legal requirements directly where relevant in the body of this document. NRW is satisfied that this decision is consistent with its general purpose of pursuing the sustainable management of natural resources (SMNR) in relation to Wales, and applying the principles of SMNR. In particular, NRW acknowledges that it is a principle of sustainable management to take action to prevent significant damage to ecosystems. We consider that, in issuing 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.

All applicable European directives have been considered in the determination of the application.

7.1 Other Legal Matters relevant to the Facility

Our decision on whether to issue or refuse an EPR permit is defined by legal requirements. In our decision-making, we must ensure that our determination considers all relevant statutory requirements and provides the required level of protection to the environment. This involves assessment of impacts to air, water, land and any ecological receptors from the proposed activities.

NRW's function as the environmental permitting authority under EPR, only extends to the control of sources of pollution within the boundary of the regulated facility, which are capable of being controlled under the environmental permit. In addition and so as

to comply with its general public law duty, NRW's decisions must be reasonable, proportionate and procedurally correct.

The potential for pollution through the land use of a proposal is assessed through the planning application. The LPA is responsible for considering whether the location of the development is appropriate. NRW is an advisor to the Local Planning Authority (LPA).

8. The site

The existing site lies approximately two and a half kilometres East of Llandrindod Wells, Powys. The predominant land use surrounding the site is arable farming.

The 2 new buildings will be located to the south-east of the existing sheds. The Operator has applied to extend the site boundary as part of this variation and has provided an updated plan which we consider is satisfactory, showing the new extent of the facility. An updated plan has also been provided detailing air emission points and the new discharges of uncontaminated water to land from the new sheds and the locations of the dirty water tanks which will be used to store contaminated washdown water.

These plans will be included in the permit and the operator is required to carry on the permitted activities within the site boundary.

8.1 Site condition report

The applicant has provided description of the condition of the additional land being added to the site.

We consider this description is satisfactory. The decision was taken in accordance with our guidance on site condition reports – guidance and templates (H5).

9. Impact on National Site Network, SSSIs, non-statutory conservation sites

The applicant has used a screening distance of 5 km to identify relevant ecological receptors in line with Natural Resources Wales / Ammonia assessments: initial screening and evidence gathering (GN 020).

Relevant National Network Sites[2], Sites of Special Scientific Interest (SSSI) and non-statutory conservation sites will be discussed separately below.

9.1 The National Site Network

Our Habitats Risk Assessment (HRA) approach for an intensive poultry farm EPR permit application is limited to the assessment of any potential impact on the integrity of a European Site (i.e. SAC, SPA, Ramsar) from the proposed regulated activities carried out within the installation boundary.

As an advisor to the LPA, the land use planning process is an opportunity for NRW to raise any concerns in respect of manure management that may adversely impact on the quality of local water courses in line with our duties under the Water Framework Directive. However, once manure leaves the installation boundary, it is more appropriately assessed for HRA purposes by the LPA because there is no legal vires for this to be conditioned or regulated by the EPR permit for the installation. On this basis, our habitats regulations assessment for this application is necessarily limited to potential likely significant effects / adverse effects associated with regulatory activities carried out within the installation boundary and we defer any decision on off-site storage, disposal and application of chicken manure to the LPA.

The following National Site Network Site has been identified within 5 km of the installation:

- River Wye SAC

An OGN 200 Form 1 Habitat Regulations Assessment (HRA) was completed to assess the potential of the proposed variation to effect this site and a summary is given below.

Assessment of Likely Significant Effect:

[2] Previously referred to a Natura 2000/RAMSAR sites

The project has been screened for likelihood of significant effects and, taking account of the advice received from protected sites advisors, is considered to not likely to have a significant effect on the National Site Network (As documented in section 3.2 of OGN 200 Form 1). Therefore, an appropriate assessment was not required.

Form 1 and protected site advisor response – available on the public register (dated 03/11/2022 and 12/11/2022 respectively).

9.2 SSSI Assessment

The following SSSI's have been identified within 5 km of the installation:

- Cae Llwyn SSSI
- Cae Cwm-Rhocas SSSI
- Llanfawr Quarries, Llandrindod Wells SSSI
- Lake Wood, Llandrindod Wells SSSI
- Pentrosfa Mire SSSI
- Crabtree Green Meadows SSSI
- Gweunydd Coch-Y-Dwst SSSI
- Coed Aberdulas SSSI
- Moorlands Pastures SSSI
- Ithon Valley Woodlands SSSI
- Twenty-Five Acre Wood SSSI
- Graig Fawr SSSI
- River Ithon SSSI

An Appendix 4 form was completed to assess the potential of the proposed variation to affect this site. The assessment concluded the proposed condition is not likely to damage any of the SSSI's. Please refer to the Appendix 4 and section 10.1 of this report for more information.

