



Licence Application Instruction Note 2 (IN2) (DRAFT)

Assessing the Impact of Ammonia Emissions
to Air and Nitrogen Deposition
from EPA licensable activities on European Sites

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INTRODUCTION

This Instruction Note is to assist applicants/licensees in assessing the impact of ammonia emissions to air and nitrogen deposition (from NH₃ and NO_x) on European sites when preparing licence/licence review applications for industrial sites. It does **not** apply to intensive agriculture for which there is a separate note.

European sites also known as Natura 2000 Sites are a European network of important ecological sites. The EU Habitats Directive (92/43/EEC) as amended, placed an obligation on Member States of the EU to establish the European sites network. The network is made up of Special Protection Areas (SPAs), classified under the EU Birds Directive (2009/147/EC), and Special Areas of Conservation (SACs), designated under the Habitats Directive itself. The European Communities (Natural Habitats) Regulations, 2011 as amended transpose these EU directives into Irish national law. More information on European sites in Ireland can be found on the National Parks and Wildlife Service (NPWS) webpage at www.npws.ie/protected-sites.

An Appropriate Assessment (AA) is an assessment of the potential adverse effects of a plan or project (either alone or in combination with other plans or projects) on European sites. Regulation 42 of the Habitats Regulations requires the Public Authority to undertake screening for AA and where necessary AA of any plan or project for which an application/review for consent is received. In relation to the licence applications which are the subject of this Instruction Note it is the EPA that undertake the AA screening and where required undertake the AA.

This Instruction Note and flowchart in Appendix 1 is designed to assist in determining the course of action to be taken when evaluating the impacts on European sites of ammonia emissions to air and nitrogen deposition from main air emission points at EPA licensable industrial sites (Industrial Emissions, Integrated Pollution Control and Waste) excluding intensive agriculture installations. Each of the questions set out later in this document must be addressed sequentially in the order presented in the flowchart in Appendix 1.

This Instruction Note focuses on ammonia emissions and nitrogen deposition but the approach may also be applied to NO_x and SO₂ specifically in the context of AA.

FIRST STEPS

Before using the flowchart, the applicant/licensee will need specific information available to them and may need to have carried out air dispersion modelling on the air emissions from the installation/facility. Air dispersion modelling should be conducted in accordance with the EPA "[Air Dispersion Modelling from Industrial Installations Guidance Note \(AG4\)](#)" or similar guidelines from a recognised authority.

The information the applicant/licensee will need includes key pieces of information in relation to European sites, their qualifying interests and conservation objectives as well as relevant critical loads/levels and background concentrations at the European sites. The applicant/licensee shall identify all the European sites within the zone of influence of the activity and their appropriate critical levels for ammonia and the critical loads for nitrogen deposition. [APIS](#)¹ should be used to identify the critical levels and critical loads for each qualifying interest habitat or species in each European site included in the assessment. The National Parks and Wildlife Service (NPWS) are the responsible authority for setting critical levels and loads in Ireland and have been part of the development of the APIS application in Ireland. In relation to critical loads for nitrogen deposition, the lowest figure in the range (i.e. the most conservative), for that habitat/species, must be used unless otherwise justified.

This Instruction Note will be regularly reviewed and updated where necessary.

1 The Air Pollution Information System (APIS) provides a searchable database and information on pollutants and their impacts on habitats and species.

