CRoW Appendix 4 (140_10_SD02)

CRoW Act 2000: Natural Resources Wales application for permission - Formal Notice

Natural Resources Wales Formal Notice.

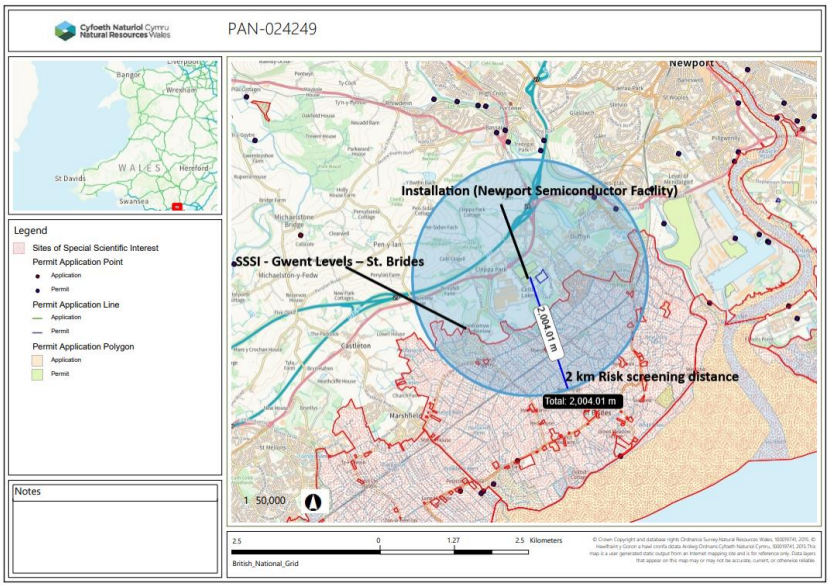
Requirements of Section 28I of the Wildlife & Countryside Act 1981 as amended by the Countryside and Rights of Way Act (CRoW) 2000.

Duty in relation to granting any consent, licence or permit for activities likely to damage Sites of Special Scientific Interest (SSSI).

Guide to filling in this form for Natural Resources Wales staff:
To be completed by Permitting Officers for any applications for a permission which the Natural Resources Wales has considered under S28G duties to protect and enhance SSSIs. This applies to all proposed permissions within a SSSI, and to operations outside the SSSI boundary which are likely to damage its special features.
Refer to OI 140_10 'Applying the Countryside and Rights of Way (CRoW) Act 2000 to applications for permits with potential for impact on Sites of Special Scientific Interest (SSSI)', including the flowchart in Appendix 2.

Pink italic text – drafting notes, to be deleted before completion/consultation.
Blue text – examples, to be replaced with permission-specific information.
Ensure you have completed all sections.

1. Natural Resources Wales area/region/NPS hub:	South East
2. Name of SSSI:	Gwent Levels – St. Brides
3. Type of permission:	Environmental Permit
4. Date for Natural Resources Wales permit determination:	18/11/2024
5. Predicted 28 day date for response from NRW conservation/ecology (under S28 I(4)):	N/A sent for auditing purposes (see section 12 Decision)
6. Natural Resources Wales reference no:	PAN-024249 (EPR/AB3893FZ/V003)
7. National grid reference:	ST 28227 84462

