



Notice of variation and consolidation with introductory note

The Environmental Permitting (England & Wales) Regulations 2016

Uniper UK Limited

Ratcliffe on Soar Power Station

Ratcliffe on Soar

Nottingham

Nottinghamshire

NG11 0EE

Variation application number

EPR/EP3133RZ/V006

Permit number

EPR/EP3133RZ

Ratcliffe on Soar Power Station

Permit number EPR/EP3133RZ

Introductory note

This introductory note does not form a part of the notice.

Under the Environmental Permitting (England & Wales) Regulations 2016 (schedule 5, part 1, paragraph 19) a variation may comprise a consolidated permit reflecting the variations and a notice specifying the variations included in that consolidated permit.

Schedule 2 of the notice comprises a consolidated permit which reflects the variations being made. All the conditions of the permit have been varied and are subject to the right of appeal.

Article 21(3) of the Industrial Emissions Directive (IED) requires the Environment Agency to review conditions in permits that it has issued and to ensure that the permit delivers compliance with relevant standards, within four years of the publication of updated decisions on Best Available Techniques (BAT) Conclusions. We have reviewed the permit for this installation against the revised BAT Conclusions for the large combustion plant sector published on 17th August 2017. Only activities covered by this BAT Reference Document have been reviewed and assessed.

Key changes made as a result of the permit review:

Derogations

Article 15(4) of the IED enables the Environment Agency to allow derogations from BAT AELs stated in the BAT Conclusions under specific circumstances. Derogations from BAT AELs were requested for the BAT conclusions listed below. A brief explanation of each is included in the Annex to the conditions of this permit:

- **BAT 20** - A time limited derogation from the oxides of nitrogen (NO_x) BAT AELs;
- **BAT 21** - A time limited derogation from the sulphur dioxide (SO₂) BAT AELs; and
- **BAT 22** - A time limited derogation from the dust BAT AELs.

Derogated limits are applicable until 1st October 2025 or until closure of power station whichever is sooner.

This variation makes the below changes following the review under Article 21(3) of the IED:

- Incorporation of operating techniques in table S1.2 of the permit for compliance and operating techniques identified in response to the BAT Conclusions;
- Incorporation of operating techniques in table S1.2 of the permit for fuel characterisation to be in place by 2021, in accordance with BAT Conclusion 9;
- An improvement condition requiring demonstration of sufficiently stable emissions, in accordance with BAT Conclusion 4;
- Revised emission limits and monitoring requirements for emissions to air applicable from 01 July 2020 at the end of the TNP, to the 16 August 2021, in table S3.1a;
- Revised emission limits and monitoring requirements for emissions to air applicable from the BAT Conclusions implementation date, 17 August 2021, in table S3.1b;
- Revised emission limits and monitoring requirements or emissions to water applicable from the BAT Conclusions implementation date, 17 August 2021, in table S3.2a;
- Inclusion of process monitoring for energy efficiency after overhauls on site in line with BAT Conclusion 2 in table S3.4.

Additional key changes in accordance with IED Chapter II requirements:

- Permit condition 2.3.8 has been included in the permit with corresponding improvement condition IC23 requiring the operator to submit a report in relation to potential black start operation of the plant;
- Table S1.1 amended to remove all references to “petcoke” and “Processed fuel oil, (PFO)”;
- Table S2.1 amended to remove “PFO”.
- Table S2.2 amended to refer to Chapters III and IV of the Industrial Emissions Directive 2010/75/EU

The rest of the installation is unchanged and continues to be operated as follows:

The installation is situated 7 miles south west of Nottingham between the rivers Trent and Soar, on the Leicestershire/Nottinghamshire border at National Grid Reference SK5040129810. The installation comprises 4 pulverised coal fired boilers with associated turbine and generator sets. Each generating unit has a net thermal input of 1326 MW which equates to an electrical output of 500 MW and together constitute LCP116.

The station also maintains two gas turbine generating sets fired on gas oil which each have a net thermal input of 75 MW. These are black start turbines which are used in the event of a grid collapse to restart the station and to provide short term load support as requested by the National Grid. The gas turbines are a separate LCP which is operated under the 500 hour derogation, LCP number LCP455.

The power station falls under the following Schedule 1 listed activity descriptions:

Section 1.1 Part A(1)(a) - Burning any fuel in an appliance with a rated thermal input of 50 or more megawatts.

Section 4.2 Part A(1)(a)(iv): Producing inorganic chemicals such as salts.

Section 5.4 Part A(1)(a)(ii): Disposal of non-hazardous waste with a capacity exceeding 50 tonnes per day physico-chemical treatment.

Section 3.5 Part B(f): loading, unloading or storing pulverised fuel ash in bulk prior to further transportation in bulk

Section 5.4 Part A(1)(b)(iii): treatment of slags and ashes and

Section 4.8 Part B(a)

The Central Electricity Generating Board constructed the plant in the 1960's as part of a major modernisation of the power generating capacity of the country. The location of the station was determined by the access to cooling water from the River Trent, the proximity of coalfields and the 400 KV transmission lines. The current Operator is Uniper UK Limited who operates a number of facilities in the UK.

The exhaust emissions are abated using electrostatic precipitators which remove over 99% of the particulate emissions from the exhaust gases before they enter the flue gas desulphurisation (FGD) plant.

The boilers have the burners on the front wall and have been up-graded over the years and are fitted with low NOx burners. In addition all of the boilers have been modified to utilise a boosted over fire air (BOFA) system to further reduce emissions of nitrogen oxides to air. Selective catalytic reduction (SCR) has also been fitted to each unit and is in the process of being commissioned.

The sulphur dioxide emissions are abated using FGD plant, one unit fitted to each boiler plant. This equipment operates by reacting limestone slurry with the acid flue gases to produce gypsum which is a saleable product. This material is sold to the gypsum industry for the manufacture of plasterboard or for the formulation of cement.

Materials, mainly coal and all limestone are delivered to the station by the use of a dedicated rail system for bulk materials. Coal is also delivered to the station using road transport, along with biomass and oil.

Ash from the boilers consists of Furnace Bottom Ash collected from the bottom of the boilers and transported to holding areas and thence sold to the building industry to manufacture building blocks. Pulverised Fuel Ash leaves the top of the boiler and is collected by electrostatic precipitators. This material is also sold for use in the construction industry; however, if no market can be found then this material can also be sent to a landfill site.

Emissions from the installation are to air from the boilers and to water from the use of cooling water and ancillary process plant including the FGD plant. Emissions to air from the boilers are through a common 199 m high windshield containing 4 flues. The gas turbines exhaust through separate flues within a common 96 m windshield.

Cooling water make up is abstracted from the River Trent and is cooled in eight evaporative cooling towers.

There are no emissions to sewer from the site - water emissions are to the River Trent after suitable treatment to meet various quality control requirements. Two emergency bypass discharge points exist so that water can be discharged to the River Soar in emergencies.

The schedules specify the changes made to the permit.

The status log of a permit sets out the permitting history, including any changes to the permit reference number.

Status log of the permit		
Description	Date	Comments
Application AP3330LB	Duly made 31/03/2006	
Supplementary Information regarding EOPRA	21/11/2006	
Permit determined	30/10/2007	
Variation application YP3530XW received	19/11/2007	Variation to permit the trial of Selective Catalytic Reduction of emissions of nitrogen oxides from one boiler
Schedule 7 Notice for further information issued 04/04/08	09/10/2008	Response received
Commercial-in-confidence claim submitted 09/10/08	21/10/2008	Commercial-in-confidence claim agreed
Variation notice YP3530XW issued	24/04/2009	
Variation determined EPR/AP3330LB/V003 (HP3032ZD)	11/03/2013	Environment Agency Initiated Variation, to incorporate Eel Regulations improvement condition.
Variation determined EPR/AP3330LB/V004 (JP3336NP)	05/08/2013	Environment Agency variation to implement the changes introduced by the IED.
Variation application received EPR/AP3330LB/V005	01/05/2014	

Status log of the permit		
Description	Date	Comments
Variation determined EPR/AP3330LB/V005 (billing ref AP3336VQ)	22/05/2014	Admin variation to implement the changes to Schedule 4 Table S4.2.
Application received EPR/AP3330LB/V006	04/08/2014	Administrative variation to carry out a newly prescribed activity (5.4 (b)(iii)) under the IED.
Application EPR/EP3133RZ/T001 (full transfer of permit EPR/AP3330LB)	Duly made 09/07/2015	Application to transfer the permit in full to Uniper UK Limited.
Transfer determined EPR/EP3133RZ	26/08/2015	Full transfer of permit complete.
Regulation 60 Notice sent to the Operator	31/10/2014	Issue of a Notice under Regulation 60(1) of the EPR. Environment Agency Initiated review and variation to vary the permit under IED to implement the 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 permit is also updated to modern conditions.
Regulation 60 Notice response	27/03/2015	Response received from the Operator.
Additional information received	Dated 20/08/2015	Response to request for further information (RFI) dated 07/08/2015.
Additional information received	08/10/2015	Confirmation of compliance route under TNP.
Variation determined EPR/EP3133RZ/V002	24/12/2015	Varied and consolidated permit issued in modern condition format. Administrative variation to update activity A5 in accordance with the IED. Variation effective from 01/01/2016.
Notified of change of registered office address	Duly made 05/01/2017	Registered office address changed to Compton House, 2300 The Crescent, Birmingham Business Park, Birmingham B37 7YE.
Variation issued EPR/EP3133RZ/V003	17/01/2017	Varied permit issued to Uniper UK Limited.

Status log of the permit		
Description	Date	Comments
Variation application EPR/EP3133RZ/V004	Duly made 13/11/2017	Medium Combustion Plant Application to add 5 diesel generators to facilitate start-up of LCP455.
Variation determined EPR/EP3133RZ/V004	24/04/18	Varied and consolidated permit
Regulation 61 Notice sent to the Operator	01/05/2018	Issue of a Notice under Regulation 61(1) of the EPR. Environment Agency initiated review and variation to vary the permit under IED to implement Chapter II following the publication of the revised BAT Reference Document for LCP
Regulation 61 Notice response	31/10/2018	Response received from the Operator
Request for further information sent 03/04/19	25/04/2019	Response received from the Operator derogation criteria BAT Conclusions 20,21 &22
Variation application EPR/EP3133RZ/V005	Received 31/07/2019 Withdrawn 2/10/2019	Application was withdrawn and application fee refunded
Request for further information	27/11/2019	Response received from Operator - Revised CBA report to Derogation request from BAT Conclusions 21 & 22
Additional information received	12/05/2020	BAT9 and JEP report – 'Characterisation of power plant fuels
DRAFT DECISION EPR/EP3133RZ/V006	03/06/2020	Statutory review of permit - BAT Conclusions published 17 August 2017 Varied and consolidated permit Consultation 03/06/2020 to 01/07/2020
FINAL DECISION variation determined EPR/EP3133RZ/V006 (Billing ref: LP3109PL)	02/07/2020	Varied and consolidated permit issued

End of introductory note

The Environmental Permitting (England and Wales) Regulations 2016

The Environment Agency in exercise of its powers under regulation 20 of the Environmental Permitting (England and Wales) Regulations 2016 varies

Permit number

EPR/EP3133RZ

Issued to

Uniper UK Limited (“the operator”)

whose registered office is

**Compton House
2300 The Crescent
Birmingham Business Park
Birmingham
B37 7YE**

company registration number 2796628

to operate a regulated facility at

**Ratcliffe on Soar Power Station
Ratcliffe on Soar
Nottingham
Nottinghamshire
NG11 0EE**

to the extent set out in the schedules.

The notice shall take effect from 02/07/2020

Name	Date
Richard Hadley	02/07/2020

Authorised on behalf of the Environment Agency

Schedule 1

All conditions have been varied by the consolidated permit as a result of an Environment Agency initiated variation.

Schedule 2 – consolidated permit

Consolidated permit issued as a separate document.

Permit

The Environmental Permitting (England and Wales) Regulations 2016

Permit number

EPR/EP3133RZ

This is the consolidated permit referred to in the variation and consolidation notice for application EPR/EP3133RZ/V006 authorising,

Uniper UK Limited (“the operator”),

whose registered office is

**Compton House
2300 The Crescent
Birmingham Business Park
Birmingham
B37 7YE**

company registration number 2796628

to operate a regulated facility at

**Ratcliffe on Soar Power Station
Ratcliffe on Soar
Nottingham
Nottinghamshire
NG11 0EE**

to the extent authorised by and subject to the conditions of this permit.

Name	Date
Richard Hadley	02/07/2020

Authorised on behalf of the Environment Agency

Conditions

1 Management

1.1 General management

1.1.1 The operator shall manage and operate the activities:

- (a) in accordance with a written management system that identifies and minimises risks of pollution, including those arising from operations, maintenance, accidents, incidents, non-conformances, closure and those drawn to the attention of the operator as a result of complaints; and
- (b) using sufficient competent persons and resources.

