Notice of variation and consolidation with introductory note

The Environmental Permitting (England & Wales) Regulations 2010

Coryton Energy Company Limited

Coryton Power Station
The Manorway
Stanford–le-Hope
Coryton
Esssex
SS17 9GN

Variation Application number

EPR/EP3833LY/V002

Consolidated permit number

EPR/EP3833LY

Coryton Power Station
Permit number EPR/EP3833LY

Introductory note

This introductory note does not form a part of the permit

Under the Environmental Permitting (England & Wales) Regulations 2010 (schedule 5, part 1, paragraph 19) a variation may comprise a consolidated permit reflecting the variations and a notice specifying the variations included in that consolidated permit.

Schedule 1 of the notice specifies that all the conditions of the permit have been varied and schedule 2 comprises a consolidated permit which reflects the variations being made and contains all conditions relevant to this permit.

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

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

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

The operator has chosen to operate under Part 1 of Annex V which applies default ELV's.

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

- LCP 131 is changed to LCP 74; and
- LCP 132 is changed to LCP 75.

A non-technical description of the installation is given in the Application, but the main features of the installation are as follows.

Coryton Power Station is a combined cycle gas turbine (CCGT) power plant, comprising two gas turbines (700MWth gross output each). Hot gases from the gas turbines pass through associated heat recovery steam generators, which produce steam to a single steam turbine (273 MWe gross output). Other combustion plant operated on the installation are two gas fired auxiliary boilers (4MWth each), gas oil fired emergency generator (2MWth) and a gas oil fired firewater pump.

Directly Associated activities included within the installation are:

- Steam turbine
- Water treatment plant
- Cooling plant
- Surface water drainage
- Process effluent drainage

The installation is located at Stanford-le-Hope, Coryton, and occupies approximately 7ha of land adjacent to the former Coryton Refinery. The tidal River Thames is located approximately 600m to the south of the installation boundary. The site is underlain by drift deposits, comprising alluvium and river gravels, overlying London Clay. The area is classified by the Agency as non-aquifer.

The main emissions to air are combustion gases from the burning of natural gas (oxides of nitrogen (NOx) and carbon monoxide). The Gas turbines and auxiliary boilers are fitted with dry low NOx burners. Each turbine emits combustion gases though a dedicated 55m stack.

Wastewater from the installation is discharged to the river Thames. This wastewater includes site drainage, domestic sewage, auxiliary cooling tower blowdown, filtration back flush, electro deionisation reject and reverse osmosis reject.

Assessment of impact on the following European designated ecological sites, Benfleet and Southend Marshes Special Protection Area (SPA) and Thames Estuary & Marshes SPA, concluded no likely significant effect on the interest features.

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

Status log of the permit		
Description	**Date**	**Comments**
Application EPR/EP3833LY	Duly made 13/03/06	Application for CCGT Power plant
Additional information received	23/10/06	
Additional information received	03/11/06	
Permit determined EPR/EP3833LY	27/02/07	Permit issued to Coryton Energy Company Limited
Regulation 60 Notice sent to the operator	31/10/14	Issue of a Notice under Regulation 60(1) of the EPR. Environment Agency Initiated review and variation to vary the permit under IED to implement the special provisions for LCP under Chapter III, introducing new Emission Limit Values (ELVs) applicable to LCP, referred to in Article 30(2) and set out in Annex V. The permit is also updated to modern conditions
Regulation 60 Notice response	31/03/15	Response received from the Operator
Additional information received	19/05/15	Response to request for further information (RFI) dated 13/05/15
Additional Information received	19/08/15	Information received on start up and shut down thresholds
Variation determined EPR/EP3833LY/V002 (Billing ref: BP3634AU)	21/12/15	Varied and consolidated permit issued in modern condition format. Variation effective from 01/01/2016.

other existing authorisations/registrations relating to this site		
Holder	**Reference number**	**Date of issue**
Coryton Energy Company Ltd (Greenhouse Gas Emissions Permit)	**GB-EA-ETC02-0035**	**28/08/05**

End of introductory note

Notice of variation and consolidation

The Environmental Permitting (England and Wales) Regulations 2010

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

Permit number

EPR/EP3833LY

Issued to

Coryton Energy Company Limited ("the operator"),

whose registered office is

Maples and Calder
Attorneys at law
Ugland House
PO Box 309
George Town
Grand Cayman
Cayman Islands

Company registration number FC020597/BR004136

to operate a regulated facility at

Coryton Power Station
The Manorway
Stanford-le-Hope
Essex
SS17 9GN

To the extent set out in the schedules

The notice shall take effect from 01/01/2016

Name	Date
J Linton	**21/12/2015**

Authorised on behalf of the Environment Agency

Schedule 1 – changes in the permit

All conditions have been varied by the consolidated permit as a result of the application made by the operator.

