Natural Resources Wales

Review of an Environmental Permit under the Environmental Permitting (England & Wales) Regulations 2010 (as amended)

Decision document recording our decision-making process following review of a permit

The Permit number is: EPR/ LP3131SW
The Operator is: Simec Uskmouth Power Limited
The Installation is: Uskmouth Power Plant
This Variation Notice number is: EPR/LP3131SW/V002

What this document is about

All Environmental permits which permit the operation of large combustion plant (LCP), as defined by Articles 28 and 29 of the Industrial Emissions Directive(IED), need to be varied to implement the special provisions for LCP given in the IED, by the 1 January 2016 (Article 82(3)). The IED makes special provisions for LCP under Chapter III, introducing new Emission Limit Values (ELVs) applicable to LCP, referred to in Article 30(2) and set out in Annex V.

The IED provides a period of transition towards the new ELVs via Article 32, the Transitional National Plan (TNP). It also makes provision for plant that wish to be exempted from compliance with the new ELVs in Article 33, the Limited Life Derogation (LLD). Other derogations include limited operating hour regimes for sites using 500 hr or 1500 hr derogations. There are also options for exemption from emission limits based on operating hours.

The operator has submitted responses to our notices requiring information, issued under regulation 60(1) of the Environmental Permitting Regulations (EPR), which has provided us with information on which compliance route they wish to follow for each LCP. The responses also include specific details relating to each LCP, necessary for accurate implementation the IED requirements. A copy of the regulation 60 notice and the operator's response is available on the public register.

We have reviewed the permit for this installation, including all variations since the last permit consolidation, and referred to the operator's responses to the regulation 60 notices requiring information. This is our decision document, which explains the reasoning for the consolidated variation notice that we have issued.

It explains how we have reviewed and considered the compliance routes and, where relevant, the emissions limits proposed by the Operator for each LCP on the installation. This review has been undertaken with reference to the:

- Chapter III and Annex V of the IED
- "IED BAT ESI Review Paper, 28 October 2014" produced by the Environment Agency (referred to as the "2014 ESI BAT review paper" in this document)
- "Electricity Supply Industry – IED compliance protocol for Utility Boilers and Gas Turbines", published by the Joint Environmental Programme.

It is our record of our decision-making process and shows how we have taken into account all relevant factors in reaching our position.

As well as implementing the Chapter III IED compliance of the installation, the consolidated variation notice takes into account and brings together in a single document all previous variations that relate to the original permit issue. It also modernises the entire permit to reflect the conditions contained in our current generic permit template.

Administrative changes:

Company name change from Uskmouth Power Company Limited to Simec Uskmouth Power Limited.

In schedule 7, the site boundary has been amended.

The introduction of new template conditions makes the Permit consistent with our current general approach and philosophy and with other permits issued to installations in this sector. Although the wording of some conditions has changed, while others have been deleted because of the new regulatory approach, it does not reduce the level of environmental protection achieved by the Permit in any way. In this document we therefore address only our determination of substantive issues relating to Chapter III review.

How this document is structured

Glossary

1. Our decision
2. How we reached our decision
3. The legal framework
4. Key Issues

GLOSSARY

Baseload	means: (i) as a mode of operation, operating for >4000hrs per annum; and (ii) as a load, the maximum load under ISO conditions that can be sustained continuously, i.e. maximum continuous rating
BAT	best available techniques
BOFA	boosted over fire air
BREF	best available techniques reference document
CCGT	combined cycle gas turbine
Derogation	as set out in Article 15(4) of the IED
ELV	emission limit value set out in either IED or LCPD
FGD	flue gas desulphurisation
GT	gas turbine
IED	Industrial Emissions Directive 2010/75/EC
LCP	large combustion plant – combustion plant subject to Chapter III of IED
LCPD	Large Combustion Plant Directive 2001/80/EC
LLD	Limited Life Derogation
MSUL/MSDL	Minimum start up load/minimum shut-down load
SNCR	selective non catalytic reduction
TNP	Transitional National Plan

1 Our decision

We have decided to issue the Variation Notice to the Operator. This will allow it to continue to operate the Installation, subject to the conditions in the Consolidated Variation Notice.

We consider that, in reaching that decision, we have taken into account all relevant considerations and legal requirements and that the varied permit will ensure that a high level of protection is provided for the environment and human health.