1.1.2 Records demonstrating compliance with condition 1.1.1 shall be maintained.

1.1.3 Any person having duties that are or may be affected by the matters set out in this permit shall have convenient access to a copy of it kept at or near the place where those duties are carried out.

1.2 Energy efficiency

1.2.1 The operator shall:

- (a) take appropriate measures to ensure that energy is used efficiently in the activities;
- (b) take appropriate measures to ensure the efficiency of energy generation at the permitted installation is maximised;
- (c) review and record at least every four years whether there are suitable opportunities to improve the energy efficiency of the activities; and
- (d) take any further appropriate measures identified by a review.

1.3 Efficient use of raw materials

1.3.1 The operator shall:

- (a) take appropriate measures to ensure that raw materials and water are used efficiently in the activities;
- (b) maintain records of raw materials and water used in the activities;
- (c) review and record at least every four years whether there are suitable alternative materials that could reduce environmental impact or opportunities to improve the efficiency of raw material and water use; and
- (d) take any further appropriate measures identified by a review.

1.4 Avoidance, recovery and disposal of wastes produced by the activities

1.4.1 The operator shall take appropriate measures to ensure that:

- (a) the waste hierarchy referred to in Article 4 of the Waste Framework Directive is applied to the generation of waste by the activities;
- (b) any waste generated by the activities is treated in accordance with the waste hierarchy referred to in Article 4 of the Waste Framework Directive; and
- (c) where disposal is necessary, this is undertaken in a manner which minimises its impact on the environment.

- 1.4.2 The operator shall review and record at least every four years whether changes to those measures should be made and take any further appropriate measures identified by a review.

2 Operations

2.1 Permitted activities

- 2.1.1 The operator is only authorised to carry out the activities specified in schedule 1 table S1.1 (the “activities”).
- 2.1.2 Waste authorised by this permit shall be clearly distinguished from any other waste on the site.

2.2 The site

- 2.2.1 The activities shall not extend beyond the site, being the land shown edged in red on the site plan at schedule 7 to this permit.

2.3 Operating techniques

- 2.3.1 The activities shall, subject to the conditions of this permit, be operated using the techniques and in the manner described in the documentation specified in schedule 1, table S1.2, unless otherwise agreed in writing by the Environment Agency.
- 2.3.2 For the following activities referenced in schedule 1, table S1.1: LCP116 and LCP455. The activities shall be operated in accordance with the “Electricity Supply Industry IED Compliance Protocol for Utility Boilers and Gas Turbines” dated December 2015 or any later version unless otherwise agreed in writing by the Environment Agency.
- 2.3.3 If notified by the Environment Agency that the activities are giving rise to pollution, the operator shall submit to the Environment Agency for approval within the period specified, a revision of any plan or other documentation (“plan”) specified in schedule 1, table S1.2 or otherwise required under this permit which identifies and minimises the risks of pollution relevant to that plan, and shall implement the approved revised plan in place of the original from the date of approval, unless otherwise agreed in writing by the Environment Agency.
- 2.3.4 Any raw materials or fuels listed in schedule 2 table S2.1 shall conform to the specifications set out in that table.
- 2.3.5 For the following activities referenced in schedule 1, table S1.1: LCP455 Gas turbines may be used but for no more than 500 hours per year.
- 2.3.6 For the following activities referenced in schedule 1, table S1.1: LCP116 and LCP455. The end of the start up period and the start of the shutdown period shall conform to the specifications set out in Schedule 1, tables S1.2 and S1.5.
- 2.3.7 For the following activities referenced in schedule 1, table S1.1: LCP116. The following conditions apply where there is a malfunction or breakdown of any abatement equipment:
Unless otherwise agreed in writing by the Environment Agency:
- (i) if a return to normal operations is not achieved within 24 hours, the operator shall reduce or close down operations, or shall operate the activities using low polluting fuels;
 - (ii) the cumulative duration of breakdown in any 12-month period shall not exceed 120 hours; and
 - (iii) the cumulative duration of malfunction in any 12-month period shall not exceed 120 hours.
- 2.3.8 The emission limit values for emission points A1, A2, A3 and A4 listed in tables S3.1, S3.1a and S3.1b of Schedule 3 following the issue of a Black Start Instruction by the National Grid shall be disregarded for the purposes of compliance whilst that instruction remains effective and in

accordance with the report submitted in response to improvement condition IC23 in table S1.3 of this permit.

2.3.9 Waste shall only be accepted if:

- (a) it is of a type and quantity listed in schedule 2 table S2.2 and S2.3; and
- (b) it conforms to the description in the documentation supplied by the producer and holder.

2.3.10 The operator shall ensure that where waste produced by the activities is sent to a relevant waste operation, that operation is provided with the following information, prior to the receipt of the waste:

- (a) the nature of the process producing the waste;
- (b) the composition of the waste;
- (c) the handling requirements of the waste;
- (d) the hazardous property associated with the waste, if applicable; and
- (e) the waste code of the waste.

2.3.11 The operator shall ensure that where waste produced by the activities is sent to a landfill site, it meets the waste acceptance criteria for that landfill.

2.4 Improvement programme

2.4.1 The operator shall complete the improvements specified in schedule 1 table S1.3 by the date specified in that table unless otherwise agreed in writing by the Environment Agency.

2.4.2 Except in the case of an improvement which consists only of a submission to the Environment Agency, the operator shall notify the Environment Agency within 14 days of completion of each improvement.

2.5 Pre-operational conditions

2.5.1 The SCR plant shall not be brought into operation until the measures specified in schedule 1 table S1.4 have been completed.

3 Emissions and monitoring

3.1 Emissions to water, air or land

3.1.1 There shall be no point source emissions to water, air or land except from the sources and emission points listed in schedule 3 tables S3.1, S3.1a, S3.1b, S3.2, S3.2a and S3.3.

3.1.2 The limits given in schedule 3 shall not be exceeded.

3.1.3 The emission values from emission points A1, A2, A3 and A4 in schedule 3 tables S3.1, 3.1a and S3.1b, measured during periods of abatement equipment malfunction and breakdown shall be disregarded for the purposes of compliance with tables S3.1, 3.1a and S3.1b, emission limit values.

3.1.4 Total annual emissions from the emission points set out in schedule 3 table S3.1, S3.2, and S3.2a of a substance listed in schedule 3 table S3.3 shall not exceed the relevant limit in table S3.3.

3.1.5 Periodic monitoring shall be carried out at least once every 5 years for groundwater and 10 years for soil, unless such monitoring is based on a systematic appraisal of the risk of contamination.

3.2 Emissions of substances not controlled by emission limits

3.2.1 Emissions of substances not controlled by emission limits (excluding odour) shall not cause pollution. The operator shall not be taken to have breached this condition if appropriate measures, including,

but not limited to, those specified in any approved emissions management plan, have been taken to prevent or where that is not practicable, to minimise, those emissions.

3.2.2 The operator shall:

- (a) if notified by the Environment Agency that the activities are giving rise to pollution, submit to the Environment Agency for approval within the period specified, an emissions management plan which identifies and minimises the risks of pollution from emissions of substances not controlled by emission limits;
- (b) implement the approved emissions management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

3.2.3 All liquids in containers, whose emission to water or land could cause pollution, shall be provided with secondary containment, unless the operator has used other appropriate measures to prevent or where that is not practicable, to minimise, leakage and spillage from the primary container.

3.3 Odour

3.3.1 Emissions from the activities shall be free from odour at levels likely to cause pollution outside the site, as perceived by an authorised officer of the Environment Agency, unless the operator has used appropriate measures, including, but not limited to, those specified in any approved odour management plan, to prevent or where that is not practicable to minimise the odour.

3.3.2 The operator shall:

- (a) if notified by the Environment Agency that the activities are giving rise to pollution outside the site due to odour, submit to the Environment Agency for approval within the period specified, an odour management plan which identifies and minimises the risks of pollution from odour;
- (b) implement the approved odour management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

3.4 Noise and vibration

3.4.1 Emissions from the activities shall be free from noise and vibration at levels likely to cause pollution outside the site, as perceived by an authorised officer of the Environment Agency, unless the operator has used appropriate measures, including, but not limited to, those specified in any approved noise and vibration management plan to prevent or where that is not practicable to minimise the noise and vibration.

3.4.2 The operator shall:

- (a) if notified by the Environment Agency that the activities are giving rise to pollution outside the site due to noise and vibration, submit to the Environment Agency for approval within the period specified, a noise and vibration management plan which identifies and minimises the risks of pollution from noise and vibration;
- (b) implement the approved noise and vibration management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

3.5 Monitoring

3.5.1 The operator shall, unless otherwise agreed in writing by the Environment Agency, undertake the monitoring specified in the following tables in schedule 3 to this permit:

- (a) point source emissions specified in tables S3.1, S3.1a, S3.1b, S3.2, S3.2a and S3.3; and
- (b) process monitoring specified in table S3.4.

- 3.5.2 The operator shall maintain records of all monitoring required by this permit including records of the taking and analysis of samples, instrument measurements (periodic and continuous), calibrations, examinations, tests and surveys and any assessment or evaluation made on the basis of such data.
- 3.5.3 Monitoring equipment, techniques, personnel and organisations employed for the emissions monitoring programme and the environmental or other monitoring specified in condition 3.5.1 shall have either MCERTS certification or MCERTS accreditation (as appropriate), where available, unless otherwise agreed in writing by the Environment Agency.
- 3.5.4 Permanent means of access shall be provided to enable sampling/monitoring to be carried out in relation to the emission points specified in schedule 3 tables S3.1, S3.1a, S3.1b, S3.2 and S3.2a, unless otherwise agreed in writing by the Environment Agency.

3.6 Monitoring for Large Combustion Plant

- 3.6.1 All monitoring required by this permit shall be carried out in accordance with the provisions of Annex V of the Industrial Emissions Directive and the Large Combustion Plant Best Available Techniques Conclusions.
- 3.6.2 If the monitoring results for more than 10 days a year are invalidated within the meaning set out in condition 3.6.7, the operator shall:
- (a) within 28 days of becoming aware of this fact, review the causes of the invalidations and submit to the Environment Agency for approval, proposals for measures to improve the reliability of the continuous measurement systems, including a timetable for the implementation of those measures; and
 - (b) implement the approved proposals.
- 3.6.3 Continuous measurement systems on emission points from the LCP shall be subject to quality control by means of parallel measurements with reference methods at least once every calendar year.
- 3.6.4 Unless otherwise agreed in writing by the Environment Agency in accordance with condition 3.6.5 below, the operator shall carry out the methods, including the reference measurement methods, to use and calibrate continuous measurement systems in accordance with the appropriate CEN standards.
- 3.6.5 If CEN standards are not available, ISO standards, national or international standards which will ensure the provision of data of an equivalent scientific quality shall be used, as agreed in writing with the Environment Agency.
- 3.6.6 Where required by a condition of this permit to check the measurement equipment, the operator shall submit a report to the Environment Agency in writing, within 28 days of the completion of the check.
- 3.6.7 Where Continuous Emission Monitors are installed to comply with the monitoring requirements in schedule 3, tables S3.1, S3.1a and S3.1b; the Continuous Emission Monitors shall be used such that:
- (a) for the continuous measurement systems fitted to the LCP release points defined in table(s) S3.1, S3.1a and S3.1b the validated hourly, monthly, yearly and daily averages shall be determined from the measured valid hourly average values after having subtracted the value of the 95% confidence interval;
 - (b) the 95% confidence interval for nitrogen oxides and sulphur dioxide of a single measured result shall be taken to be 20%;
 - (c) the 95% confidence interval for dust releases of a single measured result shall be taken to be 30%;
 - (d) the 95% confidence interval for carbon monoxide releases of a single measured result shall be taken to be 10%;

- (e) an invalid hourly average means an hourly average period invalidated due to malfunction of, or maintenance work being carried out on, the continuous measurement system. However, to allow some discretion for zero and span gas checking, or cleaning (by flushing), an hourly average period will count as valid as long as data has been accumulated for at least two thirds of the period. Such discretionary periods are not to exceed more than 5 in any one 24-hour period unless agreed in writing. Where plant may be operating for less than the 24-hour period, such discretionary periods are not to exceed more than one quarter of the overall valid hourly average periods unless agreed in writing; and
- (f) any day, in which more than three hourly average values are invalid shall be invalidated.

4 Information

4.1 Records

4.1.1 All records required to be made by this permit shall:

- (a) be legible;
- (b) be made as soon as reasonably practicable;
- (c) if amended, be amended in such a way that the original and any subsequent amendments remain legible, or are capable of retrieval; and
- (d) be retained, unless otherwise agreed in writing by the Environment Agency, for at least 6 years from the date when the records were made, or in the case of the following records until permit surrender:
 - (i) off-site environmental effects; and
 - (ii) matters which affect the condition of the land and groundwater.

4.1.2 The operator shall keep on site all records, plans and the management system required to be maintained by this permit, unless otherwise agreed in writing by the Environment Agency.

