



Notice of variation and consolidation with introductory note

The Environmental Permitting (England & Wales) Regulations 2016

RWE Generation UK Plc
Didcot B Power Station
Didcot
Oxfordshire
OX11 7YU

Variation application number

EPR/YP3930LZ/V011

Permit number

EPR/YP3930LZ

Didcot B Power Station

Permit number EPR/YP3930LZ

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:

- The Operator chose to operate the LCPs on site under the Transitional National Plan (TNP) compliance route. The TNP ends on 30 June 2020, after which the emission limits set out in Chapter III of IED will be applicable to the plant. These have been included in emission table S3.1a;
- Revised emission limits and monitoring requirements for emissions to air in line with the BAT Conclusions have been included in table S3.1b; and
- Inclusion of process monitoring for energy efficiency in table S3.4.

Permit condition 2.3.8 has been included in the permit with corresponding improvement condition IC12 requiring the operator to submit a report in relation to potential black start operation of the plant.

Improvement conditions 1 to 9 (IC1 to IC9) were previously marked as complete, have been removed from the permit. IC10 is also complete and has been removed from the permit.

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

Didcot B Power Station is a gas-fired power station operated by RWE Generation Uk Plc. The site covers an area of 16.8 ha and is centred at National Grid Reference SU 5070 9190.

It is located within a semi-rural agricultural area of south Oxfordshire, interspersed with gravel extraction pits and to the south of the River Thames. The decommissioned Didcot A Power Station lies to the east on an adjacent site. The nearest residential areas are the villages of Sutton Courtenay (1.5km Northwest), Appleford (2km Northeast), Harwell (2km Southwest), Milton (2km West), the town of Didcot (1km Southeast) and the new residential development of Great Western Park (1km South). Immediately to the west of the site is a light industrial estate.

The site is underlain by Alluvium and River Terrace Gravels classified as minor aquifers and further underlain by impermeable Gault Clay classified as a non-aquifer. There are no licensed groundwater abstractions used for drinking water within 3 km of the site.

The principal activity 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 activities comprise two combined cycle gas turbine (CCGT) modules fired solely on Natural Gas and each operating in a 'two-plus-one' configuration with an associated

steam turbine. They have a combined total thermal input of 2670MW and a total maximum production output of 1466 MW of electricity. LCP276 consists of two natural gas fired gas turbines (GT51 & GT52, 264 MW of electricity each) and a single steam turbine (230 MW of electricity). LCP277 consists of two natural gas fired gas turbines (GT61 & GT62, 239 MW of electricity each) and a single steam turbine (230 MW of electricity). The hot combustion gases from each gas turbine pass through separate Heat Recovery Steam Generators (HRSG), powering the steam turbines, before being released to the atmosphere through two, twin-flued, 85 metre high stacks. The CCGT's have an efficiency of 56.1% and 55.9% and therefore qualify for higher ELV's according to IED.

Expanded low-pressure steam from each steam turbine passes to a condenser where it condenses and returns to the process as HRSG feed water. Recirculating cooling water supplied to the condensers is itself cooled in one of two independent banks of low level forced draught hybrid cooling towers designed to minimise the creation of visible plumes.

Odorised natural gas is supplied to the site directly from an "Above Ground Installation" (AGI). As this activity is a directly associated activity it is included within the installation boundary and therefore this installation has two operators and two environmental permits. The operator of the AGI, National Grid Gas plc holds a separate environmental permit, reference number LP3835LK.

Boiler make up water is supplied to site by a town's water main and is further purified in an ion-exchange demineralisation plant. Hydrochloric acid and sodium hydroxide used for ion-exchange resin bed regeneration and other water treatment chemicals are stored in bunded bulk tanks on site. There is also a small storage facility for aqueous solutions of hydrazine and ammonia which are injected into the high pressure steam system for corrosion inhibition. There are bulk tanks on site for treated (2 tanks) and untreated (2 tanks) boiler water

Of the substances released to air from the two 85m stacks, the main component comprises oxides of nitrogen (NO_x) (nitric oxide and nitrogen dioxide). Carbon monoxide (CO) is also released. Releases of dust 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.

NO_x is created in the hot combustion zone by the combination of atmospheric oxygen and nitrogen. Minimisation of NO_x creation is achieved by design of the turbine combustor configuration and fuel nozzles. All four gas turbines are equipped with dry low NO_x (DLN) burners. In 2001 new advanced (DLN) burners were retrofitted to LCP277 and in 2009 the original two Siemens v94.3 gas turbines on LCP276 were replaced with two new Siemens SGT5-4000F turbines, a more advanced and developed version of the existing machine.

Gas turbine exhaust gases are monitored continuously and parameters measured include NO_x and CO along with other parameters, which measure combustion performance such as temperature and oxygen content. The sampling ports are located in the horizontal ducts between the HRSG's and the stacks. Continuous Emission Monitors (CEM's) meet the Environment Agency's requirements for MCERTS certification.

Cooling water is abstracted from the River Thames to replace cooling tower evaporative and purge losses via an abstraction screen that has been exempted from the Eels Regulations 2009. The cooling tower purge is combined with boiler water blow-down and ion exchange resin bed regeneration flushing's and is neutralised prior to final discharge back to the River Thames downstream of the abstraction point.

LCP397 consists of four gas-oil fired open cycle gas turbines (OCGT's) each of 98 MW thermal input. Combustion gases from all four units released to air from the top of a 101m high combined single flue stack. These units are fired on gas oil. LCP 397 is used for black start purposes, but is also available to operate commercially to support the Grid. The plant is considered 'non-emergency' in relation to the BAT Conclusions due to the service it provides to the National Grid.

There is a small gas fired auxiliary boiler (12MWth) with a separate 32 metre stack, used to keep the HRSG's and steam turbines warm and to supply domestic heating as required when the gas turbines are not operating. This boiler may also burn gas-oil as a standby fuel. There is also a gas-oil fired emergency generator (4.8MWth) and a fire water pumps (0.56 MWth), also fired on gas oil.

Surface and other site drainage water is discharged via interceptors to the Moor Ditch which traverses the site and which itself flows into the River Thames. There are no consented releases to groundwater or sewer from the activities on this site.