Appendix 4 form – available on the public register (dated 28/05/2025).

9.3. Non statutory site assessment

Several sensitive Ancient Woodland sites have been identified within 5 km of the installation. The applicant provided ammonia modelling which predicted emissions of ammonia at these sites. The proposed variation was predicted to result in a betterment

in terms of impacts from ammonia emissions. As a result, there are no anticipated adverse impacts to non-statutory sites as a result of this variation. See section 10.1 for more information.

10. Environmental Risk Assessment

10.1 Air

Modelling and assessment approach

The principal pollutant emitted to air from Intensive Farming installations is ammonia.

The scope of assessment for impacts from ammonia emissions from intensive farming installations is usually restricted to sensitive habitat sites and detailed assessment of impact to human health is not required. We consider this appropriate as it has been established that it is unlikely that ammonia emissions from a well-run and regulated farm will be sufficient to cause ill health. Not assessing impact to human health is also in line with the Health Protection Agency on Intensive Farming permit applications (dated 2006).

Ammonia critical levels (Cle) are used as a standard to ensure sensitive habitat sites are protected and sustainable development is enabled. Depending on the habitats and species that may be adversely affected from ammonia emissions, a critical level of either 1 µg/m^3 or 3 µg/m^3 is to be used.

The relevant guidance[3] for assessing the impact of intensive farming activities on air quality advises ammonia “Process Contribution” (PC) (i.e., amount of ammonia that will be emitted from the development) should be determined and provided as a percentage of the identified sensitive sites Ammonia Cle.

If it can be shown that:

- When PC plus the background levels of ammonia at all relevant sensitive sites does not exceed the Cle and;
- there are no other sources of ammonia to consider

[3] Natural Resources Wales / How to interpret the results from your screening or modelling exercise for Ammonia Emissions (GN 020)

then emissions can be considered insignificant, no detailed modelling is required, and the application can progress.

However, if:

- PC plus background levels of ammonia at a sensitive site exceeds the Cle or;
- there are other sources of ammonia to consider

then detailed modelling is required.

If detailed modelling shows that PC is below 1% of the relevant Cle, the application can proceed regardless of background level providing there are no other sources of ammonia to consider which would not be included in the background data.

However, for an existing facility where a development proposal adequately demonstrates that there will be an improvement (i.e. reduction) when compared to existing emissions of ammonia, we may consider it also appropriate for the application to proceed, even if the PC remains >1%.

The applicant has provided modelling which has calculated PC of ammonia at the relevant ecological receptors for both the existing facility and the proposed expanded installation and compared these against the relevant Cle. Note the existing facility modelling has been based on the actual number of birds currently housed (152,000) not the existing permitted number (170,900). This is a conservative approach, as the existing scenario used for determining emissions would have lower predicted emissions than if the full permitted capacity was used. The applicant has not considered background levels of ammonia and this will be discussed below.

The modelling was undertaken using CERC's ADMS 5 and included effects of buildings and terrain on dispersion and used meteorological data (2017 to 2020 inclusive) interpolated from the short-term forecast fields of the Global Forecast System (GFS) Numerical Weather Prediction (NWP) system at the site location.

Modelling of existing emissions scenario

Emission rates for the existing scenario have been calculated using the standard emission factor of 0.034 kg NH_3/animal place/year for broilers[4]. Based on 152,000 chickens, total emissions from the existing site were calculated to be 5,168 kg NH_3/ year.

PC from ammonia emissions was calculated to be over 1% of the relevant critical level at the following sensitive sites for the existing scenario:

- River Wye SAC
- River Ithon SSSI
- Cae-Llwyn SSSI
- Cae Cwm-Rhocas SSSI
- A number of ammonia sensitive Ancient Woodland areas

The most impacted designated receptor was Cae Cwm-Rhocas SSSI where PC was predicted to be 4.6% of the relevant critical level (1.0 µg/m^3).

