

Version 5.1 Protocol for IED Annex V 1500 Limited Hours Derogation July 2015

INTRODUCTION

This paper describes a protocol for the application of the limited hours derogation (1500 hours per annum) in Part 1(2) of Annex V of the Industrial Emissions Directive (IED). This protocol applies in England and Wales.

1.0 WHAT IS THE 1500 LIMITED HOURS DEROGATION?

Part 1(2) of Annex V of the Industrial Emissions Directive (IED) states that combustion plants using solid or liquid fuels which were granted a permit before 27 November 2002 and which do not operate more than 1500 operating hours per year as a rolling average over a period of five years, may be subject to alternative emission limit values depending upon specific criteria. These values are set out in Annex V subject to the total rated thermal input of the plant. There is also a 500 hours derogation for gas fired plants which is explained in section 7.0 of this paper.

The IED states that the 1500 hours derogation, known as the Limited Hours Derogation (LHD), may be applied at a boiler or unit level rather than a stack level¹. If applied to part of a combustion plant the applicable ELV is based on the total rated thermal input capacity of the entire plant and an operator is required to ensure that emissions will be monitored separately at each flue.

2.0 WHAT ARE THE RELEVANT EMISSION LIMIT VALUES?

Annex V sets out emission limit values (ELVs) for any existing plant using solid or liquid fuels that do not operate for more than 1500 hours per year as a rolling average over a period of five years:

Emission Limit Values	Existing Plant (Part 1)*		
	SO ₂	NO _x	Dust
Solid Fuels	800		20
Solid or liquid fuels (not exceeding 500MW)		450	20
Solid fuels (greater than 500MW)		450 ⁺	20
Liquid Fuels (not exceeding 300MW)	850		20
Liquid Fuels (greater than 300MW)	400		20

* this limited load derogation can be applied to an individual unit within a combustion plant of several units provided the individual flue can be monitored separately. It is only available to plants permitted before 27 Nov 2002 and operational before 27 Nov 2003 (SO₂).

⁺ applies to plants granted a permit before 1 July 1987 (NO_x).

¹ at the level of one or more separate flues within a common stack

Version 5.1 Protocol for IED Annex V 1500 Limited Hours Derogation July 2015

For gas turbines, the NO_x ELV specified in Annex V is 150 mg/m³ when firing natural gas and 200 mg/m³ when firing other gases or liquid fuels.

In addition, UK regulators have discretion to apply BAT based ELVs which might be more stringent than the ELVs set out in the IED. In order to minimise SO₂ emissions, for example, the EA have stated that they wish to set BAT ELVs which require the operation of existing post combustion abatement equipment such as FGD. Section 5.0 provides more information about BAT based ELVs.

3.0 WHEN CAN A PLANT ENTER THE LIMITED HOURS DEROGATION?

Operators can enter plant/units into LHD from 2016 under different circumstances. An operator can choose to enter this derogation from 2016 for one or more units. Alternatively an operator can enter plant/units into the LHD at the end of the period of the Transitional National Plan (TNP) (30 June 2020) or when they exit the TNP (if earlier). Defra confirmed in an annex to a letter dated 28 December 2011 that:

“A plant can take the Annex V 1,500 hours derogation upon completion of the TNP on 30 June 2020: it will be for the regulator to consider how the last sub-paragraph of paragraph 2 of Part 1 of Directive Annex V applies”

This letter also explained that an operator could enter the LHD before the end of the TNP period (30 June 2020):

“A plant can leave the TNP at any time between 1 January 2016 and 30 June 2020 to be subject to Annex V 1500 hour derogations: it will be for the regulator to consider how the last sub-paragraph of paragraph 2 of Part 1 of Directive Annex V applies.”

But it is important to note that this letter explains that *“The whole of a plant must be subject to the TNP, so only a whole plant can leave”*. Given that the TNP covers only whole plants, as defined by the *“common stack”*, there is no scope for differentiation between units within a plant. It is not possible, therefore, for operators to run units under the TNP and the LHD at the same time. This was first explained by Defra in 2011 in the aforementioned letter which reads:

“... the TNP can cover only whole² large combustion plants³ which were first permitted by the relevant environmental regulator⁴ before 27 November 2002 or for which a permit application had been made by that date and which were put into operation within a year of that date”

However, when a plant leaves the TNP, an operator can place one or more units into ELV compliance and one or more units into the LHD. Individual units within an LCP can opt for the 1500 hour derogation, but each must have a separate flue. If more than one unit within

² That is to say, not parts of a plant.

³ As defined in Article 3(25) and within the scope set out in Article 28 of the Directive.

⁴ The Environment Agency for plants in England and Wales, the Scottish Environment Protection Agency and the Northern Ireland Environment Agency.

Version 5.1 Protocol for IED Annex V 1500 Limited Hours Derogation July 2015

an LCP opts for the derogation, then the 1500 hours applies to all the derogated units, so that they have an aggregated total of 1500 hours collectively, not 1500 hours each. Where the whole LCP opts for the LHD, the 1500 hours total applies to the whole LCP.

ELVs applicable to LHD plant are set out in Annex V. The LHD⁵ is not available to combustion plants for which an Article 33 undertaking has been given (Limited Life Derogation Declaration). In other words, it is not possible for an operator to run under the LHD and the Limited Life Derogation (17 500 hours) at the same time.

4.0 HOW WILL THE ROLLING FIVE YEAR AVERAGE BE CALCULATED?

The derogation can apply to either the whole combustion plant or to individual units/boilers. If applied to an individual unit then the emissions from that unit must be measured separately. This is explained by Annex V Part 1(2) which reads:

“A part of a combustion plant discharging its waste gases through one or more separate flues within a common stack, and which does not operate more than 1 500 operating hours per year as a rolling average over a period of five years, may be subject to the emission limit values set out in the preceding two paragraphs in relation to the total rated thermal input of the entire combustion plant. In such cases the emissions through each of those flues shall be monitored separately.”