4.2 Reporting

4.2.1 The operator shall send all reports and notifications required by the permit to the Environment Agency using the contact details supplied in writing by the Environment Agency.

4.2.2 A report or reports on the performance of the activities over the previous year shall be submitted to the Environment Agency by 31 January (or other date agreed in writing by the Environment Agency) each year. The report(s) shall include as a minimum:

- (a) a review of the results of the monitoring and assessment carried out in accordance with the permit including an interpretive review of that data;
- (b) the resource efficiency metrics set out in schedule 4 table S4.2;
- (c) the performance parameters set out in schedule 4 table S4.3 using the forms specified in table S4.4 of that schedule.
- (d) where condition 2.3.5 apply the hours of operation in any year;
- (e) where condition 2.3.7 applies, the cumulative duration of breakdown and cumulative duration of malfunction in any 12 month period.

4.2.3 Within 28 days of the end of the reporting period the operator shall, unless otherwise agreed in writing by the Environment Agency, submit reports of the monitoring and assessment carried out in accordance with the conditions of this permit, as follows:

- (a) in respect of the parameters and emission points specified in schedule 4 table S4.1;

- (b) for the reporting periods specified in schedule 4 table S4.1 and using the forms specified in schedule 4 table S4.4; and
- (c) giving the information from such results and assessments as may be required by the forms specified in those tables.

- 4.2.4 The operator shall, unless notice under this condition has been served within the preceding four years, submit to the Environment Agency, within six months of receipt of a written notice, a report assessing whether there are other appropriate measures that could be taken to prevent, or where that is not practicable, to minimise pollution.
- 4.2.5 Within 1 month of the end of each quarter, the operator shall submit to the Environment Agency using the form made available for the purpose, the information specified on the form relating to the site and the waste accepted and removed from it during the previous quarter.
- 4.2.6 Within 10 days of the notification of abatement equipment malfunction or breakdown (condition 2.3.7) the operator shall submit an Air Quality Risk Assessment as outlined in the IED Compliance Protocol (condition 2.3.2).
- 4.2.7 For the following activities referenced in schedule 1, table S1.1: LCP116. Unless otherwise agreed in writing with the Environment Agency, within 1 month of the end of each quarter, the operator shall submit to the Environment Agency using the form IED RTA1, listed in table S4.4, the information specified on the form relating to the site's mass emissions.

4.3 Notifications

- 4.3.1 In the event:
- (a) that the operation of the activities gives rise to an incident or accident which significantly affects or may significantly affect the environment, the operator must immediately—
 - (i) inform the Environment Agency,
 - (ii) take the measures necessary to limit the environmental consequences of such an incident or accident, and
 - (iii) take the measures necessary to prevent further possible incidents or accidents;
 - (b) of a breach of any permit condition the operator must immediately—
 - (i) inform the Environment Agency, and
 - (ii) take the measures necessary to ensure that compliance is restored within the shortest possible time;
 - (c) of a breach of permit condition which poses an immediate danger to human health or threatens to cause an immediate significant adverse effect on the environment, the operator must immediately suspend the operation of the activities or the relevant part of it until compliance with the permit conditions has been restored.
 - (d) of any malfunction or breakdown of abatement equipment relating to condition 2.3.7, the operator shall notify the Environment Agency within 48 hours unless notification has already been made under (a) to (c) above.
- 4.3.2 Any information provided under condition 4.3.1 (a)(i), 4.3.1 (b)(i) where the information relates to the breach of a condition specified in the permit or 4.3.1 (d) where the information relates to malfunction or breakdown of abatement equipment shall be confirmed by sending the information listed in schedule 5 to this permit within the time period specified in that schedule.
- 4.3.3 Where the Environment Agency has requested in writing that it shall be notified when the operator is to undertake monitoring and/or spot sampling, the operator shall inform the Environment Agency when the relevant monitoring and/or spot sampling is to take place. The operator shall provide this

information to the Environment Agency at least 14 days before the date the monitoring is to be undertaken.

4.3.4 The Environment Agency shall be notified within 14 days of the occurrence of the following matters, except where such disclosure is prohibited by Stock Exchange rules:

Where the operator is a registered company:

- (a) any change in the operator's trading name, registered name or registered office address; and
- (b) any steps taken with a view to the operator going into administration, entering into a company voluntary arrangement or being wound up.

Where the operator is a corporate body other than a registered company:

- (c) any change in the operator's name or address; and
- (d) any steps taken with a view to the dissolution of the operator.

In any other case:

- (e) the death of any of the named operators (where the operator consists of more than one named individual);
- (f) any change in the operator's name(s) or address(es); and
- (g) any steps taken with a view to the operator, or any one of them, going into bankruptcy, entering into a composition or arrangement with creditors, or, in the case of them being in a partnership, dissolving the partnership.

4.3.5 Where the operator proposes to make a change in the nature or functioning, or an extension of the activities, which may have consequences for the environment and the change is not otherwise the subject of an application for approval under the Regulations or this permit:

- (a) the Environment Agency shall be notified at least 14 days before making the change; and
- (b) the notification shall contain a description of the proposed change in operation.

4.3.6 The Environment Agency shall be given at least 14 days notice before implementation of any part of the site closure plan.

4.3.7 The operator shall inform the Environment Agency in writing of the closure of any LCP within 28 days of the date of closure.

4.4 Interpretation

4.4.1 In this permit the expressions listed in schedule 6 shall have the meaning given in that schedule.

4.4.2 In this permit references to reports and notifications mean written reports and notifications, except where reference is made to notification being made "immediately", in which case it may be provided by telephone.

Schedule 1 – Operations

Table S1.1 activities			
Activity reference	Activity listed in Schedule 1 of the EP Regulations	Description of specified activity	Limits of specified activity
AR1	Section 1.1 Part A(1) (a): Burning any fuel in an appliance with a rated thermal input of 50 megawatts or more.	<p>LCP116: Operation of four boilers (each with a net rated thermal input of 1326 MW) burning coal, biomass and LFO for support for production of steam and electricity.</p> <p>(The total aggregated net rated thermal input is 5304 MWth)</p> <p>LCP455: Operation of two open cycle gas turbines (OCGT) burning gas oil to produce electricity (150 MW total aggregated net rated thermal input)</p> <p>MCP1-3: Operation of 1 x 3.75 MWth and 2 x 1.34 MWth input diesel generators to facilitate the start-up of LCP455</p> <p>2x 0.33 MWth input diesel generators to facilitate the start-up of LCP455</p>	<p>Activity AR1 to cease operation on or before 01st October 2025.</p> <p>From receipt of coal to discharge of exhaust gases and wastes and the generation and export of electricity.</p> <p>LCP455 shall be used as emergency plant for up to 500 hours per year.</p> <p>The diesel generators shall be used to facilitate start-up of LCP455 emergency plant for up to 50 hours per year.</p>
AR2	Section 4.2 Part A(1)(a)(iv): Producing inorganic chemicals such as salts.	Operation of 4 Flue Gas Desulphurisation (FGD) units.	From receipt of raw materials to despatch of products and waste.

Table S1.1 activities			
Activity reference	Activity listed in Schedule 1 of the EP Regulations	Description of specified activity	Limits of specified activity
AR3	Section 5.4 Part A(1)(a)(ii): Disposal of non-hazardous waste with a capacity exceeding 50 tonnes per day physico-chemical treatment.	Treatment of waste water from the FGD plant.	From receipt of raw materials to despatch of products and waste.
AR4	Section 3.5 Part B(f): loading, unloading or storing pulverised fuel ash in bulk prior to further transportation in bulk.	Removal of ash from the combustion process to dispatch from site.	From receipt of raw materials to despatch of products and waste.
AR5	Section 5.4 Part A(1)(b)(iii): treatment of slags and ashes	Treating pulverised fuel ash (PFA)	From receipt of PFA from the combustion process to dispatch of classified PFA for onward handling
AR6	Section 4.8 Part B(a)	The storage in tanks of more than 100 tonnes of anhydrous ammonia.	From receipt of anhydrous ammonia to injection into the combustion flue gases upstream of the SCR plant.
	Directly Associated Activity		
AR7	Directly associated activity	Surface water drainage & process effluent.	From handling and storage of site drainage and process effluent until discharge to the River Trent.
AR8	Directly associated activity	Treatment of water.	From receipt of raw materials and river water to dispatch of Demineralised Water (DMW) to the process and chemical effluent to the drainage system.

Table S1.1 activities			
Activity reference	Activity listed in Schedule 1 of the EP Regulations	Description of specified activity	Limits of specified activity
AR9	Directly associated activity	Storage of fuel.	From receipt and handling of coal, oil up to the delivery of coal to the coal mills and delivery of oil to the combustion units.
AR10	Directly associated activity	The use of water from the River Trent in the process, primarily to condense steam.	From the pumping, filtering and chemical treatment of the water, its use in the condensers and eight natural draught evaporative cooling towers to the discharge of the water back to the River Trent.

Table S1.2 Operating techniques		
Description	Parts	Date Received
Application AP3330LB	The response to section B2.1 and 2.2 in the Application, including cross-referenced material.	31/03/2006
Further information	Letter and report re disposal of boiler acid cleaning effluent, reference CS/2852.	05/04/2006
Application received	Administrative variation to carry out a newly prescribed activity under the Industrial Emissions Directive.	04/08/2014
Response to regulation 60(1) Notice – request for information dated 31/10/14	Compliance routes and operating techniques identified in response to questions 2 (LHD), 3 (net rated thermal input), 4(MSUL/MSDL), 5 (ELV option), 6 (SCR update). Excluding compliance routes ELV, LHD for LCP167 (now LCP 116) and related operating techniques.	27/03/2015

Table S1.2 Operating techniques		
Description	Parts	Date Received
Receipt of additional information to the regulation 60(1) Notice. requested by letter dated 07/08/15	Compliance route(s) and operating techniques identified in response to questions 1(mothballed OCGTs, LCP455) 2(compliance route), 3(TNP/LLD notification, 4(configuration of each LCP), 5(net rated thermal input), 6, 7, 9ii, 10, 11. Excluding compliance routes ELV, LHD for LCP167 (now LCP116) and related operating techniques.	20/08/2015
Receipt of additional information to the regulation 60(1) Notice.	Confirmation of the compliance routes chosen for LCP116.	08/10/2015
Application Variation EPR/EP3133RZ/V004	Operating techniques described in document EP3133RZ Appendix.	Duly Made 31/10/2017
Response to regulation 61(1) Notice – request for information dated 01/05/18	Compliance and operating techniques identified in response to the BAT Conclusions for large combustion plant published on 17th August 2017.	14/11/2018
Additional information in response to regulation 61(1) Notice	Compliance and operating techniques identified in response to BAT Conclusions 21and 22	27/11/2019
Confirmation received from the operator for operation in accordance with this Joint Environmental Programme (JEP) document	JEP report – ‘Characterisation of power plant fuels for compliance with LCP BREF Conclusion BAT 9’ Issued October 2019, or any later version agreed in writing by the Environment Agency	12/05/2020
Additional Information	Compliance and operating techniques identified in response to BAT5 & BAT15 - monitoring of total suspended solid emissions to water from flue-gas treatment	22/06/2020

Table S1.3 Improvement programme requirements		
Reference Note 1	Requirement	Date
IC19	<p>The operator shall provide a written report on operation of the SCR systems on each boiler. In particular, the report shall quantify:</p> <ul style="list-style-type: none"> a. the NO_x abatement performance of the SCR plant in mg/Nm³ of NO₂; b. the extent of any ammonia slippage in mg/Nm³ of NH₃ c. any impact of the operation of the SCR system on overall station energy efficiency. 	31/07/2021
IC21	<p>Following completion of IC19 the Operator shall submit a report in writing to the Environment Agency for acceptance. The report shall define and provide a written justification of the “minimum start up load” and “minimum shut-down load”, for each unit within the LCP as required by the Implementing Decision 2012/249/EU in terms of:</p> <ul style="list-style-type: none"> i. The output load (i.e. electricity, heat or power generated) (MW); and ii. This output load as a percentage of the rated thermal output of the combustion plant (%). <p>And / Or</p> <ul style="list-style-type: none"> iii. At least three criteria (operational parameters and / or discrete processes as detailed in the Annex) or equivalent 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 as detailed in Article (9) 2012/249/EU. 	31/07/2021
IC22	<p><u>BAT Conclusion 4</u></p> <p>The operator shall submit a report demonstrating sufficient stability of emissions of mercury and halogen compounds (chlorine and fluorine compounds) in accordance with the latest agreed version of the Protocol for LCP BREF Compliance with trace species monitoring requirements at coal fired power plant.</p>	31/03/2021

IC23	<p><u>Black start operations</u></p> <p>A written report shall be submitted to the Environment Agency for approval. The report shall contain an impact assessment demonstrating that there is no significant environmental risk associated with black start operations and propose a methodology for minimisation of environmental impact during such a period of operation and for reporting instances of black start operation.</p> <p>The plant shall be operated as set out in condition 2.3.8 of the permit once the report has been approved by the Environment Agency. The methodology for operation and reporting set out in the report shall be implemented by the Operator from the date of approval by the Environment Agency.</p>	12 months from variation issue
<p>Note 1: All completed ICs 1 to 18 and 20 have been removed with numbering retained for ease of future reference.</p>		

Table S1.4 Pre-operational measures		
Reference	Pre-operational measures	Notes
POC 1	<p>A written report shall be submitted to the Agency for approval not less than three months before the SCR plant is brought into operation.</p> <p>The report shall specify the proposed trial programme and proposed operational techniques relating to the trial of Selective Catalytic Reduction (SCR) of emissions of Nitrogen Oxides.</p> <p>The trial programme shall not start until written approval for the operational techniques has been received from the Environment Agency.</p>	Completed 01/10/2012

Table S1.5 Start-up and Shut-down thresholds		
Emission Point and Unit Reference	“Minimum start up load” (MSUL) Load in MW and as percent of rated power output (%) Or when the criteria listed below have been met	“Minimum shut-down load” (MSDL) Load in MW and as percent of rated power output (%) Or when the criteria listed below have been met
LCP116 Boiler Units 1 – 4 A1, A2, A3 and A4	250MW; 46% Or as agreed in writing by the Environment Agency following the outcome of improvement condition IC21.	220 MW; 40% Or as agreed in writing by the Environment Agency following the outcome of improvement condition IC21.