Schedule 2 – consolidated permit

Consolidated permit issued as a separate document.

Permit

The Environmental Permitting (England and Wales) Regulations 2010

Permit number

EPR/EP3833LY

This is the consolidated permit referred to in the variation and consolidation notice for application EPR/EP3833LY/V002 authorising,

Coryton Energy Company Limited ("the operator"),

Whose registered office is

Maples and Calder
Ugland House
PO Box 309
George Town
Grand Cayman
Cayman Islands

company registration number FC020597/BR004136

to operate an installation at

Coryton Power Station
The Manorway
Stanford-le-Hope
Essex
SS17 9GN

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

Name	Date
J Linton	**21/12/2015**

Authorised on behalf of the Environment Agency

Conditions

1 Management

1.1 General management

1.1.1 The operator shall manage and operate the activities:

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

(b) using sufficient competent persons and resources.

1.1.2 Records demonstrating compliance with condition 1.1.1 shall be maintained.

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

1.2 Energy efficiency

1.2.1 The operator shall:

(a) take appropriate measures to ensure that energy is used efficiently in the activities;

(b) Take appropriate measures to ensure the efficiency of energy generation at the permitted installation is maximised.

(c) review and record at least every four years whether there are suitable opportunities to improve the energy efficiency of the activities; and

(d) take any further appropriate measures identified by a review.

1.3 Efficient use of raw materials

1.3.1 The operator shall:

(a) take appropriate measures to ensure that raw materials and water are used efficiently in the activities;

(b) maintain records of raw materials and water used in the activities;

(c) review and record at least every four years whether there are suitable alternative materials that could reduce environmental impact or opportunities to improve the efficiency of raw material and water use; and

(d) take any further appropriate measures identified by a review.

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

1.4.1 The operator shall take appropriate measures to ensure that:

(a) the waste hierarchy referred to in Article 4 of the Waste Framework Directive is applied to the generation of waste by the activities; and

(b) any waste generated by the activities is treated in accordance with the waste hierarchy referred to in Article 4 of the Waste Framework Directive; and

(c) where disposal is necessary, this is undertaken in a manner which minimises its impact on the environment.

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

2 Operations

2.1 Permitted activities

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

2.2 The site

2.2.1 The activities shall not extend beyond the site, being the land shown edged in red on the site plan at schedule 7 to this permit.

2.3 Operating techniques

2.3.1 The activities shall, subject to the conditions of this permit, be operated using the techniques and in the manner described in the documentation specified in schedule 1, table S1.2, unless otherwise agreed in writing by the Environment Agency.

2.3.2 For the following activities referenced in schedule 1, table S1.1 (LCP 74, LCP 75), and 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 February 2015, or any later version unless otherwise agreed in writing by the Environment Agency.

2.3.3 If notified by the Environment Agency that the activities are giving rise to pollution, the operator shall submit to the Environment Agency for approval within the period specified, a revision of any plan or other documentation ("plan") specified in schedule 1, table S1.2 or otherwise required under this permit which identifies and minimises the risks of pollution relevant to that plan , and shall implement the approved revised plan in place of the original from the date of approval, unless otherwise agreed in writing by the Environment Agency.

2.3.4 Any raw materials or fuels listed in schedule 2 table S2.1 shall conform to the specifications set out in that table.

2.3.5 For the following activities referenced in schedule 1, table S1.1 (LCP 74, LCP 75) 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

2.3.6 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.

2.3.7 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 and S3.2.

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 and S3.2.

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 continual), 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 3.3.1 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 3.2 unless otherwise agreed in writing by the Environment Agency.

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

3.6.1 All monitoring required by this permit shall be carried out in accordance with the provisions of Annex V of the Industrial Emissions Directive.

3.6.2 If the monitoring results for more than 10 days a year are invalidated within the meaning set out in schedule 3, 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.

(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; and

(c) the performance parameters set out in schedule 4 table S4.3 using the forms specified in table S4.4 of that schedule.

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), or 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:

(a) any change in the operator's name or address; and

(b) any steps taken with a view to the dissolution of the operator.

