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/NP3438LK
The Operator is:	Sembcorp Utilities (UK) Limited
The Installation is:	Wilton Power Station
This Variation Notice number is:	EPR/NP3438LK/V003

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 notice 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 response also includes 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 Non-ESI Review Paper, 28 October 2014" produced by the Environment Agency (referred to as the "2014 Non-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. It also provides a justification for the inclusion of any specific conditions in the permit that are in addition to those included in our generic permit template.

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 and has incorporated an administrative change to the registered office address, from SCU (UK) Headquarters to Sembcorp UK Headquarters.

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 and 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 and any changes to the operation of the installation.

How this document is structured

Glossary

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

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

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
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
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
MCR	Maximum Continuous Rating
MSUL/MSDL	Minimum start up load/minimum shut-down load
Part load operation	operation during a 24 hr period that includes loads between MSUL/MSDL and maximum continuous rating (MCR)
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 31/10/14 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.
- The proposed emission limits and how they accord with the 2014 BAT review paper.
- For gas turbines, proposed emission limits for each unit between the MSUL/MSDL and 70% load, with a justification.
- Any request to move from continuous to 6 monthly monitoring with a justification.

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. Suitable further information was provided by the Operator on 07/08/15.

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.

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
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.	Not applicable
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	2.3.4 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	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	3.5.1 Schedule 3, Table S3.1
AnnV Pt3(4)	Measurement of total mercury	Not applicable
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

IED Article Reference	IED requirement	Permit condition
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

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 reference has changed as follows:

- **LCP 74** is changed to **LCP 416.**

LCP 74
This LCP consists of one 192MWth CCGT which vents via a single windshield at emission point A3.

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

Net Rated Thermal Input:
The Applicant has stated that the Net Thermal Input is 127MWth however a review of the submitted GT1 performance report showed that overall, the CCGT (GT+ST) is 192MWth therefore this corrected figure has been used in the permit and decision document.

The submitted performance test report was dated 2004 and did not refer to any specified standards or test codes leading to the inclusion of improvement condition IC25 to carry out performance testing by 31/12/16.

Comment [EEB1]: Further to comment in variation notice if you keep the ICs and IP then you'll need to update this reference.

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 339 of the Regulation 60 Notice, in terms of the output load (i.e. electricity, heat or power generated) (MW); and this output load as a percentage of the rated output of the combustion plant (%)

We do not agree with these definitions leading to the inclusion of improvement condition IC26 ~~and IC27~~ to provide additional information before 31/12/16.

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Emission limits:

Comment [EEB2]: Could you add something about why they don't currently have limits/why we are now setting limits.

This variation introduces ELVs for GT1, for the first time. Emissions to air having been dominated in the past, by the coal-fired boilers.
The operator has proposed limits in line with annex V of the IED and the 2014 BAT review paper. Consequently we have accepted the proposed limits and incorporated them into table S3.1 of the permit.

Table 1: CCGT stack A3. NO_x ELVs mg/m^3

	95%ile of hourly averages	24 hourly averages	Monthly averages
Current	-	-	-
IED Annex V	100	55	50
Applied for	-	-	50
Granted	100	55	50

The operator proposed a monthly ELV in line with Annex V of the IED which has been accepted. There was no proposal for a daily or hourly ELV so following the methodology set out in our IED BAT paper, the above ELVs have been granted.

Table 2: CCGT stack A3. CO ELVs mg/m^3

	95%ile of hourly averages	24 hourly averages	Monthly averages
Current	-	-	-
IED Annex V	200	110	100
Applied for	-	-	100
Granted	200	110	100

The operator proposed a monthly ELV in line with Annex V of the IED which has been accepted. There was no proposal for a daily or hourly ELV so following the methodology set out in our IED BAT paper, the above elvs have been granted.

Sulphur dioxide emissions from natural gas firing of gas turbines and boilers will be reported as six monthly concentrations on the basis of the fuel sulphur content without continuous or periodic monitoring since only trace quantities of sulphur are present in UK natural gas. Dust emissions for natural gas fired boilers will, likewise, be reported on the basis of emission factors without continuous or periodic monitoring. For gas turbines we have not required any reporting as the dust emissions will always be reported as zero. This is because natural gas is an ash-free fuel and high efficiency combustion in the gas turbine does not generate additional particulate matter. The fuel gas is always filtered and, in the case of gas turbines, the inlet air is also filtered resulting in a lower dust concentration in the flue than in the surrounding air.

The IED Annex V ELVs for oxides of nitrogen and carbon monoxide apply to OCGTs, CCGTs and mechanical drive gas turbines when the load is >70%. This has been interpreted as 70% of the rated output load. The rated output load used here is the same as that used for calculating the percentage load when specifying the end of start-up and beginning of shut-down.

Because the operator is not proposing to export electricity below the 70% ISO base load figure – this being the MSUL/MSDL threshold, it is not appropriate to set any additional ELVs. However, in order to demonstrate that electricity is not being exported below the 70% threshold figure, the operator will be required to report the number of hours, if any, when electricity was exported below the 70% threshold figure. We may decide on the outcome of that data the need to set additional ELVs when appropriate.

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.

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.

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.

Additional IED Chapter II requirements:
Condition 3.1.4 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.

At the operator's request we have deleted emission limits relating to the decommissioned coal-fired boilers 5, 6 and 7 from emission points A1 and A2. The emission points remain within the permit to ensure they are included in any future surrender determination.

Permit condition 3.1.3 has been used to reflect the existing permit. A review of emissions to water will be undertaken during the combustion BReF review in 2016.

All references to the handling of coal and the treatment of coal pfa have been removed from the permit since these activities have now ceased. The installation boundary covering these areas remain within the permit to ensure they are included in a future surrender determination.

Comment [EEB3]: Does this include the coal storage DAA?

All references to the use of gas from SABIC as a fuel have been removed from the permit as it is no longer required.