Natural Resources Wales ('NRW') permitting decisions

Bespoke permit

We have decided to grant Philip Rogers and Simon Rogers a permit to operate a poultry unit at Upper Heath farm.

On issue the permit number has been changed from EPR/WP3734VB to AB3093ZW. This is as a result of the introduction of a new NRW permit and licencing system which has allocated the new permit number. This does not impact the content of the permit or this supporting decision document.

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

Purpose of this document

This decision document:

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

What this document is about

This document explains how we have considered the Applicants' Application, and why we have included the specific conditions in the permit we have issued to the Applicants. It is our record of our decision-making process, to show how we have taken into account all relevant factors in reaching our position. Unless the document explains otherwise, we have accepted the Applicants' proposals.

Preliminary information and use of terms

We gave the application the reference number EPR/WP3734VB/A001. We refer to the application as "the Application" in this document in order to be consistent.

The number we have given the permit is EPR/ AB3093ZW. We refer to the permit as "the Permit" in this document.

The Application was duly made on03/04/2014.

The Applicant is Philip Rogers and Simon Rogers and the proposed facility is to be located on land at Upper Heath Farm, Presteigne.

Our decision

We have decided to grant the Permit to the Applicants. This will allow the permit holder to operate the Installation, subject to the conditions in the Permit.

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

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

How we reached our decision

The Application was duly made on 3rd April 2014. This means we considered it was in the correct form and contained sufficient information for us to begin our determination but not that it necessarily contained all the information we would need to complete that determination.

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

We carried out consultation on the Application in accordance with the Environmental Permitting Regulations (EPR) and our statutory Public Participation Statement (PPS).

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

We sent copies of the Application to the following bodies:

- Powys County Council Local Planning Department
- Powys County Council Environment Protection Department (Environmental Health)
- Food Standards Agency
- Health and Safety Executive
- Public Health England - Centre for Radiation, Chemical and Environmental Hazards (Wales) (Formerly the Health Protection Agency).

The Centre for Radiation, Chemical and Environmental Hazards (Wales) (formerly the Health Protection Agency), emailed us its position statement on Intensive Farming and copied Public Health Wales in on this response.

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

Having carefully considered the Application and all other relevant information, we put our draft decision before the public and other interested parties in the form of a draft Permit, together with a draft explanatory decision document. As a result of this second consultation stage in the process, the public was provided with all the information that was relevant to our draft determination, including the original Application and additional information obtained subsequently. We have therefore given the public an opportunity to comment on both the Application and our draft decision.

The draft "minded to" consultation on the application ran from 24th October 2014 to 21st November 2014. The draft "minded to" consultation was publicised on the NRW website for 20 working days and was advertised in the County Times on 24th October 2014. We received a total of 40 responses to the draft "minded to" consultation.

We consulted Public Health Wales as a result of some of the responses we received from the public following the draft "minded to" consultation. A summary of Public Health Wales subsequent recommendations and how we have addressed them is described in the table in Annex 3.

What the Regulated Facility Does

The installation will comprise two poultry houses, accommodating a maximum of 80,000 broiler chickens. The birds will be brought to the site at approximately one day old and depopulated with 35% of the birds thinned at around thirty-three days and the remainder taken at a maximum of forty two days of age with approximately 7 days empty, which will give 7.75 cycles per annum, producing around 620,000 birds per annum. The birds will be delivered and removed on an "All In, All Out" basis, which means that the entire flock will be removed from both houses before a new flock cycle begins. As a result, there will be no overlap between different flocks of birds.

The birds will be housed in two new buildings each of which will be constructed to the best environmental standards. The buildings will be equipped with high velocity roof vents and will be heated by gas fired boilers.

After the birds are removed the litter will be removed and stored on operator controlled land outside the installation boundary. The buildings will then be cleaned, disinfected and dried prior to the next re-stocking of birds. All wash waters will be collected and disposed of appropriately as described in the **Dirty Water** section below.

Structure of this document

- Key issues of the decision
- Annex 1 the decision checklist
- Annex 2 responses to the consultation on the application
- Annex 3 PHW response to the draft “minded to” consultation responses

Key issues of the decision

This section describes the key aspects of our assessment of the application which includes addressing the public concerns raised in response to the application and our draft decision.

Odour

The 98th percentile threshold is taken from the Environment Agency's H4 Odour Management Guidance, which is widely accepted and used in the regulatory odour impact assessment. NRW have adopted this guidance.

The spreading of chicken manure outside the boundary of a permitted installation does not require a permit. On this basis, manure spreading is outside the regulatory scope of the Environmental Permitting (England and Wales) Regulations 2010 (as amended) and is not controlled by the environmental permit.

The applicants have confirmed that birds will be housed at one day old and depopulated with around 35% of the birds thinned at around 33 days and the remainder taken at a maximum of 42 days of age with the houses empty of birds for approximately 7 days between flock cycles. Our odour modelling has taken this into account. This information is confirmed in the applicants' Non-Technical Summary document, which has been incorporated into Table S1.2 of the permit as an operating technique. Our assessment of the applicants' revised odour modelling submitted on 16th September 2014, corrected the emission factors used, so that they were aligned with Hayes et al (2006)[1] emission factors for days 33, 34 and 42 of the flock cycle. We consider that the Hayes et al (2006) emission factors are most representative of broiler installations. Our assessment has accounted for operating temperature. The range of temperatures quoted in the applicants' odour modelling report does not significantly affect the modelled odour predictions. With regard to the actual building height of 5.2m versus the modelled height of 5m, our assessment has confirmed that the predicted difference in odour concentrations at these two building heights is not significant and does not therefore change the overall conclusions of the modelling. Changes in the slab level of the building are also unlikely to make a significant difference to the modelling conclusions. Therefore, our predictions agree with the applicants' overall conclusions that no unacceptable odour pollution would be expected at the nearest sensitive receptors.

The applicants have confirmed that bird catching is done over two days or nights per cycle. In this context, bird catching includes catching to thin the flock at day 33 and final bird removal on day 42. Each house is cleaned out in turn after the birds have been removed. The applicants initially modelled two hours high odour emissions during clean-out period, but reduced to one hour

[1] E.T. Hayes 1, T.P. Curran *, V.A. Dodd, Odour and ammonia emissions from intensive poultry units in Ireland, Bioresource Technology 97 (2006) 933–939.

high odour emission in the revised modelling report, on the basis that the time taken to perform this operation is usually one hour per house. The applicants have since confirmed that de-littering is expected to take 2 hours per house, but our assessment confirms that this does not significantly change the 98% ile predictions in the odour modelling report. Therefore remodelling is not required. The applicants have described the following measures which will be in place to minimise odour emissions during house de-littering:

- Poultry houses kept sealed pending litter removal;
- Litter removal carried out within 24 hours of bird removal per house;
- Litter placed carefully into trailers positioned close to house doors;
- Litter is completely cleared from one house before commencing on the next house, so only one house with spent litter is open to the atmosphere at any one time.
- Parking of vehicles as close to the poultry houses as possible during litter removal operations;
- Ensuring that trailers containing spent litter are sheeted before leaving the fill position; and
- Immediate removal of spent litter from the installation and no storage of spent litter within the installation boundary.

These measures are described in the odour management plan which has been incorporated into Table S1.2 of the permit as an operating technique and is therefore enforceable. It is not possible to delay clean-out until the wind is blowing in a favourable direction because this would adversely impact the business and integrator schedules with regard to placing the next batch of chickens.

The emission factors used to assess odour associated with broiler facilities are based on independent published data, (including Hayes et al (2006)). The purpose of these independent studies was to measure emissions associated with different types of poultry units. Therefore we are satisfied that the use of this data is appropriate.

We have received concern based on the applicants' odour modelling study as follows

"There is uncertainty over the assumption that the odour released after day 35 when the crop is thinned by 50% will be reduced by a similar amount. In the model the internal concentration is assumed to be a function of the age of the crop and the stocking density. The source of the odour is primarily from the accumulated litter, not the birds. If ventilation rates are reduced because of the reduced number of birds, the odour concentration in discharged gases could increase contrary to the assumption".

We consider that the published odour emission factors have been derived in a bird number measure and it is likely that the issue raised has been considered in the derivation already. The odour emission rate (OU_E/S) will be used in the odour modelling ultimately, not the odour concentration OU_E/m^3.

The applicants' revised odour modelling predictions dated 16th September 2014 used data from a nearby meteorological station at Shobdon Airfield. We are satisfied with the met data used in the revised modelling report, as the conclusions drawn by using Met office data supports the conclusions of the applicants' modelling.

Due to its valley location, concern has been expressed that odour from the installation may become concentrated in low-lying places as a result of a phenomenon called "cold drainage flow" which is associated with the flow of cooled air downhill on clear, still nights. NRW 5m DEM terrain data (Synthetic Aperture Radar, INTERMAP) indicates that the installation is located on a flat bottomed valley and about 700m from the foot of the nearest hill. Furthermore, there is a slow slope up from the farm to Receptors 2, 3, 4, 5, 6, 7 and 8 and there is a slow slope (<1:100) down from the farm to Receptor 9 which is about 600m from the farm. Therefore odour from the installation would not be subject to direct cold drainage flow and as a result this phenomenon would not cause additional odour impact at surrounding receptors. Based on the information available to us, we do not consider the risk from the permitted facility of odour pollution at nearby receptors to be significant. We have reviewed Dr Dickerson's report entitled "Review of Odour Dispersion Modelling Study for proposed poultry unit at Upper Broad Heath, Presteigne, Powys" dated 8th September 2014 with a view to determining if any of the data or conclusions in this report would require the modelling data submitted by the applicants to be reassessed. We requested further information from Dr Dickerson on 21st April 2015 and 13th May 2015 in order to verify the predictions in his report.

It was confirmed that the reading of wind direction and speed taken at around 08:00hrs each day at Combe House is an instantaneous reading rather than an average of the previous 24 hours. This clarified that the percentage of the wind direction show in Table 3.1 and Figure 3.8 of the report "Review of Odour Dispersion Modelling Study for proposed poultry unit, Upper Broad Heath, Presteigne, Powys" was based on one reading around 08:00hrs each day. Hourly resolution wind data is normally needed for a wind rose analysis. As such, we do not consider that a time resolution of once a day is adequate.

It was also confirmed that the anemometer used at Combe House is part of a Ventus W 155 weather station, mounted at a height of 1.75m above ground level. It is located about 10m from the house to the north and also close to trees to the south. In order to measure a representative wind direction, an anemometer, with a height of. >3m, should be sited at a place free of obstacles such as a house or trees.

In view of the coarse resolution (once a day around 08:00hrs) of wind data recording, low anemometer height level and location close to a house and trees, we regard the results of the wind rose analysis as not reliable. As such we remain satisfied that the applicants' odour modelling report is representative of meteorological conditions at the installation and we do not consider that any of the data submitted in the applicants' modelling report needs to be reassessed.

We are satisfied that the risk from the permitted facility of odour pollution at nearby receptors is not significant. We are satisfied that levels of odour at all receptors not owned by the farm are significantly below the 3 OU_E/m^3 benchmark level for acceptability. The modelling submitted to support the application was based on 50% of birds being removed from the facility at day 35 of the cycle. This modelling predicted a maximum odour level of 1.81 OU_E/m^3 (as a 98%ile) at non-farm owned receptor and a maximum of 3.9 OU_E/m^3 (as a 98%ile) at a farm owned receptor. The applicant subsequently advised that the operating scenario would be such that 35% of the birds would be removed at day 33 of the cycle. We re-modelled odour based on the updated operating scenario. We used measured meteorological data from Shobdon met station for 2009, 2010 and 2012. Our modelling predicted a maximum odour level of 1.4 OU_E/m^3 (as a 98%ile) at non-farm owned receptor and a maximum of 4.2 OU_E/m^3 (as a 98%ile) at a farm owned receptor. The H4 Odour Management guidance explains that the odour benchmarks are based on the 98th percentile of hourly average concentrations of odour modelled over a year at the site/installation boundary. The benchmarks are:

- 1.5 odour units for most offensive odours
- 3 odour units for moderately offensive odours
- 6 odour units for less offensive odours

The H4 Odour Management guidance describes odours associated with intensive livestock rearing as being moderately offensive, which is why the benchmark of 3 odour units has been used in our assessment. Although the peak 98th percentile odour concentration of 4.2 OU_E/m^3 predicted at the farm house exceeds the benchmark level of 3 odour units, we are satisfied that this level is acceptable on the basis that people directly associated with farm operations are less likely to find the odour offensive. The level of odour predicted to occur at the farmhouse is therefore not considered to be significant enough to justify refusal of the application.

Permit Conditions

Odour is controlled at intensive agriculture sites in several ways, from the design of the building to the handling of manure. Permit condition 3.3.1 requires that emissions from the activities are free from odour at levels likely to cause pollution outside the site. Therefore, in the unlikely event of unacceptable odour nuisance from the site we will be able to require the operator to resolve the issue.
The applicants have submitted an odour management plan for the installation as required by EPR 6.09 “How to Comply with your Permit for Intensive Farming” because there are sensitive receptors within 400 metres of the installation. The Odour Management Plan describes the measures and controls in place to minimise odour and includes twice daily olfactory checks at the site boundary. Odour mitigation is also addressed in the following application documents: “Fugitive Emissions at Upper Heath Farm”, “Non-Technical Summary”, “Odour Assessment for Upper Heath Farm” and “Technical Standards at Upper Heath Farm”. We have compared these to the

BAT standards in EPR 6.09 and are satisfied that the techniques represent appropriate measures for the installation. The techniques described in these documents have been incorporated into table S1.2 of the permit as operating techniques. Permit condition 2.3.1 requires the operator to operate the installation in accordance with the techniques listed in Table S1.2 of the permit. In addition, we have added a reporting requirement to Table S4.1 of the permit, which requires the operator to record the following information for each flock cycle: date of initial stocking, date of depopulation, date of start of house clean out and date of end of house clean out. Reporting Form Performance 1 has been created for this purpose and requires the operator to record this information for each individual house. The operator is required to report this information to NRW on an annual basis. The information will enable us to determine if there is any relationship between odour and house clean out in the unlikely event that any odour complaints are received.

The Ross Environmental Management of Broiler House document was not specifically requested by NRW in the Schedule 5 request for further information. The applicants' response to the Schedule 5 notice refers to the Ross publication as one of the sources providing the basis for how ventilation rates have been derived in the application. However the Ross document does not specifically explain how the ventilation rates for the proposed installation have been derived. As such it has not been taken into consideration during our assessment of the permit application.

Noise

Plant Noise Assessment

We requested the Matrix plant noise assessment (prepared for Powys County Council in support of the planning application), as part of the permit determination process. However, we subsequently asked the applicants to provide a revised noise impact assessment following concerns about potential noise associated with certain activities which were not included in the original assessment. These activities are: Feed deliveries and other vehicle movements within the installation boundary, destocking and loading birds onto lorries, removal of litter from the proposed poultry houses, cleaning and disinfection of the proposed poultry houses and testing and operation of the emergency generator. We also asked for the revised noise impact assessment to consider the sound levels associated with all the different roof mounted ventilation fan operating combinations at each stage of the flock cycle and for external temperature data to be included in the assessment in order to understand the frequency and duration of high ambient temperatures and the impact this has on the number and duration of fans being operated.

The revised report assessed the predicted noise from the proposed installation against BS4142:2014 "Methods for Rating and Assessing Industrial and Commercial Sound". The report splits the noise sources generated by the installation into three categories, specifically:

(i) Plant noise (36 roof mounted ventilation fans and emergency generator)
(ii) Transport noise (including manoeuvring and loading / loading within the installation boundary). It is noted that the report also includes vehicle movements on the farm access road. This particular aspect takes place outside the installation boundary. It is therefore outside the scope of the Environmental Permitting Process and is a matter for the Local Planning Authority. We have not therefore considered noise from the access road in our consideration of transport noise outlined below.
(iii) Internal Noise Breakout (including noise generated by the birds themselves)

BS4142:2014 assesses the likelihood of adverse impact at sensitive receptors by subtracting the measured background noise level (outdoor) from the measured /calculated rating level (outdoor). The standard explains that:

The significance of sound of an industrial nature depends on both the margin by which the Rating Level of the Specific sound source exceeds the Background sound level and the context in which the sound occurs.

a) Typically the greater this difference, the greater the magnitude of impact.
b) A difference of around +10dB or more is likely to be an indication of a significant adverse impact, depending on the context.
c) A difference of around +5dB is likely to be an indication of an adverse impact, depending on the context.
d) The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact, depending on the context.

The revised noise impact assessment identified three residential properties as sensitive receptors. The closest (Receptor A) is currently owned by Upper Heath Farm and the two remaining receptors (B and C) are privately owned.

Plant Noise – Operation of Roof Mounted Ventilation Fans

Each poultry house will have 18 roof mounted ventilation fans whose operation is thermostatically controlled. Fan operation is triggered based on exceedance of an ideal temperature within the poultry house starting at 30°C and reducing to 20°C by day 27 of the flock cycle. This lowest set temperature remains until the end of the flock cycle. The number of fans operating at any time during the flock cycle is also influenced by the external temperature, as warmer ambient temperatures outside will trigger the need for more ventilation inside the poultry houses in order to maintain the internal temperature set point. The revised noise impact assessment states that for each house, based on meteorological data measured over two years at Shobdon weather station, maximum operation should not exceed 10 fans during evening

periods (20:00 – 23:00hrs) and four fans during night time periods (23:00 – 07:00hrs). During day time periods, (07:00 – 20:00hrs) it is assumed that all 18 fans will be operating as a worst case. We are satisfied that these assumptions are conservative because in practice, for the first 27 days of the flock cycle, the set temperature (and consequently the fan stage trigger values) is higher than the 20℃ set point at day 27. The revised noise impact assessment also only considers the operation of unattenuated fans.

