



Environment
Agency

Draft Permit with introductory note

The Environmental Permitting (England & Wales) Regulations 2016

Drax Power Limited
Millbrook Power Station
Rookery Pit South
Stewartby
Bedfordshire
MK43 0PR

Permit number

EPR/ZP3437YG

DRAFT

Millbrook Power Station

Permit number EPR/ZP3437YG

Introductory note

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

The main features of the permit are as follows:

Millbrook Power Station is located on land within former clay pits known as 'The Rookery'. The Rookery is situated in the Marston Vale between Milton Keynes and Bedford within the county of Bedfordshire. The site is approximately centred on National Grid Reference TL0126440843.

Millbrook Power Station will consist of one Open Cycle Gas Turbine (OCGT) approximately 754 Megawatts thermal (MWth) in size operating under Section 1.1 Part A(1)(a) of the Environmental Permitting Regulations (EPR) for the burning of fuel in an appliance with a rated thermal input of 50 or more MW.

The main equipment making up the OCGT includes a gas turbine generator comprising of an inlet air filter, air compressor, combustion chamber and either one or two power turbines. The OCGT will be fitted with dry low NO_x (oxides of nitrogen) burner technology.

In the gas turbine air will be compressed and natural gas injected. The fuel will burn in the combustion chamber producing hot, high pressure gases. This gas will expand across the blades of the gas turbine which will drive the electrical generators to produce electricity. An exhaust silencer will be fitted to reduce noise from the process.

The waste gases and heat produced from the process will be released to atmosphere via a 32.5m high stack.

The OCGT will operate as peaking plant designed to provide an electrical output of 299MWe to the National Grid. The plant will be fuelled by natural gas supplied to the site by a new gas pipeline connecting to the existing National Gas Transmission system. There will be no standby fuel.

The OCGT will operate without a heat recovery steam generator. The exhaust gases will be emitted to atmosphere without any energy recovery. Emissions to air will be monitored continuously.

The power station will operate for a maximum of 2,250 hours per year but at an average of 1,500 hours per annum as a five year rolling average.

An emergency diesel generator less than 2MW in size will be in place on site. The emergency generator will fall within the scope of the Medium Combustion Plant Directive (MCPD), however will have no limits set as it will operate for less than 500 hours per year. There will also be firefighting pumps on site. Diesel tanks supplying the generator and pumps will be banded to appropriate standards. Chemicals such as antifreeze will be stored in banded areas.

The site will be covered by impermeable hardstanding. A surface water drainage system will drain to an attenuation pond via interceptors and silt traps. Any process effluent produced will be tankered offsite by a licensed contractor. There will be no emissions to sewer.

Some aspects of operation of the site will be remotely controlled from a control centre at the Drax Power Station site due to the intermittent operation of the plant. Staff will check the status of equipment and infrastructure onsite to ensure safe and secure operation as and when the plant is required to operate. CCTV will be in place including motion detection. The site can be remotely isolated from the gas and electrical network in the event of an emergency.

The requirements of the IED are given force in England through the Environmental Permitting (England and Wales) Regulations 2016 (the EPR). This permit, for the operation of large combustion plant (LCP), as defined by articles 28 and 29 of the IED, implements the special provisions for LCP given in the IED. The

IED makes special provisions for LCP under Chapter III and contains ELVs applicable to LCP, referred to in Article 30(2) and set out in Annex V.

The net thermal input of the LCP is as follows: LCP650 consists of one OCGT approximately 754MWth in size.

We have also assessed the permit application for compliance with the revised BAT Conclusions for the large combustion plant sector published on 31st July 2017 including the incorporation of relevant BAT Associated Emission Levels (AELs) into the permit.

The status log of a permit sets out the permitting history, including any changes to the permit reference number.

| Status log of the permit | | |
|--|--------------------------|---|
| Description | Date | Comments |
| Application EPR/ZP3437YG/A001 | Duly made 21/11/17 | Permit application for power station. |
| Application EPR/ZP3437YG/A001 information received in response to Schedule 5 Notice dated 07/02/18 | 15/02/18 and 26/02/18 | Confirmation of details relating to thermal input of plant on site, efficiency of OCGT, containment and noise assessment. |
| Application EPR/ZP3437YG/A001 information received in response to information request dated 05/04/18 | 17/05/18 | Details of how the site meets requirements of BAT Conclusions 6, 13 and 42 and information relating to emissions to air. |
| Permit determined EPR/ZP3437YG (Billing ref. ZP3437YG) | DD/MM/YY | Permit issued to Drax Power Limited. |

