

## Briefing Note

# Ammonia Emissions from Intensive Pig and Poultry Farms – Clarification of Environment Agency assessment process

### Purpose of document

This briefing note summarises how we assess ammonia emissions during the pre-application screening process and the potential outcomes which may arise from the permitting process.

### Current pre-application process for new permits and variations

#### 1. Pre-application discussion

Prior to application, operators are encouraged to speak with Area Environment Officers who will advise them of the requirements of the permitting process to ensure that the correct information is contained with the application. Farmers are strongly encouraged to engage in this process as a complete application will result in a quicker turnaround of the permit. Applications for new installations, upward variations (increase in animal numbers) or a change which results in different emission characteristics which could impact on nearby nature conservation sites (e.g. new buildings) may require a detailed air impact assessment. The requirement for an air impact assessment will be established during the pre-application discussion.

#### 2. Distance screening for nature conservation sites

We will carry out distance screening for all sensitive receptors. We will consider designated European sites (Special Areas of Conservation, Special Protection Areas and Ramsar sites) within 10km, Sites of Special Scientific Interest within 5km and other conservation sites within 2km. Applicants will be advised of the presence of each nature conservation site which screens in.

#### 3. Application of appropriate critical levels to 'screened in' nature conservation sites

For European sites (SAC/SPA/Ramsar) and SSSI sites, appropriate critical levels will be provided by the nature conservation agencies (Natural England or Countryside Council for Wales) based on the sensitivity of the designated features of the site.

For local nature conservation sites (Local Wildlife Sites, ancient woodland etc), initial screening is carried out using a critical level of  $1 \mu\text{g}/\text{m}^3$ . (See paragraph 4 below). If the farm does not screen out at the  $1 \mu\text{g}/\text{m}^3$  threshold a more detailed consideration of the appropriate critical load or critical level will be made by Environment Agency ecologists based on the best available habitat information for the site. This will result in a critical level of  $1 \mu\text{g}/\text{m}^3$  or  $3 \mu\text{g}/\text{m}^3$  being applied to the site depending on its

sensitivity to ammonia. We do not automatically default to a precautionary critical level of 1  $\mu\text{g}/\text{m}^3$  for sites where we do not have further information.

Experience with impact assessment during the original permitting of the intensive livestock sector suggests that at some nature conservation sites a critical level of 3  $\mu\text{g}/\text{m}^3$  may not provide protection against the indirect effects of ammonia when assessed using the critical load. Therefore, where a critical level of 3  $\mu\text{g}/\text{m}^3$  is applied to a local conservation site we will also include consideration of the critical loads.

#### **4. Ammonia Screening Tool (AST) and critical level thresholds**

Once the appropriate critical level or loads (if necessary) have been determined, we will carry out screening using the Ammonia Screening Tool. We apply different thresholds to the nature conservation sites above which detailed modelling will be required as part of the application to assess the potential impacts of ammonia emissions. We use a hierarchical approach based on the level of designation. For European sites this is a contribution from the farm of 4% of the critical level or load, for SSSIs this value is 20%, and for local conservation sites this is 50%.

#### **5. Requirement for detailed modelling**

If a farm is screened in to the specified distance screen and is above the critical level or load threshold, this does not necessarily mean the permit will require emission reductions, or even be refused. This is simply to identify which sites show potential to damage a nature conservation site and where more detailed modelling is required. Currently, an average of 10% to 20% of permit applications (for new permits or upward variations) require detailed modelling.

Once the pre-application process is complete, a report will be provided to the farmer detailing the sites which have screened in and the critical level or load applied. Applicants should then go on to complete and submit their application based on this information.

#### **6. Option for operators to justify an alternative critical level**

For local nature conservation sites, if it is likely from the habitat description that species or communities particularly sensitive to ammonia are present, will we use a critical level of 1  $\mu\text{g}/\text{m}^3$ . We will make this decision using local knowledge and technical input from our trained ecologists. Where operators believe information could be provided to justify a critical level of 3  $\mu\text{g}/\text{m}^3$ , for example, through commissioning a site survey to identify specific features they can provide this with their application. This is not an automatic requirement, and is not an alternative to modelling. If an operator is thinking about this option it is advisable they speak to us first.

#### **7. Sites which exceed the nature conservation critical level or load threshold**

Results from the modelling are then compared with the detailed screening thresholds. For European/Ramsar sites this is 20% of the critical load or level, for SSSIs 50% and local conservation sites 100%. If these thresholds are exceeded a more detailed review is undertaken to take account of any site specific issues before reaching a decision on the outcome from the permitting process.

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For European/Ramsar sites and SSSIs we will also take into account the in-combination impact of other nearby intensive livestock farms. Depending on the outcome of this more detailed review, further controls on ammonia releases from the farm may be required. If necessary, to achieve the appropriate environmental outcome these controls may be more stringent than would otherwise be required by the use of Best Available Techniques.