8. Description of proposal:	IQE Silicon Compounds Limited are apply to vary their environmental permit (EPR/AB3893FZ) for Newport semiconductor manufacturing facility to reflect the changes to the site as a result of the increase in production capacity. Among the changes include • Addition of 72 Gallium Nitride (GaN) reactors process reactors increasing the total number of reactors from 20 to 92. • Addition of 4 natural gas fired boilers (less than 1 MWth) • Installation of two emergency diesel generators (backup used for less than 500 hours per year) • Addition of raw materials stored on site • Increasing the site boundary with additional land to the southern proportion of the site. The changes would result in additional impacts to air emissions and noise. The variation will add 12 emission point to air on the permit (A4a and A5-A8 for the 72 reactors, A9 and A10 for the backup generators, A11 for an existing but previously unlisted emission point for 4 natural gas fired boilers and A12-A15 for the 4 x new natural gas fired boilers) The increase in emissions to air from the site wwill consist of the following substances: • Oxides of Nitrogen (NO, NO_2 and N_2O expressed as NOx) • Carbon monoxide • Ammonia • Chlorine • Arsine • Phosphine • Volatile organic compounds (including propane) All process effluent is discharge to sewer under a trade effluent consent (to be amended following the changes to the site) and the only discharge to surface water is uncontaminated rain water runoff.
9. Is the proposed activity within (wholly or partially) the SSSI boundary?	No – Installation is located 460-560 meters south and south east of the site 
10. Has there been any pre-application discussion or correspondence with NRW conservation/ecology	no
11. What aspect(s) of the proposed permission may damage the features which are of special interest for the SSSI? The following 'Operations Requiring Consent' (or other activities associated with the permission) that may cause damage) are relevant to the proposed permission.	

The SSSI is designated for the following features (as out lined in the following refences ; CYNGOR CEFN GWLAD CYMRU (naturalresources.wales), GWENT (naturalresources.wales) and APIS app | Air Pollution Information System

• **Reen and Ditch Habitat** – include species such as hairlike pondweed Potamogeton trichoides and openwater emergents such as arrowhead Sagittaria sagittifolia. Reens in the St Brides area also support plant spices such as thread-leaved water-crowfoot Ranunculus trichophyllus and small pondweed Potamogeton berchtoldii

• **Insects and other Invertebrates**- Over 200 speices of insects and invertebrates have been recorded for the site. Water beetle species including Hydaticus transversalis have been recorded at this site. APIS also lists Odontomyia ornate, Hydrophilus piceus, Hydaticus transversalis and Coenagrion pulchellum as features for this site

• **Shrill carder bee** – have been noted as a feature present in this site (with the citation listing this as one of 20 sites in the UK where this spices are present).

The following SSSI features and mechanisms of impact have been considered to assess the likelihood of damage:

The main mechanism of impact is through the emissions the following pollutants to air:

- Ammonia (NH_3)
- Oxides of Nitrogen; NO, NO_2 and N_2O expressed as NOx
- Phospine
- Arsine
- Chlorine
- Trace amounts of metal organics
- Volatile organic compounds (VOC) mostly comprising of propane

Of these only NH_3 and NOx have environmental standards for assessment. The other substances have been assessed for human health and have screened as insignificant.

Based on the SITE OF SPECIAL SCIENTIFIC INTEREST: OPERATIONS REQUIRING CONSULTATION WITH THE COUNTRYSIDE COUNCIL FOR WALES (CCW) (CYNGOR CEFN GWLAD CYMRU (naturalresources.wales)) the closest operation that the impacts would fall under is:

7. Dumping, spreading or discharging of any waste materials.

The main mechanism of damage from the emissions of NH_3 and NOx are as follows

- Increase of NOx concentration
- Increase in NH_3 concentration
- Increase in nitrogen deposition of NOx and NH_3
- Increase in acidity through nitrogen deposition.

The applicant has assessed the worst case scenario under two scenarios 1) normal operations which reflect the highest impacts from typical operations of the site for both short term and long emissions and 2) emergency scenario where the backup 2x 5 MWth diesel generators are operational due to power cut. The situation would only occur for a short time period but have been assessed against the short term and long term impacts, although the backup generators would not operate more than 500 hours per year. The emissions of ammonia would not change during the emergency operations and as such would be the same for both situations.

