



Notice of variation and consolidation with introductory note

The Environmental Permitting (England & Wales) Regulations 2016

Whitetower Energy Limited

Heartlands Plant
101 Fort Parkway
Birmingham
B24 9FQ

Variation application number

EPR/QP3632TF/V004

Permit number

EPR/QP3632TF

Heartlands Plant

Permit number EPR/QP3632TF

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.

Purpose of this variation EPR/QP3632TF/V004

This variation is required to assess the permit for compliance with the revised BAT Conclusions for the LCP sector published on 17 August 2017 including the incorporation of relevant BAT Associated Emission Levels (AELs) into the permit.

Review permit conditions

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 17 August 2017. Only activities covered by this BAT Reference Document have been reviewed and assessed

Key changes made as a result of the permit review:

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

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

Additional key changes in accordance with IED Chapter II requirements:

- Permit condition 2.3.8 has been included in the permit with corresponding improvement condition IC6 requiring the operator to submit a report in relation to potential black start operation of the plant: and
- Table S1.3 amended to remove completed improvement conditions IC1 to IC5;

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.

Variation EPR/PP3236TH/V002/Chapter III/Annex V

The requirements of the IED 2010/75/EU are given force in England through the EPR 2016. This permit, for the operation of LCP, as defined by articles 28 and 29 of the IED, already implements the special provisions for LCP given in the IED. The IED makes special provisions for LCP under Chapter III and contains emission limit values (ELVs) applicable to LCP, referred to in Article 30(2) and set out in Annex V.

The Operator chose to operate LCP173 under the emission limit value (ELV) compliance route.

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

The Heartlands Power Station is located at National Grid Reference SP130903.

It falls under the following IED Schedule 1 listed activity description:

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

The facility incorporates a two open cycle gas turbine (OCGT) identified as LCP173, Unit 1 has a net rated thermal input of 128.2 MWth which operates with a thermal efficiency of 39% and for Heartlands Unit 2 has a net rated thermal input of 128.8 MWth which operates with a thermal efficiency of 38.8% combining to give an aggregated thermal input of 257 MWth. The OCGT is limited to 1,500 hours of operation per annum in accordance with permit condition 2.3.5.

The gas turbine selected for use is the Rolls Royce Trent. Fuel is burnt in the combustion chamber of the gas turbine from where the hot gases expand through the gas turbine to generate electricity. Each gas turbine is directly connected to a single air-cooled generator. Fresh air at ambient conditions is drawn into the compressor from where its temperature and pressure are raised. The high-pressure air proceeds into the combustion chamber where the fuel is burnt at a constant pressure. The resulting high temperature gases enter the turbine where they expand to the atmospheric pressure, thus producing power. The generated electricity is exported from the site at 132 kV, via the existing substation. The connection to the grid is via a single bay single circuit overhead transmission line. The main discharges to the environment are combustion exhaust gases from the stack. Flue gases are discharged via a 62m stack.

The Environmental Management System (EMS) for the installation is certificated to ISO 14001.

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.

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 QP3538LZ	Duly made 31/03/2006	
Additional information received	29/08/2006	
Permit Issued QP3538LZ	Issued 21/12/2006	
Variation Issued KP3635UC	Issued 27/09/2007	
Application for Transfer EPR/QP3632TF/T001 (Full transfer of QP3538LZ)	Duly made 30/07/2010	
Additional Information Request	Issued 09/08/2010	Receipt 02/09/2010
Transfer determined EPR/QP3632TF	16/09/2010	Permit issued to Rolls-Royce Power Development Limited.
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	23/03/2015	Response received from the Operator.
Additional information received	19/07/2015	Response to request for further information (RFI).
Variation determined EPR/QP3632TF/V002	21/12/2015	Varied and consolidated permit issued in modern condition format.

