# Notice of variation and consolidation with introductory note

## The Environmental Permitting (England & Wales) Regulations 2016

Drax Generation Enterprise Limited

Rye House Power Station
Ratty's Lane
Hoddesdon
Hertfordshire
EN11 0RF

### Variation application number

EPR/RP3632SF/V004

### Permit number

EPR/RP3632SF

# Rye House Power Station
# Permit number EPR/RP3632SF

## 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.

This variation makes the below changes following the review under Article 21(3) of the IED and the consolidation of the Environmental Permitting Regulations that came into force on the 4 January 2017:

- Revised emission limits and monitoring requirements for emissions to air applicable from 17 August 2021 in table S3.1a; and
- Inclusion of process monitoring for energy efficiency in table S3.4.

Additional key changes in accordance with IED Chapter II requirements:

- To amend Table S1.4 specifications for the end of the start-up period and the start of the shutdown period; and
- Permit condition 2.3.7 has been included in the permit with corresponding improvement condition IC10 requiring the operator to submit a report in relation to potential black start operation of the plant.

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

The principal activity carried out on this site is listed under Section 1.1 A(1)(a): Burning any fuel in an appliance with a rated thermal input of 50 megawatts or more. The activity comprises one combined cycle gas turbine (CCGT) module having a combined total thermal input of 1355 MWth and capable of a net rated power output of 715 MW of electricity. The module consists of three natural gas fired gas turbines LCP referenced LCP387, LCP388 and LCP389 with thermal inputs of 456 $MW_{th}$, 448 $MW_{th}$ and 451 $MW_{th}$ respectively and a single steam turbine (254 MW of electricity). There are no provisions for light oil firing of the gas turbines.

The hot combustion gases from each gas turbine pass into a dedicated heat recovery steam generator (HRSG). There are no facilities for supplementary firing of the HRSGs. The high pressure superheated steam raised in the three HRSGs is combined together and powers a single steam turbine, driving a hydrogen-cooled electricity generator.

The module can only operate in the combined cycle mode described above, as the HRSGs cannot be by-passed. The cooled combustion gases are finally released to atmosphere through three dedicated stacks 63m high 6.75m diameter each mounted on top of its heat recovery boiler. The plant uses an air cooled condenser to cool steam after the steam turbine.

There is a small gas fired auxiliary boiler (7.8 MWth) with separate 30.7m stack which is used to keep the HRSGs and steam turbine warm when the gas turbines are not firing.

Expanded low pressure steam from the steam turbine passes to a bank of electrical fan driven modular air blast chillers where it condenses and returns to the process as boiler feed water. As this process relies solely on dry air cooling there are no evaporative losses to air and no condensing cooling tower plumes.

Natural gas, without odorant, is supplied to the site directly from a high pressure main through a pressure reducing station, operated by the supplier, within a secure compound having a common boundary with the site.

Town's water and filtered rainwater are further purified in an ion-exchange demineralisation plant and then used as boiler make-up water. Hydrochloric acid and sodium hydroxide used for ion-exchange resin bed regeneration are stored in bunded bulk tanks on site. There is also a small storage facility for hydrazine and ammonia solutions, which are injected into the boilers as a corrosion inhibitor. There are storage tanks on site for treated and untreated boiler water

Ion exchange resin bed regeneration and boiler water blowdown are neutralised to produce sodium chloride and released to sewer, along with water from oily water separators, in compliance with conditions contained within a consent to discharge granted by Thames Water Utilities Ltd.

Clean site rainwater is collected in a large sump on site and pumped into the nearby River Lea according to a monitoring protocol. The operator has installed a water filtration system to enable this water to be recovered for use within the process thus reducing towns water consumption and reducing this routine release to water.

Of those substances, designated for control under the EPR Regulations, released to air from the three 65m stacks the main component comprises oxides of nitrogen (NOx) (nitric oxide and nitrogen dioxide). Carbon monoxide (CO) is also released. Releases of particulate matter and sulphur dioxide are considered to be insignificant due to the use only of natural gas as a fuel.

Moisture is also a product of the combustion of natural gas and is released as water vapour. Occasionally during periods of high atmospheric relative humidity the plume may condense and become visible.

NOx is created in the hot combustion zone by the combination of atmospheric oxygen and nitrogen. Minimisation of NOx creation is achieved by design of the turbine combustor configuration and fuel nozzle. The original gas turbines as supplied minimised the creation of NOx through the use of dry low NOx burners.

Gas turbine exhaust gases are monitored continuously and parameters measured include NOx and CO along with other parameters that measure combustion performance such as temperature and oxygen content. The sampling ports are located in the hot zone between the gas turbine exhaust and the inlet to the boilers within the buildings. The Continuous Emission Monitors (CEMs) meet the Environment Agency's requirements for MCERTS certification.

All main items of equipment are housed within large buildings, which act as acoustic enclosures, and noise levels outside of these buildings but within the site are low.

There is a low risk for generating odours having potential to create annoyance off-site.

Within 10km of the site there are a number of ecologically sensitive designated sites, notably Special Areas of Conservation including Epping Forest, and Wormley-Hoddesdon Park Woods, Special Protection Areas including Lea Valley (Rye Meads – also Ramsar). There is also one Site of Special Scientific Interest within a radius of 2km. The site is expected to have no significant effect on these.

