

## **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/EP3333RW  
The Operator is: Uniper UK limited  
The Installation is: Taylor's Lane Power Station  
This Variation Notice number is: EPR/EP3333RW/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 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 response(s) to the regulation 60 notice 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.

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 and any changes to the operation of the installation.

We try to explain our decision as accurately, comprehensively and plainly as possible. Achieving all three objectives is not always easy, and we would welcome any feedback as to how we might improve our decision documents in future.

## **How this document is structured**

Glossary

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

## **GLOSSARY**

Baseload	>4000 operating hours per annum
BAT	best available techniques
BREF	best available techniques reference document
OCGT	Open cycle gas turbine
Derogation	as set out in Article 15(4) of the IED
Emergency use	<500 operating hours per annum
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
Peaking	500-1500 operating hours per annum
Part load operation	operation during a 24 hr period that includes loads between MSUL/MSDL and maximum continuous rating (MCR)

# 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 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 09/12/14 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,

The Regulation 60 Notice response from the Operator was received on 26/3/15. The response included a report detailing the justification to increase the operational hours (as stated in the permit from 100 hours) to IED defined emergency 500 hours. For clarity some additional information was sort and received.

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.

<b>IED Article Reference</b>	<b>IED requirement</b>	<b>Permit condition</b>
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.	Not applicable
38	Monitoring of air emissions in accordance with Annex 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
Annex 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.	Not applicable
Annex V Pt 1	Emission limit values	Not applicable
Annex V Pt 1	For plants operating less than 500 hours per year, record the used operating hours	2.3.6, 4.2.2d
Annex V Pt 1(6(1))	Definition of natural gas	Schedule 6, Interpretation
Annex V Pt 2	Emission limit values	Not applicable
Annex V Pt 3(1)	Continuous monitoring for >100MWth for specified substances	Not applicable
Annex V Pt 3(2, 3, 5)	Monitoring derogations	3.5.1 Schedule 3, Table S3.1



Annex V Pt3(4)	Measurement of total mercury	Not applicable
Annex V Pt3(6)	EA informed of significant changes in fuel type or in mode of operation so can check Pt3 (1-4) still apply	Not applicable
Annex V Pt3(7)	Monitoring requirements	3.5.1 Schedule 3, Table S3.1
Annex V Part 3(8,9,10)	Monitoring methods	3.5, 3.6
Annex V Pt 4	Monthly, daily, 95%ile hourly emission limit value compliance	Not applicable
Annex V 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 updated LCP numbers in accordance with the most recent DEFRA LCP references. It was identified that the present plant actually comprised two LCPs not one and for this reason the LCP references have changed as follows:

LCP170 is changed to LCP390 and LCP391. This is because the plant, though it has remained unchanged since it was originally permitted, has a separate emission stack for each gas turbine, each thus constitutes a separate LCP in its own right needing separate LCP numbers.

### **LCP390**

This LCP consists of 280MWth OCGT (a GT pair delivering about 68MWelec at 25% efficiency) which vent via flues within a single windshield at emission point A1. The units burn gas oil as a fuel. The GT pair can also fire in half-load or partial load modes.

The operator has proposed to operate this LCP under the <500 hrs operation compliance route.

### **LCP391**

This LCP consists of 280MWth OCGT (a GT pair delivering about 64MWelec at 25% efficiency) which vent via flues within a single windshield at emission point A2. The units burn gas oil as a fuel. The GT pair can also fire in half-load or partial load modes.

The operator has proposed to operate this LCP under the <500 hrs operation compliance route.

There is no steam or cooling circuit for this OCGT.

### **Net Rated Thermal Input**

The Applicant has stated that the net thermal input is 280MWth for each LCP. They have not been able to provide formal evidence of this figure through performance testing. However there is significantly difficulty in measuring this due to low hours of operation since 1979. The 280MWth figure has been verified informally on site. The operator has been set an improvement

condition (IC5) to carry out performance tests by 31/12/16 to determine the net rated thermal input (subject to availability of hours).

#### Minimum start up load and Minimum shut-down load

The Operator has not defined the “minimum start up load” and “minimum shut-down load” for the LCP in terms of the output load. The plant operates on very fast start-up and reaches full load in under 5 minutes. It was accepted that the signal definition and criteria for the beginning of operating hours for the start-up was appropriate for MSUL/MSDL. This is a single unambiguous criteria for any load including MSUL/MSDL (ideally three would be preferred). This requirement for MSUL is not vital for emergency <500 hour plant as ELVs don't apply regardless of load.

#### Emission limits:

The operator does not need to propose limits in line with Annex V of the IED and the 2014 BAT review paper for emergency <500 hour plant. This is because the few hours of operation are too low to allow planned periodic monitoring.

The site was previously limited to 100 operating hours so as to avoid the need not to install continuous emission monitoring equipment (the site did not previously have ELVs but the impacts of its emissions to air were initially assessed assuming 100 hours maximum). The operator has provided an additional report and ADMS model justifying an increase in the potential operational hours to the IED 500 hours 'emergency plant' option maximum. The site historically has operated for few hours per year only (around 10-20).

We have assessed the Air quality modelling report submitted by the operator and are satisfied that the increase to 500 hours would not affect air quality.

The site was also required to provide a BAT justification based on the DECC report on “BAT for the Balancing Market” that the present plant was acceptable for the <500 emergency plant role. It is important to note that historically Taylor's Lane has only operated a few hours per year within the emergency role. Also though 500 hours is an increase for a plant with only 23.7% efficiency, the potential gross fuel usage is not excessive in going from 100 to 500 hours.

The “BAT for the Balancing Market had not been issued in time to allow the operator to provide their own BAT justification report. 500 hours was included in the permit by default but will come under the next BRef BAT review or through condition 1.2.1.

The original permit required monitoring on a monthly basis – this has been unrealistic since original permitting (inadequate sample location and opportunities to do the sampling). This has been replaced with reporting of emissions based on factors.

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.

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.

There is a requirement to continue to report for 2015 in the transition from LCPD to IED LCP Reporting process annual emissions of dust, sulphur dioxide and oxides of nitrogen including energy usage for the year 01/01/2015 to 31/12/2015. For this reason an Improvement condition has been added to table S1.3

Additional IED Chapter II requirements:

Condition 3.1.3 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.