

AQTAG21

‘Likely significant effect’ – use of 1% and 4% long-term thresholds and 10% short-term threshold



Status: Updated version
(Approved 2 October 2015)

1. Purpose of document

The purpose of this document is to outline the agreed screening assessments thresholds used when assessing applications for environment permits under the Habitats Regulations. This paper applies to all permit applications made under the Environmental Permitting (England and Wales) Regulations 2010 where there are emissions to air and the installation in question is within the agreed relevance distance criteria for European sites.

2. Related documents

Environment Agency Operational Instruction 182_01: [Applying the Habitats Regulations to Environment Agency permissions, plans and projects](#) (issued 10/08/2010).

Environment Agency Operational Instruction 183_01: [Habitats Directive: taking a new permission, plan or project through the regulations](#) (issued 10/08/2010).

Environment Agency Operational Instruction 66_12: [Simple assessment of the impact of aerial emissions from new or expanding IPPC regulated industry for impacts on nature conservation](#) (issued 08/05/2012).

Environment Agency Operational Instruction 67_12: [Detailed assessment of aerial emissions from new or expanding IPPC regulated industry for impacts on nature conservation](#) (issued 08/05/2012).

AQTAG02: [Minimum information requirements for Habitats Directive: Form for recording likely significant effect assessment \(Stage 2\) \(276_05_SD1\)](#) (last updated February 2013).

AQTAG17: [Guidance on in combination assessments for aerial emissions from EPR permits](#) (last updated February 2013).

3. Background

The Conservation of Habitats and Species Regulations 2010 require that before giving permission for a plan or project, which is likely to have a significant effect on a European site, a competent authority should make an appropriate assessment of the implications for the site in view of that site's conservation objectives.

The Environment Agency, Natural England and Natural Resources Wales (NRW) have an agreed 4 stage process to assess the potential impact of industrial processes on European sites:

- Stage 1 – identification of relevant permissions;
- Stage 2 – assessment of likely significant effect for '*relevant*' permissions;
- Stage 3 – appropriate assessment for '*significant*' permissions;
- Stage 4 – determination of the permission.

Stages 1 and 2 are screening stages to identify plans or projects where more detailed assessment (an appropriate assessment) is necessary. Screening thresholds are used to remove applications, which are not relevant or significant, from further assessment. These

screening stages prevent unnecessary costs to operators and delays in the permitting process whilst ensuring legal compliance with the Habitats Directive.

Stage 1 screening is based on distance from the sensitive receptor. Stage 2 screening is based on process contributions from the installation and 'likely significant effect'. In this context 'likely significant effect' is 'any effect that may reasonably be predicted as a consequence of the plan or project that may affect the conservation objectives of the features for which a site was designated'¹.

To assess the likely significant effect, a basic risk assessment consisting of three elements must be completed:

- I. Is there a potential hazard from the proposal, which could affect the interest features of the site, either directly or indirectly, alone and/or in combination? Are the features sensitive to this hazard?
- II. Is there a pathway such that the potential hazard could affect the interest features of the site alone and/or in combination? What is the exposure of the feature to the hazard?
- III. For each hazard, is the potential scale or magnitude of any effect likely to be significant?

Once a potential hazard has been identified, and the sensitivity and exposure of the notified features of the site determined, guideline thresholds can be applied to determine whether the scale/magnitude of the effect is significant.

4. Generic 'likely significant effect' threshold

To determine if the potential scale or magnitude of any effect is likely to be significant (as in III above), a threshold approach has been adopted. The threshold approach for all installations, with the exception of intensive farming, is summarised in Table 2. The approach for intensive farming is described in Section 5.

Where the maximum, worst-case concentration within the emission footprint in any part of the European site(s) is less than 1% of the relevant long-term benchmark (critical level and/or critical load) and less than 10% of the relevant short-term benchmark (if available), AQTAG considers that the emission is not likely to have a significant effect alone, irrespective of the background levels.

Where the predicted long-term contribution from the industrial process is greater than 1% of the relevant long-term benchmark, consideration also needs to be given to the predicted environmental contribution (PEC). Where the PEC (process contribution + background) is less than 70% of the relevant long-term benchmark then a conclusion of no likely significant effect can be reached, even if the process contribution is greater than 1%.

¹ English Nature Habitats Regulations Guidance Note 3: The determination of likely significant effect under the Conservation (Natural Habitats &c.) Regulations 1994.

Table 2: Summary of ‘likely significant effect’ threshold for all installations with the exception of intensive farming

If PC...	Then...
< 1% long-term benchmark; critical level and load	Conclude ‘no likely significant effect’ alone or in-combination
> 1% long-term benchmark; critical level and/or load	There is a potential for a likely significant effect, consider the Predicted Environmental Concentration (PEC): <ul style="list-style-type: none"> ▪ PEC: PC + background
< 10% short-term benchmark; critical level	Conclude ‘no likely significant effect’ alone or in-combination
> 10% short-term benchmark; critical level	Conclude potential for ‘likely significant effect’ alone and in-combination The application will require a Stage 3 Appropriate Assessment.
If PEC...	Then...
< 70% long-term benchmark; critical level and load	Conclude ‘no likely significant effect’ alone and in-combination and proceed with permit determination.
> 70% long-term benchmark; critical level and/or load	Conclude potential for ‘likely significant effect’ alone and in-combination The application will require a Stage 3 Appropriate Assessment.