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 received | Duly made<br>30/03/2006 | Application for >50MW thermal input Power Station |
| Submission of modified GT test results | 06/10/2006 | |
| Submission of site plan for permit | 12/10/2006 | |
| Permit determined EPR/RP3632SF | 19/12/2006 | Permit issued |
| Regulation 60 Notice sent to the Operator | 09/12/2014 | Issue of a Notice under Regulation 60(1) of the EPR. Environment Agency Initiated review and variation to vary and update the permit to modern conditions. |
| Regulation 60 Notice response | 30/03/2015 | Response received from the Operator. |
| Additional information received | 24/06/2015 | Response to request for further information (RFI) dated 05/06/2015. |
| Variation determined EPR/RP3632SF/V002<br>(PAS Billing ref: NP3238AW) | 18/12/2015 | Varied and consolidated permit issued in modern condition format.<br>Variation effective from 01/01/2016. |
| Notified of change of company name and registered office address | 12/08/2019 | Name and registered office address changed to Drax Generation Enterprise Limited, 13 Queen's Road, Aberdeen, Scotland, AB15 4YL. |
| Variation issued EPR/RP3632SF/V003 | 10/09/2019 | Varied permit issued to Drax Generation Enterprise Limited. |
| 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 Best Available Techniques (BAT) Reference Document for large combustion plant. |
| Regulation 61 Notice response. | 06/11/2018 | Response received from the Operator. |
| Variation determined EPR/RP3632SF/V004<br>(Billing ref: GP3006BP) | 01/07/2020 | 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/RP3632SF**

## Issued to

**Drax Generation Enterprise Limited** ("the operator")

whose registered office is

**13 Queen's Road**
**Aberdeen**
**Scotland**
**AB15 4YL**

company registration number SC189124

to operate a regulated facility at

**Rye House Power Station**
**Ratty's Lane**
**Hoddesdon**
**Hertfordshire**
**EN11 0RF**

to the extent set out in the schedules.

The notice shall take effect from 01/07/2020

| Name | Date |
|---|---|
| **Daniel Timney** | **01/07/2020** |

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/RP3632SF**

This is the consolidated permit referred to in the variation and consolidation notice for application EPR/RP3632SF/V004 authorising,

**Drax Generation Enterprise Limited** (“the operator”),

whose registered office is

**13 Queen's Road**
**Aberdeen**
**Scotland**
**AB15 4YL**

company registration number SC189124

to operate a regulated facility at

**Rye House Power Station**
**Ratty's Lane**
**Hoddesdon**
**Hertfordshire**
**EN11 0RF**

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

| Name | Date |
|---|---|
| **Daniel Timney** | **01/07/2020** |

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").

## 2.2 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: LCP387, LCP388 and LCP389. 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: LCP387, LCP388 and LCP389. 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 S1.4.

2.3.6 For the following activities referenced in schedule 1, table S1.1: LCP387, LCP388 and LCP389. The effective Dry Low NOx threshold shall conform to the specifications set out in Schedule 1, tables S1.2 and S1.5.

2.3.7 The emission limit values from emission points A1, A2 and A3 listed in tables S3.1 and S3.1a 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 IC10.

2.3.8 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.

2.3.9 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.

# 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, S3.2 and S3.3.

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

3.1.3 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, S3.2 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, S3.2 and S3.3 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, table(s) S3.1 and S3.1a; 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 and S3.1a 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.

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.

## 4.3 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.

4.3.2 Any information provided under condition 4.3.1 (a)(i) or 4.3.1 (b)(i) where the information relates to the breach of a condition specified in the permit 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 Where the operator has entered into a climate change agreement with the Government, the Environment Agency shall be notified within one month of:

(a) a decision by the Secretary of State not to re-certify the agreement;

(b) a decision by either the operator or the Secretary of State to terminate the agreement; and

(c) any subsequent decision by the Secretary of State to re-certify such an agreement.

4.3.8 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 A(1) (a): Burning any fuel in an appliance with a rated thermal input of 50 megawatts or more. | Gas turbine electricity generators and associated heat recovery steam generators<br><br>Three Gas Turbine (GT) units:<br>LCP387 - GT11 456 $MW_{th}$<br>LCP388 - GT12 448 $MW_{th}$<br>LCP389 - GT13 451 $MW_{th}$<br><br>7.8 $MW_{th}$ Auxiliary Boiler<br><br>Emergency Electricity Generators:<br>2 units each of 500$kW_e$ | From receipt of natural gas to discharge of exhaust gases and the generation of steam and electricity for export. |
| | **Directly Associated Activity** | | |
| AR2 | Directly associated activity | Fuel Oil storage | From receipt of raw materials to dispatch for use. |
| AR3 | Directly associated activity | Steam Turbine Electricity Generator and Condenser. | From receipt of raw materials and treated water and steam input from HRSGs to generation of electricity, releases to air, boiler water blowdown to effluent water treatment and condensate return to HRSGs. |
| AR4 | Directly associated activity | Water purification plant | From receipt and storage of towns water and filtered rainwater and raw materials to discharge to effluent water treatment and despatch to waste and to supply of water to treated water storage. |