Most main items of equipment, with potential to generate noise, are housed within buildings, which provide a high level of acoustic attenuation. There is an acoustic bank along the western boundary of the site. There is a low risk for generating odours having potential to create annoyance off-site.

There are two Special Areas of Conservation within 10 km of the site but no Sites of Special Scientific Interest within 2 km of the site. Modelling indicates that the site will have no significant effect on these designated sites.

Didcot B Power Station has an Environmental Management System which is accredited to ISO14001.

The installation is required to comply with the specific monitoring and reporting requirements of the Large Combustion Plant Directive (2001/80/EC) for gas turbines over 100MW_{th}.

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 YP3930LZ received	Duly made 31/03/2006	Application for permit
Additional information received	05/09/2006	Air dispersion modelling results
Additional information received	23/11/2006	Site plan for permit
Permit determined YP3930LZ (PAS Billing ref: YP3930LZ)	27/12/2006	Permit granted
Pre-application (closed) EP3433XB	24/10/2007	Pre-application only. No notice issued
Application for variation MP3238XE	Duly made 20/12/2007	
Further information received	06/08/2008	BAT assessment
Variation determined MP3238XE (PAS Billing ref: MP3238XE)	22/01/2009	Variation issued for replacement of two gas turbines with more modern versions
Variation application EPR/YP3930LZ/V004	Duly made 08/12/2011	
Variation determined EPR/YP3930LZ/V004 (PAS Billing ref: RP3433CW)	22/02/2012	Variation issued increasing the emission limit for chloride
Variation application EPR/YP3930LZ/V005	Duly made 18/09/2012	
Variation determined EPR/YP3930LZ/V005 (PAS Billing ref: SP3930ZY)	19/10/2012	Variation issued changing carbon monoxide emission limit reference periods in-line with the IED
Variation determined EPR/YP3930LZ/V006 (PAS Billing ref: QP3532ZE)	26/02/2013	Environment Agency Initiated Variation, to incorporate Eel Regulations improvement condition.
Variation application EPR/YP3930LZ/V007	Duly made 13/05/2013	Application to

Status log of the permit		
Description	Date	Comments
Variation determined EPR/YP3930LZ/V007 (PAS Billing ref: BP3034NX)	07/08/2013	Variation issued transferring OCGT's operation from Didcot A to Didcot B power station
Notified of change of company name	13/11/2014	Name changed to RWE Generation UK Plc.
Variation issued EPR/YP3930LZ/V008 (PAS Billing ref: LP3832W2)	02/12/2014	Varied permit issued to RWE Generation UK Plc.
Regulation 60 Notice sent to the operator	31/10/2014	Issue of a Notice under Regulation 60(1) of the EPR. Environment Agency Initiated review and variation to vary the permit under IED to implement the special provisions for LCP under Chapter III, introducing new Emission Limit Values (ELVs) applicable to LCP, referred to in Article 30(2) and set out in Annex V. The permit is also updated to modern conditions
Regulation 60 Notice response	14/04/2015	Response received from the operator regarding CCGT operation.
Additional information received	27/07/2015	Response to request for further information (RFI) dated 27/07/15.
Regulation 60 Notice response	30/07/2015	Response received from the operator regarding OCGT operation.
Additional information received	21/12/2015	Confirmation of compliance route chosen
Variation determined EPR/YP3930LZ/V009 (PAS Billing ref: DP3138AU)	22/12/2015	Varied and consolidated permit issued in modern condition format. Variation effective from 01/01/2016.
Variation application EPR/YP3930LZ/V010	Duly made 04/01/2016	Application to increase cooling water purge temperature.
Variation determined EPR/YP3930LZ/V010 (PAS Billing ref: KP3936RW)	22/03/2016	Variation issued.
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.	13/11/2018	Response received from the Operator.
Additional information EPR/YP3930LZ/V011	03/10/2019	Additional information including, compliance and operating techniques identified in response to BAT Conclusions 40 (Energy Efficiency) and 44 (CO emissions), and confirmation of the compliance route chosen for LCP277.
Variation determined EPR/YP3930LZ/V011 (Billing ref: NP3809PR)	05/03/2020	Varied and consolidated permit issued. Effective from 05/03/2020

Other Part A installation permits relating to this installation		
Operator	Permit number	Date of issue
National Grid Gas plc	LP3835LK	27/12/2006

Other existing Licences/Permits/Registrations relating to this site		
Operator	Permit number	Date of issue
RWE Generation UK Plc (abstraction licence)	28/39/18/59	10/02/2010

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/YP3930LZ

Issued to

RWE Generation UK Plc (“the operator”)

whose registered office is

Windmill Hill Business Park

Whitehill Way

Swindon

Wiltshire

SN5 6PB

company registration number 03892782

to operate a regulated facility at

Didcot B Power Station

Didcot

Oxfordshire

OX11 7YU

to the extent set out in the schedules.

The notice shall take effect from 05/03/2020

Name	Date
Sifelani F Mpofu	05/03/2020

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/YP3930LZ

This is the consolidated permit referred to in the variation and consolidation notice for application EPR/YP3930LZ/V011 authorising,

RWE Generation UK Plc (“the operator”),

whose registered office is

Windmill Hill Business Park

Whitehill Way

Swindon

Wiltshire

SN5 6PB

company registration number 03892782

to operate a regulated facility at

Didcot B Power Station

Didcot

Oxfordshire

OX11 7YU

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

Name	Date
Sifelani F Mpofu	05/03/2020

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.

1.5 Multiple operator installations

- 1.5.1 Where the operator notifies the Environment Agency under condition 4.3.1 (a) or 4.3.1 (c), the operator shall also notify without delay the other operator(s) of the installation of the same information.

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 green on the site plan at schedule 7 to this permit, which includes the area edged in red on the site plan that represents the extent of the installation covered by this permit and that of the other operator of the installation.