End of introductory note

Permit

The Environmental Permitting (England and Wales) Regulations 2016

Permit number

EPR/ZP3437YG

The Environment Agency hereby authorises, under regulation 13 of the Environmental Permitting (England and Wales) Regulations 2016

Drax Power Limited (“the operator”),

whose registered office is

Drax Power Station

Selby

North Yorkshire

YO8 8PH

company registration number 04883589

to operate an installation at

Millbrook Power Station

Rookery Pit South

Stewartby

Bedfordshire

MK43 0PR

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

| Name | Date |
|-----------------------------|--------------|
| [name of authorised person] | [DD/MM/YYYY] |

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: LCP650. 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” 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 For the following activities referenced in schedule 1, table S1.1: LCP650. The activities shall operate for less than 1,500 hours per year as a rolling average over a period of five years.
- 2.3.5 For the following activities referenced in schedule 1, table S1.1: LCP650. 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 S1.5.
- 2.3.6 For the following activities referenced in schedule 1, table S1.1: LCP650. The effective Dry Low NOx threshold shall conform to the specifications set out in Schedule 1, table S1.6.
- 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.

2.5 Pre-operational conditions

- 2.5.1 The activities shall not be brought into operation until the measures specified in schedule 1 table S1.4 have been completed.

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 and S3.2.
- 3.1.2 The limits given in schedule 3 shall not be exceeded.
- 3.1.3 The emission values from emission point A1 listed in schedule 3 table S3.1, measured during periods of abatement equipment malfunction and breakdown shall be disregarded for the purposes of compliance with Table S3.1 emission limit values.
- 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 and S3.2; and
- (b) process monitoring specified in table 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 and S3.2 unless otherwise agreed in writing by the Environment Agency.

3.6 Monitoring for Large Combustion Plant

3.6.1 All monitoring required by this permit shall be carried out in accordance with the provisions of Annex V of the Industrial Emissions Directive and the Large Combustion Plant Best Available Techniques Conclusions.

3.6.2 If the monitoring results for more than 10 days a year are invalidated within the meaning set out in condition 3.6.7, the operator shall:

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

- (b) implement the approved proposals.
- 3.6.3 Continuous measurement systems on emission points from the LCP shall be subject to quality control by means of parallel measurements with reference methods at least once every calendar year.
- 3.6.4 Unless otherwise agreed in writing by the Environment Agency in accordance with condition 3.6.5 below, the operator shall carry out the methods, including the reference measurement methods, to use and calibrate continuous measurement systems in accordance with the appropriate CEN standards.
- 3.6.5 If CEN standards are not available, ISO standards, national or international standards which will ensure the provision of data of an equivalent scientific quality shall be used, as agreed in writing with the Environment Agency.
- 3.6.6 Where required by a condition of this permit to check the measurement equipment, the operator shall submit a report to the Environment Agency in writing, within 28 days of the completion of the check.
- 3.6.7 Where Continuous Emission Monitors are installed to comply with the monitoring requirements in schedule 3, table S3.1; the Continuous Emission Monitors shall be used such that:
- (a) for the continuous measurement systems fitted to the LCP release points defined in Table S3.1 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; and
- (d) where condition 2.3.4 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 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. | LCP650: Operation of an open cycle gas turbine (OCGT) with a thermal input of 754MWth burning natural gas to produce electricity MCP1 - Operation of one emergency diesel generator <2MWth input. | From receipt of natural gas to discharge of exhaust gases and wastes, and the generation of electricity. From receipt of gas oil for the emergency generator to discharge of exhaust gases and wastes, and the generation of electricity. No electricity shall be exported to the grid from the emergency generator. |
| Directly Associated Activity | | | |
| AR2 | Directly associated activity | Oil storage for emergency generator and firewater pumps | From receipt of raw materials to dispatch for use. |
| AR3 | 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 EPR/ZP3437YG/A001 | Application forms B2 and B3 and the following referenced supporting information: Supporting document – ‘ <i>Drax OCGT Projects, Version 1.2</i> ’ Chapters 1, 3, 5 and 6. | 21/11/17 |
| Schedule 5 Notice Request dated 07/02/18 EPR/ZP3437YG/A001 | Response to questions 1 to 6 covering the following information: <ul style="list-style-type: none"> • Confirmation of size of OCGT and energy efficiency. • Confirmation of size of standby generator and associated diesel tank. • Revised site plan. | 15/02/18 |