| Table S1.1 activities | | | |
|---|---|---|---|
| **Activity reference** | **Activity listed in Schedule 1 of the EP Regulations** | **Description of specified activity** | **Limits of specified activity** |
| AR5 | | Effluent water treatment | From receipt of demineralisation regeneration, boiler blowdown and separated oily water and receipt and storage of raw materials to discharge to sewer. |
| AR6 | | Rain water collection and treatment | From rainwater collection system, clean sumps and drains to discharge to River Lea and filtered water to towns water storage. |
| AR7 | | Waste handling and storage | From waste generation, storage and monitoring to waste despatch. |
| AR8 | | Fire Pumps | From receipt of diesel to releases to air. |

| Table S1.2 Operating techniques | | |
|---|---|---|
| **Description** | **Parts** | **Date Received** |
| Application | Sections 2.1 and 2.2 of the application document | 30/03/2006 |
| Response to regulation 60(1) Notice – request for information dated 31/10/14 | Compliance route and operating techniques identified in response to questions question 2 (ELV compliance route) and question 6 (MSUL/MSDL definitions). | Received 30/03/2015 |
| Receipt of additional information to the regulation 60(1) Notice. requested by letter dated 05/06/15 | Compliance route and operating techniques identified in response to questions 1 (LCP), 5 (net rated input) and question 6 (MSUL/MSDL definitions). | Received 24/06/2015 |
| Response to regulation 61(1) Notice – request for information dated 01/05/18<br>EPR/RP3632SF/V004 | Compliance and operating techniques identified in response to the BAT Conclusions for large combustion plant published on 17th August 2017. | 06/11/2018 |

| Table S1.3 Improvement programme requirements<br>Improvement conditions IC1-IC09 have been completed and removed by this variation EPR/RP3632SF/V004 | | |
|---|---|---|
| **Reference** | **Requirement** | **Date** |
| IC10 | 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.<br><br>The plant can be operated as set out in condition 2.3.7 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. | 12 months from variation issue |

| Table S1.4Start-up and Shut-down thresholds | | |
|---|---|---|
| **Emission Point and Unit Reference** | **“Minimum Start-Up Load”**<br>**Load in MW and as percent of rated power output (%)** | **“Minimum Shut-Down Load”**<br>**Load in MW and as percent of rated power output (%)** |
| A1:LCP387 (GT11) | Load: 80 MW; 50% | Load: 80 MW; 50% |
| A2:LCP388 (GT12) | Load: 80 MW; 50% | Load: 80 MW; 50% |
| A3:LCP389 (GT13) | Load: 80 MW; 50% | Load: 80 MW; 50% |

| Table S1.5 Dry Low NOx effective definition | |
|---|---|
| **Emission Point and Unit Reference** | **Load in MW and as percent of rated power output (%)** |
| A1:LCP387 (GT11) | Load: 80 MW; 50% |
| A2:LCP388 (GT12) | Load: 80 MW; 50% |
| A3:LCP389 (GT13) | Load: 80 MW; 50% |

# Schedule 2 – Raw materials and fuels

| Table S2.1 Raw materials and fuels | |
|---|---|
| **Raw materials and fuel description** | **Specification** |
| Natural gas | - |
| Gas oil | Not exceeding 0.1% w/w sulphur content |
| Water treatment plant raw materials used within the installation | Discharges of mercury and cadmium as a result of the impurities of raw materials used in the water treatment plant shall be controlled by ensuring that impurity levels are the minimum available in the commercial product. |

# Schedule 3 – Emissions and monitoring

| Table S3.1 Point source emissions to air - emission limits and monitoring requirements shall apply until 16 August 2021 | | | | | | |
|---|---|---|---|---|---|---|
| **Emission point ref. & location** | **Source** | **Parameter** | **Limit (including unit)[note1]** | **Reference period** | **Monitoring frequency** | **Monitoring standard or method** |
| A1 [shown on site plan in Schedule 7] | GT11 fired on natural gas LCP387 | Oxides of nitrogen (NO and $NO_2$ expressed as $NO_2$) | 55 $mg/m^3$ | 95% of validated hourly averages in a calendar year | Continuous | BS EN 14181 |
| | | | 55 $mg/m^3$ | Daily mean of validated hourly averages | | |
| | | | 50 $mg/m^3$ | Monthly mean of validated hourly averages | | |
| A1 [shown on site plan in Schedule 7] | GT11 fired on natural gas LCP387 | Carbon monoxide (CO) | 200 $mg/m^3$ | 95% of validated hourly averages in a calendar year | Continuous | BS EN 14181 |
| | | | 40 $mg/m^3$ | Daily mean of validated hourly averages | | |
| | | | 40 $mg/m^3$ | Monthly mean of validated hourly averages | | |
| A2 [shown on site plan in Schedule 7] | GT12 fired on natural gas LCP388 | Oxides of nitrogen (NO and $NO_2$ expressed as $NO_2$) | 55 $mg/m^3$ | 95% of validated hourly averages in a calendar year | Continuous | BS EN 14181 |
| | | | 55 $mg/m^3$ | Daily mean of validated hourly averages | | |
| | | | 50 $mg/m^3$ | Monthly mean of validated hourly averages | | |
| A2 [shown on site plan in Schedule 7] | GT12 fired on natural gas LCP388 | Carbon monoxide (CO) | 200 $mg/m^3$ | 95% of validated hourly averages in a calendar year | Continuous | BS EN 14181 |

