Appendix 6.6 No Significant Effects Report (Habitat Screening Assessment Report)

TATA STEEL

TATA

Planning Act 2008

The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

The Port Talbot Steelworks (Power Generation Enhancement) Order

5.03 No Significant Effects Report

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Contents

Appendices

Abbreviations & Glossary

APIS	Air Pollution Information Systems
CCW	Countryside Council for Wales (now NRW)
DCO	Development Consent Order
EA	Environment Agency
GWh	Giga Watt Hours – measure of energy generated per hour
H1	Assessment tool in the Environmental Permit
Ha / ha	Hectare
JNCC	Joint Nature Conservation Committee
kv	Kilovolt – measure of electrical power
LSE	Likely Significant Effect
LNR	Local Nature Reserve
MWe	Mega Watts Electrical – measure of energy, one million watts
MWth	Mega Watts Thermal – measure of heat energy
NNR	National Nature Reserve
NRW	Natural Resources Wales (formally EA Wales and CCW)
NSIP	Nationally Significant Infrastructure Project
NPTCBC	Neath Port Talbot County Borough Council
PDR	Peripheral Distributor Road
PINS	Planning Inspectorate
SAC	Special Area of Conservation

SO_2	Sulphur Dioxide
SPA	Special Protection Area
SSSI	Site of Special Scientific Interest
Tata Steel	The overarching company. Includes the applicant.
Tata Steel UK Limited	The Applicant
WG	Welsh Government

EXECUTIVE SUMMARY

1.1.1 Tata Steel UK Limited intends to submit an application for a Development Consent Order (DCO) for an electricity generating station at the Port Talbot steelworks site (the "proposed development"). Under the European Directive 92/43/EEC (The Habitats Directive), Tata Steel UK Limited is required as part of the preparation of the application to undertake a Habitat Regulations Assessment (HRA) to ascertain whether the proposed development has the potential for Likely Significant Effects (LSEs) on sites with European Designations including Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and Ramsar sites (all hereafter referred to as Natura 2000 sites) within the study area or in adjacent areas.

1.1.2 The following Natura 2000 sites were assessed to ascertain if there would be any potential effects on the Natura 2000 sites or their Qualifying Features as a result of the proposed development:

- Kenfig SAC;
- Crymlyn Bog Ramsar/SAC; and
- Cefn Cribwr Grasslands SAC.

1.1.3 Effects of the proposed development on the Natura 2000 sites were assessed in-combination with the following projects:

- Mynydd Brombil Wind Farm;
- Swansea Bay Tidal Lagoon;
- Abernedd Power Plant;
- Biomass II; and
- Prenergy Biomass 350 MW Power Station.

1.1.4 Matters relating to European protected habitats were discussed with Natural Resources Wales (NRW) and the Applicant at a meeting held on 14th

February 2014. During this meeting the scheme was discussed and advice provided on the new APIS tool. The potential for a Habitats Regulation Screening Assessment (HRSA) to be required was discussed, with potential impacts on air quality on the surrounding Natura 2000 sites identified as being a key consideration. In addition NRW highlighted the potential for in-combination effects with other developments in the surrounding area.

1.1.5 A draft No Significant Effects Report (NSER) and screening matrices was provided to NRW on the 29th May 2014. NRW's response to the draft NSER (dated 25th June 2014) and further correspondence following their response clarifying specific points is contained within Volume 3, Appendix 1.8.

1.1.6 The NSER was updated with additional information following receipt of comments from NRW and sent to NRW on the 16th July 2014 prior to a meeting held on the 17th July 2014. It was agreed that NRW would provide comments would be provided before the 25th July 2014.

1.1.7 The report concludes no LSE as a result of the proposed development both alone and in-combination. Therefore, an Appropriate Assessment – Stage Two of the HRA process - is not required.

1.1.8 The Applicant and NRW (provided in their response dated 24th July 2014) are in agreement over no LSE of the proposed development alone, but remain in discussions with respect to in-combination effects.

1.1.9 This submitted NSER provides additional information on the rounded up figures provided by APIS. The Applicant remains committed to consultation with NRW and will continue to discuss the air quality aspects of the proposed development in the period during submission of the DCO application and in the period before Examination. It is the Applicants intention to agree a Statement of Common Ground with NRW covering the matters included in this report and it is proposed that further meetings and dialogue will take place as necessary between the Applicant and NRW with that objective.

1 INTRODUCTION

1.1 Introduction

1.1.1 Tata Steel UK Limited intends to submit an application for a Development Consent Order (DCO) for an electricity generating station at the Port Talbot steelworks site (the "proposed development"). Under the European Directive 92/43/EEC (The Habitats Directive), the Secretary of State (SoS) is required, as part of the preparation of the application, to undertake a Habitat Regulations Assessment (HRA) to ascertain whether the proposed development has the potential for Likely Significant Effects (LSEs) on sites with European Designations including Special Protection Areas (SPAs), Special Areas of Conservation (SACs) and Ramsar sites (all hereafter referred to as Natura 2000 sites) within the study area or in adjacent areas.

1.1.2 Advice Note Ten states that if, as a result of HRA screening, the developer concludes that there is no LSE on a European site sufficient information must be provided with the DCO application to allow the competent authority to assess and review the information and make its own determination that there are no likely effects, and be satisfied that there is no residual effect. A developer should provide reasons why it is considered that an Appropriate Assessment (AA) will not be required and provide confirmation from the nature conservation body that this conclusion is supported. This HRA conclusion should be explained in a 'No Significant Effects Report'.

1.1.3 If there are likely to be significant effects on a European site, a Statement to Inform Appropriate Assessment (STIAA) should be prepared and submitted with the DCO application to enable the competent authority to undertake an AA. AA considers if the likely significant effects will adversely affect the integrity of the site in view of its conservation objectives. Advice Note Ten identifies that it is the responsibility of the

developer to include 'sufficient information' with the DCO application at acceptance to identify the European sites and to enable the AA to be made, if required.

1.2 The Proposed Development

1.2.1 The proposed development comprises a new generating station and related infrastructure, as well as a new electrical connection, which will connect the new generating station with two existing onsite substations situated in the south east of the Port Talbot site.

1.2.2 The proposed development will include the installation of up to two new boilers (nominally up to 164 megawatt thermal (MWth) each) and steam turbine sets with total gross capacity of up to 150 MWe).

1.2.3 These new boilers and turbine sets will be housed in new buildings adjacent to the existing power generation facilities and will be connected to the existing Blast Furnace Gas (BFG) distribution network in order to receive fuel gases.

1.2.4 Once the proposed development is fully installed and in continuous and reliable operation, three turbo alternators (nominally 7-8MWe each, total of 24MWe maximum), four boilers (Margam A – boiler 5, Margam B – Mitchell boiler, and service boilers 4 and 5) and up to three stacks from the existing power generation facilities will be decommissioned. The Applicant is not seeking to demolish any of these elements as part of the proposed development, but will apply to the local planning authority for the necessary consents (if required) once the proposed development is fully commissioned and in reliable and continuous operation.

1.2.5 The proposed development would result in the total onsite power generation capacity at the Port Talbot site increasing up to a maximum of 245MWe.

1.2.6 The proposed development area extends to 22.9 ha and comprises of the components outlined in Chapter 3 Project Description of the Environmental Statement.

Proposed Development Options

1.2.7 The proposed DCO will be drafted to provide flexibility for the proposed development to be constructed in either one or two phases. Accordingly, this assessment considers whether significant impacts on Natura 2000 sites are likely as a result of both construction scenarios. The two alternative scenarios are outlined below.

Option 1 – Complete Installation

1.2.8 This scenario involves both boilers and corresponding turbine sets being installed and constructed at the same time.

1.2.9 Construction timescale extends to 36 months including a commissioning phase of 6 months. The existing power generation equipment (4 boilers and 3 turbo alternators) would be decommissioned once the new equipment is in reliable and continuous operation.

1.2.10 Table 1.1 summarises the project components for Option 1.

Table 1.1: Summary of Project Description Components for Single Phase Build

Item	Indicative and Maximum Dimensions
Height of Stacks	Two stacks, both at 80m
Cooling Tower Units	Up to 22m high x 160m long x 16m wide
Turbine Hall	Up to 25m high x 55m long x 65m wide
Boiler House	Up to 35m high (at apex) x 60m long x 65m wide
Electrical Connection	66kv cables, 2.8km in length to be run underground, off existing above ground infrastructure or a combination of both
Switchgear Station Building	Up to 35m long x 55m wide

Option 2 – Two Phase Installation

1.2.11 This is an alternative scenario where the project components (boilers and turbine sets) are installed in two phases - (i.e. one boiler and corresponding turbine set at a time). The first installation would be after the Development Consent Order (DCO) is made (Phase 1) and the second installation at a later stage (which could be up to 10 years later) (Phase2).

1.2.12 During the interim period between the first (Phase 1) and second (Phase 2) installations, the existing power generation equipment would be operational and would only be decommissioned once the second installation is complete and in reliable continuous operation. As the existing 4 boilers and 3 turbo alternators would not be decommissioned until Phase 2 is complete, the existing emissions, abstractions and discharges would still occur during this interim period.

1.2.13 The flared gas, however, would be significantly reduced as per Option 1 as the first boiler (installed at Phase 1) would take all the gas which otherwise would be flared – therefore there would be immediate improvements as per Option 1. The second boiler will then take the capacity of the decommissioned units at the appropriate time.

1.2.14 Construction timescales will be 36 months for the first installation (as per Option 1) and then 24 months for the second installation. As part of the first installation, the full building footprint of the switchgear station will be built together with sufficient building envelopes to house one boiler and corresponding turbine sets. The ground will be prepared for the second boiler housing, but with no above ground structures will be installed at this stage. The electrical connection will still be fully installed as per Option 1.

1.2.15 When Phase 2 is to commence, the extended turbine housing and second boiler housing will be constructed immediately alongside the existing boiler and turbine sets. In order to minimise noise impact of the operating turbine sets, the wall, which will separate the phased turbine sets, will not be removed until all of the second installation is complete. This wall will only consist of the external cladding and appropriate insulation, hence, no

demolition of brickwork is required and the dust can be controlled through existing best practice methods as it will be contained within the new building envelope.

1.2.16 Around 50% of the total cooling towers infrastructure will be constructed in the first installation with the remainder being constructed during the second installation.

1.2.17 The second stack will only be installed at Phase 2 when the second boiler unit is constructed. The boiler and the turbine housings will be extended to incorporate the second boiler and corresponding turbine sets up to the dimensions outlined in Option 1. Construction workforce will be similar to first installation (500 at peak) but over a shorter construction period. There will be no change in operational workforce.

1.2.18 The same delivery routes will be used by construction traffic. It is assumed that the seconds and boiler building will be to the north-west of the first installation. The temporary laydown area will remain the same for both installations.

1.2.19 The project components to be constructed at each phase under Option 2 are summarised in Table 1.2.

Table 1.2 Summary of Project Description Components for Phased Build

Item	First Installation	Second Installation
Height of Stacks	One 80m stack	One 80m stack
Cooling Tower Units	Up to 22m high x 80m long x 16m wide	Up to 22m high x to take structure to maximum length as in option 1 (160m) x 16m wide
Turbine Hall	Up to 25m high x 55m long x 45m wide	Up to 25m high x 55m long x to take building to maximum width as in option 1 (65m)

Table 1.2 Summary of Project Description Components for Phased Build		
Item	**First Installation**	**Second Installation**
Boiler House	Up to 35m high (at apex) x 60m long x 45m wide	Up to 35m high (at apex) x 60m long x to take building to maximum width as in option 1 (65m)
Electrical Connection	66kv cables, 2.8km in length to be run underground, off existing above ground infrastructure or a combination of both to be installed wholly as part of the first installation	
Switchgear Station Building	Up to 35m long x 55m wide to be installed as part of first installation	

1.3 Justification for Undertaking HRA Screening

1.3.1 The generating capacity of the proposed development exceeds 50 megawatts (MWe), and it is therefore designated as a Nationally Significant Infrastructure Project (NSIP) under the Planning Act 2008.

1.3.2 The Conservation of Habitats and Species Regulations 2010 (as amended) require DCO applicants to consider the potential impacts of the NSIP on Natura 2000 sites.

1.3.3 The Applicant has therefore identified all the Natura 2000 sites within a 10km buffer zone around the proposed development as advised by the Environment Agency (2011) in *H1 Annex F – Air Emissions* guidance, to ascertain whether the proposed is likely to have a significant effect on the interest features of the sites alone or in-combination with other plans/projects.

1.4 Habitats Regulation Assessment (HRA) Methodology

1.4.1 The methodology for the HRA will pay due regard to the PINS guidance document: *Advice Note Ten: Habitat Regulations Assessment relevant to Nationally Significant Infrastructure Projects* (2013). It has become generally

accepted that a stage-by-stage approach should be followed for a HRA as proposed by this latest guidance. These stages are:

- Stage One: Screening — the process which identifies whether there are likely to be any effects upon a Natura 2000 site as a result of the project or plan, either alone or in combination with other projects or plans, and considers whether these effects are likely to be significant;
- Stage Two: Appropriate Assessment — the consideration of the impact on the integrity of the Natura 2000 site of the project or plan, either alone or in combination with other projects or plans, with respect to the site's structure and function and its conservation objectives. Additionally, where there are adverse effects on site integrity, an assessment of potential mitigation of those impacts;
- Stage Three: Assessment of alternative solutions — the process which examines alternative ways of achieving the objectives of the project or plan that avoid adverse effects on the integrity of the Natura 2000 site identified at Stage Two; and
- Stage Four: Assessment where no alternative solutions exist and where adverse impacts remain — an assessment of compensatory measures where, in the light of an assessment of imperative reasons of overriding public interest (IROPI), it is deemed that the project or plan should proceed.

2 SCREENING ASSESSMENT METHODOLOGY

2.1 Introduction

2.1.1 The principal aim of this chapter is to detail the methodology utilised to identify whether the proposed development is likely to result in any significant effects upon Natura 2000 sites identified in Chapter 3 of this report. A precautionary approach is taken when insufficient information is available to make a judgment, by assuming that a significant effect is possible.

2.2 Methodology Overview

2.2.1 The screening assessment comprises the following steps and concludes whether options should proceed to the next stage of the HRA assessment:

- Identifying Natura 2000 sites that lie within 10km from the boundary of the proposed development that may be affected by the proposed development;
- Confirming the Qualifying Features and the conservation objectives for these Natura 2000 sites;
- Collating information on other plans and projects that may have “in combination effects”. In-combination effects refers to the cumulative effects as a result of the proposed development together with other existing or proposed projects or plans;
- Identifying the broad elements of the proposed development that may interact with Natura 2000 sites alone or in-combination with other projects or plans;
- Identifying the potential effects and ascertaining whether the Natura 2000 sites are at risk of LSEs from the proposed development; and
- Identifying avoidance, cancellation, and reduction measures which may be implemented to avoid significant effects.

2.2.2 If significant effects are identified, either alone or in-combination with other projects or plans, which cannot be mitigated against using best practice measures, it will be necessary to proceed to the Stage Two of the HRA process: Appropriate Assessment.

2.3 Detailed Description of Screening Assessment

2.3.1 A screening assessment of the proposed development identifies the potential effects against Qualifying Features. This screening assessment provides an indication as to whether the proposed development could potentially result in an ecological effect.

2.3.2 Options that are identified as having a potential ecological effect are screened to determine whether they are likely to result in a significant effect upon a European Site. The tables provided in Chapter 3 detail the Qualifying Features present at each site, the conservation objectives and potential vulnerabilities.

2.3.3 Where appropriate, the implementation of avoidance, cancellation and reduction measures (best practice measures) will be considered in the screening assessment to reduce the potential for LSEs. Should any of the options have the potential to result in LSEs even with best practice measures in place, then the proposals will proceed to Stage Two: Appropriate Assessment to ascertain whether the proposals will result in adverse effects upon site integrity.

3 IDENTIFICATION OF NATURA 2000 SITES

3.1 Introduction

3.1.1 This section of the report lists all the Natura 2000 sites that are located within 10km of the proposed development.

3.2 List of Natura 2000 Sites

3.2.1 A total of four designations on three Natura 2000 sites (multiple designations on several sites) have been identified within a 10km radius. The results are shown in on Figure 1 and in Table 3.1.

Table 3.1 Natura 2000 sites within 10km of the Proposed Development

Site	Designation	Distance (km) from Proposed Development	Direction from Proposed Development
Kenfig (2 parts, only one within 10km of proposed development)	SAC	5.1	SE
Crymlyn Bog	Ramsar/SAC	8.3	NW
Cefn Cribwr Grasslands (4 parts)	SAC	10.3	SE

3.3 Sites Assessed

3.3.1 The Natura 2000 sites listed in Table 3.1 sites will be assessed to ascertain if there are any potential effects on them or their Qualifying Features as a result of the proposed development, during operation.

3.3.2 The details of the Natura 2000 sites within 10km are contained within Tables 3.2 – 3.5.

Table 3.2: Kenfig SAC Qualifying Features, Conservation Objectives, Site Condition and Threats to Site Integrity

Site Distance and Direction from the Proposed Development	Qualifying Features	Conservation Objectives	Current Site Condition and Threats to Site Integrity
5.1km SE	Kenfig/Cynffig SAC includes two separate sand-dune systems that demonstrate a transition from small, shifting dunes that are still forming to more fixed and stable dunes further inland. Both systems have extensive areas of dune grassland and low-lying, wetter, dune slacks. These dune slacks are amongst the most species-rich in the UK, supporting communities dominated by a variety of mosses and higher plants. A number of rare plants can also be found in some of the dune slacks (NRW, 2014a). Annex I habitats that are a primary reason for selection of this site: • Fixed dunes with herbaceous vegetation (`grey dunes`) *Priority Feature • Dunes with *Salix repens* ssp. *argentea* (*Salicion arenariae*) • Humid dune slacks • Hard oligo-mesotrophic waters with benthic vegetation of *Chara* spp. Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site: • Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) Annex II species that are a primary reason for selection of this site: • Petalwort *Petalophyllum ralfsii* • Fen orchid *Liparis loeselii*	Humid dune slacks and Dunes with *Salix repens* ssp. *argentea* (*Salicion arenariae*) are in a Favourable Conservation Status when: • Dunes with *Salix repens* and humid dune slacks will occur as part of the dune system, their location will be determined by natural processes and appropriate grazing management; • A range of successional stages will be found in both features; and • Factors affecting the features will be under control. Fixed dunes with herbaceous vegetation (`grey dunes`) will be in a Favourable Conservation Status when: • Fixed dunes with herbaceous vegetation (grey dunes) will occur where older, shifting dunes become more stabilised and in early successional stages become colonised by lichens and other species indicative of the transition from less mobile habitats; • The habitat will encompass a range of successional stages throughout the area, determined by patterns of natural factors and grazing; • Grey dunes will comprise a significant part of the dune system but will increase and decrease in extent and location as natural processes determine the landscape of the dune systems; and • All factors are under management control. Hard oligo-mesotrophic waters with benthic vegetation of *Chara* spp. will be in a Favourable Conservation Status when: • Submerged *Chara* beds (mainly *Chara aspera* and *C. virgata*) growing in relatively shallow water form the predominant submerged macrophyte vegetation throughout most of the lake; • *Chara* occur at more than 50% frequency along regular surveillance transects within the Western and Central arms; • Charophyte species and uncommon pondweeds such as *Potamogeton gramineus* and *P. x nitens* are present in other embayments and pools, including *Tolypella glomerata* in dune pools; • The lake is spring-fed, so nutrient levels remain low. One of the main nutrients (phosphorus) reaches no more than 25 micrograms per litre in regular sampling areas. Nitrogen levels in the water are low (less than 1 milligram per litre) and declining or stable; • The lake water is clear, but well vegetated with dense beds of submerged	Humid dune slacks and Dunes with *Salix repens* ssp. *argentea* at Kenfig SAC are considered to be in Unfavourable Declining Condition. The fixed dune with herbaceous vegetation feature of Kenfig/Cynffig SAC is considered to be in Unfavourable Declining Condition. The Hard oligo-mesotrophic waters with benthic vegetation of *Chara* spp. feature of Kenfig/Cynffig SAC is considered to be in Unfavourable Recovering Condition. The condition of the Atlantic salt meadows at Merthyr Mawr was assessed as being in Favourable Condition. The *Petalophyllum ralfsii* of Kenfig/Cynffig SAC is considered to be in Unfavourable Declining Condition. The *Liparis loeselii* of Kenfig/Cynffig SAC is considered to be in Unfavourable Declining Condition. Threats to site integrity include: • Grazing - too little will allow the development of rank grassland and the encroachment of scrub and woodland; too much will cause poaching of habitats; • Water level, water quality and agricultural runoff - a high water table is required and water quality concerns relate to elevated macro-nutrient levels; • Hydrology - the lake is fed by groundwater; • River bank erosion; • Natural coastal processes - dunes are a mobile system; there should be no constraints on the movement of sand; • Recreational and visitor pressure - camping, illegal off road motorcycling, use of 4X4s and uncontrolled horse riding

Table 3.2: Kenfig SAC Qualifying Features, Conservation Objectives, Site Condition and Threats to Site Integrity			
Site Distance and Direction from the Proposed Development	**Qualifying Features**	**Conservation Objectives**	**Current Site Condition and Threats to Site Integrity**
	(JNCC, 2014a).	and marginal plants. A Secchi disc is visible on the lake bed in the deepest part of the lake (2.6m); • Water depth is relatively stable, fluctuating naturally with groundwater; • Reed, swamp and fringing bur-reed are restricted to shallow zones – covering not more than 10 % of the site; and • All factors affecting the achievement of these conditions are under control. Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) will be in a Favourable Conservation Status when: • The quality of the salt marsh is within specified limits; • There is no increase in erosion along the length of the transition from salt marsh to sand dune; • The salt marsh flora will continue to include the following scarce species; *Limonium binervosum*, and *Frankenia laevis*; • Light grazing by rabbits and / or stock will continue to be tolerated within limits; and • The damaging effects of pony riding will have been reduced or eliminated. Petalwort *Petalophyllum ralfsii* will continue to be found at its current locations in each of the two SSSI within the SAC. It will be in a Favourable Conservation Status when: • The species will be found where conditions are suitable in sufficient numbers to form a viable and sustainable population; • The population will vary from year to year depending on conditions, especially in drier years, but the long term population will remain steady and sustainable; • Suitable dune slacks will have patches of bare ground that is being colonised by jelly lichens (*Collema* spp.) and *Barbula* mosses; and • The factors affecting the feature are under control. Fen orchid *Liparis loeselii* will be in a Favourable Conservation Status when: • Sufficient suitable habitat is present to support the populations; and The factors affecting the feature are under control. (CCW, 2008a).	causes damage to vegetation and protected species, and loss of habitat; • Scrub encroachment - the removal of scrub helps prevents the loss of slack habitats to scrub and woodland; • Air quality - All SAC features are nutrient sensitive, whilst humid dune slacks, fixed dunes with herbaceous vegetation, and *L. loeselii* are also acid sensitive; • Sediment load - Kenfig is a largely groundwater fed and there are few sedimentation problems at present. Any issues are most likely to arise from the small feeder streams and adjacent road or agricultural runoff; • Fishery management - presence of introduced carp; • Introduced alien/exotic species; and • Changes in access and recreation- close contact with the local community important to encourage interest in the site and to explain management issues that have to be tackled. (CCW, 2008a)