| Table S1.2 Operating techniques | | |
|---|---|----------------------|
| Description | Parts | Date Received |
| Application EPR/ZP3437YG/A001 further information received | Email detailing how the site meets requirements of BAT Conclusions 6, 13 and 42 and information relating to emissions to air. | 17/05/18 |

| Table S1.3 Improvement programme requirements | | |
|--|--|--|
| Reference | Requirement | Date |
| IC1 | <p>The Operator shall submit a report in writing to the Environment Agency for acceptance. The report shall define and provide a written justification of the “minimum start up load” and “minimum shut-down load”, for each unit within the LCP as required by the Implementing Decision 2012/249/EU in terms of:</p> <ul style="list-style-type: none"> i. The output load (i.e. electricity, heat or power generated) (MW); and ii. This output load as a percentage of the rated thermal output of the combustion plant (%). <p>And / Or</p> <ul style="list-style-type: none"> iii. At least three criteria (operational parameters and / or discrete processes as detailed in the Annex) or equivalent operational parameters that suit the technical characteristics of the plant, which can be met at the end of start-up or start of shut-down as detailed in Article (9) 2012/249/EU. | Within 6 months of the date on which fuel is first burnt |
| IC2 | <p>The operator shall provide a report in writing to the Environment Agency for acceptance which provides the net rated thermal input for LCP650.</p> <p>Evidence to support this figure, in order of preference, shall be in the form of:-</p> <ul style="list-style-type: none"> a) Performance test results* during contractual guarantee testing or at commissioning (quoting the specified standards or test codes), b) Manufacturer’s contractual guarantee value, c) Published reference data, e.g., Gas Turbine World Performance Specifications (published annually); d) Design data, e.g., nameplate rating of a boiler or design documentation for a burner system; e) Operational efficiency data as verified and used for heat accountancy purposes, f) Data provided as part of Due Diligence during acquisition, <p>*Performance test results shall be used if these are available.</p> | Within 12 months of the date on which fuel is first burnt |
| IC3 | <p>The Operator shall submit a written report to the Environment Agency on the implementation of its Environmental Management System and the progress made in the certification of the system by an external body or if appropriate submit a schedule by which the EMS will be certified.</p> | Within 12 months of the date on which fuel is first burnt. |
| IC4 | <p>The Operator shall submit a written report to the Environment Agency on the commissioning of the installation. The report shall summarise the environmental performance of the plant as installed against the design parameters set out in the Application. The report shall also include a review of the performance of the facility against the conditions of this permit and details of procedures developed during commissioning for achieving and demonstrating compliance with permit conditions.</p> | Within 4 months of the completion of commissioning. |

| Reference | Requirement | Date |
|------------------|---|--|
| IC5 | The Operator shall propose an achievable emission limit value (ELV) for carbon monoxide expressed as an annual mean of validated hourly averages. If the proposed ELV deviates from the indicative BAT AEL for CO of 40mg/m ³ then an associated BAT justification shall be submitted to the Environment Agency in the form of a written report. | Within 4 months of the completion of commissioning |
| IC6 | The Operator shall submit a report in writing to the Environment Agency for approval. The report shall define an output load or operational parameters and provide a written justification for when the dry low NO _x operation is effective. The report shall also include the NO _x profile through effective dry low NO _x to 70% and then to full load. | Within 4 months of the completion of commissioning |
| IC7 | The Operator shall propose achievable emission limit values (ELV) for NO _x and CO expressed as a daily mean of validated hourly averages from Minimum start-up load (MSUL) to baseload. This must be supported by a summary of emissions data. Justification shall be submitted to the Environment Agency for approval in the form of a written report. | Within 6 months of the completion of commissioning |