At the 20℃ set point, an increase in the internal temperature of 1℃ above set point will trigger the first stage of fan operation in which 4 fans per shed are switched on. Our check modelling shows a differential of +11dB between the existing background sound level and the rating level of the fans at Receptor A during the night time period (23:00 – 07:00hrs). BS4142:2014 states that this level is an indication of a significant adverse effect, depending on context. In this case, the context is provided by the fact that our check of the temperature data shows that the stage 1 trigger temperature of 21℃ was only exceeded during night time on 1 occasion in 2013 and 1 occasion in 2014, each time for a duration of one hour. Based on the low conceivable frequency and duration of such elevated noise levels, we do not consider this to be a significant enough risk to warrant refusal of the application.

At Receptor B (the nearest privately owned dwelling), our check modelling shows a differential of +4dB between the existing background level and the rating level of the fans during the night (23:00 – 07:00hrs). BS4142:2014 states that a differential of around +5dB is likely to be an indication of an adverse impact, depending on the context. Again, the context is that this noise level is only likely to occur on one occasion during a typical year for a duration of 1 hour, which is not a significant enough risk to warrant refusal of the application.

At Receptor C, during the night time period, our assessment shows that the rating level associated with the roof mounted ventilation fans will be 1dB below the existing background sound level. Therefore we do not consider that Receptor C will be subject to any adverse impact from the night time operation of the roof mounted ventilation fans.

For the day time period, the applicants have considered fan operation over two separate time periods with 07:00 – 20:00hrs being classed as “day” and 20:00 – 23:00hrs being classed as “evening”. However, BS4142:2014 (section 7.2) only considers two time periods, specifically daytime (07:00hrs – 23:00hrs) and night time (23:00hrs – 07:00hrs). Our assessment of the meteorological data that follows uses the time periods in BS4142:2014. This is more precautionary, in that it assumes that all 18 fans on both houses are running from 07:00 – 23:00hrs, rather than until 20:00 hrs, as the applicants have assumed. However, the rest of our assessment is based upon check modelling of the predictions that the applicants have presented over the three distinct time periods.

During the day time period (07:00 – 23:00hrs), our check modelling shows that Receptor A may experience up to a +5dB increase in noise above

existing background levels when all 18 fans on both poultry houses are operational. BS4142:2014 states that this is likely to be an indication of adverse impact, depending on the context. However, we consider that these predicted sound levels are worst case because the predictions are based on unattenuated fans.

Again we consider that this prediction is conservative because it is based on unattenuated fans and does not take into account higher internal temperature set points that exist prior to day 27 of the flock cycle. Based on this relatively low frequency and duration and the fact that Receptor A is occupied by a farm worker, we do not consider this to be a significant enough risk to warrant refusal of the application.

During the day time period, predicted rating levels at Receptors B & C when all 36 roof mounted ventilation fans are operational are predicted to be below the existing background level, so are insignificant.

The applicants included a +3dB correction to the Specific Sound level associated with the fans as part of their revised noise assessment. However, we have received concern that under BS4142:2014, a +7dB correction should have been applied to account for tonality and intermittency. (This correction would be instead of the +3dB correction already applied under BS4142:2014 for “Other” noise characteristics). Whilst a +7dB character correction may be appropriate at Receptor A, we consider that a +5dB correction is more appropriate at Receptors B and C because they are located further away and therefore are less perceptible to the sound. Whilst both a +7dB and + 5dB character correction would increase the differential of the predicted rating level above background at each of the Sensitive Receptors, the frequency and duration of occurrence would remain unchanged. Any increase in the predicted rating level at night needs to be balanced against the fact that the meteorological data we have received shows that this is only likely to occur very infrequently (typically for 1 hour, 1 night per year). Receptors B and C would still be unaffected during the day. More specifically, based on the “day” and “evening” fan operating scenarios assessed by the applicants, during the day, predicted rating levels would increase to +9dB for Receptor A with the +7dB correction, but the rating level would remain below the existing background for Receptor C. For Receptor B, a +5dB correction would result in predicted rating levels being the same as the existing background during the evening scenario and below existing background at other times of the day.

The predictions in the applicants’ revised noise assessment are conservative in that they represent unattenuated roof mounted ventilation fans. However, the applicants have previously committed to installing suitably attenuated roof mounted ventilation fans, which would mean that the predicted rating levels associated with the fans can be reduced below those discussed within this document. On this basis, we have set pre-operational condition PO3 which requires the applicants to provide a written assessment of the actual sound power levels of the roof mounted ventilation fans (across the full 1/3rd octave frequency spectrum) at sensitive receptors A, B and C and to then provide a specification for the attenuation measures to be installed based on the

findings of this assessment. The pre-operational condition shall also include a written report to demonstrate that the proposed attenuation measures will reduce predicted noise at sensitive receptors A, B and C to an acceptable level as defined in BS4142:2014. This information must be submitted to NRW for approval a minimum of 4 months before the commencement of the first flock cycle. The installation shall not be operated until the proposed attenuation measures have been approved by Natural Resources Wales and the approved attenuation measures are physically installed. PO3 also specifies that the attenuated fans shall be able to achieve an efflux velocity of 11.0m/s, as used in the odour modelling report.

Plant Noise – Emergency Generator

Our check modelling indicates that at Receptor A, predicted noise is likely to indicate an adverse impact of + 6dB above background during night time operation of the emergency generator. However, the impact of the predicted noise is likely to be insignificant at Receptor A during the day time period, as the rating level is predicted to be below the existing background. For Receptors B and C, we are satisfied that the impact of predicted noise is not likely to be significant at all times of the day and night. The highest predicted impact is a +2dB predicted increase in the rating level over the background level at Receptor C during the night. During the day time period, (07:00 – 23:00 hrs) predicted noise from the generator is below existing background levels at both Receptor B and Receptor C and will therefore not cause an adverse impact during this time.

The applicants' noise management plan states that the emergency generator will only be tested between the hours of 07:00 – 19:00hrs. On this basis, we are satisfied that the noise associated with routine generator testing will not cause any adverse impact at any of the sensitive receptors. Furthermore, the generator will only operate during the night under emergency conditions, in the event of a power failure, when it will be critical for safeguarding bird welfare. This constitutes emergency operation and effective management of the site should ensure that such occurrences are rare.

Transport (Access, Manoeuvring and Loading / Unloading)

The majority of transport movements occur during the day (e.g. feed and fuel deliveries and removal of litter). Catching at thinning on day 33 of the flock cycle is typically undertaken at night to avoid causing stress to the remaining birds. Catching at final depletion on day 42 of the flock cycle is more likely to take place during the day (but may for example start before 6 am). Ultimately however, catching is dictated by integrator scheduling. The applicants' agent has confirmed that ventilation is not increased during bird catching. In fact, ventilation would be more likely to be reduced during this activity to prevent cold stress to the birds.

In terms of catching duration and frequency, the applicants have supplied the following details. Thinning is predicted to take a total of 4 hours (2 hours per house) with both houses being thinned on the same night. A total of 4 Heavy

Goods Vehicles (HGVs) are required for this task, with each lorry being present for 1 hour. Catching at final depletion is predicted to take a total of 8 hours (4 hours per house) with both houses being cleared on the same day / night. A total of 8 HGVs is required for final depletion, again with each lorry being present for 1 hour. The applicants' noise management plan confirms that engines will not be left idling during bird collection at night and vehicles will be loaded close to the poultry house doors to reduce movement.

For farm based vehicles (e.g. tractors), the applicants have confirmed that at crop turn around / servicing a farm fork lift truck will be used for moving pallets of shavings into the houses prior to bird placement. (Email from Agent dated 25th August 2015). However, the email also confirms that during the growing period, no other farm based vehicles will be used. This email has been incorporated into Table S1.2 of the Permit as an operating technique and is enforceable.

The applicants have applied the following BS4142: 2014 character corrections to the Specific Levels:

- HGV arriving/departing and manoeuvring: A +3dB correction to account for intermittency of HGV movements and a +2dB correction to account for the potential tonal content of the engine noise.
- HGV unloading / loading: A +3dB correction to account for the intermittency of the HGV loading / unloading and +6dB for the potential impulsivity of the noise events.

Our assessment indicates that during the day time period, predicted noise is likely to cause a significant adverse impact of +13 dB above background at Receptor A only. At Receptor B our assessment shows no difference between the predicted rating level and the background level and at Receptor C, our assessment shows that the rating level will be 4dB below the background level. Therefore we are satisfied that no adverse impact due to vehicle manoeuvring and loading / unloading would be caused at Receptors B and C.

However, during the night time period, our assessment indicates a significant adverse impact at all three receptors, specifically: +28 dB at Receptor A, + 16dB at Receptor B and + 12dB at Receptor C. The applicants have stated that a 1.8m high solid barrier can be constructed around the north and east edges of the loading area perimeter in order to reduce predicted noise by 10dB. This measure would reduce predicted rating levels to +3dB at Receptor A during the day, which is below the "around + 5dB" level at which adverse effects are likely under BS4142:2014. At night the proposed mitigation would reduce predicted noise at Receptor A to +18dB above background, + 6dB at Receptor B and + 2dB at Receptor C. Using BS4142:2014 assessment criteria, this translates to a likely indication of significant adverse effect at Receptor A, likely indication of an adverse effect at Receptor B and no likely adverse effect at Receptor C.

On this basis, pre-operational condition PO4 requires the operator to provide a written assessment of an effective sound barrier to reduce noise at sensitive Receptors A, B and C from ground sources including lorry manoeuvring, loading and unloading. The written assessment shall give details of the proposed barrier and shall have regard to appropriate standards set out in the Environment Agency's H3 Part 2 guidance on noise assessment , EPR 6.09 "How to Comply with your Environmental Permit for Intensive Farming" – Appendix 5 – Noise Management and BS5228 on the control of outdoor noise. The report shall also provide a calculation of the expected reduction in sound levels at Receptors A, B and C to an acceptable level as defined in BS4142:2014. The written assessment shall be submitted to Natural Resources Wales for approval a minimum of 4 months before the commencement of the first flock cycle. The installation cannot be operated until the proposed sound barrier has been approved by Natural Resources Wales and the approved sound barrier is physically installed.

In terms of context, the predicted attenuated sound levels of +18dB at Receptor A and +6dB at Receptor B are expressed as the measured rating level outside each property, as BS4142:2014 is based on the assessment of outdoor noise. Therefore it can be reasonably expected that noise inside the property will be less. Typically a room with a partially open window will provide an additional 10 – 15dB sound reduction. This is confirmed by one of the worked examples in Annex G to BS8233:2014 "Guidance on Sound Insulation and Noise Reduction for Buildings" which suggests that a partially open window would provide attenuation of approximately 15dB.

The frequency and duration of the noise is likely to be for 4 hours at thinning on 7 – 8 nights of the year and on catching will be for 8 hours on another 7 – 8 nights of the year. Although the predicted sound will occur on a regular basis (i.e. thinning on day 33 of the flock cycle and catching on day 42 of the flock cycle), this equates to a small proportion of the total days in a year (just over 4%). Furthermore, in practice, catching at the end of each flock cycle is subject to integrator scheduling, so is unlikely to always occur at night. On this basis, due to the low conceivable frequency of such elevated noise levels and the operator controls in place to minimise noise from this activity (e.g. ensuring engines are not left idling while vehicles are on site), NRW does not consider this to be a significant enough risk to warrant refusal of the application

Internal Noise Breakout from Poultry Houses

The applicants based their assessment of predicted noise producing activities within the poultry houses on an internal noise level of 70dB based on birds being stocked / destocked manually with the doors of the poultry house closed. This gave the following highest predicted differential of the rating level compared to existing background at any of the three sensitive receptors during the day, evening and night of -25dB, -22dB and -10dB respectively.

Our assessment also indicates that external predicted noise as a result of noise breakout is likely to be insignificant. Our modelled predicted levels at

receptors B and C are within +/- 2dB of submitted values, while our modelled prediction at receptor A was less than the submitted value. We are therefore satisfied that there is no identified impact from the noise generated from the operations inside the units at any of the receptors.

Combined Impacts from Noise Sources at Receptors

Our assessment examined the impact of noise sources in combination at the selected receptors. The most likely combined impact is from the operation of the roof mounted ventilation fans and vehicle movements associated with loading / unloading and manoeuvring.

Our assessment of this combined impact using the character corrections supplied in the revised noise impact assessment report gives the following predicted differentials between the combined rating level and existing background level at night as follows: +28dB at Receptor A, +20dB at Receptor B and +16dB at Receptor C. This must however be considered in the following contexts: predicted sound levels are for outdoor noise, so do not consider any additional attenuation afforded by the building fabric at sensitive receptors; the predictions assume the roof mounted ventilation fans are unattenuated and the predictions do not include the sound mitigation afforded by the proposed sound barrier. Furthermore, the preceding sections conclude that the operating scenarios associated with the roof mounted ventilation fans and vehicle movements that give rise to significant adverse effects are infrequent. Therefore, when assessed in combination, we can conclude that the occurrence of both happening simultaneously at night would be very infrequent and limited to typically 1 hour of 1 night per year, which is the expected frequency of the night time operation of the roof mounted ventilation fans.

During the day, the combined impact gives the following predicted differentials between the combined rating levels and existing background level during the day as follows: +15dB at Receptor A, +6dB at Receptor B and +2dB at Receptor C. These predictions are subject to the same context arguments as described in the preceding paragraph. Although the frequency of their combined occurrence is likely to be more than is the case for night, based on the increased need for ventilation in the houses at times of high ambient external temperatures, we do not consider this to be a significant enough risk to warrant refusal of the application based on the still low conceivable frequency and duration of these combined events.

Improvement Condition based on conclusions of the revised noise impact assessment

The predictions associated with the revised noise impact assessment described above are based on worst case assumptions and are therefore precautionary. In addition, when the installation is operational, noise will be mitigated by the installation of attenuated roof mounted ventilation fans (required by PO3) and a physical sound barrier (required by PO4). As such,

actual noise associated with the operation of the installation is likely to be less than predicted.

In order to verify this we have set Improvement Condition IC1. This requires the operator to measure actual sound levels from the installation at Receptors A, B, and C under all of the operating scenarios and including all of the noise sources considered with the revised noise impact assessment report. The assessment shall be in line with BS4142:2014 and the report shall make reference to the predictions in the December 2015 Matrix report. If rating levels likely to cause adverse impact at sensitive receptors are detected, the report shall include an assessment of the most suitable abatement techniques, an estimate of the cost and a proposed timetable for their installation. Improvement condition IC1 is required to be completed within 3 months of the start of the first flock cycle.

Creeping background and impact assessment originally submitted with application.

EPR 6.09 states that "It is acknowledged there is likely to be noise outside of the installation boundary". The phenomenon of "creeping background" would apply to noise assessments associated with any further applications for development in the area and is therefore not relevant to the assessment of this particular application.

With regard to the impact assessment submitted with the application we are satisfied that the impact on receptors is not "+++" (major) as justified above in this section of the decision document.

Permit Conditions

Permit condition 3.4.1 requires that emissions from the activities shall be free from noise and vibration at levels likely to cause pollution outside the site. This will be checked during NRW site inspections and if this is not the case, we will take appropriate action. The Environment Agency guidance EPR 6.09 Appendix 5 provides guidance on noise management for farms. NRW have adopted this guidance. An effective noise management plan and use of appropriate measures is required for EPR intensive farming applications with sensitive receptors located within 400m of the proposed installation, which is the case for Upper Heath. EPR 6.09 also explains that "The appropriate measures for this sector prevent and where that is not possible minimise these noise emissions. We are satisfied that appropriate control measures are in place as part of the noise management plan for Upper Heath. See ***Application of Best Available Techniques (BAT)*** subsection below.

Noise Management Plan and Assessment

The potential for noise pollution is controlled through the noise management plan. The noise management plan describes the controls in place to minimise noise. A number of these controls are also described in the subsection below on ***Application of Best Available Techniques (BAT)***. In addition, the noise

management plan states that there are no audible alarms on site. It also states that the roof mounted ventilation fans will be attenuated. The Noise Management Plan has been incorporated into Table S1.2 of the permit as an operating technique and is therefore enforceable.

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.

The noise management plan states that roof mounted ventilation fans will be subject to regular, end of cycle maintenance by qualified electricians and that noisy roof mounted ventilation fans will be isolated and an electrician notified. Good maintenance and cleaning procedures will ensure additional noise from out of balance or worn roof mounted ventilation fans is unlikely to occur. As described in the section on **Management Plans** below, effective inspection and maintenance forms a key part of compliance with permit condition 1.1.1 on environmental management systems and condition 1.1.2 on associated record keeping. We will check this during our routine inspection visits and we will take appropriate action if required.

The noise management plan states that silencers will be fitted to feed delivery lorries and that vehicle reversing alarms associated with bird catching lorries will be disabled at night.