| Table S3.1 Point source emissions to air - emission limits and monitoring requirements shall apply until 16 August 2021 | | | | | | |
|---|---|---|---|---|---|---|
| **Emission point ref. & location** | **Source** | **Parameter** | **Limit (including unit)[note1]** | **Reference period** | **Monitoring frequency** | **Monitoring standard or method** |
| A2 [shown on site plan in Schedule 7] | | | 40 $mg/m^3$ | Daily mean of validated hourly averages | Continuous | BS EN 14181 |
| | | | 40 $mg/m^3$ | Monthly mean of validated hourly averages | | |
| A3 [shown on site plan in Schedule 7] | GT13 fired on natural gas LCP389 | Oxides of nitrogen (NO and $NO_2$ expressed as $NO_2$) | 55 $mg/m^3$ | 95% of validated hourly averages in a calendar year | Continuous | BS EN 14181 |
| | | | 55 $mg/m^3$ | Daily mean of validated hourly averages | | |
| | | | 50 $mg/m^3$ | Monthly mean of validated hourly averages | | |
| A3 [shown on site plan in Schedule 7] | GT13 fired on natural gas LCP389 | Carbon monoxide (CO) | 200 $mg/m^3$ | 95% of validated hourly averages in a calendar year | Continuous | BS EN 14181 |
| | | | 40 $mg/m^3$ | Daily mean of validated hourly averages | | |
| | | | 40 $mg/m^3$ | Monthly mean of validated hourly averages | | |
| A1 [shown on site plan in Schedule 7] | GT13 fired on natural gas LCP389 | Sulphur dioxide ($SO_2$) | - | - | 6 monthly by calculation | Concentration by calculation as agreed in writing with the Environment Agency |

| Table S3.1 Point source emissions to air - emission limits and monitoring requirements shall apply until 16 August 2021 | | | | | | |
|---|---|---|---|---|---|---|
| **Emission point ref. & location** | **Source** | **Parameter** | **Limit (including unit)[note1]** | **Reference period** | **Monitoring frequency** | **Monitoring standard or method** |
| A2 [shown on site plan in Schedule 7] | GT11 fired on natural gas LCP387 | Sulphur dioxide ($SO_2$) | - | - | 6 monthly by calculation | Concentration by calculation as agreed in writing with the Environment Agency |
| A3 [shown on site plan in Schedule 7] | GT12 fired on natural gas LCP388 | Sulphur dioxide ($SO_2$) | - | - | 6 monthly by calculation | Concentration by calculation as agreed in writing with the Environment Agency |
| A4 [shown on site plan in Schedule 7] | 7.8 $MW_{th}$ Auxiliary Boiler | No parameters set | - | - | Parameters and frequency on request by the Agency | Permanent sampling access not required. |
| Methane vents | Fuel supply to gas turbines | No parameters set | - | - | Parameters and frequency on request by the Agency | Permanent sampling access not required. |
| Hydrogen vents | Steam turbine generator cooling | No parameters set | - | - | Parameters and frequency on request by the Agency | Permanent sampling access not required. |
| Emergency pressure relief vents | - | No parameters set | - | - | Parameters and frequency on request by the Agency | Permanent sampling access not required. |
| Vents from storage tanks | - | No parameters set | - | - | Parameters and frequency on request by the Agency | Permanent sampling access not required. |

| Table S3.1 Point source emissions to air - emission limits and monitoring requirements shall apply until 16 August 2021 | | | | | | |
|---|---|---|---|---|---|---|
| **Emission point ref. & location** | **Source** | **Parameter** | **Limit (including unit)[note1]** | **Reference period** | **Monitoring frequency** | **Monitoring standard or method** |
| A8 & A9: Diesel engine exhausts | Emergency Electricity Generators 2 units of 500kW$_{elec}$. | No parameters set | - | - | Parameters and frequency on request by the Agency | Permanent sampling access not required. |
| A1, A2 and A3 [shown on site plan in Schedule 7] | GT11 fired on natural gas LCP387<br>GT12 fired on natural gas LCP388<br>GT13 fired on natural gas LCP389 | % Oxygen ($O_2$) | - | - | Continuous<br>As appropriate to reference | BS EN 14181 |
| A1, A2 and A3 [shown on site plan in Schedule 7] | GT11 fired on natural gas LCP387<br>GT12 fired on natural gas LCP388<br>GT13 fired on natural gas LCP389 | Water vapour ($H_2O$) | - | - | Continuous<br>As appropriate to reference | BS EN 14181 |
| A1, A2 and A3 [shown on site plan in Schedule 7] | GT11 fired on natural gas LCP387<br>GT12 fired on natural gas LCP388<br>GT13 fired on natural gas LCP389 | Stack gas temperature ($^oC$) | - | - | Continuous<br>As appropriate to reference | Traceable to national standards |
| A1, A2 and A3 [shown on site plan in Schedule 7] | GT11 fired on natural gas LCP387<br>GT12 fired on natural gas LCP388<br>GT13 fired on natural gas LCP389 | Stack gas pressure (Pa) | - | - | Continuous<br>As appropriate to reference | Traceable to national standards |