Prior to the end of the initial five year period, required to establish a rolling five year average, a unit cannot be operated for more than a total of 7500 hours. Further conditions apply and are set out below. The rolling five year averaging period starts on the date of entry into the derogation and ends on the date of exit from the derogation. Therefore a year refers to a 12 month period of operation, not a calendar year.

Once the five years have been established, the average is calculated on a rolling annual basis thereafter (i.e. a 12 month period's contribution falls off as another 12 month period's contribution is added). The LHD Plant/Unit may run for more than 1500 hours in a 12 month period but must not exceed the upper threshold of 7500 hours over a five year rolling average. A separate approach is needed in the case of plant exit from the LHD or plant closure, and this is discussed below.

In the initial years of operation under the LHD, there is a need to provide some flexibility in the number of hours that can be operated, as the market demand for lower output plants can vary substantially from year to year. To impose a strict pro-rata annual limit of 1500 hours per annum in each individual year of the LHD would not allow any flexibility to respond to market conditions with a demand for above average output from these plants, and would go significantly beyond the requirements of the IED. In addition, there can be significant seasonal fluctuations in market demand, both within a year and between years, which a strict approach cannot accommodate. This seasonal fluctuation was recognised in the regulation of the LCPD 2000 hours LHD, for example.

⁵ The “1500 hours” derogation is set out in footnotes to the tabulated ELVs in Annex V. Under the “limited life” derogation, those ELVs do not apply

Version 5.1 Protocol for IED Annex V 1500 Limited Hours Derogation July 2015

Equally, it would not be reasonable to allow the entire 7500 hours allowed under the 5 year average to be used in any individual year. A balance is required that allows sufficient, but not excessive, flexibility. The approach set out in this protocol in the table below is considered to deliver an appropriate balance between the need for flexibility and the need to ensure that a plant is compliant with the LHD upon exit from the LHD. The cumulative total operating hours set out the table are derived from two guiding rules:-

- Operation in any individual year should not exceed 2250 hours.
- If operation has reached 2250 hours in one year, then the average operation across other years should not exceed 1650 hours.

If a plant exits the LHD prior to the completion of 5 years (either to close or operate in compliance with the IED ELV conditions) then the cumulative average operating hours must be less than 1500 hours per year. Operation for part of a year (12 months) will be assessed on a pro-rata basis. For example, if a plant exits the LHD after 18 months then the total number of operating hours must be less than 2250 hours, giving an average of 1500 hours per year over the 18 month period.

If a plant exits the LHD after 5 years have been completed, then the average across the preceding 5 years must be less than 1500 hours. Unless the plant has closed on the anniversary of entry to the LHD, a pro-rata assessment will be necessary. This will be managed by calculating the average operating hours across the preceding 60 months of operation.

Based on these principles the following table sets out the averaging arrangements for different durations of, and subsequent operation after, the LHD:

Application of LHD condition

Normal operation	
(a) Unit operates for 5 years and beyond	<p>A unit cannot exceed 7500 hours over a 5 year period.</p> <p>A unit cannot exceed 2250 hours in any individual year.</p> <p>Limit on average operating hours in intervening years:- End of year 1 = 2250 End of year 2 = 2250+1650= 3900 End of Year 3 = 2250+(1650*2) = 5550 End of Year 4 + 2250+(1650*2) + 1500= 7050 End of year 5 = 7500</p> <p>After 5 years, the earliest 12 months are replaced in the calculation when a further full 12 month period is completed.</p> <p>Starting point is date of entry into the derogation.</p>

Version 5.1 Protocol for IED Annex V 1500 Limited Hours Derogation July 2015

Exit to ELVs or closure	
(b) Unit closes, or exits to ELV, before 5 year average is established	<p>The cumulative average operating hours must be less than 1500 hours per year at the date of closure or exit, with the contribution from any part year period assessed on a pro-rata basis. The plant cannot close or exit until this condition has been met.</p> <p><i>Example of closure or exit before 5 year average is established:</i></p> <ul style="list-style-type: none"> • <i>Plant enters LHD on 1st July 2018</i> • <i>Plant exits LHD on 30th September 2021, i.e. after 3 years and 3 months operation.</i> • <i>Average operating hours must be less than 1500 hours per annum pro-rata. This is equivalent to a total cumulative number of hours of [(3 x 1500 hours) +(3/12 X 1500 hours)] = 4875 hours.</i>
(c) Unit exits to closure after 5 years, part way through a year	60 months rolling average must not exceed 1500 hours.

5.0 PRINCIPLES FOR DETERMINING IED BAT BASED ELVS

The determination of BAT for plant or individual units entering the LHD is addressed separately.

6.0 WHAT MONITORING AND REPORTING MEASURES NEED TO BE PUT IN PLACE?

Article 30 (4) makes reference to the provision that Annex V ELVs may be applied to part of a combustion plant with a limited number of operating hours. Section 3.2 of the IED monitoring protocol⁶ specifies that units in the LHD are treated as separate LCPs for monitoring and compliance purposes (including the determination of operating hours). Further details of monitoring and compliance are set out in the monitoring protocol and reference should be made to this document.

IED Article 72 (4) (b) requires the annual reporting of the number of operating hours for each unit subject to a LHD.

⁶ Monitoring And Reporting Emissions from Utility Boilers and Gas Turbines for Compliance Purposes: A Guide to Current Best Practice for the Operators of Power Plant, JEP 2014 .