Table S1.5 Start-up and Shut-down thresholds		
Emission Point and Unit Reference	“Minimum start up load” (MSUL) Load in MW and as percent of rated power output (%) Or when the criteria listed below have been met	“Minimum shut-down load” (MSDL) Load in MW and as percent of rated power output (%) Or when the criteria listed below have been met
LCP455 2 x OCGTs A13 and A15	As soon as the gas turbine start up is initiated	As soon as the gas turbine is off load.

Schedule 2 – Raw materials and fuels

Table S2.1 Raw materials and fuels	
Raw materials and fuel description	Specification
Light fuel oil (LFO)	Less than 1.0% w/w sulphur content
Gas oil	Less than 0.1% w/w sulphur content
Biomass fuels	As defined in Article 2(11) of the EU Directive 2001/80/EC) and included in the application or otherwise agreed in writing by the Environment Agency.

Table S2.2 Permitted waste types and quantities for combustion in boilers	
Maximum quantity	Non specified
Waste code	Description
Relevant exempt biomass	Biomass fuels exempt from the requirements of the Chapters III and IV of the Industrial Emissions Directive 2010/75/EU and included in the application or otherwise agreed in writing by the Environment Agency.
Other exempt waste	Other fuels exempt from the requirements of Chapter IV of the Industrial Emissions Directive 2010/75/EU and included in the application or otherwise agreed in writing by the Environment Agency.

Table S2.3 Permitted waste types and quantities for ash processing	
Waste code	Description
10 01 01	bottom ash, slag and boiler dust (excluding boiler dust mentioned in 10 01 04)
10 01 02	Coal fly ash

Schedule 3 – Emissions and monitoring

Table S3.1 Point source emissions to air Emission limits and monitoring requirements – Shall apply until 30 June 2020						
Emission point ref. & location	Parameter	Source	Limit (including unit)-these limits do not apply during start up or shut down.	Reference period	Monitoring frequency	Monitoring standard or method
Coal fired boiler plant – LCP116						
A1, A2, A3 and A4. [Points A1, A2, A3 and A4 on site plan in Schedule 7	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	LCP No. 116 Coal fired boiler plant	450 mg/m ³	Calendar monthly mean	Continuous	BS EN 14181
A1, A2, A3 and A4. [Points A1, A2, A3 and A4 on site plan in Schedule 7	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	LCP No. 116 Coal fired boiler plant	550 mg/m ³	95% of validated daily means within a calendar year	Continuous	BS EN 14181
A1, A2, A3 and A4. [Points A1, A2, A3 and A4 on site plan in Schedule 7	Sulphur Dioxide	LCP No. 116 Coal fired boiler plant	350 mg/m ³	Calendar monthly mean	Continuous	BS EN 14181
A1, A2, A3 and A4. [Points A1, A2, A3 and A4 on site plan in Schedule 7	Sulphur Dioxide	LCP No. 116 Coal fired boiler plant	440 mg/m ³	95% of validated daily means within a calendar year	Continuous	BS EN 14181

Table S3.1 Point source emissions to air Emission limits and monitoring requirements – Shall apply until 30 June 2020

Emission point ref. & location	Parameter	Source	Limit (including unit)-these limits do not apply during start up or shut down.	Reference period	Monitoring frequency	Monitoring standard or method
A1, A2, A3 and A4. [Points A1, A2, A3 and A4 on site plan in Schedule 7	Dust	LCP No. 116 Coal fired boiler plan	20 mg/m ³	Calendar monthly mean	Continuous	BS EN 14181
A1, A2, A3 and A4. [Points A1, A2, A3 and A4 on site plan in Schedule 7	Dust	LCP No. 116 Coal fired boiler plan	35 mg/m ³	95% of validated daily means within a calendar year	Continuous	BS EN 14181
A1, A2, A3 and A4. [Points A1, A2, A3 and A4 on site plan in Schedule 7	Oxygen	LCP No. 116 Coal fired boiler plan	-	-	Continuous As appropriate to reference	BS EN 14181
A1, A2, A3 and A4. [Points A1, A2, A3 and A4 on site plan in Schedule 7	Water Vapour	LCP No. 116 Coal fired boiler plan	-	-	Continuous As appropriate to reference	BS EN 14181
A1, A2, A3 and A4. [Points A1, A2, A3 and A4 on site plan in Schedule 7	Stack gas temperature	LCP No. 116 Coal fired boiler plan	-	-	Continuous As appropriate to reference	Traceable to national standards
A1, A2, A3 and A4.	Stack gas pressure	LCP No. 116	-	-	Continuous	Traceable to national standards

Table S3.1 Point source emissions to air Emission limits and monitoring requirements – Shall apply until 30 June 2020

Emission point ref. & location	Parameter	Source	Limit (including unit)-these limits do not apply during start up or shut down.	Reference period	Monitoring frequency	Monitoring standard or method
[Points A1, A2, A3 and A4 on site plan in Schedule 7]		Coal fired boiler plan			As appropriate to reference	
A1, A2, A3 and A4. [Points A1, A2, A3 and A4 on site plan in Schedule 7]	Total mercury	LCP No. 116 Coal fired boiler plan	-	-	Annual	BS EN13211
A1, A2, A3 and A4. [Points A1, A2, A3 and A4 on site plan in Schedule 7]	As required by the Method Implementation Document for BS EN 15259	LCP No. 116 Coal fired boiler plan	-	-	Pre-operation and when there is a significant operational change	BS EN 15259
Gas-oil fired gas turbines – LCP455						
A13 and A15 [Points A13 and A15 on site plan in Schedule 7]	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	LCP455 Gas turbine fired on gas-oil	-	-	Concentration by calculation, every 4,380 operational hours or 2 years, whichever is sooner	Agreed in writing with the Environment Agency
A13 and A15 [Points A13 and A15 on site plan in Schedule 7]	Sulphur dioxide	LCP455 Gas turbine fired on gas-oil	-	-	Concentration by calculation, every 4,380 operational hours or 2 years, whichever is sooner	Agreed in writing with the Environment Agency

Table S3.1 Point source emissions to air Emission limits and monitoring requirements – Shall apply until 30 June 2020

Emission point ref. & location	Parameter	Source	Limit (including unit)-these limits do not apply during start up or shut down.	Reference period	Monitoring frequency	Monitoring standard or method
A13 and A15 [Points A13 and A15 on site plan in Schedule 7]	Dust	LCP455 Gas turbine fired on gas-oil	-	-	Concentration by calculation, every 4,380 operational hours or 2 years, whichever is sooner	Agreed in writing with the Environment Agency
A13 and A15 [Points A13 and A15 on site plan in Schedule 7]	CO	LCP455 Gas turbine fired on gas-oil	-	-	Concentration by calculation, every 4,380 operational hours or 2 years, whichever is sooner	Agreed in writing with the Environment Agency
Other none-LCP emission points						
A5 to A8	No parameters set	No. 1 to No. 4 PFA dust silo's bag filters respectively	-	-	-	No permanent access required
A9	No parameters set	Lime / gypsum road / railhead dust collection bag filter	-	-	-	No permanent access required
A10, A11	No parameters set	FGD lime silo 1 and 2 bag filters respectively	-	-	-	No permanent access required
A16	No parameters set	No. 5 and 6 PFA dust silo's bag filters	-	-	-	No permanent access required

Table S3.1 Point source emissions to air Emission limits and monitoring requirements – Shall apply until 30 June 2020

Emission point ref. & location	Parameter	Source	Limit (including unit)-these limits do not apply during start up or shut down.	Reference period	Monitoring frequency	Monitoring standard or method
A17	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	3.75 MWth diesel generator	No limit	-	-	No permanent access required
	Carbon monoxide		No limit	-	-	No permanent access required
A18, A19	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	2 x 1.34 MWth diesel generators	-	-	-	No permanent access required
	Carbon monoxide		-	-	-	No permanent access required
A20, A21	No parameters set	2x 0.33 MWth diesel generators	-	-	-	No permanent access required

Table S3.1a Point source emissions to air Emission limits and monitoring requirements - Shall apply from 01 July 2020 until 16 August 2021

Emission point ref. & location	Parameter	Source	Limit (including unit)-these limits do not apply during start up or shut down.	Reference period	Monitoring frequency	Monitoring standard or method
Coal fired boiler plant – LCP116						
A1, A2, A3 and A4. [Points A1, A2, A3 and A4 on site plan in Schedule 7]	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	LCP116 Coal fired boiler plant	200 mg/m ³	Monthly mean of validated hourly averages	Continuous	BS EN 14181
A1, A2, A3 and A4. [Points A1, A2, A3 and A4 on site plan in Schedule 7]	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	LCP116 Coal fired boiler plant	220 mg/m ³	Daily mean of validated hourly averages	Continuous	BS EN 14181
A1, A2, A3 and A4. [Points A1, A2, A3 and A4 on site plan in Schedule 7]	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	LCP116 Coal fired boiler plant	400 mg/m ³	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
A1, A2, A3 and A4. [Points A1, A2, A3 and A4 on site plan in Schedule 7]	Sulphur Dioxide	LCP116 Coal fired boiler plant	200 mg/m ³	Monthly mean of validated hourly averages	Continuous	BS EN 14181

Table S3.1a Point source emissions to air Emission limits and monitoring requirements - Shall apply from 01 July 2020 until 16 August 2021

Emission point ref. & location	Parameter	Source	Limit (including unit)-these limits do not apply during start up or shut down.	Reference period	Monitoring frequency	Monitoring standard or method
A1, A2, A3 and A4. [Points A1, A2, A3 and A4 on site plan in Schedule 7]	Sulphur Dioxide	LCP116 Coal fired boiler plant	220 mg/m ³	Daily mean of validated hourly averages	Continuous	BS EN 14181
A1, A2, A3 and A4. [Points A1, A2, A3 and A4 on site plan in Schedule 7]	Sulphur Dioxide	LCP116 Coal fired boiler plant	400 mg/m ³	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
A1, A2, A3 and A4. [Points A1, A2, A3 and A4 on site plan in Schedule 7]	Dust	LCP116 Coal fired boiler plant	20 mg/m ³	Monthly mean of validated hourly averages	Continuous	BS EN 14181
A1, A2, A3 and A4. [Points A1, A2, A3 and A4 on site plan in Schedule 7]	Dust	LCP116 Coal fired boiler plant	22 mg/m ³	Daily mean of validated hourly averages	Continuous	BS EN 14181

Table S3.1a Point source emissions to air Emission limits and monitoring requirements - Shall apply from 01 July 2020 until 16 August 2021

Emission point ref. & location	Parameter	Source	Limit (including unit)-these limits do not apply during start up or shut down.	Reference period	Monitoring frequency	Monitoring standard or method
A1, A2, A3 and A4. [Points A1, A2, A3 and A4 on site plan in Schedule 7	Dust	LCP116 Coal fired boiler plant	40 mg/m ³	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
A1, A2, A3 and A4. [Points A1, A2, A3 and A4 on site plan in Schedule 7	Oxygen	LCP116 Coal fired boiler plant	-	-	Continuous As appropriate to reference	BS EN 14181
A1, A2, A3 and A4. [Points A1, A2, A3 and A4 on site plan in Schedule 7	Water Vapour	LCP116 Coal fired boiler plant	-	-	Continuous As appropriate to reference	BS EN 14181
A1, A2, A3 and A4. [Points A1, A2, A3 and A4 on site plan in Schedule 7	Stack gas temperature	LCP116 Coal fired boiler plant	-	-	Continuous As appropriate to reference	Traceable to national standards

Table S3.1a Point source emissions to air Emission limits and monitoring requirements - Shall apply from 01 July 2020 until 16 August 2021

