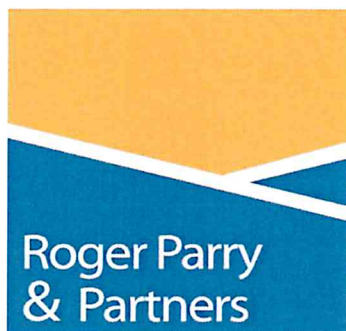




## **Ammonia & Nitrogen Deposition Results**



|                     |                                                                                          |
|---------------------|------------------------------------------------------------------------------------------|
| <b>DEVELOPMENT:</b> | <b>Erection of a free range egg production unit including silos and associated works</b> |
| <b>LOCATION:</b>    | <b>CaeMor Farm<br/>Llwynmawr<br/>Llangollen<br/>LL20 7BE</b>                             |
| <b>CLIENT:</b>      | <b>E &amp; J Morris</b>                                                                  |

**Roger Parry & Partners LLP**  
**The Estates Office, 20 Salop Road, Oswestry, Shropshire, SY11 2NU**  
**Tel: 01691655334 Fax: 01691 657798**  
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*Also at: 11 Severn Street, Welshpool, Powys, SY21 7AG*  
*Tel: 01938 554499 Fax: 01938 554462*  
*email: [welshpool@rogerparry.net](mailto:welshpool@rogerparry.net)*

*Also at: Hogstow Hall, Minsterley, Shrewsbury, SY5 0HZ*  
*Tel: 01743 791336 Fax: 01743 792770*  
*email: [mail@rogerparry.net](mailto:mail@rogerparry.net)*

***June 2015***



Simple Calculation of Atmospheric Impact Limits from Agricultural Sources (SCAIL-Agriculture) is a screening tool for assessing the impact from pig and poultry farms on human health and on semi-natural areas like SSSIs and SACs. The model provides an estimate of the amount of acidity and nitrogen deposited from a farm as well as predictions of air concentrations of odour and PM10. These values can then be used to assess whether impact limits for human health or habitats are exceeded or not.

Information regarding the use of SCAIL-Agriculture as a screening tool and instructions for completing the assessment form are provided in the SCAIL-Agriculture User Guide. The User Guide also contains background information on regulatory requirements for the use of SCAIL-Agriculture, including instances where further detailed modelling of emissions will be required. **The relevant regulatory authority should be consulted for guidance regarding assessment requirements for planning and permitting purposes.**

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[Load Input Data](#) (?)

|                             |                                                                                                                                           |
|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Project Details</b>      |                                                                                                                                           |
| Project Notes (?)           | Cae Mor Free Range Egg Unit                                                                                                               |
| Project Run Mode (?)        | <input checked="" type="radio"/> Conservative Met <input type="radio"/> Realistic Met                                                     |
| <b>Location Details</b>     |                                                                                                                                           |
| Select Country (?)          | Wales                                                                                                                                     |
| <b>Installation Details</b> |                                                                                                                                           |
| Installation (?)            | 1                                                                                                                                         |
| Installation Name (?)       | Cae Mor Farm                                                                                                                              |
| Installation Location (?)   | 322812,335747 <input type="radio"/> Landranger <input checked="" type="radio"/> x,y<br><input type="button" value="Verify Location"/> (?) |
| <b>Source Details</b>       |                                                                                                                                           |
| Source (?)                  | 1                                                                                                                                         |
| Source (?)                  | <input type="radio"/> Pig <input checked="" type="radio"/> Poultry                                                                        |
| New or Existing Source (?)  | New                                                                                                                                       |
| Source Name (?)             | Cae Mor Free Range Eg                                                                                                                     |
| Source Location (?)         | 322812,335747 <input type="radio"/> Landranger <input checked="" type="radio"/> x,y<br><input type="button" value="Verify Location"/> (?) |
| Source Type (?)             | Housing                                                                                                                                   |
| Naturally Vented            | <input type="checkbox"/>                                                                                                                  |
| Building Height             | 5.2 m                                                                                                                                     |
| Fan Location (?)            | Roof                                                                                                                                      |
| No. of Fans (optional) (?)  | 6                                                                                                                                         |
| Fan Diameter (?)            | 1040 m                                                                                                                                    |
| Fan Flowrate (?)            | 6 m <sup>3</sup> /s                                                                                                                       |
| Livestock Number (?)        | 16000                                                                                                                                     |
| Housing Floor Area (?)      | 1170 m <sup>2</sup>                                                                                                                       |
| Type (?)                    | Barn and free range                                                                                                                       |
| Details (?)                 | Aviary system                                                                                                                             |

Click on the question mark icon (?) to view guidance on each form field.