Status log of the permit		
Description	Date	Comments
		Variation effective from 01/01/2016.
Notified of change of Company Name and Registered office	10/06/2019	Name and Registered office changed to Whitetower Energy Limited, First Floor Templeback, 10 Temple Back, Bristol, BS1 6FL
Variation issued EPR/QP3632TF/V003	13/06/2019	Varied permit issued to Whitetower Energy Limited
Regulation 61 Notice sent to the Operator	01/05/2018	Issue of a Notice under Regulation 61(1) of the EPR. Environment Agency initiated review and variation to vary the permit under IED to implement Chapter II following the publication of the revised Best Available Techniques (BAT) Reference Document for large combustion plant.
Regulation 61 Notice response.	31/10/2018	Response received from the Operator.
Regulation 61 Notice response	12/05/2020	Response received from the Operator. Submission of an amended Regulation 61 response which replaces previous submissions
Additional Information received	22/06/2020	Name & site address changed to Heartlands Plant 101 Fort Parkway, Birmingham B24 9FQ Removal of water treatment (directly associated activity)
Variation determined EPR/QP3632TF/V004 (Billing ref: SP3400SB)	30/06/2020	Varied and consolidated permit issued.

End of introductory note

The Environmental Permitting (England and Wales) Regulations 2016

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

Permit number

EPR/QP3632TF

Issued to

Whitetower Energy Limited (“the operator”)

whose registered office is

First Floor Templeback

10 Temple Back

Bristol

BS1 6FL

company registration number 03479694

to operate a regulated facility at

Heartlands Plant

101 Fort Parkway

Birmingham

B24 9FQ

to the extent set out in the schedules.

The notice shall take effect from 01/07/2020

Name	Date
Daniel Timney	30/06/2020

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/QP3632TF

This is the consolidated permit referred to in the variation and consolidation notice for application EPR/QP3632TF/V004 authorising,

Whitetower Energy Limited (“the operator”),

whose registered office is

First Floor Templeback

10 Temple Back

Bristol

BS1 6FL

company registration number 03479694

to operate a regulated facility at

Heartlands Plant

101 Fort Parkway

Birmingham

B24 9FQ

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

Name	Date
Daniel Timney	30/06/2020

Authorised on behalf of the Environment Agency

Conditions

1 Management

1.1 General management

1.1.1 The operator shall manage and operate the activities:

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

1.1.2 Records demonstrating compliance with condition 1.1.1 shall be maintained.

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

1.2 Energy efficiency

1.2.1 The operator shall:

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

1.3 Efficient use of raw materials

1.3.1 The operator shall:

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

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

1.4.1 The operator shall take appropriate measures to ensure that:

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

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

2 Operations

2.1 Permitted activities

- 2.1.1 The operator is only authorised to carry out the activities specified in schedule 1 table S1.1 (the “activities”).

2.2 The site

- 2.2.1 The activities shall not extend beyond the site, being the land shown edged in 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: LCP173. 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: LCP173. 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: LCP173. 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: LCP173. The effective Dry Low NO_x 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 points A1 and A2 listed in tables S3.1 and S3.1a of Schedule 3 following the issue of a Black Start Instruction by the National Grid shall be disregarded for the purposes of compliance whilst that instruction remains effective and in accordance with the report submitted in response to improvement condition IC6.
- 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, S3.2 and S3.3.

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

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

3.2 Emissions of substances not controlled by emission limits

3.2.1 Emissions of substances not controlled by emission limits (excluding odour) shall not cause pollution. The operator shall not be taken to have breached this condition if appropriate measures, including, but not limited to, those specified in any approved emissions management plan, have been taken to prevent or where that is not practicable, to minimise, those emissions.

3.2.2 The operator shall:

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

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

3.3 Odour

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

3.3.2 The operator shall:

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

3.4 Noise and vibration

- 3.4.1 Emissions from the activities shall be free from noise and vibration at levels likely to cause pollution outside the site, as perceived by an authorised officer of the Environment Agency, unless the operator has used appropriate measures, including, but not limited to, those specified in any approved noise and vibration management plan to prevent or where that is not practicable to minimise the noise and vibration.
- 3.4.2 The operator shall:
 - (a) if notified by the Environment Agency that the activities are giving rise to pollution outside the site due to noise and vibration, submit to the Environment Agency for approval within the period specified, a noise and vibration management plan which identifies and minimises the risks of pollution from noise and vibration;
 - (b) implement the approved noise and vibration management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

3.5 Monitoring

- 3.5.1 The operator shall, unless otherwise agreed in writing by the Environment Agency, undertake the monitoring specified in the following tables in schedule 3 to this permit:
 - (a) point source emissions specified in tables S3.1, S3.1a, S3.2 and S3.3; and
 - (b) process monitoring specified in table S3.4.
- 3.5.2 The operator shall maintain records of all monitoring required by this permit including records of the taking and analysis of samples, instrument measurements (periodic and continuous), calibrations, examinations, tests and surveys and any assessment or evaluation made on the basis of such data.
- 3.5.3 Monitoring equipment, techniques, personnel and organisations employed for the emissions monitoring programme and the environmental or other monitoring specified in condition 3.5.1 shall have either MCERTS certification or MCERTS accreditation (as appropriate), where available, unless otherwise agreed in writing by the Environment Agency.
- 3.5.4 Permanent means of access shall be provided to enable sampling/monitoring to be carried out in relation to the emission points specified in schedule 3 tables S3.1, S3.1a, S3.2 and S3.3 unless otherwise agreed in writing by the Environment Agency.