Modelling of proposed expanded facility scenario

For the proposed scenario, emissions from the existing sheds were also based on the standard emission factor, but with a 35% reduction rate applied (0.0221 kg NH_3/animal/year). This has been justified in the application by the proposal to install indirect heating (a multi-heat heating system) on the existing sheds. The new heating system will use hot water heated by the on-site biomass boilers (or back-up generators where required) and will be used for both pre-warming and heating the buildings during the crop cycle. Indirect heating systems such as these reduce ammonia emissions (in older style broiler housing which currently uses direct heating) by reducing moisture in the sheds and consequently reducing microbial activity and ammonia production.

Based on 152,000 chickens and an emission rate factor of 0.0221 kg NH_3/animal/year, total emissions from the existing shed, following installation of in-direct heating were predicted to be 3,359.2 kg NH_3/ year.

[4] Natural Resources Wales / Emission factors for poultry for modelling and reporting

During the determination of the application, the standard emission factors for poultry were updated[5]. The new emission factors specified different emission factors to be used depending on if houses are heated directly or in-directly:

- 0.035 kg / NH3 / animal place / year for houses with direct heating
- 0.024 kg / NH3 / animal place / year for house with indirect heating

This indicates an anticipated reduction of ammonia emissions were indirect heating is used of approximately 30%. As this is less of a reduction that proposed by the applicant, NRW re-calculated predicted emissions from the existing houses based on the new emission factor for houses with indirect heating. Based on 152,000 chickens, total emissions from the existing shed, following installation of in-direct heating was calculated to be 3,648 kg NH_3/ year. Although this indicates higher ammonia emissions than predicted by the applicant, this is still an improvement compared to the existing scenario.

Modelled emissions from the 2 new sheds have been based on the maximum emission concentration of 2 ppm from the scrubber model specified in the application (Inno+ Pollo-M 1-stage chemical air cleaner system). This performance is verified in the scrubbers DLG Test Report which was provided with the application.

The scrubbers provide the primary ventilation for the new sheds and each scrubber will be sized to remove a maximum 333,900 m^3 of air per hour (per shed). This is in alignment with NRW guidance[6], assuming birds will be grown to 2kg and the application stating the two new buildings will hold 53,000 birds each. When this capacity is exceeded, additional ventilation will be provided by summer cooling roof fans. These will only be used occasionally as a backup ventilation system and predicted emissions from these have been included within the applicant's modelling scenario.

The applicant has based modelled ventilation rates on the magnitude of difference between growth cycle requirements and ambient temperatures. These have been varied between a predefined minimum (of unknown origin) and a maximum based on ~4.7 m^3/kg live-weight/hour. Intervening rates (referred to as transitional and high in

[5] Natural Resources Wales / Emission factors for poultry for modelling and reporting
[6] Natural Resources Wales / Ammonia scrubber design and use

the submitted report) are based on 35% and 70% of the difference between the minimum and maximum ventilation rates added to the minimum ventilation rate for the corresponding bird weight/crop day.

NRW are in agreement as to how emission rates have been derived in the submitted modelling in this instance.

PC from ammonia emissions was calculated to be over 1% of the relevant critical level at the following sensitive sites for the proposed scenario:

- River Wye SAC
- River Ithon SSSI
- Cae-Llwyn SSSI
- Cae Cwm-Rhocas SSSI
- A number of ammonia sensitive Ancient Woodland areas

The most impacted designated receptor was Cae Cwm-Rhocas SSSI where PC was predicted to be 3.5% of the relevant critical level (1.0 µg/m^3).

Assessment of change in impact from proposed variation

While modelling of both the existing (baseline) and proposed facility indicated that ammonia impacts could not be considered insignificant, the results indicated that that at all sensitive sites, modelled PC from ammonia emissions was less for the proposed scenario when compared to the existing scenario. For the most impacted receptor (with reference both to PC and Cle, with consideration for site-specific feature sensitivity as well as screening criteria), the proposal indicates an ammonia PC reduction from 4.6% of Cle to 3.5% of Cle at Cae Cwm Rhocas SSSI. Further detail on impact at specific receptors is given in the application and the Appendix 4 SSSI Assessment referenced above.

The ammonia reduction has been achieved because the additional impact of the new buildings (with scrubbers) was more than offset by the reduction in ammonia from the existing buildings by the installation of the heat exchangers. Therefore, despite PC exceeding 1% of the above listed sensitive site's critical level, the variation is predicted to provide an improvement in terms of air quality.

As discussed above, the emission factors used in the application were updated during the determination of the application. NRW have that checked that when using the new emission factors, the emissions from the new sheds are still offset by the reduction achieved in the existing sheds. As the emissions from the new shed were modelled by the applicant based on the max ppm from the scrubbers, calculations have used the applicant's estimated emission factor from the sheds with the scrubber estimated in their report (0.0078 kg NH3/animal place/year). The updated calculations demonstrate that, although the magnitude of reduction is slightly lower than initially predicted by the applicant, the proposed variation would still result in an overall decrease in ammonia emissions from the site.