Emission point ref. & location	Parameter	Source	Limit (including unit)-these limits do not apply during start up or shut down.	Reference period	Monitoring frequency	Monitoring standard or method
A1, A2, A3 and A4. [Points A1, A2, A3 and A4 on site plan in Schedule 7]	Stack gas pressure	LCP116 Coal fired boiler plant	-	-	Continuous As appropriate to reference	Traceable to national standards
A1, A2, A3 and A4. [Points A1, A2, A3 and A4 on site plan in Schedule 7]	Total mercury	LCP No. 116 Coal fired boiler plant	-	-	Annual	BS EN 13211
A1, A2, A3 and A4. [Points A1, A2, A3 and A4 on site plan in Schedule 7]	As required by the Method Implementation Document for BS EN 15259	LCP116 Coal fired boiler plant	-	-	Pre-operation and when there is a significant operational change	BS EN 15259
Gas-oil fired gas turbines – LCP455						
A13 and A15 [Points A13 and A15 on site plan in Schedule 7]	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	LCP455 Gas turbine fired on gas-oil	-	-	Concentration by calculation, every 4380 operational hours or 2 years, whichever is sooner	Agreed in writing with the Environment Agency

Table S3.1a Point source emissions to air Emission limits and monitoring requirements - Shall apply from 01 July 2020 until 16 August 2021

Emission point ref. & location	Parameter	Source	Limit (including unit)-these limits do not apply during start up or shut down.	Reference period	Monitoring frequency	Monitoring standard or method
A13 and A15 [Points A13 and A15 on site plan in Schedule 7]	Sulphur dioxide	LCP455 Gas turbine fired on gas oil	-	-	Concentration by calculation, every 4380 operational hours or 2 years, whichever is sooner	Agreed in writing with the Environment Agency
A13 and A15 [Points A13 and A15 on site plan in Schedule 7]	Dust	LCP455 Gas turbine fired on gas-oil	-	-	Concentration by calculation, every 4380 operational hours or 2 years, whichever is sooner	Agreed in writing with the Environment Agency
A13 and A15 [Points A13 and A15 on site plan in Schedule 7]	CO	LCP455 Gas turbine fired on gas-oil	-	-	Concentration by calculation, every 4380 operational hours or 2 years, whichever is sooner	Agreed in writing with the Environment Agency
Other none-LCP emission points						
A5 to A8	No parameters set	No. 1 to No. 4 PFA dust silo's bag filters respectively	-	-	-	No permanent access required
A9	No parameters set	Lime / gypsum road / railhead dust collection bag filter	-	-	-	No permanent access required

Table S3.1a Point source emissions to air Emission limits and monitoring requirements - Shall apply from 01 July 2020 until 16 August 2021

Emission point ref. & location	Parameter	Source	Limit (including unit)-these limits do not apply during start up or shut down.	Reference period	Monitoring frequency	Monitoring standard or method
A10, A11	No parameters set	FGD lime silo 1 and 2 bag filters respectively	-	-	-	No permanent access required
A16	No parameters set	No. 5 and 6 PFA dust silo's bag filters	-	-	-	No permanent access required
A17	Oxides of Nitrogen (NO and NO2 expressed as NO2)	3.75 MW _{th} diesel generator	No limit	-	-	No permanent access required
	Carbon monoxide	3.75 MW _{th} diesel generator	No limit	-	-	No permanent access required
A18, A19	Oxides of Nitrogen (NO and NO2 expressed as NO2)	2 x 1.34 MW _{th} diesel generators	-	-	-	No permanent access required
A18, A19	Carbon monoxide	2 x 1.34 MW _{th} diesel generators	-	-	-	No permanent access required
A20, A21	No parameters set	2x 0.33 MW _{th} diesel generators	-	-	-	No permanent access required

Table S3.1b Point source emissions to air Emission limits and monitoring requirements - Shall apply from 17 August 2021

Emission point ref. & location	Parameter	Source	Limit (including unit)- these limits do not apply during start up or shut down.	Reference period	Monitoring frequency	Monitoring standard or method
Coal fired boiler plant – LCP116						
A1, A2, A3 and A4. [Points A1, A2, A3 and A4 on site plan in Schedule 7	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	LCP116 Coal fired boiler plant	200 mg/m ³ Note 2	Yearly average	Continuous	BS EN 14181
A1, A2, A3 and A4. [Points A1, A2, A3 and A4 on site plan in Schedule 7	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	LCP116 Coal fired boiler plant	200 mg/m ³	Monthly mean of validated hourly averages	Continuous	BS EN 14181
A1, A2, A3 and A4. [Points A1, A2, A3 and A4 on site plan in Schedule 7	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	LCP116 Coal fired boiler plant	220 mg/m ³ Note 2	Daily mean of validated hourly averages	Continuous	BS EN 14181
A1, A2, A3 and A4. [Points A1, A2, A3 and A4 on site plan in Schedule 7	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	LCP116 Coal fired boiler plant	400 mg/m ³	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181

Table S3.1b Point source emissions to air Emission limits and monitoring requirements - Shall apply from 17 August 2021

Emission point ref. & location	Parameter	Source	Limit (including unit)- these limits do not apply during start up or shut down.	Reference period	Monitoring frequency	Monitoring standard or method
A1, A2, A3 and A4. [Points A1, A2, A3 and A4 on site plan in Schedule 7	Sulphur Dioxide	LCP116 Coal fired boiler plant	200 mg/m ³	Yearly average	Continuous	BS EN 14181
A1, A2, A3 and A4. [Points A1, A2, A3 and A4 on site plan in Schedule 7	Sulphur Dioxide	LCP116 Coal fired boiler plant	200 mg/m ³	Monthly mean of validated hourly averages	Continuous	BS EN 14181
A1, A2, A3 and A4. [Points A1, A2, A3 and A4 on site plan in Schedule 7	Sulphur Dioxide	LCP116 Coal fired boiler plant	220 mg/m ³	Daily mean of validated hourly averages	Continuous	BS EN 14181
A1, A2, A3 and A4. [Points A1, A2, A3 and A4 on site plan in Schedule 7	Sulphur Dioxide	LCP116 Coal fired boiler plant	400 mg/m ³	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181

Table S3.1b Point source emissions to air Emission limits and monitoring requirements - Shall apply from 17 August 2021

Emission point ref. & location	Parameter	Source	Limit (including unit)- these limits do not apply during start up or shut down.	Reference period	Monitoring frequency	Monitoring standard or method
A1, A2, A3 and A4. [Points A1, A2, A3 and A4 on site plan in Schedule 7	Dust	LCP116 Coal fired boiler plant	20 mg/m ³	Yearly average	Continuous	BS EN 14181
A1, A2, A3 and A4. [Points A1, A2, A3 and A4 on site plan in Schedule 7	Dust	LCP116 Coal fired boiler plant	20 mg/m ³	Monthly mean of validated hourly averages	Continuous	BS EN 14181
A1, A2, A3 and A4. [Points A1, A2, A3 and A4 on site plan in Schedule 7	Dust	LCP116 Coal fired boiler plant	22 mg/m ³	Daily mean of validated hourly averages	Continuous	BS EN 14181
A1, A2, A3 and A4. [Points A1, A2, A3 and A4 on site plan in Schedule 7	Dust	LCP116 Coal fired boiler plant	40 mg/m ³	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181

Table S3.1b Point source emissions to air Emission limits and monitoring requirements - Shall apply from 17 August 2021

Emission point ref. & location	Parameter	Source	Limit (including unit)- these limits do not apply during start up or shut down.	Reference period	Monitoring frequency	Monitoring standard or method
A1, A2, A3 and A4. [Points A1, A2, A3 and A4 on site plan in Schedule 7]	Hydrogen chloride (HCl)	LCP116 Coal fired boiler plant	20 mg/m ³	Yearly average or average of samples obtained during one year	Once every three months ^{Note 1}	BS EN 1911
A1, A2, A3 and A4. [Points A1, A2, A3 and A4 on site plan in Schedule 7]	Hydrogen fluoride (HF)	LCP116 Coal fired boiler plant	7 mg/m ³	Yearly average or average of samples obtained during one year	Once every three months ^{Note 1}	EN ISO 15718:2006
A1, A2, A3 and A4. [Points A1, A2, A3 and A4 on site plan in Schedule 7]	Total mercury (Hg)	LCP116 Coal fired boiler plant	4 µg/m ³ ^{Note 1}	Yearly average or average of samples obtained during one year	Once every three months ^{Note 1}	Generic EN standards and EN 14884
A1, A2, A3 and A4. [Points A1, A2, A3 and A4 on site plan in Schedule 7]	Ammonia (NH ₃)	LCP116 Coal fired boiler plant	5 mg/m ³	Yearly average or average over the sampling period.	Continuous or Periodic if agreed under IC19	BS EN 14181 or BS EN ISO 21877

Table S3.1b Point source emissions to air Emission limits and monitoring requirements - Shall apply from 17 August 2021

Emission point ref. & location	Parameter	Source	Limit (including unit)- these limits do not apply during start up or shut down.	Reference period	Monitoring frequency	Monitoring standard or method
A1, A2, A3 and A4. [Points A1, A2, A3 and A4 on site plan in Schedule 7]	Sulphur Trioxide	LCP116 Coal fired boiler plant	-	Annual Average	Annually	As agreed in writing with the Environment Agency
A1, A2, A3 and A4. [Points A1, A2, A3 and A4 on site plan in Schedule 7]	Oxygen	LCP116 Coal fired boiler plant	-	-	Continuous As appropriate to reference	BS EN 14181
A1, A2, A3 and A4. [Points A1, A2, A3 and A4 on site plan in Schedule 7]	Water Vapour	LCP116 Coal fired boiler plant	-	-	Continuous As appropriate to reference	BS EN 14181
A1, A2, A3 and A4. [Points A1, A2, A3 and A4 on site plan in Schedule 7]	Stack gas temperature	LCP116 Coal fired boiler plant	-	-	Continuous As appropriate to reference	Traceable to national standards

Table S3.1b Point source emissions to air Emission limits and monitoring requirements - Shall apply from 17 August 2021

Emission point ref. & location	Parameter	Source	Limit (including unit)- these limits do not apply during start up or shut down.	Reference period	Monitoring frequency	Monitoring standard or method
A1, A2, A3 and A4. [Points A1, A2, A3 and A4 on site plan in Schedule 7]	Stack gas pressure	LCP116 Coal fired boiler plant	-	-	Continuous As appropriate to reference	Traceable to national standards
A1, A2, A3 and A4. [Points A1, A2, A3 and A4 on site plan in Schedule 7]	Stack gas volume flow	LCP116 Coal fired boiler plant	-	-	Continuous	BS EN 16911
A1, A2, A3 and A4. [Points A1, A2, A3 and A4 on site plan in Schedule 7]	As required by the Method Implementation Document for BS EN 15259	LCP116 Coal fired boiler plant	-	-	Pre-operation and when there is a significant operational change	BS EN 15259
Gas-oil fired gas turbines – LCP455						
A13 and A15 [Points A13 and A15 on site plan in Schedule 7]	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	LCP455 Gas turbine fired on gas-oil	300 mg/m ³ <small>Note 3</small>	-	Concentration by calculation every 2 years	Agreed in writing with the Environment Agency

Table S3.1b Point source emissions to air Emission limits and monitoring requirements - Shall apply from 17 August 2021

Emission point ref. & location	Parameter	Source	Limit (including unit)- these limits do not apply during start up or shut down.	Reference period	Monitoring frequency	Monitoring standard or method
A13 and A15 [Points A13 and A15 on site plan in Schedule 7	Sulphur dioxide	LCP455 Gas turbine fired on gas oil	66 mg/m ³	-	Concentration by calculation every 2 years	Agreed in writing with the Environment Agency
A13 and A15 [Points A13 and A15 on site plan in Schedule 7	Dust	LCP455 Gas turbine fired on gas-oil	10 mg/m ³	-	Concentration by calculation every 2 years	Agreed in writing with the Environment Agency
A13 and A15 [Points A13 and A15 on site plan in Schedule 7	CO	LCP455 Gas turbine fired on gas-oil	-	-	Concentration by calculation every 2 years	Agreed in writing with the Environment Agency
Other none-LCP emission points						
A5 to A8	No parameters set	No. 1 to No. 4 PFA dust silo's bag filters respectively	-	-	-	No permanent access required
A9	No parameters set	Lime / gypsum road / railhead dust collection bag filter	-	-	-	No permanent access required

Table S3.1b Point source emissions to air Emission limits and monitoring requirements - Shall apply from 17 August 2021