4.3.5 Where the operator proposes to make a change in the nature or functioning, or an extension of the activities, which may have consequences for the environment and the change is not otherwise the subject of an application for approval under the Regulations or this permit:

(a) the Environment Agency shall be notified at least 14 days before making the change; and

(b) the notification shall contain a description of the proposed change in operation.

4.3.6 The Environment Agency shall be given at least 14 days notice before implementation of any part of the site closure plan.

4.3.7 Where the operator has entered into a climate change agreement with the Government, the Environment Agency shall be notified within one month of:

(a) a decision by the Secretary of State not to re-certify the agreement;

(b) a decision by either the operator or the Secretary of State to terminate the agreement; and

(c) any subsequent decision by the Secretary of State to re-certify such an agreement.

4.3.8 The operator shall inform the Environment Agency in writing of the closure of any LCP within 28 days of the date of closure.

4.4 Interpretation

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

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

Schedule 1 – Operations

Table S1.1 activities			
Activity reference	**Activity listed in Schedule 1 of the EP Regulations**	**Description of specified activity**	**Limits of specified activity**
A1	Section 1.1 A(1) (a) : Burning any fuel in an appliance with a rated thermal input of 50 megawatts or more	Two gas fired combined cycle gas turbines (LCP74,LCP75) (261MWe each), fitted with dry low NOx burners. Two auxiliary gas fired boilers fitted with low NOx burners (4 MWth each). One emergency generator fired on gas oil (2 MWth). Emergency firewater pump fired on gas oil.	From receipt of natural gas and gas oil to discharge of exhaust gases, and the generation of electricity.
	Directly Associated Activity		
A2	Directly associated activity	Water treatment	From receipt of raw materials to dispatch of effluent to the effluent drainage system.
A3	Directly associated activity	Cooling systems	From receipt of steam to release of heat and water vapour.
A4	Directly associated activity	Surface water drainage	Handling and storage of site drainage until discharge to the River Thames.
A5	Directly associated activity	Process effluent drainage	Handling and storage of effluent drainage until discharge to the site surface water system.

Table S1.2 Operating techniques		
Description	**Parts**	**Date Received**
Application	The response to section B2.1 and B2.2 in the Application.	13/03/06
Receipt of additional information to the application	Response to request for further information detailing operation of the auxiliary boilers and emergency generator, effluent treatment, and site security.	23/10/06
Receipt of additional information to the application	Responses to request for further information detailing techniques used to minimise releases from the auxiliary boilers.	03/11/06
Response to Regulation 60(1) notice issued 31/10/14	Compliance route and operating techniques identified in response to questions 2 (chosen compliance route), 4 (LCP configuration), 5 (Net rated thermal input), 6 (start up and shut down), 9iii (ELV limits), 11 (monitoring requirements)	31/03/15
Request for further	Further response to questions 6, 9 &11 of Regulation 60	19/05/15

Table S1.2 Operating techniques		
Description	**Parts**	**Date Received**
information dated 13/05/15	notice.	

Table S1.3 Improvement programme requirements		
Reference	**Requirement**	**Date**
IC1	A written procedure shall be submitted to the Agency detailing the methods for determination of sulphur dioxide and particulate matter from emission points A1 and A2, including details of the verification of the suitability of the method.	Completed
IC2	A written report shall be submitted to the Agency for approval. The report shall contain the results of the low load operating trial. The report shall include, but not be limited to: • Review of operation and emissions over the six months, detailing as a minimum, the load patterns, mass and concentration releases of oxides of nitrogen and carbon monoxide over the appropriate time periods; • Review of those parameters identified in the application as being affected by low load operation; and • BAT assessment comparing low load to two shifting operation. The notification requirements of condition 2.5.2 shall be deemed to have been complied with on submission of the report. The agreed operating regime shall be implemented by the Operator from the date of approval in writing by the Agency.	Completed
IC3	A written procedure shall be submitted to the Agency detailing the measures to be used to ensure emissions to air are minimised during start-up and shut-down. The notification requirements of condition 2.5.2 shall be deemed to have been complied with on submission of the report. The agreed operating regime shall be implemented by the Operator from the date of approval in writing by the Agency.	Completed
IC4	A written procedure shall be submitted to the Agency detailing the measures to be used to ensure that monitoring equipment, personnel and organisations employed for the emissions monitoring programme shall comply with the requirements of MCERTS where available, in accordance with the requirements of condition 3.6.3.	Completed