We are satisfied that the Noise Assessment document (entitled" Noise Assessment Upper Heath Poultry Unit") submitted with the application is specific to Upper Heath. The revised Noise Assessment has been incorporated into Table S1.2 of the permit as an operating technique and is therefore enforceable. Movement of vehicles outside the installation boundary is outside the regulatory scope of the Environmental Permitting (England and Wales) Regulations 2010 and is a matter for the local planning authority.

We are satisfied that the controls described in the noise management plan for bird catching and clean-out are sufficient for these activities in relation to preventing noise pollution. The timing of bird collection is dictated by integrator scheduling, so it is not possible to restrict the timing of this activity. Finally the noise management plan states daily walk around inspections will be conducted three times per day at (07:00 – 09:00hrs, 16:00hrs – 18:00hrs and 22:00hrs – 23:00hrs). It also explains the mechanism by which any noise complaints will be recorded and investigated.

Application of Best Available Techniques (BAT)

Noise is not generally a source of complaints for the intensive farming sector in Wales. This conclusion is supported by information on noise complaints from NRW's own databases. In addition, we have consulted Powys Country Council on the issue (telephone call to Environmental Health Department on 15th July 2015) and they have confirmed that although some noise complaints

have been received for the sector in the past, these were regarding feed deliveries at night which were addressed by ensuring that feed is only delivered to sites during waking hours. They have not received any complaints about roof mounted ventilation fan noise from intensive farms. On the basis that noise is not generally an identifiable issue at intensive farming installations in Wales, NRW can reasonably expect that the operator will be able to comply with permit condition 3.4.1 on noise by operating in accordance with the noise management plan for the installation which has been incorporated into the operating techniques table of the permit and is therefore enforceable. We also require the operator to operate the installation in compliance with Best Available Techniques (BAT). We have reviewed the application against the European Commission draft BAT conclusions for the Intensive Farming sector which represent future best practice. We are satisfied that the installation will be BAT compliant for reducing noise emissions (BAT 8) because the following techniques will be employed:

- Location of feed bins so as to minimise the movement of vehicles on the farm: the feed bins are located on the side of each poultry house, near to the concrete yard area for vehicle access, rather than at the far end of the houses away from the concrete area. See Site Layout / Drainage Plan in Schedule 7 of the permit.
- Equipment operation by experienced staff: Permit condition 1.1.1(b) requires the operator to use sufficient competent persons and resources to manage and operate the activities.
- Avoidance of noisy activities at night and during weekends: The operator's noise management plan states that the following activities can only take place between 07:00hrs and 19:00hrs – feed deliveries, fuel deliveries, removal of litter, washing of the houses, maintenance / repair, set up / placement and standby generator test runs. The only exceptions to this are emergency conditions which may necessitate an emergency food or fuel delivery, emergency maintenance / repair following plant breakdown and running of the standby generator, all of which would be necessary to safeguard bird welfare. However, effective management of the site should ensure that such occurrences are rare. The other exception to this is bird thinning and catching at depletion which is subject to integrator scheduling and bird welfare considerations.
- Provisions for noise control during maintenance activities: Maintenance/repair activities can only take place between the hours of 07:00hrs and 19:00hrs, unless emergency maintenance is required following plant or equipment breakdown.
- Operate conveyors and augers full of feed if possible: The noise management plan states that the feed system will be fully alarmed to prevent augers running empty. Feed bin stocks will also be checked twice per day between 07:00hrs and 09:00hrs and 16:00hrs and 18:00hrs to prevent augers running empty.
- Use of Low-noise equipment including high efficiency roof mounted ventilation fans, when natural ventilation is not possible or sufficient: The noise management plan states that large capacity roof mounted ventilation fans will be used which will reduce the overall number of

fans required. The applicants have confirmed that this also means that gable end fans will not now be installed.
- Use of Noise-control equipment including noise reducers: The noise management plan states that the roof mounted ventilation fans will be fitted with noise attenuators.
- Use of Noise-control equipment including enclosure of noisy equipment: The applicants' noise assessment states that the standby generator will be housed within an insulated building. The noise assessment has been incorporated into Table S1.2 of the permit as an operating technique and is therefore enforceable.

In addition, the applicants have confirmed the following measures which are also in line with EPR 6.09: Engines not left idling during bird collection at night and vehicles loaded close to doors to reduce movement. These measures are described in the noise management plan and document entitled "Application of Best Available Techniques for Noise at Upper Heath Farm", both of which have been incorporated into Table S1.2 of the permit as operating techniques and are therefore enforceable.

In summary, we are satisfied that pollution due to noise will be managed to acceptable levels. This is because predicted noise is based on a worst case scenario that will occur infrequently and for short periods of time. It has therefore been assessed as not being a significant enough reason to refuse the application. We also consider the permit conditions and operating techniques to be sufficiently protective and are satisfied that the operational measures taken to minimise noise are compliant with future BAT standards.

Fan Specification

There were a number of concerns regarding the exact specification of the roof mounted ventilation fans used for ventilation at the installation. The application documentation contained uncertainties with:

(i) the numbers of roof mounted ventilation fans proposed (24 shown on the original site plan vs 36 used for noise and odour predictions);
(ii) the diameter of the roof mounted ventilation fans used for making predictions in the noise and odour reports, (the odour modelling predictions are based on a 800mm diameter, whereas the original Matrix plant noise assessment report is based on Ziehl-Abegg FC063-6E fans with the diameter unspecified)
(iii) The roof mounted ventilation fan efflux velocity was specified as "operating at full capacity" in the original Matrix Plant Noise Assessment, but was based on an efflux velocity of 11m/s in the odour modelling report.

Concern was also expressed regarding the hours of operation of the roof mounted ventilation fans (specifically if they are used during destocking at night), location and also if they are attenuated for noise reduction purposes.

The applicants have now confirmed that the roof mounted ventilation fans to be used at the installation will be Fancom 3680 units. The fan model is specified in the revised Matrix Noise Impact Assessment dated 18th December 2015. The fans have an 800mm diameter and will be operated at a fixed efflux velocity of 11m/s. Pre-operational condition PO3 has been set which requires the roof mounted ventilation fans to be fitted with attenuators to reduce noise to an acceptable level as defined in BS4142:2014 at the three sensitive receptors identified in the revised Matrix Noise Impact Assessment. The roof of each poultry house will be fitted with 18 of these roof mounted ventilation fans, which is 36 in total for the two houses. The site layout / drainage plan in the permit has been updated to show the correct number of roof mounted ventilation fans. Furthermore we are satisfied that the noise assessment is based on a total of 36 roof mounted ventilation fans. We are also satisfied the odour modelling is representative of emissions from the installation, although for modelling chicken houses with a large number of roof vents, it is a common practice to combine them into a smaller number of composite sources distributed to represent the release scenario. This is reflected in the Environment Agency's modelling guidance (Section 2.4), which can be downloaded in the following website: http://webarchive.nationalarchives.gov.uk/20120305165229/http://www.environment-agency.gov.uk/static/documents/Business/Guidance_on__modelling_of_ammonia_from_poultry_pig_farms.pdf The Technical Standards document has also been updated to show the correct efflux velocity of 11m/s.

The revised Matrix Noise Impact Assessment (dated 18th December 2015) explains that the number of roof mounted ventilation fans operating at any one time depends on the stage in the flock cycle and the external temperature, as the fans are thermostatically controlled. The report goes into further detail on relationship between external temperature, internal temperature set points at different stages of the flock cycle and the influence of external temperature on the various fan operating combinations.

This information which describes the operating regime of the roof mounted ventilation fans has been incorporated into Table S1.2 of the Permit as an operating technique and is therefore enforceable.

With regard to destocking, the applicants' agent has confirmed that ventilation is not increased during bird catching. In fact, ventilation would be more likely to be reduced during this activity to prevent cold stress to the birds.

Odour releases are a function of the number of birds multiplied by the emission factor per bird at various stages of the flock cycle. As such, odour release is not determined by the number of roof mounted ventilation fans in operation. We are satisfied that dust emissions will be reduced by background levels at a distance of 100 metres from the development. (See **Dust** section).

We are now satisfied that the predictions in the Matrix Plant Noise Assessment and Odour Modelling Report are based on a consistent fan number and operating specification.

Gable End Fans

We received a number of comments associated with the use of gable end fans on each of the poultry houses.

The applicants have confirmed that no gable end fans will be installed at the installation (email received on 14th July 2015). This confirmation has been incorporated into Table S1.2 of the permit as an operating technique and is therefore enforceable. The Site Layout / Drainage plan in Schedule 7 of the Permit has been amended to reflect this. The management plans referenced by Table S1.2 operating techniques have also been revised accordingly.

Dust

PM_{10} and $PM_{2.5}$

When an application is made, NRW assess all of the information and require the operator to comply with our guidance documents (EPR 6.09). These documents detail what the operator must do to ensure their emissions are controlled. There are no requirements for the operator to monitor the emissions as these are controlled throughout the operation by adherence to the guidance. There are a national network of air quality monitors throughout the UK and details of these including the results can be found on the Welsh Air Quality Website http://www.welshairquality.co.uk/ NRW will react to any reports of air pollution from a regulated installation. Monitoring may be undertaken by the operator or NRW if problems are identified or suspected.

Dust of varying particle size will be produced by an intensive poultry unit. The amount of dust produced will vary depending on the management of the flock and litter within the houses. Appendix 11 “Assessing Dust Control Measures on Intensive Poultry Unit Installations” of Environment Agency of Sector Guidance Note EPR6.09 “How to Comply with Your Environmental Permit for Intensive Farming” explains that operators should use appropriate measures to minimise dust emissions by the adoption of Best Available Techniques (BAT). Natural Resources Wales have adopted this guidance
Defra Research project final report (2009) “Characterising Poultry Dust Properties, assessing the human health implications, quantifying emission levels and assessing the potential for abatement” states that PM_{10} particulate levels were reduced to background levels by 100m downwind of even the highest emitting poultry houses, therefore are unlikely to pose a risk to those living in the vicinity of poultry operations. On the basis that there are no sensitive receptors within 100m of the nearest air emission point, we have not required the operator to undertake dust modelling and we are satisfied that the permit conditions, operating techniques and application of BAT will be sufficient to minimise dust emissions from the installation.

All operators of intensive farming installations are required to operate at Best Available Techniques (BAT). Controls on the production of dust and the use of high velocity roof mounted ventilation fans ensures dust formation is reduced and where emitted is done at high velocity to ensure adequate dispersion. NRW are of the opinion that the implementation of Best Available Techniques and the current control on dust emissions imposed on intensive farming is adequate to prevent adverse health effects.

The Health Protection Agency position statement (December 2006) states that "The Agency would expect that the use of Best Available Techniques (BAT) will minimise the amount of dust released. On-site mitigation measures addressing occupational health of workers will also reduce off site emissions. It is recommended that the regulator act on any dust complaints and, if necessary, seek advice on the risk to health from the local PCT". Our approach to regulating dust from this installation is in line with this statement and we have consulted Public Health Wales on the application (see **Public Health Wales** response table above). On this basis, we consider that further investigation of PM_{10} and $PM_{2.5}$ levels is not required.

Validity of Defra 2009 Report "Characterising Poultry Dust Properties, assessing the human health implications, quantifying emission levels and assessing the potential for abatement"

We consider that the DEFRA report is the most recent relevant report on the potential impact of environmental poultry dust from intensive farming facilities on the health of those living in the locality. The Defra study included a combination of different types of intensive farming facility in terms of ventilation and birds and it remains the best available and relevant reference to this application. We therefore regard this study of particular relevance to the assessment of the potential impact of poultry dust on the health of individuals living in the vicinity of poultry farms. This is because:

(i) The particulate type assessed is the same nature as those that may be emitted from poultry facilities

(ii) Concentrating on the smaller particulate fractions ensures that we are looking at a worst case scenario as the smaller particles have the greatest potential to impact on health and will also be distributed over a wider area.

The conclusion of the Defra report (whereby PM_{10} particulate levels were reduced to background levels by 100m downwind of even the highest emitting poultry houses) is consistent with the advice from Local Air Quality Management Technical Guidance (LAQM TG09), which advises that if a farm houses less than 400,000 birds with mechanical ventilation and the relevant exposure distance to sensitive receptors (including residential properties that form part of the farm itself) is larger than 100m, then a detailed assessment for PM_{10} at these locations is not necessary. LAQM TG09 states that this advice is "based on experience from studies carried out by the EA, Department for Environment Northern Ireland, and a local authority".

We have received concern that the Defra report ignores a fraction of particles known as “inhalable dust”, which are larger in size than PM_{10}. Concern has also been expressed that these larger particles (10 - 30µm) may be able to travel up to 200 – 500 metres. Air Quality Limit Values set for the protection of human health at a European Level are for PM_{10} and $PM_{2.5}$. These are set out in the Environment Agency document “H1 Annex F – Air Emissions” which has been adopted by NRW. Particle sizes larger than 10µm are not covered by these Limits, because they are not considered to be harmful to human health. We consider that if PM_{10} particles are reduced to background levels by 100m downwind, then concentrations of larger particles (i.e. “inhalable dust”) will reduce even faster due to their higher deposition rate. In addition, the concentration of particles in a plume will reduce with downwind distance, due to dispersion (dilution) as well as deposition. Therefore, their concentration will be reduced to background levels at 100m downwind. As such, we are satisfied that “inhalable dust” does not pose a risk to any human receptor in the vicinity of the installation.

The following Health and Safety Executive (HSE) studies were cited as part of the concern: http://www.hse.gov.uk/agriculture/poultry/technical-legal.htm and http://www.hse.gov.uk/pubns/web40.pdf . However we are satisfied that the focus of these is on work place exposure of farm workers, whereas the Defra report focuses on possible dust impact to the general public from poultry dust emissions, so is more appropriate for this assessment.

Concern was also expressed that government guidance on the typical travel distances of various particles in Minerals Policy Statement (MPS2) contradicts the findings of the Defra report (Defra research project AC0104). We remain satisfied that the Defra report findings are the most appropriate for this assessment based on the fact that particles associated with Mineral Extraction sites originate from diffuse sources, whereas emissions from intensive poultry units are from point sources. Also mineral particles differ from poultry dust in respect of density, shape and composition and the method of dispersion from the mineral facility studied differed from that in used in a modern poultry unit. Therefore a study on the dispersion characteristics of mineral particles is not directly relevant to the assessment of an application for a poultry unit.

In minerals policy statement 2 section 1.7 it clearly states that
A definition of dust based on particle size is provided in Appendix 1A.
Paragraphs 1.10–1.11 on public perception relate mainly to particles greater than 10 □m in size.
Paragraphs 1.8–1.9 on air quality and 1.12–1.19 on health effects relate to particles less than 10 □m in size (i.e. PM10) Therefore there is no contradiction between the Defra report and Minerals Policy Statement. In addition the emission of dust from mineral sites is diffuse and not emitted in a controlled manner.

Concern was expressed that the results of the Defra report represent normal housekeeping operations only and do not include activities such as litter

laying, removal and house cleaning. We are satisfied that these activities occur on an infrequent basis (e.g. litter removal happens at the end of each flock cycle and is predicted to occur on approximately 7.75 days per year, with cleanout operations taking 15.5 days per year). The applicants have supplied us with a number of management plans describing various aspects of dust control within the facility. We are satisfied that the controls proposed will enable any dust from the site to be controlled to sufficiently low levels not to cause an impact on the health of individuals living in the vicinity.

We consulted Public Health Wales again on 8th December 2015. This additional consultation was in response to written representations regarding dust and bio-aerosols and the validity of the Defra Research Report (2009) "Characterising poultry dust properties, assessing the human health implications, quantifying emission levels and assessing the potential for abatement", which were submitted to us following the planning enquiry for the development. We asked Public Health Wales to review the documents and provide comment on the sections on dust and bio-aerosol and in particular the validity of the Defra report and its applicability to installations using high velocity roof mounted ventilation fans.

Public Health Wales responded on 18th December 2015 reiterating that they have already provided comments on the proposed development and what these mean in a public health risk context. They were however unable to provide comments over and above those already submitted to inform the decision-making process. Public Health Wales stated that they were unable to comment further as they were not involved in the production of the Defra report. They also stated that the effectiveness of proposed mitigation measures and application of BAT was a matter for the regulator.

We are satisfied that we have addressed the original comments we received from Public Health Wales. The way in which we have done this is described in Annex 2 and Annex 3 below.

Potential bio-aerosol releases in context of Defra report

For bio-aerosols, the Defra report concludes that "While in-house concentrations are of potential concern to poultry workers due to dilution and dispersion effects, concentrations approach background values at a distance of about 100m downwind". It also explains that "the levels emitted are sufficiently diluted over a short distance from the building so as not to pose a risk to those living in the vicinity of poultry operations".

The installation is equipped with high velocity roof mounted ventilation fans which are considered to be BAT, as they provide better dispersion than other types of ventilation such as side wall fans. The Defra study did not include a farm with high velocity roof mounted ventilation fans, so the conclusions of the report represent a worst case scenario. We are satisfied that these conclusions are applicable to emissions from the installation.

In addition we have modelled the distribution of dust and bio-aerosols from the Upper Heath facility using Met Office NWP meteorological data extracted at the proposed farm site and conclude that the dust and bio-aerosol levels are no higher than background at the nearest receptor (the farmhouse).