Emission point ref. & location	Parameter	Source	Limit (including unit)- these limits do not apply during start up or shut down.	Reference period	Monitoring frequency	Monitoring standard or method
A10, A11	No parameters set	FGD lime silo 1 and 2 bag filters respectively	-	-	-	No permanent access required
A16	No parameters set	No. 5 and 6 PFA dust silo's bag filters	-	-	-	No permanent access required
A17	Oxides of Nitrogen (NO and NO2 expressed as NO2)	3.75 MW _{th} diesel generator	No limit	-	-	No permanent access required
A17	Carbon monoxide	3.75 MW _{th} diesel generator	No limit	-	-	No permanent access required
A18, A19	Oxides of Nitrogen (NO and NO2 expressed as NO2)	2 x 1.34 MW _{th} diesel generators	-	-	-	No permanent access required
	Carbon monoxide	3.75 MW _{th} diesel generator	-	-	-	No permanent access required
A20, A21	No parameters set	2x 0.33 MW _{th} diesel generators	-	-	-	No permanent access required

Note 1: If the emission levels are proven to be sufficiently stable, periodic measurements may be carried out each time that a change of the fuel and/or waste characteristics may have an impact on the emissions, but in any case:

- a) at least once every year for HCl and HF; and

Table S3.1b Point source emissions to air Emission limits and monitoring requirements - Shall apply from 17 August 2021

Emission point ref. & location	Parameter	Source	Limit (including unit)- these limits do not apply during start up or shut down.	Reference period	Monitoring frequency	Monitoring standard or method
<p>b) at least once in any six month period for Hg.</p> <p>This shall be subject to the outcome of IC22 in table S1.3 of this permit.</p> <p>Note 2 or as agreed in response to IC19 in table S1.3 of this permit.</p> <p>Note 3: This is an industry benchmark emission level from reported industry performance documented in JEP report JEP17EMG02 / UTG/18/ERG/CT/773/R 'Maintaining the Emissions Performance of Open Cycle Gas Turbines that operate for less than 500 hours per year', October 2018.</p>						

Emissions to water

Table S3.2 Point Source emissions to water (other than sewer) – emission limits and monitoring requirements apply until 16 August 2021						
Emission point ref. & location	Parameter	Source ^a	Limit (incl. unit)	Reference period	Monitoring frequency	Monitoring standard or method
WS7 discharging to W1 on site plan in schedule 7	Oil	FGD Waste water treatment	None visible	24 hour flow proportional sample	Daily	Visual inspection
	Flow rate		70 l/s	Instantaneous	Continuous	Flow meter
WS7 discharging to W1 on site plan in schedule 7	Mercury	FGD Waste water treatment	0.025 mg/l	24 hour flow proportional sample	Weekly	Method as specified in the Ratcliffe Laboratory Manual
	Cadmium		0.05 mg/l			
	Arsenic		0.5 mg/l			
	Chromium		1 mg/l			
	Copper		0.5 mg/l			
	Lead		0.5 mg/l			
	Nickel		0.4 mg/l			
	Zinc		1 mg/l			
	Vanadium		0.5 mg/l			
	Iron		2 mg/l			
	Selenium		1 mg/l			
Antimony	0.5 mg/l					

Table S3.2 Point Source emissions to water (other than sewer) – emission limits and monitoring requirements apply until 16 August 2021

Emission point ref. & location	Parameter	Source ^a	Limit (incl. unit)	Reference period	Monitoring frequency	Monitoring standard or method
	Silver		0.05 mg/l			
	Aluminium		3 mg/l			
	Molybdenum		5 mg/l			
	Chlorides		40 000 mg/l			
	Fluoride		20 mg/l			
W1 on site plan in schedule 7	Total daily flow	Combined installation discharge (WS7 FGD waste water, WS5 sewage treatment plant, WS2 ash lagoon / coal stock area, WS1 cooling water purge)	136 000 m ³	24 hours	Continuous	Flow meter
	Maximum flow rate		1580 l/s	Instantaneous	Continuous	Flow meter
	Temperature		30° C	Instantaneous	Continuous	Traceable to national standards
	pH		6 to 10	Instantaneous	Daily spot sample	BS EN ISO 10523:2012
	Total oxidant as chlorine		0.25 mg/l	Instantaneous	Continuous	Continuous monitor
	Suspended solids		75 mg/l ^b	Weekly composite	Weekly	Method as specified in the Ratcliffe Laboratory Manual
W3 on site plan in schedule 7	Oil	Ash lagoon storm water bypass	None visible	Instantaneous	Daily spot sample ^c	Visual inspection

Table S3.2 Point Source emissions to water (other than sewer) – emission limits and monitoring requirements apply until 16 August 2021

Emission point ref. & location	Parameter	Source^a	Limit (incl. unit)	Reference period	Monitoring frequency	Monitoring standard or method
W4 on site plan in schedule 7	Suspended solids	Emergency Site drainage (southern) bypass	30 mg/l	Instantaneous	Daily spot sample ^c	Method as specified in the Ratcliffe Laboratory Manual
W4 on site plan in schedule 7	Oil	Emergency Site drainage (southern) bypass	None visible	Instantaneous	Daily spot sample ^c	Visual inspection

- a. WS numbers refer to internal release points as indicated in water circuits and releases block diagram in appendix 7 to the application
- b. The limit for suspended solids applies to the measured value minus the background concentration of the receiving waters.
- c. Measurements only during operation of discharge point.

Table S3.2a Point Source emissions to water (other than sewer) – emission limits and monitoring requirements - Shall apply from 17 August 2021						
Emission point ref. & location	Parameter	Source (Note 1)	Limit (incl. unit)	Reference period	Monitoring frequency	Monitoring standard or method
WS7 discharging to W1 on site plan in schedule 7	Oil	FGD Waste water treatment	None visible	24 hour flow proportional sample	Daily	Visual inspection
	Flow rate		70 l/s	Instantaneous	Continuous	Flow meter
W1 on site plan in schedule 7	Sulphate (SO ₄ ²⁻)	FGD Waste water treatment	2 g/l	Calculated from 24-hour flow proportional sample taken at WS7	At least once every month	EN ISO 10304-1
W1 on site plan in schedule 7	Sulphide, easily released (S ²⁻)	FGD Waste water treatment	0.2 mg/l	Calculated from 24-hour flow proportional sample taken at WS7	At least once every month	No EN standard available Note 4
W1 on site plan in schedule 7	Sulphite (SO ₃ ²⁻)	FGD Waste water treatment	20 mg/l	Calculated from 24-hour flow proportional sample taken at WS7	At least once every month	Note 4
W1 on site plan in schedule 7	Total nitrogen	FGD Waste water treatment	-	Calculated from 24-hour flow proportional sample taken at WS7	At least once every month	BS EN 12260

Table S3.2a Point Source emissions to water (other than sewer) – emission limits and monitoring requirements - Shall apply from 17 August 2021

Emission point ref. & location	Parameter	Source (Note 1)	Limit (incl. unit)	Reference period	Monitoring frequency	Monitoring standard or method
W1 on site plan in schedule 7	Mercury	FGD Waste water treatment	3 µg/l	Calculated from 24-hour flow proportional sample taken at WS7	At least once every month	ISO 12846:2012 or EN ISO 17294-2
W1 on site plan in schedule 7	Cadmium	FGD Waste water treatment	5 µg/l	Calculated from 24-hour flow proportional sample taken at WS7	At least once every month	ISO 15586:2003
W1 on site plan in schedule 7	Arsenic	FGD Waste water treatment	50 µg/l	Calculated from 24-hour flow proportional sample taken at WS7	At least once every month	ISO 17378-2:2014
W1 on site plan in schedule 7	Chromium	FGD Waste water treatment	50 µg/l	Calculated from 24-hour flow proportional sample taken at WS7	At least once every month	BS EN ISO 11885 or BS ISO 17294-2
W1 on site plan in schedule 7	Copper	FGD Waste water treatment	50 µg/l	Calculated from 24-hour flow proportional sample taken at WS7	At least once every month	EN ISO 11885 or EN ISO 17294-2
W1 on site plan in schedule 7	Lead	FGD Waste water treatment	20 µg/l	Calculated from 24-hour flow proportional sample taken at WS7	At least once every month	EN ISO 11885 or EN ISO 17294-2

Table S3.2a Point Source emissions to water (other than sewer) – emission limits and monitoring requirements - Shall apply from 17 August 2021

Emission point ref. & location	Parameter	Source (Note 1)	Limit (incl. unit)	Reference period	Monitoring frequency	Monitoring standard or method
W1 on site plan in schedule 7	Nickel	FGD Waste water treatment	50 µg/l	Calculated from 24-hour flow proportional sample taken at WS7	At least once every month	EN ISO 11885 or EN ISO 17294-2
W1 on site plan in schedule 7	Zinc	FGD Waste water treatment	200 µg/l	Calculated from 24-hour flow proportional sample taken at WS7	At least once every month	BS EN ISO 11885 or BS EN ISO 17294-2
W1 on site plan in schedule 7	Chlorides	FGD Waste water treatment	40 000 mg/l	Calculated from 24-hour flow proportional sample taken at WS7	At least once every month	EN ISO 10304-1 or EN ISO 15682
W1 on site plan in schedule 7	Fluoride	FGD Waste water treatment	20 mg/l	Calculated from 24-hour flow proportional sample taken at WS7	At least once every month	EN ISO 10304-1
WS7 discharging to W1 on site plan in schedule 7	Vanadium	FGD Waste water treatment	0.5 mg/l	24 hour flow proportional sample	At least once every month	Method as specified in the Ratcliffe Laboratory Manual
WS7 discharging to W1 on site plan in schedule 7	Iron	FGD Waste water treatment	2 mg/l	24 hour flow proportional sample	At least once every month	Method as specified in the Ratcliffe Laboratory Manual

Table S3.2a Point Source emissions to water (other than sewer) – emission limits and monitoring requirements - Shall apply from 17 August 2021

Emission point ref. & location	Parameter	Source (Note 1)	Limit (incl. unit)	Reference period	Monitoring frequency	Monitoring standard or method
WS7 discharging to W1 on site plan in schedule 7	Selenium	FGD Waste water treatment	1 mg/l	24 hour flow proportional sample	At least once every month	Method as specified in the Ratcliffe Laboratory Manual
WS7 discharging to W1 on site plan in schedule 7	Antimony	FGD Waste water treatment	0.5 mg/l	24 hour flow proportional sample	At least once every month	Method as specified in the Ratcliffe Laboratory Manual
WS7 discharging to W1 on site plan in schedule 7	Silver	FGD Waste water treatment	0.05 mg/l	24 hour flow proportional sample	At least once every month	Method as specified in the Ratcliffe Laboratory Manual
WS7 discharging to W1 on site plan in schedule 7	Aluminium	FGD Waste water treatment	3 mg/l	24 hour flow proportional sample	At least once every month	Method as specified in the Ratcliffe Laboratory Manual
WS7 discharging to W1 on site plan in schedule 7	Molybdenum	FGD Waste water treatment	5 mg/l	24 hour flow proportional sample	At least once every month	Method as specified in the Ratcliffe Laboratory Manual
W1 on site plan in schedule 7	Total daily flow	Combined installation discharge (WS7 FGD waste water, WS5 sewage treatment plant, WS2 ash lagoon / coal stock area, WS1 cooling water purge)	136 000 m ³	24 hours	Continuous	Flow meter
	Maximum flow rate		1580 l/s	Instantaneous	Continuous	Flow meter
	Temperature		30° C	Instantaneous	Continuous	Traceable to national standards
	pH		6 to 10	Instantaneous	Daily spot sample	BS EN ISO 10523:2012
	Total oxidant as chlorine		0.25 mg/l	Instantaneous	Continuous	EN ISO 10304-1 or EN ISO 15682)

Table S3.2a Point Source emissions to water (other than sewer) – emission limits and monitoring requirements - Shall apply from 17 August 2021

Emission point ref. & location	Parameter	Source (Note 1)	Limit (incl. unit)	Reference period	Monitoring frequency	Monitoring standard or method
	Suspended solids		30 mg/l Note 2	Weekly composite	Weekly	EN 872
			75 mg/l Note 2			
W3 on site plan in schedule 7	Oil	Ash lagoon storm water bypass	None visible	Instantaneous	Daily spot sample Note 3	Visual inspection
W4 on site plan in schedule 7	Suspended solids	Emergency Site drainage (southern) bypass	30 mg/l	Instantaneous	Daily spot sample Note 3	Method as specified in the Ratcliffe Laboratory Manual
	Oil		None visible	Instantaneous	Daily spot sample Note 3	Visual inspection

Note 1 WS numbers refer to internal release points as indicated in water circuits and releases block diagram in appendix 7 to the application

Note 2 The limit for suspended solids (SS) applies to the measured value minus the background concentration of the receiving waters. BATAEL of 30mg/l applies at W1 and relates to emissions of SS arising from FGD waste water treatment only.

Note 3 Measurements only during operation of discharge point.

Note 4 Monitoring method to be agreed in writing with the Environment Agency.