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: LCP276, LCP277 and LCP397. 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: LCP397. The activities shall not operate for more than 500 hours per year.
- 2.3.6 For the following activities referenced in schedule 1, table S1.1: LCP276, LCP277 and LCP397. 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.
- 2.3.7 For the following activities referenced in schedule 1, table S1.1: LCP276 and LCP277. The effective Dry Low NOx threshold shall conform to the specifications set out in Schedule 1, tables S1.2 and S1.5.
- 2.3.8 The emission limit values from emission point(s) A1, A2, A3, A4 and A7 listed in table(s) S3.1, S3.1a and S3.1b of Schedule 3 following the issue of a Black Start Instruction by the National Grid shall be disregarded for the purposes of compliance whilst that instruction remains effective and in accordance with the report submitted in response to improvement condition IC12.

- 2.3.9 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.
- 2.3.10 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, S3.1b and S3.2.
- 3.1.2 The limits given in schedule 3 shall not be exceeded.
- 3.1.3 Total annual emissions from the LCP emission points set out in schedule 3 tables S3.1, S3.1a, S3.1b and S3.2 of a substance listed in schedule 3 table S3.3 shall not exceed the relevant limit in table S3.3.
- 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.

3.4.2 The operator shall:

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

3.5 Monitoring

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

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

3.5.2 The operator shall maintain records of all monitoring required by this permit including records of the taking and analysis of samples, instrument measurements (periodic and continuous), calibrations, examinations, tests and surveys and any assessment or evaluation made on the basis of such data.

3.5.3 Monitoring equipment, techniques, personnel and organisations employed for the emissions monitoring programme and the environmental or other monitoring specified in condition 3.5.1 shall have either MCERTS certification or MCERTS accreditation (as appropriate), where available, unless otherwise agreed in writing by the Environment Agency.

3.5.4 Permanent means of access shall be provided to enable sampling/monitoring to be carried out in relation to the emission points specified in schedule 3 tables S3.1, S3.1a, S3.1b and S3.2 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, S3.1a and S3.1b; the Continuous Emission Monitors shall be used such that:
- (a) for the continuous measurement systems fitted to the LCP release points defined in table(s) S3.1, s3.1a and S3.1b the validated hourly, monthly, yearly and daily averages shall be determined from the measured valid hourly average values after having subtracted the value of the 95% confidence interval;
 - (b) the 95% confidence interval for nitrogen oxides and sulphur dioxide of a single measured result shall be taken to be 20%;
 - (c) the 95% confidence interval for dust releases of a single measured result shall be taken to be 30%;
 - (d) the 95% confidence interval for carbon monoxide releases of a single measured result shall be taken to be 10%;
 - (e) an invalid hourly average means an hourly average period invalidated due to malfunction of, or maintenance work being carried out on, the continuous measurement system. However, to allow some discretion for zero and span gas checking, or cleaning (by flushing), an hourly average period will count as valid as long as data has been accumulated for at least two thirds of the period. Such discretionary periods are not to exceed more than 5 in any one 24-hour period unless agreed in writing. Where plant may be operating for less than the 24-hour period, such discretionary periods are not to exceed more than one quarter of the overall valid hourly average periods unless agreed in writing; and
 - (f) any day, in which more than three hourly average values are invalid shall be invalidated.

4 Information

4.1 Records

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

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

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

4.2 Reporting

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

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

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

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

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

4.2.4 The operator shall, unless notice under this condition has been served within the preceding four years, submit to the Environment Agency, within six months of receipt of a written notice, a report assessing whether there are other appropriate measures that could be taken to prevent, or where that is not practicable, to minimise pollution.

4.2.5 For the following activities referenced in schedule 1, table S1.1: LCP276 and LCP277. Unless otherwise agreed in writing with the Environment Agency, within 1 month of the end of each quarter, the operator shall submit to the Environment Agency using the form IED RTA1, listed in table S4.4, the information specified on the form relating to the site's mass emissions.

4.3 Notifications

4.3.1 In the event:

- (a) that the operation of the activities gives rise to an incident or accident which significantly affects or may significantly affect the environment, the operator must immediately—
 - (i) inform the Environment Agency,
 - (ii) take the measures necessary to limit the environmental consequences of such an incident or accident, and
 - (iii) take the measures necessary to prevent further possible incidents or accidents;
- (b) of a breach of any permit condition the operator must immediately—
 - (i) inform the Environment Agency, and
 - (ii) take the measures necessary to ensure that compliance is restored within the shortest possible time;
- (c) of a breach of permit condition which poses an immediate danger to human health or threatens to cause an immediate significant adverse effect on the environment, the operator must immediately suspend the operation of the activities or the relevant part of it until compliance with the permit conditions has been restored.

4.3.2 Any information provided under condition 4.3.1 (a)(i), 4.3.1 (b)(i) where the information relates to the breach of a condition specified in the permit, 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 “without delay”, 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	LCP276: Module 5 gas turbine electricity generator units GT51 and GT52, with associated heat recovery steam generators. Two units with a combined rated thermal input of 1377MWth fired on natural gas	From receipt of natural gas and gas oil to discharge of exhaust gases and wastes and the generation of steam and electricity.
		LCP277: Module 6 gas turbine electricity generator units GT61 and GT62, with associated heat recovery steam generators. Two units with a combined rated thermal input of 1293MWth fired on natural gas	
		LCP397: OCGT electricity generators. Four units with a combined rated thermal input of 392MWth fired on gas oil	
		Auxiliary boiler with a rated thermal input of 12MWth fired on natural gas or gas oil	
		Emergency electrical generator with a rated thermal input of 4.8MWth fired on gas oil	
		Fire pump with a rated thermal input of 0.5MWth fired on gas oil	From receipt of gas oil to discharge of exhaust gases and wastes and the pumping of water
Directly Associated Activity			
AR2	Directly associated activity	Evaporative cooling	From abstraction of cooling water to discharge of cooling water purge to River Thames.
AR3	Directly associated activity	Water treatment plant	From receipt of raw materials to dispatch to chemical effluent and waste water system.