DEFINITION OF TERMS

Term	Definition
Activity	Any process, development or operation specified in the First Schedule of EPA Act 1992 as amended and carried out in an installation. Waste disposal and recovery operations specified in the Third and Fourth Schedule of the Waste Management Act 1996 as amended and carried out at a facility.
Appropriate Assessment	An appropriate assessment (AA) is an assessment of the potential effects of a plan or project (either alone or in combination with other plans or projects) in view of the conservation objectives of Special Areas of Conservation and Special Protection Areas (European sites).
Background concentration	Existing ambient levels/loads, including contributions from operational activities, developments etc.
Critical Level for ammonia (Cle) expressed as $\mu\text{g}/\text{m}^3$	Concentration of ammonia in the atmosphere above which direct adverse effects on receptors, such as plants and ecosystems may occur according to present knowledge.
Critical Load for nitrogen deposition (CLo) expressed as $\text{kg}/\text{ha}/\text{year}$	A quantitative estimate of exposure to nitrogen deposition below which significant harmful effects on specified sensitive elements of the environment do not occur according to present knowledge.
Development	Has the meaning assigned to it in the Planning and Development Act 2000 as amended.
Facility	Any site or premises used for the purpose of the recovery or disposal of waste.
Installation	A stationary technical unit or plant where the activity concerned referred to in the First Schedule of EPA Act 1992 as amended is or will be carried on, and shall be deemed to include any directly associated activity, which has a technical connection with the activity and is carried out on the site of the activity.
Natura Impact Statement (NIS)	A report prepared by the applicant comprising the scientific examination of a plan or project and the relevant European site or European sites, to identify and characterise any possible implications of the plan or project individually or in combination with other plans or projects in view of the conservation objectives of the site or sites, and any further information including, but not limited to, any plans, maps or drawings, scientific information or data required to inform the Appropriate Assessment.
Process Contribution (PC)	Contribution of a substance from the installation/facility to atmospheric levels ($\mu\text{g}/\text{m}^3$) / deposition ($\text{Kg}/\text{ha}/\text{year}$), modelled at a receptor location.
Predicted Environmental Concentration (PEC)	All relevant PCs in combination plus the background at a receptor location. For the purposes of this Instruction Note, this definition should also be interpreted as predicted environmental load for assessment of nitrogen deposition.
Zone of influence	The zone of influence of a development/activity 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. The zone of influence should be established using the Source-Pathway-Receptor model and not by arbitrary distances unless the installation/facility is within 250m of a European site (see question 1 below). Reference may also be made to published guidance on this topic from authorities in other European jurisdictions where relevant.

Question 1

Is the installation/facility within 250m of a European site?

IF ANSWER IS	
Yes	<p>Within 250m it cannot be excluded on the basis of objective information that the activity will have a significant effect on the site concerned. AA required. NIS and detailed modelling should accompany the licence application.</p> <p>Proceed to Question 3.</p>
No	<p>Proceed to Question 2.</p>

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Question 2

Part (i): Is the Process Contribution (PC) from the application installation/facility alone $\leq 1\%$ of the relevant critical level (ammonia) and critical load (nitrogen deposition) at all European sites within the zone of influence, and

Part (ii): in the context of the site-specific factors, can significant in-combination effects be ruled out.

The purpose of Question 2 is to determine if significant effects on European sites can be excluded on the basis of the scale of the predicted effect, and therefore if the application can be screened out for AA. A formal determination on AA screening will be made by the EPA once an application has been received.

PART (I)

Is the Process Contribution (PC) from the application installation/facility alone $\leq 1\%$ of the relevant critical level (ammonia) and critical load (nitrogen deposition) at all European sites within the zone of influence?

The applicant/licensee shall identify all the European sites within the zone of influence of the activity, their appropriate critical levels for ammonia and the critical loads for nitrogen deposition. At this stage, the most conservative values, assigned to the most sensitive habitat/species for each European site should be used unless otherwise justified. For example, where large European sites are being considered, the most sensitive habitat/species may be located significant distances from the installation/facility and this would need to be explained. [APIS](#) should be used to identify the critical levels and critical loads for each qualifying interest habitat or species in each European site. The NPWS is the responsible authority for setting critical levels and loads in Ireland and has been part of the development of the APIS application in Ireland.

In relation to critical loads for nitrogen deposition, the lowest figure in the range, for that habitat/species, shall be used unless otherwise justified.

Air dispersion modelling shall be used to identify the worst-case PC at each of the European sites identified. If the PC is $\leq 1\%$ of the relevant critical level and critical load, then the applicant/licensee should also consider Part (ii). If the PC is $\geq 1\%$ proceed to Q3.



PART (II)

In the context of Question 2. and considering site-specific factors, can significant in-combination effects be ruled out?

If the PC alone is $\leq 1\%$ of the relevant critical level and critical load the applicant/licensee must also consider in-combination effects. In doing so they must consider site specific factors such as the location of the installation /facility with regard to proximity to European sites and other sources of ammonia and nitrogen. Caution is needed to avoid an overly conservative approach here when estimating the combined effects which arise from spatially discrete sources, attention needs to be paid to sources where the impact footprints are overlapping with the installation or facility i.e. the in-combination assessment can be geographically constrained. Specific considerations include:

- ▲ sources and type/quantity of air emissions which may have in-combination effects, at the European site(s).
- ▲ sensitivity of the particular European site(s) within the zone of influence and the particular vulnerability of the habitats/species within.

If the applicant/licensee cannot demonstrate that significant in-combination effects can be ruled out, they must proceed to Question 3 and AA will be required. The 1% threshold is only applied strictly to Part (i) of Question 2. However, applicants and licensees may reference other published guidance on decision-making thresholds as part of their assessment to support any conclusions.

As the above assessments are still part of the AA screening stage, current case law regarding mitigation measures and AA screening must be followed.

