

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/FP3034XD
The Operator is:	British Salt Limited
The Installation is:	British Salt Combustion Plant
This Variation Notice number is:	EPR/FP3034XD/V002
The date of issue is:	01/01/2016

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 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.

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 of 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 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:

- 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.

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.

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

BAT	best available techniques
BREF	best available techniques reference document
Derogation	As set out in Article 15(4) of the IED
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
MSUL/MSDL	Minimum start up load/minimum shut-down load
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 several conditions that concern the operation of the non-LCP part of the installation (ie the small 17.5 MW John Thompson boiler, not part of the LCP) 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

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(s),
- Minimum start up and shut down loads,
- For all LCPs, the proposed emission limits and how they accord with the 2014 BAT review paper,
- For gas fired plant, whether they wish to apply for derogation from monitoring when on standby fuels,

The Regulation 60 Notice response from the Operator was received on 24/03/15.

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 27/05/15.

We considered it was in the correct form and contained sufficient information for us to begin our determination of the permit review.

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.	2.3.5
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.	3.1.3 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 required
37	Provisions for malfunction and breakdown of abatement equipment including notifying the EA.	Not required
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	2.3.6 Schedule 1 Table S1.4

IED Article Reference	IED requirement	Permit condition
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 O ₂ 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 >100 MWth for specified substances	Not applicable
Ann V Pt 3(2, 3, 5)	Monitoring derogations	Not applicable
Ann V Pt 3(4)	Measurement of total mercury	Not applicable
Ann V Pt 3(6)	EA informed of significant changes in fuel type or in mode of operation so can check Pt 3 (1-4) still apply	2.3.1 Schedule 1, Table S1.2
Ann V Pt 3(7)	Monitoring requirements	Not applicable
Ann V Pt 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 reference has changed as follows:

- **LCP104** is changed to **LCP32**

This LCP consists of 3 x 27.5 MWth boilers which vent via multiple flues within a single windshield at emission points A1, A2 and A3. The units burn natural gas and gasoil as a standby fuel. The boilers were converted to gas several years ago having been designed to burn Heavy Fuel Oil. The gas burners are low NO_x burners.

The stack of the 14 MWth Boiler 4 is located some distance from the other three and cannot reasonably be considered part of the LCP. Although the conditions required by IED do not apply directly to Boiler 4 the provisions of BAT still do.

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.

Net Rated Thermal Input

The Applicant has stated that the Net Thermal Input for the LCP is 82.5 MWth. This is the combined rating for three identical boilers of 27.5 MWth each. They have justified these values on the basis of performance testing completed on 27-02-08 to satisfy a permit improvement condition (imposed on the Operator before it was transferred to the new owner of the plant) at that time and accepted by Environment Agency 30-04-08. The record (held by the Agency) describes a performance test carried out on boiler 3 (one of three identical boilers) to demonstrate the aggregated net thermal input of all three boilers. The test was carried out by a specialist contractor and although the method is described, it does not indicate that it was carried out to a recognised standard. As we were satisfied with the test in 2008 we are satisfied that it was carried out in an adequate manner.

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

They have also defined three discrete processes or thresholds for operational parameters that suit the technical characteristics of the plant, which can be met at the end of start-up or start of shut-down.

We agree with all of these definitions and have set these thresholds in the Permit in table S1.4 accordingly.

Emission limits

For ELV Compliance Plant

For those substances not requested under the TNP route, we have incorporated ELVs into table 2.2.2 of the permit as follows:

Parameter	Existing mg/m ³	Reference Period	Annex V mg/m ³	New Permit limit mg/m ³
CO	None	Daily mean of validated hourly averages	110	110

- For CO emission limits, the ELV stated in the existing permit was 100 mg/m³ as a calendar monthly mean. We have assessed this as equivalent to 110 mg/m³ daily mean of validated hourly averages and this is the standard IED ELV for periodic sampling incorporated into the permit.
- NOx is considered for TNP compliance (below).
- The operator proposed limits for SO₂ and dust which have been incorporated into the permit as they are also the limits required by IED.
- SO₂ and dust limits do not apply for emission point A4 (Boiler 4) as it does not form part of the LCP and in isolation the boiler is very small (14 MWth). Neither are there any reporting requirements for SO₂ and dust from A4. As a consequence there also is no requirement to measure stack gas volume flow out of A4

For TNP Plant

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 has proposed the TNP compliance route and accordingly has proposed limits that are unchanged from the previously permitted levels; ie

$$\text{NOx} = 140 \text{ mg/m}^3$$

Under TNP there is no NOx limit and we have accepted the operator's proposal for the time constraints of the TNP.

Energy efficiency

The installation uses fossil fuels (natural gas) but does not have CHP. There is a steam driven electrical generator associated with this boiler plant and its output contributes to the energy efficiency of the LCP.

Standby fuels

The operator normally uses natural gas fuel and has indicated he uses gasoil as a standby fuel. Since it is BAT to use the cleaner gas fuel, gasoil use is limited to 10 days per year (condition 2.3.5). The ELVs do not apply whilst standby fuel is in use (Table S3.1). The operator is required to record the number of operating hours gasoil is in use.

The operator requires the use of oil to test the boilers periodically to ensure they operate in times of need. It is not anticipated that this use would be more than a few hours per year for each boiler.

As the operator has been using this mode of standby fuel for several years, no further assessment of environmental impact during the use of gasoil was required.

Reporting efficiency

Condition 1.2.1(c) requires maximisation of the efficiency of generating plant and regular recording.

Notifications

Schedule 5, Part C, takes account of abatement equipment malfunction and breakdown requirements. As there is no abatement plant for this LCP, Part C is not required.

Monitoring & standards

Monitoring of NO_x and CO are carried out once at least every 6 months at each of the three emission point flues. Although the limits are imposed for each flue the IED limit is for the three flues in combination. As long as all three measurements are within the limit the LCP is in compliance. If one or two of the flues show a breach of the ELV the operator shall have to demonstrate what the true LCP emission value is at that time. They will have to do this to the satisfaction of the Agency by means such as pro-rating flow rates and pollutant concentrations. We are not specifying how the operator makes this demonstration.

Standards for assessment of the monitoring location and for measurement of oxygen, water vapour, temperature, pressure and stack gas volume flow have been added to the permit template for clarity. Currently there is no facility to measure stack gas volume flow in A1, A2 or A3; an improvement condition, IC2, has been added to require the operator to install this facility within 6 months of the issue of the permit.

Direct monitoring of sulphur dioxide and dust emissions have not been included in the monitoring regime. However:

- 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 from natural gas fired boilers will likewise be reported on the basis of emission factors without continuous or periodic monitoring. Natural gas is an ash-free fuel and high efficiency combustion does not generate additional particulate matter. Dust emission factors are published periodically in accordance with the reference in condition 2.3.2 of the permit and the operator is required to comply with this. Natural gas is an ash-free fuel and high efficiency combustion does not generate additional dust.

A row has been included in the ELV 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

As this is a non-ESI plant, additional reporting metrics have not been included in the permit.

Improvement conditions

Two new ICs are added. The first is a standard condition requiring the reporting of emissions of 2015. The second recognises that the operator does not yet have the equipment to carry out stack gas flow monitoring; this condition allows him 6 months to comply.

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.