Please refer to calculation summary on the next page for further information.

Emissions Comparison Table: Existing vs Proposed Scenario (Original Assessment)

Scenario	Bird Numbers	Emission Factor (kg NH_3/bird/year)	Calculated Emissions (kg NH_3/year)	Notes
Existing Scenario	152,000	0.034	**5,168**	4 sheds, direct heating
Proposed Scenario (original)	152,000	0.0221 (35% reduction)	**3,359.2**	4 sheds, indirect heating (35% reduction)
+ Scrubber Sheds	106,000	0.0078	**826.8**	2 sheds, with air scrubbers
Total Proposed Emissions (original)	—	—	**4,186**	Combined total of above
Reduction from Existing	—	—	**−982**	Net reduction under 35% scenario

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Emissions Comparison Table: Updated Assessment Using NRW 2024 Emission Factors

Scenario	Bird Numbers	Emission Factor (kg NH_3/bird/year)	Calculated Emissions (kg NH_3/year)	Notes
Updated Indirect Heating (per new EF)	152,000	0.024	**3,648**	4 sheds, indirect heating using new standard EF
+ Scrubber Sheds	106,000	0.0078	**826.8**	As above
Total Proposed Emissions (updated)	—	—	**4,474.8**	Combined total of above
Reduction from Existing	—	—	**−693.2**	Net reduction using updated 2024 guidance

As discussed the applicant has not considered background levels of ammonia. However, this is considered acceptable in this instance where modelling from the farm alone indicate an improvement.

Conclusion

Despite the impact of the facility not screening out as insignificant against a 1% threshold, as the applicant has demonstrated that air quality in respect of ammonia will be improved by the proposed variation overall with application of scrubbers to new buildings, and retro-fitting of heat exchangers to existing buildings we consider the application should be issued without further consideration of PEC, given the reduction in impacts, and the magnitude of the PCs.

The permit will contain process monitoring requirements to ensure the scrubber continues to work effectively so that the overall reduction in emissions is achieved, see section 13. We have also specified that the operator send NRW confirmation that the appropriate operating techniques and training is in place prior to the operation of the scrubber.

10.2 Water

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

All contaminated water from the wash down of the new building and yard will be stored in underground dirty water tanks which will be built in line with recommendations set out in EPR6.09 ‘How to comply with your environmental permit for intensive farming’. When full, water from the tanks will be taken outside of the installation for spreading.

Clean uncontaminated water from the new building’s roofs will be diverted via a guttering system to soakaway. Some of this water will be held in an unlined attenuation pond prior to soakaway.

The applicant has confirmed that all manure will be exported from the site, with no storage or spreading of manure taking place within the installation boundary.

The operator, as well as any third parties receiving the manure, will be required to comply with the controls set out in the Water Resources (Control of Agricultural Pollution) (Wales) Regulations 2021 (CoAPR), which are designed to reduce water pollution from agricultural activities.

10.3 Odour

Control of odour emissions

One of the principal sources of odour emissions from the facility is ventilation air from poultry houses, including ammonia (which is itself odorous). Therefore the new heat exchangers heating system and the ammonia scrubbers on the new sheds, comprise key odour controls from the permitted facility.

As there are sensitive receptors within 400 metres of the installation, the applicant has submitted a Odour Management Plan (OMP) for the installation as required by EPR 6.09 'How to Comply with your Permit for Intensive Farming'.

The following further sources of odour have been identified by the applicant:

- Feed, including delivery and storage
- Problems with housing ventilation system, inadequate air movement within house leading to increased humidity and moisture content of litter
- Litter management, including use of insufficient or poor quality litter
- Carcase disposal
- House clean out

The OMP details various measures to minimise and mitigate odour issues including (but not limited to):

- Twice daily olfactory checks coinciding with stock inspections where any abnormalities are to be recorded and investigated.
- No on-site milling of feed and careful selection off feed (supplied from UKASTA accredited feed mill and reducing protein during the crop cycle
- Feed delivery systems are sealed to minimise atmospheric dust and any spillage of feed around the bin is immediately swept up
- The ventilation and heating system is regularly adjusted to match the age and requirements of the flock.

