



Notice of variation and consolidation with introductory note

The Environmental Permitting (England & Wales) Regulations 2016

E.ON UK Cogeneration Limited

Thornhill Power Station
Calder Road
Ravensthorpe
Dewsbury
WF12 9EA

Variation application number

EPR/JP3430LC/V004

Permit number

EPR/JP3430LC

Thornhill Power Station

Permit number EPR/JP3430LC

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 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.

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.

The Operator chose to operate the LCP 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.

The response to the Regulation 61 notice did not demonstrate that the LCP will comply with the BAT Conclusions from 17th August 2021 and stated that they will cease operation. This has been reflected in the activities table S1.1.

The operation of the LCP in Open Cycle Gas Turbine (OCGT) mode has been limited to 1,500 hour per annum as operation above this number of hours is not considered BAT.

The DEFRA LCP reference number is LCP95.

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

The purpose of the activity is to generate electricity for export to the National Grid via a combined cycle gas turbine (CCGT) which can also operate as an open cycle gas turbine (OCGT). The installation known as the Thornhill Power Station, operated by E.ON UK Cogeneration Limited, is located in the village of Ravensthorpe, approximately 2 km south west of Dewsbury. The installation covers an area of approximately 1.2 ha, and is located adjacent to the River Calder. The nearest designated sensitive habitat is the Denby Grange Colliery Ponds Special Area of Conservation, situated approximately 6 km south-east of the installation.

The power station incorporates a single gas turbine with an associated heat recovery boiler, a single steam turbine, an electrical generator, a steam condensing and cooling system and a water treatment and polishing plant. LCP95 has a total aggregated net rated thermal input of 106MWth and typically provides an electrical output of 50MWe, in combined mode.

Fuel, natural gas, is mixed into a proportion of compressed filtered air in the combustion chamber of the gas turbine and ignited. The hot combustion gases are expanded through a power turbine, which drives an electrical generator. The hot exhaust gases pass through the heat recovery boiler, where heat is extracted to raise steam. The steam from the heat recovery boiler is directed to the steam turbine, which drives a second electrical generator. The exhaust steam from the steam turbine is condensed in a direct open circuit water-cooled condenser. The exhaust combustion gases from the heat recovery boiler are discharged to atmosphere through a dedicated stack, at a height of 30 metres. When operating as an OCGT the exhaust gases are discharged to atmosphere through a bypass stack, also at a height of 30 metres. The gas turbine uses dry low emissions technology to reduce emissions of oxides of nitrogen (NOx) in both combined and open modes.

River water abstracted from the River Calder is used in a once through cooling system and discharged back to the River Calder. A second discharge to the River Calder is comprised of treated blow down water from the heat recovery boiler, fish return from the screening inlet of the cooling water intake and surface water drainage.

Continuous emissions' monitoring is provided in the main and by-pass stacks for oxides of nitrogen, carbon monoxide and oxygen.

The plant includes an acoustic enclosure for the gas turbine to minimise noise.

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 received	Duly made 06/03/06	Application for 106MW thermal input combined cycle gas turbine power station
Permit determined EPR/JP3430LC	30/11/06	Permit issued to E.ON UK Cogeneration Limited
Variation determined EPR/JP3430LC/V002	11/03/13	Environment Agency Initiated Variation, to incorporate Eel Regulations improvement condition.
Regulation 60 Notice sent to the Operator	31/10/14	Issue of a Notice under Regulation 60(1) of the EPR. Environment Agency Initiated review and variation to vary the permit under IED to implement the special provisions for LCP under Chapter III, introducing new Emission Limit Values (ELVs) applicable to LCP, referred to in Article 30(2) and set out in Annex V. The permit is also updated to modern conditions.
Regulation 60 Notice response	27/03/15	Response received from the Operator.
Additional information received	15/06/15	Response to request for further information (RFI) dated 12/05/15.
Variation determined EPR/JP3430LC/V003 (Billing ref: TP3738AT)	22/12/15	Varied and consolidated permit issued in modern condition format. Variation effective from 01/01/2016.
Regulation 61 Notice sent to the Operator	01/05/18	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.