The Consolidated Variation Notice contains many conditions taken from our standard Environmental Permit template including the relevant annexes. We developed these conditions in consultation with industry, having regard to the legal requirements of the Environmental Permitting Regulations and other relevant legislation. This document does not therefore include an explanation for these standard conditions. Where they are included in the Notice, we have considered the techniques identified by the operator for the operation of their installation, and have accepted that the details are sufficient and satisfactory to make those standard conditions appropriate. This document does, however, provide an explanation of our use of “tailor-made” or installation-specific conditions, or where our Permit template provides two or more options.

2 How we reached our decision

2.1 Requesting information relating to the requirements of Chapter III of and Annex V to the IED

We issued a Notice under Regulation 60(1) of the Environmental Permitting (England and Wales) Regulations 2010 (a Regulation 60 Notice) on 14/11/14 requiring the Operator to provide information for each LCP they operate, including:

- The type of plant, size and configuration.
- The proposed compliance route.
- Minimum start up and shut down loads.
- For coal fired power stations entering into the TNP or LLD, confirmation of whether they will follow the sector approach in the 2014 BAT review paper for the setting of emission limits, or if not propose emission limits with a justification based on the principles outlined in the 2014 BAT review paper.
- The proposed emission limits and how they accord with the 2014 BAT review paper.

The Regulation 60 Notice response from the Operator was received on 31/03/15.

We considered that the response did not contain sufficient information for us to commence determination of the permit review. We therefore issued a further information request to the Operator on 20/05/15. A response to the request for further information (RFI) was provided by the Operator on 19/06/15. Additional information was provided by the Operator on 25/11/15 regarding an updated site plan and on 11/12/15 regarding SNCR abatement trials.

The Operator made no claim for commercial confidentiality. We have not received any information in relation to the Regulation 60 Notice response that appears to be confidential in relation to any party.

2.2 Alternative compliance routes

In their Regulation 60 Notice response, the operator initially requested multiple compliance routes be considered for their LCP because at that point they had not decided which route they wanted to apply. The routes requested were: TNP and LLD.

We were only able to issue the variation notice for single compliance routes per LCP (other than TNP which can apply by pollutant), and the operator confirmed which routes they wanted in the variation notice by email dated 01/12/15. The confirmed route was TNP. This is what is considered in this decision document.

3 The legal framework

The Consolidated Variation Notice will be issued under Regulations 18 and 20 of the EPR. The Environmental Permitting regime is a legal vehicle which delivers most of the relevant legal requirements for activities falling within its scope. In particular, the regulated facility is:

- an *installation* as described by the IED;
- subject to aspects of other relevant legislation which also have to be addressed.

We consider that, in issuing the Consolidated Variation Notice, it will ensure that the operation of the Installation complies with all relevant legal requirements and that a high level of protection will be delivered for the environment and human health.

We explain how we have addressed specific statutory requirements more fully in the rest of this document.

Meeting the requirements of the IED

The table below shows how each requirement of the IED has been addressed by the permit conditions.

IED Article Reference	IED requirement	Permit condition
30(6)	If there is an interruption in the supply of gas, an alternative fuel may be used and the permit emission limits deferred for a period of up to 10 days, except where there is an overriding need to maintain energy supplies. NRW shall be notified immediately.	Not applicable
32(4)	For installations that have applied to derogate from the IED Annex V emission limits by means of the transitional national plan, the monitoring and reporting requirements set by UK Government shall be complied with.	3.1.4 Schedule 3, Table S3.3
33(1)b	For installations that have applied to derogate from the IED Annex V emission limits by means of the Limited Life Derogation, the operator shall submit annually a record of the number of operating hours since 1 January 2016.	Not applicable
37	Provisions for malfunction and breakdown of abatement equipment including notifying NRW.	2.3.6 4.2.6 4.3.1d
38	Monitoring of air emissions in accordance with Ann V Pt 3	3.5, 3.6
40	Multi-fuel firing	Not applicable
41(a)	Determination of start-up and shut-down periods	2.3.5 Schedule 1 Table S1.4
Ann V Pt 1(1)	All emission limit values shall be calculated at a temperature of 273,15 K, a pressure of 101,3 kPa and after correction for the water vapour content of the waste gases and at a standardised O2 content of 6 % for solid fuels, 3 % for combustion plants, other than gas turbines and gas engines using liquid and gaseous fuels and 15 % for gas turbines and gas engines.	Schedule 6, Interpretation
Ann V Pt 1	Emission limit values	3.1.2 Schedule 3, Table S3.1
Ann V Pt 1	For plants operating less than 500 hours per year, record the used operating hours	Not applicable
Ann V Pt 1(6(1))	Definition of natural gas	Schedule 6, Interpretation
Ann V Pt 2	Emission limit values	Not applicable
Ann V Pt 3(1)	Continuous monitoring for >100MWth for specified substances	3.5, 3.6 Schedule 3, Table S3.1
Ann V Pt 3(2, 3, 5)	Monitoring derogations	3.5.1 Schedule 3, Table S3.1
Ann V Pt3(4)	Measurement of total mercury	3.5.1 Schedule 3, Table S3.1