- Humidity recorded daily and maintained in the range of 55 – 65% keeping a balance of dry litter and avoiding dust production.
- Use of nipple drinkers with drip cups to minimise water spillage and hence manage moisture levels of the litter
- Carcasses to be placed into seal plastic bags and stored in sealed, shaded and vermin proof containers away from sensitive receptors.
- No litter to be stored on site at any time and all trailers to be sheeting before leaving fill position.

We have compared the measures proposed to minimise odour at for the site to the Best Available Techniques (BAT) standards in EPR 6.09 'How to Comply with your Environmental Permit for Intensive Farming' – Appendix 4 – 'Odour Management' and are satisfied that the techniques represent appropriate measures for the installation following this variation. The OMP will be incorporated into the operating techniques section of the permit. EPR 6.09 notes that preventing odour is rarely possible due to the inherently odorous nature of animals but there is a need to minimise odour and prevent it reaching neighbours. The sections below describe how the applicant has assessed odour impact from the facility, with the outlined controls in place.

Odour impact modelling approach and key issues

The H4 Odour Management Guidance is widely accepted and used in regulatory odour impact assessments. As set out in the guidance, the modelling method commonly used in the UK calculates a 98th percentile of hourly average odour concentrations over a year. The results are expressed as odour units ("European Odour Units") per cubic metre of air (OU_E/m^3).

Odour unit values are determined by a standard method given in; BS EN13725; 2003 Air quality: Determination of odour concentration by dynamic olfactometry.
The exposure benchmarks are:

- 1.5 OU_E/m^3 for most offensive odours;
- 3 odour OU_E/m^3 for moderately offensive odours;
- 6 odour OU_E/m^3 for less offensive odours.

Odours from poultry rearing are usually placed in the “moderately offensive” category. Therefore, the benchmark of 3 OU_E/m^3 has been used to assess the potential impact of odour on nearby sensitive receptors.

The applicant submitted an Odour Air Dispersion Modelling report using an Atmospheric Dispersion Modelling system (ADMS). Meteorological data from 2017 to 2020 inclusive was used and interpolated from the short-term forecast fields of the Global Forecast System (GFS) Numerical Weather Prediction (NWP) system at the site location. The submission was audited by NRW odour modelling experts, who noted the following points.

Odour emission rates used by the operator in the modelling from the proposed facility were derived from the calculated ventilation rates relative to crop cycle day and an internal odour concentration interpolated from an exponential relationship of proposed odour concentrations of ~300 OUE/m^3 at day 1, ~700 OUE/m^3 at day 16,~1800 OUE/m^3 at day 23 & ~2300 OUE/m^3 at day 34 of the crop cycle. The modelling used a un-justified diurnal factor, and relied upon a maximum odour concentration in emissions from the proposed scrubbing units of 1,200 OUE/m^3.

We were not satisfied that the application justified that the proposed approach, nor that the odour abatement performance was guaranteed, and we sought further information on several points via a Schedule 5 Notice (see section 2). The majority of the applicant’s responses are available on our online public register, but some involved proprietary data which we have accepted as confidential (see section 1.1).

Following detailed review, NRW agree that:

- internal odour concentrations used in the modelling are consistent with those presented in Robertson et al (2002). These values are consistent with those reported in NRW’s preferred use of emission factors for the purposes of risk assessment, Hayes et al (2006) and;
- The diurnal variation rates are reasonable

The use of the bespoke modelling parameters above by the applicant have been accepted by NRW on a case-specific basis in this instance, following detailed scrutiny of the technical case and their significance for each.

