UK Approach to assessing projects with potential N deposition impacts for Article 6.3 assessments

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The UK position

- 4 countries - some variation in assessment procedures
- Application types:
  - Pollution Prevention and Control (Industrial Emissions) applications. Pig and poultry farms above 40,000 places for poultry; 750 sows, or 2000 places for pigs >30kg
  - Non industrial applications, planning approval is the only regulatory control
Assessment Process

Stage 1 – Relevance screening (Distance)

Stage 2 – ‘Likely significant effect’ screening

Stage 3 – Appropriate Assessment

Stage 4 - Determination
Stages 1 & 2

• Stage 1 - Farm screened out if greater than:
  – 10km from a Natura 2000 site
  – 5 km from sites of National Importance
  – 2 km from other wildlife sites

• Stage 2 – Test of Likely Significance
  – Are the features sensitive (www.apis.ac.uk)
  – Simple modelling undertaken using a spreadsheet tool
  – Is the process contribution > threshold?
Stages 1 & 2

Results

Site/Feature Information

Site Code: UK00160099
Site Name: Ballynahone Bog
Interest Code: H7110
Interest Name: Active raised bogs

Enter a grid reference >>

Nitrogen Critical Loads

Relevant NCL Classes: Raised and blanket bogs

Empirical Critical Loads: 5-10 kg N ha\(^{-1}\) year\(^{-1}\) [see table for guidance on applying critical loads in impact assessments]

Uncertainty in these values? Reliable

EUNIS ecosystem class: D1

Exceedance Impacts: Increase in vascular plants, altered growth and species composition of bryophytes, increased nutrient and pollutant uptake.
## Stages 1 & 2

### Screening ammonia emissions from pig and poultry farms

**Air Quality Modelling and Assessment Unit (AQMAU), The Environment Agency**  
AQMAU Ammonia Screening Tool, version 4.1

#### STEP 1  ENTER EMISSION DATA IN THE BLUE BOXES

<table>
<thead>
<tr>
<th>Source</th>
<th>Number of animal places</th>
<th>Housing emission factor (kg NH₃/animal place/year)</th>
<th>Sub total ammonia emission rate (g/a)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1700</td>
<td>0.05</td>
<td>0.02</td>
</tr>
<tr>
<td>2</td>
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<td>7</td>
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</tbody>
</table>

**Other animal houses**

<table>
<thead>
<tr>
<th>Source</th>
<th>Number of animal places</th>
<th>Housing emission factor (kg NH₃/animal place/year)</th>
<th>Sub total ammonia emission rate (g/a)</th>
</tr>
</thead>
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</tbody>
</table>

**Slurry storage area (m²)**

<table>
<thead>
<tr>
<th>Source</th>
<th>Slurry storage emission factor (kg NH₃/m²/year)</th>
<th>Sub total ammonia emission rate (g/a)</th>
</tr>
</thead>
<tbody>
<tr>
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</table>

**Manure storage (tonne)**

<table>
<thead>
<tr>
<th>Source</th>
<th>Manure storage emission factor (kg NH₃/tonne/year)</th>
<th>Sub total ammonia emission rate (g/a)</th>
</tr>
</thead>
<tbody>
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</table>

**Sub total ammonia emission rate (g/a)**

<table>
<thead>
<tr>
<th>Source</th>
<th>0.02</th>
<th>0.00</th>
<th>0.00</th>
<th>0.00</th>
<th>0.00</th>
<th>0.00</th>
<th>0.00</th>
</tr>
</thead>
</table>

**Total ammonia emission rate (g/a)**

<table>
<thead>
<tr>
<th>Source</th>
<th>0.02</th>
</tr>
</thead>
</table>

#### STEP 2  ENTER DISTANCE IN THE BLUE BOX AND FIND RESULTS

<table>
<thead>
<tr>
<th>Distance (m)</th>
<th>250</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concentration due to farm (ug/m³)</td>
<td>0.194</td>
</tr>
<tr>
<td>N Deposition due to farm (kg N/ha/yr)</td>
<td>1.000</td>
</tr>
<tr>
<td>Acid deposition due to farm (keq/ha/yr)</td>
<td>0.072</td>
</tr>
</tbody>
</table>
Stages 1 & 2

SCAIL
Simple Calculation of Atmospheric Impact Limits

Simple Calculation of Atmospheric Impact Limits for Agriculture (SCAIL-Agriculture) is a screening tool for assessing the impact from livestock units on semi-natural areas like SSSIs and SACs. This model provides an estimate of the amount of nitrogen deposited, in form of NH₃, on a habitat from the livestock unit, storage area or spreading technique. This value can then be used to assess whether impact limits for the habitat are exceeded or not.

Location details:
- Country/Region
- Habitat type
- Grid Reference of habitat

Emission/Source details:
- Existing or New Source?
- Pig or Poultry?
- Source type?
- Enter value

Habitat Details (distance and direction):
- Distance from source to habitat (e.g. SSSI)
- Direction from source to habitat
- Land use between source and habitat
- Add more sources?
- Finished adding sources?

Click on the info button to view guidance on each form field.
Stage 3 Appropriate Assessment

• Applicant required to submit detailed modelling (ADMS,AERMOD)

• Review Emission Data – process contribution

• Is there any evidence to suggest that the site is already impacted by current pollution levels?
Stage 3 Appropriate Assessment

- In combination impacts
  - Proposed projects
  - Recently approved
  - Recently completed

- Cumulative impacts
  - Process Contribution + Background = Predicted environmental concentration (PEC)
Stage 4 Determination

• Is it possible to conclude no adverse effect on the integrity of a SAC/SPA/Ramsar?

• Is PEC < 100% of critical load/level?
  – Yes, project can be approved
  – No, Small PC may be allowable on case by case basis

• Conditions/mitigation applied to approvals
Challenges

• Uncertainty in the assessment
  – confidence in modelling
  – Site specific sensitivity
  – Appropriate critical loads
• Evidence base for thresholds
• How do we take account of historic deposition
• Off setting/ habitat management suitable mitigation
• Prevent further deterioration or seek restoration?