



Notice of variation and consolidation with introductory note

The Environmental Permitting (England & Wales) Regulations 2010

London Underground Limited
Greenwich Generating Station
Old Woolwich Road
Greenwich
London
SE10 9NY

Variation application number

EPR/CP3432NF/V002

Permit number

EPR/CP3432NF

Greenwich Generating Station

Permit number EPR/CP3432NF

Introductory note

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

Under the Environmental Permitting (England & Wales) Regulations 2010 (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 1 of the notice specifies that all the conditions of the permit have been varied and schedule 2 comprises a consolidated permit which reflects the variations being made and contains all conditions relevant to this permit.

The requirements of the Industrial Emissions Directive (IED) 2010/75/EU are given force in England through the Environmental Permitting (England and Wales) Regulations 2010 (the EPR) (as amended).

This Permit, for the operation of large combustion plant (LCP), as defined by articles 28 and 29 of the Industrial Emissions Directive (IED), is varied by the Environment Agency to implement the special provisions for LCP given in the IED, by the 1 January 2016 (Article 82(3)). The IED makes special provisions for LCP under Chapter III, introducing new Emission Limit Values (ELVs) applicable to LCP, referred to in Article 30(2) and set out in Annex V.

As well as implementing Chapter III of IED, the consolidated variation notice takes into account and brings together in a single document all previous variations that relate to the original permit issued. It also modernises all conditions to reflect the conditions contained in our current generic permit template.

The Operator has chosen to operate this LCP under the 500 hr compliance route. This is a change from the previous operating regime which allowed for unlimited gas operation, with a lifetime limit of 18,000 operating hours, excluding Central Emergency Power Supply (CEPS) operation.

The variation notice uses updated LCP numbers in accordance with the most recent DEFRA LCP reference numbers. The LCP references have changed as follows:

- LCP 177 is changed to LCP 124;
- LCP 178 is changed to LCP 125;
- LCP 179 is changed to LCP 126; and
- LCP 180 is changed to LCP 127.

At the request of the operator this variation also permits the removal of the existing permit condition limiting operation to 18,000 total hours from 2008. We have also included a requirement to report monitoring of temperature from emission point W1.

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

The installation is situated on the south bank of the River Thames and is centred on NGR 538900 178160, with the nearest residential properties being located less than 10 meters from the installation boundary. The site is owned and operated by London Underground Ltd. The installation consists of seven open cycle gas turbines, each with a net thermal input of approx. 45 megawatts (with a second emergency operating mode of approx. 60 MWth), which are maintained to provide the power offtaker with a Central Emergency Power Supply (CEPS) in the event of a National Grid supply failure. The site also runs commercially on an intermittent basis – typically short duration operation within the STOR and similar markets to provide a demand reduction service. Six of the seven turbines are connected in pairs to three of the four stacks (56m high) with a single turbine connected into the fourth. Each turbine is operated for approximately 42 hours per annum for test purposes, 92% of which is on natural gas and the remaining 8% is on gas oil. This testing is a requirement to ensure the availability and reliability of the turbines in providing a CEPS supply for the energy offtaker.

When firing on gas oil the gas turbines are supplied with this fuel from on site storage facilities. These storage facilities have a maximum capacity of 4,008 tonnes of gas oil but this is limited to below the lower tier

COMAH threshold of 2500 tonnes, of which a minimum stock level of 2,052 tonnes is maintained on site at all times for operational reasons.

Cooling is achieved by a closed loop secondary cooling water system that circulates around the building. Within the system there are 10 head tanks and seven collecting tanks in the basement. The total capacity of the system is approximately 450 m³. A common header supplies cooling water to each gas turbine, which is then pumped from the collection tanks to the header tanks via three parallel heat exchangers that are cooled by abstracted river water (the primary cooling system). Because of the operating profile of the installation it is rare that the primary cooling system is required. The abstracted river water is then discharged back to the River Thames at point TQ 388 782.