Dust release associated with Use of Roof Mounted Ventilation Fans

A number of ventilation systems exist. However the most efficient at achieving high rates of dispersal are high velocity roof mounted ventilation fans. These are defined by sector guidance note EPR 6.09 as having an efflux velocity of above 5 metres per second (m/s). This is standard within the industry and the roof mounted ventilation fans used at Upper Heath have been confirmed as having an efflux velocity of 11 m/s, so are BAT compliant.

Modern extraction systems help ensure that dispersion rates are achieved resulting in reduction to background levels normally no greater than 100m from a unit and therefore unlikely to pose a risk to nearby receptors as described in the Defra Research paper referenced above. The comments by the agent confirm dust will be emitted but in practice as the Defra paper demonstrates, this has been shown to reduce to acceptable levels beyond 100m and often much shorter distances from the units. We have reviewed the distances of receptors from the proposed new facility and we can confirm that the nearest receptors (Upper Broad Heath farmhouse and Little Heath bungalow) are more than 100m away from the proposed new poultry sheds. The measurements are based on grid reference data supplied by the applicant in respect of the location of the proposed poultry sheds. On this basis, dust modelling and a specific impact assessment of dust on receptors has not been required, as we are satisfied that the permit conditions, operating techniques and application of BAT will be sufficient to minimise dust emissions from the installation.

We expect the frequency of cleaning around roof mounted ventilation fan exhausts to be incorporated into the operator's routine maintenance regime. Routine maintenance forms part of the environmental management system for the installation and it is the Operator's responsibility to ensure that routine maintenance activities are sufficient to deliver compliance with conditions 1.1.1 and 1.1.2 of the permit. NRW will audit this during site inspection visits and take appropriate action where necessary if any problems are identified.

Dust Management Plan

The current sector guidance note for intensive farming (EPR 6.09) and draft European Commission BAT conclusions document (which sets out future BAT standards) do not require operators to have a dust management plan, as dust generation can be minimised through the application of Best Available Techniques. However the operator has submitted a fugitive emissions assessment as part of the application which describes the measures in place to control dust. We are satisfied the measures set out in this plan and other

operating techniques documents represent BAT for the installation. The fugitive emissions assessment has been incorporated into Table S1.2 of the permit as an operating technique and is therefore enforceable.

Sector guidance note EPR 6.09 states that "Roof Water from systems with high efflux velocity roof fans (i.e. above 5 m/s) does not require interception and treatment provided roofs remain clean with no visible signs of dust". The sector guidance also explains that grass cover around the installation may be sufficient to collect dust and impede run-off to surface water systems. On this basis, we do not consider dispersed dust landing on fields outside the proposed installation boundary and being transported into watercourses as a significant environmental risk, as the measures described in this paragraph will ensure that dust is adequately dispersed, to background levels within 100m of the installation. Hindwell Brook is approximately 100 metres south of the installation.

The transmission of disease from a non-permitted source is a public health protection matter for which NRW does not have regulatory powers (See **Transmission of Pathogens** section and **Public Health Wales** response table below for further information). A manure management plan is not required by the permit. (See **Manure Management** section for further information).

Permit Conditions

Dust generation is also controlled through permit condition 3.2.1. This condition requires that emissions of substances not controlled by emission limits (excluding odour) shall not cause pollution. We will check compliance with this condition during our site inspections to ensure that dust production is kept to a minimum. If this is not the case, we will take the appropriate action.

Use of Best Available Techniques

De-littering of the poultry houses cannot take place without using the roof mounted ventilation fans to provide ventilation. Similarly, this activity cannot be performed with the trucks inside the house and the doors closed, because sufficient ventilation must be maintained during this operation to safeguard the health and safety of the personnel undertaking the task.

The operator has now confirmed that gable end fans will **not** be installed at the installation. See **gable end fans** section below.

As already described, we require the operator to operate the installation in compliance with Best Available Techniques (BAT). However we cannot require the operator to install measures that would mean going beyond BAT. We have reviewed the application against EPR 6.09 Appendix 11 and the European Commission Draft BAT conclusion document which represents the likely future BAT standards for the industry. We are satisfied that the installation will be BAT compliant for reducing dust emissions because the following techniques will be employed:

- No Milling of food takes place on site
- Use of pelleted feed delivered in sealed systems;
- Cyclone dust extraction on feed bin exhausts preventing dust release to atmosphere
- Any feed spill is quickly cleaned up
- Use of feed pans rather than tracks
- Humidity recorded daily and maintained in the range of 55 – 60% keeping a balance of dry litter and avoiding dust production.
- Trees and hedges will trap dust particles

The documents that describe these control measures have been incorporated into Table S1.2 of the permit as operating techniques and are therefore enforceable.

In summary, we are satisfied that the risk of pollution due to dust is not significant. This is based on the evidence from Defra contained in Defra Research project final report (2009) "Characterising Poultry Dust Properties, assessing the human health implications, quantifying emission levels and assessing the potential for abatement". We also consider that the permit conditions and operating techniques will be sufficiently protective and are satisfied that the measures taken to minimise dust are compliant with future BAT standards. As such we do not require additional monitoring or controls to manage dust and we are satisfied that the techniques to control poultry dust to be used at Upper Heath farm will be sufficient to protect the health of all members of the public living in its vicinity.

This conclusion has been made based on the published guidance available at the time of assessment. If new evidence is published in future, we will consider this (if applicable) as part of the permit review for the intensive farming sector that will be invoked upon publication of the updated Best Available Techniques reference document expected in 2016.

Transmission of Pathogens

Potential for Pollution of Private Water Supplies & transmission of pathogens from the permitted installation

The transmission of Campylobacter and other pathogens are public health protection matters for which Natural Resources Wales does not have regulatory powers. NRW have regulatory powers in connection with ensuring that potential water borne pollutants are controlled within the boundary of the permitted process to ensure that they do not cause pollution of the surrounding environment. However, land-spreading of chicken manure outside of a permit boundary for agricultural purposes does not require a permit and so is outside NRW's regulatory role. Diseases and bio-hazard risks are assessed by Public Health Wales who were consulted on the permit application.

Powys County Council have confirmed that there are two properties within 500m of the installation that are served by private water supplies. Each is a single supply sourced from a spring and a well respectively. Private water supplies from springs, wells and boreholes are regulated under the Private Water Supplies (Wales) Regulations 2010 (as amended). The local authority is responsible for any monitoring and initial investigation required under the Private Water Supplies Regulations.

Please see the individual sections on **flood risk**, **manure management** and **dust** for a more detailed discussion of the environmental controls in place relevant to these issues and our explanation of why these are satisfactory in relation to this application.. Furthermore, The Health Protection Agency Position Statement on Intensive Farming (December 2006) concludes that provided farms "…comply with modern regulatory requirements any pollutants to air, water and land are unlikely to cause serious or lasting ill health in local communities". In addition, Public Health Wales have provided "a number of recommendations to be considered prior to permitting to avoid any lasting adverse impacts upon health or wellbeing impacts in the local community". These recommendations and how we have addressed them are listed in the Public Health Wales response table in Annex 3 to this document.

The transmission of disease amongst birds within a broiler unit, is an animal health matter for which NRW do not have regulatory powers. However NRW are responsible for ensuring that pests and other emissions from any permitted poultry facility are controlled within the boundary of the facility to ensure that they do not cause pollution of the surrounding environment. Permit conditions 3.6.1 and 3.6.2 have been set to address the pest aspect of this responsibility.

The letter "PHW Campylobacter comments.pdf" from Public Health Wales and was addressed to an officer of Powys County Council. However, we are satisfied that the permit conditions and application of BAT will be sufficient to minimise and adequately disperse poultry dust (and therefore release of bio-aerosols) at the installation. (See **Dust** section above).

Biodiversity, Heritage, Landscape and Nature Conservation

Ammonia, Nitrogen and Acid Deposition

There are no emissions of "nitrous oxide" or oxides of nitrogen associated with ammonia emissions from intensive farms. Therefore we are satisfied that indirect "nitrous oxide" emissions are not relevant to our consideration of the application.

We have revised the ammonia screening assessment based on the actual number of birds permitted at the installation (80,000) and the confirmed roof mounted ventilation fan efflux velocity of 11m/s. The original assessment was based on 96,000 birds and a roof mounted ventilation fan efflux velocity of 7 m/s and was therefore more conservative. The screening assessment has also been carried out against a more appropriate ammonia critical level of 3

µg/m^3 (for vascular and higher plants). This revised assessment has been carried out for the closest and therefore most impacted SSSI and non-statutory site (excluding Hindwell Brook). The revised modelling results show that (with the exception of Hindwell Brook), ammonia emissions from the installation will be significantly within benchmark levels, for the habitats sites within our screening distance criteria.

In summary:

- there are no European sites (SAC, SPA, Ramsar) within 10km of the installation.

- There are 3 Sites of Special Scientific Interest (SSSI) within 5km of the installation. The closest is the River Lugg, which also has the highest predicted process contribution (PC) from ammonia . However, the predicted PC at this site has fallen significantly from 14% to 3.1% as a result of the revised ammonia screening assessment. This is well within the 20% significance benchmark set for SSSIs. Therefore we are satisfied that ammonia releases from the installation are not likely to damage the features of the River Lugg SSSI. Our assessment of the potential for in-combination effects is discussed in the *Cumulative Effects of Pollution* subsection below.

- There are 17 non-statutory sites in the form of Ancient Woodland and Local Wildlife Sites within 2km of the installation. The predicted PC for the closest Ancient Woodland, Combe and Brand Hill Wood, has fallen significantly from 21.1% to 4.7% as a result of the revised ammonia screening assessment. Non-statutory sites are assessed based on the likelihood of significant pollution being caused. Process contributions below 100% will not cause significant pollution. Therefore we are satisfied that the revised PC of 4.7% is significantly below the 100% benchmark and that significant pollution will not be caused at this site or any of the other non-statutory sites (not including Hindwell Brook).

- Hindwell Brook is the closest Local Wildlife Site to the installation., The Brook is a tributary of the River Lugg and therefore no ammonia Critical Levels or Loads can be applied, because riverine habitats are not sensitive to aerial emissions of ammonia and nitrogen deposition. As such, no assessment of the process contribution is required for this Local Wildlife Site, because there is no Critical Load or Level for ammonia to assess against. The moss *Cratoneuron filicinum* is noted as a lower plant found in Hindwell Brook. This moss is found in very wet, occasionally water-logged situations beside or in rivers and streams and regularly inundated. It is an indicator of moderately fertile soils, so has some tolerance to nutrient nitrogen. Also, because it is located in very wet to occasionally

water-logged habitats and inundated regularly it is given additional protection against aerial ammonia concentrations. Together this indicates that this moss is more likely to be affected by nutrient run-off from land spreading rather than aerial deposition into the water. Manure storage and spreading does not take place within the installation boundary, so is outside the scope of the environmental permitting process. (See **manure management** section below). As the moss is considered to be an in-water/riverine feature and not sensitive to airborne ammonia, no Critical Level is applicable and the moss is not considered to be at risk from aerial ammonia emissions associated with the installation.

As described above, the critical levels for atmospheric ammonia concentrations and atmospheric nutrient nitrogen critical loads are not applicable to river systems due to low sensitivities from aerial sources. The PC at the River Lugg SSSI has therefore only been assessed to demonstrate the contribution from the installation as part of our precautionary approach. In addition, as river systems are not sensitive to ammonia and nitrogen deposition, any further consideration of nitrogen or acid deposition is not required. However, a stringent ammonia critical level of 1µg/m^3 was originally applied in the screening assessment which is the equivalent to a nitrogen deposition of 5kgN/ha/yr. This in turn is the same as the minimum nutrient nitrogen critical load assigned to blanket bogs. That is to say, applying 1µg/m^3 in the screening assessment provides the same level of protection against nitrogen deposition that would be applied to blanket bog habitats to all of the habitats in question. In terms of acid deposition, the more stringent ammonia critical level is the equivalent to applying the nitrogen acid deposition of 0.371keqN/ha/yr. That is the same as applying a lower nitrogen acid critical load that would be used for the alpine and boreal heaths found in Morrone Birkwood SAC, the second most sensitive site for acid deposition in the UK, to all of the habitats in question. As such our approach to the assessment has been precautionary and has not identified any potential for significant adverse effects on any of the SSSIs or the potential for significant pollution at any of the non-statutory sites.

We have reviewed EPR 6.09 and the European Commission Draft BAT conclusions for the sector to ensure that the installation will be operated in accordance with BAT for minimising ammonia emissions from animal housing, as well as feed and feeding cycles. We are satisfied that the following measures which will be in place at Upper Heath represent BAT for the installation:

Animal Housing

- Solid Floor, forced ventilation litter-based housing system equipped with a non-leaking drinking system;
- Forced drying system of litter using indoor air. More specifically, the poultry houses are equipped with gas fired blown air heaters which dry the litter using indoor air to achieve a target dry matter

content for litter of between 60 -70%, in order to minimise emissions.
- The housing is well insulated and the houses have a damp proof course.
- The houses are fully insulated with a U-Value of approximately 0.4 W/m2/°C to reduce condensation and heat lost.
- Litter is kept loose and friable.

Feed and Feeding Cycles
- Protein is reduced over the growing cycle by providing different feeds
- Birds are fed a minimum of three diets
- Feed storage bins are specifically designed to accommodate the required feeding regime.

The above measures are described in the operator's Technical Standards and Non-Technical Summary documents. These have been incorporated into Table S1.2 of the permit as operating techniques and are therefore enforceable. Based on the above, we consider that ammonia monitoring is not required and the installation will be operated in accordance with BAT.

Screening Assessment Results

The only source of ammonia emission from the permitted site is via aerial emission. Accordingly the NRW ammonia screening tool used in the assessment considers the aerial contribution only. Manure storage and spreading takes place outside the installation boundary, so run-off associated with this activity is outside the scope of the environmental permitting process (see **Manure Management** section below). Also there are no point source emissions to water from the installation. The assessment is based on the contribution from the unit to the appropriate ammonia critical level. Critical levels of ammonia are not applicable to aquatic systems because these systems are not sensitive to ammonia concentrations in the air. Vegetation found in the watercourse are protected from the atmospheric sources. The ammonia concentrations predicted by the ammonia screening tool are conservative and can be four times higher than that predicted by detailed modelling (e.g. AERMOD, ADMS), which would have been required if any of the benchmark significance levels had been exceeded. This is because the screening tool is designed to ensure potential sources are not ruled out of further investigation but remain to be examined in greater detail. Therefore when the ammonia screening tool predicts a contribution of 3.1% at the River Lugg SSSI, then NRW is confident that the actual contribution is likely to be much lower.

With regard to the requirement to prevent deterioration of water bodies under the Water Framework Directive, it is re-iterated that the only emissions of ammonia from the installation are aerial emissions from the roof mounted ventilation fans and that rivers and streams are not sensitive to aerial emissions of ammonia and nitrogen deposition. This is because any deposition will be washed away by the river itself and therefore cannot

accumulate or cause adverse effects. For this reason, no Critical Levels or Loads are set for Rivers and therefore no assessment is required because there is no mechanism for effect. We have taken a precautionary approach for the River Lugg SSSI though and have completed the screening assessment for this site to account for any riparian habitat which may be present. These terrestrial features are not the main qualifying features for the SSSI, but are complimentary. However we have taken a precautionary approach by assuming that an acid sensitive habitat is present and are satisfied that the resultant predicted PC of 3.1% is not significant.

We are satisfied that we have fulfilled our obligations under the Water Framework Directive by assessing the application for its effects on Hindwell Brook Local Wildlife Site and the River Lugg SSSI (as described above). The River Wye SAC is outside the 10km distance screening threshold for this application and therefore is outside the scope of the assessment process. This is because it is too far away to be directly impacted by aerial emissions of ammonia from the installation.

The local planning authority have responsibilities for assessing the ecological features of a development site and the impact on habitats as part of the planning process. NRW conduct a habitats screen for all new environmental permit applications we receive. This takes the form of an electronic report which is generated from our mapping database. The habitats screening report identifies all European Sites (SAC, SPA, Ramsar), SSSIs, Non-statutory sites (National Nature Reserves, Local Nature Reserves, Local Wildlife Sites, Ancient Woodland) within the relevant screening distance criteria for the installation type. In terms of the protected species referenced in the document "NRW response to Planners April 2014.pdf", (specifically fish including salmonids and white clawed crayfish), we are satisfied that these will not be impacted by aerial ammonia emissions from the installation, as these species are aquatic and are therefore not sensitive to aerial emissions of ammonia.

We are not aware of any otters or great crested newts in the vicinity of the installation.

See also **Pollution** section below.

Planning Application Issues

It is our understanding that the Construction Ecological Mitigation Plan is required to help prevent ecological harm during the construction phase. This is a matter for the local planning authority who may be able to clarify their position. Storage and spreading of chicken manure will take place outside the installation boundary and is therefore outside the regulatory scope of the environmental permitting process.

"NRW response to Planners April 2014.pdf" mentioned fish including salmonids and white clawed crayfish in the context of the potential for pollution due to contaminated floodwater and recommended the submission of a flood consequences assessment. Our subsequent letter "NRW response

to Planners Aug 2014.pdf" concludes that "there is not an attendant risk that contaminants within the units could mobilise and impact on water quality within the area" based on our review of the submitted flood consequences assessment. Therefore we are satisfied that the above protected species will not be impacted in the event of flooding because the poultry buildings will not be inundated by flood water. See also **Flood Risk** section below.