| Reference | Pre-operational measures |
|------------------|--|
| PO1 | Prior to the commencement of commissioning, the Operator shall provide a written commissioning plan, including timelines for completion, for approval by the Environment Agency. The commissioning plan shall include the expected emissions to the environment during the different stages of commissioning, the expected durations of commissioning activities and the actions to be taken to protect the environment and report to the Environment Agency in the event that actual emissions exceed expected emissions. Commissioning shall be carried out in accordance with the commissioning plan as approved. |
| PO2 | Prior to the commencement of construction, the Operator shall send a finalised drainage plan for surface water to the Environment Agency. The drainage plan shall confirm where the emission point to surface water is located. |
| PO3 | Prior to the commencement of construction, the Operator shall confirm the emission parameters associated with the final design of the gas turbine and demonstrate that the application contained a worst case scenario in relation to the impact assessment for emissions to air. This must include but is not limited to the following: <ul style="list-style-type: none"> • Exit velocity • Stack diameter • Maximum flow rate |
| PO4 | Prior to the commencement of commissioning, the Operator shall submit a report on the baseline conditions of soil and groundwater at the installation. The report shall contain the information necessary to determine the state of soil and groundwater contamination so as to make a quantified comparison with the state upon definitive cessation of activities provided for in Article 22(3) of the IED. The report shall contain information, supplementary to that already provided in application Site Condition Report, needed to meet the information requirements of Article 22(2) of the IED. |

| Table S1.4 Pre-operational measures | |
|--|--|
| Reference | Pre-operational measures |
| PO5 | <p>At least two months prior to the commencement of commissioning, the Operator shall carry out a feasibility study on the provision of additional mitigation of noise emissions from the installation. This should be provided to the Environment Agency in writing including confirmation of any additional mitigation proposed.</p> <p>The assessment of mitigation measures shall focus on predicted noise from the gas reduction station, the OCGT diffuser casing and the OCGT stack. This should be provided to the Environment Agency in writing including confirmation of additional mitigation proposed as a result of the study.</p> <p>If the report does not demonstrate that adequate mitigation measures have been considered and selected according, the operator must amended the report accordingly.</p> |

| Table S1.5 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: LCP650 | To be agreed in writing by the Environment Agency, following the outcome of improvement condition IC01 | To be agreed in writing with by Environment Agency, following the outcome of improvement condition IC01 |

| Table S1.6 Effective Dry Low NOx thresholds | |
|--|--|
| Emission Point and Unit Reference | Effective Dry Low NOx threshold Load in MW and as a percentage of rated power output (%) and discrete processes |
| A1: LCP650 | To be agreed in writing by the Environment Agency, following the completion of IC6. |

Schedule 2 – Waste types, raw materials and fuels

| Table S2.1 Raw materials and fuels | |
|------------------------------------|-----------------------|
| Raw materials and fuel description | Specification |
| Natural gas for gas turbine | - |
| Diesel for emergency generator | <0.1% sulphur content |

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Schedule 3 – Emissions and monitoring

| Table S3.1 Point source emissions to air | | | | | | |
|---|---|---|---|---|----------------------|-------------------------------|
| Emission point ref. & location | Parameter | Source | Limit (including unit)-these limits do not apply during start up or shut down. | Reference period | Monitoring frequency | Monitoring standard or method |
| A1 [Exhaust stack on site plan in Schedule 7] | Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂) | LCP No. 650 Gas turbine fired on natural gas | 50 mg/m ³ Effective Dry Low NO _x to baseload ^{Note 1} | Monthly mean of validated hourly averages | Continuous | BS EN 14181 |
| A1 [Exhaust stack on site plan in Schedule 7] | Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂) | LCP No. 650 Gas turbine fired on natural gas | 100 mg/m ³ Effective Dry Low NO _x to baseload ^{Note 1} | 95% of validated hourly averages within a calendar year | Continuous | BS EN 14181 |
| A1 [Exhaust stack on site plan in Schedule 7] | Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂) | LCP No. 650 Gas turbine fired on natural gas | 50 mg/m ³ Effective Dry Low NO _x to baseload ^{Note 1} To be confirmed following completion of IC7 MSUL/MSDL to base load ^{Note 2} | Daily average of validated hourly averages | Continuous | BS EN 14181 |
| A1 [Exhaust stack on site plan in Schedule 7] | Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂) | LCP No. 650 Gas turbine fired on natural gas | 35 mg/m ³ Effective Dry Low NO _x to baseload ^{Note 1} | Yearly average | Continuous | BS EN 14181 |
| A1 [Exhaust stack on site plan in Schedule 7] | Carbon Monoxide | LCP No. 650 Gas turbine fired on natural gas | 100 mg/m ³ Effective Dry Low NO _x to baseload ^{Note 1} | Monthly mean of validated hourly averages | Continuous | BS EN 14181 |
| A1 [Exhaust stack on site plan in Schedule 7] | Carbon monoxide | LCP No. 650 Gas turbine fired on natural gas | 110 mg/m ³ Effective Dry Low NO _x to baseload ^{Note 1} | Daily average of validated hourly averages | Continuous | BS EN 14181 |