IED Article Reference	IED requirement	Permit condition
Ann V Pt3(6)	NRW informed of significant changes in fuel type or in mode of operation so can check Pt3 (1-4) still apply	2.3.1 Schedule 1, Table S1.2
Ann V Pt3(7)	Monitoring requirements	3.5.1 Schedule 3, Table S3.1
Ann V Part 3(8,9,10)	Monitoring methods	3.5, 3.6
Ann V Pt 4	Monthly, daily, 95%ile hourly emission limit value compliance	3.5.1 Schedule 3, Table S3.1
Ann V Pt 7	Refinery multi-fuel firing SO_2 derogation	Not applicable

4. Key Issues

Unless the decision document specifies otherwise we have accepted the applicant's proposals.

Where relevant and appropriate, we have incorporated the techniques described by the Operator in their Regulation 60 Notice response as specific operating techniques required by the permit, through their inclusion in Table S1.2 of the Consolidated Variation Notice.

The variation notice uses an updated LCP number in accordance with the most recent DEFRA LCP reference numbers. The LCP references have changed as follows:

- **LCP 261** is changed to **LCP 312**

LCP 312

This LCP consists of 3 x 363 MWth utility boilers which vent via multiple flues within a single windshield at emission point A1. The station is coal fired and consists of three 121MW steam turbine driven alternators, each having a dedicated boiler and associated plant. Whilst the station is predominantly coal-fired, there is also capability to burn a small percentage of biomass and the boilers burn gas oil for the purpose of start-up and for flame stabilisation under low-load operation.

Compliance Route:
The operator has proposed to operate this LCP under the TNP compliance route.

For plant operating under the TNP, ELVs are set which have been derived for the period 2016 – 30 June 2020 (the duration of the TNP). At the end of this period it is expected that both Annex V and the revised LCP BREF will become applicable, in which case Annex V or the BAT conclusions must be achieved (whichever is stricter), or operators must have applied for a derogation from the BAT conclusion (if that is stricter: Annex V will apply in any event. The operator will apply, at the appropriate time, to vary the permit again to reflect this.

The operator's current proposals to achieve the stricter ELVs by 30 June 2020, are to install SNCR NOx abatement and potentially full biomass conversion. This information is not in any way binding upon the operator and may change.

Net Rated Thermal Input:
The Applicant has stated that LCP 312 has a maximum total electrical output of 363MW and a net thermal input of 1090.09MW.

The net rated thermal input was determined by the heat rate test, this test was conducted by RWE npower in 2008 & 2009. The method was RWE npower Engineering Guidance note ENG/GN/091 which is a derivative of the CEGB site

test code 2. These documents is also supported by reference to BS EN 60953-1,2,3 1996, BS752 and ASME PTC6. The boiler efficiency was measured by measuring the gaseous products at the east and west air heaters, the test are in general accordance with BS2885 and ASME PTC 4.1. The calculations were based on ASME PTC 4.

Minimum start up load and Minimum shut-down load:
The Operator has defined the “minimum start up load” and “minimum shut-down load” for the LCP in their response to question 6 of the Regulation 60, in terms of the output load (i.e. electricity generated) (MW); and this output load as a percentage of the rated output of the combustion plant (%).

The output load and percentage of the rated output is based on the rated electrical output from each unit.

The operator has justified the MSUL and MSDL in accordance with Appendix C of the Joint Environmental Programme’s Electricity Supply Industry – IED Compliance Protocol for Utility Boilers and Gas Turbines (which incorporates the requirements of implementing decision 2012/249/EU) with reference to the following considerations:

- Stack oxygen and emissions (verified on site 16/6/15)

We agree with all of these definitions and have set these thresholds in table S1.4 of the permit accordingly. Standard permit condition 2.3.5 has been set to define the period of start-up and shut down, referring to the thresholds in this table.

Emission limits:
The LCP will be subject to TNP compliance regime and the operator has confirmed that they will comply with the sector approach in the 2014 BAT review paper. Consequently we have set the emission limits for this LCP in line with the BAT paper in table S3.1, we have also set the standard annual emission target in table S3.3.

We have reviewed the new ELVs and concluded that they will not result in increased impacts as a result of emissions from the site.