| Table S3.1 Point source emissions to air - emission limits and monitoring requirements shall apply until 16 August 2021 | | | | | | |
|---|---|---|---|---|---|---|
| **Emission point ref. & location** | **Source** | **Parameter** | **Limit (including unit)[note1]** | **Reference period** | **Monitoring frequency** | **Monitoring standard or method** |
| A1, A2 and A3 [shown on site plan in Schedule 7] | GT11 fired on natural gas LCP387<br>GT12 fired on natural gas LCP388<br>GT13 fired on natural gas LCP389 | As required by the Method Implementation Document for BS EN 15259 | - | - | Pre-operation and when there is a significant operational change | BS EN 15259 |
| Note 1 GT11, GT12 and GT13 limits apply both from MSUL/MSDL to base load and 70% to base load. | | | | | | |

| Table S3.1a Point source emissions to air - emission limits and monitoring requirements shall apply from 17 August 2021 | | | | | | |
|---|---|---|---|---|---|---|
| **Emission point ref. & location** | **Source** | **Parameter** | **Limit (including unit)** | **Reference period** | **Monitoring frequency** | **Monitoring standard or method** |
| A1 [shown on site plan in Schedule 7] | GT11 fired on natural gas LCP387 | Oxides of nitrogen (NO and $NO_2$ expressed as $NO_2$) | 55 $mg/m^3$ DLN effective to baseload | 95% of validated hourly averages in a calendar year | Continuous | BS EN 14181 |
| A1 [shown on site plan in Schedule 7] | GT11 fired on natural gas LCP387 | Oxides of nitrogen (NO and $NO_2$ expressed as $NO_2$) | 50 $mg/m^3$ DLN effective to baseload<br>50 $mg/m^3$ MSUL/MSDL effective to baseload | Daily mean of validated hourly averages | Continuous | BS EN 14181 |
| A1 [shown on site plan in Schedule 7] | GT11 fired on natural gas LCP387 | Oxides of nitrogen (NO and $NO_2$ expressed as $NO_2$) | 50 $mg/m^3$ DLN effective to baseload | Monthly mean of validated hourly averages | Continuous | BS EN 14181 |
| A1 [shown on site plan in Schedule 7] | GT11 fired on natural gas LCP387 | Oxides of nitrogen (NO and $NO_2$ expressed as $NO_2$) | 40 $mg/m^3$ DLN effective to baseload | Yearly Average | Continuous | BS EN 14181 |
| A1 [shown on site plan in Schedule 7] | GT11 fired on natural gas LCP387 | Carbon monoxide (CO) | 200 $mg/m^3$ DLN effective to baseload | 95% of validated hourly averages in a calendar year | Continuous | BS EN 14181 |

| Table S3.1a Point source emissions to air - emission limits and monitoring requirements shall apply from 17 August 2021 | | | | | | |
|---|---|---|---|---|---|---|
| **Emission point ref. & location** | **Source** | **Parameter** | **Limit (including unit)** | **Reference period** | **Monitoring frequency** | **Monitoring standard or method** |
| A1 [shown on site plan in Schedule 7] | GT11 fired on natural gas LCP387 | Carbon monoxide (CO) | 40 $mg/m^3$ DLN effective to baseload | Daily mean of validated hourly averages | Continuous | BS EN 14181 |
| A1 [shown on site plan in Schedule 7] | GT11 fired on natural gas LCP387 | Carbon monoxide (CO) | 40 $mg/m^3$ DLN effective to baseload | Monthly mean of validated hourly averages | Continuous | BS EN 14181 |
| A1 [shown on site plan in Schedule 7] | GT11 fired on natural gas LCP387 | Carbon monoxide (CO) | 30 $mg/m^3$ DLN effective to baseload | Yearly average | Continuous | BS EN 14181 |
| A2 [shown on site plan in Schedule 7] | GT12 fired on natural gas LCP388 | Oxides of nitrogen (NO and $NO_2$ expressed as $NO_2$) | 55 $mg/m^3$ DLN effective to baseload | 95% of validated hourly averages in a calendar year | Continuous | BS EN 14181 |
| A2 [shown on site plan in Schedule 7] | GT12 fired on natural gas LCP388 | Oxides of nitrogen (NO and $NO_2$ expressed as $NO_2$) | 50 $mg/m^3$ DLN effective to baseload<br>50 $mg/m^3$ MSUL/MSDL to baseload | Daily mean of validated hourly averages | Continuous | BS EN 14181 |
| A2 [shown on site plan in Schedule 7] | GT12 fired on natural gas LCP388 | Oxides of nitrogen (NO and $NO_2$ expressed as $NO_2$) | 50 $mg/m^3$ DLN effective to baseload | Monthly mean of validated hourly averages | Continuous | BS EN 14181 |
| A2 [shown on site plan in Schedule 7] | GT12 fired on natural gas LCP388 | Oxides of nitrogen (NO and $NO_2$ expressed as $NO_2$) | 40 $mg/m^3$ DLN effective to baseload | Yearly average | Continuous | BS EN 14181 |
| A2 [shown on site plan in Schedule 7] | GT12 fired on natural gas LCP388 | Carbon monoxide (CO) | 200 $mg/m^3$ DLN effective to baseload | 95% of validated hourly averages in a calendar year | Continuous | BS EN 14181 |
| | GT12 fired on natural gas LCP388 | | 40 $mg/m^3$ DLN effective to baseload | Daily mean of validated | Continuous | BS EN 14181 |