Cumulative Effects of Pollution.

However, as part of our precautionary approach, we have considered the contribution from this unit in addition to the background, termed Predicted Environmental Concentration (PEC), in relation to the critical level for ammonia for the River Lugg SSSI and Combe and Brand Hill Wood Ancient Woodland. This approach has been used because it enables us to demonstrate whether there would be significant effects either alone or in combination with existing farms and with respect to the prevailing environmental conditions (e.g. background) for these particular sites. The process contributions from existing farms are included in the background concentration for ammonia used in this assessment.

The predicted PC from the installation at the River Lugg SSSI is 0.094 µg/m^3. The background concentration of ammonia in the area is 2.05 µg/m^3. The PEC is obtained by adding the predicted PC to the existing background. Therefore the PEC at the River Lugg SSSI is 2.144 µg/m^3. The PEC is then assessed against the Critical Level of 3 µg/m^3 to determine the likelihood of exceedance. For the River Lugg, the PEC is 71.5% of the Critical Level. Therefore we are satisfied that the Critical Level for Ammonia will not be exceeded at the River Lugg as a result of aerial emissions of ammonia from the installation.

The predicted PC from the installation at Combe and Brand Hill Ancient Woodland is 0.141 µg/m^3. The background concentration of ammonia in the area is 2.05 µg/m^3. Therefore the PEC at this site is 2.191 µg/m^3. This equates to 73% of the Critical Level. Therefore we are satisfied that the Critical Level for Ammonia will not be exceeded at Combe and Brand Hill Ancient Woodland as a result of aerial emissions of ammonia from the installation.

We have stated that we do not control the application of manure to land through the permit unless this takes place within the installation boundary. However, NRW will continue, in association with other authorities, to work with land owners and farmers to encourage best practice and, in the event that a pollution event occurs, we will take the appropriate action in accordance with our powers and duties. The wider cumulative impact from the growth of the poultry sector in a given area is primarily a consideration for the Planning Authority(in this case Powys County Council), however, NRW will contribute to any strategic approach developed .

Air Quality

Availability and consideration of any new data on local air quality issued since the Health Protection Agency's December 2006 position statement

Data on local air quality is available on the Welsh Air Quality website. The main air quality issues in Wales relate to motor vehicle use and some heavy industry. The local authority is responsible for monitoring local air quality and have not raised any issue relating to this during the consultation.

NRW will continue to consult with the local authority on air quality issues and if any data becomes available we will take this into consideration during the next permit review.

We require the operator to apply Best Available Techniques (BAT) which are deemed sufficient control to protect air quality and may impose further control if evidence comes to light that emissions from the installation are significantly contributing to an air quality problem.

Surface water

Water Pollution as a result of Dust

Atmospheric dust releases from modern intensive farming units are minimal. This is supported by Defra Research project final report (2009) "Characterising Poultry Dust Properties, assessing the human health implications, quantifying emission levels and assessing the potential for abatement", which states that PM_{10} particulate levels were reduced to background levels by 100m downwind of even the highest emitting poultry houses, therefore are unlikely to pose a risk to those living in the vicinity of poultry operations. On this basis, we have not required the operator to undertake dust modelling and we are satisfied that the permit conditions, operating techniques and application of BAT will be sufficient to minimise dust emissions from the installation. (See **Dust** section .

Dust may accumulate around the roof mounted ventilation fan mechanisms which are internal and will need to be cleaned occasionally for maintenance purposes. However as the air extraction is performed by high velocity roof mounted ventilation fans, dust will be sufficiently dispersed into the atmosphere and not deposited on the roof. The applicants have now confirmed that no gable end fans will be installed at the installation (see **Gable End Fans** section). There may be some very small organic dust particles reaching fields and vegetation within a close proximity of the units however the levels and effect of this is not significant and no adverse impact is expected. Furthermore any emitted dust will naturally decompose on the surface of the land it settles on.

Areas of roof and yard draining to soakaway will receive very minimal quantities of dust from atmospheric deposition. Well-constructed soakaways are designed and more than capable of breaking down very small organic particles.

The sector guidance also explains that grass cover around the installation may be sufficient to collect dust and impede run-off to surface water systems. On this basis, we do not consider dispersed dust landing on fields outside the proposed installation boundary and being transported into watercourses as a significant environmental risk, as the measures described in this paragraph will ensure that dust is adequately dispersed, to background levels within 100m of the installation. Hindwell Brook is approximately 100 metres south of the installation.

The clean roof water and yard water will not need to be treated and as such Application Form Part B3 does not need revision. Lightly contaminated wash water from the yard is segregated by using a diverter valve and contained in a dedicated tank, prior to its removal from site.

Water Pollution due to Multiple Causes

See separate sections on **Dust, Dirty Water System, Soakaways** and **Flood Risk**

Water Pollution as a result of Phosphate

Phosphorus is excreted by poultry and is therefore incorporated into the manure that is removed from the installation. NRW are responsible for ensuring that potential water borne pollutants are controlled within the confines of the permitted process to ensure that they do not cause pollution of the surrounding environment. However the land-spreading of chicken manure outside the boundary of a permitted facility does not require a permit and so is outside the scope of EPR and the permitting process. (See section on **Manure Management** for further information).

Phosphate excretion can be minimized at source through the use of BAT for feeding and nutrition. We have reviewed EPR 6.09 and the European Draft BAT conclusions for the sector and we are satisfied that the installation will employ the following techniques which are BAT:

- Reduction of phosphorus levels in poultry rations over the rearing and production cycle; and
- Multiphase feeding with a diet formulation adapted to the specific requirements of the production period.

More specifically, Birds are fed a minimum of three diets during their growth, with gradually reducing levels of protein and phosphorous as bird age increases.

NRW are continuing to work with Powys County Council to consider this issue on a more strategic level. Where NRW have been notified of specific pollution incidents, these are assessed and investigated where required. NRW recognises the potential risk of pollution through poor practice or inadequate infrastructure at non-permitted sites and will investigate specific pollution incidents. There are a number of potential sources of phosphate affecting watercourses in the area and NRW works to reduce these. The risk of pollution from a permitted site – those over 40,000 places is reduced, as the units are built to industry standard to ensure emissions are minimised and risks managed to prevent pollution. The wider cumulative impact from the growth of the poultry sector in a given area is primarily a consideration for the Local Authority and NRW will contribute to any strategic approach.

Ecological Status of Adjacent Water Courses

For the reasons described in the **Biodiversity, Heritage, Landscape and Nature Conservation** section above, we consider that aerial emissions from the installation are unlikely to cause a deterioration in adjacent water courses. With regard to phosphate, atmospheric deposition from the site is likely to contain very low levels of phosphate. This is because phosphorus levels in the feed will be reduced over the cycle to minimise phosphorus excretion in line with EPR 6.09. Therefore the levels deposited onto land or directly into watercourses will not be significant.

Permit conditions and application of Best Available Techniques

Permit condition 3.1.1 states that “there shall be no point source emissions to water, air or land except from the sources and emission points listed in Schedule 3, Tables S3.1 and S3.2. This limits the releases to uncontaminated roof water releases to land via a soakaway. Also, Permit condition 3.2.1 requires that “emissions of substances not controlled by emission limits (excluding odour) shall not cause pollution”. We are satisfied that these conditions are sufficiently protective to ensure that releases from the installation are properly controlled.
We are also satisfied that the controls described in the operator’s management plans (addressed under the individual topic headings elsewhere in this document) represent the appropriate measures for preventing water pollution and therefore water pollution will not be caused by the regulated installation.

Potential Risk to Local Watercourses resulting from contamination of surface water and need for surface water treatment

As described in the **Soakaway** section, clean uncontaminated surface water run-off (in the form of rainwater from the roof and yard area) will drain to soakaways. The soakaways are for uncontaminated surface water drainage only, therefore there is no water quality treatment requirement for surface water.

As described in the **Dirty Water System** Section, contaminated wash water from the poultry houses and lightly contaminated water from yard wash downs will be collected in a separate sealed drainage system, prior to removal off site. This represents BAT for the installation and we are satisfied that this will prevent contamination of surface and ground water. In addition, the operator's Technical Standards document states that the buildings at the installation will be constructed to BAT standards. More specifically the broiler house floors and yard area will be constructed in concrete laid over an impervious membrane preventing both ingress of water and release of dirty water to ground, expansion joints will be hot tar sealed. This will prevent fugitive releases to ground from the installation. The Technical Standards document has been incorporated into Table S1.2 of the permit as an operating technique and is therefore enforceable.

As described in the **Flood Risk** section, we are satisfied that the poultry houses are not at risk from flooding and specifically flood water is unlikely to enter the units and mobilise any contaminants. Therefore any potential flooding would relate to land outside the installation boundary and is therefore outside the scope of the environmental permitting process.

Site Layout / Drainage Plan

The Site Layout / Drainage Plan has been amended to show the correct number of roof mounted ventilation fans, location of dirty water tanks and drainage layout at the installation. The amended plan is at Schedule 7 of the Permit. We are aware that planning permission has been granted for this development, and that a planning condition has been included that ensures that no development will take place until a scheme for separate foul and surface water drainage works has been submitted and approved by the local planning authority.

The key to the site plan states that the concrete yard area will have gradients falling to the diverter drain. We are satisfied that this will prevent wash-water run-off to unmade land.

The updated site plan in Schedule 7 of the permit shows a sediment trap in the drain containing the diverter valve. The sediment trap will be cleaned before and after washing, with sediment being disposed of with spent litter.

We are satisfied that the Site Layout / Drainage Plan is adequate for the purposes of determining the permit application and that no further drawings are required.

Soakaways

Suitability of Soakaways

We are aware that planning permission has been granted for this development, and that a planning condition has been included that ensures that no development will take place until a scheme for separate foul and surface water drainage works has been submitted and approved by the local planning authority.

The soakaways will be used for the purposes of draining clean, uncontaminated rainwater run-off from the roofs of the poultry houses and yard area. We are satisfied that this technique represents BAT for the installation (as defined by EPR 6.09 and the European Commission Draft BAT conclusions document) for the following reasons:

- rainwater run-off from roofs will be segregated from waste water streams that require treatment by implementing separate collection in the form of properly designed and maintained drainage systems;
- there are no untreated point source emissions directly into surface water from the installation.

In addition, the draft BAT conclusions document states that:

> "for waste water with a low pollutant load, the treatment can be carried out by means of swales, ponds, constructed wetlands, soakaways etc."

Also EPR 6.09 states that:

> "It is acceptable for drainage from clean yards to drain to surface waters".

EPR 6.09 Appendix 8 Undertaking a Drainage Review also states that:

> "Dust from buildings with side-wall ventilation systems and rainfall from roof-vented sheds may create contaminated water. This may be disposed of via a swale or a soakaway taking account of groundwater vulnerability. Soakaways may not be appropriate if the site is on a major aquifer".

Therefore the published guidance clearly states that soakaways represent BAT for the drainage of uncontaminated and water with a low pollution load. In the case of Upper Heath, we consider that dust may accumulate around the internal roof mounted ventilation fan mechanism and will need to be cleaned occasionally for maintenance purposes. However as the air extraction is performed by high velocity roof mounted ventilation fans, dust will be sufficiently dispersed into the atmosphere and not deposited on the roof.

Rain water run-off from the yard area will drain to soakaway, unless contamination is present, for example as a result of yard washing. When this happens, the diverter valve is used to segregate the lightly contaminated wash water into a separate collection tank, to ensure that it cannot drain to the soakaways. Therefore although the BAT guidance states that soakaways can be used to drain water with a low pollutant load, this will not be the case at Upper Heath. We are satisfied that the site is not located on a major aquifer.

In general, drainage systems on permitted poultry units are designed and managed to ensure clean and dirty water is separated allowing dirty water with effluent and high solid contents to be contained. Areas of roof and yard draining to soakaway will receive very minimal quantities of dust from atmospheric deposition. Well-constructed soakaways are designed and more than capable of breaking down very small organic particles.

Soakaway Drawings

As described above, the details of a scheme for separate foul and surface water drainage works is subject to a planning condition for this development. A site drainage plan is required as part of the permit application. However more detailed drawings of soakaway design are not required and may also not be available if an installation has not been built, hence the planning condition. We consider that the drain plan and control measures proposed by the operator are sufficient to enable us to assess the suitability of the proposed drainage scheme for environmental permitting purposes.

The Site Layout / Drainage Plan in Schedule 7 of the permit shows soakaway drainage channels running down the long side of each side of each poultry house and immediately adjacent to the houses themselves. Therefore rainwater run-off will be captured from the entire roof area. The soakaway drainage route for clean rain water run-off from the yard is also shown. The direction of flow is also shown for each channel. As the soakaways run immediately adjacent to the poultry houses, we consider that they are located an acceptable distance from the calculated floodplain.

Drainage from Soakaways

As described above, the details of a scheme for separate foul and surface water drainage works is subject to a planning condition for this development. Percolation tests are not deemed necessary as the soakaways will be used for uncontaminated water drainage only.

In addition, because the soakaways are for uncontaminated water drainage only, there is no water quality treatment requirement and no emissions subject to leaching. Therefore consideration of contamination from these soakaways is not relevant.

Failure of Soakaways

As described above, the details of a scheme for separate foul and surface water drainage works is subject to a planning condition for this development. The soakaways are for uncontaminated water drainage only, therefore there is no water quality treatment requirement.

Soakaways and Pollution

The soakaways are for uncontaminated water drainage only, therefore there is no water quality treatment requirement. We consider that dust may accumulate around the internal roof mounted ventilation fan mechanism and will need to be cleaned occasionally for maintenance purposes. However as the air extraction is performed by high velocity roof mounted ventilation fans, dust will be sufficiently dispersed into the atmosphere and not deposited on the roof. EPR 6.09 confirms that soakaways are BAT for drainage of water with a low pollutant load.

As described above, the details of a scheme for separate foul and surface water drainage works is subject to a planning condition for this development. However, we do not consider pollution of the Hindwell from soakaway drainage to be an environmental risk because the soakaways are for the drainage of clean rain water run-off only.

Permit condition 3.2.1 requires that "emissions of substances not controlled by emission limits (excluding odour) shall not cause pollution". We are satisfied that this condition provides an enforcement mechanism designed to prevent contaminated water discharging to the soakaways. This condition is enforceable and we will take appropriate action if it is not complied with.

Nitrate Vulnerable Zone

Inaccuracies in document "NVZ.2015.pdf"

"NVZ.2015.pdf" is a form for calculating the nitrogen loading associated with manure from the farm. It is associated with the manure management plan and is outside the scope of the environmental permitting process because manure is spread outside the installation boundary.

Groundwater

Potential Pollution of Groundwater

There are no point source emissions to water from the installation. The **Dirty Water System** section of this document explains that contaminated wash water from the installation is collected in a sealed system and segregated from clean uncontaminated rainwater run-off. The latter drains to ground via soakaways and does not require treatment (see **Soakaways** section for more information). Dust and flooding are also considered under the relevant topic headings within this document. We are satisfied that the installation will use

appropriate measures to prevent fugitive releases to groundwater. Therefore an assessment of watercourse and groundwater impact is not relevant.

Dirty Water System

Design details of dirty water system

The updated Site Layout / Drainage plan in Schedule 7 of the permit shows the design and layout of the drainage system to be used at Upper Heath Farm. In summary, there will be no point source emissions to water from the installation. Clean rainwater run-off from the roofs of the poultry houses and yard area will drain to soakaway. All wash water from the installation will be segregated from clean rainwater run-off and will drain into a separate sealed system, comprising two dirty water tanks. More specifically, contaminated wash water from the poultry houses will drain into a 25,000 litre underground dirty water tank and lightly contaminated water from the yard area will drain to a separate 10,000 litre below ground tank via a sediment trap and diverter valve.

We asked the applicant (via Schedule 5 notice on 22nd September 2015) to provide further information in the form of calculations to demonstrate that the two below ground dirty water tanks offer sufficient capacity to contain the worst case volume of wash water from the proposed poultry houses and yard area. The 25,000 litre tank for contaminated wash water from the poultry houses has been sized on the basis that each house takes approximately 5 hours to wash using a pressure washer consuming 37 litres of water per minute. This generates a total volume of 22,200 litres of wash water from the poultry houses overall. We therefore consider that the proposed tank capacity of 25,000 litres allows a satisfactory safety margin of 11%.

The proposed 10,000 litre tank which will receive lightly contaminated wash water from the yard may be subject to an additional volumetric contribution in the form of rainwater. The applicants have calculated the proposed tank capacity based on the yard taking approximately 2 hours to wash, using a pressure washer which uses 37 litres of water per minute. This gives a total volume of 4440 litres of wash water. The applicants have also allowed for the possibility of a heavy rainfall event coinciding with the washing of the yard. The additional volume which has been used to represent heavy rain is 4000 litres, which equates to approximately 33 litres of rain per minute falling onto the yard continuously for 2 hours. (This is almost equivalent to the yard area being washed with double the proposed amount of water). When the total volume of wash water is added to the total rainwater allowance, the total worst case predicted volume of effluent draining into the yard dirty water tank is 8440 litres. On this basis, we consider that the proposed tank capacity of 10,000 litres allows a satisfactory safety margin of 15%.

