

HUNTSMAN

Enriching lives through innovation

Environment Agency
Permitting Support Centre
Quadrant 2
99 Parkway Avenue
Parkway Business Park
Sheffield
S9 3WF

23rd March 2015

Dear Sir/Madam

I am writing in response to your Regulation 60 Notification for further information on compliance with IED Chapter III ELVs for Large Combustion Plant. Our reference is:

Permit Reference: EPR/TP3532PK

Operator: Tioxide Europe Limited

Facility: Greatham Titanium Dioxide

Although the registered trading name is Tioxide Europe Limited, the company's commercial name is Huntsman Pigments and Additives. The details of our response are given in the attached document.

Please note that the West Site address used on your Notification is no longer valid. The current correspondence addresses are:

Registered Trading Address and Headquarters

Company Secretary
Huntsman Pigments and Additives
Titanium House
Hanzard Drive
Wynyard Park
Stockton-on-Tees
TS22 5FD

Greatham Site address:

Site Director
Huntsman Pigments and Additives
Greatham Works
Tees Road
Hartlepool
TS25 2DD

If you need any further information, please contact me either by telephone at 01642 545715 or by e-mail at brian_bennett@huntsman.com

Yours sincerely



Brian Bennett
Sustainability Manager

HUNTSMAN PIGMENTS

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Tioxide Europe Limited, Registered Office: Titanium House, Hanzard Drive, Wynyard Park, Stockton-on-Tees TS22 5FD, UK.

Registered in England No. 832447

A business unit of Huntsman Corporation

Information required for permit review relating to Chapter III and Annex V of Industrial Emissions Directive 2010

The numbers given below refer to the question number in the Environment Agency Regulation 60 request.

361. The name (DEFRA LCP identifier) of each LCP and its date of operational commencement

DEFRA LCP Identifier: 80
LCP Name: Tioxide Europe Limited Greatham Works
Date of operational commencement: Current LCP configuration started in 1981.
This consists of Boiler 2 which started in 1971 and Boilers 4, 5 and 6 which started in 1981.

362. For each LCP, state which compliance route you have selected

- (i) NO_x – Article 32 – TNP ; DEFRA TNP Identifier: 70
- (ii) SO₂, CO and dust – Article 30(2) Annex V Part 1 – ELV

363. Provide evidence of any notification you may have already made in relation to the TNP and LLD.

Letters of notification to DEFRA regarding entry into the TNP, dated 13th April 2012 and 13th June 2013, have been submitted with this letter.

364. The configuration of each LCP

Four separate boilers (Nos. 2, 4, 5 and 6) which vent into a common 76-metre high ‘chimney’ stack. The boilers can only operate on natural gas.

365. The net rated thermal input of the LCP and the method by which it was derived

Total thermal input is 81MW based on information supplied by the boiler manufacturers.

Boiler No.2 has a thermal input rating of 21MW whilst boilers no.4, 5 and 6 have thermal input ratings of 20MW

366. Define the minimum start up load and the minimum shut-down load for each unit within the LCP as required by the Implementing Decision 2012/249/EU

Our LCP only operates on natural gas so the start-up and shut-down process is quick. We use two criteria to define when an individual boiler within our LCP is on-line. These are:

- (i) Steam pressure > 21.5barg and
- (ii) Steam temperature >230°C.

367. With reference to the IED BAT Non-ESI Review paper 28 October 2014, provide your proposed ELVs and describe how they accord with the principles outlined in that paper

Our LCP falls into the category of 50-100MW plant so that the required monitoring is manual spot samples must be taken at least every six months (Annex V, Part 3(3)).

- (i) SO₂, CO and Dust concentrations will fall under Annex V which quotes the following ELVs. The reporting conditions are at a temperature of 273K and pressure of 101.3kPa after correction for water vapour and a standardized oxygen content of 3%

Pollutant	Annex V Clause	Concentration (mg/Nm ³)
SO ₂	Part 1, 3	35
CO	Part 1, 6	100
Dust	Part 1, 8	5

- (ii) NO_x will fall under the TNP. The annual NO_x emissions (in tonnes) have been calculated using the guidance provided by DEFRA and submitted to DEFRA in the letter dated 13th April 2012 which is attached.

368. For gas fired plant only. With reference to Article 30(6), application for the derogation to not undertake monitoring when on standby fuel...

Not applicable.

369. Monitoring Requirements. With reference to IED Annex V, Part 3

Our LCP falls into the category of 50-100MW plant so that the monitoring quoted in Annex V, Part 3(3) is manual spot sampling at least once every six months for NO_x, SO₂, CO and dust. We do not currently use CEMs on the LCP.

We are currently unable to measure dust concentrations on safety grounds. The external monitoring companies which we've spoken to have stated that it isn't safe to handle a 4m long particulates probe on a platform which is only 1m wide and 25m above ground level. This was agreed with our Environment Agency inspector in 2009 and included in our Environmental Permit, TP3532PK.

The cost of replacing the platform in isolation is prohibitive. Since we will need to make major changes to our LCP by the end of 2019 (to comply with the NO_x ELV of 100mg/Nm³), we propose that manual dust monitoring is not carried out during the 2016-2019 period. However, installation of a platform, to allow dust monitoring to be carried out safely, will be reviewed as part of the major changes to the LCP.

The MCERTS accredited methods used for the other pollutants do not require measurements to be taken at several points across the width of the stack so a much smaller probe can be used.