Table 3.3: Crymlyn Bog SAC Qualifying Features, Conservation Objectives, Site Condition and Threats to Site Integrity			
Site Distance and Direction from the Proposed Development	**Qualifying Features**	**Conservation Objectives**	**Current Site Condition and Threats to Site Integrity**
8.3km NW	Crymlyn Bog is a large lowland fen situated in a glacial depression on the eastern edge of Swansea. In addition to Crymlyn Bog itself, the SAC also includes Pant-y-Sais fen SSSI, a smaller (approximately 20 ha) wetland located about 1 km east of the main Crymlyn Bog site (NRW, 2014b). Annex I habitats that are a primary reason for selection of this site: • Transition mires and quaking bogs • Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae* *Priority feature Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site: • Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae, Salicion albae*) *Priority feature (JNCC, 2014b).	Transition mires and quaking bogs will be in Favourable Conservation Status when: • Transition mire vegetation will occupy at least 12 ha of Crymlyn Bog SAC; • Most of the remainder of the site will comprise related fen vegetation; • The transition mire will comprise varying mixtures of the following plant species: *Schoenus nigricans, Carex rostrata, C. echinata, C. limosa, Equisetum fluviatile, Eriophorum angustifolium, E. gracile, Menyanthes trifoliata, Sphagnum* spp; • Although *Phragmites australis* and *Cladium mariscus* may be present, these species will not attain high cover; • Scrub species such as willow *Salix* and birch *Betula* will be largely absent; and • All factors affecting the achievement of these conditions will be under control. Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae* will be in Favourable Conservation Status when: • Calcareous fen will occupy at least 15 ha of Crymlyn Bog SAC; • Most of the remainder of the site will comprise related fen vegetation; • The following plant species will be common in the calcareous fen vegetation: *Cladium mariscus, Carex elata, Osmunda regalis, Phragmites australis*; • Although *Cladium mariscus* may form dense stands in places, the majority of the calcareous fen at Crymlyn Bog will be the more open, species-rich form, with *Cladium* typically present at less than 20% cover; • Similarly, although *Phragmites australis* is a frequent constituent of calcareous fen vegetation, this species will not generally exceed 20% cover; • Scrub species such as willow *Salix* and birch *Betula* will be largely absent; and • All factors affecting the achievement of these conditions will be under control. Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*) will be in Favourable Conservation Status when: • Alluvial forest will occupy at least 27 ha of Crymlyn Bog SAC; • Most of the remainder of the site will comprise fen vegetation;	The transition mire feature was monitored in 1998 and was judged to be in Unfavourable Condition. The reason for this assessment was the perceived loss of transition mire vegetation since an earlier mapping exercise. The decline in transition mire was thought to be due to an expansion of *Phragmites australis*, linked to lack of grazing management and/or increased nutrient levels. No formal SAC monitoring work has been carried out since 1998, but an assessment was made in 2004, when it was concluded the feature was still in Unfavourable Condition. In 2005, the Calcareous fen was assessed as being in Unfavourable Condition and probably Declining. It was inferred that the calcareous fen vegetation had become more dense and overgrown since 1998, with a reduction in species-richness, through natural vegetation succession. Although the calcareous fen area is lightly grazed by cattle, the main reason for its shift from Favourable to Unfavourable Condition is presumably insufficient management. The alluvial forest feature was monitored in 2009. The feature was judged to be in Unfavourable Recovering Condition. It is felt that the woodland is developing a more mature age structure under its own devices, with no management intervention required, hence the 'recovering' status. Threats to site integrity include: • Poor water quality - particularly eutrophication; • Atmospheric pollution - particularly nutrient deposition; • Water levels - low water table will cause the drying of habitats;

Table 3.3: Crymlyn Bog SAC Qualifying Features, Conservation Objectives, Site Condition and Threats to Site Integrity			
Site Distance and Direction from the Proposed Development	**Qualifying Features**	**Conservation Objectives**	**Current Site Condition and Threats to Site Integrity**
		• The alluvial forest canopy will be dominated by varying mixtures of alder *Alnus glutinosa*, willow *Salix* spp. and birch *Betula* spp, including over-mature specimens of these species; • Regeneration of *Alnus*, *Salix* and *Betula* will be present either as saplings or as regrowth from the base of trees or fallen stems; • The field layer will be dominated by *Carex paniculata*, with associates such as *Lysimachia vulgaris, Osmunda regalis, Lythrum salicaria, Solanum dulcamara, Iris pseudacorus* and *Scutellaria galericulata*; • Negative species such as *Pteridium aquilinum* and *Urtica dioica* will be largely absent; and • All factors affecting the achievement of these conditions will be under control. (CCW, 2010).	• Grazing - heavy grazing of wet woodland can lead to excessive poaching of the ground; • Successional change - succession to scrub and woodland is a natural process; and • Alien plant species - Himalayan balsam has invaded the site. (CCW, 2010).

Table 3.4: Crymlyn Bog Ramsar Site Qualifying Features, Conservation Objectives, Site Condition and Threats to Site Integrity			
Site Distance and Direction from the Proposed Development	**Qualifying Features**	**Conservation Objectives**	**Current Site Condition and Threats to Site Integrity**
8.3km NW	The Ramsar features for Crymlyn Bog SAC are open to interpretation at present. They will be subject to a 'quality control' exercise in the near future, to confirm the Qualifying Features. Hence the following list of Ramsar features is only provisional at present. • Topogenous fen; • Slender cotton-grass (*Eriophorum gracile*); • Peatland invertebrate assemblage, including fen raft spider (*Dolomedes plantarius*), which is known from just two other locations in the UK; and • Plant species assemblage. (CCW, 2010). No information on the conservation status is currently available.	Conservation objectives for the Ramsar features will be developed once the confirmed list of features has been agreed (CCW, 2010).	Threats to site integrity include: • Poor water quality - particularly eutrophication; • Atmospheric pollution - particularly nutrient deposition; • Water levels - low water table will cause the drying of habitats; • Grazing - heavy grazing can lead to excessive poaching of the ground; • Successional change - succession to scrub and woodland is a natural process; and • Alien plant species - Himalayan balsam has invaded the site.

Table 3.5: Cefn Cribwr Grasslands SAC Qualifying Features, Conservation Objectives, Site Condition and Threats to Site Integrity

Site Distance and Direction from the Proposed Development	Qualifying Features	Conservation Objectives	Current Site Condition and Threats to Site Integrity
10.3km SE	This is one of four sites selected to represent fen-meadows in South and central Wales, one of the major UK strongholds for this habitat type. There is an extensive area of fen-meadow, typified by purple moor-grass and meadow thistle, which occurs where the ground conditions are damp and slightly lime-rich, and transitions to stands of more acidic damp pasture with purple moor-grass and rushes; dry neutral grassland and wet scrub vegetation are well represented (NRW, 2014c). Annex I habitats that are a primary reason for selection of this site: • Molinia meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*). Annex II species present as a qualifying feature, but not a primary reason for site selection: • Marsh fritillary butterfly *Euphydryas* (*Eurodryas, Hypodryas*) *aurinia* (JNCC, 2014c)	*Molinia* meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*) will be in a Favourable Conservation Status when: • *eu-Molinion* marshy grassland will occupy between 50% and 55% of the total site area; • The remainder of the site will be other semi-natural habitat or areas of permanent pasture; • The following plants will be common in the *eu-Molinion* marshy grassland: purple moor-grass *Molinia caerulea*; meadow thistle *Cirsium dissectum*; *Carex hostiana*; *Carex pulicaris*; devil's bit scabious *Succisa pratensis*; carnation sedge *Carex panicea*; saw wort *Serratula tinctoria* and; tormentil *Potentilla erecta*; • Cross-leaved heath *Erica tetralix* and common heather *Calluna vulgaris* will also be common in some areas; • Rushes and species indicative of agricultural modification, such as perennial rye grass *Lolium perenne* and white clover *Trifolium repens* will be largely absent from the *eu-Molinion* marshy grassland; • Scrub species such as willow *Salix* (excluding *Salix repens*) and birch *Betula* will also be largely absent from the *eu-Molinion* marshy grassland; and • All factors affecting the achievement of the foregoing conditions are under control. Marsh fritillary butterfly *Euphydryas* (*Eurodryas, Hypodryas*) *aurinia* will be in a Favourable Conservation Status when: • The site will contribute towards supporting a sustainable metapopulation of the marsh fritillary in the Cefn Cribwr area. This will require a minimum of 50ha of suitable habitat, of which at least 10ha must be in good condition, although not all is expected to be found within the SAC. Some will be on nearby land within a radius of about 2km; • The population will be viable in the long term, acknowledging the extreme population fluctuations of the species; • Habitats on the site will be in optimal condition to support the metapopulation; • At least 40ha within the SAC & associated SSSI will be marshy grassland suitable for supporting marsh fritillary, with *Succisa pratensis* present and only a low cover of scrub; • At least 8ha will be marsh fritillary breeding habitat in good condition, dominated by purple moor-grass *Molinia caerulea*, with *S. pratensis* present	Conservation Status for *Molinia* meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*) is in Unfavourable Condition. Condition for Marsh fritillary butterfly *Euphydryas* (*Eurodryas, Hypodryas*) *aurinia* is Unfavourable. Threats to integrity include: • Grazing - light grazing by cattle and ponies prevent the succession to rank grassland and the encroachment of scrub and woodland; • Hydrology - changes to water quality and quantity effect habitat extent and species composition; • Adjacent land use - site is next to opencast coal workings and other active mineral workings which could have an effect on the hydrology of the site; • Owner/occupier objectives - management agreements prevent degradation of the site through application of fertiliser, increase in stocking levels etc; • Loss or degradation of shelter belts - hedgerows, woodland and mature trees in and around the site provide the sheltered conditions which the marsh fritillary requires. These should be retained and managed; and • Burning - burning is not a sympathetic habitat management tool for maintaining marsh fritillary populations and should only be used in *Molinia* grasslands where marsh fritillary are known not to breed. (CCW, 2008b).

Table 3.5: Cefn Cribwr Grasslands SAC Qualifying Features, Conservation Objectives, Site Condition and Threats to Site Integrity			
Site Distance and Direction from the Proposed Development	**Qualifying Features**	**Conservation Objectives**	**Current Site Condition and Threats to Site Integrity**
		throughout and a vegetation height of 10-20cm over the winter period; • Suitable marsh fritillary habitat is defined as stands of grassland where *Succisa pratensis* is present and where scrub more than 1 metre tall covers no more than 10% of the stands; • Optimal marsh fritillary breeding habitat will be characterised by grassland where the vegetation height is 10-20 cm, with abundant purple moor-grass *Molinia caerulea*, frequent "large-leaved" devil's-bit scabious *Succisa pratensis* suitable for marsh fritillaries to lay their eggs and only occasional scrub. In peak years, a density of 200 larval webs per hectare of optimal habitat will be found across the site; • The marshy grassland will be well sheltered by hedgerows and mature trees; and • All factors affecting the achievement of the foregoing conditions are under control. (CCW, 2008b)	

4 SCREENING ASSESSMENT

4.1 Introduction

4.1.1 This chapter sets out the potential significant ecological effects that the proposed development could have on identified Natura 2000 Sites within 10km (of the proposed development site) in the construction and operation of Option 1 and Option 2 installation scenarios. The potential effects of air quality (nitrogen and acid deposition) are presented in Tables 4.1, 4.2 and 4.3 below; other potential effects are contained within Section 4.2.

4.1.2 The information in Tables 4.1 – 4.3 is based on the air quality modelling provided by the Applicant with a stack height of 80m. The results of the modelling and the calculations for percentages of Critical Levels and Critical Loads are set out in Appendices A to E in which the worst-case has been provided for each site, each option and each scenario.

4.1.3 The air quality modelling provides values for measured emissions (likely output) and Emission Limit Values (ELVs). While ELVs are often unrealistic they are the maximum emission concentration of each pollutant that is allowed in the stack gas. The ELV is set out in the sites environmental permit and are the values against which Natural Resources Wales (NRW) assesses the site's conformance with the permit.

4.1.4 The use of the ELV in the assessment is conservative and represents the worst-case as the plant is designed to have emissions well within these limits so as to avoid an exceedence and potential enforcement action by NRW. It should be noted that in the case of SO_2, the ELV is considered to be an unrealistic worst-case as there is insufficient sulphur in the gas to be burned to generate the modelled concentrations of SO_2 in the flue gas. The measured data has therefore also been presented to provide a more realistic assessment of the emissions from the site.

4.2 Potential Effects on Natura 2000 Sites within 10km

4.2.1 The following potential effects have been considered and assessed (all references to the ES in this paragraph refer to the Environmental Statement prepared by AECOM in connection with the proposed development):

- Water pollution from surface runoff – there are no hydrological links between the proposed development and Natura 2000 sites within 10km. Therefore there are no LSEs on Natura 2000 sites within 10km associated with water pollution;
- Construction vehicle movements – as stated in Chapter 5: Air Quality of the ES, the LSE of traffic emissions associated with construction vehicles, construction site personnel and building material deliveries within 200 metres of an ecological receptor will be Negligible. As such, the LSE on all Natura 2000 sites within 10km will be Negligible. There will be no construction traffic during operation associated with the proposed development. There will be no traffic during decommissioning associated with the proposed development as there will be no removal or demolition of buildings proposed as part of the decommissioning of existing or proposed development. Boilers are to be decommissioned in-situ. Electrical connection will remain in-situ, as such LSEs on Natura 2000 sites within 10km will be Negligible;
- Noise – as stated in Chapter 8: Noise and Vibration of the ES the loudest noise during construction of the proposed development will be 92dB at source. At a distance of 5.1km this will reduce to 37 dB, which is well below existing ambient levels and will be inaudible. Noise during operation and decommissioning will be below that created during construction. As such there are no LSE on Natura 2000 sites within 10km associated with noise;
- Vibration – vibration from construction and decommissioning of the proposed development will only be detectable within 20 metres from the source. Vibration during operation of the proposed development will be less than during construction. Therefore, there will be no LSEs on Natura 2000 sites within 10km during all stages of the proposed development;

- Dust blanketing – as stated in Chapter 5 Air Quality of the ES, the LSE of dust on Natura 2000 sites will be Negligible: construction traffic produces fine matter that can travel up to 1 kilometre from source but only presents a potential LSE in association with human health and inhalation; the construction of the proposed development will produce medium and coarse material that will not travel more than 500 metres from source.
- Direct habitat loss or fragmentation – there will be no construction or requirement to remove any habitat within any Natura 2000 sites;
- Direct disturbance to species - there will be no construction or requirement to remove any habitat within any Natura 2000 sites;
- Alteration of management – the proposed development will not cause the alteration of site management actions at any Natura 2000 sites;
- Increase in lighting – as stated in Chapter 7: Landscape of the ES, the lighting associated with the construction and decommissioning phases would be limited where practical, subject to timing of the construction activities and time of the year, and is considered to be a short term effect and LSEs are considered to be not significant. The aviation lighting associated with the chimney stacks is considered to be a long term effect present throughout the operational phase of the proposed development and would be similar to the currently established level, and insignificant. The night time visual LSEs are not considered to be significant given the baseline level of lighting within the existing Port Talbot steelworks site at night. The nearest Natura 2000 site is 5.1km from the proposed development and as such light spill will not measurably increase onto Natura 2000 sites within 10km. There will be no LSEs on Natura 2000 sites within 10km associated with lighting from the proposed development; and
- Spread of invasive species – there will be no construction within, or requirement to access, any Natura 2000 sites. The spread of invasive species in Natura 2000 sites will not be caused by the proposed development.

Table 4.1: Potential Effects of Air Quality on Kenfig SAC					
Site		**Kenfig SAC**			
Feature		Fixed dunes with herbaceous vegetation (`grey dunes`)		**Sensitivity**	Nitrogen and Acidity
Current Critical Load Limit and Status		Nitrogen Empirical load: 8-10kg N/ha/yr Acid Nitrogen Max Critical Load: 4.303 keq /ha/year Acid Sulphur Max Critical Load: 4.08 keq /ha/year		Nitrogen Max Total Deposition: 13.44kg N/ha/yr Acid Nitrogen Max Deposition: 0.96 keq /ha/year Acid Sulphur Max Deposition: 0.15 keq /ha/year	
Process Contribution Percentage of Critical Load	**Option 1**	**ELV**	Nitrogen: -0.8% Acidity: -0.35%	**Measured**	Nitrogen: 0.01% Acidity: 0.00%
	Phase 1 Option 2	**ELV**	Nitrogen: 0.006% Acidity: 0.01%	**Measured**	Nitrogen: 0.01% Acidity: 0.01%
Potential Effects		A very minor alteration to baseline conditions is predicted for ELV and Measured Emissions. The nitrogen input and acid deposition input from the proposed development are <1% of the Critical Load for fixed dunes with herbaceous vegetation (`grey dunes`). Environment Agency (EA) guidance states that nitrogen input and change in acidity is only significant if >1% of Critical Load (Environment Agency, 2011). Current nitrogen deposition on to the site is close to/exceeds the Critical Load for fixed dune with herbaceous vegetation (Nmin =7.56, Nmax=13.4, Navg=9.99, CL=8-10 kg N/ha/yr). The presence of negative indicator species within this Qualifying Feature demonstrates that there is a problem with a number of issues, including eutrophication (CCW, 2010). An increase in nitrogen at the site will compound the problem.			
Feature		Dunes with *Salix repens* ssp. *argentea* (*Salicion arenariae*)		**Sensitivity**	Nitrogen and Acidity
Current Critical Load Limit and Status		Nitrogen Empirical load: 10-20kg N/ha/yr Acid Nitrogen Max Critical Load: 4.303 keq /ha/year Acid Sulphur Max Critical Load: 4.08 keq /ha/year		Nitrogen Max Total Deposition: 13.44kg N/ha/yr Acid Nitrogen Max Deposition: 0.96 keq /ha/year Acid Sulphur Max Deposition: 0.15 keq /ha/year	
Process Contribution Percentage of Critical Load	**Option 1**	**ELV**	Nitrogen: -0.6% Acidity: -0.35%	**Measured**	Nitrogen: 0.04% Acidity: 0.00%
	Phase 1 Option 2	**ELV**	Nitrogen: 0.006% Acidity: 0.01%	**Measured**	Nitrogen: 0.01% Acidity: 0.01%
Potential Effects		A very minor alteration to baseline conditions is predicted. The nitrogen input and acid deposition input from the proposed development are <1% of the Critical Load for dunes with *Salix repens* ssp. *argentea* (*Salicion arenariae*). Environment Agency guidance states that nitrogen input and change in acidity is only significant if >1% of Critical Load (Environment Agency, 2011).			
Feature		Humid dune slacks		**Sensitivity**	Nitrogen and Acidity
Current Critical Load Limit and Status		Nitrogen Empirical load: 15-20kg N/ha/yr Acid Nitrogen Max Critical Load: 4.856 keq /ha/year Acid Sulphur Max Critical Load: 4 keq /ha/year		Nitrogen Max Total Deposition: 13.44kg N/ha/yr Acid Nitrogen Max Deposition: 0.96 keq /ha/year Acid Sulphur Max Deposition: 0.15 keq /ha/year	

Table 4.1: Potential Effects of Air Quality on Kenfig SAC					
Site		**Kenfig SAC**			
Process Contribution Percentage of Critical Load	**Option 1**	**ELV**	Nitrogen: -0.04% Acidity: -0.31%	**Measured**	Nitrogen: 0.01% Acidity: 0.00%
	Phase 1 Option 2	**ELV**	Nitrogen: 0.003% Acidity: 0.00%	**Measured**	Nitrogen: 0.01% Acidity: 0.01%
Potential Effects		A very minor alteration to baseline conditions is predicted. The nitrogen input and acid deposition input from the proposed development are all <1% of the Critical Load for humid dune slacks. Environment Agency guidance states that nitrogen input and change in acidity is only significant if >1% of Critical Load (Environment Agency, 2011).			
Feature		Hard oligo-mesotrophic waters with benthic vegetation of *Chara* spp.		**Sensitivity**	Nitrogen
Current Critical Load Limit and Status		Nitrogen Empirical load: Unknown		Nitrogen Max Total Deposition: Unknown	
Process Contribution Percentage of Critical Load		Nitrogen: Unknown			
Potential Effects		Unknown, although for all other features within the SAC a very minor alteration to baseline conditions is predicted so it is considered likely that the same would apply to this Qualifying Feature.			
Feature		Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)		**Sensitivity**	Nitrogen
Current Critical Load Limit and Status		Nitrogen Empirical load: 20-30kg N/ha/yr Acid Nitrogen Max Critical Load: Habitat not sensitive to acidification Acid Sulphur Max Critical Load: Habitat not sensitive to acidification		Nitrogen Max Total Deposition: 13.44kg N/ha/yr Acid Nitrogen Max Deposition: 0.96 keq /ha/year Acid Sulphur Max Deposition: 0.15 keq /ha/year	
Process Contribution Percentage of Critical Load	**Option 1**	**ELV**	Nitrogen: -0.03% Acidity: N/A	**Measured**	Nitrogen: 0.00% Acidity: N/A
	Phase 1 Option 2	**ELV**	Nitrogen: 0.002% Acidity: N/A	**Measured**	Nitrogen: 0.005% Acidity: N/A
Potential Effects		A very minor alteration to baseline conditions is predicted for nitrogen. The increase in nitrogen input is <1% of the Critical Load for Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*). Atlantic salt meadow (*Glauco-Puccinellietalia maritimae*) habitat is not sensitive to acidification. Environment Agency guidance states that nitrogen input is only significant if >1% of Critical Load (Environment Agency, 2011).			
Feature		Petalwort		**Sensitivity**	Nitrogen
Current Critical Load Limit and Status		Nitrogen Empirical load: 10-20kg N/ha/yr Acid Nitrogen Max Critical Load: Not sensitive to acidification Acid Sulphur Max Critical Load: Not sensitive to		Nitrogen Max Total Deposition: 13.44kg N/ha/yr Acid Nitrogen Max Deposition: 0.96 keq /ha/year Acid Sulphur Max Deposition: 0.15 keq /ha/year	

Table 4.1: Potential Effects of Air Quality on Kenfig SAC					
Site		**Kenfig SAC**			
		acidification			
Process Contribution Percentage of Critical Load	**Option 1**	**ELV**	Nitrogen: -0.04% Acidity: N/A	**Measured**	Nitrogen: 0.01% Acidity: N/A
	Phase 1 Option 2	**ELV**	Nitrogen: 0.005% Acidity: N/A	**Measured**	Nitrogen: 0.01% Acidity: N/A
Potential Effects		A very minor alteration to baseline conditions is predicted. The nitrogen input from the proposed development is <1% of the Critical Load for petalwort. Environment Agency guidance states that nitrogen input is only significant if >1% of Critical Load (Environment Agency, 2011).			
Feature		Fen orchid		**Sensitivity**	Nitrogen and Acidity
Current Critical Load Limit and Status		Nitrogen Empirical load: 10-20kg N/ha/yr Acid Nitrogen Max Critical Load: 4.856 keq /ha/year Acid Sulphur Max Critical Load: 4 keq /ha/year		Nitrogen Max Total Deposition: 13.44kg N/ha/yr Acid Nitrogen Max Deposition: 0.96 keq /ha/year Acid Sulphur Max Deposition: 0.15 keq /ha/year	
Process Contribution Percentage of Critical Load	**Option 1**	**ELV**	Nitrogen: -0.06% Acidity: -0.31%	**Measured**	Nitrogen: 0.01% Acidity: 0.00%
	Phase 1 Option 2	**ELV**	Nitrogen: 0.005% Acidity: 0.00%	**Measured**	Nitrogen: 0.01% Acidity: 0.01%
Potential Effects		A very minor alteration to baseline conditions is predicted. The nitrogen input and acid deposition input from the proposed development are all <1% of the Critical Load for fen orchid. Environment Agency guidance states that nitrogen input and change in acidity is only significant if >1% of Critical Load (Environment Agency, 2011).			