Table S1.1 activities			
Activity reference	Activity listed in Schedule 1 of the EP Regulations	Description of specified activity	Limits of specified activity
AR4	Directly associated activity	Effluent water treatment	From receipt of demineralisation regeneration effluent, boiler blow-down, cooling water system purge and receipt of raw materials to discharge to the River Thames.
AR5	Directly associated activity	Surface water drainage	From rainwater collection system, sumps and drains to transfer to cooling water system or discharge to Moor Ditch.
AR6	Directly associated activity	Waste handling and storage	From waste generation, storage and monitoring to waste dispatch

Table S1.2 Operating techniques		
Description	Parts	Date Received
Receipt of information additional to application	Provision of assessment of combined impact of releases to air of oxides of nitrogen from both Didcot A and B power stations	05/09/2006
Application for Didcot A power station	The response to section B2.1 and B2.2 in the Application relating to the operation of the open-cycle gas turbines	31/03/2006
Response to regulation 60(1) Notice – request for information dated 31/10/14	Compliance routes and operating techniques identified in response to questions 2 (compliance route), 4 (configuration of the LCP), 6 (MSUL/MSDL) and 9ii (efficiency) for LCP276 and LCP277 Excluding those identified for the ELV and LLD compliance routes for LCP276 and LCP277 and the related operating techniques.	14/04/2015
Receipt of additional information to the regulation 60(1) Notice. requested by letter dated 27/07/15	Compliance routes and operating techniques identified in response to question 5 (rated thermal input) for LCP276 and LCP277	27/07/2015
Response to regulation 60(1) Notice – request for information dated 31/10/14	Compliance routes and operating techniques identified in response to questions 2 (compliance route), 4 (configuration), 5 (rated thermal input) and 6 (MSDL/MSUL) for LCP397.	30/07/2015
Receipt of additional information to the regulation 60(1) Notice.	Confirmation of the compliance routes chosen for LCP276 and LCP277	21/12/2015

Table S1.2 Operating techniques		
Description	Parts	Date Received
Response to regulation 61(1) Notice – request for information dated 01/05/18 EPR/YP3930LZ/V010	Compliance and operating techniques identified in response to the BAT Conclusions for large combustion plant published on 17th August 2017.	13/11/2018
Additional information in response to regulation 61(1) Notice EPR/YP3930LZ/V010	Compliance and operating techniques identified in response to BAT Conclusions 40 (Energy Efficiency) and 44 (CO emissions). Confirmation of the compliance route chosen for LCP277.	03/10/2019

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
Improvement conditions 1 – 10 have been removed from the permit through variation EPR/YP3930LZ/V011 as they are complete		
IC11	For LCP 276 and LCP277, the Operator shall propose revised emission limit values (ELV) for CO expressed as a daily mean of validated hourly averages from Minimum start-up load (MSUL) to baseload. These ELVs must be achievable and appropriate, and must be supported by a summary of emissions data. Justification shall be submitted to the Environment Agency for approval in the form of a written report.	31/12/2023
IC12	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. The plant can be operated as set out in condition 2.3.8 of the permit once the report has been approved by the Environment Agency. The methodology for operation and reporting set out in the report shall be implemented by the Operator from the date of approval by the Environment Agency.	12 months from variation issue (EPR/YP3930LZ/V011)

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 (%)
LCP276: A1 / GT51	95MW; 36%; Steam turbine >0MW	95MW; 36%
LCP276: A2 / GT52	95MW; 36%; Steam turbine >0MW	95MW; 36%
LCP277: A3 / GT61	105MW; 44%; Steam turbine >0MW	105MW; 44%
LCP277: A4 / GT62	105MW; 44%; Steam turbine >0MW	105MW; 44%
LCP397: A7 / OCGTs	5MW; 5%	3MW; 3%

Table S1.5 Dry Low NOx effective definition	
Emission Point and Unit Reference	Dry Low NOx effective definition Load in MW and as percent of rated power output (%) or when two of the criteria listed below for the LCP or unit have been met, whichever is soonest
A1 LCP276	Load: 185MW; 70%
A2 LCP277	Load: 167MW; 70%

Schedule 2 – 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
Raw materials used in water treatment plant, cooling towers and boilers	Discharges of mercury and cadmium as a result of their presence as impurities shall be minimised by ensuring that their levels in raw materials are the minimum commercially available.

Schedule 3 – Emissions and monitoring

Emission point ref. & location	Source	Parameter	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
LCP276 [Point A1 & A2 on site plan in Schedule 7]	Closed Cycle Gas turbines GT51 and GT52 fired on natural gas	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	75 mg/m ³ 70% to base load ¹	Monthly mean of validated hourly averages	Continuous	BS EN 14181
			75 mg/m ³ 70% to base load ¹ 82.5 mg/m ³ MSUL/MSDL to base load ²	Daily mean of validated hourly averages	Continuous	BS EN 14181
			75 mg/m ³ 70% to base load ¹	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
		Carbon Monoxide	100 mg/m ³ 70% to base load ¹	Monthly mean of validated hourly averages	Continuous	BS EN 14181
			110 mg/m ³ 70% to base load ¹ 440 mg/m ³ MSUL/MSDL to base load ^{2,3}	Daily mean of validated hourly averages	Continuous	BS EN 14181
			200 mg/m ³ 70% to base load ¹	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
		Oxygen	-	-	Continuous As appropriate to reference	BS EN 14181

Table S3.1 Point source emissions to air emission limits and monitoring requirements shall apply until 30 June 2020

Emission point ref. & location	Source	Parameter	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
		Water Vapour	-	-	Continuous As appropriate to reference	BS EN 14181
		Stack gas temperature	-	-	Continuous As appropriate to reference	Traceable to national standards
		Stack gas pressure	-	-	Continuous As appropriate to reference	Traceable to national standards
		As required by the Method Implementation Document for BS EN 15259	-	-	Pre-operation and when there is a significant operational change	BS EN 15259
		Sulphur Dioxide	-	-	At least every 6 months	Concentration by calculation, as agreed in writing with the Environment Agency
		Stack gas volume flow	-	-	Continuous As appropriate to reference	BS EN 16911 & TGN M2 or otherwise agreed in writing with the Environment Agency
LCP277 [Point A3 & A4 on site plan in Schedule 7]	Closed Cycle Gas turbines GT61 and GT62 fired on natural gas	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	90 mg/m ³ 70% to base load ¹	Monthly mean of validated hourly averages	Continuous	BS EN 14181
			90 mg/m ³ 70% to base load ¹ 99 mg/m ³ MSUL/MSDL to base load ²	Daily mean of validated hourly averages	Continuous	BS EN 14181