Status log of the permit		
Description	Date	Comments
Variation determined EPR/JP3430LC/V004 (Billing ref: MP3804PK)	19/06/19	Varied and consolidated permit issued. Effective from 19/06/19

End of introductory note

Notice of variation and consolidation

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 and consolidates

Permit number

EPR/JP3430LC

Issued to

E.ON UK Cogeneration Limited (“the operator”)

whose registered office is

**Westwood Way
Westwood Business Park
Coventry
CV4 8LG**

company registration number 02730697

to operate a regulated facility at

**Thornhill Power Station
Calder Road
Ravensthorpe
Dewsbury
WF12 9EA**

to the extent set out in the schedules.

The notice shall take effect from 19/06/2019

Name	Date
M Bischer	19/06/2019

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/JP3430LC

This is the consolidated permit referred to in the variation and consolidation notice for application EPR/JP3430LC/V004 authorising,

E.ON UK Cogeneration Limited (“the operator”),

whose registered office is

**Westwood Way
Westwood Business Park
Coventry
CV4 8LG**

company registration number 02730697

to operate an installation at

**Thornhill Power Station
Calder Road
Ravensthorpe
Dewsbury
WF12 9EA**

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

Name	Date
M Bischer	19/06/2019

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 green on the site plan at schedule 7 to this permit.

2.3 Operating techniques

- 2.3.1 The activities shall, subject to the conditions of this permit, be operated using the techniques and in the manner described in the documentation specified in schedule 1, table S1.2, unless otherwise agreed in writing by the Environment Agency.
- 2.3.2 For the following activities referenced in schedule 1, table S1.1: LCP95. 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: LCP92 (operating in open cycle mode). The activities shall operate for less than 1,500 hours per year as a rolling average over a period of five years with a maximum of 2,250 hours operated in any one year in line with Section 4.0 of Version 5.1: The Protocol for IED Annex V 1500 Limited Hours Derogation July 2015 or any later version.
- 2.3.6 For the following activities referenced in schedule 1, table S1.1: LCP95. 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 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.

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

2.4 Improvement programme

- 2.4.1 The operator shall complete the improvements specified in schedule 1 table S1.3 by the date specified in that table unless otherwise agreed in writing by the Environment Agency.
- 2.4.2 Except in the case of an improvement which consists only of a submission to the Environment Agency, the operator shall notify the Environment Agency within 14 days of completion of each improvement.

3 Emissions and monitoring

3.1 Emissions to water, air or land

- 3.1.1 There shall be no point source emissions to water, air or land except from the sources and emission points listed in schedule 3 tables S3.1, S3.1a, S3.2 and S3.3.
- 3.1.2 The limits given in schedule 3 shall not be exceeded.
- 3.1.3 Total annual emissions from the LCP emission points set out in schedule 3 tables S3.1 and S3.1a 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, S3.2 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, S3.1a and S3.2 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 the monitoring results for more than 10 days a year are invalidated within the meaning set out in condition 3.6.7, the operator shall:

- (a) within 28 days of becoming aware of this fact, review the causes of the invalidations and submit to the Environment Agency for approval, proposals for measures to improve the reliability of the continuous measurement systems, including a timetable for the implementation of those measures; and
- (b) implement the approved proposals.