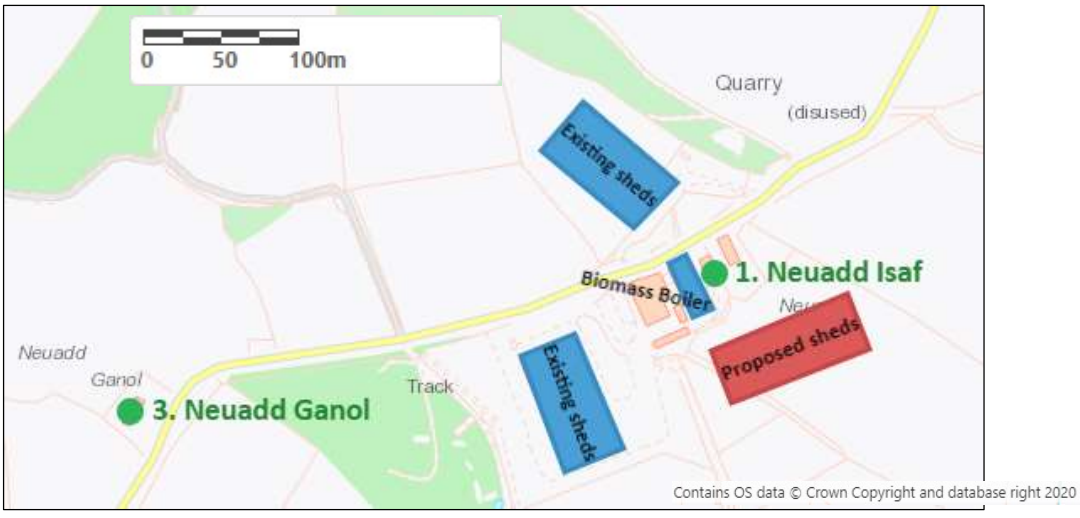
No evidence for the maximum external odour concentration from the proposed scrubbing units (1,200 OUE/m^3) was provided and this has been considered whilst assessing the odour modelling results and is discussed further below.

Odour Modelling results

The applicant's modelling predicted 98th percentile hourly mean odour concentrations at the 22 receptors identified and compared these against the benchmark for moderately offensive odours (3 OU_E/m^3). Two scenarios were modelled, using different settings on the modelling software. Scenario 2 is presented here as the one we consider most relevant to our determination.

The results indicate an exceedance of the benchmark for the moderately offensive odours at the following receptors:

Receptor	98th percentile hourly mean odour concentration
1. Neuadd Isaf	16.41 OU_E/m^3
3. Neuadd Ganol	3.61 OU_E/m^3



Receptor ‘1.Neuadd Isaf’ can be regarded as a non-sensitive receptor as it is directly linked to the installation. Therefore, discussion hereon will focus on impacts at receptor 3 ‘Neuadd Ganol’.

Check modelling by NRW (based on the applicant’s specification of the scrubber, that the external odour concentration will not exceed 1,200 OU_E/m^3 on the new sheds) agree with the applicant’s results although the maximum exceedance at receptor 3. was modelled to be slightly less than as predicted by the applicant.

It is noted that the modelled odour impacts at receptors are from both the existing permitted poultry buildings and the two new buildings. At receptors, approximately 87% - 99% of the odour impact can be attributed to the existing buildings.

Discussion of odour impacts

For cases such as this where exceedance of the odour benchmark is predicted, the Environment Agency’s H4 Odour Management Guidance explains there is a series of decisions involved in assessing the impact of odour which are:

- Is there serious pollution? And,
- Is the operator taking appropriate measures?

It is acknowledged that ‘There is no single method of reliably measuring or assessing odour pollution and any conclusion is best based on a number of pieces of evidence..’ The FIDOR acronym is a useful tool describing the factors that will determine the degree of odour pollution:

- **F**requency of detection
- **I**ntensity as perceived
- **D**uration of exposure
- **O**ffensiveness
- **R**eceptor sensitivity

When considering the **frequency** of the results disused above, the modelling reports results as 98th percentile hourly mean which is the hourly mean odour concentration that is equalled or exceeded for 2% over the year. Therefore the odour levels predicted above are likely for only 2% of the year when using conservative modelling. The

maximum odour emissions are expected to be during shed clear out at the end of each crop cycle, which will occur only approximately 7 times per year. It is anticipated that the maximum odour emissions will be on the first day of clear out and so the **duration** of the maximum odour impact is anticipated to be short (i.e. few hours within working hours).

As discussed, the **intensity** of the odour is predicted to be above the benchmark at a sensitive receptors. When considering intensity, **receptor sensitivity** is a relevant factor that can also be taken into account. In this case the receptor is a domestic dwelling and may be sensitive to odour from the facility. The degree of pollution increases with the size of the exposed population. In this case, only small number of individuals may be affected which represents a relatively small sensitive population. Sensitivity of this population will be affected by perceived odour **offensiveness**. As explained above, odour from this activity is generally classified as moderately offensive. However, where it is part of the existing location odour context, the perceived offensiveness is likely to be less.

These receptors are in a rural setting which includes other farming activity and the current poultry installation. There have been no previous odour complaints recorded for the installation, and from the modelling above, between 1% and 13% of the predicted odour impact is from the newly permitted activity, representing a small change in expected impact. It is generally considered that within a location context of this type, receptors will be more tolerant of relatively infrequent higher intensity agricultural odours than the generally applied screening threshold.