Table 4.2: Potential Effects of Air Quality on Crymlyn Bog SAC					
Site		**Crymlyn Bog SAC**			
Feature		Transition mires and quaking bogs		**Sensitivity**	Nitrogen and Acidity
Current Critical Load Limit and Status		Nitrogen Empirical load: 5-10kg N/ha/yr Acid Nitrogen Max Critical Load: 0.714keq /ha/year Acid Sulphur Max Critical Load: 0.393 keq /ha/year		Nitrogen Max Total Deposition: 15.82kg N/ha/yr Acid Nitrogen Max Deposition: 1.13 keq /ha/year Acid Sulphur Max Deposition: 0.16 keq /ha/year	
Process Contribution Percentage of Critical Load	**Option 1**	**ELV**	Nitrogen: -0.16% Acidity: -3.03%	**Measured**	Nitrogen: 0.08% Acidity: 0.12%
	Phase 1 Option 2	**ELV**	Nitrogen: 0.47% Acidity: 0.54%	**Measured**	Nitrogen: 0.05% Acidity: 0.12%
Potential Effects		A very minor alteration to baseline conditions is predicted. The nitrogen input and acid deposition input from the proposed development are all <1% of the Critical Load for transition mires and quaking bogs. Environment Agency (EA) guidance states that nitrogen input and change in acidity is only significant if >1% of Critical Load (Environment Agency, 2011). Current nitrogen deposition for the site exceeds the Critical Load for transition mires and quaking bogs (Nmin =10.64, Nmax=15.82, Navg=12.62, CL=5-10 kg N/ha/yr). Current acid deposition of nitrogen on the site exceeds the Critical Load for transition mires and quaking bogs (Nmin = 0.76, Nmax= 1.13, Navg=0.9; CL= 0.321-0.714 keq N/ha/yr). The decline in the transition mire is thought to be due to the increase in common reed (*Phragmites australis*) which is linked to the lack of grazing and/or increased nutrient levels.			
Feature		Calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae*		**Sensitivity**	Nitrogen
Current Critical Load Limit and Status		Nitrogen Empirical load: 13-20kg N/ha/yr Acid Nitrogen Max Critical Load: Not sensitive to acidification Acid Sulphur Max Critical Load: Not sensitive to acidification		Nitrogen Max Total Deposition: 15.82kg N/ha/yr Acid Nitrogen Max Deposition: 1.13 keq /ha/year Acid Sulphur Max Deposition: 0.16 keq /ha/year	
Process Contribution Percentage of Critical Load	**Option 1**	**ELV**	Nitrogen: -0.06% Acidity: N/A	**Measured**	Nitrogen: 0.03% Acidity: N/A
	Phase 1 Option 2	**ELV**	Nitrogen: 0.18% Acidity: N/A	**Measured**	Nitrogen: 0.02% Acidity: N/A
Potential Effects		A very minor alteration to baseline conditions is predicted. The nitrogen input is <1% of the Critical Load for calcareous fens with *Cladium mariscus* and species of the *Caricion davallianae*. Environment Agency (EA) guidance states that nitrogen input is only significant if >1% of Critical Load (Environment Agency, 2011). However, these guidelines are currently under review to account for Natura 2000 Sites which are currently close to or exceeding Critical			

Table 4.2: Potential Effects of Air Quality on Crymlyn Bog SAC					
Site		**Crymlyn Bog SAC**			
		Loads – this would include Crymlyn Bog SAC.			
Feature		Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*)		**Sensitivity**	None
Current Critical Load Limit and Status		Nitrogen Empirical load: Habitat not sensitive to eutrophication Acid Nitrogen Max Critical Load: Habitat not sensitive to acidification Acid Sulphur Max Critical Load: Habitat not sensitive to acidification		Nitrogen Max Total Deposition: Unknown Acid Nitrogen Max Deposition: 1.99 keq /ha/year Acid Sulphur Max Deposition: 0.19 keq /ha/year	
Process Contribution Percentage of Critical Load	**Option 1**	**ELV**	Nitrogen: N/A Acidity: N/A	**Measured**	Nitrogen: N/A Acidity: N/A
	Phase 1 Option 2	**ELV**	Nitrogen: N/A Acidity: N/A	**Measured**	Nitrogen: N/A Acidity: N/A
Potential Effects		None. This Qualifying Feature is not sensitive to eutrophication or acidification.			

Table 4.3: Potential Effects of Air Quality on Cefn Cribwr Grasslands SAC					
Site		**Cefn Cribwr Grasslands SAC**			
Feature		Molinia meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*)		**Sensitivity**	Nitrogen and Acidity
Current Critical Load Limit and Status		Nitrogen Empirical load: 15-25kg N/ha/yr Acid Nitrogen Max Critical Load: 2.018 keq /ha/year Acid Sulphur Max Critical Load: 1.58 keq /ha/year		Nitrogen Max Total Deposition: 13.86kg N/ha/yr Acid Nitrogen Max Deposition: 0.99 keq /ha/year Acid Sulphur Max Deposition: 0.15 keq /ha/year	
Process Contribution Percentage of Critical Load	**Option 1**	**ELV**	Nitrogen: -0.10% Acidity: -1.85%	**Measured**	Nitrogen: 0.01% Acidity: 0.01%
	Phase 1 Option 2	**ELV**	Nitrogen: 0% Acidity: -0.06%	**Measured**	Nitrogen: 0.01% Acidity: 0.3%
Potential Effects		A very minor alteration to baseline conditions is predicted. The nitrogen input and acid deposition input from the scheme are <1% of the Critical Load for Molinia meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*). Environment Agency (EA) guidance states that nitrogen input and change in acidity is only significant if >1% of Critical Load (Environment Agency, 2011).			
Feature		Marsh fritillary butterfly		**Sensitivity**	Nitrogen and Acidity
Current Critical Load Limit and Status		Nitrogen Empirical load: 10-15kg N/ha/yr Acid Nitrogen Max Critical Load: 2.018 keq /ha/year Acid Sulphur Max Critical Load: 1.58 keq /ha/year		Nitrogen Max Total Deposition: 13.86kg N/ha/yr Acid Nitrogen Max Deposition: 0.99 keq /ha/year Acid Sulphur Max Deposition: 0.15 keq /ha/year	
Process Contribution Percentage of Critical Load	**Option 1**	**ELV**	Nitrogen: -0.15% Acidity: -1.85%	**Measured**	Nitrogen: 0.01% Acidity: 0.01%
	Phase 1 Option 2	**ELV**	Nitrogen: 0% Acidity: 0.06%	**Measured**	Nitrogen: 0.01% Acidity: 0.03%
Potential Effects		A very minor alteration to baseline conditions is predicted. The nitrogen input and acid deposition input from the scheme are <1% of the Critical Load for marsh fritillary butterfly. Environment Agency (EA) guidance states that nitrogen input and change in acidity is only significant if >1% of Critical Load (Environment Agency, 2011).			

5 IN-COMBINATION EFFECTS

5.1 Introduction

5.1.1 The Conservation of Habitats and Species Regulations 2010 (as amended) state that when considering whether a specific plan or project is likely to have a significant effect on a Natura 2000 Site, consideration should be given to the effect of the proposal in isolation and in-combination with other projects. Part of the HRA process is to identify the plans, programmes and projects that could have in-combination effects. The PINS *Advice Note Ten: Habitat Regulations Assessment relevant to Nationally Significant Infrastructure Projects* (2013) states that in assessing in-combination effects the following projects should be considered:

- Projects which have already been implemented or completed;
- Projects which have been given consent but which have not yet been implemented or completed;
- Projects for which applications for consent have been made; and
- Ongoing projects that are subject to periodic regulatory reviews.

5.1.2 The projects which have been researched and included are:

- Mynydd Brombil Wind Farm;
- Swansea Bay Tidal Lagoon;
- Abernedd Power Plant;
- Biomass II Power Station ; and
- Prenergy Port Talbot Renewable Energy Plant (PTREP).

5.1.3 The projects and the potential in-combination effects are described in Section 5.2 below.

5.2 Projects with the Potential for In-Combination Effects

Mynydd Brombil Wind Farm

Description

5.2.1 The Mynydd Brombil Windfarm scheme is located on the plateau of Mynydd Brombil approximately 1.5km north east from the proposed Tata development site. The development comprises five wind turbines, measuring up to 100m to the blade tips and a maximum 60m hub height. The wind farm will have a generating capacity of 15 MW. The application also includes permission for access roads, underground cabling, a control building and crane hard standings.

5.2.2 The development will have an operational life of 25 years, after which the wind farm and all associated infrastructure would be decommissioned and the land restored entirely to its former appearance.

5.2.3 The applicant, REG Windpower, submitted the planning application for the development to NPTCBC in July 2012 and the decision is yet to be reached.

Potential for In-Combination Effects

5.2.4 The assessment of the potential for in-combination effects has been undertaken through reference to the *Mynydd Brombil Environmental Statement: Non-Technical Summary* (*June 2012*) prepared by Pegasus Planning Group on behalf of REG Windpower.

Water

5.2.5 There are no in-combination effects associated with water, pollution and runoff as there are no LSEs on Natura 2000 sites within 10km associated with the Internal Power Generation Enhancement for Port Talbot Steelworks project.

Air Quality

5.2.6 The non technical summary for the wind farm scheme states that the construction works have the potential to create dust. However any impacts will be negligible. No significant operational impacts are predicted (Pegasus Planning Group, 2012).

5.2.7 As such the in-combination effects of air quality will not be significant on Natura 2000 sites.

Noise and Vibration

5.2.8 As stated in the Non Technical Summary (Pegasus Planning Group, 2012) the noise impact is not significant at any location.

5.2.9 The vibration caused by the Internal Power Generation Enhancement for Port Talbot Steelworks project is not at the level where it could have an in-combination effect on Natura 2000 sites with the proposed development of Mynydd Brombil.

5.2.10 As such the in-combination effects of noise and vibration will not be significant on Natura 2000 sites.

Lighting

5.2.11 No reference to lighting has been included in the non technical summary for Mynydd Brombil although it can be assumed that aviation lighting will be required as per the industry standard.

5.2.12 As such the in-combination effects of lighting will not be significant.

Other Potential In-Combination Effects

5.2.13 The following potential effects on Natura 2000 sites will not be occurring as a result of the proposed development for the Internal Power Generation Enhancement for Port Talbot Steelworks project, and as such there will be no in-combination effects with Mmynydd Brombil Windfarm:

- Direct habitat loss or fragmentation;
- Direct disturbance to species;
- Alteration of management; and
- Spread of invasive species.

Swansea Bay Tidal Lagoon

5.2.14 The assessment of the potential for in-combination effects has been undertaken through reference to *The Proposed Tidal Lagoon Swansea Bay (Generating Station) Order Volume 6 Environmental Statement: Non-*

Technical Summary (February 2014) prepared by Tidal Lagoon Swansea Bay.

Description

5.2.15 The Swansea Bay Tidal Lagoon features the development of a proposed tidal energy generating station in Swansea Bay. The project is located approximately 7.5km west from the proposed Tata development site. The project proposes to comprise a tidal lagoon with a 9.5 km long, U-shaped, seawall running out to sea in a loop joining the main land at both ends and associated electricity generating infrastructure. The total installed capacity is 240MW and it is anticipated that the project will produce some 400GWh net of electricity on annual basis. The power generated will be carbon-free, reliable, predictable and enough for approximately 121,000 homes – equivalent to 9% of Wales's domestic electricity consumption.

5.2.16 An application for a DCO for the Swansea Bay Tidal Lagoon proposal has been submitted to the Planning Inspectorate. If the application is accepted and the DCO is subsequently confirmed the construction of the development is anticipated to commence in 2015 and to be completed sometime during 2018 (24 – 30 months duration). The offshore construction works will generally be undertaken 24 hours a day 7 days a week. The construction traffic will use Fabian Way to gain access to the site.

Potential for In-Combination Effects

Water

5.2.17 There are no in-combination effects associated with water, pollution and runoff as there are no LSEs on Natura 2000 sites within 10km associated with the Internal Power Generation Enhancement for Port Talbot Steelworks project.

Air Quality

5.2.18 Overall, the effect of the project on air quality will be negligible and, as such, is considered to be not significant with regard to local air quality (Tidal Lagoon Swansea Bay, 2014).

5.2.19 As such the in-combination effects of air quality will not be significant on Natura 2000 sites.

Noise and Vibration

5.2.20 Noise and vibration generated through construction and operation will not be significant on land (Tidal Lagoon Swansea Bay, 2014), and as such the in-combination effects of noise and vibration will not be significant on Natura 2000 sites.

Lighting

5.2.21 As stated in the non technical summary (Tidal Lagoon Swansea Bay, 2014) from viewpoints located away from the immediate surroundings of the project, effects on visual amenity are not predicted to be significant.

5.2.22 As such the in-combination effects of lighting will not be significant on Natura 2000 sites.

Other Potential In-Combination Effects

5.2.23 The following potential effects on Natura 2000 sites will not be occurring as a result of the proposed development for the Internal Power Generation Enhancement for Port Talbot Steelworks project, and as such there will be no in-combination effects with Swansea Bay Tidal Lagoon:

- Direct habitat loss or fragmentation;
- Direct disturbance to species;
- Alteration of management; and
- Spread of invasive species.

Abernedd Power Plant

5.2.24 The assessment of the potential for in-combination effects has been undertaken through reference to Abernedd Power Plant Environmental Statement – FINAL 27 August 2008 and Abernedd Power Plant Non Technical Summary – FINAL 27 August 2008 prepared by ERM.

Description

5.2.25 The proposed development includes the construction of a natural gas only fired combined cycle gas turbine (CCGT) power plant. The project will be capable, in time, of generating up to 870 MW of generation capacity and will be connected to the existing National Grid electrical transmission system. It will be constructed next to the existing Baglan power station operated by GE and may share some common services and supplies with it. The project is located approximately 5.4km north west from the Internal Power Generation Enhancement for Port Talbot Steelworks proposed development site.

5.2.26 Abernedd Power Station (Application P2008/1127) was granted conditional approval by DECC on the 23 February 2011 for construction of a 870MW gas fired combined cycle gas turbine power plant. No lawful start has yet been made to this development. An extension of time has now been agreed by DECC and NPTCBC for an additional 3 years until February 2019.

Potential for In-Combination Effects

Water

5.2.27 There are no in-combination effects associated with water, pollution and runoff as there are no LSEs on Natura 2000 sites within 10km associated with the proposed development.

Air Quality

5.2.28 Acid deposition and nitrogen deposition was considered to be the only in-combination effect that has the potential to be significant. However, Table 12.28 in Chapter 12 of the ERM ES (2008a) states that the calculated levels of process contribution for nitrogen and acid deposition for Crymlyn Bog SAC/Ramsar, Kenfig SAC and Cefn Cribwr Grassland SAC were all below 1% of the Critical Load. Impacts upon sensitive ecological sites are not considered to be significant.

5.2.29 As stated in Section 1.8.10 of the NTS (ERM, 2008b), impacts on sensitive receptors as a result of emissions of dust from construction activities and construction vehicles will not be significant, provided that good practices are followed. The impact of operational traffic is negligible as the incremental

volume of operational traffic is not significant when compared to the baseline traffic.

5.2.30 Calculations were undertaken using the Process Contribution data supplied in the Environmental Statement (ERM, 2008a) to ascertain percentage of Critical Loads for nitrogen deposition and acid deposition for Abernedd Power Station and the Options for the Internal Power Generation Enhancement for Port Talbot Steelworks proposed development.

5.2.31 The results displayed in Tables 5.1 – 5.8 at the end of Section 5.2 show that there will not be a significant effect as the cumulative process contributions are <1% of Critical Loads apart from when in-combination with Phase 1 of Option 2 (using Emission Limit Values - ELVs) where acid deposition is 1.4% of the Critical Load at Crymlyn Bog's transition mire and quaking bog. However, the measured emissions for Phase 1 of Option 2 show that acid deposition is 0% of Critical Load for Crymlyn Bog's transition mire and quaking bog. Furthermore, the ELVs disproportionally represent the sulphur emissions of the Internal Power Generation Enhancement for Port Talbot Steelworks as the site does not generate that much sulphur, and as such it will not be flared. Using the ELV process contribution for nitrogen and measured emissions for sulphur process contribution gives the Critical Load for acid deposition of 0%.

5.2.32 During the interim phase between Option 2 Phase 1 and Phase 2, there is potential for significant in-combination effects on Crymlyn Bog from the Abernedd Power Station and the proposed development as a result of acid deposition, when using ELV emissions as a basis for assessment. However, this is considered to be a worst-case assessment with contributions from the proposed development anticipated to be significantly below the ELV.

5.2.33 Similarly, there is potential for in-combination effects during the interim operational phase between Phase 1 and Phase 2 of Option 2 due to the interaction of the three power stations and the proposed development on Crymlyn Bog as a result of nitrogen and acid deposition, when using ELV emissions as a basis for assessment. Both of these in-combination effects are, however, considered not significant when measured emissions are

used and, likewise, when the installation is complete and fully operational (Option 1 and Phase 2 of Option 2).

Noise and Vibration

5.2.34 As stated in Chapter 8 Noise and Vibration of the Environmental Statement (ERM, 2008a) there will be no significant residual impacts for the construction and operation of the proposed CCGT power plant development as these will be mitigated through design and planning conditions as appropriate. In addition, no significant construction or operational vibration impacts are expected.

5.2.35 As such the in-combination effects of noise and vibration will not be significant on Natura 2000 sites.

Lighting

5.2.36 As stated in Section 1.8.7 of the Non Technical Summary (ERM, 2008b), there will be no residual impacts resulting from the construction and operation of the development on designated sites if the mitigation measures are implemented, including those to limit light spill such as construction to be undertaken during daylight hours only and to direct security lighting to avoid light spill on to adjacent habitats.

5.2.37 As such the in-combination effects of lighting will not be significant on Natura 2000 sites.

Other Potential In-Combination Effects

5.2.38 The following potential effects on Natura 2000 sites will not be occurring as a result of the proposed development for the Internal Power Generation Enhancement for Port Talbot Steelworks project, and as such there will be no in-combination effects with Abernedd Power Plant:

- Direct habitat loss or fragmentation;
- Direct disturbance to species;
- Alteration of management; and
- Spread of invasive species.

Biomass II Power Station

5.2.39 The assessment of the potential for in-combination effects has been undertaken through reference to the .*Non-Technical Summary Sustainable Energy Plant Port Talbot Western Wood Energy Revision 1st October 2008* produced by RPS and *Air Quality Modelling of Emissions from Margam Sustainable Energy Plant Final Report 2nd September 2008* produced by Cambridge Environmental Research Consultants.

Description

5.2.40 An extant planning permission (March 2011) is in place for a waste wood 35MW biomass power station on land off Longlands Lane, Margam. This site lies 500 metres south east of the proposed Tata development site.

Potential for In-Combination Effects

Water

5.2.41 There are no in-combination effects associated with water, pollution and runoff as there are no LSEs on Natura 2000 sites within 10km associated with the proposed development.

Air Quality

5.2.42 Section 6.4 of the NTS (RPS, 2008) states that it was concluded that the construction phase will generate only very minor emissions from the exhausts of construction vehicles. The effect of dust during this phase will not be significant for the closest residents (RPS, 2008). As such the effects of dust during construction on Natura 2000 sites will not be significant.

5.2.43 Table 10.3 and Table 10.6 of the air quality modelling report (CERC, 2008) predicts that the process contribution for nitrogen and acid deposition for Crymlyn Bog SAC/Ramsar, Kenfig SAC and Cefn Cribwr Grassland SAC are negligible or below 1% of the Critical Load. As such effects upon Natura 2000 sites are not considered to be significant.

5.2.44 Calculations were undertaken using the Process Contribution data supplied in the sir quality modelling document (CERC, 2008) to ascertain percentage of Critical Loads for nitrogen deposition and acid deposition for Biomass II

and the Options for the proposed development. The results displayed in Tables 5.1 – 5.8 at the end of Section 5.2 show that there will not be a significant effect as the cumulative process contributions are <1% of Critical Levels and Loads.

5.2.45 As such the in-combination effects of air quality will not be significant on Natura 2000 sites.

Noise and Vibration

5.2.46 Section 6.9 of the non technical summary concludes that the development will cause no increase in the current ambient noise levels or background vibration at the nearest sensitive receptors (RPS, 2008).

5.2.47 As such, the in-combination effects of noise and vibration will not be significant on Natura 2000 sites.

Lighting

5.2.48 Section 6.6 of the NTS (RPS, 2008) concludes that there is potential for some residual impacts to remain resulting from light spill however with the use of appropriate measures these should be largely short term and of limited significance (RPS, 2008). Appropriate measures include the use of directional lighting.