The main releases from the installation are oxides of nitrogen and carbon monoxide produced from combustion of natural gas and emitted from the four stacks. Minimal quantities of sulphur dioxide and dust are emitted when the gas turbines are fired on gas oil. The installation operates a policy of running pairs of turbines whenever possible to increase the thermal buoyancy of the emitted flue gasses. The operator also has a regime of burner maintenance and calibration, which enables a level of control over the creation of thermal NO_x.

The installation is located within an Air Quality Management Area (AQMA) declared for annual mean nitrogen dioxide.

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 EPR/YP3830LF/A001	Duly made 16/03/06	
Additional information received		Receipt date 17/11/06
Permit determined EPR/YP3830LF	23/03/07	
Agency-initiated variation EPR/YP3830LF/V002	04/02/11	Variation to amend the registered office address and the change of company name
Variation determined EPR/YP3830LF/V002	22/02/11	
Variation determined EPR/YP3830LF/V003	11/03/13	Environment Agency Initiated Variation, to incorporate Eel Regulations improvement condition.
Application EPR/CP3432NF/T001 (full transfer of permit EPR/YP3830LF)	Duly made 22/07/13	Application to transfer the permit in full to London Underground Limited.
Transfer determined EPR/CP3432NF	12/08/13	Full transfer of permit complete.
Regulation 60 Notice sent to the Operator	31/10/14 re-sent on 09/12/14 with updates	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	29/01/15	Response received from the Operator.
Additional information received	14/07/15	Response to request for further information (RFI) dated 27/05/15.

Status log of the permit		
Description	Date	Comments
Variation determined EPR/CP3432NF/V002 (PAS Billing ref: WP3233AV)	22/12/15	Varied and consolidated permit issued in modern condition format. Variation effective from 01/01/2016.

End of introductory note

Notice of variation and consolidation

The Environmental Permitting (England and Wales) Regulations 2010

The Environment Agency in exercise of its powers under regulation 20 of the Environmental Permitting (England and Wales) Regulations 2010 varies and consolidates

Permit number

EPR/CP3432NF

Issued to

London Underground Limited ("the operator")

whose registered office is

**Windsor House
42 - 50 Victoria Street
London
SW1H 0TL**

company registration number 1900907

to operate a regulated facility at

**Greenwich Generating Station
Old Woolwich Road
Greenwich
London
SE10 9NY**

to the extent set out in the schedules.

The notice shall take effect from 01/01/2016

Name	Date
Tom Swift	22/12/2015

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 2010

Permit number

EPR/CP3432NF

This is the consolidated permit referred to in the variation and consolidation notice for application EPR/CP3432NF/V002 authorising,

London Underground Limited (“the operator”),

whose registered office is

**Windsor House
42 - 50 Victoria Street
London
SW1H 0TL**

company registration number 1900907

to operate an installation

**Greenwich Generating Station
Old Woolwich Road
Greenwich
London
SE10 9NY**

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

Name	Date
Tom Swift	22/12/2015

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 Without prejudice to condition 2.3.1, the activities shall be operated in accordance with the “Electricity Supply Industry IED Compliance Protocol for Utility Boilers and Gas Turbines” revision 1 dated February 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: LCP124, LCP125, LCP126 and LCP127. Standby fuel [gas oil] may be used for periods of up to 6 days during times of interruption to the gas supply. CEPS operational hours do not contribute to this limit.
- 2.3.6 For the following activities referenced in schedule 1, table S1.1: LCP124, LCP125, LCP126 and LCP127. The activities shall not operate for more than 500 hours per year.
- 2.3.7 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.
- 2.3.8 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, S3.2 and S3.3.
- 3.1.2 The limits given in schedule 3 shall not be exceeded.
- 3.1.3 Where a substance is specified in schedule 3 tables S3.2 or S3.3 but no limit is set for it, the concentration of such substance in emissions to water from the relevant emission point shall be no greater than the background concentration.
- 3.1.4 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.