It is acknowledged that the modelling results are based the new sheds having a maximum external odour concentration of 1,200 OUE/m^3 as a result of the proposed scrubbing units which has not been fully substantiated as part of this application. If this odour concentration is exceeded, there is a risk that an exceedance of the benchmark may be seen at other receptors. However, as the majority of the odour emissions have been shown to be from the existing un-abated sheds, the risk of odour pollution should this maximum concentration from the scrubbers be exceed is considered low. Additionally, whilst odour reduction did not form part of the scrubber unit certification test, ammonia reduction has been verified by the proposed scrubbers DLG

certification. Odour from the new sheds will be reduced as a result of ammonia reduction achieved by using the scrubbers. NRW therefore accept that on the basis of available evidence, the stated scrubber performance is credible, and as explained below, the permit allows for further regulation if impacts are higher than modelled.

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. The process monitoring required by NRW and described in section 13 will provide continued assurance of scrubber performance, which is a key process control for odour.

Conclusion

Having considered all the information above, NRW have accepted the applicant's conclusion that odour is unlikely to cause serious pollution.

10.4 Noise and vibration

A risk assessment of the potential impact of noise from the site on nearby sensitive receptors has been carried out by the applicant. Potential sources of noise include:

- Large and small vehicle movements
- Feed transfer from delivery lorries to feed bins
- Ventilation fans
- Alarm systems
- Standby Generator
- Chickens
- Personnel
- Repairs and servicing

As there are sensitive receptors within 400 metres of the installation, the applicant has submitted a Noise Management Plan (NMP) for the installation as required by EPR 6.09 'How to Comply with your Permit for Intensive Farming'.

The NMP details various measures to minimise and mitigate noise issues including (but not limited to):

- Noise at the installation to be assessed twice a day
- Large capacity lorries to reduce number of deliveries required and lorries fitted with silencers

- Large ventilation fans to be used reducing number required. There are to be maintained regularly
- Alarm systems to utilise pagers or mobile phones
- Noise from chickens to be reduced at end of cycle by using full trained catch teams
- Clean out and maintenance/repair activities to be carried out during normal working hours

We have compared the measures proposed for the site to the BAT standards in EPR 6.09 'How to Comply with your Environmental Permit for Intensive Farming' – Appendix 5 – 'Noise management at intensive livestock installations' and are satisfied that the techniques represent appropriate measures for the installation. The NMP will been incorporated into the operating techniques section of the permit.

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 applicant for minimising noise at the installation.

We are satisfied that vibration is unlikely to be an issue at the installation. The nature of the intensive farming operation means that there are no significant sources of vibration on site. Therefore, vibration does not need to be included in the noise management plan.

10.5 Fugitive emissions

A risk assessment has been provided by the applicant which has identified a number of sources of potential fugitive emissions.

The applicant has confirmed that appropriate measures for preventing and minimising fugitive emissions are in place in accordance with the SGN EPR6.09 'How to comply with your environmental permit for intensive farming'. This includes:

- Houses being constructed in line with the Best Available Techniques (BAT)
- Generator fuel oil tanks (for the proposed and existing buildings) being bunded and that bunds meeting the requirements of the Water Resources (Control of Pollution) (Silage, Slurry and Agricultural Fuel Oil) Regulations 2010 (SSAFO Regulations).

- Dirty water tanks used to collect washdown water will conform to Water Resources (Control of Pollution) (Silage, Slurry and Agricultural Fuel Oil) Regulations 2010 (SSAFO Regulations).
- Dust managed using a number of measures which include (but are not limited to) no mixing or milling of feed on site, feed to be pneumatically conveyed directly from lorries into feed silos, litter quality (within the buildings) to be managed and no litter to be stored on site.

The applicant has also provided an Emergency Plan which details the above and how other risks of fugitive emissions will be managed during times of equipment failures, flood, spills etc. This will be incorporated into the Operating Techniques of the permit.

We note that the applicant has not produced a specific dust or dust and bioaerosol management plan, despite the presence of receptors close to the installation. Based on the application information above, we are nevertheless satisfied that emissions will be adequately controlled in line with our guidance. Controls for dust and other specified operating techniques will also be effective in managing bioaerosol risk.

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.

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.

10.6 Manure Management

Under the provisions of EPR, NRW does not have the legal vires / authority to impose conditions or regulate the storage, disposal and application of chicken manure to land through the EPR Permit unless these activities take place within the green installation boundary shown on the site plan in Schedule 7 of the permit. Also, the permit cannot create direct obligations on third parties regarding the management of manure produced by the regulated facility.