Table S3.1 Point source emissions to air emission limits and monitoring requirements shall apply until 30 June 2020

Emission point ref. & location	Source	Parameter	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
			90 mg/m ³ 70% to base load ¹	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
		Carbon Monoxide	100 mg/m ³ 70% to base load ¹	Monthly mean of validated hourly averages	Continuous	BS EN 14181
			110 mg/m ³ 70% to base load ¹ 440 mg/m ³ MSUL/MSDL to base load ^{2, 3}	Daily mean of validated hourly averages	Continuous	BS EN 14181
			200 mg/m ³ 70% to base load ¹	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
		Oxygen	-	-	Continuous As appropriate to reference	BS EN 14181
		Water Vapour	-	-	Continuous As appropriate to reference	BS EN 14181
		Stack gas temperature	-	-	Continuous As appropriate to reference	Traceable to national standards
		Stack gas pressure	-	-	Continuous As appropriate to reference	Traceable to national standards
		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 S3.1 Point source emissions to air emission limits and monitoring requirements shall apply until 30 June 2020

Emission point ref. & location	Source	Parameter	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
		Sulphur Dioxide	-	-	At least every 6 months	Concentration by calculation, as agreed in writing with the Environment Agency
		Stack gas volume flow	-	-	Continuous As appropriate to reference	BS EN 16911 & TGN M2 or otherwise agreed in writing with the Environment Agency
LCP397 [Point A7 on site plan in schedule 7]	Open-cycle gas turbines fired on gas oil	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	-	-	Concentration by calculation, every 2 years	Agreed in writing with the Environment Agency
		Carbon Monoxide	-	-	Concentration by calculation, every 2 years	Agreed in writing with the Environment Agency
		Sulphur Dioxide	-	-	Concentration by calculation, every 2 years	Agreed in writing with the Environment Agency
		Dust	-	-	Concentration by calculation, every 2 years	Agreed in writing with the Environment Agency
A5 [point A5 on site plan in schedule 7]	Methane vents	-	-	-	-	-
A5 [point A6 on site plan schedule 7]	Auxiliary boiler	-	-	-	-	-
Hydrogen vents	Steam turbine generator cooling	-	-	-	-	-
Emergency pressure relief vents	-	-	-	-	-	-
Vents from storage tanks	-	-	-	-	-	-

Table S3.1 Point source emissions to air emission limits and monitoring requirements shall apply until 30 June 2020

Emission point ref. & location	Source	Parameter	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
Diesel engine exhausts	Emergency generator and fire pump	-	-	-	-	-

Note 1: This ELV applies when the load is >70% throughout the reference period.

Note 2: This ELV applies when the load varies between MSUL/MSDL and base load during the daily reference period. MSUL and MSDL are defined in Table S1.4.

Note 3: Revised limit to be agreed in writing by the Environment Agency, following the outcome of Improvement Condition 11 (IC11).

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

Emission point ref. & location	Source	Parameter	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
LCP276 [Point A1 & A2 on site plan in Schedule 7]	Closed Cycle Gas turbines GT51 and GT52 fired on natural gas	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	75 mg/m ³ 70% to base load ¹	Monthly mean of validated hourly averages	Continuous	BS EN 14181
			75 mg/m ³ 70% to base load ¹ 82.5 mg/m ³ MSUL/MSDL to base load ²	Daily mean of validated hourly averages	Continuous	BS EN 14181
			75 mg/m ³ 70% to base load ¹	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
		Carbon Monoxide	100 mg/m ³ 70% to base load ¹	Monthly mean of validated hourly averages	Continuous	BS EN 14181
			110 mg/m ³ 70% to base load ¹ 440 mg/m ³ MSUL/MSDL to base load ^{2,3}	Daily mean of validated hourly averages	Continuous	BS EN 14181

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

Emission point ref. & location	Source	Parameter	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
			200 mg/m ³ 70% to base load ¹	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
		Oxygen	-	-	Continuous As appropriate to reference	BS EN 14181
		Water Vapour	-	-	Continuous As appropriate to reference	BS EN 14181
		Stack gas temperature	-	-	Continuous As appropriate to reference	Traceable to national standards
		Stack gas pressure	-	-	Continuous As appropriate to reference	Traceable to national standards
		As required by the Method Implementation Document for BS EN 15259	-	-	Pre-operation and when there is a significant operational change	BS EN 15259
		Sulphur Dioxide	-	-	At least every 6 months	Concentration by calculation, as agreed in writing with the Environment Agency
		Stack gas volume flow	-	-	Continuous As appropriate to reference	BS EN 16911 & TGN M2 or otherwise agreed in writing with the Environment Agency

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

Emission point ref. & location	Source	Parameter	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
LCP277 [Point A3 & A4 on site plan in Schedule 7]	Closed Cycle Gas turbines GT61 and GT62 fired on natural gas	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	75 mg/m ³ 70% to base load ¹	Monthly mean of validated hourly averages	Continuous	BS EN 14181
			82.5 mg/m ³ 70% to base load ¹ 99 mg/m ³ MSUL/MSDL to base load ²	Daily mean of validated hourly averages	Continuous	BS EN 14181
			90 mg/m ³ 70% to base load ¹	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
		Carbon Monoxide	100 mg/m ³ 70% to base load ¹	Monthly mean of validated hourly averages	Continuous	BS EN 14181
			110 mg/m ³ 70% to base load ¹ 440 mg/m ³ MSUL/MSDL to base load ^{2,3}	Daily mean of validated hourly averages	Continuous	BS EN 14181
			200 mg/m ³ 70% to base load ¹	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
		Oxygen	-	-	Continuous As appropriate to reference	BS EN 14181
		Water Vapour	-	-	Continuous As appropriate to reference	BS EN 14181
		Stack gas temperature	-	-	Continuous As appropriate to reference	Traceable to national standards