- 3.6.3 Continuous measurement systems on emission points from the LCP shall be subject to quality control by means of parallel measurements with reference methods at least once every calendar year.
- 3.6.4 Unless otherwise agreed in writing by the Environment Agency in accordance with condition 3.6.5 below, the operator shall carry out the methods, including the reference measurement methods, to use and calibrate continuous measurement systems in accordance with the appropriate CEN standards.
- 3.6.5 If CEN standards are not available, ISO standards, national or international standards which will ensure the provision of data of an equivalent scientific quality shall be used, as agreed in writing with the Environment Agency.
- 3.6.6 Where required by a condition of this permit to check the measurement equipment, the operator shall submit a report to the Environment Agency in writing, within 28 days of the completion of the check.
- 3.6.7 Where Continuous Emission Monitors are installed to comply with the monitoring requirements in schedule 3, tables S3.1 and S3.1a; the Continuous Emission Monitors shall be used such that:
- (a) for the continuous measurement systems fitted to the LCP release points defined in tables S3.1 and S3.1a the validated hourly, monthly 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 (40 minutes). 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) for the following activities referenced in schedule 1, table S1.1: LCP95 (operating in open cycle mode), 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 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.
- 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 50MW or more.	<p>LCP95 (combined cycle mode):- The operation of a Combined Cycle Gas Turbine with a net rated thermal input of 106.2MW for the generation of electricity.</p> <p>LCP95 (open cycle mode):- The operation of an Open Cycle Gas Turbine with a net rated thermal input of 106.2MW for the generation of electricity.</p> <p>Package Boiler (PB1):- The operation of a package boiler with a rated thermal input of 14MW for the raising of steam for various duties including start-up.</p>	<p>From receipt of natural gas to discharge of exhaust gases and the generation of electricity</p> <p>Activity A1: LCP95 to cease operation before 17th August 2021.</p>
Directly Associated Activity			
A2.	Directly associated activity	The operation of an open circuit water-cooled condenser.	Abstraction and discharge of river water to River Calder.
A3.	Directly associated activity	Boiler water treatment.	The collection, pumping, filtering and treatment of water.
A4	Directly associated activity	Surface water drainage	Handling and storage of site drainage until discharge to the site surface water system.

Table S1.2 Operating techniques		
Description	Parts	Date Received
Application	The response to section B2.1 and B2.2 in the Application.	06/03/06
Response to regulation 60(1) Notice – request for information dated 31/10/14	Compliance route and operating techniques identified in response to questions 2 (compliance route), 4 (LCP configuration), 5 (net rated thermal input), 6 (MSUL/MSDL), 9i (ELVs), 11 (monitoring requirements) – excluding the compliance routes; Annex V ELVs and Limited Hours Derogation for LCP95 and related operating techniques.	27/03/15

Table S1.2 Operating techniques		
Description	Parts	Date Received
Receipt of additional information to the regulation 60(1) Notice. requested by letter dated 12/05/15	Compliance route(s) and operating techniques identified in response to questions 5 (net rated thermal input figure), 6 (MSUL/MSDL), 9 (ELV justification) and revised installation diagram.	15/06/15
Receipt of additional information to the regulation 60(1) Notice.	Confirmation of the compliance routes chosen for LCP95	21/12/15
Response to regulation 61(1) Notice – request for information dated 01/05/18	Operating regime confirmed in response to the BAT Conclusions for large combustion plant published on 17th August 2017.	31/10/18

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
Improvement conditions IC1 – IC5 confirmed complete and therefore deleted from the permit through EPR/JP3430LC/V004.		

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 – LCP95	27.5MWe; 70%	27.5MWe; 70%
A2 – LCP95	27.5MWe; 70%	27.5MWe; 70%

Schedule 2 – Waste types, raw materials and fuels

Table S2.1 Raw materials and fuels	
Raw materials and fuel description	Specification
Natural gas	-