| Table S3.1a Point source emissions to air - emission limits and monitoring requirements shall apply from 17 August 2021 | | | | | | |
|---|---|---|---|---|---|---|
| **Emission point ref. & location** | **Source** | **Parameter** | **Limit (including unit)** | **Reference period** | **Monitoring frequency** | **Monitoring standard or method** |
| A2 [shown on site plan in Schedule 7] | | Carbon monoxide (CO) | 40 $mg/m^3$ DLN effective to baseload | hourly averages | | |
| A2 [shown on site plan in Schedule 7] | GT12 fired on natural gas LCP388 | Carbon monoxide (CO) | 40 $mg/m^3$ DLN effective to baseload | Monthly mean of validated hourly averages | Continuous | BS EN 14181 |
| A2 [shown on site plan in Schedule 7] | GT12 fired on natural gas LCP388 | Carbon monoxide (CO) | 30 $mg/m^3$ DLN effective to baseload | Yearly average | Continuous | BS EN 14181 |
| A3 [shown on site plan in Schedule 7] | GT13 fired on natural gas LCP389 | Oxides of nitrogen (NO and $NO_2$ expressed as $NO_2$) | 55 $mg/m^3$ DLN effective to baseload | 95% of validated hourly averages in a calendar year | Continuous | BS EN 14181 |
| A3 [shown on site plan in Schedule 7] | GT13 fired on natural gas LCP389 | Oxides of nitrogen (NO and $NO_2$ expressed as $NO_2$) | 50 $mg/m^3$ DLN effective to baseload<br>50 $mg/m^3$ MSUL/MSDL to baseload | Daily mean of validated hourly averages | Continuous | BS EN 14181 |
| A3 [shown on site plan in Schedule 7] | GT13 fired on natural gas LCP389 | Oxides of nitrogen (NO and $NO_2$ expressed as $NO_2$) | 50 $mg/m^3$ DLN effective to baseload | Monthly mean of validated hourly averages | Continuous | BS EN 14181 |
| A3 [shown on site plan in Schedule 7] | GT13 fired on natural gas LCP389 | Oxides of nitrogen (NO and $NO_2$ expressed as $NO_2$) | 40 $mg/m^3$ DLN effective to baseload | Yearly average | Continuous | BS EN 14181 |
| A3 [shown on site plan in Schedule 7] | GT13 fired on natural gas LCP389 | Carbon monoxide (CO) | 200 $mg/m^3$ DLN effective to baseload | 95% of validated hourly averages in a calendar year | Continuous | BS EN 14181 |

| Table S3.1a Point source emissions to air - emission limits and monitoring requirements shall apply from 17 August 2021 | | | | | | |
|---|---|---|---|---|---|---|
| **Emission point ref. & location** | **Source** | **Parameter** | **Limit (including unit)** | **Reference period** | **Monitoring frequency** | **Monitoring standard or method** |
| A3 [shown on site plan in Schedule 7] | GT13 fired on natural gas LCP389 | Carbon monoxide (CO) | 40 $mg/m^3$ DLN effective to baseload | Daily mean of validated hourly averages | Continuous | BS EN 14181 |
| | | | 40 $mg/m^3$ MSUL/MSDL to baseload | | | |
| A3 [shown on site plan in Schedule 7] | GT13 fired on natural gas LCP389 | Carbon monoxide (CO) | 40 $mg/m^3$ DLN effective to baseload | Monthly mean of validated hourly averages | Continuous | BS EN 14181 |
| A3 [shown on site plan in Schedule 7] | GT13 fired on natural gas LCP389 | Carbon monoxide (CO) | 30 $mg/m^3$ DLN effective to baseload | Yearly average | Continuous | BS EN 14181 |
| A1 [shown on site plan in Schedule 7] | GT13 fired on natural gas LCP389 | Sulphur dioxide ($SO_2$) | - | - | 6 monthly by calculation | Concentration by calculation as agreed in writing with the Environment Agency |
| A2 [shown on site plan in Schedule 7] | GT11 fired on natural gas LCP387 | Sulphur dioxide ($SO_2$) | - | - | 6 monthly by calculation | Concentration by calculation as agreed in writing with the Environment Agency |
| A3 [shown on site plan in Schedule 7] | GT12 fired on natural gas LCP388 | Sulphur dioxide ($SO_2$) | - | - | 6 monthly by calculation | Concentration by calculation as agreed in writing with the Environment Agency |
| A4 [shown on site plan in Schedule 7] | 7.8 MWth Auxiliary Boiler | No parameters set | - | - | Parameters and frequency on request by the Agency | Permanent sampling access not required |