5.2.49 As such the in-combination effects of lighting will not be significant on Natura 2000 sites.

Other Potential In-Combination Effects

5.2.50 The following potential effects on Natura 2000 sites will not be occurring as a result of the proposed development for the Internal Power Generation Enhancement for Port Talbot Steelworks project, and as such there will be no in-combination effects with the Biomass II proposed development:

- Direct habitat loss or fragmentation;
- Direct disturbance to species;
- Alteration of management; and
- Spread of invasive species.

Prenergy Port Talbot Renewable Energy Plant

5.2.51 The assessment of the potential for in-combination effects has been undertaken through reference to Prenergy Power Port Talbot Renewable Energy Plant Environmental Impact Assessment Volume 2 (of 3): Main Text Issue B2 5th October 2006 produced by SKM.

Description

5.2.52 The Port Talbot Renewable Energy Plant (PTREP) is a proposed renewable energy plant by the developer Prenergy Power LTD of up to 350 MW capacity, within the port of Port Talbot. The PTREP is located 1.8km west of the Internal Power Generation Enhancement for Port Talbot Steelworks proposed development site.

Potential for In-Combination Effects

Water

5.2.53 There is no in-combination effects associated with water, pollution and runoff as there are no LSEs on Natura 2000 sites within 10km associated with the Internal Power Generation Enhancement for Port Talbot Steelworks project.

Air Quality

5.2.54 As stated in the Section 8.7 of the Environmental Statement (SKM, 2006), Impacts due to dust generated from the proposed construction site are expected to be negligible.

5.2.55 Furthermore, calculations were undertaken using the Process Contribution data supplied in the Environmental Statement (SKM, 2006) to ascertain percentage of Critical Loads for nitrogen deposition and acid deposition for Prenergy Biomass Power Station and the Options for the Internal Power Generation Enhancement for Port Talbot Steelworks proposed development. The results displayed in Tables 5.1 – 5.8 at the end of Section 5.2 show that there will not be a significant effect as the cumulative process contributions are <1% of Critical Levels and Critical Loads.

5.2.56 The PCs from the other power stations are presented in Table 5.5 (also Table 16.5 of Chapter 16 Cumulative Effects). These PCshave been combined with the background concentrations at each ecological site as determined by the APIS system from which the background data was downloaded on the 4th April 2014. The change in predicted concentrations of NO_2 and SO_2 as a result of the proposed development has then been added to this Base PEC to show the predicted change as a result of the development.

5.2.57 It should be noted that the proposed development utilises gas which is already combusted on the site, as such, the PC from the Tata site already forms part of the annual background concentrations at the ecological sites. The assessment has, therefore, looked at the change in PEC at each ecological site by adding the predicted change from the proposed boiler stack/s to the receptor rather than adding the total PC which would lead to double counting of contributions from the proposed development site. As the proposed development leads to a reduction in existing contributions at some of the ecological sites, using this methodology also leads to a reduction in PEC at these receptors.

5.2.58 Table 5.6 and Table 5.7 present the critical loads which result from the cumulative impacts of the Abernedd Power Station, Biomass II Power Station and Prenergy PTREP developments with the predicted change at each of the sites as a result of the proposed development. The tables show that the PECs at all the sites under both construction options are predicted to be below 70% of the EQS and as such the PEC can be screened out as insignificant following the H1 screening methodology.

5.2.59 As such the in-combination effects of air quality will not be significant on Natura 2000 sites.

Noise and Vibration

5.2.60 Section 9.7 of the Environmental Statement (SKM, 2006) concludes that there would not be a significant effect due to noise at a distance of 1.1km. Section 13.7 of the Environmental Statement states that the effects of vibration will be insignificant (SKM, 2006).

5.2.61 As such the in-combination effects of noise and vibration will not be significant on Natura 2000 sites.

Lighting

5.2.62 Section 10.6 of the Environmental Statement states that a lighting plan will be developed and agreed with Neath Port Talbot Council prior to construction to demonstrate the minimal use of lighting during the operational period to avoid light pollution. In addition, lighting for health, safety and security reasons will avoid upward and lateral illumination, use directional fittings, or use baffles to screen light sources (SKM, 2006).

5.2.63 As such the in-combination effects of lighting will not be significant on Natura 2000 sites.

Other Potential In-Combination Effects

5.2.64 The following potential effects on Natura 2000 sites will not be occurring as a result of the proposed development for the Internal Power Generation Enhancement for Port Talbot Steelworks project, and as such there will be no in-combination effects with the Biomass II proposed development:

- Direct habitat loss or fragmentation;
- Direct disturbance to species;
- Alteration of management; and,
- Spread of invasive species.

Table 5.1: Process Contributions - TATA & Other Projects Combined									
	Nitrogen			Acid Nitrogen			Acid Sulphur		
	Abernedd	Biomass II	Prenergy	Abernedd	Biomass II	Prenergy	Abernedd	Biomass II	Prenergy
Crymlyn Bog/ Cors Crymlyn	0.0243	0.0022	0.0072	0.0017	0.0002	0.0005	0.0000	0.0005	0.0000
Kenfig/ Cynffig	0.0035	0.0168	0.0115	0.0003	0.0012	0.0008	0.0000	0.0034	0.0001
Cefn Cribwr Grasslands/Glaswelltiroedd	0.0026	0.0079	0.0086	0.0002	0.0006	0.0006	0.0000	0.0017	0.0000

Table 5.2: Crymlyn Bog/ Cors Crymlyn Critical Loads Other Projects and TATA Options	Nitrogen			Acid Deposition		
	Abernedd	Biomass II	Prenergy	Abernedd	Biomass II	Prenergy
Option 1 ELV	0.3	-0.1	0.0	-2.78	-2.94	-2.95
Option 1 Measured	0.6	0.1	0.2	0.37	0.21	0.20
Phase 1 Option 2 ELV	0.96	0.5	0.6	0.79*	0.63	0.62
Phase 1 Option 2 Measured	0.5	0.1	0.2	0.37	0.21	0.20

** It should be noted that this value has been calculated based on the CLF calculation methodology set out on the APIS website rather than using the APIS CL Function Tool. The APIS CL Function Tool rounds the nitrogen and sulphur PCs to the nearest 2 decimal points when undertaking the calculation which gives a combined PC deposition rate of 0.01 keq/ha/yr. Based on this deposition rate the APIS CL Function Tool predicts that the in combination deposition rate equates to 1.4 % of the CLF (CL N Max 0.714 keq/ha/yr). However, if the calculation is undertaken to three decimal points the combined deposition rate for Phase 1 Option 2 ELV in combination with the Abernedd projects is 0.006 keq/ha/yr which equates to 0.79% of the CLF as presented in the table.*

Table 5.3: Kenfig/ Cynffig Critical Loads Other Projects and TATA Options	Nitrogen			Acid Deposition		
	Abernedd	Biomass II	Prenergy	Abernedd	Biomass II	Prenergy
Option 1 ELV	0.0	0.2	0.1	-0.35	-0.24	-0.33
Option 1 Measured	0.0	0.2	0.1	-0.33	0.11	0.02
Phase 1 Option 2 ELV	0.0	0.2	0.1	0.01	0.11	0.03
Phase 1 Option 2 Measured	0.0	0.2	0.1	0.01	0.12	0.03

Table 5.4: Cefn Cribwr Grasslands Critical Loads Other Projects and TATA Options	Nitrogen			Acid Deposition		
	Abernedd	Biomass II	Prenergy	Abernedd	Biomass II	Prenergy
Option 1 ELV	0.0	-0.1	-0.1	-1.84	-1.74	-1.82
Option 1 Measured	0.0	0.1	0.1	0.02	0.12	0.04
Phase 1 Option 2 ELV	0.0	0.1	0.1	-0.05	0.06	-0.02
Phase 1 Option 2 Measured	0.0	0.1	0.1	0.04	0.14	0.06

Table 5.5 Ground-Level PCs from Each Facility at Modelled Ecological Sites (Also Table 16.5 in Chapter 16 Cumulative Effects)

Pollutant	NO_x				SO_2		
Site	Abernedd Power Station	Biomass II Power Station	Prenergy PTREP	Combined	Biomass II Power Station	Prenergy PTREP	Combined
Blackmill Woodlands	0	0.055	0	0.06	0.014	0	0.01
Blackpill	0.0582	0	0	0.06	0	0	0.00
Caswell Bay	0.0217	0	0	0.02	0	0	0.00
Cefn Cribwr Grasslands/Glaswelltiroedd	0.0181	0.055	0.06	0.13	0.014	0.0004	0.01
Cilybebyll	0.0605	0	0	0.06	0	0	0.00
Crymlyn Bog/ Cors Crymlyn	0.1689	0.015	0.05	0.23	0.004	0.0004	0.00
Crymlyn Burrows	0.5892	0.015	0.08	0.68	0.005	0.0005	0.01
Cwm Cyffog	0	0.038	0	0.04	0.009	0	0.01
Cwm Du Woodlands	0.0996	0.057		0.16	0.014	0	0.01
Cwm Risca Meadow	0	0.061	0	0.06	0.015	0	0.02
Eglwys Nunydd Reservoir	0.0254	0.27	0.07	0.37	0.067	0.0004	0.07
Frondeg	0.0466	0	0	0.05	0	0	0.00
Gower Ash Woods/Coedydd Ynn Gwyr	0.022	0	0	0.02	0	0	0.00
Gower Commons/Tiroedd Comin Gwyr	0.0326	0	0	0.03	0	0	0.00
Kenfig/ Cynffig	0.0245	0.117	0.08	0.22	0.029	0.0005	0.03
Margam Moors	0.0266	0.183	0.07	0.28	0.046	0.0004	0.05
Merthyr Mawr	0	0.036	0	0.04	0.009	0	0.01
Nant y Crimp	0.0182	0	0	0.02	0	0	0.00

Table 5.5 Ground-Level PCs from Each Facility at Modelled Ecological Sites (Also Table 16.5 in Chapter 16 Cumulative Effects)

Pollutant	NO_x				SO_2		
Site	Abernedd Power Station	Biomass II Power Station	Prenergy PTREP	Combined	Biomass II Power Station	Prenergy PTREP	Combined
Pant y Sais	0.1279	0.023	0.06	0.21	0.006	0.0004	0.01
Penplas Grasslands	0.0287	0	0	0.03	0	0	0.00
Pent-y-Castell/ Cefn Cribwr	0.0195	0	0	0.02	0	0	0.00
Waun Cimla	0.02	0.061	0	0.08	0.015	0	0.02

Note – Abernedd Power Station is a gas fired facility and as such is not predicted to have any SO_2 emissions

Table 5.6 Long-term Cumulative Predicted Environmental Concentrations (µg/m³) to Ecological Receptors for Option 1 (Also Table 16.6 in Chapter 16 Cumulative Effects)																
Species	**NO_x**								**SO_2**							
Air Quality Standard (µg/m³)	**30**								**20**							
Emissions	**ELV**				**Measured Concentration**				**ELV**				**Measured Concentration**			
Receptor	PEC Base case	% of AQS	PEC With Option 1	% of AQS	PEC Base case	% of AQS	PEC With Option 1	% of AQS	PEC Base case	% of AQS	PEC With Option 1	% of AQS	PEC Base case	% of AQS	PEC With Option 1	% of AQS
Blackmill Woodlands	10.2	34.0	10.1	33.8	10.2	34.0	10.2	34.1	2.0	9.9	1.8	8.9	2.0	9.9	2.0	9.9
Blackpill, Swansea	8.6	28.7	8.6	28.5	8.6	28.7	8.6	28.7	1.1	5.4	0.9	4.7	1.1	5.4	1.1	5.4
Caswell Bay	6.8	22.8	6.8	22.7	6.8	22.8	6.8	22.8	1.0	5.0	0.9	4.5	1.0	5.0	1.0	5.0
Cefn Cribwr Grasslands	14.3	47.6	14.2	47.2	14.3	47.6	14.3	47.6	2.2	10.8	1.8	9.2	2.2	10.8	2.2	10.8
Cefn Cribwr Grasslands	13.9	46.3	13.8	45.9	13.9	46.3	13.9	46.3	1.8	8.8	1.4	7.2	1.8	8.8	1.8	8.8
Cefn Cribwr Grasslands	13.9	46.3	13.8	45.9	13.9	46.3	13.9	46.3	1.8	8.8	1.4	7.0	1.8	8.8	1.8	8.8
Cefn Cribwr Grasslands	13.9	46.3	13.8	45.9	13.9	46.3	13.9	46.3	1.8	8.8	1.4	7.1	1.8	8.8	1.8	8.8
Cefn Cribwr Grasslands	13.9	46.3	13.8	46.0	13.9	46.3	13.9	46.3	1.8	8.8	1.5	7.3	1.8	8.8	1.8	8.8
Cefn Cribwr Grasslands	13.9	46.3	13.8	46.0	13.9	46.3	13.9	46.3	1.8	8.8	1.4	7.2	1.8	8.8	1.8	8.8
Cefn Cribwr Grasslands	13.9	46.3	13.8	46.0	13.9	46.3	13.9	46.3	1.8	8.8	1.4	7.2	1.8	8.8	1.8	8.8
Crymlyn Bog / Cors Crymlyn	13.5	45.1	13.5	45.0	13.5	45.1	13.6	45.2	1.6	8.1	1.4	7.2	1.6	8.1	1.6	8.1
Crymlyn Bog / Cors Crymlyn	13.5	45.1	13.5	45.0	13.5	45.1	13.6	45.2	1.6	8.1	1.4	7.2	1.6	8.1	1.6	8.1
Crymlyn Bog / Cors Crymlyn	13.5	45.1	13.5	45.0	13.5	45.1	13.6	45.2	1.6	8.1	1.4	7.2	1.6	8.1	1.6	8.1
Crymlyn Bog / Cors Crymlyn	14.8	49.4	14.8	49.2	14.8	49.4	14.9	49.5	2.4	12.0	2.2	11.1	2.4	12.0	2.4	12.0
Crymlyn Bog / Cors Crymlyn	14.8	49.4	14.8	49.2	14.8	49.4	14.9	49.5	2.4	12.0	2.2	10.9	2.4	12.0	2.4	12.0
Crymlyn Burrows	15.3	50.9	15.2	50.6	15.3	50.9	15.3	51.0	2.4	12.0	2.1	10.7	2.4	12.0	2.4	12.0
Cwm Cyffog	8.9	29.7	8.9	29.6	8.9	29.7	8.9	29.7	1.8	9.1	1.7	8.6	1.8	9.1	1.8	9.2
Cwm Du Woodlands	9.6	31.9	9.5	31.7	9.6	31.9	9.6	32.0	2.0	9.9	1.8	9.0	2.0	9.9	2.0	9.9
Cwm Risca Meadow	13.8	46.1	13.7	45.7	13.8	46.1	13.8	46.1	1.8	8.8	1.4	7.2	1.8	8.8	1.8	8.8
Eglwys Nunydd Reservoir	16.8	56.1	16.6	55.3	16.8	56.1	16.8	56.0	3.3	16.3	2.6	12.9	3.3	16.3	3.2	16.2
Eglwys Nunydd Reservoir	10.8	36.1	10.4	34.8	10.8	36.1	10.8	35.9	1.5	7.5	0.4	2.0	1.5	7.5	1.5	7.4
Kenfig / Cynffig	10.7	35.6	10.6	35.5	10.7	35.6	10.7	35.7	1.5	7.3	1.3	6.6	1.5	7.3	1.5	7.3
Kenfig / Cynffig	10.7	35.6	10.6	35.5	10.7	35.6	10.7	35.7	1.5	7.3	1.3	6.7	1.5	7.3	1.5	7.3
Kenfig / Cynffig	10.7	35.6	10.6	35.5	10.7	35.6	10.7	35.7	1.5	7.3	1.3	6.6	1.5	7.3	1.5	7.3
Kenfig / Cynffig	10.7	35.6	10.6	35.5	10.7	35.6	10.7	35.7	1.5	7.3	1.3	6.6	1.5	7.3	1.5	7.3
Kenfig / Cynffig	9.8	32.7	9.7	32.5	9.8	32.7	9.8	32.7	1.4	7.1	1.2	6.2	1.4	7.1	1.4	7.1
Kenfig / Cynffig	9.7	32.5	9.7	32.3	9.7	32.5	9.7	32.5	1.5	7.3	1.3	6.5	1.5	7.3	1.5	7.3
Margam Moors	16.7	55.8	16.7	55.5	16.7	55.8	16.7	55.8	3.2	16.2	3.0	15.1	3.2	16.2	3.2	16.2
Margam Moors	10.7	35.8	10.7	35.5	10.7	35.8	10.8	35.8	1.5	7.4	1.2	6.1	1.5	7.4	1.5	7.4
Merthyr Mawr	9.6	32.1	9.6	31.9	9.6	32.1	9.6	32.1	1.4	7.0	1.2	6.1	1.4	7.0	1.4	7.0
Merthyr Mawr	9.6	32.1	9.6	31.9	9.6	32.1	9.6	32.1	1.4	7.0	1.2	6.2	1.4	7.0	1.4	7.0

Table 5.6 Long-term Cumulative Predicted Environmental Concentrations (µg/m³) to Ecological Receptors for Option 1 (Also Table 16.6 in Chapter 16 Cumulative Effects)																
Species	**NO_x**								**SO_2**							
Air Quality Standard (µg/m³)	**30**								**20**							
Emissions	**ELV**				**Measured Concentration**				**ELV**				**Measured Concentration**			
Receptor	PEC Base case	% of AQS	PEC With Option 1	% of AQS	PEC Base case	% of AQS	PEC With Option 1	% of AQS	PEC Base case	% of AQS	PEC With Option 1	% of AQS	PEC Base case	% of AQS	PEC With Option 1	% of AQS
Merthyr Mawr	9.6	31.9	9.5	31.7	9.6	31.9	9.6	31.9	1.4	7.2	1.3	6.4	1.4	7.2	1.4	7.2
Merthyr Mawr	9.6	31.9	9.5	31.6	9.6	31.9	9.6	31.9	1.4	7.2	1.3	6.3	1.4	7.2	1.4	7.2
Pant y Sais	14.8	49.3	14.7	49.2	14.8	49.3	14.8	49.4	2.4	12.0	2.2	11.1	2.4	12.0	2.4	12.0
Penplas Grasslands	13.7	45.7	13.7	45.6	13.7	45.7	13.7	45.7	2.4	12.1	2.3	11.6	2.4	12.1	2.4	12.1
Waun Cimla	14.2	47.4	14.1	47.0	14.2	47.4	14.2	47.4	2.2	10.8	1.8	8.9	2.2	10.8	2.2	10.8

Note: Values in bold are greater than 70% of the long-term AQS

Table 5.7 Long-term Cumulative Predicted Environmental Concentrations (µg/m³) to Ecological Receptors for Option 2 Phase 1 (Also Table 16.7 in Chapter 16 Cumulative Effects)																
Species	**NO_x**								**SO_2**							
Air Quality Standard (µg/m³)	**30**								**20**							
Emissions	**ELV**				**Measured Concentration**				**ELV**				**Measured Concentration**			
Receptor	PEC Base case	% of AQS	PEC With Option 2	% of AQS	PEC Base case	% of AQS	PEC With Option 2	% of AQS	PEC Base case	% of AQS	PEC With Option 2	% of AQS	PEC Base case	% of AQS	PEC With Option 2	% of AQS
Blackmill Woodlands	10.2	34.0	10.2	34.0	10.2	34.0	10.2	34.0	2.0	9.9	2.0	10.1	2.0	9.9	2.0	9.9
Blackpill, Swansea	8.6	28.7	8.6	28.7	8.6	28.7	8.6	28.7	1.1	5.4	1.1	5.3	1.1	5.4	1.1	5.4
Caswell Bay	6.8	22.8	6.8	22.8	6.8	22.8	6.8	22.8	1.0	5.0	1.0	5.0	1.0	5.0	1.0	5.0
Cefn Cribwr Grasslands	14.3	47.6	14.3	47.6	14.3	47.6	14.3	47.6	2.2	10.8	2.1	10.7	2.2	10.8	2.2	10.8
Cefn Cribwr Grasslands	13.9	46.3	13.9	46.3	13.9	46.3	13.9	46.3	1.8	8.8	1.7	8.7	1.8	8.8	1.8	8.8
Cefn Cribwr Grasslands	13.9	46.3	13.9	46.3	13.9	46.3	13.9	46.3	1.8	8.8	1.7	8.7	1.8	8.8	1.8	8.8
Cefn Cribwr Grasslands	13.9	46.3	13.9	46.3	13.9	46.3	13.9	46.3	1.8	8.8	1.8	8.8	1.8	8.8	1.8	8.8
Cefn Cribwr Grasslands	13.9	46.3	13.9	46.3	13.9	46.3	13.9	46.3	1.8	8.8	1.8	8.8	1.8	8.8	1.8	8.8
Cefn Cribwr Grasslands	13.9	46.3	13.9	46.3	13.9	46.3	13.9	46.3	1.8	8.8	1.8	8.8	1.8	8.8	1.8	8.8
Cefn Cribwr Grasslands	13.9	46.3	13.9	46.3	13.9	46.3	13.9	46.3	1.8	8.8	1.8	8.8	1.8	8.8	1.8	8.8
Crymlyn Bog / Cors Crymlyn	13.5	45.1	13.6	45.2	13.5	45.1	13.6	45.2	1.6	8.1	1.7	8.3	1.6	8.1	1.6	8.2
Crymlyn Bog / Cors Crymlyn	13.5	45.1	13.6	45.2	13.5	45.1	13.6	45.2	1.6	8.1	1.6	8.2	1.6	8.1	1.6	8.1
Crymlyn Bog / Cors Crymlyn	13.5	45.1	13.6	45.2	13.5	45.1	13.6	45.2	1.6	8.1	1.6	8.2	1.6	8.1	1.6	8.1
Crymlyn Bog / Cors Crymlyn	14.8	49.4	14.8	49.5	14.8	49.4	14.8	49.5	2.4	12.0	2.4	12.1	2.4	12.0	2.4	12.0
Crymlyn Bog / Cors Crymlyn	14.8	49.4	14.8	49.5	14.8	49.4	14.8	49.5	2.4	12.0	2.4	12.1	2.4	12.0	2.4	12.0
Crymlyn Burrows	15.3	50.9	15.3	51.0	15.3	50.9	15.3	51.0	2.4	12.0	2.4	12.1	2.4	12.0	2.4	12.0
Cwm Cyffog	8.9	29.7	8.9	29.7	8.9	29.7	8.9	29.7	1.8	9.1	1.8	9.2	1.8	9.1	1.8	9.2

Table 5.7 Long-term Cumulative Predicted Environmental Concentrations (μg/m³) to Ecological Receptors for Option 2 Phase 1 (Also Table 16.7 in Chapter 16 Cumulative Effects)