Schedule 3 – Emissions and monitoring

Table S3.1 Point source emissions to air - emission limits and monitoring requirements shall apply until 30 June 2020						
Emission point ref. & location	Parameter	Source	Limit (including unit)-these limits do not apply during start up or shut down.	Reference period	Monitoring frequency	Monitoring standard or method
A1 [point A1 on site plan in schedule 7]	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	LCP95 Gas turbine fired on natural gas	60 mg/m ³ 70% to base load ¹	Monthly mean of validated hourly averages	Continuous	BS EN 14181
			60 mg/m ³ 70% to base load ¹	95% of validated daily means within a calendar year		
			60 mg/m ³ 70% to base load ¹	95% of validated hourly averages within a calendar year		
A1 [Point A1 on site plan in schedule 7]	Carbon monoxide	LCP95 Gas turbine fired on natural gas	100 mg/m ³ 70% to base load ¹	Monthly mean of validated hourly averages	Continuous	BS EN 14181
			100 mg/m ³ 70% to base load ¹	Daily mean of validated hourly averages		
			100 mg/m ³ 70% to base load ¹	95% of validated hourly averages within a calendar year		
A1 [Point A1 on site plan in schedule 7]	Sulphur Dioxide	LCP95 Gas turbine fired on natural gas	-	-	6 monthly	Concentration by calculation, as agreed in writing with the Environment Agency
A1 [Point A1 on site plan in schedule 7]	Oxygen	LCP95 Gas turbine fired on natural gas	-	-	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	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 [Point A1 on site plan in schedule 7]	Water vapour	LCP95 Gas turbine fired on natural gas	-	-	Continuous	BS EN 14181
	Stack gas temperature		-	-	As appropriate to reference	Traceable to national standards
	Stack gas pressure		-	-		Traceable to national standards
	Stack gas volume flow		-	-	Continuous	EN ISO 16911 & TGN M2
	As required by the Method Implementation Document for BS EN 15259		-	-	Pre-operation and when there is a significant operational change	BS EN 15259
A2 [Point A2 on site plan in schedule 7]	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	LCP95 Gas turbine by-pass stack fired on natural gas	60 mg/m ³ 70% to base load ¹	Monthly mean of validated hourly averages	Continuous	BS EN 14181
			60 mg/m ³ 70% to base load ¹	95% of validated daily means within a calendar year		
			60 mg/m ³ 70% to base load ¹	95% of validated hourly averages within a calendar year		
A2 [Point A2 on site plan in schedule 7]	Carbon monoxide	LCP95 Gas turbine by-pass stack fired on natural gas	100 mg/m ³ 70% to base load ¹	Monthly mean of validated hourly averages	Continuous	BS EN 14181
			100 mg/m ³ 70% to base load ¹	Daily mean of validated hourly averages		
			100 mg/m ³ 70% to base load ¹	95% of validated hourly averages within a calendar year		

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

Emission point ref. & location	Parameter	Source	Limit (including unit)-these limits do not apply during start up or shut down.	Reference period	Monitoring frequency	Monitoring standard or method
A2 [Point A2 on site plan in schedule 7]	Sulphur Dioxide	LCP95 Gas turbine by-pass stack fired on natural gas	-	-	6 monthly	Concentration by calculation, as agreed in writing with the Environment Agency
A2 [Point A2 on site plan in schedule 7]	Oxygen	LCP95 Gas turbine by-pass stack fired on natural gas	-	-	Continuous As appropriate to reference	BS EN 14181
A2 [Point A2 on site plan in schedule 7]	Water vapour	LCP95 Gas turbine by-pass stack fired on natural gas	-	-	Continuous As appropriate to reference	BS EN 14181
	Stack gas temperature		-	-		Traceable to national standards
	Stack gas pressure		-	-		Traceable to national standards
	Stack gas volume flow		-	-	Continuous	EN ISO 16911 & TGN M2
A2 [Point A2 on site plan in schedule 7]	As required by the Method Implementation Document for BS EN 15259	LCP95 Gas turbine by-pass stack fired on natural gas	-	-	Pre-operation and when there is a significant operational change	BS EN 15259
A3 [Point A3 on site plan in Schedule 7]	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	Package Boiler (PB1)	-	-	-	-
A3 [Point A3 on site plan in Schedule 7]	Carbon monoxide		-	-	-	-
Note 1: This ELV applies when the load is >70% throughout the reference period.						