For local nature conservation sites, further controls using Best Available Techniques may be needed if significant pollution is anticipated. Assessment of significant pollution is made on a case by case basis taking into account specific site factors and local information. Exceedence of the allowable threshold does not indicate automatic refusal. Currently, around 5 - 10% of applications made during the initial permitting tranche are likely to require additional controls.

## **8. Farms currently exceeding the threshold for local nature conservation sites**

During the initial permitting process when intensive livestock farms were brought into the (then) Pollution Prevention and Control Regime, impacts on local nature conservation sites were considered where these were identified during the consultation process. Where a farmer now applies for a variation to an existing permit which impacts a local nature conservation site which had not previously been assessed, we will consider the impact of the complete farm (existing operation together with proposed variation) on the local nature conservation site. If the impact exceeds the 100% assessment threshold then we will seek further controls on ammonia emissions in line with Best Available Techniques. It would be open to the farmer to consider further controls on either the existing farm, the proposed operation or the farm as a whole. If controls on the existing farm are proposed we will need to agree an acceptable timescale for these to be implemented. If the variation application is deemed to be unacceptable, it would not lead to the original permit being revoked.

## **9. Use of critical levels of 1 µg/m<sup>3</sup> and 3 µg/m<sup>3</sup>**

Ammonia may lead to direct effects on vegetation and concentrations in the air known as critical levels are set to protect against these impacts. Indirect impacts may arise due to the deposition of ammonia on the ground and critical loads are set to provide the necessary level of protection. Both critical levels and critical loads are set by international working groups convened under the United Nations Economic Commission for Europe and represent the best available scientific information on impacts. We need to consider both these impacts and base our assessment on the most important criteria for the site.

Experience with permitting the main PPC tranche indicates that the higher critical level of 3 µg/m<sup>3</sup> may not be sufficiently protective for indirect effects on some types of nature conservation site. Therefore, where a critical level of 3 µg/m<sup>3</sup> is applied to local nature conservation sites we will require operators to include an assessment of impacts against critical loads for both N deposition and acidification.

## **10. Site surveys by the conservation agencies**

Natural England has carried out site surveys at nearly 60 SSSIs and at the time of writing (April 2010) is still considering the outcome at approximately 40% of these. They are providing us and the farmer with their decisions as they progress. They are due to complete their reports by the end of April 2010.

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Of the sites surveyed to date, all show some signs of ammonia impact; roughly a third show signs of impacts on the features for which the site is designated. Where there is no impact on the designated feature we have agreed with Natural England that we will remove the ammonia improvement condition. Where the impact is confirmed we will require the farmer to come forward with an emissions reduction plan. We are discussing with Natural England how we can improve our understanding of the impacts of ammonia on nature conservation sites. It may be that the farm may not have been emitting at its current level for long enough for effects to be seen or that there are other site specific issues, including site management, which are mitigating the impact of ammonia

Countryside Council for Wales (CCW) will be carrying out similar survey work, during the summer of 2010.

## **11. Detailed modelling guidance**

In order to improve the quality of applications we have provided guidance on how air dispersion models could be applied as part of a more detailed assessment of ammonia impacts on conservation sites. Recent improved scientific understanding of the ammonia deposition process indicates that current dispersion models may overestimate deposition close to the source and as a consequence significantly underestimate the air concentration (because too much ammonia is being deposited on the ground), in some cases by factors of 3 to 5. An underestimate of this magnitude may put conservation sites at risk.

We recommended an interim approach to deal with this problem which, if followed, may lead to some slight overestimate (we believe this to be about 10%) in predicted impacts. Recent modelling developments have now allowed us to develop a revised approach which varies the rate of ammonia deposited according to the air concentration. Guidance on this is available through the Environment Agency's website.

## **12. Duty to consider all nature conservation sites and the wider environment**

The Environment Agency has always considered local nature conservation sites in its regulatory regime where we are aware of their presence, and until recently we obtained this information through consultation. Over the past 3 years, our national access to GIS data has been improved, meaning we no longer need to rely on consultation with local authorities on each permit application to identify local sites within the vicinity of the farm.

Article 3 of the EU Directive on integrated pollution prevention and control requires that all the appropriate preventive measures are taken against pollution, in particular through application of the best available techniques; and that no significant pollution is caused. Therefore, where an intensive livestock farm impacts on a conservation site, other than a European site or SSSI where separate requirements apply, the farmer should be required to apply the best available techniques to prevent or minimise the impact of their activity on the site. We may refuse the permit application where we believe that there will be significant pollution, for example, an operator might propose siting a new facility close to an extremely sensitive environment, but with no means of providing adequate control.

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We also have a conservation duty under Environment Act 95 (7(1) (b&c) to have regard to features of special conservation interest and to take into account the effect of proposals on flora and fauna. In many cases these sites are as important as SSSI's from a conservation perspective, but have simply not been given that level of designation as yet. We have a similar duty under Section 40 of The Natural Environment and Rural Communities Act 2006 (NERC06) which requires that in exercising its (our) functions, (we should) have regard... to the purpose of conserving biodiversity". It defines "conserving biodiversity" as including "in relation to a living organism or type of habitat, restoring or enhancing a population or habitat".

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**27 April 2010**

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