Total emissions : (?)

NH<sub>3</sub>: 1280 (kg)PM<sub>10</sub>: 480 (kg)

Odour: 706406400 (kOu)

Get Emissions Values (?)

NH<sub>3</sub> emission (kg) (?)

1280

(comment)

PM<sub>10</sub> emission (kg) (?)

480

(comment)

Odour emission (kOu) (?)

706406400

(comment)

## Designated Site details:

Search Radius (?)

10

km

Run Receptor Search (?)

No. of Designated Sites (?)

14 found

Verify Receptor Locations (?)

| Site No. | Name                                                            | Distance (km) | Designation | Easting | Northing |
|----------|-----------------------------------------------------------------|---------------|-------------|---------|----------|
| 1        | Afon Dyfrdwy (River Dee)                                        | 1.457         | SSSI        | 322370  | 337135   |
| 2        | River Dee and Bala Lake / Afon Dyfrdwy a Llyn Tegid             | 1.459         | SAC         | 322367  | 337136   |
| 3        | Pandy Quarries                                                  | 2.546         | SSSI        | 320272  | 335924   |
| 4        | River Dee (England)                                             | 4.018         | SSSI        | 326411  | 337533   |
| 5        | Berwyn                                                          | 4.602         | SPA         | 319625  | 339067   |
| 6        | Berwyn a Mynyddoedd de Clwyd / Berwyn and South Clwyd Mountains | 4.602         | SAC         | 319625  | 339067   |
| 7        | Berwyn                                                          | 4.604         | SSSI        | 319625  | 339069   |
| 8        | Caeau Pen-y-Coed                                                | 5.854         | SSSI        | 322386  | 341586   |
| 9        | Ruabon/Llantysilio Mountains and Minera                         | 6.969         | SSSI        | 324204  | 342575   |
| 10       | Dinas Bran                                                      | 7.233         | SSSI        | 322296  | 342961   |
| 11       | Nant-y-Belan and Prynella Woods                                 | 8.726         | SSSI        | 329732  | 341062   |
| 12       | Trefonen Marshes                                                | 9.178         | SSSI        | 324241  | 326680   |
| 13       | Fernhill Pastures                                               | 9.5           | SSSI        | 331970  | 333223   |
| 14       | Craig Sychtyn                                                   | 9.666         | SSSI        | 323289  | 326093   |

User specified site

Select ▼

Add site

Site Name

Site Location

Landranger ☐ x,y ☒

Verify Location (?)

Habitat within site

please select...

Check Background Levels (?)

## Human Health Receptor Details

Receptor

Select ▼

Add Receptor

PM<sub>10</sub> percentile

Annual Average ▼

Receptor Name

Receptor Location

Landranger ☐ x,y ☒

Verify Location (?)

Check Background PM10 Levels (?)

Finished adding sources?

Save Input Data

Clear Form

Calculate

# SCAIL

Simple Calculation of Atmospheric Impact Limits



## Results

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### Content Specific Help Text

### Site Information site 1 ?

Region: Wales  
 Site Name: Afon Dyfrdwy (River Dee)  
 Site Code: ? 5260  
 Designation Status: ? SSSI  
 Distance from Installation (m): ? 1457  
 Habitat Type: Habitat  
 Grid Reference: 322370.4, 337135.7  
 Met Site: ? CROS  
 Run Mode: ? Conservative  
 PM<sub>10</sub> Percentile: ? Average

### Installation Information ?

| No. | Name         | No. of sources | No. of new sources | PM <sub>10</sub> (t/a) | NH <sub>3</sub> (t/a) | Odour (kOu/a) | Dep N (kg/ha/yr) | Conc PM <sub>10</sub> (µg/m <sup>3</sup> ) | Conc NH <sub>3</sub> (µg/m <sup>3</sup> ) | Conc Odour (Ou/m <sup>3</sup> ) | Dep Acid (kEq H <sup>+</sup> /ha/yr) |
|-----|--------------|----------------|--------------------|------------------------|-----------------------|---------------|------------------|--------------------------------------------|-------------------------------------------|---------------------------------|--------------------------------------|
| 1   | Cae Mor Farm | 1              | 1                  | -                      | 0.033                 | -             | 0.01             | -                                          | 0                                         | -                               | 0                                    |