3.6 Monitoring for Large Combustion Plant

- 3.6.1 All monitoring required by this permit shall be carried out in accordance with the provisions of Annex V of the Industrial Emissions Directive and the Large Combustion Plant Best Available Techniques Conclusions.
- 3.6.2 If the monitoring results for more than 10 days a year are invalidated within the meaning set out in condition 3.6.7, the operator shall:
 - (a) within 28 days of becoming aware of this fact, review the causes of the invalidations and submit to the Environment Agency for approval, proposals for measures to improve the reliability of the continuous measurement systems, including a timetable for the implementation of those measures; and

- (b) implement the approved proposals.
- 3.6.3 Continuous measurement systems on emission points from the LCP shall be subject to quality control by means of parallel measurements with reference methods at least once every calendar year.
- 3.6.4 Unless otherwise agreed in writing by the Environment Agency in accordance with condition 3.6.5 below, the operator shall carry out the methods, including the reference measurement methods, to use and calibrate continuous measurement systems in accordance with the appropriate CEN standards.
- 3.6.5 If CEN standards are not available, ISO standards, national or international standards which will ensure the provision of data of an equivalent scientific quality shall be used, as agreed in writing with the Environment Agency.
- 3.6.6 Where required by a condition of this permit to check the measurement equipment, the operator shall submit a report to the Environment Agency in writing, within 28 days of the completion of the check.
- 3.6.7 Where Continuous Emission Monitors are installed to comply with the monitoring requirements in schedule 3, table(s) S3.1 and S3.1a; the Continuous Emission Monitors shall be used such that:
 - (a) for the continuous measurement systems fitted to the LCP release points defined in table(s) S3.1 and S3.1a the validated hourly, monthly, yearly and daily averages shall be determined from the measured valid hourly average values after having subtracted the value of the 95% confidence interval;
 - (b) the 95% confidence interval for nitrogen oxides and sulphur dioxide of a single measured result shall be taken to be 20%;
 - (c) the 95% confidence interval for dust releases of a single measured result shall be taken to be 30%;
 - (d) the 95% confidence interval for carbon monoxide releases of a single measured result shall be taken to be 10%;
 - (e) an invalid hourly average means an hourly average period invalidated due to malfunction of, or maintenance work being carried out on, the continuous measurement system. However, to allow some discretion for zero and span gas checking, or cleaning (by flushing), an hourly average period will count as valid as long as data has been accumulated for at least two thirds of the period. Such discretionary periods are not to exceed more than 5 in any one 24-hour period unless agreed in writing. Where plant may be operating for less than the 24-hour period, such discretionary periods are not to exceed more than one quarter of the overall valid hourly average periods unless agreed in writing; and
 - (f) any day, in which more than three hourly average values are invalid shall be invalidated.

4 Information

4.1 Records

- 4.1.1 All records required to be made by this permit shall:
 - (a) be legible;
 - (b) be made as soon as reasonably practicable;
 - (c) if amended, be amended in such a way that the original and any subsequent amendments remain legible, or are capable of retrieval; and
 - (d) be retained, unless otherwise agreed in writing by the Environment Agency, for at least 6 years from the date when the records were made, or in the case of the following records until permit surrender:

- (i) off-site environmental effects; and
- (ii) matters which affect the condition of the land and groundwater.

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

4.2 Reporting

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

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

- (a) a review of the results of the monitoring and assessment carried out in accordance with the permit including an interpretive review of that data;
- (b) the resource efficiency metrics set out in schedule 4 table S4.2;
- (c) the performance parameters set out in schedule 4 table S4.3 using the forms specified in table S4.4 of that schedule; and
- (d) where condition 2.3.5 applies, the rolling annual average hours of operation over a period of 5 years.