Table S1.3 Improvement programme requirements		
Reference	**Requirement**	**Date**
	The notification requirements of condition 2.5.2 shall be deemed to have been complied with on submission of the report. The procedure shall be implemented by the Operator from the date of approval in writing by the Agency.	
IC5	A written report shall be submitted to the Agency for approval. The report shall contain the findings of a water efficiency audit in accordance with the requirements of section 2.4.3 of IPPC Sector Guidance Note for the Combustion Sector, including dates for the implementation of individual improvement measures identified. The notification requirements of condition 2.5.2 shall be deemed to have been complied with on submission of the report. The improvements shall be implemented by the Operator from the date of approval in writing by the Agency.	Completed
IC6	A written report shall be submitted to the Agency for approval. The report shall contain the findings of a waste minimisation audit in accordance with the requirements of section 2.4.2 of IPPC Sector Guidance Note for the Combustion Sector, including dates for the implementation of individual improvement measures identified. The notification requirements of condition 2.5.2 shall be deemed to have been complied with on submission of the report. The improvements shall be implemented by the Operator from the date of approval in writing by the Agency.	Completed
IC7	A written site closure plan shall be submitted to the Agency for approval. The plan shall contain the measures, which will be taken on cessation of activities, to avoid any pollution risk and return the site to a satisfactory state, in accordance with the requirements of section 2.11 of IPPC Sector Guidance Note for the Combustion Sector.	Completed
IC8	A written energy efficiency plan shall be submitted to the Agency for approval. The plan shall consider all techniques relevant to the installation in accordance with the requirements of section 2.7 of IPPC Sector Guidance Note for the Combustion Sector and guidance note H2 Energy efficiency for IPPC, and include dates for the implementation of individual improvement measures identified. The notification requirements of condition 2.5.2 shall be deemed to have been complied with on submission of the report. The improvements shall be implemented by the Operator from the date of approval in writing by the Agency.	Completed
IC9	'For LCPD LCP 131 and LCP 132 (now LCP 74 and LCP 75 under IED). Annual emissions of dust, sulphur dioxide and oxides of nitrogen including energy usage for the year 01/01/2015 to 31/12/2015 shall be submitted to the Environment Agency using form AAE1 via the NERP Registry. If the LPCD LCP was a NERP plant the final quarter submissions shall be provided on the RTA 1 form to the NERP Registry.'	28/01/16

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(LCP 74)	Minimum fuel flow of 7.5 Kg/s	Minimum fuel flow of 7.5 Kg/s
A1(LCP 74)	Exhaust gas temperature >600°C	Exhaust gas temperature < 600°C
A1(LCP 74)	Variable Inlet Guide Vane(ViVG) angle of >-40°	Variable Inlet Guide Vane(ViVG) angle of < -40°
A2(LCP 75)	Minimum fuel flow of 7.5 Kg/s	Minimum fuel flow of 7.5 Kg/s
A2(LCP 75)	Exhaust gas temperature >600°C	Exhaust gas temperature <600°C
A2(LCP 75)	Variable Inlet Guide Vane(ViVG) angle of >-40°	Variable Inlet Guide Vane(ViVG) angle of <-40°

Schedule 2 – Waste types, raw materials and fuels

Table S2.1 Raw materials and fuels	
Raw materials and fuel description	**Specification**
Water treatment chemicals	Impurity levels of mercury and cadmium shall be the minimum available in the commercial product

Schedule 3 – Emissions and monitoring

Table S3.1 Point source emissions to air from gas turbines >100MWth						
Emission point ref. & location	**Parameter**	**Source**	**Limit (including unit)-these limits do not apply during start up or shut down.**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
A1 [Point A1 on site plan in Schedule 7]	Oxides of Nitrogen (NO and NO2 expressed as NO2)	LCP No. 74 Gas turbine fired on natural gas	50mg/m³ 70% to base load[1]	Monthly mean of validated hourly averages	Continuous	BS EN 14181
A1[Point A1 on site plan in schedule 7]	Oxides of Nitrogen (NO and NO2 expressed as NO2)	LCP No. 74 Gas turbine fired on natural gas	55mg/m³ 70% to base load[1] 60mg/m³ MSUL/MSDL to base load[2]	Daily mean of validated hourly averages	Continuous	BS EN 14181
A1[Point A1 on site plan in schedule 7]	Oxides of Nitrogen (NO and NO2 expressed as NO2)	LCP No. 74 Gas turbine fired on natural gas	100mg/m³ 70% to base load[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. 74 Gas turbine fired on natural gas	100mg/m³ 70% to base load[1]	Monthly mean of validated hourly averages	Continuous	BS EN 14181
A1[Point A1 on site plan in schedule 7]	Carbon Monoxide	LCP No. 74 Gas turbine fired on natural gas	100mg/m³ 70% to base load[1] 100mg/m3 MSUL/MSDL to base load[2]	Daily mean of validated hourly averages	Continuous	BS EN 14181
A1[Point A1 on site plan in schedule 7]	Carbon Monoxide	LCP No. 74 Gas turbine fired on natural gas	200mg/m³ 70% to base load[1]	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181