Species	**NO_x**								**SO_2**							
Air Quality Standard (μg/m³)	**30**								**20**							
Emissions	**ELV**				**Measured Concentration**				**ELV**				**Measured Concentration**			
Receptor	PEC Base case	% of AQS	PEC With Option 2	% of AQS	PEC Base case	% of AQS	PEC With Option 2	% of AQS	PEC Base case	% of AQS	PEC With Option 2	% of AQS	PEC Base case	% of AQS	PEC With Option 2	% of AQS
Cwm Du Woodlands	9.6	31.9	9.6	31.9	9.6	31.9	9.6	31.9	2.0	9.9	2.0	10.0	2.0	9.9	2.0	9.9
Cwm Risca Meadow	13.8	46.1	13.8	46.1	13.8	46.1	13.8	46.1	1.8	8.8	1.8	8.9	1.8	8.8	1.8	8.8
Eglwys Nunydd Reservoir	16.8	56.1	16.8	56.0	16.8	56.1	16.8	56.1	3.3	16.3	3.2	16.0	3.3	16.3	3.3	16.3
Eglwys Nunydd Reservoir	10.8	36.1	10.8	35.9	10.8	36.1	10.8	36.1	1.5	7.5	1.3	6.7	1.5	7.5	1.5	7.5
Kenfig / Cynffig	10.7	35.6	10.7	35.6	10.7	35.6	10.7	35.7	1.5	7.3	1.5	7.3	1.5	7.3	1.5	7.3
Kenfig / Cynffig	10.7	35.6	10.7	35.6	10.7	35.6	10.7	35.7	1.5	7.3	1.5	7.3	1.5	7.3	1.5	7.3
Kenfig / Cynffig	10.7	35.6	10.7	35.6	10.7	35.6	10.7	35.7	1.5	7.3	1.5	7.3	1.5	7.3	1.5	7.3
Kenfig / Cynffig	10.7	35.6	10.7	35.6	10.7	35.6	10.7	35.7	1.5	7.3	1.5	7.3	1.5	7.3	1.5	7.3
Kenfig / Cynffig	9.8	32.7	9.8	32.7	9.8	32.7	9.8	32.7	1.4	7.1	1.4	7.1	1.4	7.1	1.4	7.1
Kenfig / Cynffig	9.7	32.5	9.7	32.5	9.7	32.5	9.7	32.5	1.5	7.3	1.5	7.3	1.5	7.3	1.5	7.4
Margam Moors	16.7	55.8	16.7	55.8	16.7	55.8	16.7	55.8	3.2	16.2	3.2	16.2	3.2	16.2	3.2	16.2
Margam Moors	10.7	35.8	10.8	35.8	10.7	35.8	10.8	35.9	1.5	7.4	1.5	7.3	1.5	7.4	1.5	7.4
Merthyr Mawr	9.6	32.1	9.6	32.1	9.6	32.1	9.6	32.1	1.4	7.0	1.4	7.0	1.4	7.0	1.4	7.0
Merthyr Mawr	9.6	32.1	9.6	32.1	9.6	32.1	9.6	32.1	1.4	7.0	1.4	7.0	1.4	7.0	1.4	7.0
Merthyr Mawr	9.6	31.9	9.6	31.9	9.6	31.9	9.6	31.9	1.4	7.2	1.4	7.2	1.4	7.2	1.5	7.3
Merthyr Mawr	9.6	31.9	9.6	31.9	9.6	31.9	9.6	31.9	1.4	7.2	1.4	7.2	1.4	7.2	1.5	7.3
Pant y Sais	14.8	49.3	14.8	49.4	14.8	49.3	14.8	49.4	2.4	12.0	2.4	12.1	2.4	12.0	2.4	12.0
Penplas Grasslands	13.7	45.7	13.7	45.7	13.7	45.7	13.7	45.7	2.4	12.1	2.4	12.1	2.4	12.1	2.4	12.1
Waun Cimla	14.2	47.4	14.2	47.4	14.2	47.4	14.2	47.4	2.2	10.8	2.1	10.7	2.2	10.8	2.2	10.8

Note: Values in bold are greater than 70% of the long-term AQS

Table 5.8: Percentage of Critical Loads for Other Projects and Combined Process Contributions for Other Projects and TATA Options (Also Table 16.8 in Chapter 16 Cumulative Effects)					
Nitrogen Deposition					
Sites	**Other Projects***	**Other Projects* & TATA Op. 1 ELV**	**Other Projects* & TATA Op. 1 Measured**	**Other Projects* & TATA Phase 1, Op. 2 ELV**	**Other Projects* & TATA Phase 1, Op. 2 Measured**
Crymlyn Bog SAC	0.67	0.5	0.8	1.1	0.7
Kenfig/Cynffig SAC	0.32	0.3	0.3	0.3	0.3
Cefn Cribwr SAC	0.19	0.0	0.2	0.2	0.2
Acid Deposition					
Sites	**Other Projects***	**Other Projects* & TATA Op. 1 ELV**	**Other Projects* & TATA Op. 1 Measured**	**Other Projects* & TATA Phase 1, Op. 2 ELV**	**Other Projects* & TATA Phase 1, Op. 2 Measured**
Crymlyn Bog SAC	0	-2.8	0	1.4	0
Kenfig/Cynffig SAC	0.2	-0.2	0.2	0.2	0.2
Cefn Cribwr SAC	0	-1.5	1	0	0
Note: Percentage of critical loads for Phase 2, Option 2 are the same as those identified for Option 1 as this represents the complete installation.					
** Other projects are Abernedd Power Station, Biomass II Power Station and Prenergy Port Talbot Renewable Energy Plant.*					

Summary

5.2.65 During the interim phase between Option 2 Phase 1 and Phase 2, there is potential for significant in-combination effects on Crymlyn Bog from the Abernedd Power Station and the proposed development as a result of acid deposition, when using ELV emissions as the basis for assessment.

5.2.66 Similarly, there is potential for in-combination effects during Option 2 Phase 1 between all three power stations and the proposed development on Crymlyn Bog as a result of nitrogen and acid deposition, when using ELV emissions as a basis for assessment. The use of ELVs for the assessment is considered to be conservative and both of these in-combination effects are, however, considered not significant when measured emissions are used and for when the installation is complete and fully operational (Option 1 and Phase 2 of Option 2).

6 Conclusion

6.1 Introduction

6.1.1 This section summarises the potential effects of the proposed development and considers whether the requirement to proceed to Stage Two of the HRA process (Appropriate Assessment) is triggered in relation to the proposed development.

6.1.2 An Appropriate Assessment is necessary when the screening exercise concludes that a project is likely to give rise to significant effects on a Natura 2000 site. When required, an Appropriate Assessment considers the impact of the project on the integrity of the Natura 2000 site either alone or in combination with other plans and projects having regard to the site's conservation objectives.

6.2 Potential Effects

6.2.1 There are no LSEs on Natura 2000 sites within 10km of the proposed development associated with the following potential effects:

- Water pollution from surface runoff;
- Construction vehicle movements;
- Noise;
- Vibration;
- Dust blanketing;
- Direct habitat loss or fragmentation;
- Direct disturbance to species;
- Alteration of management;
- Increase in lighting, and
- Spread of invasive species.

6.2.2 The Environment Agency's Air Emissions guidance (Environment Agency, 2011) states that insignificant emissions can be screened out unless:

- They contribute to acidification and eutrophication;
- Are released in substantial quantities; and
- For nature conservation sites - contribute >1% of the relevant Critical Load.

6.2.3 The screening assessment has identified that the proposed development will not have any likely significant effects upon the integrity of Natura 2000 Sites as the acidifying and eutrophying emissions each contribute to <1% of the relevant Critical Loads for the individual Qualifying Features on each Natura 2000 Site.

6.2.4 Therefore the Appropriate Assessment - Stage Two of the HRA - process is not required.

6.2.5 The draft HRA Screening Report was provided to NRW and NPTCBC on the 29th May 2014 as part of the draft Environmental Statement review. Further to NRW's response dated the 25th June 2014, the Applicant provided additional clarification on Critical Levels on the 16th July. Although this was contained within other ES chapters, this has now been included for completeness.

6.2.6 The report concludes no LSE as a result of the proposed development both alone and in-combination. The Applicant and NRW are in agreement over no LSE of the proposed development alone (provided in their response dated 24th July 2014), but remain in discussions with respect to in-combination effects.

6.2.7 The Applicant remains committed to consultation with NRW and will continue to discuss the air quality aspects of the proposed development in the period during submission of the DCO application and in the period before Examination. It is the Applicants intention to agree a Statement of Common Ground with NRW covering the matters included in this report and

it is proposed that further meetings and dialogue will take place as necessary between the Applicant and NRW with that objective.

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APPENDIX A: CRITICAL LEVELS FOR OPTION 1 AND OPTION 2.

The following tables have been taken from Appendix 5.4 of the Air Quality assessment and therefore for consistency the numbering has been retaining for ease of reference

Table 5.63 Long-term Process Contribution (µg/m³) to Ecological Receptors at ELV for Option 1

Species	NO_x								SO_2							
Air Quality Standard (µg/m³)	30								10 or 20							
Meteorological Data	Port Talbot				Rhoose				Port Talbot				Rhoose			
Receptor	Base Case	Option 1	Change	% of AQS	Base Case	Option 1	Change	% of AQS	Base Case	Option 1	Change	% of AQS	Base Case	Option 1	Change	% of AQS
Bishops Wood	0.1	0.0	0.0	-0.1	0.1	0.1	0.0	-0.1	0.1	0.1	-0.1	-0.6	0.3	0.2	-0.1	-1.0
Blackmill Woodlands	0.2	0.2	0.0	-0.1	0.3	0.2	-0.1	-0.2	0.5	0.4	-0.1	-1.4	0.8	0.6	-0.2	-2.0
Blackmill Woodlands (2 parts)	0.2	0.2	0.0	-0.1	0.3	0.2	-0.1	-0.2	0.5	0.4	-0.1	-1.4	0.8	0.6	-0.2	-2.0
Blackpill, Swansea	0.1	0.1	0.0	-0.1	0.1	0.1	0.0	-0.1	0.2	0.1	-0.1	-0.8	0.3	0.2	-0.1	-1.3
Bracelet Bay	0.1	0.1	0.0	-0.1	0.2	0.1	0.0	-0.2	0.2	0.1	-0.1	-0.8	0.4	0.2	-0.1	-1.4
Bryn-Bach, Cefn Cribwr	0.3	0.2	-0.1	-0.3	0.4	0.2	-0.1	-0.4	0.7	0.5	-0.2	-2.3	0.9	0.6	-0.3	-3.2
Caeau Cefn Cribwr	0.3	0.2	-0.1	-0.3	0.4	0.2	-0.1	-0.4	0.8	0.5	-0.2	-2.5	0.9	0.6	-0.4	-3.5
Caswell Bay	0.1	0.0	0.0	-0.1	0.1	0.1	0.0	-0.1	0.1	0.1	-0.1	-0.5	0.3	0.2	-0.1	-0.9
Cefn Cribwr Grasslands SAC(Glaswelltiroedd)	0.3	0.2	-0.1	-0.3	0.4	0.2	-0.1	-0.4	0.7	0.5	-0.2	-2.3	0.9	0.6	-0.3	-3.2
Cefn Cribwr Grasslands SAC(Glaswelltiroedd)	0.3	0.2	-0.1	-0.3	0.4	0.2	-0.1	-0.4	0.8	0.5	-0.2	-2.5	0.9	0.6	-0.4	-3.6
Cefn Cribwr Grasslands SAC(Glaswelltiroedd)	0.4	0.3	-0.1	-0.3	0.3	0.2	-0.1	-0.3	0.9	0.6	-0.3	-2.9	0.8	0.5	-0.3	-3.1
Cefn Cribwr Grasslands SAC(Glaswelltiroedd)	0.4	0.3	-0.1	-0.4	0.3	0.2	-0.1	-0.4	1.1	0.7	-0.4	-3.7	0.8	0.5	-0.3	-3.2
Clemenstone Meadows, Wick	0.3	0.2	-0.1	-0.3	0.2	0.1	0.0	-0.2	0.7	0.5	-0.2	-2.3	0.4	0.2	-0.1	-1.4
Cors Crymlyn/Crymlyn Bog SSSI	0.2	0.2	-0.1	-0.2	0.2	0.2	-0.1	-0.2	0.6	0.4	-0.2	-2.1	0.6	0.4	-0.2	-2.1
Craig y Parciau Woodland	0.3	0.2	-0.1	-0.2	0.2	0.2	-0.1	-0.2	0.7	0.5	-0.2	-2.0	0.6	0.4	-0.2	-2.0
Crymlyn Bog	0.2	0.1	-0.1	-0.2	0.2	0.1	-0.1	-0.2	0.5	0.3	-0.2	-1.7	0.5	0.3	-0.2	-1.8
Crymlyn Bog	0.2	0.1	-0.1	-0.2	0.2	0.1	-0.1	-0.2	0.5	0.3	-0.2	-1.7	0.5	0.3	-0.2	-1.8
Crymlyn Bog	0.2	0.1	-0.1	-0.2	0.2	0.1	-0.1	-0.2	0.5	0.3	-0.2	-1.7	0.5	0.3	-0.2	-1.8
Crymlyn Bog / Cors Crymlyn SAC	0.2	0.2	-0.1	-0.2	0.2	0.2	-0.1	-0.2	0.5	0.4	-0.2	-1.8	0.5	0.4	-0.2	-1.7
Crymlyn Bog and Pant y Sais	0.2	0.1	-0.1	-0.2	0.2	0.1	-0.1	-0.2	0.5	0.3	-0.2	-1.8	0.5	0.3	-0.2	-1.8
Crymlyn Bog and Pant y Sais NNR	0.2	0.2	-0.1	-0.2	0.2	0.2	-0.1	-0.2	0.5	0.4	-0.2	-1.8	0.5	0.4	-0.2	-1.7
Crymlyn Bog RAMSAR	0.2	0.2	-0.1	-0.2	0.2	0.2	-0.1	-0.2	0.5	0.4	-0.2	-1.8	0.5	0.4	-0.2	-1.7
Crymlyn Burrows	0.3	0.2	-0.1	-0.3	0.3	0.2	-0.1	-0.3	0.7	0.4	-0.3	-2.6	0.7	0.5	-0.3	-2.6
Cwm Cyffog	0.2	0.1	-0.1	-0.2	0.2	0.1	0.0	-0.1	0.5	0.3	-0.2	-1.6	0.4	0.3	-0.1	-1.1
Cwm Du Woodlands	0.3	0.2	-0.1	-0.3	0.3	0.2	-0.1	-0.2	0.8	0.5	-0.3	-2.6	0.6	0.4	-0.2	-1.8
Cwm Risca Meadow	0.3	0.3	-0.1	-0.3	0.4	0.3	-0.1	-0.4	0.9	0.6	-0.3	-2.6	1.1	0.7	-0.3	-3.3
Cynffig/Kenfig SSSI	0.3	0.2	-0.1	-0.4	0.1	0.1	0.0	-0.2	0.8	0.4	-0.4	-3.9	0.3	0.1	-0.1	-1.4

Table 5.63 Long-term Process Contribution (µg/m³) to Ecological Receptors at ELV for Option 1

Species	NO_x								SO_2							
Air Quality Standard (µg/m³)	30								10 or 20							
Meteorological Data	Port Talbot				Rhoose				Port Talbot				Rhoose			
Receptor	Base Case	Option 1	Change	% of AQS	Base Case	Option 1	Change	% of AQS	Base Case	Option 1	Change	% of AQS	Base Case	Option 1	Change	% of AQS
Dunraven Bay	0.3	0.2	-0.1	-0.3	0.1	0.1	0.0	-0.1	0.8	0.5	-0.3	-3.0	0.3	0.2	-0.1	-1.1
Eaglesbush Valley	0.1	0.1	0.0	-0.1	0.1	0.1	0.0	-0.1	0.3	0.2	-0.1	-0.8	0.4	0.3	-0.1	-0.9
Eaglesbush Valley LNR	0.1	0.1	0.0	-0.1	0.1	0.1	0.0	-0.1	0.3	0.2	-0.1	-0.8	0.3	0.3	-0.1	-0.9
Eglwys Nunydd Reservoir	1.0	0.5	-0.5	-1.6	0.5	0.2	-0.2	-0.8	2.4	1.0	-1.3	-13.4	1.1	0.5	-0.7	-6.9
Eglwys Nunydd Reservoir SSSI	1.1	0.6	-0.6	-1.9	0.7	0.3	-0.4	-1.3	2.9	1.2	-1.7	-16.6	1.7	0.6	-1.1	-10.9
Ewenny and Pant Quarries	0.3	0.2	-0.1	-0.3	0.2	0.1	-0.1	-0.2	0.8	0.5	-0.2	-2.3	0.5	0.3	-0.2	-1.7
Fforest Goch Bog SSSI	0.1	0.0	0.0	0.0	0.1	0.1	0.0	-0.1	0.1	0.1	0.0	-0.4	0.2	0.1	-0.1	-0.5
Frog Pond Wood	0.4	0.3	-0.1	-0.4	0.3	0.2	-0.1	-0.4	1.1	0.7	-0.4	-3.8	0.8	0.5	-0.3	-3.2
Glais Moraine	0.1	0.1	0.0	-0.1	0.1	0.1	0.0	-0.1	0.2	0.2	-0.1	-0.7	0.2	0.2	-0.1	-0.7
Kenfig	0.3	0.2	-0.1	-0.5	0.1	0.1	0.0	-0.1	0.8	0.4	-0.4	-4.1	0.3	0.1	-0.1	-1.2
Kenfig (2 parts)	0.3	0.2	-0.1	-0.5	0.1	0.1	0.0	-0.1	0.8	0.4	-0.4	-4.1	0.3	0.1	-0.1	-1.2
Kenfig / Cynffig SAC	0.5	0.3	-0.2	-0.5	0.2	0.1	-0.1	-0.2	1.1	0.7	-0.5	-4.5	0.4	0.2	-0.2	-1.7
Kenfig / Cynffig SAC	0.4	0.3	-0.1	-0.5	0.2	0.1	-0.1	-0.2	1.1	0.7	-0.4	-4.2	0.4	0.2	-0.2	-1.8
Kenfig / Cynffig SAC	0.3	0.2	-0.1	-0.4	0.1	0.1	0.0	-0.2	0.8	0.4	-0.4	-3.9	0.3	0.1	-0.1	-1.4
Kenfig Pool and Dunes	0.4	0.2	-0.2	-0.5	0.1	0.1	0.0	-0.2	1.0	0.5	-0.5	-4.8	0.3	0.2	-0.1	-1.4
Kenfig Pool and Dunes	0.3	0.2	-0.1	-0.5	0.1	0.1	0.0	-0.1	0.9	0.4	-0.4	-4.3	0.3	0.1	-0.1	-1.3
Kenfig Pool and Dunes LNR	0.3	0.2	-0.1	-0.4	0.1	0.1	0.0	-0.2	0.8	0.4	-0.4	-3.9	0.3	0.1	-0.1	-1.4
Kenfig Pool and Dunes LNR	0.3	0.2	-0.1	-0.4	0.1	0.1	0.0	-0.2	0.8	0.4	-0.4	-3.9	0.3	0.1	-0.1	-1.4
Kenfig Pool and Dunes NNR	0.3	0.2	-0.1	-0.4	0.1	0.1	0.0	-0.2	0.8	0.4	-0.4	-3.9	0.3	0.1	-0.1	-1.4
Langland Bay (Rotherslade)	0.1	0.0	0.0	-0.1	0.1	0.1	0.0	-0.1	0.2	0.1	-0.1	-0.7	0.3	0.2	-0.1	-1.2
Locks Common	0.3	0.2	-0.1	-0.4	0.1	0.1	0.0	-0.1	0.7	0.4	-0.3	-3.3	0.2	0.1	-0.1	-1.0
Lock's Common LNR	0.3	0.2	-0.1	-0.4	0.1	0.1	0.0	-0.1	0.7	0.4	-0.3	-3.4	0.2	0.1	-0.1	-1.1
Margam Moors	0.5	0.3	-0.2	-0.8	0.2	0.1	-0.1	-0.3	1.3	0.6	-0.7	-6.9	0.4	0.2	-0.2	-2.3
Margam Moors SSSI	0.5	0.3	-0.2	-0.8	0.2	0.1	-0.1	-0.3	1.3	0.6	-0.7	-6.9	0.5	0.2	-0.3	-2.5
Merthyr Mawr	0.4	0.3	-0.1	-0.5	0.2	0.1	-0.1	-0.2	1.1	0.7	-0.4	-4.2	0.4	0.2	-0.2	-1.8
Merthyr Mawr SSSI	0.5	0.3	-0.2	-0.5	0.2	0.1	-0.1	-0.2	1.1	0.7	-0.5	-4.5	0.4	0.2	-0.2	-1.7
Merthyr Mawr Warren	0.4	0.3	-0.1	-0.5	0.2	0.1	-0.1	-0.2	1.1	0.7	-0.4	-4.1	0.4	0.2	-0.2	-1.8
Merthyr Mawr Warren NNR	0.5	0.3	-0.2	-0.5	0.1	0.1	-0.1	-0.2	1.1	0.7	-0.4	-4.5	0.4	0.2	-0.2	-1.6
Mumbles Hill LNR	0.1	0.1	0.0	-0.1	0.1	0.1	0.0	-0.1	0.2	0.1	-0.1	-0.8	0.4	0.2	-0.1	-1.3
Old Castle Down	0.3	0.2	-0.1	-0.3	0.2	0.1	-0.1	-0.2	0.8	0.5	-0.3	-2.5	0.4	0.3	-0.2	-1.6
Pant y Sais	0.2	0.2	-0.1	-0.2	0.2	0.2	-0.1	-0.2	0.5	0.4	-0.2	-1.8	0.5	0.4	-0.2	-1.7
Pant y Sais	0.2	0.2	-0.1	-0.2	0.2	0.2	-0.1	-0.2	0.5	0.4	-0.2	-1.8	0.5	0.4	-0.2	-1.7
Penplas Grasslands	0.1	0.1	0.0	-0.1	0.1	0.1	0.0	-0.1	0.2	0.1	-0.1	-0.7	0.3	0.2	-0.1	-0.9
Penycastell, Cefn Cribwr	0.4	0.3	-0.1	-0.4	0.3	0.2	-0.1	-0.4	1.1	0.7	-0.4	-3.7	0.8	0.5	-0.3	-3.2
Southerndown Coast	0.3	0.2	-0.1	-0.3	0.1	0.1	0.0	-0.1	0.8	0.5	-0.3	-3.0	0.3	0.2	-0.1	-1.1
Tremains Wood	0.2	0.2	-0.1	-0.2	0.3	0.2	-0.1	-0.2	0.6	0.4	-0.2	-1.6	0.7	0.4	-0.2	-2.1
Waun Cimla	0.4	0.3	-0.1	-0.3	0.4	0.2	-0.1	-0.4	0.9	0.6	-0.3	-2.8	0.9	0.5	-0.4	-3.8
Waun Fawr, Cefn Cribwr	0.4	0.3	-0.1	-0.3	0.3	0.2	-0.1	-0.3	0.9	0.6	-0.3	-2.9	0.8	0.5	-0.3	-3.0

