



Licence Application Instruction Note 1 (IN1)

ASSESSMENT OF THE IMPACT OF AMMONIA AND NITROGEN ON NATURA 2000 SITES FROM INTENSIVE AGRICULTURE INSTALLATIONS

1. Introduction

Natura 2000 is a European network of important ecological sites. The EU Habitats Directive (92/43/EEC) placed an obligation on Member States of the EU to establish the Natura 2000 network. The network is made up of Special Protection Areas (SPAs), established under the EU Birds Directive (2009/147/EC), and Special Areas of Conservation (SACs), established under the Habitats Directive itself. Ireland's compliance with the Natura 2000 is implemented through the European Communities (Natural Habitats) Regulations, 2011 as amended. These regulations transpose the EU directives into Irish national law.

An appropriate assessment (AA) is an assessment of the potential adverse effects of a plan or project (in combination with other plans or projects) on Natura 2000 sites. Regulation 42 of the Habitats Regulations requires the Public Authority e.g. EPA, to undertake Stage 1 Screening for Appropriate Assessment (AA) and where necessary Stage 2 Appropriate Assessment of any plan or project for which an application/review for consent is received.

Potential impacts at Natura 2000 sites from pig and poultry intensive agriculture installations (IAI) are ammonia emissions to air and nitrogen deposition. These installations by their nature, generate quantities of these pollutants which require assessment to demonstrate they will not impact on a Natura 2000 ecological site.

Due to a high volume of intensive agriculture applications/reviews and licences, the Environmental Protection Agency (EPA) has published this instruction note on how applicants should assess, the predicted impact of air emissions, as part of a licence application under classes 6.1 and 6.2 of the First Schedule of the Environmental Protection Agency Acts 1992 as amended. It provides instructions on the steps needed to determine the information required to allow for an AA Stage 1 screening process and where necessary, a Stage 2 AA assessment for Natura 2000 sites.

This assessment procedure shall be reviewed regularly, at least annually, and if any new information or data becomes available.

2. Definition of Terms

Term	Definition
Best Available Techniques (BAT)	As set in Commission Implementing Decision (CID) Ref: 2017/302.
Critical Level (Cle)	Level of airborne ammonia above which damage to a specified habitat is likely to occur as per present knowledge.
Critical Load (CLO)	Amount of nitrogen deposition above which damage to a specified habitat is likely to occur as per present knowledge.
Natura Impact Statement (NIS)	An appropriate assessment (AA) is an assessment of the potential adverse effects of a plan or project (in combination with other plans or projects) on Special Areas of Conservation and Special Protection Areas (Natura 2000 sites).
Process Contribution (PC)	Amount of ammonia released to the air or nitrogen (N) deposited to the ground as a result of the IAI.
Predicted Environmental Contribution (PEC)	Process Contribution (PC) plus the other PCs being considered in-combination, plus the background level or load at the sensitive receptor.
Intensive agriculture installations (IAI)	Intensive agriculture installations as licensed under 6.1 and 6.2 of the First Schedule of the Environmental Protection Agency Acts 1992 as amended.
Zone of Influence	<p>The zone of influence of a proposed development is the geographical area over which it could affect the receiving environment in a way that could have significant effects on the Qualifying Interests of a European site.</p> <p>This should be established on a case-by-case basis using the Source-Pathway-Receptor framework and not by arbitrary distances.</p>

3. Instructions on the Use of this Screening Tool

3.1. Appropriate Assessment

An appropriate assessment is an assessment of the potential adverse effects of a plan or project (in combination with other plans or projects) on SACs and SPAs. These sites are protected by National and European Law as detailed above.

As stated, the EPA is required to undertake Stage 1 Screening for AA and where necessary, a Stage 2 AA of any plan or project for which an application/review for consent is received. The applicant/licensee must provide the EPA with the required information, as outlined below, to allow the EPA to conduct the AA and draw its conclusions.