### Total Depositions/Concentrations and Exceedances ?

| Concentrations/Depositions and Critical Loads                          | PM <sub>10</sub> (µg/m <sup>3</sup> ) <span>?</span> | NH <sub>3</sub> (µg/m <sup>3</sup> ) | Odour (Ou/m <sup>3</sup> ) | N Dep. (kg N/ha/yr)                       | Acid Dep. (kEq H <sup>+</sup> /ha/yr)                          |
|------------------------------------------------------------------------|------------------------------------------------------|--------------------------------------|----------------------------|-------------------------------------------|----------------------------------------------------------------|
| Process Contribution (PC) at receptor edge                             | -                                                    | 0.00                                 | -                          |                                           |                                                                |
| Background concentration at receptor edge <span>?</span>               | -                                                    | 1.26                                 | -                          |                                           |                                                                |
| Predicted Environmental Concentration (PEC) <span>?</span>             | -                                                    | 1.26                                 | -                          |                                           |                                                                |
| Process Contribution (PC) at receptor edge                             |                                                      |                                      |                            | 0.00                                      | 0.000                                                          |
| Background deposition at receptor <span>?</span>                       |                                                      |                                      |                            | 21.00                                     | 1.77 (N: 1.50 S: 0.27)                                         |
| Predicted Environmental Deposition (PEC) <span>?</span>                |                                                      |                                      |                            | 21                                        | 1.77                                                           |
| Environmental Assessment Level or Critical Load / Level <span>?</span> | -                                                    | 1 or 3 <span>?</span>                | -                          | Standing open water - oligotrophic<br>3.0 | Fen, marsh and swamp<br>maxN: 0.66<br>maxS: 0.44<br>minN: 0.22 |
| Alternative Critical Load Info                                         |                                                      |                                      |                            |                                           |                                                                |
| % of relevant standard PC <span>?</span>                               | -                                                    | 0% or 0%                             | -                          | 0%                                        | 0%                                                             |
| % of relevant standard PEC <span>?</span>                              | -                                                    | 126% or 42%                          | -                          | 700%                                      | 268%                                                           |
| EXCEEDANCE <span>?</span>                                              | -                                                    | 0.26 or No exceedance                | -                          | 18.00                                     | 1.11                                                           |

### Project Notes

Cae Mor Free Range Egg Unit

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# SCAIL

Simple Calculation of Atmospheric Impact Limits



## Results

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### Content Specific Help Text

#### Site Information site 2 ?

Region: Wales  
 Site Name: River Dee and Bala Lake / Afon Dyfrdwy a Llyn Tegid  
 Site Code: ? UK0030252  
 Designation Status: ? SAC  
 Distance from Installation (m): ? 1459  
 Habitat Type: Habitat  
 Grid Reference: 322367.4,337136.2  
 Met Site: ? CROS  
 Run Mode: ? Conservative  
 PM<sub>10</sub> Percentile: ? Average

#### Installation Information ?

| No. | Name         | No. of sources | No. of new sources | PM <sub>10</sub> (t/a) | NH <sub>3</sub> (t/a) | Odour (kOu/a) | Dep N (kg/ha/yr) | Conc PM <sub>10</sub> (µg/m <sup>3</sup> ) | Conc NH <sub>3</sub> (µg/m <sup>3</sup> ) | Conc Odour (Ou/m <sup>3</sup> ) | Dep Acid (kEq H <sup>+</sup> /ha/yr) |
|-----|--------------|----------------|--------------------|------------------------|-----------------------|---------------|------------------|--------------------------------------------|-------------------------------------------|---------------------------------|--------------------------------------|
| 1   | Cae Mor Farm | 1              | 1                  | -                      | 0.033                 | -             | 0.01             | -                                          | 0                                         | -                               | 0                                    |