3.5 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, S3.2 and S3.3.
- 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, S3.2 and S3.3 unless otherwise agreed in writing by the Environment Agency.

3.6 Monitoring for the purposes of the Industrial Emissions Directive Chapter III

- 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.
- 3.6.2 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.

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 2.3.6 applies, the hours of operation in any year; and
- (e) where condition 2.3.5 applies, the start date and time, and the days and hours of operation for each period of standby fuel operation (including CEPs hours);

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) and 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.

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
A1	Section 1.1 A(1) (a): Burning any fuel in an appliance with a rated thermal input of 50 megawatts or more.	<p>LCP 124. Burning of natural gas or gas oil in open cycle gas turbines (GT5, GT7) each of c.45MW net thermal input (c.60MWth on emergency operating mode).</p> <p>LCP 125. Burning of natural gas or gas oil in open cycle gas turbines (GT6, GT8) each of c.45MW net thermal input (c.60MWth on emergency operating mode).</p> <p>LCP 126. Burning of natural gas or gas oil in an open cycle gas turbine (GT1) of c.45MW net thermal input (c.60MWth on emergency operating mode).</p> <p>LCP 127. Burning of natural gas or gas oil in open cycle gas turbines (GT2, GT4) each of c.45MW net thermal input (c.60MWth on emergency operating mode).</p>	From receipt of natural gas or gas oil to discharge of exhaust gases, and the generation of electricity.
Directly Associated Activity			
A2	Directly associated activity	Fuel oil storage	From receipt of raw materials to dispatch for use. Maximum volume stored <2,500 tonnes
A3	Directly associated activity	Mains water (secondary) cooling system	From receipt of mains waters to discharge into on-site foul drainage arrangements

Table S1.1 activities			
Activity reference	Activity listed in Schedule 1 of the EP Regulations	Description of specified activity	Limits of specified activity
A4	Directly associated activity	Surface water (primary) cooling system	Abstraction of surface waters from River Thames(as per abstraction licence 28/39/44/16) to discharge to surface waters
A5	Directly associated activity	Water collection and treatment	From collection of rainwater run off and on site water use via the interceptor system to discharge to sewer.

Table S1.2 Operating techniques		
Description	Parts	Date Received
Application YP3830LF	The response to section 2.1 and 2.2 in the Application.	16/03/2006
Receipt of additional information to the application	Responses to questions 1-11	17/11/2006
Noise management plan	All	30/11/2007
Response to regulation 60(1) Notice – request for information dated 31/10/14	Compliance route of 500 hours per year, and operating techniques identified in response to questions 6 (minimum start up and shut down loads).	29/01/2015

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
IC1	The Operator shall submit in writing details of the method for the determination of oxides of nitrogen, carbon monoxide, sulphur dioxide and particulate matter from emission points A1, A2, A3 and A4 including details of the verification of the suitability of such a method.	Completed
IC2	A written plan shall be submitted to the Agency for approval detailing the results of a survey of all subsurface structure, including the site drainage system, and the measures to comply with the requirements of section 2.2.9 of the Combustion Sector SGN. Where appropriate the plan shall contain dates for the implementation of individual measures. The notification requirements of condition 2.5.2 shall be deemed to have been complied with on submission of the plan. The plan shall be implemented by the operator from the date of approval by the Agency.	Completed