An AA GeoTool application helps with the data gathering process of Stage 1 and Stage 2 Appropriate Assessment. The EPA and the National Parks and Wildlife Service (NPWS) have worked together to develop the AA GeoTool. Details on the use of this GeoTool can be found at the link below:

<http://www.epa.ie/terminalfour/PropAssess/index.jsp>

3.2. Confirmation of background ammonia and nitrogen at the Natura 2000 site.

As a first step the applicant/licensee should confirm the background ammonia concentrations and nitrogen deposition levels at the sensitive receptor and indicate whether there is already an exceedance of the ammonia critical level or nitrogen critical load. Where background levels are already exceeded at sensitive receptors within the zone of influence, detailed modelling of emissions, including in-combination effects, a Natura Impact Statement (NIS) and additional mitigation measures will be required.

On site assessments of the sensitive receptor, to demonstrate impacts have not already occurred, may be required as part of the assessment process.

Where background levels are already exceeded, the applicant/licensee must move straight to Step 4 of the assessment process set out below. If the applicant/licensee feels detailed modelling etc. is not required for a site, a full detailed justification will be required as part of the application/review.

Background levels can be obtained from the free on-line tool, Simple Calculation of Atmospheric Impacts Limits (SCAIL <http://www.scail.ceh.ac.uk/>).

The SCAIL model background levels can be taken to apply from 2018 for ammonia and nitrogen deposition; therefore, only the increase in the number of poultry/pigs since the 31 December 2018, needs to be inputted into step 3 of the assessment process set out below. Full site animal numbers should be used as screening stage.

3.3. Screening Distance

Where an IAI is within **500m** of a Natura Site, a detailed AA assessment using detailed modelling and a NIS is automatically required for that development. In the case of an IAI within 10km of the Natura sites: Slieve Beagh Special Protection Area (SPA) (004167); Kilroosky Lough Cluster Special Area of Conservation (SAC) (001786); and Lough Oughter designated as both a SAC (000007) and a SPA (004049), a detailed assessment using detailed modelling which includes cumulative impacts and a NIS is also automatically required.

3.4. Identifying Sensitive Receptors (Natura 2000 sites)

Applicants/licensees should conduct screening assessments using the most up-to-date information available on the distribution of sensitive receptors, sites, habitats and species important for Natura 2000 sites. Information on these sites can be found at:

<http://www.epa.ie/terminalfour/AppropAssess/index.jsp>

<https://www.npws.ie/protected-sites>

<https://www.daera-ni.gov.uk/landing-pages/protected-areas>

3.5. Simple Screening Against Critical Levels and Critical Loads

Notwithstanding the scenarios already described, screening carried out at the pre-application stage will determine whether detailed modelling is required from the applicant to support their licensing application/review. This basic assessment can be completed using a free on-line tool called the Simple Calculation of Atmospheric Impacts Limits (SCAIL <http://www.scail.ceh.ac.uk/>) using the conservative model mode. Other screening models are available should applicants/licensees wish to use them.

3.6. Assigning Critical Levels and Critical Loads

For all sensitive receptors, the appropriate ammonia critical level and nitrogen critical load should be determined. Information on the conservation objectives for each site must be obtained from either:

<https://www.npws.ie/protected-sites>

<https://www.daera-ni.gov.uk/landing-pages/protected-areas>

<https://www.rivm.nl/bibliotheek/rapporten/680359002.pdf>

For ammonia critical levels where:

- lichens and bryophytes (moss and liverworts) are integral to the sensitive receptor and are a qualifying interest for the site, apply a critical level of $1\mu\text{g}/\text{m}^3$.
- lichens and bryophytes are not a qualifying interest for the site or integral to the sensitive receptor then apply a critical level of $3\mu\text{g}/\text{m}^3$.

Nitrogen critical loads are based on the sensitivity of each habitat and differ accordingly. Nitrogen critical loads are expressed as a range (e.g. 10 – 20 kgN/ha/yr). The lower value should be used in all

screening assessments unless site specific information is obtained from the NPWS or the Department of Agriculture, Environment and Rural affairs (DAEAA) in Northern Ireland DAERA.