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

Emission point ref. & location	Parameter	Source	Limit (including unit)-these limits do not apply during start up or shut down.	Reference period	Monitoring frequency	Monitoring standard or method
A1 [point A1 on site plan in schedule 7]	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	LCP95 Gas turbine fired on natural gas	50 mg/m ³ 70% to base load ¹	Monthly mean of validated hourly averages	Continuous	BS EN 14181
			55 mg/m ³ 70% to base load ¹	Daily mean of validated hourly averages		
			55 mg/m ³ MSUL/MSD L to base load ²			
			60 mg/m ³ 70% to base load ¹	95% of validated hourly averages within a calendar year		
A1 [Point A1 on site plan in schedule 7]	Carbon monoxide	LCP95 Gas turbine fired on natural gas	100 mg/m ³ 70% to base load ¹	Monthly mean of validated hourly averages	Continuous	BS EN 14181
			100 mg/m ³ 70% to base load ¹	Daily mean of validated hourly averages		
			100 mg/m ³ MSUL/MSD L to base load ²			
			100 mg/m ³ 70% to base load ¹	95% of validated hourly averages within a calendar year		
A1 [Point A1 on site plan in schedule 7]	Sulphur Dioxide	LCP95 Gas turbine fired on natural gas	-	-	6 monthly	Concentration by calculation, as agreed in writing with the Environment Agency

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

Emission point ref. & location	Parameter	Source	Limit (including unit)-these limits do not apply during start up or shut down.	Reference period	Monitoring frequency	Monitoring standard or method
A1 [Point A1 on site plan in schedule 7]	Oxygen	LCP95 Gas turbine fired on natural gas	-	-	Continuous As appropriate to reference	BS EN 14181
A1 [Point A1 on site plan in schedule 7]	Water vapour	LCP95 Gas turbine fired on natural gas	-	-	Continuous As appropriate to reference	BS EN 14181
	Stack gas temperature		-	-		Traceable to national standards
	Stack gas pressure		-	-		Traceable to national standards
	Stack gas volume flow		-	-	Continuous	EN ISO 16911 & TGN M2
	As required by the Method Implementation Document for BS EN 15259		-	-	Pre-operation and when there is a significant operational change	BS EN 15259
A2 [Point A2 on site plan in schedule 7]	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	LCP95 Gas turbine by-pass stack fired on natural gas	50 mg/m ³ 70% to base load ¹	Monthly mean of validated hourly averages	Continuous	BS EN 14181
			55 mg/m ³ 70% to base load ¹	Daily mean of validated hourly averages		
			55 mg/m ³ MSUL/MSDL to base load ²			
			60 mg/m ³ 70% to base load ¹	95% of validated hourly averages within a calendar year		
A2 [Point A2 on site plan in schedule 7]	Carbon monoxide	LCP95 Gas turbine by-pass stack fired	100 mg/m ³ 70% to base load ¹	Monthly mean of validated hourly averages	Continuous	BS EN 14181

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

Emission point ref. & location	Parameter	Source	Limit (including unit)-these limits do not apply during start up or shut down.	Reference period	Monitoring frequency	Monitoring standard or method
		on natural gas	100 mg/m ³ 70% to base load ¹	Daily mean of validated hourly averages		
			100 mg/m ³ MSUL/MSDL to base load ²			
			100 mg/m ³ 70% to base load ¹	95% of validated hourly averages within a calendar year		
A2 [Point A2 on site plan in schedule 7]	Sulphur Dioxide	LCP95 Gas turbine by-pass stack fired on natural gas	-	-	6 monthly	Concentration by calculation, as agreed in writing with the Environment Agency
A2 [Point A2 on site plan in schedule 7]	Oxygen	LCP95 Gas turbine by-pass stack fired on natural gas	-	-	Continuous As appropriate to reference	BS EN 14181
A2 [Point A2 on site plan in schedule 7]	Water vapour	LCP95 Gas turbine by-pass stack fired on natural gas	-	-	Continuous As appropriate to reference	BS EN 14181
	Stack gas temperature		-	-		Traceable to national standards
	Stack gas pressure		-	-		Traceable to national standards
	Stack gas volume flow		-	-	Continuous	EN ISO 16911 & TGN M2
A2 [Point A2 on site plan in schedule 7]	As required by the Method Implementation Document for BS EN 15259	LCP95 Gas turbine by-pass stack fired on natural gas	-	-	Pre-operation and when there is a significant operational change	BS EN 15259

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

Emission point ref. & location	Parameter	Source	Limit (including unit)-these limits do not apply during start up or shut down.	Reference period	Monitoring frequency	Monitoring standard or method
A3 [Point A3 on site plan in Schedule 7]	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	Package Boiler (PB1)	-	-	-	-
A3 [Point A3 on site plan in Schedule 7]	Carbon monoxide		-	-	-	-

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

Note 2: Limits shall apply from MSUL/MSDL to base load, as defined in table S1.4 of this permit.