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
IC3	<p>The Operator shall undertake a review of the BAT listed within the Combustion Sector SGN IPPC S1.01 Section 2 for NO_x and CO with regard to the ELVs given within the SGN for the release to air from existing gas turbines. The review shall include, but not be limited to, all of the relevant techniques listed within the SGN, the reduction in the level of pollutants (for each option) and the costs of achieving the reduction (for each option). The report shall include a timetable to implement any proposed changes as appropriate.</p> <p>The Operator shall implement the proposals as agreed in writing with the Environment Agency.</p>	Completed
IC4	<p>A written plan shall be submitted to the Agency for approval detailing the results of a review of above ground tanks, connected pipework and secondary containment for fuel oil and the measures to comply with the requirements of section 2.2.9 of the Combustion Sector SGN. Where appropriate the plan shall contain dates for the implementation of individual measures.</p> <p>The notification requirements of condition 2.5.2 shall be deemed to have been complied with on submission of the plan.</p> <p>The plan shall be implemented by the operator from the date of approval by the Agency.</p>	Completed
IC5	<p>The operator shall develop a written site closure plan with regard to the requirements of sect 2.11 of Agency Guidance note IPPC S1.01 Upon completion of the plan a summary of the document shall be submitted in writing to the Agency.</p> <p>The notification requirements of 2.5.2 shall be deemed to have been complied with on submission of the plan</p>	Completed
IC6	<p>The operator shall undertake a review of the energy efficiency measures used at the installation. This review shall include, but not be limited to, measures that can be used to improve the efficiency of the gas turbines. A report shall be submitted to the Agency for approval, which includes a timetable for the implementation of appropriate measures.</p> <p>The notification requirements of 2.5.2 shall be deemed to have been complied with on submission of the report.</p>	Completed
IC7	<p>A written plan shall be submitted to the Agency for approval. The report shall contain an assessment of: the specific energy consumption of individual turbines, the ongoing control and monitoring of specific energy consumption during routine operation, the method used for obtaining this data and identification of appropriate improvements.</p> <p>Where appropriate, the improvements identified in the report shall be implemented by the operator from the date of approval in writing by the Agency.</p> <p>The notification requirements of condition 2.5.2 shall be deemed to have been complied with on submission of the report.</p>	Completed
IC8	<p>The Operator shall undertake a review of the existing screening measures at the intakes and outfalls which provide and discharge water to and from the Installation. The review shall be undertaken with reference to the Eels (England and Wales) Regulations 2009 (SI 2009/3344) and the Environment Agency „Safe Passage of Eel“ Regulatory Position Statement version 1 dated July 2012.</p>	Completed
IC9	<p>For LCPD LCPs 177, 178, 179 and 180 (now LCPs 124, 125, 126 and 127 under IED). Annual emissions of dust, sulphur dioxide and oxides of nitrogen including energy usage for the year 01/01/2015 to 31/12/2015 shall be submitted to the Environment Agency using form AAE1 via the NERP Registry. If the LCPD LCP was a NERP plant the final quarter submissions shall be provided on the RTA 1 form to the NERP Registry.</p>	28/01/16

Table S1.4 Start-up and Shut-down thresholds		
Emission Point and Unit Reference	“Minimum start up load” Load in MW and as percent of rated power output* (%)	“Minimum shut-down load” Load in MW and as percent of rated power output* (%)
A1 LCP124 GT5	2 MW; 13.6%	0.5 MW; 3.4%
A1 LCP124 GT7	2 MW; 13.6%	0.5 MW; 3.4%
A2 LCP125 GT6	2 MW; 13.6%	0.5 MW; 3.4%
A2 LCP125 GT8	2 MW; 13.6%	0.5 MW; 3.4%
A3 LCP126 GT1	2 MW; 13.6%	0.5 MW; 3.4%
A4 LCP127 GT2	2 MW; 13.6%	0.5 MW; 3.4%
A4 LCP127 GT4	2 MW; 13.6%	0.5 MW; 3.4%

*Power output in emergency mode

Schedule 2 – Waste types, raw materials and fuels

Table S2.1 Raw materials and fuels	
Raw materials and fuel description	Specification
Gas oil	Not exceeding 0.1% w/w sulphur content