IF ANSWER IS	
Yes, to Q2 parts (i) and (ii)	Emissions are not considered to be likely to have a significant effect on European sites. No need to progress to further questions. Submit application to EPA for consideration.
No, to either Q2 part (i) or part (ii)	The PC, either alone or in combination with other installations/facilities may have a significant effect on European sites. AA is required. Detailed air modelling should inform the NIS accompanying the licence application. Proceed to Question 3.

Question 1 and 2 are related to the AA screening stage determining whether Appropriate Assessment is required. These questions are intended to guide applicants/licensees and do not result in formal screening conclusions. Formal AA screening will be carried out by the EPA in view of best scientific knowledge and in view of the conservation objectives of the European site(s) when an application is received.

Full Appropriate Assessment and Natura Impact Statement (NIS) Required.

Question 3

Does modelling indicate that the PEC will exceed a critical level and/or critical load for any relevant qualifying interests for European sites within the zone of influence?

At this point, a full AA is required and so the following questions relate to the assessment of effects on the integrity of a European site. A detailed air dispersion modelling report is required in conjunction with producing a NIS. The modelling must take account of effects which might arise in-combination with other plans and projects in addition to the Background Concentration (BC) to obtain a worst-case Predicted Environmental Concentration (PEC) at appropriate locations within each of the European sites within the zone of influence. Air dispersion modelling should be conducted in accordance with the EPA "Air Dispersion Modelling from Industrial Installations Guidance Note (AG4)" or similar guidelines from a recognised authority.

$$\text{PEC} = \text{PC} + \text{Sum of PCs from other plans and projects} + \text{BC}$$

Background concentrations/levels (BC) for ammonia and nitrogen deposition at the European site(s) shall be obtained by the applicant/licensee from APIS. When assessing impacts on European sites in Northern Ireland, it will be necessary to select 'UK' in the map controls. The applicant/licensee should note the date of the background data used when considering what operational plans and projects are already included in the background. If the applicant/licensee is proposing to use other site-specific background data, clear scientific justification must be provided.

Other emission sources, which may act in combination (the extent of each source's modelled effects/plume may be used here) with the application/review need to be included in the PEC. These are referred to as 'PCs from other plans and projects'.

Plans/projects to include:

- a) Developments/activities that are not yet operational or developments/activities that are not included in the background concentration (i.e. operational after the date of collection/modelling of the background data).

Examples are:

- i) Developments/ activities 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/or nitrogen emissions,
- ii) Developments/activities that started operating/expanded, after the most recent update of background data; including those both above and below licensing thresholds, that may contribute to ammonia and/or nitrogen emissions.

A clear justification of what is included and excluded in 'PCs from other plans and projects' shall be provided by the applicant/licensee.

IF ANSWER IS	
Yes (the PEC will exceed a CL)	Proceed to Question 4.
No	Submit assessment with application to EPA for consideration.

Question 4

Can you demonstrate that there will be no adverse effect to site integrity?

Where AA is required, consent can only be granted if it is possible to ascertain that the activity will not have an adverse effect on the integrity of European sites in view of the sites' conservation objectives.

In answering this question, the applicant/licensee will need to consider a range of factors specific to their circumstances including for example:

- ▲ The conservation objectives of the relevant European site(s)
- ▲ Background pollution levels at the relevant European site(s)
- ▲ Spatial scale and duration of predicted impact and ecological functioning of the affected area
- ▲ Site survey information
- ▲ Any national, regional or local initiatives / trends which might be relied upon to reduce background levels at the European site(s).

All relevant National and European guidance on Appropriate Assessment should be consulted by the applicant/licensee. Specifically in respect of an assessment of air pollution impacts, the English nature conservation body (Natural England) has provided [guidance in respect of assessing air quality impacts in England in respect of road emissions](#). Whilst not dealing with road emissions here, certain sections of Natural England's guidance are transferable to other air pollution sources so is referenced here by way of example.