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

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

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

4.3 Notifications

4.3.1 In the event:

- (a) that the operation of the activities gives rise to an incident or accident which significantly affects or may significantly affect the environment, the operator must immediately—
 - (i) inform the Environment Agency,
 - (ii) take the measures necessary to limit the environmental consequences of such an incident or accident, and
 - (iii) take the measures necessary to prevent further possible incidents or accidents;
- (b) of a breach of any permit condition the operator must immediately—
 - (i) inform the Environment Agency, and
 - (ii) take the measures necessary to ensure that compliance is restored within the shortest possible time;

- (c) of a breach of permit condition which poses an immediate danger to human health or threatens to cause an immediate significant adverse effect on the environment, the operator must immediately suspend the operation of the activities or the relevant part of it until compliance with the permit conditions has been restored.
- 4.3.2 Any information provided under condition 4.3.1(a)(i), 4.3.1 (b)(i) where the information relates to the breach of a condition specified in the permit shall be confirmed by sending the information listed in schedule 5 to this permit within the time period specified in that schedule.
- 4.3.3 Where the Environment Agency has requested in writing that it shall be notified when the operator is to undertake monitoring and/or spot sampling, the operator shall inform the Environment Agency when the relevant monitoring and/or spot sampling is to take place. The operator shall provide this information to the Environment Agency at least 14 days before the date the monitoring is to be undertaken.
- 4.3.4 The Environment Agency shall be notified within 14 days of the occurrence of the following matters, except where such disclosure is prohibited by Stock Exchange rules:
- Where the operator is a registered company:
- (a) any change in the operator's trading name, registered name or registered office address; and
 - (b) any steps taken with a view to the operator going into administration, entering into a company voluntary arrangement or being wound up.
- Where the operator is a corporate body other than a registered company:
- (c) any change in the operator's name or address; and
 - (d) any steps taken with a view to the dissolution of the operator.
- In any other case:
- (e) the death of any of the named operators (where the operator consists of more than one named individual);
 - (f) any change in the operator's name(s) or address(es); and
 - (g) any steps taken with a view to the operator, or any one of them, going into bankruptcy, entering into a composition or arrangement with creditors, or, in the case of them being in a partnership, dissolving the partnership.
- 4.3.5 Where the operator proposes to make a change in the nature or functioning, or an extension of the activities, which may have consequences for the environment and the change is not otherwise the subject of an application for approval under the Regulations or this permit:
- (a) the Environment Agency shall be notified at least 14 days before making the change; and
 - (b) the notification shall contain a description of the proposed change in operation.
- 4.3.6 The Environment Agency shall be given at least 14 days notice before implementation of any part of the site closure plan.
- 4.3.7 Where the operator has entered into a climate change agreement with the Government, the Environment Agency shall be notified within one month of:
- (a) a decision by the Secretary of State not to re-certify the agreement;
 - (b) a decision by either the operator or the Secretary of State to terminate the agreement; and
 - (c) any subsequent decision by the Secretary of State to re-certify such an agreement.
- 4.3.8 The operator shall inform the Environment Agency in writing of the closure of any LCP within 28 days of the date of closure.

4.4 Interpretation

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

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

Schedule 1 – Operations

Table S1.1 activities			
Activity reference	Activity listed in Schedule 1 of the EP Regulations	Description of specified activity	Limits of specified activity
AR1	Section 1.1 A(1) (a): Burning any fuel in an appliance with a rated thermal input of 50 megawatts or more.	LCP173: Two open cycle gas turbines (OCGT) burning natural gas for production of electricity Unit 1 - 128.2 MWth Unit 2 - 128.8 MWth	From receipt of natural gas to discharge of exhaust gases, and the generation of electricity. LCP 173 shall not exceed 1500 operating hours in a year as a rolling average over 5 years, in accordance with condition 2.3.5 of this permit.
Directly Associated Activity			
AR2	Directly associated activity	Storage and handling of raw materials, wastes and products	From receipt of materials to dispatch of product.
AR3	Directly associated activity	Operation of systems for the supply of utilities and services such as electricity, cooling water systems, towns water and demineralised water	From receipt of the services to dispatch for use
AR4	Directly associated activity	Operation of electrical systems for supply and export of electricity	Electrical systems as far as the installation boundary