Schedule 3 – Emissions and monitoring

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 to A4 on site plan in schedule 7]	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	LCP No. 124, LCP No.125, LCP No 126 and LCP No. 127	-	-	Concentration by calculation, every 4380 operational hours or 2 years, whichever is sooner	Agreed in writing with the Environment Agency
	Sulphur dioxide	LCP No. 127				
	CO	Gas turbine fired on natural gas				
A1, A2, A3 and A4 [Points A1 to A4 on site plan in schedule 7]	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	LCP No. 124, LCP No.125, LCP No 126 and LCP No. 127 Gas turbine fired on natural gas	150 mg/m ³	-	Annual	BS EN 14792
A1, A2, A3 and A4 [Points A1 to A4 on site plan in schedule 7]	Carbon Monoxide	LCP No. 124, LCP No.125, LCP No 126 and LCP No. 127 Gas turbine fired on natural gas	400 mg/m ³	-	Annual	BS EN 15058

Table S3.1 Point source emissions to air						
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 to A4 on site plan in schedule 7]	Oxygen	LCP No. 124, LCP No.125, LCP No 126 and LCP No. 127 Gas turbine fired on natural gas	-	-	Periodic As appropriate to reference	BS EN 14789
A1, A2, A3 and A4 [Points A1 to A4 on site plan in schedule 7]	Water Vapour	LCP No. 124, LCP No.125, LCP No 126 and LCP No. 127 Gas turbine fired on natural gas	-	-	Periodic As appropriate to reference	BS EN 14790
A1, A2, A3 and A4 [Points A1 to A4 on site plan in schedule 7]	As required by the Method Implementation Document for BS EN 15259	LCP No. 124, LCP No.125, LCP No 126 and LCP No. 127 Gas turbine fired on natural gas	-	-	Pre-operation and when there is a significant operational change	BS EN 15259
Natural gas system actuation valves	Natural gas	Natural gas handling and supply system	-	-	-	-
Natural gas system purging vents	Natural gas	Natural gas handling and supply system	-	-	-	-

Table S3.1 Point source emissions to air						
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
Vents on fuel handling and supply system	VOCs	Fuel handling and supply system	-	-	-	-

Table S3.2 Point Source emissions to water (other than sewer) – emission limits and monitoring requirements						
Emission point ref. & location	Parameter	Source	Limit (incl. unit)	Reference period	Monitoring frequency	Monitoring standard or method
W1 (NGR TQ3880 7820) emission to River Thames	Temperature	Abstracted river water	31 °C	Instantaneous	continuous	MCERTS installed monitor

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	Parameter	Source	Limit (incl. Unit)	Reference period	Monitoring frequency	Monitoring standard or method
S1 (NGR TQ3880 7820) emission to Thames Water trade effluent system	-	Surface and foul water systems	-	-	-	Permanent sampling access not required

Schedule 4 – Reporting

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

Parameter	Emission or monitoring point/reference	Reporting period	Period begins
Oxides of nitrogen	A1, A2, A3, A4	Every two years *	1 January
Carbon Monoxide	A1, A2, A3, A4	Every two years *	1 January
Sulphur dioxide	A1, A2, A3, A4	Every two years *	1 January
Periodic monitoring for oxides of nitrogen and carbon monoxide	A1, A2, A3, A4	Annual	1 January
Emissions to Water Parameters as required by condition 3.5.1	W1	Annual	1 January

*Concentration by calculation, for gas firing only, every 4380 operational hours or 2 years, whichever is sooner.

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 Chapter III 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	Starting Point	Agency recipient	Date of form
Air & Energy	Form IED AR1 – SO ₂ , NO _x and dust mass emission and energy	01/01/16	National	31/12/15
LCP	Form IED HR1 – operating hours	01/01/16	National	31/12/15
Air	Form IED PM1 - discontinuous monitoring and load	01/01/16	Area Office	31/12/15
Resource Efficiency	Form REM1 – resource efficiency annual report	01/01/16	National	31/12/15
Water	Form water 1 or other form as agreed in writing by the Environment Agency	01/01/16	Area Office	31/12/15

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

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.

“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.

“CEPS” means Central Emergency Power Supply.

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

“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.

“emissions to land” includes emissions to groundwater.

“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.