#### Total Depositions/Concentrations and Exceedances ?

| Concentrations/Depositions and Critical Loads                          | PM <sub>10</sub> (µg/m <sup>3</sup> ) <span>?</span> | NH <sub>3</sub> (µg/m <sup>3</sup> ) | Odour (Ou/m <sup>3</sup> ) | N Dep. (kg N/ha/yr)    | Acid Dep. (kEq H <sup>+</sup> /ha/yr) |
|------------------------------------------------------------------------|------------------------------------------------------|--------------------------------------|----------------------------|------------------------|---------------------------------------|
| Process Contribution (PC) at receptor edge                             | -                                                    | 0.00                                 | -                          |                        |                                       |
| Background concentration at receptor edge <span>?</span>               | -                                                    | 1.26                                 | -                          |                        |                                       |
| Predicted Environmental Concentration (PEC) <span>?</span>             | -                                                    | 1.26                                 | -                          |                        |                                       |
| Process Contribution (PC) at receptor edge                             |                                                      |                                      |                            | 0.00                   | 0.000                                 |
| Background deposition at receptor <span>?</span>                       |                                                      |                                      |                            | 21.00                  | 1.77 (N:1.50 S:0.27)                  |
| Predicted Environmental Deposition (PEC) <span>?</span>                |                                                      |                                      |                            | 21                     | 1.77                                  |
| Environmental Assessment Level or Critical Load / Level <span>?</span> | -                                                    | 1 or 3 <span>?</span>                | -                          | Luronium natans<br>3.0 | Cottus gobio                          |
| Alternative Critical Load Info                                         |                                                      |                                      |                            |                        |                                       |
| % of relevant standard PC <span>?</span>                               | -                                                    | 0% or 0%                             | -                          | 0%                     | n/a                                   |
| % of relevant standard PEC <span>?</span>                              | -                                                    | 126% or 42%                          | -                          | 700%                   | n/a                                   |
| EXCEEDANCE <span>?</span>                                              | -                                                    | 0.26 or No exceedance                | -                          | 18.00                  | n/a                                   |

#### Project Notes

Cae Mor Free Range Egg Unit

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### Content Specific Help Text

Site Information site 3 ?

Region: Wales  
 Site Name: Pandy Quarries  
 Site Code: ? 6463  
 Designation Status: ? SSSI  
 Distance from Installation (m): ? 2546  
 Habitat Type: Habitat  
 Grid Reference: 320272.1,335924.6  
 Met Site: ? CROS  
 Run Mode: ? Conservative  
 PM<sub>10</sub> Percentile: ? Average

### Installation Information ?

| No. | Name         | No. of sources | No. of new sources | PM <sub>10</sub> (t/a) | NH <sub>3</sub> (t/a) | Odour (kOu/a) | Dep N (kg/ha/yr) | Conc PM <sub>10</sub> (µg/m <sup>3</sup> ) | Conc NH <sub>3</sub> (µg/m <sup>3</sup> ) | Conc Odour (Ou/m <sup>3</sup> ) | Dep Acid (kEq H <sup>+</sup> /ha/yr) |
|-----|--------------|----------------|--------------------|------------------------|-----------------------|---------------|------------------|--------------------------------------------|-------------------------------------------|---------------------------------|--------------------------------------|
| 1   | Cae Mor Farm | 1              | 1                  | -                      | 0.033                 | -             | 0                | -                                          | 0                                         | -                               | 0                                    |

### Total Depositions/Concentrations and Exceedances ?

| Concentrations/Depositions and Critical Loads                          | PM <sub>10</sub> (µg/m <sup>3</sup> ) <span>?</span> | NH <sub>3</sub> (µg/m <sup>3</sup> ) | Odour (Ou/m <sup>3</sup> ) | N Dep. (kg N/ha/yr)                          | Acid Dep. (kEq H <sup>+</sup> /ha/yr)        |
|------------------------------------------------------------------------|------------------------------------------------------|--------------------------------------|----------------------------|----------------------------------------------|----------------------------------------------|
| Process Contribution (PC) at receptor edge                             | -                                                    | 0.00                                 | -                          |                                              |                                              |
| Background concentration at receptor edge <span>?</span>               | -                                                    | 1.26                                 | -                          |                                              |                                              |
| Predicted Environmental Concentration (PEC) <span>?</span>             | -                                                    | 1.26                                 | -                          |                                              |                                              |
| Process Contribution (PC) at receptor edge                             |                                                      |                                      |                            | 0.00                                         | 0.000                                        |
| Background deposition at receptor <span>?</span>                       |                                                      |                                      |                            | 21.00                                        | 1.77 (N:1.50 S:0.27)                         |
| Predicted Environmental Deposition (PEC) <span>?</span>                |                                                      |                                      |                            | 21                                           | 1.77                                         |
| Environmental Assessment Level or Critical Load / Level <span>?</span> | -                                                    | 1 or 3 <span>?</span>                | -                          | No sensitive habitat or species at this site | No sensitive habitat or species at this site |
| Alternative Critical Load Info                                         |                                                      |                                      |                            |                                              |                                              |
| % of relevant standard PC <span>?</span>                               | -                                                    | 0% or 0%                             | -                          | n/a                                          | n/a                                          |
| % of relevant standard PEC <span>?</span>                              | -                                                    | 126% or 42%                          | -                          | n/a                                          | n/a                                          |
| EXCEEDANCE <span>?</span>                                              | -                                                    | 0.26 or No exceedance                | -                          | n/a                                          | n/a                                          |

### Project Notes

Cae Mor Free Range Egg Unit

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