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

Emission point ref. & location	Source	Parameter	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
		Stack gas pressure	-	-	Continuous As appropriate to reference	Traceable to national standards
		As required by the Method Implementation Document for BS EN 15259	-	-	Pre-operation and when there is a significant operational change	BS EN 15259
		Sulphur Dioxide	-	-	At least every 6 months	Concentration by calculation, as agreed in writing with the Environment Agency
		Stack gas volume flow	-	-	Continuous As appropriate to reference	BS EN 16911 & TGN M2 or otherwise agreed in writing with the Environment Agency
LCP397 [Point A7 on site plan in schedule 7]	Open-cycle gas turbines fired on gas oil	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	-	-	Concentration by calculation, every 2 years	Agreed in writing with the Environment Agency
		Carbon Monoxide	-	-	Concentration by calculation, every 2 years	Agreed in writing with the Environment Agency
		Sulphur Dioxide	-	-	Concentration by calculation, every 2 years	Agreed in writing with the Environment Agency
		Dust	-	-	Concentration by calculation, every 2 years	Agreed in writing with the Environment Agency
A5 [point A5 on site plan in schedule 7]	Methane vents	-	-	-	-	
A5 [point A6 on site plan schedule 7]	Auxiliary boiler	-	-	-	-	

Table S3.1a Point source emissions to air - emission limits and monitoring requirements shall apply from 01 July 2020 until 16 August 2021						
Emission point ref. & location	Source	Parameter	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
Hydrogen vents	Steam turbine generator cooling	-	-	-	-	-
Emergency pressure relief vents	-	-	-	-	-	-
Vents from storage tanks	-	-	-	-	-	-
Diesel engine exhausts	Emergency generator and fire pump	-	-	-	-	-

Note 1: This ELV applies when the load is >70% throughout the reference period.

Note 2: This ELV applies when the load varies between MSUL/MSDL and base load during the daily reference period. MSUL and MSDL are defined in Table S1.4.

Note 3: Revised limit to be agreed in writing by the Environment Agency, following the outcome of Improvement Condition 11 (IC11).

Table S3.1b 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
LCP276 [Point A1 & A2 on site plan in Schedule 7]	Closed Cycle Gas turbines GT51 and GT52 fired on natural gas	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	40.8 mg/m ³ When DLN is effective ¹	Yearly average	Continuous	BS EN 14181
			75 mg/m ³ When DLN is effective ¹	Monthly mean of validated hourly averages	Continuous	BS EN 14181
			51 mg/m ³ When DLN is effective ¹ 82.5 mg/m ³ MSUL/MSDL to base load ²	Daily mean of validated hourly averages	Continuous	BS EN 14181

Table S3.1b 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
			75 mg/m ³ When DLN is effective ¹	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
		Carbon Monoxide	100 mg/m ³ When DLN is effective ¹	Yearly average	Continuous	BS EN 14181
			100 mg/m ³ When DLN is effective ¹	Monthly mean of validated hourly averages	Continuous	BS EN 14181
			110 mg/m ³ When DLN is effective ¹	Daily mean of validated hourly averages	Continuous	BS EN 14181
			440 mg/m ³ MSUL/MSDL to base load ^{2, 3}			
			200 mg/m ³ When DLN is effective ¹	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
		Flow	-	-	Continuous As appropriate to reference	EN ISO 16911 and M2
		Oxygen	-	-	Continuous As appropriate to reference	BS EN 14181
		Water Vapour	-	-	Continuous As appropriate to reference	BS EN 14181

Table S3.1b 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
		Stack gas temperature	-	-	Continuous As appropriate to reference	Traceable to national standards
		Stack gas pressure	-	-	Continuous As appropriate to reference	Traceable to national standards
		As required by the Method Implementation Document for BS EN 15259	-	-	Pre-operation and when there is a significant operational change	BS EN 15259
		Sulphur Dioxide	-	-	At least every 6 months	Concentration by calculation, as agreed in writing with the Environment Agency
		Stack gas volume flow	-	-	Continuous As appropriate to reference	BS EN 16911 & TGN M2 or otherwise agreed in writing with the Environment Agency
LCP277 [Point A3 & A4 on site plan in Schedule 7]	Closed Cycle Gas turbines GT61 and GT62 fired on natural gas	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	40.6 mg/m ³ When DLN is effective ¹	Yearly average	Continuous	BS EN 14181
			75 mg/m ³ When DLN is effective ¹	Monthly mean of validated hourly averages	Continuous	BS EN 14181
			50.8 mg/m ³ When DLN is effective ¹ 99 mg/m ³ MSUL/MSDL to base load ²	Daily mean of validated hourly averages	Continuous	BS EN 14181

Table S3.1b 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
			90 mg/m ³ When DLN is effective ¹	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
		Carbon Monoxide	100 mg/m ³ When DLN is effective ¹	Yearly average	Continuous	BS EN 14181
			100 mg/m ³ When DLN is effective ¹	Monthly mean of validated hourly averages	Continuous	BS EN 14181
			110 mg/m ³ When DLN is effective ¹ 440 mg/m ³ MSUL/MSDL to base load ^{2, 3}	Daily mean of validated hourly averages	Continuous	BS EN 14181
			200 mg/m ³ When DLN is effective ¹	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
		Flow	-	-	Continuous As appropriate to reference	EN ISO 16911 and M2
		Oxygen	-	-	Continuous As appropriate to reference	BS EN 14181
		Water Vapour	-	-	Continuous As appropriate to reference	BS EN 14181
		Stack gas temperature	-	-	Continuous As appropriate to reference	Traceable to national standards

Table S3.1b 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
		Stack gas pressure	-	-	Continuous As appropriate to reference	Traceable to national standards
		As required by the Method Implementation Document for BS EN 15259	-	-	Pre-operation and when there is a significant operational change	BS EN 15259
		Sulphur Dioxide	-	-	At least every 6 months	Concentration by calculation, as agreed in writing with the Environment Agency
LCP397 [Point A7 on site plan in schedule 7]	Open-cycle gas turbines fired on gas oil	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	330 mg/m ³	-	Concentration by calculation, every 2 years	Agreed in writing with the Environment Agency
		Carbon Monoxide	-	-	Concentration by calculation, every 2 years	Agreed in writing with the Environment Agency
		Sulphur Dioxide	66 mg/m ³	-	Concentration by calculation, every 2 years	Agreed in writing with the Environment Agency
		Dust	10 mg/m ³	-	Concentration by calculation, every 2 years	Agreed in writing with the Environment Agency
A5 [point A5 on site plan in schedule 7]	Methane vents	-	-	-	-	-
A5 [point A6 on site plan schedule 7]	Auxiliary boiler	-	-	-	-	-
Hydrogen vents	Steam turbine generator cooling	-	-	-	-	-

Table S3.1b 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
Emergency pressure relief vents	-	-	-	-	-	-
Vents from storage tanks	-	-	-	-	-	-
Diesel engine exhausts	Emergency generator and fire pump	-	-	-	-	-

Note 1: This ELV applies when the load is > Effective-DLN, as specified in Table S1.5, throughout the reference period.