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

“EP Regulations” means The Environmental Permitting (England and Wales) Regulations SI 2010 No.675 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.

“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.

“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.

“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.

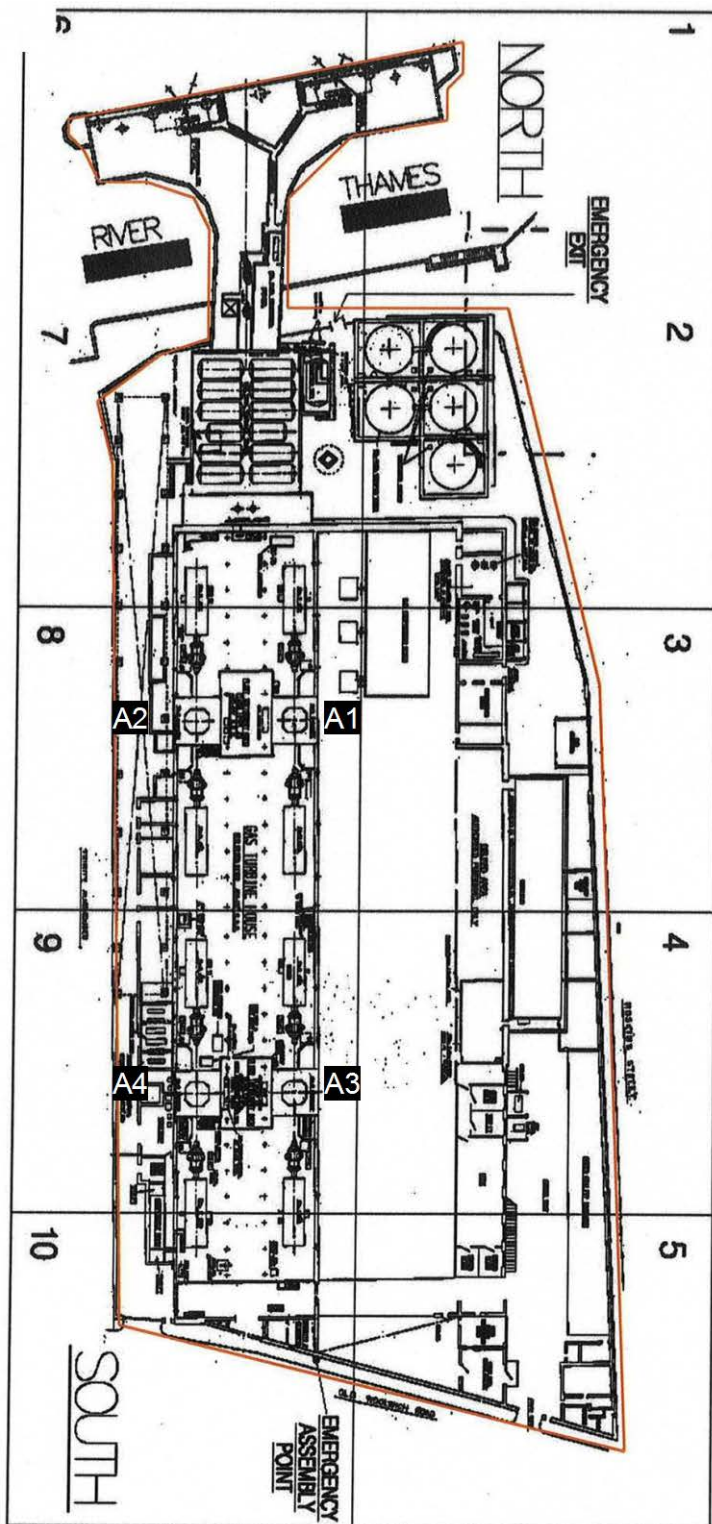
Where a minimum limit is set for any emission parameter, for example pH, reference to exceeding the limit shall mean that the parameter shall not be less than that limit.

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

“year” means calendar year ending 31 December.

Schedule 7 – Site plan



END OF PERMIT