Table S3.3 Annual limits				
Emissions to air (excluding start up and shut down except where otherwise stated)- Shall apply until 30 June 2020				
Substance	Medium	Limit (including unit)		Emission Points
Dust, Sulphur dioxide and Oxides of nitrogen	Air	Assessment year	LCP TNP Limit	A1, A2, A3, A4
		01/01/16 and subsequent years until 31/12/19	Emission allowance figure shown in the TNP Register as at 30 April the following year	LCP 116
		01/01/20-30/06/20		
Emissions to water				
Substance	Medium	Limit (including unit)		Emission points
		Monthly load Kg	Annual load Kg	
Mercury	Water	2.0	13	WS7 (discharging to W1 on site plan in appendix 4 of application emission to River Trent)
Cadmium	Water	3.2	22	
Arsenic	Water	40	260	
Chromium	Water	47	310	
Copper	Water	21	155	
Lead	Water	21	155	
Nickel	Water	26	175	
Zinc	Water	65	435	
Vanadium	Water	65	435	
Iron	Water	260	1800	
Selenium	Water	105	700	
Antimony	Water	60	400	
Silver	Water	6.5	44	
Molybdenum	Water	590	4000	
Boron	Water	22 700	152 000	

Table S3.4 Process monitoring requirements				
Emission point reference or source or description of point of measurement	Parameter	Monitoring frequency	Monitoring standard or method	Other specifications
Inlets to Flue gas desulphurisation units 1 to 4	Sulphur dioxide	Continuous	BS EN 14181	To be used as part of the determination of removal efficiency.
ID fan outlet	Carbon monoxide	Continuous	As application (AP3330LB)	N/A

Table S3.4 Process monitoring requirements				
Emission point reference or source or description of point of measurement	Parameter	Monitoring frequency	Monitoring standard or method	Other specifications
LCP116	Net electrical efficiency	After each modification which that could significantly affect these parameters	EN Standards or equivalent	-
LCP455	Net electrical efficiency	After each modification which that could significantly affect these parameters	By calculation	-

Schedule 4 – Reporting

Parameters, for which reports shall be made, in accordance with conditions of this permit, are listed below.

Table S4.1 Reporting of monitoring data			
Parameter	Emission or monitoring point/reference	Reporting period	Period begins
Oxides of nitrogen	A1, A2, A3, A4	Every 3 months	1 January, 1 April, 1 July, 1 October
		Every 12 months	1 January
	A13, A15	Every 2 years	1 January
Carbon Monoxide	A1, A2, A3, A4	Every 12 months	1 January
	A13, A15	Every 2 years	1 January
Sulphur dioxide	A1, A2, A3, A4	Every 3 months	1 January, 1 April, 1 July, 1 October
		Every 12 months	1 January
	A13, A15	Every 2 years	1 January
Dust	A1, A2, A3, A4	Every 3 months	1 January, 1 April, 1 July, 1 October
		Every 12 months	1 January
	A13, A15	Every 2 years	1 January
Hydrogen Chloride	A1, A2, A3, A4	Note 1	1 January, 1 April, 1 July, 1 October Or 1 January
Hydrogen Fluoride	A1, A2, A3, A4	Note 1	1 January, 1 April, 1 July, 1 October Or 1 January
Mercury	A1, A2, A3, A4	Note 1	1 January
Ammonia	A1, A2, A3, A4	Every 12 months	1 January
Sulphur Trioxide	A1, A2, A3, A4	Every 12 months	1 January

Table S4.1 Reporting of monitoring data			
Parameter	Emission or monitoring point/reference	Reporting period	Period begins
Emissions to Water Parameters as required by condition 3.5.1	WS7, W1, W3 and W4	Every 3 months	1 January, 1 April, 1 July, 1 October
Note 1: Reporting period shall be subject to the outcome of IC22 in table S1.3 of this permit.			

Table S4.2 Resource Efficiency Metrics	
Parameter	Units
Electricity Exported	GWhr
Heat Exported	GWhr
Mechanical Power Provided	GWhr
Fossil Fuel Energy Consumption	GWhr
Non-Fossil Fuel Energy Consumption	GWhr
Annual Operating Hours	hr
Water Abstracted from Fresh Water Source	m ³
Water Abstracted from Borehole Source	m ³
Water Abstracted from Estuarine Water Source	m ³
Water Abstracted from Sea Water Source	m ³
Water Abstracted from Mains Water Source	m ³
Gross Total Water Used	m ³
Net Water Used	m ³
Hazardous Waste Transferred for Disposal at another installation	t
Hazardous Waste Transferred for Recovery at another installation	t
Non-Hazardous Waste Transferred for Disposal at another installation	t
Non-Hazardous Waste Transferred for Recovery at another installation	t
Waste recovered to Quality Protocol Specification and transferred off-site	t

Table S4.2 Resource Efficiency Metrics	
Parameter	Units
Waste transferred directly off-site for use under an exemption / position statement	t

Table S4.3 Large Combustion Plant Performance parameters for reporting to DEFRA		
Parameter	Frequency of assessment	Units
Thermal Input Capacity for each LCP	Annually	MW
Annual Fuel Usage for each LCP	Annually	TJ
Total Emissions to Air of NO _x for each LCP	Annually	t
Total Emissions to Air of SO ₂ for each LCP	Annually	t
Total Emissions to Air of Dust for each LCP	Annually	t
Operating Hours for each LCP	Annually	hr

Table S4.4 Reporting forms		
Media/ parameter	Reporting format	Agency recipient
Air & Energy	Form IED AR1 – SO ₂ , NO _x and dust mass emission and energy Form as agreed in writing by the Environment Agency.	National and Area Office
Air	Form IED RTA1 –TNP quarterly emissions summary log Form as agreed in writing by the Environment Agency.	National and area
LCP	Form IED HR1 – operating hours Form as agreed in writing by the Environment Agency.	National and Area Office
Air	Form IED CON 1 – continuous monitoring Form as agreed in writing by the Environment Agency.	Area Office
CEMs	Form IED CEM – Invalidation Log Form as agreed in writing by the Environment Agency.	Area Office
LCP	Form IED BD1 - Cumulative annual rolling malfunction and breakdown hours Form as agreed in writing by the Environment Agency.	Area Office

Table S4.4 Reporting forms		
Media/ parameter	Reporting format	Agency recipient
Air	Form IED MF1 – pollutant concentrations when during any day with malfunction or breakdown of abatement plant Form as agreed in writing by the Environment Agency.	Area Office
Air	Form IED PM1 - discontinuous monitoring and load. Form as agreed in writing by the Environment Agency.	Area Office
Resource Efficiency	Form REM1 – resource efficiency annual report Form as agreed in writing by the Environment Agency.	National and Area Office
Water	Form water 1 or other form as agreed in writing by the Environment Agency Form as agreed in writing by the Environment Agency.	Area Office

Schedule 5 – Notification

These pages outline the information that the operator must provide.

Units of measurement used in information supplied under Part A and B requirements shall be appropriate to the circumstances of the emission. Where appropriate, a comparison should be made of actual emissions and authorised emission limits.

If any information is considered commercially confidential, it should be separated from non-confidential information, supplied on a separate sheet and accompanied by an application for commercial confidentiality under the provisions of the EP Regulations.

Part A

Permit Number	
Name of operator	
Location of Facility	
Time and date of the detection	

(a) Notification requirements for any malfunction, breakdown or failure of equipment or techniques, accident, or emission of a substance not controlled by an emission limit which has caused, is causing or may cause significant pollution	
To be notified within 24 hours of detection	
Date and time of the event	
Reference or description of the location of the event	
Description of where any release into the environment took place	
Substances(s) potentially released	
Best estimate of the quantity or rate of release of substances	
Measures taken, or intended to be taken, to stop any emission	
Description of the failure or accident.	

(b) Notification requirements for the breach of a limit	
To be notified within 24 hours of detection unless otherwise specified below	
Emission point reference/ source	
Parameter(s)	
Limit	
Measured value and uncertainty	
Date and time of monitoring	
Measures taken, or intended to be taken, to stop the emission	
Time periods for notification following detection of a breach of a limit	
Parameter	Notification period

(c) Notification requirements for the detection of any significant adverse environmental effect	
To be notified within 24 hours of detection	
Description of where the effect on the environment was detected	
Substances(s) detected	
Concentrations of substances detected	
Date of monitoring/sampling	

Part B – to be submitted as soon as practicable

Any more accurate information on the matters for notification under Part A.	
Measures taken, or intended to be taken, to prevent a recurrence of the incident	

Measures taken, or intended to be taken, to rectify, limit or prevent any pollution of the environment which has been or may be caused by the emission	
The dates of any unauthorised emissions from the facility in the preceding 24 months.	

Name*	
Post	
Signature	
Date	

* authorised to sign on behalf of the operator

Part C Malfunction or Breakdown of LCP abatement equipment

Permit Number	
Name of operator	
Location of Facility	
LCP Number	
Malfunction or breakdown	
Date of malfunction or breakdown	

(a) Notification requirements for any malfunction and breakdown of abatement equipment as defined by the Industrial Emission Directive*.	
To be notified within 48 hours of abatement equipment malfunction and breakdown	
Time at which malfunction or breakdown commenced	
Time at which malfunction or breakdown ceased	
Duration of the breakdown event in hours and minutes	
Reasons for malfunction or breakdown	

Where the abatement plant has failed, give the hourly average concentration of all measured pollutants.	
Cumulative breakdown operation in current year (at end of present event)	
Cumulative malfunction operation in current year (at end of present event)	
Name**	
Post	
Signature **	
Date	

* See section 3.6 and Appendix E of ESI Compliance Protocol for guidance

** authorised to sign on behalf of the operator

Schedule 6 – Interpretation

“accident” means an accident that may result in pollution.

“Air Quality Risk Assessment” has the meaning given in Annex D of IED Compliance Protocol for Utility Boilers and Gas Turbines.

“application” means the application for this permit, together with any additional information supplied by the operator as part of the application and any response to a notice served under Schedule 5 to the EP Regulations.

“authorised officer” means any person authorised by the Environment Agency under section 108(1) of The Environment Act 1995 to exercise, in accordance with the terms of any such authorisation, any power specified in section 108(4) of that Act.

“average over the sampling period” means the average value of three consecutive measurements of at least 30 minutes each [or as agreed in writing with the Environment Agency].

“average of samples obtained during one year” means the average of the values obtained during one year of the periodic measurements taken with the monitoring frequency set for each parameter.

“background concentration” means such concentration of that substance as is present in:

for emissions to surface water, the surface water quality up-gradient of the site; or

for emissions to sewer, the surface water quality up-gradient of the sewage treatment works discharge.

“base load” means: (i) as a mode of operation, operating for >4000hrs pa; and (ii) as a load, the maximum load under ISO conditions that can be sustained continuously, i.e. maximum continuous rating.

“Black Start” means the procedure to recover from a total or partial shutdown of the UK Transmission System which has caused an extensive loss of supplies. This entails isolated power stations being started individually and gradually being reconnected to other power stations and substations in order to form an interconnected system again.

“breakdown” has the meaning given in the ESI IED Compliance Protocol for Utility Boilers and Gas Turbines.

“calendar monthly mean” means the value across a calendar month of all validated hourly means.

“CEN” means Comité Européen de Normalisation.

“Combustion Technical Guidance Note” means IPPC Sector Guidance Note Combustion Activities, version 2.03 dated 27th July 2005 published by Environment Agency.

“commissioning” means testing of the installation that involves any operation of a Large Combustion Plant referenced in schedule 1, table S1.1.

“daily average” means the average over a period of 24 hours of validated hourly averages obtained by continuous measurements.

“disposal” means any of the operations provided for in Annex I to Directive 2008/98/EC of the European Parliament and of the Council on waste.

“DLN” means dry, low NO_x burners.

“emergency plant” means a plant which operates for the sole purpose of providing power at a site during an onsite emergency and/or during a black start and which does not provide balancing services or demand side response services.

“emissions of substances not controlled by emission limits” means emissions of substances to air, water or land from the activities, either from the emission points specified in schedule 3 or from other localised or diffuse sources, which are not controlled by an emission or background concentration limit.

“emissions to land” includes emissions to groundwater.

“Energy efficiency” means the annual net plant energy efficiency, the value for which is calculated from the operational data collected over the year.

“EP Regulations” means The Environmental Permitting (England and Wales) Regulations SI 2016 No.1154 and words and expressions used in this permit which are also used in the Regulations have the same meanings as in those Regulations.

“groundwater” means all water, which is below the surface of the ground in the saturation zone and in direct contact with the ground or subsoil.

“Industrial Emissions Directive” means DIRECTIVE 2010/75/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 24 November 2010 on industrial emissions.

“List of Wastes” means the list of wastes established by Commission Decision 2000/532/EC replacing Decision 94/3/EC establishing a list of wastes pursuant to Article 1(a) of Council Directive 75/442/EEC on waste and Council Decision 94/904/EC establishing a list of hazardous waste pursuant to Article 1(4) of Council Directive 91/689/EEC on hazardous waste, as amended from time to time.

“large combustion plant” or “LCP” is a combustion plant or group of combustion plants discharging waste gases through a common windshaft or stack, where the total thermal input is 50 MW or more, based on net calorific value. The calculation of thermal input, excludes individual combustion plants with a rated thermal input below 15MW.