Table S1.2 Operating techniques		
Description	Parts	Date Received
Application	The response to section B2.1 and B2.2 in the Application.	31/03/2006
Request for further information	Response to request for further information dated 07/08/06	29/08/2006
Response to regulation 60(1) Notice – request for information dated 31/10/2014.	Compliance route and operating techniques identified in response to questions 2 (compliance route), 4 (LCP configuration), 5 (net rated thermal input), 6 (MSUL/MSDL), 9 (ELVs).	Received 23/03/2015

Table S1.2 Operating techniques		
Description	Parts	Date Received
Receipt of additional information to the regulation 60(1) Notice requested by letter dated 31/10/2014.	Response to Regulation 60 Notice showing the compliance route and operating techniques identified in response to questions 5 (net rated thermal input figure) and 6 (MSUL/MSDL). Detail of the thermal efficiency calculation of the current Gas Turbines, MSUL/MSDL definition and the gas fuel calorific value, using June 2015 average gas fuel constituents.	Received 19/07/2015
Response to regulation 61(1) Notice – request for information dated 01/05/2018 EPR/QP3632TF/V004	Updated response to regulation 61(1) Notice Compliance and operating techniques identified in response to the BAT Conclusions for large combustion plant published on 17th August 2017.	12/05/2020

Table S1.3 Improvement programme requirements		
Improvement conditions IC1-IC5 have been removed from the permit through variation EPR/QP3962/V004 as they are complete.		
Reference	Requirement	Date
IC6	<p>A written report shall be submitted to the Environment Agency for approval. The report shall contain an impact assessment demonstrating that there is no significant environmental risk associated with black start operations and propose a methodology for minimisation of environmental impact during such a period of operation and for reporting instances of black start operation.</p> <p>The plant 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.</p>	12 months from issue of variation EPR/QP3632TF/V004

Table S1.4 Start-up and Shut-down thresholds		
Emission Point and Unit Reference	“Minimum Start-Up Load” When two of the criteria listed below for the LCP or unit have been met.	“Minimum Shut-Down Load” When two of the criteria listed below for the LCP or unit have been met.
A1 LCP173	Fully Pre-mixed Steady State engine conditions have been detected meaning when the rate of change of measured speed, between the Intermediate Compressor and Gas Turbine (IP speed), is equal to or falls below 10rpm/second	Steady State engine conditions are NOT detected meaning when the rate of change of measured speed, between the Intermediate Compressor and Gas Turbine (IP speed), increases above 10rpm/second.
A1 LCP173	All engine air bleeds are fully closed, meaning the Low, Intermediate and High Pressure Bleeds are all fully closed.	Any engine air bleed is open, meaning when one of the LP, IP or HP air bleeds is open.
A1 LCP173	Fuel Flow Rate is equal to or greater than 70% of the maximum rated fuel flow for a given ambient temperature.	Fuel Flow Rate is less than 70% of the maximum rated fuel flow for a given ambient temperature.

Table S1.4 Start-up and Shut-down thresholds		
Emission Point and Unit Reference	“Minimum Start-Up Load” When two of the criteria listed below for the LCP or unit have been met.	“Minimum Shut-Down Load” When two of the criteria listed below for the LCP or unit have been met.
A2 LCP173	Fully Pre-mixed Steady State engine conditions have been detected meaning when the rate of change of measured speed, between the Intermediate Compressor and Gas Turbine (IP speed), is equal to or falls below 10rpm/second	Steady State engine conditions are NOT detected meaning when the rate of change of measured speed, between the Intermediate Compressor and Gas Turbine (IP speed), increases above 10rpm/second.
A2 LCP173	All engine air bleeds are fully closed, meaning the Low, Intermediate and High Pressure Bleeds are all fully closed.	Any engine air bleed is open, meaning when one of the LP, IP or HP air bleeds is open.
A2 LCP173	Fuel Flow Rate is equal to or greater than 70% of the maximum rated fuel flow for a given ambient temperature.	Fuel Flow Rate is less than 70% of the maximum rated fuel flow for a given ambient temperature.

