Environment Agency

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/LP3130KG
The Operator is: BWSC North Lincs Limited
The Installation is: Brigg Renewable Energy Plant
This Variation Notice number is: EPR/LP3130KG/V004

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 a response to our letter requiring information, which has provided us with details on which compliance route they wish to follow for their LCP. A variation was issued on 22/06/15 to introduce appropriate ELVs consistent with Annex V of the IED. This variation is issued as part of a national review and applies the conditions in compliance with Annex V Chapter III of the IED, which is required from 01/01/16. A copy of the letter 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 response to the letter 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 route 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.

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
BREF	best available techniques reference document
ELV	emission limit value set out in either IED or LCPD
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
MCR	Maximum Continuous Rating
MSUL/MSDL	Minimum start up load/minimum shut-down load
SCR	selective catalytic reduction
SNCR	selective non catalytic reduction

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

A Notice under Regulation 60(1) of the Environmental Permitting (England and Wales) Regulations 2010 (a Regulation 60 Notice) was not issued for this site, however, a letter was sent to the operator dated 04/11/14 requesting how compliance with the IED would be achieved. The operator responded by a letter dated 19/11/14 stating they would apply for a variation to include IED Annex V ELVs. This variation was issued on 22/6/15. Following a national review it was decided to issue a further variation to include clarification of the net thermal input of the plant, bespoke start-up and shutdown conditions and consolidate into a modern permit format.

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. The EA 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.	"Not applicable".
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 the EA.	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 S1.5
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	"Not applicable".
Ann V Pt 2	Emission limit values	3.1.2 Schedule 3, Table S3.1
AnnV Pt 3(1)	Continuous monitoring for >100MWth for specified substances	3.5, 3.6 Schedule 3, Table S3.1
AnnV Pt 3(2, 3, 5)	Monitoring derogations	"Not applicable".
AnnV Pt3(4)	Measurement of total mercury	"Not applicable".

IED Article Reference	IED requirement	Permit condition
AnnV Pt3(6)	EA 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
AnnV Pt3(7)	Monitoring requirements	3.5.1 Schedule 3, Table S3.1
AnnV Part 3(8,9,10)	Monitoring methods	3.5, 3.6
AnnV Pt 4	Monthly, daily, 95%ile hourly emission limit value compliance	3.5.1 Schedule 3, Table S3.1
AnnV Pt7	Refinery multi-fuel firing SO2 derogation	"Not applicable".

4. Key Issues

- Brigg renewable energy plant is a baseload biomass plant, which operates at high availability with limited periods of downtime. The operator was granted a permit before 7 January 2013, although the plant is still under construction. Therefore, the permit must include conditions ensuring emissions into air from this plant do not exceed emission limit values set out in Annex V of the IED.
- Part III of the IED applies to combustion plants with a total rated thermal input greater than 50MWth. The IED includes two sets of ELVs for pollutants arising from the combustion of biomass. Which set of ELVs apply is determined by whether the plant is considered to be an existing combustion plant or a new combustion plant, as detailed in Article 30 of the IED.
- Whilst the permit for Brigg renewable energy plant was granted prior to 7 January 2013, the plant was not operational before 7 January 2014. To qualify as existing plant, it needed to be put in operation before 7 January 2014. Therefore, we consider this as new plant and appropriate ELVs as described in Annex V Part II of IED apply.
- The operator applied to vary the original permit in order to comply with the requirements of IED. In particular to comply with short-term emission limit values for oxides of nitrogen. In granting the variation dated 22/06/15 we were satisfied that exceedance of the relevant air-quality standards or environmental assessment levels were unlikely. The operator in their application recognised that the new emission limit values required by IED could not been met by combustion control alone. The combustion controls, therefore, must be supplemented by selective non-catalytic reduction (SNCR). An established technology whereby ammonia is injected into the combustion gases so that oxides of nitrogen can be converted to nitrogen water.
- The operator was granted an IED permit on 22 June 2015. However, this permit omitted the start-up / shutdown definition as required by the Implementing Decision 2012/249/EU and details of how the rated thermal input was derived.
- The key assessment within the determination was:

(a) to ensure that appropriate measures had been used when determining the net rated thermal input of the plant. An improvement condition has been set for the operator to undertake testing of the boiler based upon EN 12952 – 15 using the losses method (or an equivalent method) to determine the net rated thermal input.
(b) The use of an appropriate methodology for the definition of start-up and shutdown in accordance with Implementing Decision 2012/249/EU. An improvement condition has been set for the operator to determine relevant start-up and shutdown conditions post commissioning of the plant.

- ELV's have been set in accordance with IED chapter III Annex V Part 2.
- An existing emission limit value and monitoring requirement for carbon monoxide (CO) was retained. These data were referenced to the daily mean of validated hourly averages and the 95th percentile of validated hourly averages within a calendar year.
- An existing emission limit value and monitoring requirement for Hydrogen Chloride (HCl) was retained. These data were referenced to the daily mean of validated hourly averages and the 95th percentile of validated hourly averages within a calendar year.
- A further requirement was included to monitor ammonia slippage from operation of the SNCR NOx abatement plant. However, no ELV was set. We have agreed that to understand the complexities of the operation of this abatement plant an existing improvement condition (IC 2) should be retained.
- A new improvement condition (IC4) has been included to review options for final ash disposal, including use as a soil conditioner or an agricultural fertiliser.

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

- LCP413

LCP413

This LCP consists of a biomass fired boiler plant which vents via a single flue to its own dedicated stack (windshield) at emission point A1, at a height of 62m. The units burn straw and untreated woodchip with start-up fired on gas oil.

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

Net Rated Thermal Input:
The operator has stated that the Net Thermal Input is 118MWth. The operator has been asked to justify this figure by means of an improvement condition (IC3) in Table S1.3.

Minimum start up load and Minimum shut-down load:

The operator has been asked to justify this figure by means of an improvement condition (IC5) in Table S1.3.

Emission limits:

The operator has, in their current permit, limits in line with annex V of the IED and the 2014 BAT review paper. Consequently we have incorporated them into table 3.1 of the permit.

LCP413

Release point A1:

Parameter mg/m3	Current limit mg/m^3	Annex V IED mg/m^3	Regulation 60 response	New Permit limit mg/m3
NOx Calendar monthly mean	200	200	Annex V IED	200
NOx Daily mean of validated hourly averages	220	220	Annex V IED	220
NOx 95% of validated hourly averages	400	400	Annex V IED	400
SO_2 Calendar monthly mean	100	100	Annex V IED	100
SO_2 Daily mean of validated hourly averages	110	110	Annex V IED	110
SO_2 95% of validated hourly averages	200	200	Annex V IED	200
CO Daily mean of validated hourly averages	375	-	Annex V IED	375
CO 95% of validated hourly averages	750	-	Annex V IED	750
Dust Calendar monthly mean	20	20	Annex V IED	20
Dust Daily mean of validated hourly averages	22	22	Annex V IED	22
Dust 95% of validated hourly averages	40	40	Annex V IED	40
HCl Daily mean of validated hourly averages	30	-	Annex V IED	30
HCl	60	-	Annex V IED	60

95% of validated hourly averages				
Ammonia	-	-	-	-

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. For a new plant in pre-operational commissioning the same requirement applies.

Resource efficiency metrics:
A more comprehensive suite of reporting metrics has been added to the permit template for ESI plant. Table S4.2 “Resource Efficiency Metrics” has been added requiring the reporting of various resource parameters, as this is an Electrical Supply Industry (ESI) power plant. This table is being used for all ESI plant.