The applicants originally proposed using a 3000 litre tank for the collection of lightly contaminated wash water from the yard area. However the volume of the proposed tank has been increased to 10,000 litres following our request for calculations to demonstrate that the capacities of both dirty water tanks are sufficient to contain the worst case predicted volumes of effluent and

rainwater (where applicable). The site layout and drainage plan (in Schedule 7 of the permit) has been updated to show the larger 10,000 litre tank and the justification for the dirty water tank sizes has been included in Table S1.2 Operating Techniques.

The diverter valve is necessary to allow rainwater run-off from the yard to drain to soakaway via the diverter valve drain under normal circumstances. However when the yard is being washed, the diverter valve will be used to divert the dirty wash water into the 10,000 litre containment tank. The drain containing the diverter valve also contains a sediment trap which will be cleaned before and after washing, with sediment being disposed of with spent litter. Wash down water will be removed from each of the dirty water tanks as soon as possible after washing by means of a farm vacuum tanker and taken for landspreading outside of the installation boundary. The two dirty water tanks are primarily for the collection of wash water. We are therefore satisfied that any storage of wash water within the tanks is temporary pending collection by vacuum tanker and subsequent removal. The collection of wash water has been added to Table S1.1 of the permit as a Directly Associated Activity.

The gradient of the yard area will fall towards the diverter drain, which will prevent wash water running off to land and soakaway during yard cleaning operations. We do not require a dirty water management plan because we are satisfied that the dirty water drainage system will be operated in line with the European Commission's draft BAT conclusions document. The following measures to be employed at the installation represent BAT:

- An emergency plan referencing Site Layout / Drainage Plan showing the drainage systems and water / effluent sources; describing actions to be taken for various scenarios including fire, pollution prevention measures, fuel and chemical leaks as well as describing the equipment available for dealing with this type of incident. The emergency plan also explains that the operator and staff will undertake appropriate training.
- Segregation of uncontaminated rainwater from waste water streams
- Drainage of waste water to dedicated tanks.

In addition, the applicants have stated that the wash water tanks will be built to conform to the specification described in EPR 6.09. The measures describing the operation of the dirty water system are described in the following documents: Technical Standards, Emergency Plan, Fugitive Emissions Plan, Non-Technical Summary and Odour Management plan. All of these have been incorporated into Table S1.2 of the permit as operating techniques and are therefore enforceable.

Operation of Diverter Valve

The pollution prevention / control measures described in the Emergency Plan explain that the wash water diverter valve will be checked immediately prior to use. The two dirty water tanks will also be checked prior to wash down

operations to ensure that they are empty. The operator will also ensure that staff and contractors are aware of the location and operation of the diverter valve. During wash down the levels within the dirty water tanks will be monitored to prevent overfill. Washing operations will be stopped to allow 300mm of freeboard until the tank is emptied.

Method by which the dirty water tanks will be emptied

The pollution prevention / control measures described in the Emergency Plan explain that wash water will be removed from the dirty water tanks by farm vacuum tanker as soon as possible after washing. The applicants have confirmed that a 4 metre length of hose will be used for this purpose. The hose will be constructed of heavy gauge rubber / plastic which will be slightly flexible in that it is able to hold its shape without collapsing. The house wash tank (25,000 litres) access will be via a manhole incorporated into a small concrete pad. The surfacing of the concrete pad will slope from the edges down into the manhole. This means that any liquid escaping as a result of uncoupling the hose would run back into the tank, thereby preventing any run-off to land.

Dirty water tank integrity

The Technical Standards document states that "The wash water tanks will be built to conform to specifications in SGN EPR6.09 'How to comply with your environmental permit for intensive farming'".

Permit condition 3.1.1 requires that there shall be no point source emissions to water, air or land except from the sources and emission points listed in Schedule 3, Tables S3.1 and S3.2. Also, permit condition 3.2.1 requires that emissions of substances not controlled by emission limits (excluding odour) shall not cause pollution. We will ensure that these permit conditions are being complied with for all aspects of the installation's operations during our regular inspection visits. If this is found not to be the case, we will take appropriate action.

In summary, we consider that application of BAT, use of appropriate operating techniques (e.g. emptying wash water tanks soon after washing and monitoring levels in the tanks during wash down) and compliance with the above permit conditions will be sufficiently protective to prevent potential pollution associated with the dirty water tanks.

Flood Risk

Siting of the Development

The potential for flooding through the land use of a proposal is assessed through the planning application. NRW are an advisor to the local planning authority. However the local planning authority is responsible for considering whether the location of the development is appropriate.

Planning Policy Wales Technical Advice Note (Tan 15)

The local planning authority is responsible for consulting with neighbouring local authorities on flood risk as this issue relates to the siting of the development. We are aware that planning conditions have been included that will safeguard the environment (drainage, manure management plan etc.) as part of the planning permission for this development. However we are satisfied that the poultry houses are not at risk from flooding and specifically flood water is unlikely to enter the units and mobilise any contaminants. Therefore any potential flooding would relate to land outside the installation boundary and is therefore outside the scope of the environmental permitting process. We understand that planning permission has been granted for this development and we are aware that TAN15 'planning policy' has been applied to the proposal through the original planning application determination.

With regards to requirement for flood defence consent, as the site is not in a recognised functional flood plain nor are there any works proposed in the Hindwell Brook, there is no requirement for a flood defence consent. The proposed units are north of the farm and other buildings on land higher than the farm as demonstrated by the Flood Consequences Assessment (FCA) described below. Local flooding at Combe is acknowledged and the published flood map highlights this in terms of fluvial flooding.

TAN 15 requires assessment of climate change and the 1 in 1000 year fluvial events. A precautionary approach was taken by NRW in requesting a FCA (see below).

Flood Consequences Assessment (FCA)

We consider that the FCA has acceptably demonstrated that the proposed development will not be affected by flooding from the Lugg or Hindwell. The FCA demonstrated this in line with the requirements of TAN15.

The FCA (and NRW) recommended best practice in terms of elevated slab levels to the LPA. These were not flood mitigation measures, as the FCA did not demonstrate that the units will be affected by fluvial flooding. The FCA has demonstrated using conservative constraints that the poultry units will be some 700mm above the design flood event plus the elevation set by the slabs . 700mm in a valley floor of this nature is considerable. The LPA as decision maker, are responsible for what conditions / informatives are imposed as part of a planning permission.

The FCA has not been shown to be flawed by the Water 21 assessment as ponding in other fields (notably not the field housing the units) was acknowledged by the Hydrologic Ltd. FCA. The units will have concrete bases, therefore no groundwater flooding will affect the units.

Pollution Consequences of Flooding

NRW stated in its original response to the LPA (3rd April 2014) that the applicants are required to demonstrate that the consequences of flooding can be managed over the lifetime of the development, which the applicants subsequently did in the form of the FCA which we reviewed. However our response did not indicate contamination from dust is inevitable or that contamination by dirty water is highly likely. In subsequently accepting that the buildings are not at risk from flooding (flood water is unlikely to enter the units and mobilise any contaminants), we have made an assessment of pollution as a result of flooding.

No dirty water (wash water) will be released outside the installation boundary, as the soakaways are for the drainage of clean rain water run-off only. Furthermore, we do not consider dispersed dust landing on fields outside the proposed installation boundary and being transported into watercourses by flood water as a significant environmental risk. There may be some very small organic dust particles reaching fields and vegetation within a close proximity of the units however the levels and effect of this additional nutrient is not significant and no adverse impact is expected. The applicants have now confirmed that no gable end fans will be installed at the installation (see **Gable End Fans** section).

Underlying Geology

The land is free draining in photos for the field concerned, as observed at a time of standing water elsewhere.

Manure Management Plan

The spreading of manure will take place outside the installation boundary and is therefore outside the scope of the permit. (See section on **Manure Management** below). However, The Code of Good Agricultural Practice applies to all farms in England and Wales and provides guidance on nutrient management (including landspreading). This is a guidance document and not enforceable. We are aware that the manure management plan is associated with a planning condition within the planning consent for this development.

Management Plans

Odour Management Plan

Trailers will be parked close to the doors of each poultry house when manure is being removed from the houses, to minimise the distance travelled by uncovered spent manure and therefore odour emissions. Litter removal will take approximately two hours per house at the end of each flock cycle. The roof mounted ventilation fans are not switched off during this activity, because a minimum ventilation rate is required for the health and safety of personnel

working in the poultry houses. It is also not possible to load the litter with the trucks inside the houses with the doors shut for the same health and safety reasons. However we are satisfied that odour from the installation is not expected to cause pollution at nearby receptors. (See **Odour** section).

The odour management plan has been updated to ensure it is specific to Upper Heath Poultry Unit, refers to NRW as the regulator and that the nearest receptors are correctly identified. The plan contains a column entitled "Actions taken to minimise odour and odour risks at Upper Heath Farm". This column details the control measures in place to minimise odour production from all aspects of the listed activity. The revised odour management plan removes the statement about prevailing weather conditions. However if an odour complaint is received, the weather conditions and wind direction and speed will be recorded on the odour complaint form, as this information may help to assist the operator's subsequent investigation of the circumstances which gave rise to the complaint.

The revised odour management plan states that olfactory checks will be conducted twice per day, at the site boundary closest to the nearest receptor. The checks will coincide with stock inspections at 07:00hrs and 16:00 – 18:00hrs and any abnormalities will be recorded and investigated.

We are satisfied that the updated odour management plan is specific to upper Heath Poultry Unit. The odour management plan has been incorporated into Table S1.2 of the permit as an operating technique which is therefore enforceable.

Terminal Hygiene Plan

The Terminal Hygiene plan is normally prepared for the site during the first cycle of birds, due to each site being specific in its requirements, as in size and number of houses, construction materials used. The document typically describes the area and procedures for washing, disinfecting and fumigation of the poultry site, as well as listing the approved chemicals to be used, along with the quantities and dilution rates to be adhered to. We have set Pre-operational condition PO1 in the permit which requires the operator to send the Terminal Hygiene Plan to NRW for approval three months prior to it being implemented for the first time. The operator is required to provide the details described in this paragraph. In addition, the plan shall also describe all appropriate measures and controls in place to prevent pollution as a result of washing, disinfecting and fumigation and shall include the storage of chemicals and disposal and removal of wash water.

Non-Technical Summary

The Non-Technical Summary has been updated so that it now reflects the number of birds authorised by the permit per flock cycle, specifically 80,000 places. A version number and date has also been added for document control purposes.

Noise Management Plan

A revised noise management plan has been provided. The plan has been incorporated into Table S1.2 of the permit as an operating technique, which is therefore enforceable.

Emissions Management Plan

An assessment entitled "Fugitive Emissions at Upper Heath Farm" has been provided by the applicants. The document describes the controls in place to reduce fugitive emissions of dust, ammonia, zoonoses, wash water run off and problems associated with pests in the form of flies and vermin. This document has been incorporated into Table S1.2 of the permit as an operating technique and is enforceable.

Emergency Plan

The Emergency Plan provides for emergency supply of food and water, describes the action to be taken in respect of interruptions to food and water supplies, as well as actions to be taken in the event of power failure and equipment failure. The emergency plan has been incorporated into Table S1.2 of the permit as an operating technique and is therefore enforceable. We are satisfied that emergency arrangements for feeding and watering the birds will not have a significant effect on ammonia, dust and odour emissions from the installation.

Routine Maintenance Checklist

Permit condition 1.1.1 requires that the listed activity is managed and operated in accordance with a written management system that identifies and minimises risks of pollution, including those arising from operations, maintenance, accidents, incidents, non-conformances, closure and those drawn to the attention of the operator as a result of complaints. Condition 1.1.2 requires that records demonstrating compliance with condition 1.1.1 shall be maintained. As such, the routine maintenance checklist is considered to be a record associated with condition 1.1.2 of the permit and is therefore enforceable. However the checklist cannot be considered to be an operating technique because it does not describe any control measures associated with the operation of the installation. As such, it is the responsibility of the operator to ensure that the format and content of the checklist is sufficient to comply with permit conditions 1.1.1 and 1.1.2. This is applicable to all checklists associated with the operation of the installation.

Environmental Management System

Any reviews associated with the operation of the installation (e.g. drainage review, building review, management techniques and training review) form part of the overall environmental management system, required by permit condition 1.1.1. Sector guidance note EPR 6.09 "How to Comply with Your Environmental Permit for Intensive Farming" states the following:

"To keep your management system up to date you should review its content and associated accident management plans, site closure plans etc. at least once every four years. You should also review it if there is a significant change to the activities such as a company takeover, major re-structure or expansion of the activities. You should review the relevant parts following an accident or if you find a non-compliance, in an audit for example, in order to find the root cause. We too will be looking to identify the management system failure in these cases. You also should regularly audit your own performance against your management system".

Sector guidance note EPR 6.09 constitutes BAT for the sector, therefore we will ensure that the operator is operating the installation in accordance with this guidance during inspection visits and that the environmental management system is being maintained and is fit for purpose. If this is not the case, we will take the appropriate action.

Document Control

Whilst there is not a comprehensive list of each individual application document supplied as part of this permit application, all the documentation supplied is archived on our electronic public register and we are satisfied that it is complete for the purposes of assessing the permit application. The document date is recorded by our database systems when it is uploaded to the public register, so we are always able to identify the most up to date version of the document. The documents which are important to the management of the installation going forward during the life of the permit, are the operating techniques documents. This is because these describe the controls which will be in place at the installation and are therefore enforceable.

The following documents are the operating techniques which were supplied in response to Part B3 section 3 of the application form: Fugitive Emissions at Upper Heath Farm, Odour Management Plan and Noise Management Plan. Some of these documents have been subsequently amended. As such Table S1.2 of the permit has been amended to remove the reference to the response to Part B3, section 3 and the current versions of the documents have been added to the table individually and listed by date received.

The following other documents also form part of the operating techniques for the installation: minimising water use, noise assessment, Non-Technical Summary and odour assessment. We are satisfied that these documents are specific to Upper Heath. All these documents have also been incorporated into Table S1.2 of the permit, so are therefore enforceable.

This decision document forms our record of how we have reviewed the documents associated with the application and explains reasons for the decision we have made with regard to granting the permit. Therefore, we do not separately record review comments. All application documentation describing the control measures that will be in place when the installation is operational are incorporated into the permit via the Operating Techniques Table (Table S1.2). Permit condition 2.3.1 requires that the installation is

operated using the techniques and in the manner described in the documentation in Table S1.2, unless otherwise agreed in writing with NRW.

Manure Management

Spreading of chicken manure outside of the boundary of a permitted site does not require a permit. It is therefore outside the regulatory scope of the Environmental Permitting (England and Wales) Regulations 2010 (as amended). NRW also does not have regulatory powers to control the storage and application of manure to land through the Environmental Permitting (England and Wales) Regulations 2010 (as amended) unless this takes place within the green installation boundary shown on the site plan in Schedule 7 of the permit. In the case of Upper Heath Poultry Unit, manure storage and spreading does not take place within the installation boundary. Although manure may be stored and spread on operator-controlled land at Upper Broad Heath farm, this is land beyond the installation boundary shown in Schedule 7 of the permit. Because the storage and spreading of manure is outside the scope of the environmental permitting process, this has not been included in our decision making process. See **Dirty Water System** section above for a description of how wash water is collected pending removal from the installation.

The Code of Good Agricultural Practice applies to all farms in England and Wales and provides guidance on nutrient management (including landspreading of manure). This is a guidance document and not enforceable by law.

Water quality and fish populations are affected by a wide range of activities including land use over a wide area. 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 and where it is clear this is not the case and results in detriment to the environment, we will take the appropriate action.

For the purposes of our assessment of an EPR permit application we are only legally allowed to take in to consideration complaints relating to the activity under consideration and not those resulting from other activities at the same site. Past complaints associated with manure management at Upper Heath Farm, therefore, are not a material consideration for our assessment.

With regard to NRW's interface with the local authority planning process in respect of manure management plans, the potential for pollution through the land use of a proposal is assessed through the planning application. NRW are an advisor to the local planning authority and this is why our email has advised the local planning authority on the manure management plan. The local planning authority is responsible for considering whether the location of the development is appropriate. This process is also 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.

Whilst a manure management plan is not required by the permit, we have set condition 2.3.4 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 enable us to establish if there is any relationship between manure export and any reported pollution incident. It will also enable us to discuss best practice with the receiving farm owner to minimise the risk to local water courses.

The revised management plans submitted by the applicants have described the controls in place for manure management within the installation boundary. These include: use of sheeted trailers to transport manure loads and no storage of manure within the installation boundary at any time. The control measures are described in the "Odour Management Plan" and "Fugitive Emissions at Upper Heath Farm". These documents have been incorporated into Table S1.2 of the permit as operating techniques and are therefore enforceable.

Site Condition Report

An amended site condition report has been provided by the operator in response to our request in the Schedule 5 notice dated 31st July 2014. The amended report has revised the number of birds from 96,000 to the correct number of 80,000.

The installation is not situated in a Nitrate Vulnerable Zone. Therefore this represents an error in the site condition report. However despite this, we are satisfied that the rest of the report is specific to Upper Heath Poultry Unit and that the error does not change the overall conclusions of the report.

