


Annex (iv) – SSSI Assessment Form

<p>SSSI Assessment for permit/licence and deployment applications</p>	
<p>To be completed by Permitting Officers for any applications for a permission which Natural Resources Wales has considered under S28I duty to notify SNCB and take their advice into account. This applies to all proposed permissions within a SSSI, and to operations outside the SSSI boundary which are likely to damage its special features.</p> <p>NRW as a Section 28G authority has, when exercising its functions, a general duty to take reasonable steps, consistent with the proper exercise of its functions, to further the conservation and enhancement of the flora, fauna or geological or physiological features by reason of which the site is of special interest'</p> <p>Part 1 – SSSI Assessment Part 2 – Formal notification to SNCB (to be completed if part 1 assessment concludes likely damage, not likely to damage because of conditions or you cannot conclude no likely damage) Part 3 – Decision</p>	

Part 1 – SSSI Assessment

1. Permitting officer/team	Emma Smith Installation and RSR permitting
2. Permit application reference and site name	PAN-025512
3. a. SSSI name(s) b. location c. NRW Operational Area/Environment Team	Nelson Bog et.newportcaerphilly&blaenaugwent@cyfoethnaturiolcymru.gov.uk
4. Brief description of proposal	The operator has held an Environmental Permit for the facility since 2016 and is applying to add one new combined heat and power engine (CHP) of 2.6MWth to the installation. Biogas will be the fuel. This will result in one new emission point to air. The main pathway of impact is through this new emission point, A12. The applicant has completed detailed air dispersion modelling to assess the impact of the new emission point to air and the assessment also includes all other existing and relevant emissions to air at the site.

These existing emissions to air are from the following plant, which have been in operation since approximately 2016:

- Two existing SWIP's (small waste wood incinerators regulated by the local authority)
- Two existing CHP's (combined heat and power engines with biogas as fuel, included in the current permit)

i.e. the model incorporated the process contributions (PC's) from all four existing plant units above in addition to the PC from the proposed new plant, meaning that the modelling outputs represent the combined impact of both existing and proposed emission sources, rather than the proposed plant in isolation

In addition, the following assumptions have been made:

- Although all five plant will emit continuously, they may not operate all the time due to scheduled or unplanned shutdowns. As a result, the model represents a worst-case scenario because it assumes emissions occur 24 hours a day, 365 days a year.
- All emissions from the five plant were modelled at their maximum emission limit value (ELV) Therefore the assessment reflects a worst-case scenario for site operations. In addition the ELV used for oxides of nitrogen (NOx) for the new CHP is four times higher than what we will permit for, and for sulphur dioxide (SO₂) an ELV 1.5 times higher has been used.
- The PC + background pollutant concentration (PEC) includes a measured background concentration that already reflects emissions from the existing site plant. The modelled PC also includes these same existing emissions, rather than only those from the proposed CHP. This results in potential double counting, which may slightly overstate the PEC compared with the actual environmental impact.

The report has been audited by our air quality and noise team who confirm "Our checks indicate that we are in general agreement with the consultant's provided predicted concentrations for both human and ecological receptors"

The air quality impact assessment has considered the emissions of oxides of nitrogen (NOx) sulphur dioxide (SO₂) and volatile organic carbons (VOC's). Please note, there are no recognised critical levels/loads for VOCs for habitats and so have not been considered further.

The pollutants emitted of concern for habitats are NO_x and SO₂ leading to potential long term and short term NO_x and long term SO₂ airborne impacts, potential long term nutrient nitrogen deposition and also acidity deposition impacts.

DMS Link: [EPR-AB3092ZE](https://www.gov.uk/efiling/epri/AB3092ZE)

The activity will not be wholly or partly within the SSSI boundary. Proximity to the installation is approximately 320 meters. Please find a map below which shows the location of the installation in relation to the SSSI



5. What aspects of the proposed permission are likely to damage the SSSI features of special interest?

The following activities are likely to cause damage:

Emissions to air through a new emission point A12.

The following SSSI(s) features and potential impacts have been considered to assess the likelihood of damage:

Nelson Bog

Oxides of Nitrogen (NO_x) Critical Level (CL_e) and Critical Loads (CL_o) and sulphur dioxide (SO₂) Critical Level (CL_e) and acid deposition. Designated features can be found in the site's citation here: [CYNGOR CEFN GWLAD CYMRU](#)

The applicant has supplied an air quality impact assessment for the emissions of NO_x. As stated above, the assessment has assumed worst case scenario which assumes the engine will be in operation for the entire year with NO_x at the permit levels. In reality the emissions are most likely lower than what is reflected in the assessment. The significance criteria provided by the Environment Agency states that for SSSIs the air quality impact can be considered to be insignificant if the long-term process contribution (PC) is less than 1% of the relevant long-term CL_e or if it does not screen out at this stage, then the predicted environmental contribution (PEC) is less than 70% of the relevant long-term CL_e. The applicant has submitted dispersion air modelling for the primary emission of concern for the habitat: oxides of nitrogen, NO_x.