| Table S3.1a Point source emissions to air - emission limits and monitoring requirements shall apply from 17 August 2021 | | | | | | |
|---|---|---|---|---|---|---|
| **Emission point ref. & location** | **Source** | **Parameter** | **Limit (including unit)** | **Reference period** | **Monitoring frequency** | **Monitoring standard or method** |
| Methane vents | Fuel supply to gas turbines | No parameters set | - | - | Parameters and frequency on request by the Agency | Permanent sampling access not required |
| Hydrogen vents | Steam turbine generator cooling | No parameters set | - | - | Parameters and frequency on request by the Agency | Permanent sampling access not required |
| Emergency pressure relief vents | - | No parameters set | - | - | Parameters and frequency on request by the Agency | Permanent sampling access not required |
| Vents from storage tanks | - | No parameters set | - | - | Parameters and frequency on request by the Agency | Permanent sampling access not required |
| A8 & A9: Diesel engine exhausts | Emergency Electricity Generators 2 units of 500kW$_{elec}$. | No parameters set | - | - | Parameters and frequency on request by the Agency | Permanent sampling access not required |
| A1, A2 and A3 [shown on site plan in Schedule 7] | GT11 fired on natural gas LCP387<br>GT12 fired on natural gas LCP388<br>GT13 fired on natural gas LCP389 | Flow | - | - | Continuous As appropriate to reference | EN ISO 16911 |

| Table S3.1a Point source emissions to air - emission limits and monitoring requirements shall apply from 17 August 2021 | | | | | | |
|---|---|---|---|---|---|---|
| **Emission point ref. & location** | **Source** | **Parameter** | **Limit (including unit)** | **Reference period** | **Monitoring frequency** | **Monitoring standard or method** |
| A1, A2 and A3 [shown on site plan in Schedule 7] | GT11 fired on natural gas LCP387<br>GT12 fired on natural gas LCP388<br>GT13 fired on natural gas LCP389 | % Oxygen ($O_2$) | - | - | Continuous<br>As appropriate to reference | BS EN 14181 |
| A1, A2 and A3 [shown on site plan in Schedule 7] | GT11 fired on natural gas LCP387<br>GT12 fired on natural gas LCP388<br>GT13 fired on natural gas LCP389 | Water vapour ($H_2O$) | - | - | Continuous<br>As appropriate to reference | BS EN 14181 |
| A1, A2 and A3 [shown on site plan in Schedule 7] | GT11 fired on natural gas LCP387<br>GT12 fired on natural gas LCP388<br>GT13 fired on natural gas LCP389 | Stack gas temperature ($^oC$) | - | - | Continuous<br>As appropriate to reference | Traceable to national standards |
| A1, A2 and A3 [shown on site plan in Schedule 7] | GT11 fired on natural gas LCP387<br>GT12 fired on natural gas LCP388<br>GT13 fired on natural gas LCP389 | Stack gas pressure (Pa) | - | - | Continuous<br>As appropriate to reference | Traceable to national standards |
| A1, A2 and A3 [shown on site plan in Schedule 7] | GT11 fired on natural gas LCP387<br>GT12 fired on natural gas LCP388<br>GT13 fired on natural gas LCP389 | As required by the Method Implementation Document for BS EN 15259 | - | - | Pre-operation and when there is a significant operational change | BS EN 15259 |

| Table S3.2 Point Source emissions to water (other than sewer) – emission limits and monitoring requirements | | | | | | |
|---|---|---|---|---|---|---|
| **Emission point ref. & location** | **Source** | **Parameter** | **Limit (incl. unit)** | **Reference period** | **Monitoring frequency** | **Monitoring standard or method** |
| W1 [W1 on site plan in schedule 7 emission to River Lee] | Site surface water | pH | 6 – 9 (inclusive) | Instantaneous spot | Weekly | BS6068-2.50 |
| W1 [W1 on site plan in schedule 7 emission to River Lee] | Site surface water | Oil or grease | No visible oil | Instantaneous spot | Daily | Visual check |

| Table S3.3 Point source emissions to sewer, effluent treatment plant or other transfers off-site– emission limits and monitoring requirements | | | | | | |
|---|---|---|---|---|---|---|
| Emission point ref. & location | Source | Parameter | Limit (incl. Unit) | Reference period | Monitoring frequency | Monitoring standard or method |
| S1 [S1 on site plan in schedule 7 discharge to sewer] | Blowdown from boilers, demineralisation and service cooling towers | - | - | - | - | - |
| S2 [S2 on site plan in schedule 7 discharge to sewer] | Plant water sumps and rainwater from transformer compounds. | - | - | - | - | - |

| 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** |
| LCP 387 | Net electrical efficiency | After each modification that could significantly affect these parameters | EN Standards or equivalent | - |

| 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** |
| LCP 388 | Net electrical efficiency | After each modification that could significantly affect these parameters | EN Standards or equivalent | - |
| LCP 389 | Net electrical efficiency | After each modification that could significantly affect these parameters | EN Standards or equivalent | - |