3.7. Determining Impact from the IAI to be undetectable

Based on research, a nitrogen deposition level of $\leq 0.3\text{kgN/ha/annum}$ is undetectable. This is considered in this screening process. If an IAI can demonstrate, using a screening model (with no mitigation measures taken into account, see section 3.8 below), that emissions from the site meet this criterion, in addition to the PC from the installation being $\leq 4\%$ of the critical level for ammonia and $\leq 5\%$ of the critical load for nitrogen deposition, then the site may be screened out for AA. This does not apply IAI within 10km of the Natura sites; Slieve Beagh SPA, Kilroosky Lough Cluster SAC and Lough Oughter SAC & SPA.

3.8. Data Required with your application/review documents

When using a screening model, the applicant/licensee must ensure that for AA stage 1 (AA screening), for submission to the EPA, the fan speeds at the discharge point(s) are set to zero and discharge height (for the discharge point(s)) are set to roof height in the model input parameters. This is to ensure mitigation measures are not considered during the AA screening process. When submitting the results of the screening model; the applicant/licensee will need to include the following information with their licence application/review:

Screening Model Input data:

- flow velocity, (confirm it has been set to zero);
- Fan diameter;
- number of animal units screened;
- type(s) of animal housed in the installation;
- number of houses associated with each type of animal, where applicable;
- roof height, (confirm stack height not used);
- met station data used;
- Size & capacity of site manure store(s) or slurry tank(s), if applicable; and
- Screen shots of the SCAIL input and output data or SCAIL input and output files.

If detailed modelling is conducted, information submitted in the modelling report should be sufficiently detailed to allow the regulator to determine whether the modelling has been undertaken correctly. It should also be sufficiently detailed that an independent model user could replicate the modelling based on the information contained in the modelling report (and associated computer files).

3.9. Other sources which may act in-combination with the application/review installation.

Other sources of nitrogen and ammonia (other PCs) to the Natura 2000 site(s), which could act in-combination with emissions from the proposed/expanded installation, to impact the protected habitat, must be accounted for at relevant stages of the appropriate assessment process (screening

stage details are set in Section 4 of this document). The in-combination assessment which needs to be conducted, is dependent on the size of the activity and the distance from the Natura site.

At the target Natura 2000 site(s) (i.e. that/those identified, as possibly impacted by emissions from the applicant/review installation), all IAls, which meet the following two criteria and which (with abatement in place), have a PC of $\geq 4\%$ of the critical level for ammonia and/or $\geq 5\%$ of the critical load for nitrogen deposition at the relevant Natura site must be included:

- 1) Developments that have planning permission and/or licences but are not yet (fully) operating; including those both above and below licensing thresholds that may contribute to ammonia and nitrogen emissions; and
- 2) Developments that started operating/increased their numbers, after the most recent update of background levels; including those both above and below licensing thresholds, that may contribute to ammonia and nitrogen emissions.

The criteria to use in order to determine the geographical range of the installations, which meet the above criteria, to include in the in-combination assessment is outlined below. (see Figure 1):

- All below threshold installations within 5km of the Natura site, [Blue lines on Figure 1];
- All licensed installations within 10km of the Natura site [Red lines on Figure 1]; and
- In the case of the IAI within 10km of the following Natura sites; Slieve Beagh SPA, Kilroosky Lough Cluster SAC and Lough Oughter SAC & SPA, the in-combination assessment shall include all installations (EPA licensed and unlicensed) within 10km of the Natura site.

Figure 1: Example of the range of IAI to be include in the in-combination assessment (illustration only, not to scale for location shown).



4. The Assessment Process

The applicant/license should answer the following questions in sequence. (Flow diagram, Annex 1)

Step 1

1. Is my site within 500m of any Natura 2000?
2. Are the background levels already exceeded for the ammonia critical level or nitrogen critical load at Natura sites within the zone of influence of my site (as reported by SCAIL)?
3. Is my site within 10km of Slieve Beagh SPA, Kilroosky Lough Cluster SAC, or Lough Oughter SPA & SAC?