: The operator has indicated in the application that manure may be stored and spread on operator-controlled land, this is land beyond the installation boundary shown in Schedule 7 of the permit. As this is outside the scope of the EPR permitting process, this has not been included in our decision-making process.

However, NRW will continue, in association with other authorities, to work with land owners and farmers to help ensure the nutrients in manures are applied following best practice. This includes the Code of Good Agricultural Practice, which applies to all farms in England and Wales and provides guidance on nutrient management (including landspreading of manure). Where it is clear this is not the case and results in pollution, we will take the appropriate action in accordance with our powers and duties.

Whilst a manure management plan is not required by the permit, we have set condition 2.3.3 which requires the operator to maintain and implement a system to record the quantities of solid manure or slurry exported from the installation. The record must include the date of export from the site, quantity exported and details of the receiving site. This condition will help us to establish if there is any relationship between manure export from a particular installation and reported pollution incidents. It will also assist us in verifying that the operator is meeting the requirements of the Waste Duty of Care.

11. Operating Techniques

We have reviewed the techniques used by the Operator and compared these with the relevant guidance notes. We have updated in Table S1.2 of the permit to include updated management plans and supporting documentation submitted with his application relating to the operation of the installation.

12. Monitoring

We have determined that the certified scrubber is capable of achieving the emission reductions for ammonia that have been specified in the application. In order to ensure the scrubbers on the new buildings are continuing to work effectively throughout operation of the installation, the permit will contain the following process monitoring requirements (in Table S3.5 Process limits and monitoring requirements):

- pH of Scrubber Liquor – 3.5 (Maximum)
- Conductivity of Scrubber Liquor - 200 µS/cm^3
- Number of hours summer cooling fans are operated (per crop cycle)

This monitoring will provide assurance that the scrubber is working properly and that emissions will be in line with specified performance.

No other monitoring requirements have been added or changed following this variation.

13. Reporting

The operator will be required to report on the new process monitoring requirements discussed above on an annual basis.

No other reporting requirements have been changed following this variation.

Annex 1: Consultation Reponses

The Application has been advertised and consulted upon in accordance with Natural Resources Wales Public Participation Statement. 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.

Response Received from Public Health Wales	
Brief summary of issues raised:	**Summary of action taken / how this has been covered**
The applicant should undertake a detailed risk assessment to consider impact to human health from ammonia, odour and bioaerosols.	We do not need to assess risk of Ammonia emission on human health in this case as explained in section 10.1. See section 10.3 regarding assessment of odour. Section 10.5 covers fugitive emissions, including control of bioaerosol risk.
Odour assessment indicates there to be a potential odour problem at two locations.	See section 10.3 regarding assessment of odour.
Ammonia assessment: - does not consider impact on human receptors - Is not clear as to if the reduction in ammonia emissions stated in the application is a reduction from the current process	We do not assess risk of ammonia emission on human health from Intensive Poultry Farms as explained in section 10.1. See section 10.1 regarding assessment of ammonia emissions, which explains that overall impact from ammonia emissions of the varied facility is lower than current emissions..
Concern over Environmental Management System (EMS) including comments relating to the requirement for the operator to seek external accreditation.	See section 6 regarding our assessment of the Operators EMS. We do not require all Operators' EMS to be accredited.
Ensure proper scrutiny of environmental risk assessment	See section 10 regarding the various risk assessments and our assessments of these.
Consideration of cumulative effects of regulated activity	Air, odour and noise/vibration assessments are considered suitable and sufficient as described in the relevant sections above.

Concern over control of off-site impacts (waste/manure etc)	The applicant has confirmed that waste (residues) will be exported from the installation. Therefore this matter is outside the scope of the environmental permit.
Storage and management of liquids and accident prevention.	See section 10.5 for our assessment of liquid management, storage and secondary containment.
The Regulator should be satisfied that the noise management plan effectively reduces noise and does not cause nuisance at nearby sensitive receptors. A noise survey at the nearest residential receptor location would help to provide reassurance of this.	See section 10.4 for our assessment of noise and appropriate controls.

Annex 2: Improvement Conditions

Table S1.3 Improvement programme requirements		
IC6	The Operator shall submit written confirmation and training documents to Natural Resources Wales that the necessary operating techniques are in place for the operation of the air scrubbing units and that all staff have received the necessary training	A minimum of 10 days before the operation of the air scrubber on poultry building 5 and 6