Note 2: This ELV applies when the load varies between MSUL/MSDL and base load during the daily reference period. MSUL and MSDL are defined in Table S1.4.

Note 3: Revised limit to be agreed in writing by the Environment Agency, following the outcome of Improvement Condition 11 (IC11).

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]	Cooling water purge, boiler blow-down, neutralised water treatment plant effluent	Total suspended solids	Content in intake water plus 130 mg/litre (1 st November to 31 st March inclusive)	Spot	Weekly	BS EN 872 ₁
			Content in intake water plus 60 mg/litre (1 st April to 31 st October inclusive)			
		pH	6.5-9 (inclusive)	Instantaneous	Continuous	BS6068-2.50 ¹
		Oil or grease	20mg/litre	Spot	Weekly	SCA Blue book 77 ISBN 011751728 ₁
			None visible	None	Every 2 days	Visual check
		Temperature	30 deg C	Instantaneous	Continuous	-
		BOD	10 mg/litre	Spot	Monthly	SCA blue book 130. ISBN 0117522120 ¹
		Flow	35,000 m ³ /day	Day	Continuous	

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
		Sulphate (as SO ₄)	Twice the intake water value plus 460-mg/litre but not exceeding 700 mg/litre total.	Spot	Monthly	SCA blue book 136. ISBN 011752240 6 ¹
		Total chlorine (as TRO)	100 µg/litre	Spot	Monthly	SCA blue book 27. ISBN 011751493 4 ¹
		Chloride (as Cl ⁻)	1000 mg/litre during discharge of neutralised water treatment plant effluent 200 mg/litre at all other times.	Spot	Monthly	SCA blue book 51 ISBN 011751626 0 ¹
		Dissolved oxygen	Not less than 80% saturation.	Spot	Monthly	SCA blue book 16 ISBN 011751442 X ¹
W2 [W2 on site plan in schedule 7]	Site drainage, separated water from the oily drainage system and filter back-washings from water treatment plant	Total suspended solids	20 mg/litre(except during extreme weather)	Spot	Weekly	BS EN 872 ¹
		pH	6.5-9 (inclusive)	Spot	Weekly	SCA blue book 14. ISBN 011751428 4 ¹
		Oil or grease	20mg/litre (except during extreme weather)	Spot	Weekly	SCA Blue book 77 ISBN 011751728 1
			None visible	None	Every 2 days	Visual check ¹
W4 [W4 on site plan in schedule 7]	Common outfall to River Thames	pH	-	-	-	-
		Oil or grease	-	-	-	-
		Temperature	-	-	-	-
		Flow	-	-	-	-
Note 1: This monitoring standard or method applies unless otherwise agreed in writing with the Environment Agency						

Table S3.3 Annual limits (excluding start up and shut down except where otherwise stated).				
Substance	Medium	Limit (including unit)		Emission Points
Dust, Sulphur dioxide and Oxides of nitrogen	Air	Assessment year	LCP TNP Limit	LCP276 and LCP277
		01/01/16 and subsequent years until 31/12/19	Emission allowance figure shown in the TNP Register as at 30 April the following year	
		01/01/20 to 30/06/20		

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
River Thames intake water	Total suspended solids	Spot weekly	BS EN 872	-
River Thames intake water	Sulphate (as SO ₄)	Spot monthly	SCA Blue Book 136	-
LCP 276 and LCP 277	Net electrical efficiency	After each modification that could significantly affect these parameters	EN Standards or equivalent	-
LCP 397	Net electrical efficiency	After each modification that could significantly affect these parameters	By calculation	-

Schedule 4 – Reporting

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

Parameter	Emission or monitoring point/reference	Reporting period	Period begins
Oxides of nitrogen	A1, A2, A3, A4	Every 3 months	1 January, 1 April, 1 July, 1 October
	A1, A2, A3, A4	Every year	1 January
	A7	Every 2 years	1 January
Carbon Monoxide	A1, A2, A3, A4	Every 3 months	1 January, 1 April, 1 July, 1 October
	A1, A2, A3, A4	Every year	1 January
	A7	Every 2 years	1 January
Sulphur dioxide	A1, A2, A3, A4	Every 6 months	1 January, 1 July
	A7	Every 2 years	1 January
Dust	A7	Every 2 years	1 January
Emissions to Water Parameters as required by condition 3.5.1	W1, W2	Every 3 months	1 January, 1 April, 1 July, 1 October

Parameter	Units
Electricity Exported	GW hr
Heat Exported	GW hr
Mechanical Power Provided	GW hr
Fossil Fuel Energy Consumption	GW hr
Non-Fossil Fuel Energy Consumption	GW hr
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

Table S4.2 Resource Efficiency Metrics	
Parameter	Units
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 NO _x for each LCP	Annually	t
Total Emissions to Air of SO ₂ for each LCP	Annually	t
Total Emissions to Air of Dust for each LCP	Annually	t
Operating Hours for each LCP	Annually	hr

Table S4.4 Reporting forms		
Media/ parameter	Reporting format	Agency recipient
Air & Energy	Form IED AR1 – SO ₂ , NO _x and dust mass emission and energy. Form as agreed in writing by the Environment Agency.	National and Area Office
Air	Form IED RTA1 – TNP quarterly emissions summary log	National and Area Office
LCP	Form IED HR1 – operating hours. Form as agreed in writing by the Environment Agency.	National and Area Office
Air	Form IED CON 2 – continuous monitoring. Form as agreed in writing by the Environment Agency	Area Office
CEMs	Form IED CEM – invalidation Log. Form as agreed in writing by the Environment Agency.	Area Office
Air	Form IED PM1 - discontinuous monitoring and load. Form as agreed in writing by the Environment Agency.	Area Office
Resource Efficiency	Form REM1 – resource efficiency annual report Form as agreed in writing by the Environment Agency.	National and Area Office
Water	Form water 1 or other form as agreed in writing by the Environment Agency	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.