Energy efficiency:
The installation does not have CHP. In line with the DEFRA Part A guidance, to report on the scope for further improvement, a condition has been included for the operator to carry out a 4-yearly efficiency review.

Reporting efficiency:
In order to ensure the efficiency of plant using fossil fuels or biomass is maximised and regularly recorded, condition 1.2.1(c), condition 4.2.2(b) and table S4.2 have been added to the permit.

Notifications:
Schedule 5, Part C, takes account of the malfunction and breakdown requirements. A breach of permit condition is NOT implicit in notification under Part C.

Monitoring & standards:
Standards for assessment of the monitoring location and for measurement of oxygen, water vapour, temperature and pressure have been added to the permit template for clarity.

A row has been included in table S3.1 which requires the operator to confirm compliance with BS EN 15259 in respect of monitoring location and stack gas velocity profile in the event there is a significant operational change (such as a change of fuel type) to the LCP.

Additional IED Chapter II requirements:
Condition 3.1.5 relating to protection of soil, groundwater and groundwater monitoring, has been added in compliance with IED requirements.
Conditions 4.3.1 and 4.3.2 relating to notifications have been amended in compliance with IED requirements.

Annex 1: Review and assessment of changes that are not part of the Chapter III IED derived permit review.

The permit has been updated to reflect a company name change from Uskmouth Power Company Limited to Simec Uskmouth Power Limited.

Air quality management plan:
It has been a requirement of the permits for coal-fired power stations to carry out ambient air quality monitoring and modelling to demonstrate that compliance with the National Air Quality Strategy (NAQS) is being achieved. In order to demonstrate this, the power stations set up air quality monitoring sites at locations where the maximum ground level concentrations were calculated to be.

Reporting has shown that compliance with all of the National Air Quality Standards has been met at the Nash site downwind of Uskmouth power station in each year since 2007. It is now considered enough data has been collected to demonstrate that, with the applicable controls on the installation in place in the environmental permit, ongoing monitoring and modelling is no longer necessary. The requirement to carry out air quality monitoring in the Nash area was therefore ceased from 1st January 2012 (CAR form RDR/111220/LP3131SW), and the related conditions in Section 3.6.1 (d) were removed from the permit.

Table S1.2 Operating techniques incorporates details of trials to be undertaken at the station using SNCR abatement of NOx emissions.

Table S1.3 Improvement programme requirements includes additional conditions requiring reporting of the trial outcomes:

IC11 – requires a review of the accident management plan for the trial period.

IC12 - requires submission of a trial report assessing the impact of operation using SNCR NOx abatement on key parameters likely to be affected. Permanent operation using SCNR will require a separate application for variation.

Table S3.4 has been amended to remove restrictions in the original permit excluding delivery of coal to the station by road. There are no planning restrictions excluding or limiting coal delivery by road and there is no basis to place such restriction under the environmental permitting regime.

In schedule 7, the site boundary has been amended to reflect the route of the water supply pipe from Nash STW.

Biodiversity, Heritage, Landscape and Nature Conservation:

The activities being carried out are within the relevant distance criteria of a site of heritage, landscape or nature conservation, and protected species or habitats. A full assessment of the activities and their potential to affect the sites, species and habitats has been carried out as part of the permitting process via an Appropriate Assessment which is available on the public register. We consider that the activities will not affect the features of the sites, species and habitats.

Formal consultation has been carried out with Natural England and relevant conservation and natural resource management teams in NRW. The consultation response (Annex 2) was taken into account in the permitting decision.

Annex 2: Consultation responses

Summary of responses to consultation and the way in which we have taken these into account in the determination process.

Response received from
Senior Environmental Impacts Advisor, Conservation Technical Team and Conservation officer in the Ely & Vale Natural Resources Management Team at NRW via email on 02/12/15 and 09/12/15.
Brief summary of issues raised
NRM team agrees with the conclusion of no adverse effect on site integrity in Wales.
Summary of actions taken or show how this has been covered
The improvement condition (IC6) to implement a plan to minimise SO_2 emissions and ensure that total SO_2 emissions from coal-fired power stations in England and Wales do not exceed 70 kt/y by 2020 will be retained in the permit.

Response received from
Principal Specialist in the Water and Pollution team at Natural England via email on 16/12/15.
Brief summary of issues raised
Natural England agrees with the conclusion of no adverse effect on site integrity for Exmoor Heaths SAC.
Summary of actions taken or show how this has been covered
The improvement condition (IC6) to implement a plan to minimise SO_2 emissions and ensure that total SO_2 emissions from coal-fired power stations in England and Wales do not exceed 70 kt/y by 2020 will be retained in the permit.

END