Table S1.5 Dry Low NOx effective definition	
Emission Point and Unit Reference	Load in MW and as percent of rated power output (%)
A1 LCP173	Load: 35 MW; 70%
A2 LCP173	Load: 35 MW; 70%

Schedule 2 – 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 16 August 2021						
Emission point ref. & location	Source	Parameter	Limit (including unit)- these limits do not apply during start up or shut down.	Reference period	Monitoring frequency	Monitoring standard or method
A1/A2 [Point A1 on site plan in schedule 7]	LCP No. 173 gas turbines fired on natural gas	Oxides of nitrogen (NO and NO ₂ expressed as NO ₂)	60mg/m ³ 70% to base load ¹	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
A1/A2 [Point A1 on site plan in schedule 7]	LCP No. 173 gas turbines fired on natural gas	Oxides of nitrogen (NO and NO ₂ expressed as NO ₂)	55 mg/m ³ 70% to base load ¹	Daily mean of validated hourly averages	Continuous	BS EN 14181
A1/A2 [Point A1 on site plan in schedule 7]	LCP No. 173 gas turbines fired on natural gas	Oxides of nitrogen (NO and NO ₂ expressed as NO ₂)	50 mg/m ³ 70% to base load ¹	Monthly mean of validated hourly averages	Continuous	BS EN 14181
A1/A2 [Point A1 on site plan in schedule 7]	LCP No. 173 gas turbines fired on natural gas	Carbon monoxide	50mg/m ³	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
A1/A2 [Point A1 on site plan in schedule 7]	LCP No. 173 gas turbines fired on natural gas	Carbon monoxide	50 mg/m ³ 70% to base load ¹	Daily mean of validated hourly averages	Continuous	BS EN 14181
A1/A2 [Point A1 on site plan in schedule 7]	LCP No. 173 Open cycle gas turbine fired on natural gas	Carbon monoxide	50 mg/m ³ 70% to base load ¹	Monthly mean of validated hourly averages	Continuous	BS EN 14181
A1/A2 [Point A1 on site plan in schedule 7]	LCP No. 173 Gas turbines fired on natural gas	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 16 August 2021

Emission point ref. & location	Source	Parameter	Limit (including unit)- these limits do not apply during start up or shut down.	Reference period	Monitoring frequency	Monitoring standard or method
A1/A2 [Point A1 on site plan in schedule 7]	LCP No. 173 Gas turbines fired on natural gas	Sulphur dioxide	-	-	6 monthly by calculation	Using factors agreed in writing with the Environment Agency
A1/A2 [Point A1 on site plan in schedule 7]	LCP No. 173 Gas turbines fired on natural gas	Water vapour	-	-	Continuous As appropriate to reference	BS EN 14181
A1/A2 [Point A1 on site plan in schedule 7]	LCP No. 173 Gas turbines fired on natural gas	Stack gas temperature	-	-	Continuous As appropriate to reference	Traceable to national standards
A1/A2 [Point A1 on site plan in schedule 7]	LCP No. 173 Gas turbines fired on natural gas	Stack gas pressure	-	-	Continuous As appropriate to reference	Traceable to national standards
A1/A2 [Point A1 on site plan in schedule 7]	LCP No. 173 Gas turbines fired on natural gas	As required by the Method Implementation Document for BS EN 15259.	-	-	Pre-operation and when there is a significant operational change	BS EN 15259

Note 1: 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 17 August 2021

Emission point ref. & location	Source	Parameter	Limit (including unit)-these limits do not apply during start up or shut down.	Reference period	Monitoring frequency	Monitoring standard or method
A1/A2 [Point A1 on site plan in schedule 7]	LCP No. 173 gas turbines fired on natural gas	Oxides of nitrogen (NO and NO2 expressed as NO2)	60 mg/m ³ DLN effective to baseload ¹	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
A1/A2 [Point A1 on site plan in schedule 7]	LCP No. 173 gas turbines fired on natural gas	Oxides of nitrogen (NO and NO2 expressed as NO2)	55 mg/m ³ DLN effective to baseload ¹ 55 mg/m ³ MSUL/MSDL to base load ²	Daily mean of validated hourly averages	Continuous	BS EN 14181
A1/A2 [Point A1 on site plan in schedule 7]	LCP No. 173 gas turbines fired on natural gas	Oxides of nitrogen (NO and NO2 expressed as NO2)	50 mg/m ³ DLN effective to baseload ¹	Monthly mean of validated hourly averages	Continuous	BS EN 14181
A1/A2 [Point A1 on site plan in schedule 7]	LCP No. 173 gas turbines fired on natural gas	Carbon monoxide	50 mg/m ³ DLN effective to baseload ¹	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
A1/A2 [Point A1 on site plan in schedule 7]	LCP No. 173 gas turbines fired on natural gas	Carbon monoxide	50 mg/m ³ DLN effective to baseload ¹ 50 mg/m ³ MSUL/MSDL to base load ²	Daily mean of validated hourly averages	Continuous	BS EN 14181
A1/A2 [Point A1 on site plan in schedule 7]	LCP No. 173 Open cycle gas turbine fired on natural gas	Carbon monoxide	50 mg/m ³ DLN effective to baseload 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 17 August 2021