Table 5.64 Short-term (Daily) Process Contribution (µg/m³) to Ecological Receptors at Emission Limit Value for Base Case and Option 1								
Species	**NO_x**							
Air Quality Standard (µg/m³)	**75 for maximum daily**							
Meteorological Data	**Port Talbot**				**Rhoose**			
Receptor	**Base Case**	**Option 1**	**Change**	**% of AQS**	**Base Case**	**Option 1**	**Change**	**% of AQS**
Bishops Wood SSSI	1.4	1.2	-0.2	-0.3	1.3	0.9	-0.4	-0.5
Blackmill Woods SAC	2.3	2.2	-0.1	-0.1	2.2	1.6	-0.6	-0.9
Blackmill Woods SSSI	2.3	2.2	-0.1	-0.1	2.2	1.6	-0.6	-0.9
Blackpill SSSI	1.2	0.9	-0.3	-0.4	2.0	1.6	-0.4	-0.5
Bracelet Bay SSSI	2.1	1.6	-0.5	-0.7	1.4	0.9	-0.5	-0.7
Bryn-Bach SSSI	2.7	1.9	-0.7	-1.0	2.0	1.8	-0.3	-0.4
CaeauCefnCribwr SSSI	2.5	1.8	-0.7	-1.0	2.2	2.0	-0.3	-0.4
Caswell Bay SSSI	1.5	1.2	-0.3	-0.4	1.1	0.8	-0.3	-0.4
Cefn Cribwr Grasslands SAC(Glaswelltiroedd)	2.6	1.9	-0.7	-1.0	2.0	1.8	-0.3	-0.4
Cefn Cribwr Grasslands SAC(Glaswelltiroedd)	2.7	1.9	-0.7	-1.0	2.3	1.9	-0.4	-0.6
Cefn Cribwr Grasslands SAC(Glaswelltiroedd)	2.6	2.1	-0.5	-0.6	2.9	2.2	-0.7	-0.9
Cefn Cribwr Grasslands SAC(Glaswelltiroedd)	3.2	2.7	-0.6	-0.7	3.0	2.1	-0.8	-1.1
Clemenstone SSSI	2.9	2.0	-0.9	-1.2	1.3	0.9	-0.4	-0.5
Craig y Parciau LNR	2.3	1.9	-0.4	-0.6	2.4	2.0	-0.4	-0.5
Crymlyn Bog NNR	3.2	2.2	-0.9	-1.2	1.9	1.5	-0.4	-0.5
Crymlyn Bog NNR	3.2	2.8	-0.5	-0.6	2.3	1.8	-0.5	-0.6
Crymlyn Bog RAMSAR	2.9	2.1	-0.9	-1.2	1.9	1.5	-0.4	-0.5
Crymlyn Bog RAMSAR	3.2	2.8	-0.5	-0.6	2.3	1.8	-0.5	-0.6
Crymlyn Bog SAC	3.0	2.1	-0.9	-1.2	1.9	1.5	-0.4	-0.5
Crymlyn Bog SAC	3.2	2.8	-0.5	-0.6	2.3	1.8	-0.5	-0.6
Crymlyn Bog SSSI	3.0	2.1	-0.9	-1.2	1.9	1.5	-0.4	-0.5
Crymlyn Bog SSSI	3.9	2.9	-1.1	-1.4	2.2	1.8	-0.4	-0.6
Crymlyn Burrows SSSI	4.0	2.7	-1.3	-1.8	2.6	2.1	-0.5	-0.7
Cwm Cyffog SSSI	2.9	2.3	-0.6	-0.8	2.0	1.8	-0.2	-0.3
Cwm Du Woods SSSI	5.2	4.3	-0.9	-1.2	2.0	1.7	-0.3	-0.4
CwmRisca Meadow SSSI	3.6	2.9	-0.6	-0.9	3.0	2.5	-0.5	-0.7
Dunraven Bay SAC	3.8	2.5	-1.3	-1.8	1.5	0.9	-0.6	-0.8
Eaglebush Valley	1.6	1.3	-0.3	-0.5	5.1	3.9	-1.3	-1.7
EaglesbushValley LNR	1.4	1.1	-0.3	-0.4	4.2	3.1	-1.1	-1.4
Eglwys Nunydd Res	7.7	4.9	-2.7	-3.7	6.8	3.1	-3.7	-4.9
Eglwys Nunydd SSSI	6.9	4.4	-2.5	-3.4	4.6	2.6	-2.0	-2.6
Ewenny and Pant SSSI	3.0	2.5	-0.5	-0.7	2.0	1.4	-0.6	-0.8
Fforest Goch Bog	0.7	0.6	-0.2	-0.2	1.3	1.0	-0.3	-0.4
Frog Pond Wood LNR	3.3	2.8	-0.6	-0.8	2.9	2.1	-0.9	-1.1

Table 5.64 Short-term (Daily) Process Contribution (µg/m³) to Ecological Receptors at Emission Limit Value for Base Case and Option 1								
Species	**NO_x**							
Air Quality Standard (µg/m³)	**75 for maximum daily**							
Meteorological Data	**Port Talbot**				**Rhoose**			
Receptor	**Base Case**	**Option 1**	**Change**	**% of AQS**	**Base Case**	**Option 1**	**Change**	**% of AQS**
Glais Moraine SSSI	2.7	2.1	-0.6	-0.8	1.2	1.1	-0.1	-0.2
Kenfig Poll & Dunes	3.9	2.7	-1.2	-1.6	3.4	2.2	-1.2	-1.7
Kenfig Poll & Dunes	3.9	2.7	-1.2	-1.6	3.4	2.2	-1.2	-1.7
Kenfig Pool LNR	4.1	2.8	-1.3	-1.7	2.7	1.8	-0.9	-1.3
Kenfig Pool NNR	3.9	2.6	-1.3	-1.7	2.8	1.8	-1.0	-1.3
Kenfig SSSI	4.0	2.7	-1.2	-1.6	2.7	1.7	-0.9	-1.2
Kenfig/Cynffig SAC	4.0	2.7	-1.2	-1.6	2.7	1.7	-0.9	-1.2
Kenfig/Cynffig SAC 1	5.0	3.1	-1.9	-2.6	2.0	1.1	-0.9	-1.1
Kenfig/Cynffig SAC 2	4.8	3.1	-1.7	-2.3	1.9	1.2	-0.7	-1.0
Kenfig/Cynffig SAC 3	3.9	2.7	-1.2	-1.6	3.4	2.2	-1.2	-1.7
Kenfig/Cynffig SSSI	3.9	2.7	-1.2	-1.6	3.4	2.2	-1.2	-1.7
Langland Bay SSSI	1.9	1.5	-0.4	-0.6	1.2	0.8	-0.4	-0.5
Lock's Common	2.8	2.0	-0.8	-1.1	2.1	1.4	-0.7	-0.9
Locks Common LNR	2.7	1.9	-0.8	-1.0	2.0	1.3	-0.7	-0.9
Margam Moors SSSI	7.3	4.1	-3.3	-4.4	3.6	2.2	-1.4	-1.8
Margam Moors SSSI	8.6	4.9	-3.6	-4.9	5.5	2.3	-3.3	-4.4
Merthyr Mawr NNR	4.6	3.1	-1.6	-2.1	1.9	1.2	-0.6	-0.9
Merthyr Mawr SSSI	4.8	3.1	-1.7	-2.3	1.9	1.2	-0.7	-1.0
Merthyr Mawr SSSI	5.0	3.1	-1.9	-2.6	2.0	1.1	-0.9	-1.1
Merthyr Mawr Warren	4.9	3.0	-1.9	-2.5	1.9	1.1	-0.8	-1.1
Mumbles Hill	2.1	1.7	-0.4	-0.6	1.4	0.9	-0.5	-0.6
Old Castle Down SSSI	3.2	2.3	-0.9	-1.2	1.5	1.0	-0.5	-0.6
Pant y Sais LNR	3.2	2.8	-0.5	-0.6	2.3	1.8	-0.5	-0.6
Pant y Sais SSSI	3.2	2.8	-0.5	-0.6	2.3	1.8	-0.5	-0.6
Penplas Grass SSSI	1.1	0.9	-0.2	-0.3	1.0	0.8	-0.2	-0.3
Penycastell SSSI	3.2	2.6	-0.6	-0.7	3.0	2.2	-0.8	-1.1
Southerndown SSSI	3.8	2.5	-1.3	-1.8	1.5	0.9	-0.6	-0.8
Tremains Wood LNR	1.7	1.4	-0.2	-0.3	2.0	1.7	-0.3	-0.4
Waun Cimla SSSI	2.4	1.9	-0.5	-0.7	2.5	2.0	-0.5	-0.7
Waun Fawr SSSI	2.6	2.1	-0.5	-0.6	2.9	2.2	-0.7	-0.9

Table 5.65 Long-term Process Contribution (µg/m³) to Ecological Receptors at Realistic Emission Rates for Option 1

Species	NO_x								SO_2							
Air Quality Standard (µg/m³)	30								10 or20							
Meteorological Data	Port Talbot				Rhoose				Port Talbot				Rhoose			
Receptor	Base Case	Option 1	Change	% of AQS	Base Case	Option 1	Change	% of AQS	Base Case	Option1	Change	% of AQS	Base Case	Option 1	Change	% of AQS
Bishops Wood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Blackmill Woodlands	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Blackmill Woodlands (2 parts)	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Blackpill, Swansea	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bracelet Bay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bryn-Bach, Cefn Cribwr	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Caeau Cefn Cribwr	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Caswell Bay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cefn Cribwr Grasslands SAC(Glaswelltiroedd)	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cefn Cribwr Grasslands SAC(Glaswelltiroedd)	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cefn Cribwr Grasslands SAC(Glaswelltiroedd)	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cefn Cribwr Grasslands SAC(Glaswelltiroedd)	0.1	0.2	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0
Clemenstone Meadows, Wick	0.1	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cors Crymlyn/Crymlyn Bog SSSI	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Craig y Parciau Woodland	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Crymlyn Bog	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Crymlyn Bog	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Crymlyn Bog	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Crymlyn Bog / Cors Crymlyn SAC	0.1	0.1	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Crymlyn Bog and Pant y Sais	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Crymlyn Bog and Pant y Sais NNR	0.1	0.1	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Crymlyn Bog RAMSAR	0.1	0.1	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Crymlyn Burrows	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cwm Cyffog	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cwm Du Woodlands	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cwm Risca Meadow	0.1	0.1	0.0	0.1	0.1	0.2	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Cynffig/Kenfig SSSI	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dunraven Bay	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Eaglesbush Valley	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Eaglesbush Valley LNR	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Eglwys Nunydd Reservoir	0.2	0.2	0.0	-0.1	0.1	0.1	0.0	-0.1	0.1	0.1	0.0	-0.2	0.0	0.0	0.0	-0.1
Eglwys Nunydd Reservoir SSSI	0.3	0.3	0.0	-0.2	0.2	0.1	-0.1	-0.2	0.1	0.1	0.0	-0.2	0.1	0.1	0.0	-0.2
Ewenny and Pant Quarries	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fforest Goch Bog SSSI	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Frog Pond Wood	0.1	0.2	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0
Glais Moraine	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Table 5.65 Long-term Process Contribution (µg/m³) to Ecological Receptors at Realistic Emission Rates for Option 1

Species	NO_x								SO_2							
Air Quality Standard (µg/m³)	30								10 or20							
Meteorological Data	Port Talbot				Rhoose				Port Talbot				Rhoose			
Receptor	Base Case	Option 1	Change	% of AQS	Base Case	Option 1	Change	% of AQS	Base Case	Option1	Change	% of AQS	Base Case	Option 1	Change	% of AQS
Kenfig	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Kenfig (2 parts)	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Kenfig / Cynffig SAC	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Kenfig / Cynffig SAC	0.1	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Kenfig / Cynffig SAC	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Kenfig Pool and Dunes	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Kenfig Pool and Dunes	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Kenfig Pool and Dunes LNR	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Kenfig Pool and Dunes NNR	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Langland Bay (Rotherslade)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Locks Common	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lock's Common LNR	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Margam Moors	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	-0.1	0.0	0.0	0.0	0.0
Margam Moors SSSI	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	-0.1	0.0	0.0	0.0	0.0
Merthyr Mawr	0.1	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Merthyr Mawr SSSI	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Merthyr Mawr Warren	0.1	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Merthyr Mawr Warren NNR	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Mumbles Hill LNR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Old Castle Down	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pant y Sais	0.1	0.1	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pant y Sais	0.1	0.1	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Penplas Grasslands	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Penycastell, Cefn Cribwr	0.1	0.2	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0
Southerndown Coast	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Tremains Wood	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Waun Cimla	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0
Waun Fawr, Cefn Cribwr	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Table 5.66 Short-term Process Contribution (µg/m³) to Ecological Receptors at Realistic Emission Rates for Base Case and Option 1								
Species	**NO_x**							
Air Quality Standard (µg/m³)	**75 for maximum daily**							
Meteorological Data	**Port Talbot**				**Rhoose**			
Receptor	**Base Case**	**Option 1**	**Change**	**% of AQS**	**Base Case**	**Option 1**	**Change**	**% of AQS**
Bishops Wood SSSI	0.6	0.9	0.4	0.5	0.6	0.7	0.1	0.1
Blackmill Woods SAC	1.0	1.7	0.7	0.9	1.1	1.3	0.2	0.3
Blackmill Woods SSSI	1.0	1.7	0.7	0.9	1.1	1.3	0.2	0.3
Blackpill SSSI	0.6	0.7	0.1	0.1	0.9	1.3	0.4	0.6
Bracelet Bay SSSI	1.0	1.3	0.4	0.5	0.7	0.7	0.0	0.0
Bryn-Bach SSSI	1.3	1.5	0.2	0.2	1.0	1.4	0.4	0.6
CaeauCefnCribwr SSSI	1.2	1.5	0.3	0.4	1.1	1.6	0.5	0.6
Caswell Bay SSSI	0.6	0.9	0.3	0.4	0.5	0.6	0.1	0.1
Cefn Cribwr Grasslands SAC(Glaswelltiroedd)	1.3	1.5	0.2	0.2	0.9	1.4	0.4	0.6
Cefn Cribwr Grasslands SAC(Glaswelltiroedd)	1.2	1.5	0.3	0.5	1.1	1.5	0.4	0.5
Cefn Cribwr Grasslands SAC(Glaswelltiroedd)	1.1	1.7	0.6	0.8	1.3	1.8	0.6	0.7
Cefn Cribwr Grasslands SAC(Glaswelltiroedd)	1.4	2.2	0.8	1.1	1.3	1.8	0.5	0.7
Clemenstone SSSI	1.4	1.7	0.3	0.4	0.6	0.7	0.1	0.2
Craig y Parciau LNR	1.0	1.5	0.5	0.6	1.0	1.6	0.7	0.9
Crymlyn Bog NNR	1.3	1.8	0.5	0.7	0.8	1.3	0.5	0.7
Crymlyn Bog NNR	1.2	2.4	1.2	1.6	0.9	1.6	0.7	0.9
Crymlyn Bog RAMSAR	1.2	1.7	0.4	0.6	0.8	1.3	0.5	0.7
Crymlyn Bog RAMSAR	1.2	2.4	1.2	1.6	0.9	1.6	0.7	0.9
Crymlyn Bog SAC	1.3	1.7	0.5	0.6	0.8	1.3	0.5	0.7
Crymlyn Bog SAC	1.2	2.4	1.2	1.6	0.9	1.6	0.7	0.9
Crymlyn Bog SSSI	1.3	1.7	0.5	0.6	0.8	1.3	0.5	0.7
Crymlyn Bog SSSI	1.5	2.3	0.8	1.1	0.9	1.5	0.6	0.8
Crymlyn Burrows SSSI	1.7	2.3	0.6	0.8	1.0	1.8	0.8	1.0
Cwm Cyffog SSSI	1.3	1.8	0.5	0.7	0.8	1.4	0.6	0.7
Cwm Du Woods SSSI	2.2	3.5	1.4	1.8	0.8	1.5	0.7	1.0
CwmRisca Meadow SSSI	2.3	2.3	0.0	0.0	1.3	2.0	0.7	1.0
Dunraven Bay SAC	1.7	2.0	0.4	0.5	0.7	0.8	0.2	0.2
Eaglebush Valley	0.7	1.0	0.4	0.5	2.8	1.8	-0.9	-1.3
EaglesbushValley LNR	0.6	0.9	0.3	0.4	2.3	1.7	-0.6	-0.8
Eglwys Nunydd Res	4.7	4.0	-0.7	-0.9	3.9	2.4	-1.5	-2.0
Eglwys Nunydd SSSI	3.2	3.5	0.3	0.4	2.4	2.0	-0.4	-0.6
Ewenny and Pant SSSI	1.4	2.1	0.7	1.0	0.9	1.1	0.3	0.3
Fforest Goch Bog	0.3	0.5	0.2	0.2	0.5	0.8	0.3	0.3
Frog Pond Wood LNR	1.4	2.2	0.8	1.1	1.3	1.8	0.5	0.7
Glais Moraine SSSI	1.1	1.8	0.7	0.9	0.5	1.0	0.5	0.6

Table 5.66 Short-term Process Contribution (µg/m³) to Ecological Receptors at Realistic Emission Rates for Base Case and Option 1								
Species	**NO_x**							
Air Quality Standard (µg/m³)	**75 for maximum daily**							
Meteorological Data	**Port Talbot**				**Rhoose**			
Receptor	**Base Case**	**Option 1**	**Change**	**% of AQS**	**Base Case**	**Option 1**	**Change**	**% of AQS**
Kenfig Poll & Dunes	1.8	2.2	0.4	0.5	1.8	1.7	-0.1	-0.1
Kenfig Poll & Dunes	1.8	2.2	0.4	0.5	1.8	1.7	-0.1	-0.1
Kenfig Pool LNR	1.9	2.3	0.4	0.5	1.2	1.4	0.2	0.3
Kenfig Pool NNR	1.9	2.2	0.3	0.4	1.2	1.4	0.2	0.3
Kenfig SSSI	1.9	2.2	0.4	0.5	1.2	1.4	0.2	0.3
Kenfig/Cynffig SAC	1.9	2.2	0.4	0.5	1.2	1.4	0.2	0.3
Kenfig/Cynffig SAC 1	2.2	2.5	0.4	0.5	0.8	1.1	0.2	0.3
Kenfig/Cynffig SAC 2	2.1	2.6	0.5	0.7	0.9	1.2	0.3	0.5
Kenfig/Cynffig SAC 3	1.8	2.2	0.4	0.5	1.8	1.7	-0.1	-0.1
Kenfig/Cynffig SSSI	1.8	2.2	0.4	0.5	1.8	1.7	-0.1	-0.1
Langland Bay SSSI	0.8	1.2	0.3	0.4	0.6	0.6	0.0	0.0
Lock's Common	1.3	1.6	0.3	0.3	0.9	1.1	0.2	0.2
Locks Common LNR	1.3	1.5	0.3	0.3	0.9	1.0	0.2	0.2
Margam Moors SSSI	3.7	3.6	-0.2	-0.2	2.1	1.8	-0.3	-0.4
Margam Moors SSSI	4.3	4.0	-0.3	-0.3	3.4	2.0	-1.4	-1.9
Merthyr Mawr NNR	2.1	2.7	0.6	0.8	0.9	1.2	0.4	0.5
Merthyr Mawr SSSI	2.1	2.6	0.5	0.7	0.9	1.2	0.3	0.5
Merthyr Mawr SSSI	2.2	2.5	0.4	0.5	0.8	1.1	0.2	0.3
Merthyr Mawr Warren	2.1	2.4	0.4	0.5	0.8	1.0	0.2	0.3
Mumbles Hill	0.9	1.3	0.4	0.6	0.7	0.7	0.0	0.1
Old Castle Down SSSI	1.5	2.0	0.5	0.6	0.7	0.9	0.2	0.2
Pant y Sais LNR	1.2	2.4	1.2	1.6	0.9	1.6	0.7	0.9
Pant y Sais SSSI	1.2	2.4	1.2	1.6	0.9	1.6	0.7	0.9
Penplas Grass SSSI	0.5	0.7	0.2	0.3	0.5	0.6	0.2	0.3
Penycastell SSSI	1.3	2.1	0.8	1.0	1.3	1.8	0.6	0.7
Southerndown SSSI	1.7	2.0	0.4	0.5	0.7	0.8	0.2	0.2
Tremains Wood LNR	0.8	1.1	0.3	0.5	0.9	1.3	0.5	0.6
Waun Cimla SSSI	1.1	1.5	0.4	0.5	1.1	1.6	0.5	0.6
Waun Fawr SSSI	1.1	1.7	0.6	0.8	1.3	1.8	0.6	0.7

Table 5.67 Long-term Process Contribution (µg/m³) to Ecological Receptors at ELV for Base Case and Phase 1 of Option 2