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 (on site plan in schedule 7 emission to River Calder)	Flow	Cooling water discharge	70,000m ³ /day	24 hour period beginning 00.01	Continuous	-
	Temperature		Excess 3°C/ Maximum 28°C	Instantaneous	Continuous	Traceable to national standards
W2 (on site plan in schedule 7 emission to River Calder)	Flow	Discharge from oil separator, WTP, fish return and surface water	60m ³ /day	24 hour period beginning 00.01	Continuous	-
	Hydrocarbons		20 mg/l	Instantaneous	Spot Monitoring	Humburg GmbH Type OMD-7
	pH		6-9	Instantaneous	Continuous	BS6068-2.50 ³
	Ammonia (total as N)		No limit	Instantaneous	Spot Monitoring	SCA Blue Book 48

Table S3.3 Annual limits (excluding start up and shut down except where otherwise stated).

Substance	Medium	Limit (including unit)		Emission Points
		Assessment year	LCP TNP Limit	
Oxides of nitrogen	Air	01/01/16 and subsequent years until 31/12/19 01/01/20-30/06/20	Emission allowance figure shown in the TNP Register as at 30 April the following year	LCP95

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 and A2	Every 3 months	1 January, 1 April, 1 July, 1 October
Carbon monoxide			
Sulphur dioxide			
Emissions to water Parameters as required by condition 3.5.1	W1 and W2	Every 3 months	

Parameter	Units
Electricity Exported	GWhrs
Heat Exported	GWhrs
Mechanical Power Provided	GWhrs
Fossil Fuel Energy Consumption	GWhrs
Non-Fossil Fuel Energy Consumption	GWhrs
Annual Operating Hours	hrs
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 LCP95	Annually	MW
Annual Fuel Usage for LCP95		TJ
Total Emissions to Air of NO _x for LCP95		t
Total Emissions to Air of SO ₂ for LCP95		t
Total Emissions to Air of Dust for LCP95		t
Operating Hours for LCP95		hr
Operating Hours as a five year rolling average for LCP95 in open cycle mode		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
Air	Form IED RTA1 – TNP quarterly emissions summary log	01/01/16	National	31/12/15
LCP	Form IED HR1 – operating hours	01/01/16	National	31/12/15
Air	Form IED CON 2 - SO ₂ , NO _x and dust concentration emissions.	01/01/16	Area Office	31/12/15
CEMs	Form IED CEM – Invalidation Log	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	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	

(b) Notification requirements for the breach of a limit	
To be notified within 24 hours of detection unless otherwise specified below	
Measures taken, or intended to be taken, to stop the emission	
Time periods for notification following detection of a breach of a limit	
Parameter	Notification period

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

Part B – to be submitted as soon as practicable

Any more accurate information on the matters for notification under Part A.	
Measures taken, or intended to be taken, to prevent a recurrence of the incident	
Measures taken, or intended to be taken, to rectify, limit or prevent any pollution of the environment which has been or may be caused by the emission	
The dates of any unauthorised emissions from the facility in the preceding 24 months.	

Name*	
Post	
Signature	
Date	

* authorised to sign on behalf of the operator

Schedule 6 – Interpretation

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

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

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

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

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

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

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

“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.

“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.

“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 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.

“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.

“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.

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

“Waste code” means the six digit code referable to a type of waste in accordance with the List of Wastes (England) Regulations 2005, or List of Wastes (Wales) Regulations 2005, as appropriate, and in relation to hazardous waste, includes the asterisk.