# 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 | Every 3 months | 1 January, 1 April, 1 July, 1 October |
| | | Every 12 months | 1 January |
| Carbon Monoxide | A1, A2, A3 | Every 3 months | 1 January, 1 April, 1 July, 1 October |
| | | Every 12 months | 1 January |
| Sulphur dioxide | A1, A2, A3 | Every 6 months | 1 January, 1 July |
| | | Every 12 months | 1 January |
| Emissions to Water<br>Parameters as required by condition 3.5.1 | W1 | Every 12 months | 1 January |

| **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 |
| 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 NOx for each LCP | Annually | t |
| Total Emissions to Air of SO2 for each LCP | Annually | t |
| Total Emissions to Air of CO 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.<br>Form as agreed in writing by the Environment Agency. | National and Area Office |
| LCP | Form IED HR1 – operating hours.<br>Form as agreed in writing by the Environment Agency. | National and Area Office |
| Air | Form IED CON 2 – continuous monitoring.<br>Form as agreed in writing by the Environment Agency | Area Office |
| CEMs | Form IED CEM – invalidation Log.<br>Form as agreed in writing by the Environment Agency. | Area Office |
| Resource Efficiency | Form REM1 – resource efficiency annual report<br>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 | 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 | |

| **(b) Notification requirements for the breach of a limit** | |
|---|---|
| **To be notified within 24 hours of detection unless otherwise specified below** | |
| 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

# Schedule 6 – Interpretation

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

“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.

“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.

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

“CEN” means Commité 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.

“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.

“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.

“large combustion plant” or “LCP” is a combustion plant or group of combustion plants discharging waste gases through a common windshield 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.

“Mid-merit” means combustion plant operating between 1,500 and 4,000 hrs/yr.

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

“MCR” means maximum continuous rating.

“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.

“Net mechanical energy efficiency” means the ratio between the mechanical power at load coupling and the thermal power supplied by the fuel.

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

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

“SI” means site inspector.

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.

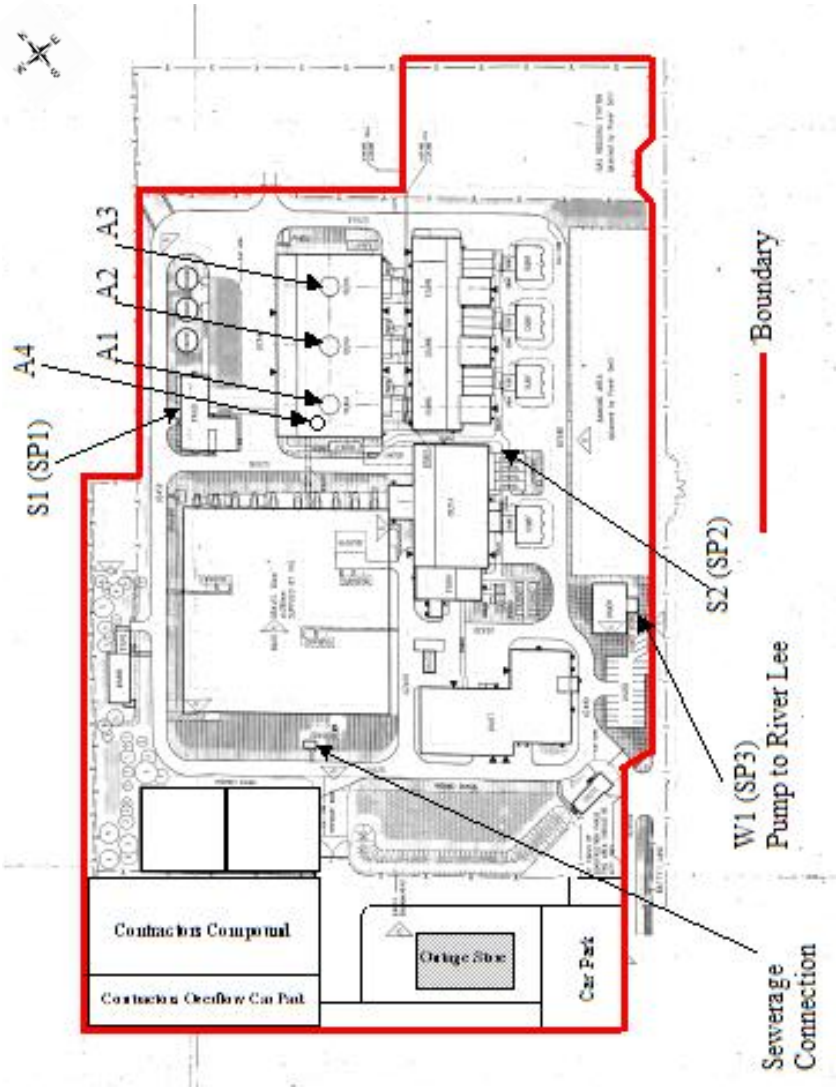
Unless otherwise stated, any references in this permit to concentrations of substances in emissions into air means:

- in relation to emissions from 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 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

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