The purpose of the application site condition report is to identify any pre-existing contamination which may be present in the soil and groundwater prior to a permit being granted. This then represents the baseline contamination status for the site. If the permit is then surrendered at a later date, a surrender site condition report is required and the operator will be required to remediate any soil or groundwater contamination detected at surrender which was not identified in the baseline application site condition report. This is because any such contamination will be deemed to have occurred during the life of the permit as a result of the operation of regulated activity.

We are satisfied that the application site condition report for Upper Heath Poultry Unit shows that the site is located on green field land. This means that we consider that the site has no pre-existing contamination and this represents its baseline status. As such, we do not insist on intrusive soil and groundwater investigations when a site is clearly located on green field land, because green field status indicates that the land is uncontaminated and the

operator will be required to remediate the site back to that standard at permit surrender.

Permit condition 3.1.3 requires that “Periodic monitoring shall be carried out at least once every 5 years for groundwater and 10 years for soil, unless such monitoring is based on a systematic appraisal of the risk of contamination”. This permit condition implements the requirements of the Industrial Emissions Directive (Chapter 1 Common Provisions, Article 16 Monitoring Requirements). Therefore the operator is required to conduct this monitoring at the frequency specified, unless they can demonstrate to NRW that the risk of contamination is such that a different monitoring frequency can be applied or alternatively that monitoring is not required. The monitoring frequency stated in the condition is set by the Industrial Emissions Directive. Contamination of nearby watercourses will be prevented by the various control measures described throughout this decision document, which we consider to be BAT.

Destocking and Cleanout

Controls applied, method and timing of this activity

Bird collection is scheduled by the poultry integrator company to which the poultry unit is contracted .

The applicants have confirmed that bird catching will take a total of 2 days or nights per cycle. Furthermore the applicants have confirmed that catching at thinning (regardless of whether this takes place during the day or night) typically takes up to 2 hours per house. Catching at depletion takes up to 4 hours per house. This has been incorporated into Table S1.2 of the Permit as an Operating Technique and is therefore enforceable. A time range has not been applied to this activity in terms of whether it will take place during the day or night. Similarly the activity cannot be restricted to one day per cycle, because bird catching includes catching birds to thin the flock at day 33 and also because bird collection is determined by integrator scheduling. Therefore operationally this type of restriction is not possible. The noise management plan (incorporated into Table S1.2 of the permit as an operating technique) confirms that bird catching is a manual operation using trained catch teams. The birds are loaded into plastic crates and then taken outside for loading onto a lorry using a forklift truck.

The odour assessment document states that house de-littering (cleanout) will take a total of 7.75 days per year, which is equivalent to one day per cycle. The noise assessment restricts this activity to between 07:00 and 19:00hrs. The Odour Management Plan states that de-littering (cleanout) will take around 2 hours per house and that de-littering is carried out within 24 hours of bird removal. Clarification from the applicants’ agent (email dated 25th August 2015) explains that the timing of de-littering is dependent on when the birds are collected by the integrator. For example, if birds are removed from House 1 at 14:00hrs, then House 1 can be de-littered for 2 hours immediately

afterwards and on the same day. However, if birds are not removed from House 2 until 18:00hrs, House 2 cannot be de-littered until the following day because of the restriction on hours when de-littering can take place imposed by the noise assessment document. The documents referenced in this section and the email from the applicants' agent have been incorporated into Table S1.2 of the permit as operating techniques and are therefore enforceable. We have not set a condition requiring de-littering to be completed in one day, as the duration of this activity is limited by the operating techniques and as described above, it may not always be operationally possible to de-litter the houses on the same day. Please see the **Odour** section for more information about odour on clean-out. We are satisfied that odour from the installation is not expected to cause pollution at nearby receptors.

Clean-out will not be delayed until the wind is blowing in a favourable direction because this would adversely impact the business and integrator schedules with regard to placing the next batch of chickens. The odour management plan (incorporated into table S1.2 of the permit) for the installation states that to minimise odour, clean-out will take place within 24 hours of bird depletion per house and that each house will be sealed awaiting litter removal.

Fallen Stock

We have received several comments regarding removal of fallen stock and the impact this has on traffic movements from site and also the presence of an incinerator for fallen stock.

The operation of an incinerator is not authorised by the permit. The applicants do not intend to install such an incinerator as confirmed by the applicants' agent by email on 25th August 2015. Therefore any references to a fallen stock incinerator in the permit application are no longer material to the application. Carcasses will instead be placed into sealed plastic bags, which in turn will be stored in sealed, shaded, vermin proof containers away from sensitive receptors. Carcasses will be collected 3 – 5 times per week towards the end of the flock cycle. However the impact of this on off-site traffic movements is a matter for the local planning authority and is outside the scope of the environmental permitting process. The method of carcass storage is described in the odour management plan. This has been incorporated into Table S1.2 of the permit as an operating technique and is therefore enforceable.

Flock Cycle Information

Clarification on flock cycle including length of cycle and final age of birds

The final age of the birds has been confirmed as a maximum of 42 days old. The permit introductory note has been updated to reflect this. Bird age is not a significant influence on noise from the installation. Therefore we are satisfied that the noise report does not require reassessment. The details of the flock cycle and its relationship to our assessment of odour is described in

detail in the **Odour** section . A range of cycle lengths has not been applied for by the operator.

The management plans which form the operating techniques for the installation in Table S1.2 of the permit have been revised to aid clarity and describe actions in the context of days/nights per cycle.

Permit condition 2.3.3 requires that the operator maintains and implements a system to record the number of animal places and animal movements. In addition, we have added a reporting requirement through permit condition 4.2.2 and Table S4.1 which requires the operator to record the following information for each flock: date of initial stocking, date of depopulation, date of start of house cleanout and date of end of house cleanout. We have also created Reporting Form Performance 1 to enable the operator to record this information. This information will be available for inspection and the reporting form will also need to be submitted to us on an annual basis. The information will enable us to ensure that the permitted numbers are not exceeded and that the flock cycle length does not deviate from what has been applied for and described in the operating techniques documents in Table S1.2. We will take appropriate action if this is not the case.

Pests

NRW are responsible for ensuring that pests and other emissions from any permitted poultry facility are controlled to ensure that they do not cause pollution of the surrounding environment. For pests (defined in Schedule 6 of the permit as birds, vermin and insects), this responsibility also includes ensuring that pests which are likely to cause hazard or annoyance outside the boundary of the site are not present. Permit conditions 3.6.1 and 3.6.2 have been set to address the pest aspect of this responsibility. However, NRW do not have any regulatory control over the land-spreading of chicken manure unless pollution is caused. Diseases and bio-hazard risks are assessed by Public Health Wales who were consulted on the permit application (See **Public Health Wales Response** in Table at the beginning of Annex 3 and **Transmission of Pathogens** section for more information). Natural Resources Wales are therefore not required to provide a separate risk assessment in respect of the potential contamination of chicken litter by pathogens because this is a public health protection matter for which Natural Resources Wales does not have regulatory powers.

Litter

Moisture content of the litter and method of application of additional bedding

The Non-Technical Summary states that humidity will be controlled to achieve litter with a dry matter content of between 60 – 70%, which is important for

minimising emissions. The Non-Technical Summary has been incorporated into Table S1.2 of the permit as an operating technique and is enforceable.

EPR 6.09 states that litter must be kept loose and friable and that its quality must be inspected to ensure that it does not become excessively wet or dry. The Technical Standards document (incorporated into Table S1.2 of the permit) states that this will be the case at Upper Heath Poultry Unit. In addition the Technical Standards document confirms that the steps described in EPR 6.09 will be taken to rectify any changes to the quality of the litter. Furthermore, (in the context of poultry manure), EPR 6.09 states that maintaining a dry matter content of above 60% will help to minimise emissions of ammonia. On this basis, we are satisfied that the control of litter dry matter content between 60 – 70% will be sufficient to ensure that the litter remains loose and friable and emissions of dust and ammonia are minimised.

The applicants' agent has confirmed that additional shavings are manually carried into the house and trickled onto any poor areas (email dated 25th August 2015). The email also confirms that this is still possible when the birds are at peak density as there is more than sufficient room for birds to move out of the way. Dust production is minimised during this activity by reducing light intensity to prevent panicking the birds. This email has been incorporated into Table S1.2 of the permit as an operating technique and is therefore enforceable.

Energy Efficiency

We received a comment requesting calculations to compare the heat loss through the windows with the energy saved by extinguishing the lights. This type of assessment is not included in our determination of the permit and we therefore haven't requested this information from the applicants. However, permit condition 1.2.1 (a) requires that the operator takes appropriate measures to ensure that energy is used efficiently in the activities. In addition, opportunities to improve energy efficiency are required to be reviewed and implemented on a four yearly basis by permit conditions 1.2.1(b) and (c). Compliance with these conditions will be audited during our regular site visits. If the permit conditions are breached, we will take appropriate action.

Operating Temperature

Specification of unit operating temperature and roof mounted ventilation fans in terms of implications for odour and noise

The number, size, specification and location of the roof mounted ventilation fans is specified in the **Fan Specification** section of this decision document. The operator's Technical Standards document has confirmed that the operating temperature will meet health and welfare needs for the age and number of birds in line with EPR 6.09. We are satisfied that noise predictions associated with the roof mounted ventilation fans at the installation are based

on the worst case (see **Noise** section of this document). Our odour check modelling has taken operating temperature into account and we are satisfied that odour from the installation is not expected to cause pollution at nearby receptors (see **Odour** section above).

Raw Materials

We received a concern that the raw materials inventory document is not complete. However we are satisfied that this inventory is complete and therefore do not require any further information on this.

Light Pollution

We received some comments regarding the assessment of light pollution from the windows in the installation at night. Light pollution is not within the regulatory scope of the Environmental Permitting (England and Wales) Regulations 2010 (as amended) and is therefore outside the scope of the environmental permitting process.

Animal Health

We received a number of concerns regarding animal health and welfare, including use of antibiotics and prevention of botulism (from contact with manure) in other livestock at the farm. Animal health and welfare is not regulated under the Environmental Permitting (England and Wales) Regulations 2010 (as amended). Therefore these issues are outside the scope of the environmental permitting process.

Loss of Amenity

We received a comment stating that the permit application needs extra special careful consideration to avoid loss of residential amenity. This has been done where relevant to the environmental permitting process, and each specific section of this document describes the measures which will be in place to minimise the impact of the installation. Issues associated with the siting of the development are a matter for the local planning authority.

Permit Conditions

Several comments were received regarding the content of the draft permit that was subject to consultation between 24th October 2014 and 21st November 2014, the following addresses the points raised.

- The Permit Introductory Note has been updated to reflect the flock cycle which will be employed at the installation, whereby 35% of the birds will be thinned at around day thirty three, with the remainder

being taken at day forty two. The houses will then be empty for approximately seven days before the next flock is placed.

- Permit condition 3.1.3 implements the requirements of the Industrial Emissions Directive (2010/75/EU). Chapter II, Article 16(2) of the Industrial Emissions Directive includes the statement “unless such monitoring is based on a systematic appraisal of the risk of contamination”. As such the wording of the condition is legally correct.

- We do not put NRW contact details in permits because the permit would need to be varied each time a phone number or office address changed. However our contact details can be easily looked up. Furthermore the telephone number of our 24-hour incident reporting line is included in the Upper Heath Farm Emergency Plan which has been incorporated into the Permit as an operating technique via Table S1.2.

- The following application documents have been assessed by us as being operating techniques and have been incorporated into Table S1.2 of the permit: “Minimising Water Use”, “Odour Management Plan for Upper Heath Farm”, “Contingency Measures for Upper Heath Farm”, “Upper Heath Farm Emergency Plan”, “Fugitive Emissions at Upper Heath Farm”, “Noise Assessment Upper Heath Poultry Unit”, “Non-Technical Summary”, “Odour Assessment for Upper Heath Farm” and “Noise Management Plan”.

- Table S2.1 is referenced by standard permit condition 2.3.2 which requires that “Any raw materials or fuels listed in schedule 2 table S2.1 shall conform to the specifications set out in that table”. This condition was omitted from the draft permit and has been added to the final permit. The condition enables us to set certain specifications for raw materials and fuels used at the installation if required. In this case we are satisfied that this information is adequately covered by the operating techniques documents in Table S1.2. Therefore additional specifications for raw materials and fuels are not required and Table S2.1 can remain blank. A table of waste types is not required in Schedule 2 of the permit, because the installation will not be accepting waste.

- Our permit template is used for the wide range of industrial sectors permitted under the Environmental Permitting (England and Wales) Regulations 2010 (as amended) and therefore has a standard format and is populated as appropriate. We do not generally set emission limits for intensive farming installations because we are satisfied that the application of BAT is sufficient to minimise releases and ensure that the installation is operated in accordance with modern regulatory standards.

Permitting Process

Permit Application

Appendix 1 of Form B2 is a checklist for Low Impact Installations. Upper Health Poultry Unit does not fit the criteria of low impact installation in this respect, therefore the checklist does not apply.

The application documents included a document entitled "Supporting Information". This consisted of a list of the documents included in the original application. Whilst there is not a comprehensive list of each individual application document supplied since the original submission, all the documentation supplied is archived on our electronic public register and we are satisfied that it is complete for the purposes of assessing the permit application. The documents which are important to the management of the installation going forward during the life of the permit, are the operating techniques documents. This is because these describe the controls which will be in place at the installation and are therefore enforceable.

Please see the sections on **Fan Specification**, **Noise** and **Odour** for clarification on the technical information used in our determination. Furthermore, we are satisfied that all the information in the operator's revised documents which form part of the operating techniques for the installation (Table S1.2 of the Permit) are correct and specific to Upper Heath Poultry Unit.

Permitting Consultation

We sent a copy of the original permit application to the Food Standards Agency and Health and Safety Executive on 22nd April 2014 as part of our initial consultation. A response was not received from either organisation. On this basis, we consider that these organisations did not have any specific recommendations or concerns in respect of the application.
The Public Health Wales consultation table in Annex 3 of this document provides a record of the recommendations received from Public Health Wales and the action taken by NRW to address these recommendations.

Please see the "How we reached our decision" section of this document for full details of the consultation process. The consultation was carried out in line with NRW Public Participation Statement: "Working together: Your role in our environmental permitting". The potential issues associated with this particular installation and how they are managed are described in the application documents. Our assessment of those issues and the controls in place are described in this decision document.

The document forwarded by the Centre for Radiation, Chemical and Environmental Hazards is the Health Protection Agency's Position Statement on Intensive Farming dated December 2006. The position statement contains

recommendations on the following topics: Fugitive emissions to air (ammonia, bio-aerosols, particulate matter), Emissions to Water, Manure Management and Nuisance Issues. The way in which we have addressed these topics is described in the other technical sections of this decision document. Overall we are satisfied that the installation will be operated in line with BAT and that the permit conditions will ensure that the installation meets modern regulatory requirements.

Permitting Process

Whilst our Request for Further Information Covering Letters do not contain the specific details of what we require, the letters do refer to the Schedule 5 Notice which accompanies the letter. The Schedule 5 notice gives the details of the additional information which we require. When we request additional time to determine the application, this time is usually required to enable us to complete our technical assessment process and draft our final decision.

This decision document forms our record of how we have reviewed the documents associated with the application and explains reasons for the decision we have made with regard to granting the permit. Therefore, we do not separately record our review and approval of application documents.

The independent advisory committee was not intended to provide this type of advice. The primary purpose of this committee would be:

- To provide advice to NRW on scientific matters at a strategic level;
- To assist with reviews of the quality of NRW evidence using a risk based approach;
- To contribute specialist knowledge and advice on evidence standards and procedures;
- To form part of the scientific leadership structure and governance of NRW, including by helping us to develop an evidence strategy and plan;
- To assist our horizon scanning.

The Board advised that an additional advisory committee would not be required and that its functions could be undertaken by a sub group of the main Board called the Knowledge Sub-Group. This sub-group has been created and meets regularly to consider the matters identified above.

The assessment of technical reports submitted as part of the permit application is carried out during the permitting process using a risk based approach utilising well established methods common across the UK.

We are satisfied that we have received all the necessary information we need from the applicants in order to come to our final decision. The final permit and decision document is based on this information and our review of all consultation responses.

Activities which require permitting are set out in EPR. NRW regulates many of those activities. In addition NRW takes a proactive approach to offering

advice and guidance to individual farmers as well as working with the farming industry, agricultural advisors and Welsh Government to help improve understanding and infrastructure to improve farming practices. NRW has enforcement powers with regard to permit conditions and where there are pollution incidents.

Planning and Development Control

We received a number of comments and concerns relating to:

- Potential for water pollution during site construction;
- Proximity of the development site to neighbouring houses including Listed Buildings;
- Development of several broiler units in an area near Knighton;
- Sustainability of farming and human food production methods;
- Impact of off-site transport of waste on residents and traffic volumes;
- Visual impact of the development;
- NRW incorrectly suggesting in a Mid Wales Journal article that only one objection to P/2014/0202 expressed 'fears' about smell and pollution.
- A moratorium preventing the development of more or expanded poultry units in Herefordshire.

These concerns are not within the regulatory scope of the Environmental Permitting (England and Wales) Regulations 2010 (as amended), because the environmental permit only regulates the operation of the listed activity (i.e. intensive rearing of poultry in an installation with more than 40,000 places) within the defined installation boundary, as shown on the site plan in Schedule 7 of the permit. The above issues are therefore planning matters for Local Planning Authority consideration. The sustainability of farming and human food production methods is an issue for consideration through wider government policy.