| Table S3.1 Point source emissions to air | | | | | | |
|---|-----------------------|---|---|---|---|--|
| Emission point ref. & location | Parameter | Source | Limit (including unit)-these limits do not apply during start up or shut down. | Reference period | Monitoring frequency | Monitoring standard or method |
| | | | To be confirmed following completion of IC7 MSUL/MSDL to base load Note 2 | | | |
| A1 [Point A1 on site plan in schedule 7] | Carbon Monoxide | LCP No. 650 Gas turbine fired on natural gas | 200 mg/m ³ Effective Dry Low NOx to baseload Note 1 | 95% of validated hourly averages within a calendar year | Continuous | BS EN 14181 |
| A1 [Point A1 on site plan in schedule 7] | Carbon Monoxide | LCP No. 650 Gas turbine fired on natural gas | To be confirmed following completion of IC05 Effective Dry Low NOx to baseload Note 1 | Yearly average | Continuous | BS EN 14181 |
| A1 [Point A1 on site plan in schedule 7] | Sulphur dioxide | LCP No. 650 Gas turbine fired on natural gas | - | - | At least every 6 months | Concentration by calculation, as agreed in writing with the Environment Agency |
| A1 [Point A1 on site plan in schedule 7] | Oxygen | LCP No. 650 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 | LCP No. 650 Gas turbine fired on natural gas | - | - | Continuous As appropriate to reference | BS EN 14181 |
| A1 [Point A1 on site plan in schedule 7] | Stack gas temperature | LCP No. 650 Gas turbine fired on natural gas | - | - | Continuous As appropriate to reference | Traceable to national standards |

| Table S3.1 Point source emissions to air | | | | | | |
|--|---|---|---|-------------------------|--|--------------------------------------|
| Emission point ref. & location | Parameter | Source | Limit (including unit)-these limits do not apply during start up or shut down. | Reference period | Monitoring frequency | Monitoring standard or method |
| A1 [Point A1 on site plan in schedule 7] | Stack gas pressure | LCP No. 650 Gas turbine fired on natural gas | - | - | Continuous As appropriate to reference | Traceable to national standards |
| A1 [Point A1 on site plan in schedule 7] | As required by the Method Implementation Document for BS EN 15259 | LCP No. 650 Gas turbine fired on natural gas | - | - | Pre-operation and when there is a significant operational change | BS EN 15259 |
| A2 [Emergency generator on site plan in schedule 7] | Combustion gases | Emergency generator <2MWth | No limit set | - | - | - |
| A2 [Diesel tank on site plan in schedule 7] | No parameters set | Diesel tank vent | No limit set | - | - | - |
| <p>Note 1: This ELV applies between the effective dry low NO_x threshold and baseload once IC5 has been completed. Effective dry low NO_x thresholds are defined in Table S1.6, until IC5 has been completed compliance with ELVs will be based on 70% to baseload.</p> <p>Note 2: This ELV applied when the load varies between MSUL/MSDL and base load during the daily reference period. MSUL and MSDL are defined in Table S1.5.</p> | | | | | | |

| 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 as agreed under pre operational condition PO1 | No parameters set | Uncontaminated surface water runoff | No limit set | - | - | - |

| Table S3.3 Process monitoring requirements | | | | |
|--|---------------------------|---|--------------------------------------|---|
| Emission point reference or source or description of point of measurement | Parameter | Monitoring frequency | Monitoring standard or method | Other specifications |
| LCP 650 | Net electrical efficiency | After commissioning and then after each modification that could significantly affect these parameters | EN Standards or equivalent | To be measured at ISO baseload conditions |

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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 | Every 3 months | 1 January, 1 April, 1 July, 1 October |
| Carbon Monoxide | A1 | Every 3 months | 1 January, 1 April, 1 July, 1 October |
| Sulphur dioxide | A1 | Annually | 1 January |

| 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 |

| Parameter | Frequency of assessment | Units |
|--|--------------------------------|--------------|
| 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 |

| 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 | XX/XX/XX | National and Area Office | 01/12/17 |
| LCP | Form IED HR1 – operating hours | XX/XX/XX | National and Area Office | 31/12/15 |
| Air | Form IED CON 2 – continuous monitoring | XX/XX/XX | Area Office | 31/12/15 |
| CEMs | Form IED CEM – Invalidation Log | XX/XX/XX | Area Office | 31/12/15 |
| Resource Efficiency | Form REM1 – resource efficiency annual report | XX/XX/XX | National and 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.