Three locations (18,19,20) in the SSSI were assessed for the pollutants stated above, we have used the highest PC in our assessment, which is at location 18, shown below:



For the SSSI Key Habitat Feature Raised bog -ombrogenous' in APIS and sited as a 'species-rich bog and swampland' in the Core Management Plan:

Critical Levels NO_x

A long-term CL_e of 30µg/m³ NO_x (annual) has been assumed. The maximum long-term process contribution (PC) is 0.57ug/m³ and >1% (1.9%)of the long-term CL_e and therefore cannot be screened out. The NO_x background is 10.62µg/m³ and therefore the predicted environmental

concentration (PEC) is $11.19\mu\text{g}/\text{m}^3$. As the (PEC) is less than 70% (37%) of the relevant long-term Cle it can be screened out. A short-term CL_e of $75\mu\text{g}/\text{m}^3$ NO_x (24 hours) has been assumed. The maximum short-term PC located in the SSSI is $7.384\mu\text{g}/\text{m}^3$ and <10% (9.8%) of the short-term critical level, therefore impacts from airborne NO_x emissions can be screened out as insignificant.

Critical Levels SO_2

For emissions of SO_2 (annual) a long-term critical load (CL_e) of $10\mu\text{g}/\text{m}^3$ SO_2 has been assumed. This lower limit has been chosen because bryophytes and lichens may be present.

The maximum long-term process contribution (PC) is $0.301\mu\text{g}/\text{m}^3$ and >1% (3.01%) of the long-term Cle and therefore cannot be screened out. The SO_2 background is $1.83\mu\text{g}/\text{m}^3$ and therefore the predicted environmental concentration (PEC) is $2.131\mu\text{g}/\text{m}^3$. As the (PEC) is less than 70% of the relevant long-term Cle (21.3%) it can be screened out as insignificant..

Nutrient Nitrogen Deposition

A nutrient nitrogen (N) critical load (CL_o) range of 5 kgN/ha/yr(MinN) to 10 kgN/ha/yr(MaxN) has been assumed. The maximum nitrogen deposition process contribution is 0.05662kgN/ha/yr and is > 1% (1.1%) of the minimum critical load value and therefore cannot be screened out.

APIS shows that the background of Nitrogen Deposition for moorland kgN/ha/yr is 15.6 and therefore the (PEC) is $15.65662\mu\text{g}/\text{m}^3$ and is >70% for both the lower (310%) and upper CL_o (156%) and cannot be screened out.

As the PC is 1.1% of the lower critical load and 0.6% of the higher critical load it can be concluded that while the emission is not insignificant, the site alone will not cause an adverse impact.

As stated above the PC of 0.05662kgN/ha/yr includes the contributions from the existing and proposed emissions. NO_x contributions from the proposed CHP (the change) alone is confirmed as 21% of the total PC. Therefore 21% of 1.1% is 0.231% of the lowest CL_o . As the PC for the change alone is <1% of the lowest CL_o it can be concluded that impacts from airborne NO_x emissions from the project alone can be screened out as insignificant.

Acid deposition

For the purposes of assessing the predicted impact of acid deposition, it is necessary to compare the PC against the relevant minimum CL_o and whether the predicted PC exceeds that function. APIS has confirmed that the minimum CL_o range is:

Min CL_{minN} : 0.321
Min CL_{MaxS} : 0.574
Min CL_{MaxN} : 0.895

The maximum acid deposition process contribution is 0.0422kgN/ha/yr and is > 1% (4.7%) of the minimum critical load value and >1% (4.5%) of the highest critical load and therefore cannot be screened out.

APIS shows that the background of acid deposition for moorland kgN/ha/yr is 1.43 and therefore the (PEC) is 1.47209 kgN/ha/yr and is >70% for both the lower (165%) and upper CL_o (157%) and cannot be screened out.

For reasons made in Section 4 above it is considered that there is an overestimation of the PC.

For the 0.0422kgN/ha/yr PC for acid deposition:

- 0.0040 of this is from Nitrogen – 9.5% of total
- 0.03809 is from sulphur and other gases – 90.3% of total

Confirmation has not been received that SO₂ contributions from the proposed CHP (the change) alone is 21%, as with the NO_x contribution. However, if we **do** assume that this is the case, then we can recalculate the PC:

21% of 0.0040 is 0.00084

21% of 0.03809 is 0.0080

Added together is 0.0088 which is 0.98% of the lowest CL_o, Min CL_{MaxN} - 0.895

Total= 0.98% of the lowest CL_o. Therefore if we use the reasons above it can be concluded that impacts from acid deposition from the project alone can be screened out as insignificant.

This conclusion is dependent on proper control and management of emissions from the CHP engines. This will be via emissions limits set in the environmental permit, managed via the Operator's Environmental Management System, and monitored by annual emissions testing.

<p>6. Summary of any informal advice received from internal experts (if required and including pre-app advice)</p>	
<p>7. Recommendation</p>	<p>The proposed permission is not likely to damage any of the flora, fauna or geological or physiological features which are of special interest</p>
<p>8. Signature and date assessment made</p>	<p>Emma Smith 09/03/26</p>

9. Officers name and job title	Emma Smith Senior Permitting Officer
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