The choice of the 1% assessment level as a standard approach is a matter of professional judgement. This professional judgement takes account of:

- The absolute contribution of a pollutant to an ecosystem which receives an impact at this level. For example, a contribution of 1% of the critical load for nitrogen of 10kg/ha/yr is equivalent to 0.01g of nitrogen per square metre per year. It is extremely unlikely that an emission at this level will make a significant contribution to air quality or air pollution impacts, and is therefore considered to be inconsequential both alone and in combination.
- The low likelihood of in-combination effects meaning that a conclusion of ‘no adverse effect’ cannot be reached at a particular location during the appropriate assessment (Stage 3) when the process contribution is less than 1%. Experience of permitting allows us to be confident that it is unlikely that a substantial number of plans or projects will occur in the same area at the same time, such that their in-combination impact would give rise to concern at the appropriate assessment stage. If such a situation was to arise then the assessment could be determined on a case-specific basis.
- The 1% screening threshold is intended to cover a wide range of situations (e.g. different pollutants, different industrial processes and release characteristics), a range of ecosystem and human health protection standards and a range of uncertainties (such as modelling and standard setting). The threshold therefore needs to be sufficiently precautionary to minimise the risk of incorrectly screening out a situation when in-fact it merits further consideration. Many factors may affect the point at which a more detailed assessment is needed and therefore it may be appropriate to develop alternative thresholds to use in specific situations.

5. 'Likely significant effect' threshold for intensive farming

When the intensive farming sector came into regulation in 2007 AQTAG agreed on the use of a 4% threshold for assessing long-term 'likely significant effect' from ammonia (the key pollutant) when using appropriate screening tools produced specifically for this sector. Current appropriate and accepted screening tools are the current version of the Environment Agency Ammonia Screening Tool (AST) and the updated version of the SCAIL-agriculture tool² (provided it is used in a certain way; see appendix). The use of this higher threshold takes account of:

- The precautionary nature of the sector-specific screening tools which incorporate a number of conservative assumptions (for example, always assuming the sensitive site is downwind of the source and that the sensitive feature is located at the edge of the conservation site closest to the source). Outputs are therefore likely to be more worst-case than if using a detailed dispersion model with appropriate meteorological data and information on the location of the sensitive features.
- Experience in permitting this sector indicates that whilst more sites would screen in if a 1% threshold was used, these sites would subsequently screen out during the appropriate assessment. Use of the 4% threshold means the level of scrutiny required reflects the risk posed.

Where the predicted long-term contribution from a farm is greater than 4% in-combination effects are checked (AQTAG17 provides more information on in combination assessment).

Where the conservation agencies have concerns about the protection of nature conservation sites with higher than average numbers of intensive farms clustered around them, they can raise these concerns to the Environment Agency for consideration in the permitting process.

For screening tools other than AST or the updated SCAIL-agriculture tool a threshold of 1% should be used. In exceptional circumstances, detailed modelling may have been used without using a screening tool. In this instance, a screening threshold of 4% is appropriate provided the modelling has been carried out following an approach consistent with Environment Agency guidance³.

Threshold for shorter term effects

Although the majority of pollutant thresholds are concerned with long-term (annual) effects, some pollutants also have a threshold for shorter-term effects. For example, nitrogen oxides (daily mean) and hydrogen fluoride (daily and weekly mean). Generally, the shorter-term thresholds are less likely to be exceeded⁴. Thus, for shorter-term effects, a threshold of 10% of the appropriate environmental criteria is recommended. Where the concentration within the emission footprint in any part of the European site(s) is less than 10% of the relevant short-term benchmark and it also meets the relevant long-term threshold, AQTAG considers that the emission is not likely to have a significant effect alone or in combination irrespective of the background levels (there is no requirement to consider short-term effects in combination with background/PEC).

² <http://www.scail.ceh.ac.uk/cgi-bin/agriculture/input.pl>

³ As set out in Horizontal guidance [H1 Annex F](#) (Air Emissions) and [H1 Annex B](#) (Intensive Farming) and the Environment Agency guidance note: Guidance on modelling the concentration and deposition of ammonia emitted from intensive farming.

⁴ Short-term thresholds are set to assess against acute effects of exposure over the short-term. They are higher than long-term thresholds and therefore, where the long term threshold is met, the short-term threshold would only be exceeded on occasions where concentrations peak sufficiently to exceed the short-term threshold. In the case of NO_x, the short term 24-hour critical level is 75µg/m³, more than twice the long term annual mean critical level (30µg/m³). Given a process contribution of less 10% of the short term mean, a background of more than 90% of the critical level would be required to result in an exceedance of the short-term critical level. The likelihood of this occurring where the annual mean threshold is met is low, as it would require a peak of more than twice the average background.

Appendix: Use of the updated SCAIL-agriculture tool in assessing ammonia emissions from Intensive Farming applications

SCAIL-agriculture may be used as a screening tool provided it is run under certain conditions, that is, for single source installations using the conservative met mode.

Testing has indicated that, when SCAIL-agriculture is run for a single source installation using the conservative met mode, ammonia results are broadly conservative with respect to detailed modelling and similar to those produced by the Ammonia Screening Tool (AST). Screening thresholds remain the same as for AST. As is the case with AST, detailed modelling will be required if a conservation site lies within 250 metres of the installation.

Results obtained using the realistic met mode and/or multiple source installations are not acceptable. This is because the meteorological data used in the realistic met mode may not be adequately representative of conditions to ensure results are sufficiently conservative.

SCAIL-agriculture may also not be appropriate as a screening tool if sources are dispersed (i.e. the distance from the centre of the site to any source is greater than 40% of the distance to the nearest receptor).