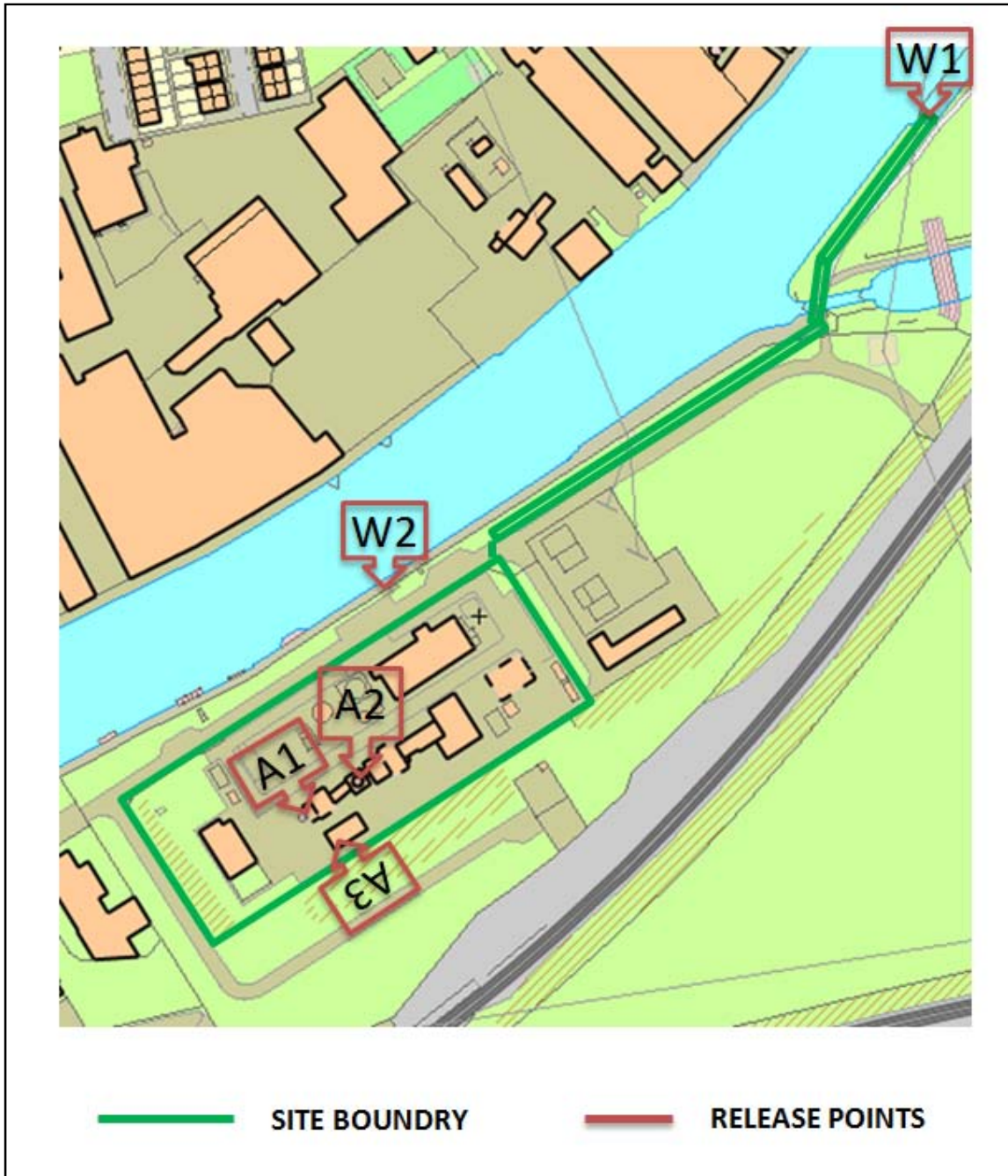
Where a minimum limit is set for any emission parameter, for example pH, reference to exceeding the limit shall mean that the parameter shall not be less than that limit.

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

- in relation to emissions from gas turbine 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



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END OF PERMIT