Species	NO_x								SO_2							
Air Quality Standard (µg/m³)	30								10 or 20							
Meteorological Data	Port Talbot				Rhoose				Port Talbot				Rhoose			
Receptor	Base Case	Option 2 Phase 1	Change	% of AQS	Base Case	Option 2	Change	% of AQS	Base Case	Option 21	Change	% of AQS	Base Case	Option 2	Change	% of AQS
Bishops Wood	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.3	0.3	0.0	0.0
Blackmill Woodlands	0.2	0.2	0.0	0.0	0.3	0.3	0.0	0.0	0.5	0.6	0.0	0.1	0.8	0.8	0.0	0.2
Blackmill Woodlands (2 parts)	0.2	0.2	0.0	0.0	0.3	0.3	0.0	0.0	0.5	0.6	0.0	0.1	0.8	0.8	0.0	0.2
Blackpill, Swansea	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.2	0.2	0.0	0.0	0.3	0.3	0.0	0.0
Bracelet Bay	0.1	0.1	0.0	0.0	0.2	0.2	0.0	0.0	0.2	0.2	0.0	0.0	0.4	0.4	0.0	0.0
Bryn-Bach, Cefn Cribwr	0.3	0.3	0.0	0.0	0.4	0.4	0.0	0.0	0.7	0.7	0.0	0.0	0.9	0.9	0.0	-0.1
Caeau Cefn Cribwr	0.3	0.3	0.0	0.0	0.4	0.4	0.0	0.0	0.8	0.8	0.0	0.1	0.9	0.9	0.0	-0.1
Caswell Bay	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.3	0.3	0.0	0.0
Cefn Cribwr Grasslands SAC(Glaswelltiroedd)	0.3	0.3	0.0	0.0	0.4	0.4	0.0	0.0	0.7	0.7	0.0	0.0	0.9	0.9	0.0	-0.1
Cefn Cribwr Grasslands SAC(Glaswelltiroedd)	0.3	0.3	0.0	0.0	0.4	0.4	0.0	0.0	0.8	0.8	0.0	0.1	0.9	0.9	0.0	-0.1
Cefn Cribwr Grasslands SAC(Glaswelltiroedd)	0.4	0.4	0.0	0.0	0.3	0.3	0.0	0.0	0.9	1.0	0.0	0.1	0.8	0.8	0.0	-0.1
Cefn Cribwr Grasslands SAC(Glaswelltiroedd)	0.4	0.4	0.0	0.0	0.3	0.3	0.0	0.0	1.1	1.1	0.0	0.1	0.8	0.8	0.0	0.0
Clemenstone Meadows, Wick	0.3	0.3	0.0	0.0	0.2	0.2	0.0	0.0	0.7	0.7	0.0	0.0	0.4	0.4	0.0	0.0
Cors Crymlyn/Crymlyn Bog SSSI	0.2	0.2	0.0	0.0	0.2	0.3	0.0	0.1	0.6	0.6	0.0	0.1	0.6	0.6	0.0	0.1
Craig y Parciau Woodland	0.3	0.3	0.0	0.0	0.2	0.2	0.0	0.0	0.7	0.7	0.0	0.1	0.6	0.6	0.0	0.0
Crymlyn Bog	0.2	0.2	0.0	0.0	0.2	0.2	0.0	0.0	0.5	0.5	0.0	0.1	0.5	0.5	0.0	0.1
Crymlyn Bog	0.2	0.2	0.0	0.0	0.2	0.2	0.0	0.0	0.5	0.5	0.0	0.1	0.5	0.5	0.0	0.1
Crymlyn Bog	0.2	0.2	0.0	0.0	0.2	0.2	0.0	0.0	0.5	0.5	0.0	0.1	0.5	0.5	0.0	0.1
Crymlyn Bog / Cors Crymlyn SAC	0.2	0.2	0.0	0.0	0.2	0.2	0.0	0.1	0.5	0.6	0.0	0.1	0.5	0.6	0.0	0.2
Crymlyn Bog and Pant y Sais	0.2	0.2	0.0	0.0	0.2	0.2	0.0	0.0	0.5	0.5	0.0	0.1	0.5	0.5	0.0	0.1
Crymlyn Bog and Pant y Sais NNR	0.2	0.2	0.0	0.0	0.2	0.2	0.0	0.1	0.5	0.6	0.0	0.1	0.5	0.6	0.0	0.2
Crymlyn Bog RAMSAR	0.2	0.2	0.0	0.0	0.2	0.2	0.0	0.1	0.5	0.6	0.0	0.1	0.5	0.6	0.0	0.2
Crymlyn Burrows	0.3	0.3	0.0	0.0	0.3	0.3	0.0	0.1	0.7	0.7	0.0	0.1	0.7	0.8	0.0	0.2
Cwm Cyffog	0.2	0.2	0.0	0.0	0.2	0.2	0.0	0.0	0.5	0.5	0.0	0.0	0.4	0.4	0.0	0.0
Cwm Du Woodlands	0.3	0.3	0.0	0.0	0.3	0.3	0.0	0.0	0.8	0.8	0.0	0.1	0.6	0.7	0.0	0.2
Cwm Risca Meadow	0.3	0.4	0.0	0.0	0.4	0.4	0.0	0.0	0.9	0.9	0.0	0.1	1.1	1.1	0.0	0.0
Cynffig/Kenfig SSSI	0.3	0.3	0.0	0.0	0.1	0.1	0.0	0.0	0.8	0.8	0.0	0.1	0.3	0.3	0.0	0.0
Dunraven Bay	0.3	0.3	0.0	0.0	0.1	0.1	0.0	0.0	0.8	0.8	0.0	0.0	0.3	0.3	0.0	0.0
Eaglesbush Valley	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.3	0.3	0.0	0.0	0.4	0.4	0.0	0.1
Eaglesbush Valley LNR	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.3	0.3	0.0	0.1	0.3	0.4	0.0	0.0
Eglwys Nunydd Reservoir	1.0	0.9	0.0	-0.1	0.5	0.4	0.0	-0.1	2.4	2.3	-0.1	-0.4	1.1	1.1	-0.1	-0.3
Eglwys Nunydd Reservoir SSSI	1.1	1.1	0.0	-0.1	0.7	0.6	-0.1	-0.2	2.9	2.7	-0.1	-0.7	1.7	1.5	-0.2	-0.8
Ewenny and Pant Quarries	0.3	0.3	0.0	0.0	0.2	0.2	0.0	0.0	0.8	0.8	0.0	0.1	0.5	0.5	0.0	0.0
Fforest Goch Bog SSSI	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.2	0.2	0.0	0.0
Frog Pond Wood	0.4	0.5	0.0	0.0	0.3	0.3	0.0	0.0	1.1	1.1	0.0	0.1	0.8	0.8	0.0	0.0
Glais Moraine	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.2	0.2	0.0	0.0	0.2	0.3	0.0	0.1
Kenfig	0.3	0.3	0.0	0.0	0.1	0.1	0.0	0.0	0.8	0.8	0.0	0.0	0.3	0.3	0.0	0.0

Table 5.67 Long-term Process Contribution (µg/m³) to Ecological Receptors at ELV for Base Case and Phase 1 of Option 2																
Species	**NO_x**								**SO_2**							
Air Quality Standard (µg/m³)	**30**								**10 or 20**							
Meteorological Data	**Port Talbot**				**Rhoose**				**Port Talbot**				**Rhoose**			
Receptor	**Base Case**	**Option 2 Phase 1**	**Change**	**% of AQS**	**Base Case**	**Option 2**	**Change**	**% of AQS**	**Base Case**	**Option 21**	**Change**	**% of AQS**	**Base Case**	**Option 2**	**Change**	**% of AQS**
Kenfig (2 parts)	0.3	0.3	0.0	0.0	0.1	0.1	0.0	0.0	0.8	0.8	0.0	0.0	0.3	0.3	0.0	0.0
Kenfig / Cynffig SAC	0.5	0.5	0.0	0.0	0.2	0.2	0.0	0.0	1.1	1.1	0.0	0.0	0.4	0.4	0.0	0.0
Kenfig / Cynffig SAC	0.4	0.4	0.0	0.0	0.2	0.2	0.0	0.0	1.1	1.1	0.0	0.0	0.4	0.4	0.0	0.0
Kenfig / Cynffig SAC	0.3	0.3	0.0	0.0	0.1	0.1	0.0	0.0	0.8	0.8	0.0	0.1	0.3	0.3	0.0	0.0
Kenfig Pool and Dunes	0.4	0.4	0.0	0.0	0.1	0.1	0.0	0.0	1.0	1.0	0.0	0.0	0.3	0.3	0.0	0.0
Kenfig Pool and Dunes	0.3	0.4	0.0	0.0	0.1	0.1	0.0	0.0	0.9	0.9	0.0	0.0	0.3	0.3	0.0	0.0
Kenfig Pool and Dunes LNR	0.3	0.3	0.0	0.0	0.1	0.1	0.0	0.0	0.8	0.8	0.0	0.1	0.3	0.3	0.0	0.0
Kenfig Pool and Dunes NNR	0.3	0.3	0.0	0.0	0.1	0.1	0.0	0.0	0.8	0.8	0.0	0.1	0.3	0.3	0.0	0.0
Langland Bay (Rotherslade)	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.2	0.2	0.0	0.0	0.3	0.3	0.0	0.0
Locks Common	0.3	0.3	0.0	0.0	0.1	0.1	0.0	0.0	0.7	0.7	0.0	0.0	0.2	0.2	0.0	0.0
Lock's Common LNR	0.3	0.3	0.0	0.0	0.1	0.1	0.0	0.0	0.7	0.7	0.0	0.0	0.2	0.2	0.0	0.0
Margam Moors	0.5	0.5	0.0	0.0	0.2	0.2	0.0	0.0	1.3	1.3	0.0	0.0	0.4	0.4	0.0	0.0
Margam Moors SSSI	0.5	0.5	0.0	0.0	0.2	0.2	0.0	0.0	1.3	1.3	0.0	0.0	0.5	0.5	0.0	0.0
Merthyr Mawr	0.4	0.4	0.0	0.0	0.2	0.2	0.0	0.0	1.1	1.1	0.0	0.0	0.4	0.4	0.0	0.0
Merthyr Mawr SSSI	0.5	0.5	0.0	0.0	0.2	0.2	0.0	0.0	1.1	1.1	0.0	0.0	0.4	0.4	0.0	0.0
Merthyr Mawr Warren	0.4	0.4	0.0	0.0	0.2	0.2	0.0	0.0	1.1	1.1	0.0	0.0	0.4	0.4	0.0	0.0
Merthyr Mawr Warren NNR	0.5	0.5	0.0	0.0	0.1	0.2	0.0	0.0	1.1	1.1	0.0	0.0	0.4	0.4	0.0	0.0
Mumbles Hill LNR	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.2	0.2	0.0	0.0	0.4	0.4	0.0	0.0
Old Castle Down	0.3	0.3	0.0	0.0	0.2	0.2	0.0	0.0	0.8	0.8	0.0	0.0	0.4	0.4	0.0	0.0
Pant y Sais	0.2	0.2	0.0	0.0	0.2	0.2	0.0	0.1	0.5	0.6	0.0	0.1	0.5	0.6	0.0	0.2
Pant y Sais	0.2	0.2	0.0	0.0	0.2	0.2	0.0	0.1	0.5	0.6	0.0	0.1	0.5	0.6	0.0	0.2
Penplas Grasslands	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.2	0.2	0.0	0.0	0.3	0.3	0.0	0.0
Penycastell, Cefn Cribwr	0.4	0.4	0.0	0.0	0.3	0.3	0.0	0.0	1.1	1.1	0.0	0.1	0.8	0.8	0.0	0.0
Southerndown Coast	0.3	0.3	0.0	0.0	0.1	0.1	0.0	0.0	0.8	0.8	0.0	0.0	0.3	0.3	0.0	0.0
Tremains Wood	0.2	0.2	0.0	0.0	0.3	0.3	0.0	0.0	0.6	0.6	0.0	0.1	0.7	0.7	0.0	0.0
Waun Cimla	0.4	0.4	0.0	0.0	0.4	0.4	0.0	0.0	0.9	0.9	0.0	0.1	0.9	0.9	0.0	-0.1
Waun Fawr, Cefn Cribwr	0.4	0.4	0.0	0.0	0.3	0.3	0.0	0.0	0.9	0.9	0.0	0.1	0.8	0.8	0.0	-0.1

Table 5.68: Long-term Process Contribution (µg/m³) to Ecological Receptors at Emission Limit Value for Base Case and Option 2 Phase 1								
Species	**NO_x**							
Air Quality Standard (µg/m³)	**75 for maximum daily**							
Meteorological Data	**Port Talbot**				**Rhoose**			
Receptor	**Base Case**	**Option 2**	**Change**	**% of AQS**	**Base Case**	**Option 2**	**Change**	**% of AQS**
Bishops Wood SSSI	1.4	1.5	0.1	0.1	1.3	1.3	0.0	0.0
Blackmill Woods SAC	2.3	2.2	0.0	0.0	2.2	2.2	-0.1	-0.1
Blackmill Woods SSSI	2.3	2.2	0.0	0.0	2.2	2.2	-0.1	-0.1
Blackpill SSSI	1.2	1.1	0.0	-0.1	2.0	2.1	0.1	0.1
Bracelet Bay SSSI	2.1	2.2	0.0	0.0	1.4	1.3	-0.1	-0.1
Bryn-Bach SSSI	2.7	2.6	0.0	0.0	2.0	2.1	0.1	0.1
CaeauCefnCribwr SSSI	2.5	2.5	0.0	0.0	2.2	2.4	0.1	0.2
Caswell Bay SSSI	1.5	1.5	0.0	0.1	1.1	1.1	0.0	0.0
Cefn Cribwr Grasslands SAC(Glaswelltiroedd)	2.6	2.6	0.0	0.0	2.0	2.1	0.1	0.1
Cefn Cribwr Grasslands SAC(Glaswelltiroedd)	2.7	2.7	0.0	0.0	2.3	2.3	0.0	0.0
Cefn Cribwr Grasslands SAC(Glaswelltiroedd)	2.6	2.7	0.1	0.2	2.9	3.0	0.1	0.1
Cefn Cribwr Grasslands SAC(Glaswelltiroedd)	3.2	3.4	0.2	0.2	3.0	3.1	0.1	0.1
Clemenstone SSSI	2.9	2.8	0.0	0.0	1.3	1.3	0.0	0.0
Craig y Parciau LNR	2.3	2.4	0.1	0.1	2.4	2.5	0.1	0.2
Crymlyn Bog NNR	3.2	3.3	0.1	0.1	1.9	2.1	0.2	0.2
Crymlyn Bog NNR	3.2	3.6	0.4	0.5	2.3	2.5	0.2	0.2
Crymlyn Bog RAMSAR	2.9	3.0	0.1	0.1	1.9	2.0	0.2	0.2
Crymlyn Bog RAMSAR	3.2	3.6	0.4	0.5	2.3	2.5	0.2	0.2
Crymlyn Bog SAC	3.0	3.1	0.1	0.1	1.9	2.0	0.2	0.2
Crymlyn Bog SAC	3.2	3.6	0.4	0.5	2.3	2.5	0.2	0.2
Crymlyn Bog SSSI	3.0	3.1	0.1	0.1	1.9	2.0	0.2	0.2
Crymlyn Bog SSSI	3.9	4.1	0.2	0.2	2.2	2.3	0.1	0.1
Crymlyn Burrows SSSI	4.0	4.1	0.1	0.1	2.6	2.8	0.3	0.4
Cwm Cyffog SSSI	2.9	2.9	0.1	0.1	2.0	2.1	0.1	0.2
Cwm Du Woods SSSI	5.2	5.5	0.3	0.4	2.0	2.1	0.1	0.1
CwmRisca Meadow SSSI	3.6	3.7	0.1	0.2	3.0	3.1	0.1	0.2
Dunraven Bay SAC	3.8	3.8	0.0	0.0	1.5	1.5	0.0	0.0
Eaglebush Valley	1.6	1.7	0.1	0.1	5.1	4.7	-0.4	-0.6
EaglesbushValley LNR	1.4	1.5	0.1	0.1	4.2	3.8	-0.4	-0.5
Eglwys Nunydd Res	7.7	7.7	0.0	0.0	6.8	5.7	-1.0	-1.4
Eglwys Nunydd SSSI	6.9	6.8	-0.1	-0.2	4.6	4.3	-0.2	-0.3
Ewenny and Pant SSSI	3.0	3.1	0.1	0.1	2.0	2.0	0.0	0.0
Fforest Goch Bog	0.7	0.7	0.0	0.0	1.3	1.3	0.0	0.1
Frog Pond Wood LNR	3.3	3.5	0.2	0.2	2.9	3.0	0.1	0.1

Table 5.68: Long-term Process Contribution (µg/m³) to Ecological Receptors at Emission Limit Value for Base Case and Option 2 Phase 1								
Species	**NO_x**							
Air Quality Standard (µg/m³)	**75 for maximum daily**							
Meteorological Data	**Port Talbot**				**Rhoose**			
Receptor	**Base Case**	**Option 2**	**Change**	**% of AQS**	**Base Case**	**Option 2**	**Change**	**% of AQS**
Glais Moraine SSSI	2.7	2.9	0.2	0.2	1.2	1.4	0.1	0.2
Kenfig Poll & Dunes	3.9	3.9	0.0	-0.1	3.4	3.2	-0.2	-0.3
Kenfig Poll & Dunes	3.9	3.9	0.0	-0.1	3.4	3.2	-0.2	-0.3
Kenfig Pool LNR	4.1	4.0	0.0	0.0	2.7	2.7	0.0	0.0
Kenfig Pool NNR	3.9	3.8	-0.1	-0.1	2.8	2.8	0.0	0.1
Kenfig SSSI	4.0	3.9	0.0	0.0	2.7	2.7	0.0	0.0
Kenfig/Cynffig SAC	4.0	3.9	0.0	0.0	2.7	2.7	0.0	0.0
Kenfig/Cynffig SAC 1	5.0	5.0	0.0	0.0	2.0	2.0	0.0	0.0
Kenfig/Cynffig SAC 2	4.8	4.8	0.0	0.0	1.9	2.0	0.0	0.0
Kenfig/Cynffig SAC 3	3.9	3.9	0.0	-0.1	3.4	3.2	-0.2	-0.3
Kenfig/Cynffig SSSI	3.9	3.9	0.0	-0.1	3.4	3.2	-0.2	-0.3
Langland Bay SSSI	1.9	1.9	0.0	0.0	1.2	1.1	-0.1	-0.1
Lock's Common	2.8	2.8	0.0	0.0	2.1	2.1	0.0	0.0
Locks Common LNR	2.7	2.7	0.0	0.0	2.0	2.0	0.0	0.0
Margam Moors SSSI	7.3	6.9	-0.5	-0.6	3.6	3.4	-0.2	-0.3
Margam Moors SSSI	8.6	8.1	-0.5	-0.6	5.5	4.7	-0.8	-1.1
Merthyr Mawr NNR	4.6	4.7	0.0	0.0	1.9	1.9	0.0	0.1
Merthyr Mawr SSSI	4.8	4.8	0.0	0.0	1.9	2.0	0.0	0.0
Merthyr Mawr SSSI	5.0	5.0	0.0	0.0	2.0	2.0	0.0	0.0
Merthyr Mawr Warren	4.9	4.9	0.0	0.0	1.9	1.9	0.0	0.0
Mumbles Hill	2.1	2.2	0.1	0.1	1.4	1.4	-0.1	-0.1
Old Castle Down SSSI	3.2	3.2	0.0	0.0	1.5	1.5	0.0	0.0
Pant y Sais LNR	3.2	3.6	0.4	0.5	2.3	2.5	0.2	0.2
Pant y Sais SSSI	3.2	3.6	0.4	0.5	2.3	2.5	0.2	0.2
Penplas Grass SSSI	1.1	1.2	0.0	0.0	1.0	1.0	0.0	0.0
Penycastell SSSI	3.2	3.4	0.2	0.2	3.0	3.1	0.1	0.1
Southerndown SSSI	3.8	3.8	0.0	0.0	1.5	1.5	0.0	0.0
Tremains Wood LNR	1.7	1.7	0.1	0.1	2.0	2.1	0.1	0.1
Waun Cimla SSSI	2.4	2.4	0.0	0.0	2.5	2.5	0.1	0.1
Waun Fawr SSSI	2.6	2.7	0.1	0.2	2.9	3.0	0.1	0.1

Table 5.69 Long-term Process Contribution (µg/m³) to Ecological Receptors at Realistic Emission Rates for Base Case and Phase 1 of Option 2