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

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

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

“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 Comité Européen de Normalisation.

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

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

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

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

“emissions to land” includes emissions to groundwater.

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

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

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

“hazardous property” has the meaning in Annex III of the Waste Framework Directive.

“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.

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

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

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

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

“SI” means site inspector.

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

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

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

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

- in relation to emissions from combustion processes, the concentration in dry air at a temperature of 273K, at a pressure of 101.3 kPa and with an oxygen content of 3% dry for liquid and gaseous fuels, 6% dry for solid fuels; and/or
- in relation to emissions from gas turbine or compression ignition engine combustion processes, the concentration in dry air at a temperature of 273K, at a pressure of 101.3kPa and with an oxygen content of 15% dry for liquid and gaseous fuels; and/or
- in relation to emissions from combustion processes comprising a gas turbine with a waste heat boiler, the concentration in dry air at a temperature of 273K, at a pressure of 101.3kPa and with an oxygen

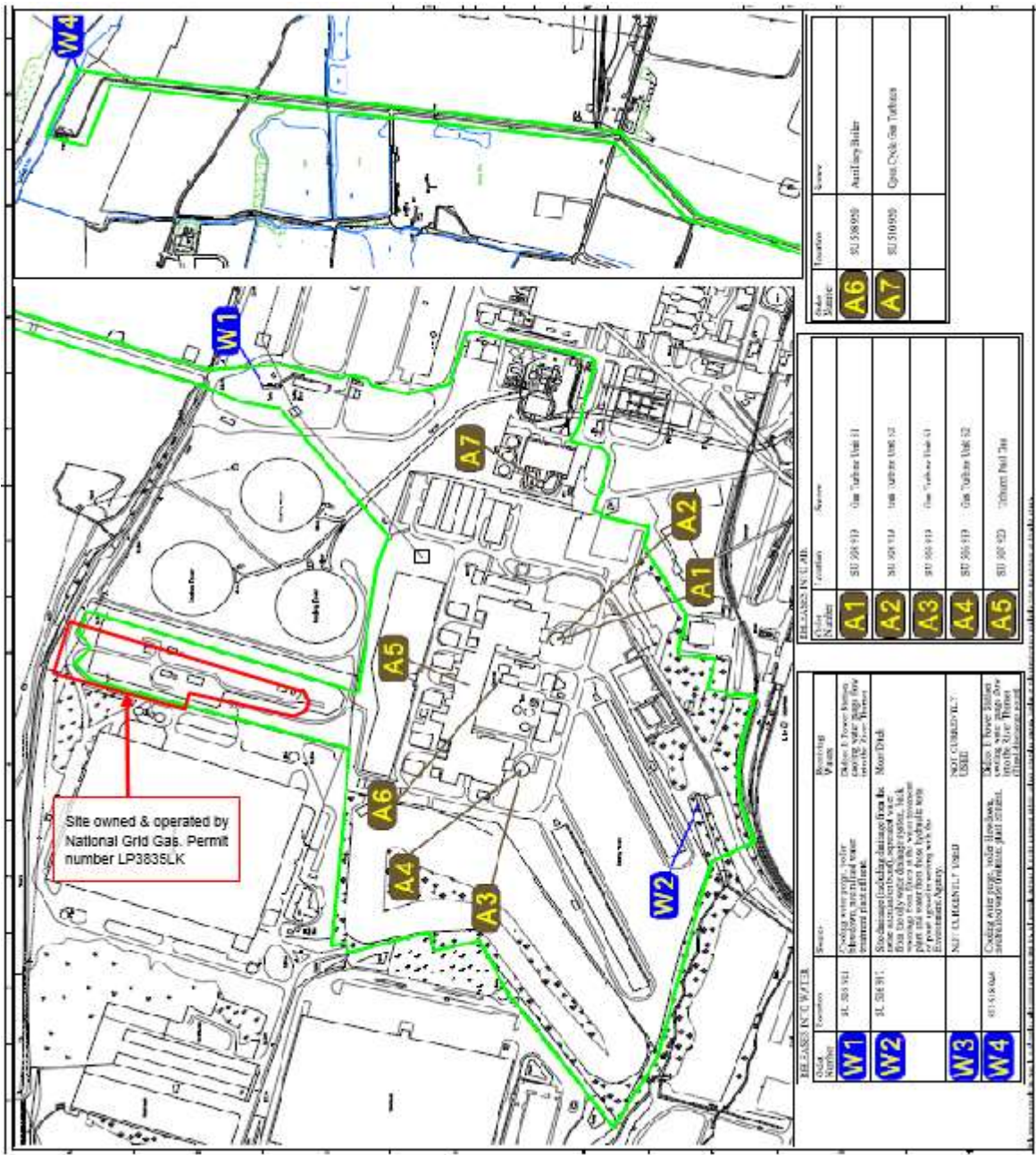
content of 15% dry, unless the waste heat boiler is operating alone, in which case, with an oxygen content of 3% dry for liquid and gaseous fuels; and/or

- in relation to emissions from non-combustion sources, the concentration at a temperature of 273K and at a pressure of 101.3 kPa, with no correction for water vapour content.

“year” means calendar year ending 31 December.

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

Schedule 7 – Site plan



THE GAS IN C/WATER		THE GAS IN U/L AB	
Code	Location	Location	Source
W1	SL 204 911	A1	SL 204 911 Gas Turbine Unit 11
W2	SL 204 911	A2	SL 204 911 Gas Turbine Unit 12
W3	SL 204 911	A3	SL 204 911 Gas Turbine Unit 13
W4	SL 204 911	A4	SL 204 911 Gas Turbine Unit 12
		A5	SL 204 911 Offshore Plant 204
		A6	SL 598 050 Asset Empty Boiler
		A7	SL 510 050 Gas CNG Gas Turbine

END OF PERMIT