The following source were used for the assessment

- Air pollution inventory system (APIS): APIS app | Air Pollution Information System
- SITE OF SPECIAL SCIENTIFIC INTEREST CITATION GWENT LEVELS – ST BRIDES (GWENT (naturalresources.wales)
- Applicants air quality impact assessment (PAN-024249) : *IQE 80 GAN PERMITTING Air Quality Assessment*

Oxides of nitrogen

For normal operations, the highest short term predicted concentration of NOx was 0.52 µg/m^3 which is 0.69% of the critical level of 75 µg/m^3 while the highest long term process contribution was 0.06 µg/m^3 which is 0.2% of the critical level. As the short term process contribution is less than 10% of the short term critical level and the long term process contribution is less than 1% of the long term critical level, the emissions of NOx screen out as insignificant and as such there is no mechanism of impact under normal operations.

For emergency operations highest long term process contribution was 0.1 µg/m^3 which is 0.3% of the critical level of 40 µg/m^3. The highest short term predicted concentration of NOx was 22.8 µg/m^3 which is 30.4% of the critical level of 75 µg/m^3.
As the short term process contribution was >10% of the short term critical level the predicted environmental concentration (process contribution and background) was assess. The predicted environmental concentration (PEC), using a background value from APIS of 15 µg/m^3, was 37.8 µg/m^3 or 50.4% of the critical level. As the PEC was less than 75% of the critical level the emissions screen out and therefore the emissions of NOx to atmosphere screen out as insignificant.

Emissions of ammonia

The new reactors will result in emissions of ammonia to air. The ammonia impacts were assessed against the long term critical level (in line with the guidance: Air emissions risk assessment for your environmental permit - GOV.UK (www.gov.uk))

The highest predicted process contribution of ammonia at the Gwent levels (St Brides) was 2.5x10^{-5} µg/m3 or 8.33x10^{-3} % of the long term (annual) critical level of 3 µg/m^3. As this is less than 1% of the long term critical level the emissions screen out as insignificant and therefore the emissions of ammonia from the installation would not cause damage to the features of this site.

** The applicant had used 1µg/m^3 which for lichens or bryophytes (including mosses, liverworts and hornwarts). None of these were listed in the citation or APIS (which stated the only feature sensitive to ammonia was Grazing levels invertebrate assemblage with a critical level of 3 µg/m^3). The process contribution would be 2.5x10^{-3} µg/m^3 of the critical level of 1 µg/m^3 so therefore the discharge would screen out at the more stringent threshold and as such no mechanism of impact*

Nitrogen and acid deposition

The applicant had not carried out nitrogen deposition modelling as they stated that none of the features listed for the site were sensitive to nitrogen deposition. The air pollution inventory system (APIS) APIS app | Air Pollution Information System for the site confirms that none of the features of the site have an assigned critical load value for nitrogen deposition. As such it can be concluded that there is no mechanism of damage to the site through this impact pathway. Likewise the site does not have any assigned critical load for acidity and as such the features are not sensitive to the impacts of acid deposition and therefore no mechanism of impact.

12. Decision

i) The proposed permission is **not likely to damage** any of the flora, fauna or geological or physiological features which are of special interest.

The emissions of NOx and ammonia under both short term (NOx) and long term (ammonia and NOx) screen out as insignificant for normal operations and the predicted environmental concentration of NOx screen out as insignificant for the emergency situation. As outlined by APIS and the applicant none of the features are sensitive to nitrogen or acid deposition. As such there is no mechanism of impact from the proposed changes to the installation on the features of this site.

Natural Resources Wales is minded to:
Issue the permission

13. Name and job title of Natural Resources Wales officer:	William Wallace Senior Permitting Officer
14. Date form sent to NRW conservation/ecology	N/A sent for auditing purposes
For Natural Resources Wales use only, once NRW conservation/ecology response received	
15. NRW conservation/ecology comment on assessment:	*Please delete as appropriate:* i) NRW conservation/ecology advise the operation can go ahead ii) NRW conservation/ecology advise the operation can go ahead with conditions iii) NRW conservation/ecology advise against permitting the operation Please ensure that the NRW conservation/ecology response is attached to this Formal Notice.
16. Name and job title of NRW conservation/ecology officer:	-

17. Date of receipt of NRW conservation/ecology response:	-