Emission point ref. & location	Source	Parameter	Limit (including unit)-these limits do not apply during start up or shut down.	Reference period	Monitoring frequency	Monitoring standard or method
A1/A2 [Point A1 on site plan in schedule 7]	LCP No. 173 Gas turbines fired on natural gas	Oxygen	-	-	Continuous As appropriate to reference	BS EN 14181
A1/A2 [Point A1 on site plan in schedule 7]	LCP No. 173 Gas turbines fired on natural gas	Sulphur dioxide	-	-	6 monthly by calculation	Using factors agreed in writing with the Environment Agency
A1/A2 [Point A1 on site plan in schedule 7]	LCP No. 173 Gas turbines fired on natural gas	Flow	-	-	Continuous As appropriate to reference	EN ISO 16911
A1/A2 [Point A1 on site plan in schedule 7]	LCP No. 173 Gas turbines fired on natural gas	Water vapour	-	-	Continuous As appropriate to reference	BS EN 14181
A1/A2 [Point A1 on site plan in schedule 7]	LCP No. 173 Gas turbines fired on natural gas	Stack gas temperature	-	-	Continuous As appropriate to reference	Traceable to national standards
A1/A2 [Point A1 on site plan in schedule 7]	LCP No. 173 Gas turbines fired on natural gas	Stack gas pressure	-	-	Continuous As appropriate to reference	Traceable to national standards
A1/A2 [Point A1 on site plan in schedule 7]	LCP No. 173 Gas turbines fired on natural gas	As required by the Method Implementation Document for BS EN 15259.	-	-	Pre-operation and when there is a significant operational change	BS EN 15259

Note 1: 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.

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
SW1 as shown on site plan in schedule 7	-	Uncontaminated surface water run-off	-	-	-	-
SW2 and SW3 as shown site plan in schedule 7	-	Uncontaminated surface water run-off	-	-	-	-

Table S3.3 Surface water monitoring requirements				
Location or description of point of measurement	Parameter	Monitoring frequency	Monitoring standard or method	Other specifications
SW1 as shown site plan in schedule 7	Oil & grease	Weekly	Visual check	-

Table S3.4 Process monitoring requirements				
Emission point reference or source or description of point of measurement	Parameter	Monitoring frequency	Monitoring standard or method	Other specifications
LCP 173	Net electrical efficiency	After each modification that could significantly affect these parameters	EN Standards or equivalent For <500 hours/year operation, by calculation	

Schedule 4 – Reporting

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

Table S4.1 Reporting of monitoring data			
Parameter	Emission or monitoring point/reference	Reporting period	Period begins
Oxides of nitrogen	A1/A2	Every 3 months	1 January, 1 April, 1 July, 1 October
Carbon Monoxide	A1/A2	Every 3 months	1 January, 1 April, 1 July, 1 October
Sulphur dioxide	A1/A2	Every 6 months	1 January, 1 July
Emulsified and soluble oils Parameters as required by condition 3.5.1	Dunlop Carrier River Tame tributary	Every 6 months	1 January, 1 July

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

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
Operating Hours as a five yearly rolling average for LCP 173	Annually	hr

Media/ parameter	Reporting format	Agency recipient
Air & Energy	Form IED AR1 – SO ₂ , NO _x and energy	National
LCP	Form IED HR1 – operating hours Form as agreed in writing by the Environment Agency.	National
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
Water	Form Water1 or other form as agreed in writing by the Agency	Area Office

Schedule 5 – Notification

These pages outline the information that the operator must provide.

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

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

Part A

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

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

(b) Notification requirements for the breach of a limit	
To be notified within 24 hours of detection unless otherwise specified below	
Emission point reference/ source	
Parameter(s)	
Limit	
Measured value and uncertainty	
Date and time of monitoring	

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

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

Part B – to be submitted as soon as practicable

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

Name*	
Post	
Signature	
Date	

* authorised to sign on behalf of the operator

Schedule 6 – Interpretation

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

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

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

“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.