IF ANSWER IS

Yes, to question 1 or 2	Proceed to Step 4: Detailed assessment
Yes, to question 3	Proceed to Step 6: Control Measures
No, to all questions	Proceed to Step 2



Step 2

Using SCAIL in conservative mode with no mitigation included and the full (existing & proposed) animal numbers onsite, obtain the following data:

- Is the impact from the installation (PC), at all Natura sites within the zone of influence of my site, $\leq 0.3\text{kgN/ha/annum}$ for nitrogen deposition?
- Is the PC from the intensive agriculture unit $\leq 4\%$ of the critical level for ammonia and $\leq 5\%$ of the critical load for nitrogen deposition at all Natura sites within the zone of influence of my site?

IF ANSWER IS

Yes, to all questions	Application/review screened out for AA and can be submitted to the Agency
No, to either question	Proceed to Step 3



Step 3 – Appropriate Assessment (NIS) Required

If screening for the application/review has resulted in the proposed/expanded site failing to meet the criteria set out above, then a full appropriate assessment is required. At this stage of the assessment the applicant/licensee is required to complete a NIS. The level of detail required is dependent of the level of possible impact the proposed/expanded installation could have on the Natura site(s).

Using SCAIL in conservative mode with mitigation included (fan rate and stack height only), answer the following questions.

- Is the impact from the installation (PC), at the Natura site is $\leq 0.3\text{kgN/ha/annum}$ for nitrogen deposition? and
- Is the PC from the intensive agriculture unit $\leq 4\%$ of the critical level for ammonia and $\leq 5\%$ of the critical load for nitrogen deposition?

IF ANSWER IS

Yes, to both questions	The application/review may be determined and should be submitted (along with a NIS) to the EPA for assessment.
No, to either question	Proceed to Step 4



Step 4

The applicant/licensee is required to complete detailed modelling (not a screen) and a NIS. Following completion of the NIS and modelling, the results can again be assessed using the criteria below.

Thresholds: Is the process contribution (PC)

- ≤1% of the critical level for ammonia
- ≤1% of the critical load for nitrogen deposition?

IF ANSWER IS

Yes, to both questions	The application/review may be determined and should be submitted (along with a NIS) to the EPA for assessment.
No, to either question	Proceed to Step 5:



Step 5

The applicant/licensee is required to complete detailed modelling (not a screen) and a NIS. The modelling must take account of in-combination effects (identified by criteria set out in Section 3.9). Following completion of the NIS and modelling, the results can again be assessed using the criteria below.

Thresholds: Is the process contribution (PC) + Sum of other PCs (identified by criteria set out in section 3.9):

- ≤20% of the critical level for ammonia
- ≤20% of the critical load for nitrogen deposition?

IF ANSWER IS

Yes, to both questions	The application/review may be determined and should be submitted (along with a NIS) to the EPA for assessment.
No, to either question	Proceed to Step 6 (Control Measures).



Step 6

Are control measures available which following detailed modelling:

- A. Demonstrate that the PC + Sum of other PCs (identified by criteria set out in Section 3.9) levels are reduced to avoid exceedance of 20% of the ammonia critical level or nitrogen critical load at a Natura 2000 site,
or
- B. Demonstrate that there will be no adverse effect on the integrity of Natura 2000 site(s) & Demonstrate that there will be no damage to the qualifying interest(s) of the Natura 2000 site(s)
or
- C. In the case of an alteration to a site, demonstrate that emissions overall from the new installation will be less than those from existing (as defined in section 3.9) installation due to the use of new technologies/BAT (e.g. low emission housing).

IF ANSWER IS

Yes, to any question	Assessments will be made on a case-by-case basis by the EPA considering all the material presented.
No, to any questions	The application/review will potentially be refused when all avenues to reduce the contributions are exhausted, and it cannot be shown that damage to the sensitive receptors will not occur.

Annex 1: Flow Chart