“average over the sampling period” means average value of three consecutive measurements of at least 30 minutes each.

“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.

“Commissioning” means testing of the installation that involves any operation of a Large Combustion Plant referenced in schedule 1, table S1.1.

“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.

“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 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.

“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.

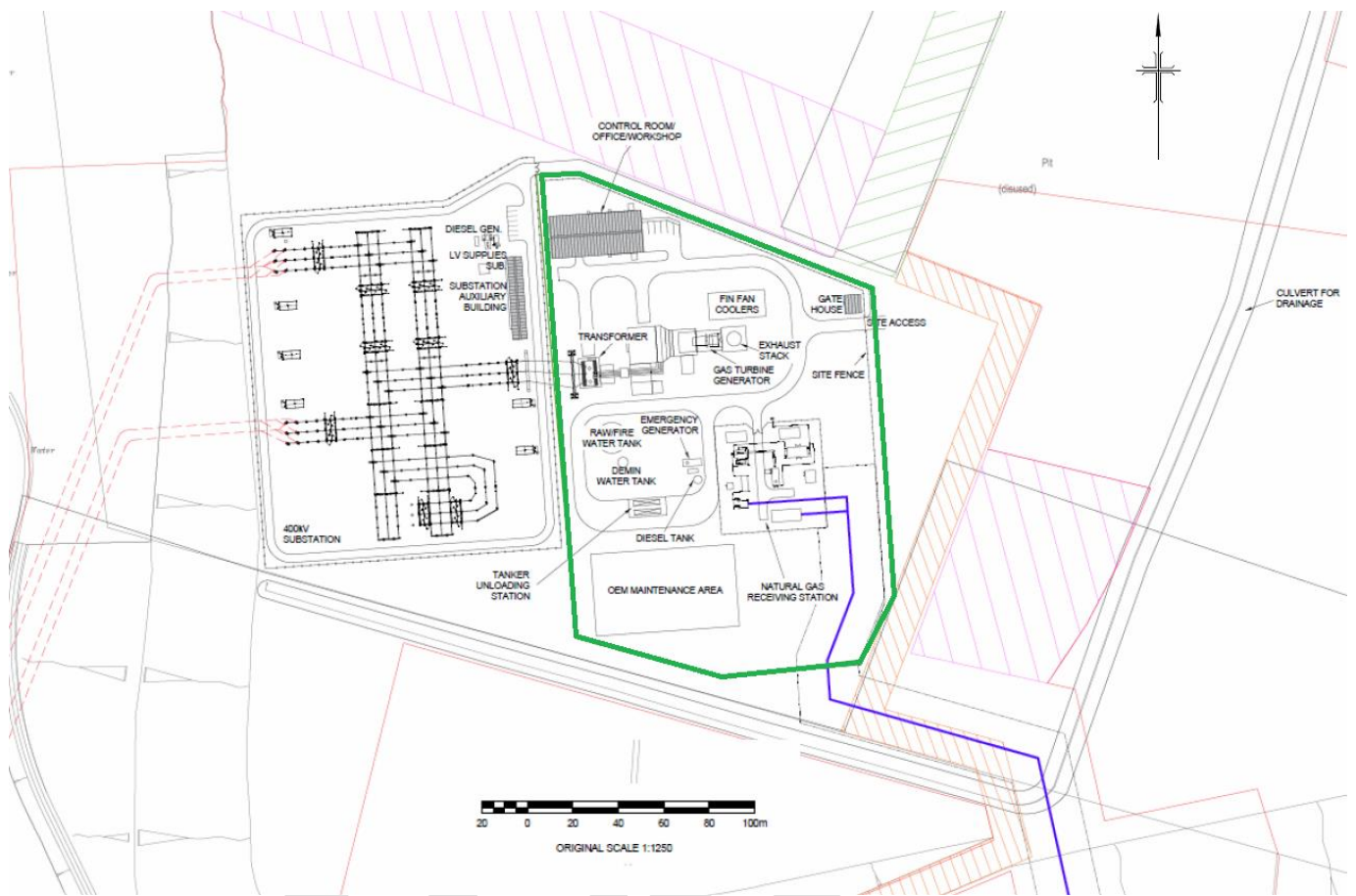
Unless otherwise stated, any references in this permit to concentrations of substances in emissions into air means:

- 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.

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

Schedule 7 – Site plan



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