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

“DLN” means dry, low NO_x burners.

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

“emissions to land” includes emissions to groundwater.

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

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

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

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

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

“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.

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

“SI” means site inspector.

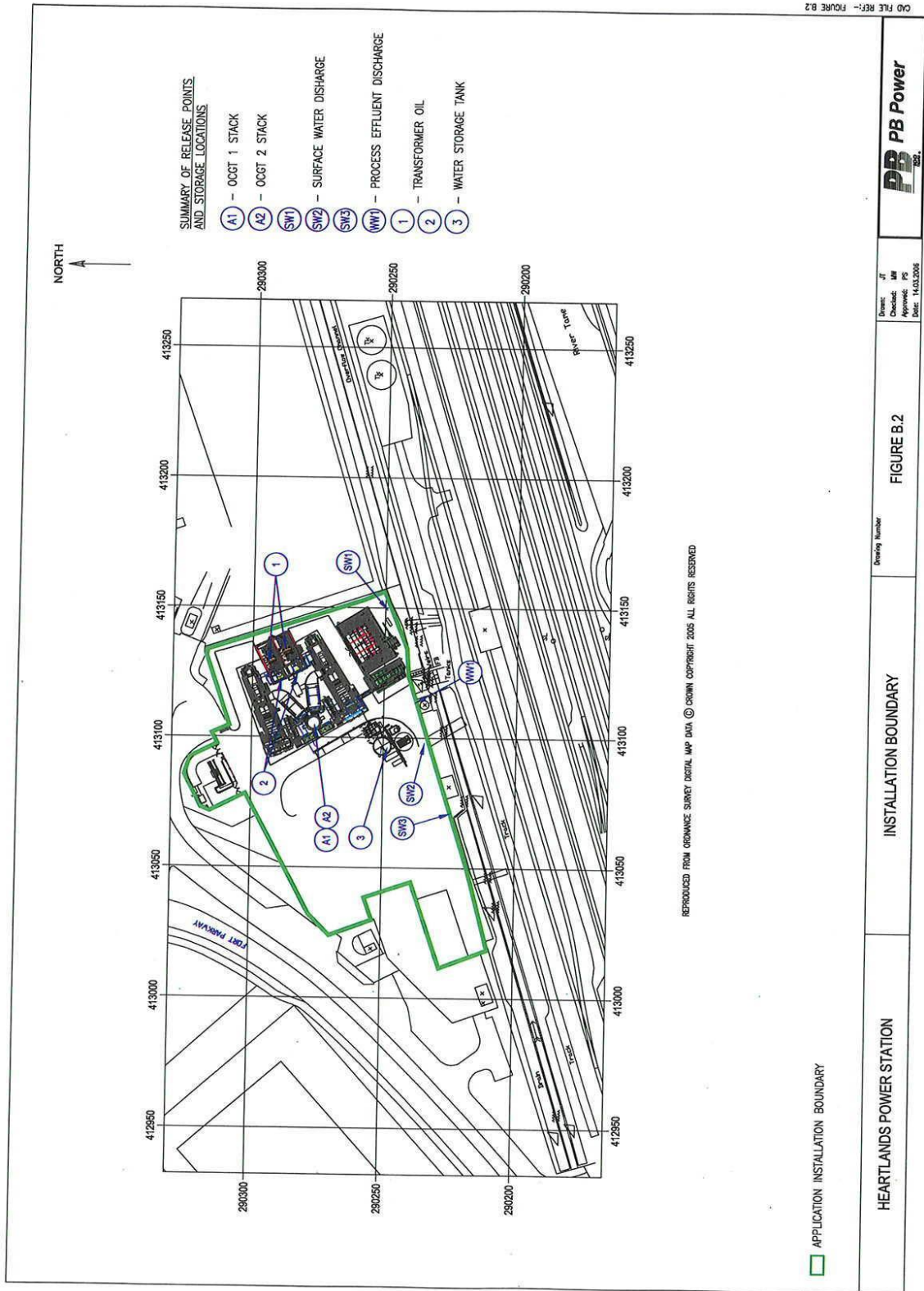
Where a minimum limit is set for any emission parameter, for example pH, reference to exceeding the limit shall mean that the parameter shall not be less than that limit.

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

- in relation to emissions from 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.

Schedule 7 – Site plan



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END OF PERMIT

Permit number
EPR/QP3632TF