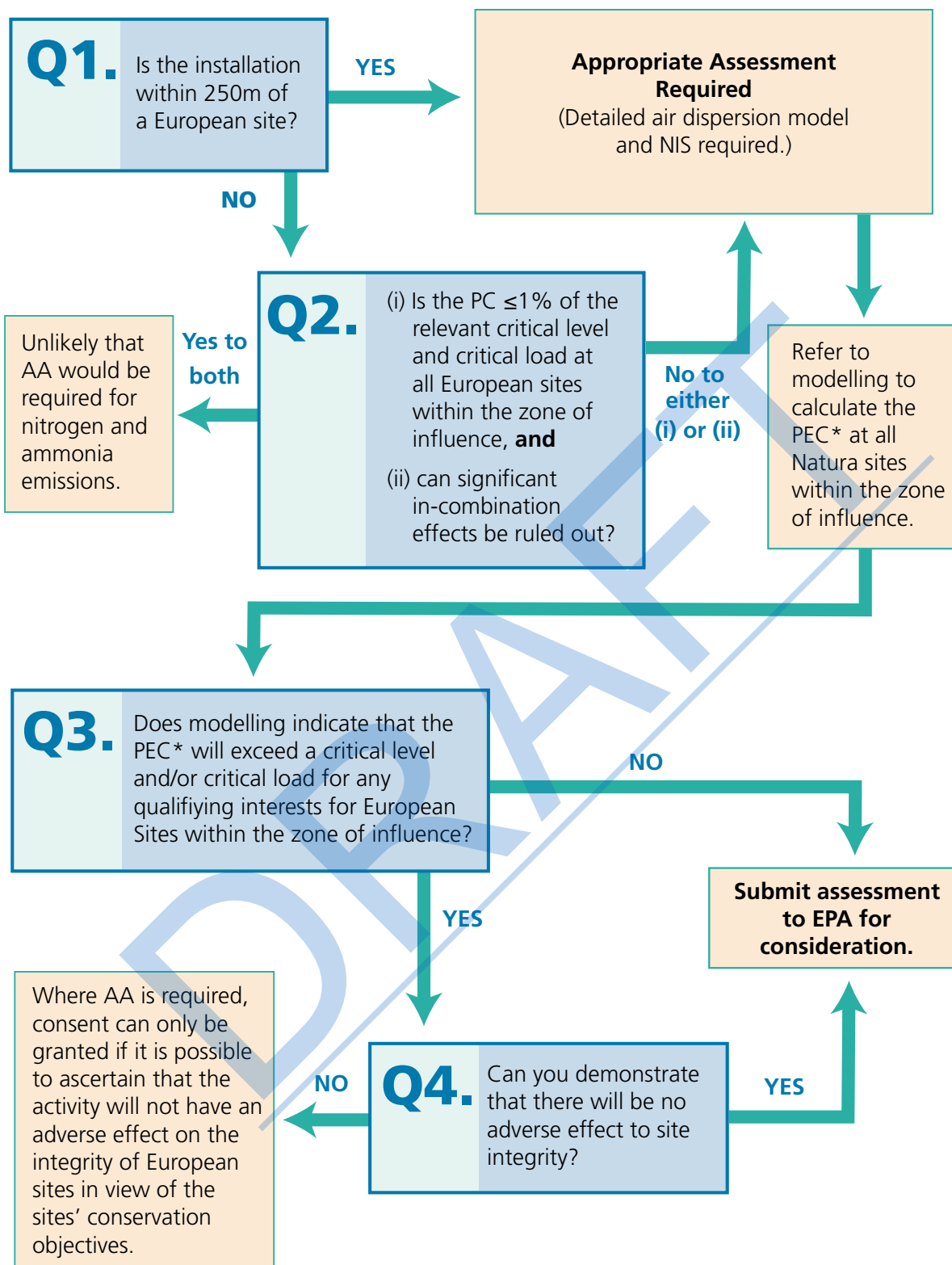
If the BC of ammonia levels or nitrogen deposition already exceeds the critical level or critical load at a European site within the zone of influence of the installation/facility, no additional emissions that represents a risk of an adverse effect on the integrity of the European site can be authorised. The applicant may wish to contact the EPA to discuss the details of the proposed application at a pre-application meeting at this stage.

Where an existing installation/facility already contributes to an exceedance of the relevant critical level/load, it will be necessary to demonstrate that no net increase, or a net reduction in emissions, will be achieved in order to conclude that there will be no adverse effect on the integrity of the site.

IF ANSWER IS	
Yes	Submit assessment with application to EPA for consideration.
No	The application/review may potentially be refused when all avenues to reduce the contributions are exhausted, and it cannot be shown that there will be no adverse effect on site integrity*.

*Where a plan or a project is deemed to have an adverse effect on the integrity of a European site and no alternative solutions are available, the plan or project can only then proceed on the grounds of Imperative Reasons of Overriding Public Interest (IROPI). Refer to Article 6(4) of the EU Habitats Directive (92/43/EEC).

APPENDIX 1. FLOWCHART



* PEC = PC + Sum of PCs from other plans and projects + BC

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Please note that this is a draft document.
If you wish to make any comments on the content of this document, please forward them to the following email address: licensing@epa.ie.



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