With regard to the Mid Wales Journal Article, NRW are not aware of this article and have no control regarding what is printed. However P/2014/0202 relates to the planning application, not the environmental permitting process and is therefore not relevant to our determination.

The Environment Agency has confirmed (via email on 9th February 2015) that there is no official or unofficial position or moratorium which restricts the future development of intensive poultry farms in Herefordshire.

NRW's Competent Authority role

NRW's obligations as the Competent Authority

The issues listed in this decision document have been assessed as part our determination of the permit application and the permit reflects the outcome of this determination. This decision document is our record of the decision making process and our conclusions are discussed in more detail in the various topic-specific sections of the document.

For clarity, article 4 of The Natural Resources Body for Wales (Establishment) Order 2012 states the following:

(1) The purpose of the Body is to ensure that the environment and natural resources of Wales are—

(a) sustainably maintained;
(b) sustainably enhanced; and
(c) sustainably used.

(2) In this article—

(a) "sustainably" ("yn gynaliadwy") means—

(i) with a view to benefitting, and
(ii) in a manner designed to benefit,

the people, environment and economy of Wales in the present and in the future;

(b) "environment" ("amgylchedd") includes, without limitation, living organisms and ecosystems.

(3) Wherever the Body exercises any function in relation to, or that affects, the Welsh zone . . ., both the references to "Wales" in paragraph (1) are to be interpreted as including references to the Welsh zone.

(4) Wherever the Body exercises a function in relation to, or in a manner that affects, any other area outside Wales, both the references to "Wales" in paragraph (1) are to be interpreted as including references to the area in question.

(5) Paragraph (1) does not give the Body power to—

(a) do anything that it would not otherwise have the power to do, or
(b) exercise any of its functions in a manner contrary to the provisions of any other enactment or any EU obligation.

NRW is satisfied that it has carried out its functions entirely consistently with that article.

Annex 1: decision checklist

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

Aspect considered	Justification / Detail
Consultation	
Scope of consultation	The consultation requirements were identified and implemented. The decision was taken in accordance with NRW guidance EPR RGN 6 Determinations involving Sites of High Public Interest, our Public Participation Statement and our Working Together Agreements.
Responses to consultation, web publicising and newspaper advertising	The web publicising, consultation and newspaper advertising responses (Annex 2) were taken into account in the decision. The decision was taken in accordance with our guidance.
Operator	
Control of the facility	We are satisfied that the applicants (now the operator) are the persons who will have control over the operation of the facility after the grant of the permit. The decision was taken in accordance with EPR RGN 1 Understanding the meaning of operator.
European Directives	
Applicable directives	All applicable European directives have been considered in the determination of the application.
The site	
Extent of the site of the facility	The operator has provided a plan which we consider is satisfactory, showing the extent of the site of the facility A plan is included in the permit and the operator is required to carry on the permitted activities within the site boundary.
Site condition report	The operator has provided a description of the condition of the site. We consider this description is satisfactory. The decision was taken in accordance with NRW guidance on site condition reports – guidance and templates (H5).

Aspect considered	Justification / Detail
Biodiversity, Heritage, Landscape and Nature Conservation	The application is within the relevant distance criteria of a number of nature conservation sites. More specifically: - there are no European sites (SAC, SPA, Ramsar) within 10km of the installation. - There are 3 Sites of Special Scientific Interest (SSSI)s within 5km of the installation. These are Flintsham & Titley Pools, Byton & Coombe Moors and the River Lugg. - There are 8 Local Wildlife Sites within 2km of the installation. These are: Little Brampton and Scar; Woodlands on Coles Hill; Knill Wood, Hazel Point and Nash Wood; Bircher Wood; Land at Nash; Land adjacent to Bradleys Cottage; Hindwell Brook and River Lugg. - There are 9 Ancient Woodlands within 2km of the installation. These are: Downsmoor Wood; Knill Wood; Broadleys Wood; Butcher Wood; Rodd Wood; Combe and Brand Hill Woods; Coles Hill Wood; one Plantation on Ancient Woodland Site and one unnamed Ancient and Semi Natural Woodland. A full assessment of the application and its potential to affect these sites has been carried out as part of the permitting process. We consider that the application will not affect the features of the SSSIs, Local Wildlife Sites and Ancient Woodlands listed above. See **Biodiversity, Heritage, Landscape and Nature Conservation** section for a more detailed discussion of the findings with regard to Nature Conservation sites and in-combination assessment of predicted emissions.
Environmental Risk Assessment and operating techniques	
Environmental risk	We have reviewed the operator's assessment of the environmental risk from the facility. The point source emissions to air specified in the permit are: • High velocity roof mounted ventilation fan outlets, which will draw air from within the buildings and propel it upwards into the atmosphere; • a vent from the LPG tank; • a vent from the Diesel tank; and • the exhaust from the back up diesel generator. Uncontaminated rainwater run-off will drain to soakaways.

Aspect considered	Justification / Detail
	There are no point source emissions of process waters from the facility. The wash down water from the poultry houses and yard area is collected in two below ground storage tanks during the wash down process after each flock cycle and removed from the facility. This is described in more detail in the Dirty Water System section Risks identified were Ammonia releases to air; Odour; Dust; Noise; Zoonoses Notifiable Diseases; spillage of feed, litter, wash water; the pressure of vehicles on land; Pests; storage of fuel and chemicals, and release of combustion gases. We have reviewed the risk assessment and the mitigation measures. This includes the management techniques and infrastructure which are in accordance with the Best Available Techniques (BAT). We are satisfied that with the use of Best Available Techniques, these risks are adequately controlled. Zoonoses and notifiable diseases are public health protection matters, which Natural Resources Wales does not have regulatory powers for. Public Health Wales have recommended within their response dated 24th February 2015 that emissions of bio-aerosols can be minimised by using best available techniques as well as adhering to strict regulatory guidance and industry practices. We are satisfied that the proposed operational controls at Upper Heath poultry are in line with this recommendation. The pressure of vehicles on land is not a significant issue associated with the operation of intensive farms and is therefore not addressed by the sector guidance. The release of combustion gases is also not covered because the boilers at intensive farm installations are small and typically fall below the threshold at which a permit would be required for their operation.
Operating techniques	We have reviewed the techniques used by the operator and compared these with the relevant NRW guidance notes. This includes EPR 6.09 “How to Comply with your Environmental Permit for Intensive Farming”, 2010. The proposed techniques are in line with the Technical Guidance Notes and we consider them to represent appropriate techniques for the facility.
The permit conditions	
Use of conditions other than those from the template	Based on the information in the application, we consider that we need to impose conditions other than those in our permit template, which was developed in consultation with industry having regard to the relevant legislation.

Aspect considered	Justification / Detail
	Condition 2.3.4 has been included in order to ensure that adequate records are kept of manure or slurry exported from the installation, in terms of how much is being exported and to where. The Operator is required to record the date that manure and slurry is exported from the site, the quantity exported and details of the receiving site. This condition will enable us to establish if there is any relationship between manure export and any reported pollution incident. It will also enable us to discuss best practice with the receiving farm owner to minimise the risk to local water courses.
Emission Limits and Monitoring	We have reviewed the risk assessment for this site and the relevant technical guidance including the European Commission BAT Reference Document entitled "Best Available Techniques for Intensive rearing of Poultry and Pigs July 2003". The BAT reference document does not propose the setting of emission limits for this sector. The requirements of this BAT Reference Document are incorporated into NRW technical guidance note EPR 6.09 "How to Comply with your Environmental Permit for Intensive Farming" (October 2014). There are currently no BAT emission benchmarks set for the sector. We are satisfied that compliance with the BAT standards at this site means that emission limits and associated monitoring are not required.
Operator Competence	
Environment management system	NRW is satisfied that the operator will have a management system that enables it to comply with the permit conditions. The decision was taken in accordance with NRW guidance EPR RGN 5 on Operator Competence. The applicants have provided a summary of their proposed environmental management system, which includes maintenance, reference to the Emergency Plan, provision for staff training and also covers logging of complaints and routine checks. Written odour and noise management plans have also been supplied and these have been incorporated into Table S1.2 of the permit as operating techniques. Permit condition 1.1.1 requires the operator to have a written management system in place. As such we will plan our compliance assessment activities to check the adequacy and implementation of the management system at the installation and we will take appropriate action if this permit condition is breached. In addition pre-operational condition PO2 has been set which requires the operator to report progress on the implementation of the environmental management system. This report is required to be submitted to Natural Resources Wales for approval a minimum of 3 months before the commencement of the first flock cycle.

Aspect considered	Justification / Detail
Relevant convictions	The National Enforcement Database has been checked to ensure that all relevant convictions have been declared. No relevant convictions were found.

Annex 2: Responses to consultations, web publicising and newspaper advertising on the application.

Summary of responses to consultation, web publication and newspaper advertising and the way in which we have taken these into account in the determination process. (Newspaper advertising is only carried out for certain application types, in line with our guidance.)

Response received from
Powys County Council – Environmental Health
Brief summary of issues raised
The Environmental Health service received three complaints of odour between the period of 22/8/13 and 5/9/13.
Summary of actions taken or show how this has been covered
This permit application relates to a proposed new installation which has not yet been constructed or operated. Therefore the odours previously reported related to other general farming operations on the site and are not relevant to this determination.

Response received from
Public Health England - Centre for Radiation, Chemical and Environmental Hazards (Wales) (Formerly the Health Protection Agency) (cc'd to Public Health Wales).
Brief summary of issues raised
"We would not normally comment upon intensive poultry installations unless there was an extraordinary reason to do so". Public Health England – Centre for Radiation, Chemical and Environmental Hazards (Wales) (Formerly the Health Protection Agency) attached their position statement (Health Protection Agency – December 2006) for reference. No further comments were made. This position statement describes emissions to Air of Ammonia, Bio-aerosols and Particulate Matter. As well as potential emissions to water, Manure management issues and Nuisance issues, that are associated with intensive poultry installations in general. It concludes that "Intensive farms may cause pollution but provided they comply with modern regulatory requirements any pollutants to air, water and land are unlikely to cause serious or lasting ill health in local communities."
Summary of actions taken or show how this has been covered
The installation is to be operated in accordance with the Best Available Techniques and will therefore comply with modern regulatory requirements.

No response received from
Food Standards Agency
Brief summary of issues raised
No issues raised
Summary of actions taken or show how this has been covered
No actions necessary

No response received from
Health and Safety Executive

Brief summary of issues raised
No issues raised
Summary of actions taken or show how this has been covered
No actions necessary

No response received from
Powys County Council – Planning
Brief summary of issues raised
No issues raised
Summary of actions taken or show how this has been covered
No actions necessary

Summary of public responses

Response received from
Members of the public
Brief summary of issues raised
Concerns regarding Odour, Manure spreading and flooding
Summary of actions taken or show how this has been covered
The odour emissions from the installation have been modelled and the modelling assessed by NRW – more details on this can be found in Key Issues section above The manure spreading will not be controlled by this permit, as the spreading would take place outside of the installation boundary. NRW requested a Flood Consequences Assessment from the applicants as part of the planning permission process. This assessment was produced and supplied and we agreed that the risks were acceptable and manageable.

Annex 3: Consultation response from Public Health Wales

Response received from
Public Health Wales
Brief summary of issues raised
Public Health Wales recommendations are as follows: • NRW must be satisfied that the dust model inputs, outputs and conclusions are locally applicable and that neither the annual mean or 24 hr daily mean air quality objectives for PM_{10} should be exceeded at any sensitive receptor. • Poultry dust emissions can be minimised in the use of Best Available Techniques and strict adherence to regulatory guidance and industry best practice. • Require operators to have a dust management plan. • Bio-aerosol emissions can be minimised in the use of best available techniques and strict adherence to regulatory guidance and industry best practice • NRW must be satisfied that the odour model inputs, outputs and conclusions are locally applicable. • The manure storage and spreading associated with the poultry sheds must be considered including manure storage and spreading within or overlapping the predicted odour contours to avoid cumulative odour impacts • Manure management should include control of flies and other pests to avoid nuisance and potential vector borne disease • We have no data on whether there are local private drinking water sources. Powys LA however may have records of known private water supplies and they should be consulted to confirm the presence of any such supplies. • The farm operator should be required to devise, maintain and review a manure management plan detailing the control measures to avoid ground water contamination. • A noise management plan is in place for all potentially noisy site sources and activities including: ventilation / roof fans, generators including emergency generators mounted plant, mobile plant, feed silos, site deliveries and stock despatch activities. • The regulator is satisfied that the construction and operation of the sheds and the appropriate management of manure and feed / feeding cycles are appropriate to minimise ammonia emissions.
Summary of actions taken or show how this has been covered
• We have not required dust modelling for the installation, as we consider that compliance with BAT will ensure that dust is minimised and the Air Quality Objective is not breached. This is described further in the **Dust** section in the Key Issues section. • We are satisfied that the installation will operate in accordance with BAT. See **Dust** section. • The current sector guidance note for intensive farming (EPR 6.09) and draft European Commission BAT conclusions document which (sets

out future BAT standards) do not require operators to have a dust management plan, as dust generation can minimised through the application of Best Available Techniques. However the operator has submitted a fugitive emissions assessment as part of the application which describes the measures in place to control dust. We are satisfied the measures set out in this plan and other operating techniques documents represent BAT for the installation. The fugitive emissions assessment has been incorporated into Table S1.2 of the permit as an operating technique and is therefore enforceable. See **Dust** section .

- Bio-aerosols can become airborne through dust associated with day to day flock management activities and handling of manure. It is recognised that dust and bio-aerosols show some correlation. We are satisfied that the installation will be operated in accordance with BAT for minimising dust emissions and that particulates will be adequately dispersed by using high velocity roof mounted ventilation fans. (See **Dust** section). All aspects of manure storage and spreading for this site are outside the regulatory scope of the Environmental permitting process. (See **Manure Management** section). The transmission of *Campylobacter* and other pathogens as bio-aerosols are public health protection matters which NRW does not have regulatory powers for. (See **Transmission of Pathogens** section).
- As described in the original section on odour in the Key Issues part of this document above, the applicants provided revised odour modelling on 16th September 2014. Our own assessment agrees with the predictions within the applicants' revised modelling report and we are therefore satisfied that the odour model inputs, outputs and conclusions are locally applicable.
- Chicken manure is not a controlled waste and will not be stored or spread within the installation boundary. All aspects of manure storage and spreading at this site are therefore outside the regulatory scope of the Environmental permitting process. This is explained in more detail in the **Manure Management** section .
- Permit condition 3.6.1 requires that the activities within the installation boundary shall not give rise to the presence of pests which are likely to cause pollution outside the boundary of the site. In addition, Permit condition 3.6.2 gives NRW the powers to ask the operator to submit and implement a pest management plan which identifies and minimises the risks of pollution from pests, if permit condition 3.6.1 is not complied with. Although these conditions apply to the listed activity of rearing of poultry within the installation boundary, they cannot apply to the spreading of manure outside the boundary of the permit. This aspect of the operation is outside the scope of the Environmental Permitting Regulations (England and Wales) 2010 (as amended). The transmission of potential vector borne disease from non-permitted sites is a public health protection matter for which NRW does not have regulatory powers.
- We consulted Powys County Council on 30th June 2015 to determine the presence of private water supplies within 500 metres of the installation. Powys County Council replied on 2nd July 2015 and

confirmed that there are two properties within 500m of the installation that are served by private water supplies. (This recommendation from Public Health Wales was in the context of potential impacts of *Campylobacter*, *E. coli* and *Salmonella* on drinking water supplies due to manure storage and spreading). Our consideration of the information about nearby private water supplies is discussed in the **Transmission of Pathogens** section . All aspects of manure storage and spreading are outside the regulatory scope of the Environmental permitting process. This is explained in more detail in the **Manure Management** section .

- A manure management plan is not required by the permit because manure is not stored or spread inside the installation boundary. However, NRW will continue to work, in association with other authorities, with land owners and farmers to help ensure the nutrients in manures are applied following best practice and where it is clear this is not the case and results in pollution, we will take the appropriate action.
- A noise management plan has been submitted as part of the application and details the controls in place to minimise noise associated with the following activities: operation of roof mounted ventilation fans, feed deliveries, feeding systems, fuel deliveries, alarm systems, bird catching, clean-out operations, maintenance and repair, set up and placement and standby generator testing. Mobile plant is not included. However, we are not aware of any mobile plant in use at the site other than typical farm machinery such as tractors which are already in operation at the wider farm, so would not constitute a new noise source. The noise management plan has been incorporated into Table S1.2 of the permit as an operating technique, so is therefore enforceable. We are satisfied that the measures outlined in the plan represent BAT for reducing noise emissions at the installation (See **Noise** section).
- Chicken manure will not be stored or spread within the installation boundary, therefore it is outside the regulatory scope of the environmental permitting process. (See **Manure Management** section). We have reviewed EPR 6.09 and the European Commission's Draft BAT conclusions to ensure compliance with BAT for animal housing and feed management to minimise ammonia emissions. We are satisfied that the installation will be operated in line with BAT. (See **Biodiversity, Heritage, Landscape and Nature Conservation section** for more specific details).