“low polluting fuels” means biomass or coal with an average as-received sulphur content of less than 0.4% by mass as described in the ESI IED Compliance Protocol for Utility Boilers and Gas Turbines.

“malfunction” has the meaning given in the ESI IED Compliance Protocol for Utility Boilers and Gas Turbines.

“MCERTS” means the Environment Agency’s Monitoring Certification Scheme.

“MCR” means maximum continuous rating.

“Medium Combustion Plant” or “MCP” means a combustion plant with a rated thermal input equal to or greater than 1 MW but less than 50 MW.

“Medium Combustion Plant Directive” or “MCPD” means Directive 2015/2193/EU of the European Parliament and of the Council on the limitation of emissions of certain pollutants into the air from medium combustion plants.

“MSDL” means minimum shut-down load as defined in Implementing Decision 2012/249/EU.

“MSUL” means minimum start-up load as defined in Implementing Decision 2012/249/EU.

“Natural gas” means naturally occurring methane with no more than 20% by volume of inert or other constituents.

“ncv” means net calorific value.

“Net electrical efficiency” means the ratio between the net electrical output (electricity produced minus the imported energy) and the fuel/feedstock energy input (as the fuel/feedstock lower heating value) at the combustion unit boundary over a given period of time.

“non-emergency plant” means a plant which provides balancing services or demand side response services.

“operational hours” are whole hours commencing from the first unit ending start up and ending when the last unit commences shut down.

“pests” means Birds, Vermin and Insects.

“quarter” means a calendar year quarter commencing on 1 January, 1 April, 1 July or 1 October.

“recovery” means any of the operations provided for in Annex II to Directive 2008/98/EC of the European Parliament and of the Council on waste.

“SI” means site inspector.

“Standby fuel” means alternative liquid fuels that are used in emergency situations when the gas fuel which is normally used, is not available.

“TNP Register” means the register maintained by the Environment Agency in accordance with regulation 4 of the Large Combustion Plants (Transitional National Plan) Regulations 2015 SI2015 No.1973

“Waste code” means the six digit code referable to a type of waste in accordance with the List of Wastes and in relation to hazardous waste, includes the asterisk.

“Waste Framework Directive” or “WFD” means Waste Framework Directive 2008/98/EC of the European Parliament and of the Council on waste.

Where a minimum limit is set for any emission parameter, for example pH, reference to exceeding the limit shall mean that the parameter shall not be less than that limit.

Unless otherwise stated, any references in this permit to concentrations of substances in emissions into air means:

- in relation to emissions from combustion processes, the concentration in dry air at a temperature of 273K, at a pressure of 101.3 kPa and with an oxygen content of 3% dry for liquid and gaseous fuels, 6% dry for solid fuels; and/or
- in relation to emissions from gas turbine or compression ignition engine combustion processes, the concentration in dry air at a temperature of 273K, at a pressure of 101.3kPa and with an oxygen content of 15% dry for liquid and gaseous fuels; and/or
- in relation to emissions from combustion processes comprising a gas turbine with a waste heat boiler, the concentration in dry air at a temperature of 273K, at a pressure of 101.3kPa and with an oxygen content of 15% dry, unless the waste heat boiler is operating alone, in which case, with an oxygen content of 3% dry for liquid and gaseous fuels; and/or
- in relation to emissions from non-combustion sources, the concentration at a temperature of 273K and at a pressure of 101.3 kPa, with no correction for water vapour content.

“year” means calendar year ending 31 December.

“yearly average” means the average over a period of one year of validated hourly averages obtained by continuous measurements.

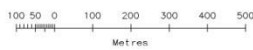
Schedule 7 – Site plan



Landplan® Data



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END OF PERMIT

Annex to conditions – Derogation under Industrial Emissions Directive

Derogation under Article 15(4) of Industrial Emissions Directive

DIRECTIVE 2010/75/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 24 November 2010 on industrial emissions

Operating Techniques

We have considered the Operator's proposed techniques and its comparison against other relevant techniques as described in the BAT Conclusions for Large Combustion Plant (LCP) published 17 August 2017. Our full reasoning is given in our decision document that accompanies this permit determination.

Permits must be reviewed and Operators must comply with BAT (Associated Emission Levels) AELs by 17 August 2021.

The Operator has requested derogations from BAT AELs for BAT Conclusions 20, 21 and 22 based on the technical characteristics of the Installation. The proposed techniques will result in emissions for which the appropriate emissions limits are less stringent than those associated with the best available techniques as described in the BAT Conclusions.

A summary of the derogation requests are provided below.

BAT Conclusion 20

The Operator requested a time limited derogation for this coal fired power station, LCP116. If granted, the derogation will last until the plant closes on or before 1st October 2025. The derogation is from BAT Conclusion 20, to prevent or reduce NO_x emissions to air while limiting CO and N₂O emissions to air from the combustion of coal and/or lignite and meeting the yearly average BAT AEL of 150mg/m³ and meet the daily average BAT AEL of 200mg/m³. This is set out in the (LCP BAT Conclusions Document (EU) 2017/1442 of 31 July 2017, published 17 August 2017. This derogation is made on the basis of the technical characteristics of the installation.

For reduction of NO_x emissions, the BAT conclusions describe two secondary abatement techniques options: Selective Catalytic Reduction (SCR) or Selective Non Catalytic Reduction (SNCR). The Operator has already fitted SCR to reduce NO_x emissions and has therefore only considered the additional costs to improve the performance of the SCR system to deliver a reduction from the IED monthly ELV of 200 mg/Nm³ to the yearly average BAT AEL of 150 mg/Nm³. Capital costs would be incurred in fitting SNCR and in any case the SCR can achieve a better performance.

The Environment Agency has reviewed the request and concluded that:

- The Operator has supplied a valid derogation request against BAT Conclusion 20. The derogation request is based on technical characteristics of the installation namely that as the plant is closing on before 1 October 2025 to make further investment in upgrading the performance of the SCR abatement plant is costly and would exceed any environmental improvement.
- The proposed Emission Limit Values (ELVs) are significantly below the current ELVs that apply until 30th June 2020 and are aligned with the Industrial Emissions Directive (IED) Annex V ELVs which apply from 01st July 2020, until the closure of the coal power station on or before 1st October 2025.

ELVs in mg/Nm ³	Proposed	Current	IED Annex V	BAT AEL
Annual Average	200	None	None	150
Monthly Average	200	450	200	None
Daily Average	220	550 (95% of validated daily means within a calendar year)	220	200
95%ile validated hourly averages over the year	400	None	400	None

The Operator has provided a credible argument that the increased costs linked to the technical characteristics of the installation are disproportionate for achieving the BAT AEL. The operator only considered one option of improving the performance of the SCR plant given that this has only been installed relatively recently and removing it and replacing with totally new plant was considered disproportionate given the expense and limited lifespan of the power station. They examined upgrading the SCR plant based on three generation cases in the cost benefit analysis (CBA):-

- (1) An expected generation case assuming 3.5 terra-watt hours (TWh) per year based on central expectations on annual generation up to the end of 2025;
- (2) 'High generation' case of 10TWh per year representing the upper end of annual generation up to the end of 2025 and
- (3) 'Maximum generation' case assuming 17.52TWh per year representing a theoretical extreme case of full load operation of all units for every hour of the year, though this is regarded as unrealistic case and was later withdrawn.

The CBA using central case assumptions shows a negative Net Present Values (NPV) for the BAT AEL of £0.54 million and therefore the cost of compliance is disproportionate compared to the environmental benefit achieved. However, there is a level of uncertainty in the analysis as this swings to a positive NPV value of £9.99m (proportional in favour of the upgrade) when the high damage cost value is applied. As a result of this level of uncertainty the CBA is considered inconclusive.

Significant improvements to reduce NOx emissions have already been implemented and in any event making further improvements in air quality are marginal. Continuing to meet IED Chapter V ELV's is not causing any significant pollution, nor would it prevent a high level of protection of the environment as a whole being achieved.

The Environment Agency is granting this derogation request subject to the following permit conditions:

- IC19 to provide a report on the operation of the SCR systems to demonstrate that the SCR plant performance has been optimised and meeting the IED Annex V limits.
- IED Annex V limits shall apply from 1st July 2020, Table S3.1a
- The plant is to close on or before the 1st October 2025, Table S1.1.

BAT Conclusions 21 and 22

The Operator requested a time limited derogation from BAT Conclusion 21. This BAT Conclusion relates to preventing or reducing sulphur dioxide (SO₂) emissions to air from the combustion of coal and/or lignite and to meeting BAT AEL's yearly average emission concentration of 130 mg/Nm³ and achieving a daily average emission concentration of 205 mg/Nm³. This is set out in the LCP BAT Conclusions Document (EU) 2017/1442 of 31 July 2017, published 17 August 2017. This is made on the basis of the technical characteristics of the plant.

The Operator has also requested a time limited derogation from BAT Conclusion 22 to reduce dust and particulate-bound metal emissions to air from the combustion of coal and/or lignite and meeting BAT-AELs of yearly average emission concentration of 8 mg/Nm³ and a daily average emission concentration of 14 mg/Nm³.

The derogations against BAT Conclusions 21 and 22 are being considered jointly as although the abatement systems are separate, they are in line and have an interaction. Lowering the sulphur content of the fuel would reduce the effectiveness of the electrostatic precipitators (ESP's). If granted, the derogation will last until the plant closes on or before 1st October 2025.

For SO₂ and dust the Operator's primary argument is that the power station is set to close on or before the 1st October 2025 so the cost of capital investment in upgrading the dust abatement systems (ESP's) and Flue Gas Desulphurisation plant (FGD) to meet the new plant standards of BAT for this period outweigh any environmental improvement achieved.

The Environment Agency has reviewed the request and concluded that:

The Operator has supplied a valid derogation request against BAT Conclusions 21 and 22 of the BAT Conclusions. The derogation request is based on technical characteristics. The Operator has looked at the viability of using low sulphur coal as an option, though this would only achieve compliance with the BAT AEL for SO₂ and would reduce the effectiveness of the ESP's, the performance of which already falls short of that required by BAT. Changes to the FGD and sulphur content of the fuels have a direct linkage to the investment needed on the ESP to achieve compliance with both BAT Conclusions. Given the interaction with the abatement of SO₂ (BAT Conclusion 21) and abatement of dust emissions (BAT Conclusion 22) options, achieving both are most relevant for consideration and taken forward in the CBA.

The proposed ELVs are significantly below the current ELVs which apply until 30th June 2020. They are aligned with the IED Annex V ELVs which would apply from the 1st July 2020, until the closure of the coal power station on or before the 1st of October 2025.

SO₂ limits (mg/Nm³) – corrected to 6% oxygen

ELVs in mg/Nm³	Proposed	Current	IED Annex V	BATC
Annual Average	200	None	None	130
Monthly Average	200	350	200	None
Daily Average	220	440 (95% daily means)	220	205
95% of validated hourly average in a calendar year	400	None	400	None

Dust limits (mg/Nm³)				
ELVs in mg/Nm³	Proposed	Current	IED Annex V	BATC
Annual Average	20	None	None	8
Monthly Average	20	20	20	None
Daily Average	22	35 (95% daily means)	22	14
95% of validated hourly average in a calendar year	40	None	40	None

The Operator has provided a credible argument that the increased costs linked to the technical characteristics are disproportionate for achieving the BAT AEL's for both SO₂ and dust. An appropriate range of options were reviewed and those identified as technically viable were considered further. Viable options were taken forward for CBA, were adequately described in the CBA and the cost of the BAT AEL option and other options was confirmed as disproportionate compared to the environmental benefits.

Based on an expected power generation of 3.5TWh per year the CBA, using central assumptions and the revised 2019 damage costs, the CBA shows that reducing the sulphur content of fuel and use of SO₃ injection, upgrading ESP's and FGD is disproportionately costly compared with the environmental benefits.

However, there is a level of uncertainty in the analysis. Whilst the central assumption shows a negative NPV value of £18m for changing the fuel basket to use lower S coal and injection of SO₃ (i.e. disproportionately costly), this swings to a positive NPV value of £28m (proportional in favour of the upgrade) when the high damage cost values are applied.

The environmental impact assessment has demonstrated there is no significant reduction in SO₂ or dust emissions by adopting reduced sulphur coal or making further improvements to the secondary dust abatement system (either flue gas injection or additional ESP plates). In any event, improvements in air quality are marginal. Continuing to meet IED Chapter V ELV's is not causing any significant pollution, nor would it prevent a high level of protection of the environment as a whole being achieved.

The Environment Agency is granting this derogation request subject to the following permit conditions:

- The operating techniques for this BAT Conclusion are incorporated into the permit, Table S1.2.
- IED Annex V limits shall apply from 1st July 2020 until closure of the plant. Tables S3.1a and S3.1b.
- The plant is to close on or before the 01st October 2025, Table S1.1.