Species	NO_x								SO_2							
Air Quality Standard (µg/m³)	30								10 or 20							
Meteorological Data	Port Talbot				Rhoose				Port Talbot				Rhoose			
Receptor	Base Case	Option 2	Change	% of AQS	Base Case	Option 2	Change	% of AQS	Base Case	Option 2	Change	% of AQS	Base Case	Option 2	Change	% of AQS
Bishops Wood	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Blackmill Woodlands	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Blackmill Woodlands (2 parts)	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Blackpill, Swansea	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bracelet Bay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Bryn-Bach, Cefn Cribwr	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Caeau Cefn Cribwr	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Caswell Bay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cefn Cribwr Grasslands SAC(Glaswelltiroedd)	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cefn Cribwr Grasslands SAC(Glaswelltiroedd)	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cefn Cribwr Grasslands SAC(Glaswelltiroedd)	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cefn Cribwr Grasslands SAC(Glaswelltiroedd)	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Clemenstone Meadows, Wick	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cors Crymlyn/Crymlyn Bog SSSI	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Craig y Parciau Woodland	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Crymlyn Bog	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Crymlyn Bog	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Crymlyn Bog	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Crymlyn Bog / Cors Crymlyn SAC	0.1	0.1	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Crymlyn Bog and Pant y Sais	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Crymlyn Bog and Pant y Sais NNR	0.1	0.1	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Crymlyn Bog RAMSAR	0.1	0.1	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Crymlyn Burrows	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cwm Cyffog	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cwm Du Woodlands	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cwm Risca Meadow	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0
Cynffig/Kenfig SSSI	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Dunraven Bay	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Eaglesbush Valley	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Eaglesbush Valley LNR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Eglwys Nunydd Reservoir	0.2	0.3	0.0	0.1	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.1	0.0	0.1	0.0	0.0
Eglwys Nunydd Reservoir SSSI	0.3	0.3	0.0	0.0	0.2	0.2	0.0	0.0	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.0
Ewenny and Pant Quarries	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Fforest Goch Bog SSSI	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Frog Pond Wood	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Glais Moraine	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Kenfig	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Table 5.69 Long-term Process Contribution (µg/m³) to Ecological Receptors at Realistic Emission Rates for Base Case and Phase 1 of Option 2																
Species	**NO_x**								**SO_2**							
Air Quality Standard (µg/m³)	**30**								**10 or 20**							
Meteorological Data	**Port Talbot**				**Rhoose**				**Port Talbot**				**Rhoose**			
Receptor	**Base Case**	**Option 2**	**Change**	**% of AQS**	**Base Case**	**Option 2**	**Change**	**% of AQS**	**Base Case**	**Option 2**	**Change**	**% of AQS**	**Base Case**	**Option 2**	**Change**	**% of AQS**
Kenfig (2 parts)	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Kenfig / Cynffig SAC	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Kenfig / Cynffig SAC	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Kenfig / Cynffig SAC	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Kenfig Pool and Dunes	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Kenfig Pool and Dunes	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Kenfig Pool and Dunes LNR	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Kenfig Pool and Dunes NNR	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Langland Bay (Rotherslade)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Locks Common	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lock's Common LNR	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Margam Moors	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Margam Moors SSSI	0.1	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Merthyr Mawr	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Merthyr Mawr SSSI	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Merthyr Mawr Warren	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Merthyr Mawr Warren NNR	0.1	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Mumbles Hill LNR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Old Castle Down	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pant y Sais	0.1	0.1	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Pant y Sais	0.1	0.1	0.0	0.1	0.0	0.1	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Penplas Grasslands	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Penycastell, Cefn Cribwr	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Southerndown Coast	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Tremains Wood	0.1	0.1	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Waun Cimla	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Waun Fawr, Cefn Cribwr	0.1	0.1	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Table 5.70 Short-term Process Contribution (µg/m³) to Ecological Receptors at Realistic Emission Rates for Base Case and Option 2 Phase 1								
Species	**NO_x**							
Air Quality Standard (µg/m³)	**75 for daily maximum**							
Meteorological Data	**Port Talbot**				**Rhoose**			
Receptor	**Base Case**	**Option 2**	**Change**	**% of AQS**	**Base Case**	**Option 2**	**Change**	**% of AQS**
Bishops Wood SSSI	0.6	0.8	0.2	0.3	0.6	0.7	0.1	0.1
Blackmill Woods SAC	1.0	1.2	0.2	0.3	1.1	1.3	0.1	0.2
Blackmill Woods SSSI	1.0	1.2	0.2	0.3	1.1	1.3	0.1	0.2
Blackpill SSSI	0.6	0.6	0.0	0.0	0.9	1.1	0.3	0.4
Bracelet Bay SSSI	1.0	1.2	0.2	0.3	0.7	0.7	0.0	0.1
Bryn-Bach SSSI	1.3	1.4	0.1	0.1	1.0	1.1	0.2	0.2
CaeauCefnCribwr SSSI	1.2	1.4	0.2	0.3	1.1	1.3	0.2	0.2
Caswell Bay SSSI	0.6	0.8	0.2	0.2	0.5	0.6	0.1	0.1
Cefn Cribwr Grasslands SAC(Glaswelltiroedd)	1.3	1.4	0.1	0.1	0.9	1.1	0.2	0.2
Cefn Cribwr Grasslands SAC(Glaswelltiroedd)	1.2	1.4	0.2	0.3	1.1	1.2	0.1	0.1
Cefn Cribwr Grasslands SAC(Glaswelltiroedd)	1.1	1.4	0.3	0.5	1.3	1.6	0.4	0.5
Cefn Cribwr Grasslands SAC(Glaswelltiroedd)	1.4	1.8	0.5	0.6	1.3	1.7	0.4	0.5
Clemenstone SSSI	1.4	1.6	0.2	0.3	0.6	0.7	0.1	0.1
Craig y Parciau LNR	1.0	1.3	0.3	0.4	1.0	1.4	0.4	0.5
Crymlyn Bog NNR	1.3	1.7	0.4	0.5	0.8	1.1	0.3	0.4
Crymlyn Bog NNR	1.2	1.9	0.7	0.9	0.9	1.3	0.4	0.6
Crymlyn Bog RAMSAR	1.2	1.6	0.3	0.4	0.8	1.0	0.3	0.4
Crymlyn Bog RAMSAR	1.2	1.9	0.7	0.9	0.9	1.3	0.4	0.6
Crymlyn Bog SAC	1.3	1.6	0.3	0.4	0.8	1.1	0.3	0.4
Crymlyn Bog SAC	1.2	1.9	0.7	0.9	0.9	1.3	0.4	0.6
Crymlyn Bog SSSI	1.3	1.6	0.3	0.4	0.8	1.1	0.3	0.4
Crymlyn Bog SSSI	1.5	2.1	0.5	0.7	0.9	1.2	0.3	0.4
Crymlyn Burrows SSSI	1.7	2.1	0.4	0.5	1.0	1.4	0.4	0.6
Cwm Cyffog SSSI	1.3	1.6	0.3	0.4	0.8	1.1	0.3	0.4
Cwm Du Woods SSSI	2.2	3.0	0.8	1.1	0.8	1.1	0.3	0.4
CwmRisca Meadow SSSI	2.3	2.0	-0.3	-0.4	1.3	1.7	0.4	0.5
Dunraven Bay SAC	1.7	2.0	0.3	0.4	0.7	0.8	0.1	0.2
Eaglebush Valley	0.7	0.9	0.2	0.3	2.8	2.4	-0.4	-0.5
EaglesbushValley LNR	0.6	0.8	0.2	0.3	2.3	1.9	-0.3	-0.4
Eglwys Nunydd Res	4.7	4.1	-0.7	-0.9	3.9	3.3	-0.7	-0.9
Eglwys Nunydd SSSI	3.2	3.6	0.4	0.5	2.4	2.2	-0.2	-0.3
Ewenny and Pant SSSI	1.4	1.8	0.4	0.6	0.9	1.1	0.2	0.2
Fforest Goch Bog	0.3	0.4	0.1	0.1	0.5	0.7	0.2	0.2
Frog Pond Wood LNR	1.4	1.9	0.5	0.7	1.3	1.6	0.4	0.5
Glais Moraine SSSI	1.1	1.5	0.4	0.6	0.5	0.8	0.3	0.4

Table 5.70 Short-term Process Contribution (µg/m³) to Ecological Receptors at Realistic Emission Rates for Base Case and Option 2 Phase 1								
Species	**NO_x**							
Air Quality Standard (µg/m³)	**75 for daily maximum**							
Meteorological Data	**Port Talbot**				**Rhoose**			
Receptor	**Base Case**	**Option 2**	**Change**	**% of AQS**	**Base Case**	**Option 2**	**Change**	**% of AQS**
Kenfig Poll & Dunes	1.8	2.1	0.3	0.4	1.8	1.9	0.1	0.1
Kenfig Poll & Dunes	1.8	2.1	0.3	0.4	1.8	1.9	0.1	0.1
Kenfig Pool LNR	1.9	2.2	0.3	0.4	1.2	1.4	0.2	0.3
Kenfig Pool NNR	1.9	2.2	0.3	0.4	1.2	1.4	0.3	0.4
Kenfig SSSI	1.9	2.2	0.3	0.4	1.2	1.4	0.2	0.3
Kenfig/Cynffig SAC	1.9	2.2	0.3	0.4	1.2	1.4	0.2	0.3
Kenfig/Cynffig SAC 1	2.2	2.5	0.4	0.5	0.8	1.0	0.2	0.3
Kenfig/Cynffig SAC 2	2.1	2.6	0.4	0.6	0.9	1.1	0.2	0.3
Kenfig/Cynffig SAC 3	1.8	2.1	0.3	0.4	1.8	1.9	0.1	0.1
Kenfig/Cynffig SSSI	1.8	2.1	0.3	0.4	1.8	1.9	0.1	0.1
Langland Bay SSSI	0.8	1.0	0.2	0.3	0.6	0.6	0.0	0.1
Lock's Common	1.3	1.6	0.2	0.3	0.9	1.1	0.2	0.3
Locks Common LNR	1.3	1.5	0.2	0.3	0.9	1.0	0.2	0.2
Margam Moors SSSI	3.7	3.8	0.1	0.1	2.1	2.0	-0.1	-0.1
Margam Moors SSSI	4.3	4.5	0.2	0.3	3.4	3.0	-0.4	-0.5
Merthyr Mawr NNR	2.1	2.5	0.5	0.6	0.9	1.1	0.2	0.3
Merthyr Mawr SSSI	2.1	2.6	0.4	0.6	0.9	1.1	0.2	0.3
Merthyr Mawr SSSI	2.2	2.5	0.4	0.5	0.8	1.0	0.2	0.3
Merthyr Mawr Warren	2.1	2.5	0.4	0.5	0.8	1.0	0.2	0.3
Mumbles Hill	0.9	1.2	0.3	0.3	0.7	0.8	0.1	0.1
Old Castle Down SSSI	1.5	1.8	0.3	0.4	0.7	0.8	0.1	0.2
Pant y Sais LNR	1.2	1.9	0.7	0.9	0.9	1.3	0.4	0.6
Pant y Sais SSSI	1.2	1.9	0.7	0.9	0.9	1.3	0.4	0.6
Penplas Grass SSSI	0.5	0.6	0.1	0.2	0.5	0.6	0.1	0.2
Penycastell SSSI	1.3	1.8	0.5	0.6	1.3	1.7	0.4	0.5
Southerndown SSSI	1.7	2.0	0.3	0.4	0.7	0.8	0.1	0.2
Tremains Wood LNR	0.8	0.9	0.2	0.2	0.9	1.1	0.3	0.3
Waun Cimla SSSI	1.1	1.3	0.2	0.3	1.1	1.4	0.3	0.4
Waun Fawr SSSI	1.1	1.4	0.3	0.5	1.3	1.7	0.4	0.5

APPENDIX B: CALCULATIONS FOR PERCENTAGE OF CRITICAL LOADS USING ELVs FOR OPTION 1

Calculations for Percentage of Critical Loads Using ELVs for Option 1															
			Nitrogen				Nitrogen acidity				Sulphur acidity				
Name	Distance from new boilers (km)	Priority habitats/species	Empirical Critical Load Nitrogen (kg N/ha/yr)	Base Case from TATA only (kg N/ha/yr)*	Process Contribution (80m stack) (kg N/ha/yr)**	% of Critical load	Empirical Critical Load Nitrogen acidity (keq H^+/ha/yr - HNO_3)	Base Case from TATA only (keq H+/ha/yr - HNO_3)	Process Contribution (80m stack) (keq H+/ha/yr - HNO_3)	% of Critical load	Empirical Critical Load Sulphur acidity (keq H^+/ha/yr - H_2SO_4)	Base Case from TATA only (keq H+/ha/yr - H_2SO_4)	Process Contribution (80m stack (keq H+/ha/yr - H_2SO_4)	% of Critical load	Combined Acid Deposition using APIS CL Function Tool***
Crymlyn Bog SAC/Ramsar	10.0	Transition mires and quaking bogs	5-10	0.0578	-0.0164	-0.16	0.714	0.0041	-0.0012	-0.08	0.393	0.1178	-0.0421	-5.35	-2.8
		Calcareous fens with Cladium mariscus and species of the Caricion davallianae	13-20			-0.06	N/A			N/A	N/A			N/A	N/A
		Alluvial forests with Alnus glutinosa and Fraxinus excelsior	N/A			N/A	N/A			N/A	N/A			N/A	N/A
Kenfig/Cynffig SAC	7.3	Fixed dunes with herbaceous vegetation (grey dunes) (acid)	8-10	0.0151	-0.0060	-0.08	4.303	0.0011	-0.0004	-0.01	4.08	0.0307	-0.0147	-0.36	-0.5
		Humid dune slacks (calcareous)	15-20			-0.04	4.856			-0.01	4			-0.37	-0.4
		Fen orchid - Liparis loeselii	10-20			-0.06	4.856			-0.01	4			-0.37	-0.4
		Petalwort - Petalophyllum ralfsii	10-20			-0.06	N/A			N/A	N/A			N/A	N/A
		Dunes with Salix repens ssp. argentea (Salicion arenariae)	10-20			-0.06	4.303			-0.01	4.08			-0.36	-0.5
		Atlantic salt meadows (Glauco-Puccinellietalia maritimae)	20-30			-0.03	N/A			N/A	N/A			N/A	N/A
		Hard oligo-mesotrophic waters with benthic vegetation of Chara spp.	Unknown			Unknown	N/A			N/A	N/A			N/A	N/A
Cefn Cribwr SAC	11.3	Marsh fritillary butterfly	10-15	0.0472	-0.0151	-0.15	2.018	0.0034	-0.0011	-0.05	1.58	0.0968	-0.0363	-2.29	-2.0
		Molinia meadows on calcareous, peaty or clayey-silt-laden soils	15-25			-0.10	2.018			-0.05	1.58			-2.29	-2.0

* Base Case is the impact of emissions from the existing power plants and Blast Furnace Gas flaring at the Tata Steel site.

** Process Contribution is the difference between the impact when the proposed option is fully commissioned (and flaring reduced and older plant decommissioned as appropriate) and the base case. A negative Process Contribution indicates that the impact of the proposed option will be lower than for the current configuration.

*** It should be noted that the APIS CL Function Tool rounds the nitrogen and sulphur PCs to the nearest 2 decimal points when undertaking the calculation. Likewise it rounds the % of the CL Function to one decimal point.

APPENDIX C: CALCULATIONS FOR PERCENTAGE OF CRITICAL LOADS USING MEASURED EMISSIONS FOR OPTION 1

Calculations for Percentage of Critical Loads Using Measured Emissions for Option 1

			Nitrogen				Nitrogen acidity				Sulphur acidity				
Name	**Distance from new boilers (km)**	**Priority habitats/species**	**Empirical Critical Load Nitrogen (kg N/ha/yr)**	**Base Case from TATA only (kg N/ha/yr)**	**Process Contribution (80m stack) (kg N/ha/yr)**	**% of Critical load**	**Empirical Critical Load Nitrogen acidity (keq H^+/ha/yr - HNO_3)**	**Base Case from TATA only (keq H+/ha/yr - HNO_3)**	**Process Contribution (80m stack) (keq H+/ha/yr - HNO_3)**	**% of Critical load**	**Empirical Critical Load Sulphur acidity (keq H^+/ha/yr - H_2SO_4)**	**Base Case from TATA only (keq H+/ha/yr - H_2SO_4)**	**Process Contribution (80m stack (keq H+/ha/yr - H_2SO_4)**	**% of Critical load**	**Combined Acid Deposition using APIS CL Function Tool*** **
Crymlyn Bog SAC/Ramsar	10.0	Transition mires and quaking bogs	5-10			0.08	0.714			0.04	0.393			0.15	0
		Calcareous fens with Cladium mariscus and species of the Caricion davallianae	13-20	0.0071	0.004	0.03	N/A	0.00050	0.00030	N/A	N/A	0.00272	0.00059	N/A	N/A
		Alluvial forests with Alnus glutinosa and Fraxinus excelsior	N/A	0.0141	0.008	N/A	N/A	0.00101	0.00061	N/A	N/A	0.00544	0.00118	N/A	N/A
Kenfig/Cynffig SAC	7.3	Fixed dunes with herbaceous vegetation (grey dunes) (acid)	8-10	0.0035	0.001	0.01	4.303	0.00025	0.00005	0.00	4.08	0.00134	0.00001	0.00	0
		Humid dune slacks (calcareous)	15-20			0.01	4.856			0.001	4			0.00	0
		Fen orchid - Liparis loeselii	10-20			0.01	4.856			0.001	4			0.00	0
		Petalwort - Petalophyllum ralfsii	10-20			0.01	N/A			N/A	N/A			N/A	N/A
		Dunes with Salix repens ssp. argentea (Salicion arenariae)	10-20			0.01	4.303			0.00	4.08			0.00	0
		Atlantic salt meadows (Glauco-Puccinellietalia maritimae)	20-30			0.00	N/A			N/A	N/A			N/A	N/A
		Hard oligo-mesotrophic waters with benthic vegetation of Chara spp.	Unknown			Unknown	N/A			N/A	N/A			N/A	N/A
Cefn Cribwr SAC	11.3	Marsh fritillary butterfly	10-15	0.0156	0.001	0.01	2.018	0.00115	0.00009	0.00	1.58	0.00469	0.00007	0.00	0
		Molinia meadows on calcareous, peaty or clayey-silt-laden soils	15-25			0.01	2.018			0.00	1.58			0.00	0

* Base Case is the impact of emissions from the existing power plants and Blast Furnace Gas flaring at the Tata Steel site.

** Process Contribution is the difference between the impact when the proposed option is fully commissioned (and flaring reduced and older plant decommissioned as appropriate) and the base case. A negative Process Contribution indicates that the impact of the proposed option will be lower than for the current configuration.

*** It should be noted that the APIS CL Function Tool rounds the nitrogen and sulphur PCs to the nearest 2 decimal points when undertaking the calculation. Likewise it rounds the % of the CL Function to one decimal point.

APPENDIX D: CALCULATIONS FOR PERCENTAGE OF CRITICAL LOADS USING ELVs FOR PHASE 1 OPTION 2

Calculations for Percentage of Critical Loads Using ELVs for Option 2															
			Nitrogen				Nitrogen acidity				Sulphur acidity				
Name	**Distance from new boilers (km)**	**Priority habitats/species**	**Empirical Critical Load Nitrogen (kg N/ha/yr)**	**Base Case from TATA only (kg N/ha/yr)**	**Process Contribution (80m stack) (kg N/ha/yr)**	**% of Critical load**	**Empirical Critical Load Nitrogen acidity (keq H^+/ha/yr - HNO_3)**	**Base Case from TATA only (keq H+/ha/yr - HNO_3)**	**Process Contribution (80m stack) (keq H+/ha/yr - HNO_3)**	**% of Critical load**	**Empirical Critical Load Sulphur acidity (keq H^+/ha/yr - H_2SO_4)**	**Base Case from TATA only (keq H+/ha/yr - H_2SO_4)**	**Process Contribution (80m stack (keq H+/ha/yr - H_2SO_4)**	**% of Critical load**	**Combined Acid Deposition using APIS CL Function Tool *** **
Crymlyn Bog SAC/Ramsar	10.0	Transition mires and quaking bogs	5-10	0.0307	0.02349	0.47	0.714	0.0021928	0.00017	0.0235	0.393	0.03070	0.0037	0.9293	0
		Calcareous fens with Cladium mariscus and species of the Caricion davallianae	13-20			0.18	N/A			N/A	N/A			N/A	N/A
		Alluvial forests with Alnus glutinosa and Fraxinus excelsior	N/A	0.0614	0.005	N/A	N/A	0.0043856	0.00034	N/A	N/A	0.12517	0.0073	N/A	N/A
Kenfig/Cynffig SAC	7.3	Fixed dunes with herbaceous vegetation (grey dunes) (acid)	8-10	0.0151	0.000399	0.00499	4.303	0.0010799	0.00003	0.0007	4.08	0.03075	0.0002	0.0055	0
		Humid dune slacks (calcareous)	15-20			0.00266	4.856			0.0006	4			0.0057	0
		Fen orchid - Liparis loeselii	10-20			0.00399	4.856			0.0006	4			0.0057	0
		Petalwort - Petalophyllum ralfsii	10-20			0.00399	N/A			N/A	N/A			N/A	N/A
		Dunes with Salix repens ssp. argentea (Salicion arenariae)	10-20			0.00399	4.303			0.0007	4.08			0.0055	0
		Atlantic salt meadows (Glauco-Puccinellietalia maritimae)	20-30			0.00200	N/A			N/A	N/A			N/A	N/A
		Hard oligo-mesotrophic waters with benthic vegetation of Chara spp.	Unknown			Unknown	N/A			N/A	N/A			N/A	N/A
Cefn Cribwr SAC	11.3	Marsh fritillary butterfly	10-15	0.0458	-0.0001	0.00	2.018	0.0032735	-0.00001	-0.0004	1.58	0.09399	-0.0011	-0.0684	0
		Molinia meadows on calcareous, peaty or clayey-silt-laden soils	15-25			0.00	2.018			-0.0004	1.58			-0.0684	0

* Base Case is the impact of emissions from the existing power plants and Blast Furnace Gas flaring at the Tata Steel site.

** Process Contribution is the difference between the impact when the proposed option is fully commissioned (and flaring reduced and older plant decommissioned as appropriate) and the base case. A negative Process Contribution indicates that the impact of the proposed option will be lower than for the current configuration.

*** It should be noted that the APIS CL Function Tool rounds the nitrogen and sulphur PCs to the nearest 2 decimal points when undertaking the calculation. Likewise it rounds the % of the CL Function to one decimal point.

APPENDIX E: CALCULATIONS FOR PERCENTAGE OF CRITICAL LOADS USING MEASURED EMISSIONS FOR PHASE 1 OPTION 2

Calculations for Percentage of Critical Loads Using Measured Emissions for Option 2

			Nitrogen				Nitrogen acidity				Sulphur acidity				
Name	**Distance from new boilers (km)**	**Priority habitats/species**	**Empirical Critical Load Nitrogen (kg N/ha/yr)**	**Base Case from TATA only (kg N/ha/yr)**	**Process Contribution (80m stack) (kg N/ha/yr)**	**% of Critical load**	**Empirical Critical Load Nitrogen acidity (keq H^+/ha/yr - HNO_3)**	**Base Case from TATA only (keq H+/ha/yr - HNO_3)**	**Process Contribution (80m stack) (keq H+/ha/yr - HNO_3)**	**% of Critical load**	**Empirical Critical Load Sulphur acidity (keq H^+/ha/yr - H_2SO_4)**	**Base Case from TATA only (keq H+/ha/yr - H_2SO_4)**	**Process Contribution (80m stack (keq H+/ha/yr - H_2SO_4)**	**% of Critical load**	**Combined Acid Deposition using APIS CL Function Tool *** **
Crymlyn Bog SAC/Ramsar	10.0	Transition mires and quaking bogs	5-10	0.0071	0.0027	0.05	0.714	0.00050	0.00019	0.03	0.393	0.0027	0.0007	0.18	0
		Calcareous fens with Cladium mariscus and species of the Caricion davallianae	13-20			0.02	N/A			N/A	N/A			N/A	N/A
		Alluvial forests with Alnus glutinosa and Fraxinus excelsior	N/A	0.0141	0.0054	N/A	N/A	0.00101	0.00039	N/A	N/A	0.0054	0.0014	N/A	N/A
Kenfig/Cynffig SAC	7.3	Fixed dunes with herbaceous vegetation (grey dunes) (acid)	8-10	0.0038	0.0009	0.01	4.303	0.00027	0.00006	0.001	4.08	0.0015	0.0003	0.007	0
		Humid dune slacks (calcareous)	15-20			0.01	4.856			0.001	4			0.007	0
		Fen orchid - Liparis loeselii	10-20			0.01	4.856			0.001	4			0.007	0
		Petalwort - Petalophyllum ralfsii	10-20			0.01	N/A			N/A	N/A			N/A	N/A
		Dunes with Salix repens ssp. argentea (Salicion arenariae)	10-20			0.01	4.303			0.001	4.08			0.007	0
		Atlantic salt meadows (Glauco-Puccinellietalia maritimae)	20-30			0.005	N/A			N/A	N/A			N/A	N/A
		Hard oligo-mesotrophic waters with benthic vegetation of Chara spp.	Unknown			Unknown	N/A			N/A	N/A			N/A	N/A
Cefn Cribwr SAC	11.3	Marsh fritillary butterfly	10-15	0.0131	0.0014	0.01	2.018	0.00094	0.00010	0.01	1.58	0.0041	0.0005	0.03	0
		Molinia meadows on calcareous, peaty or clayey-silt-laden soils	15-25			0.01	2.018			0.01	1.58			0.03	0

* Base Case is the impact of emissions from the existing power plants and Blast Furnace Gas flaring at the Tata Steel site.

** Process Contribution is the difference between the impact when the proposed option is fully commissioned (and flaring reduced and older plant decommissioned as appropriate) and the base case. A negative Process Contribution indicates that the impact of the proposed option will be lower than for the current configuration.

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