Table S3.1 Point source emissions to air from gas turbines >100MWth						
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	Sulphur dioxide	LCP No. 74 Gas turbine fired on natural gas	-	-	At least every 6 months	Concentration by calculation as agreed in writing by the Environment Agency
A1[Point A1 on site plan in schedule 7]	Oxygen	LCP No. 74 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. 74 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. 74 Gas turbine fired on natural gas	-	-	Continuous As appropriate to reference	Traceable to national standards
A1[Point A1 on site plan in schedule 7]	Stack gas pressure	LCP No. 74 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. 74 Gas turbine fired on natural gas	-	-	Pre-operation and when there is a significant operational change	BS EN 15259
A2 [Point A2 on site plan in Schedule 7]	Oxides of Nitrogen (NO and NO2 expressed as NO2)	LCP No. 75 Gas turbine fired on natural gas	50mg/m³ 70% to base load[1]	Monthly mean of validated hourly averages	Continuous	BS EN 14181
A2[Point A2 on site plan in schedule 7]	Oxides of Nitrogen (NO and NO2 expressed as NO2)	LCP No. 75 Gas turbine fired on natural gas	55mg/m³ 70% to base load[1] 60mg/m3	Daily mean of validated hourly averages	Continuous	BS EN 14181

Table S3.1 Point source emissions to air from gas turbines >100MWth						
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**
			MSUL/MSDL to base load[2]			
A2[Point A2 on site plan in schedule 7]	Oxides of Nitrogen (NO and NO2 expressed as NO2)	LCP No. 75 Gas turbine fired on natural gas	100mg/m³ 70% to base load[1]	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
A2[Point A2 on site plan in schedule 7]	Carbon Monoxide	LCP No.75 Gas turbine fired on natural gas	100mg/m³ 70% to base load[1]	Monthly mean of validated hourly averages	Continuous	BS EN 14181
A2[Point A2 on site plan in schedule 7]	Carbon Monoxide	LCP No. 75 Gas turbine fired on natural gas	100mg/m³ 70% to base load[1] 100mg/m3 MSUL/MSDL to base load[2]	Daily mean of validated hourly averages	Continuous	BS EN 14181
A2[Point A2 on site plan in schedule 7]	Carbon Monoxide	LCP No. 75 Gas turbine fired on natural gas	200mg/m³ 70% to base load[1]	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
A2[Point A2 on site plan in schedule 7	Sulphur dioxide	LCP No. 75 Gas turbine fired on natural gas	-	-	At least every 6 months	Concentration by calculation as agreed in writing by the Environment Agency
A2[Point A2 on site plan in schedule 7]	Oxygen	LCP No. 75 Gas turbine fired on natural gas	-	-	Continuous As appropriate to reference	BS EN 14181
A2[Point A2 on site plan in schedule 7]	Water Vapour	LCP No. 75 Gas turbine fired on natural gas	-	-	Continuous As appropriate to reference	BS EN 14181

Table S3.1 Point source emissions to air from gas turbines >100MWth						
Emission point ref. & location	**Parameter**	**Source**	**Limit (including unit)-these limits do not apply during start up or shut down.**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
A2[Point A2 on site plan in schedule 7]	Stack gas temperature	LCP No. 75 Gas turbine fired on natural gas	-	-	Continuous As appropriate to reference	Traceable to national standards
A2[Point A2 on site plan in schedule 7]	Stack gas pressure	LCP No. 75 Gas turbine fired on natural gas	-	-	Continuous As appropriate to reference	Traceable to national standards
A2[Point A2 on site plan in schedule 7]	As required by the Method Implementation Document for BS EN 15259	LCP No. 75 Gas turbine fired on natural gas	-	-	Pre-operation and when there is a significant operational change	BS EN 15259
A3[Point A3 on site plan in schedule7]	No parameters set	Two auxiliary boilers fired on natural gas with low NOx burners	-	-	-	Permanent sampling access not required
A4[Point A4 on site plan in schedule7]	No parameters set	Emergency generator fired on gas oil	-	-	-	Permanent sampling access not required
A5[Point A5 on site plan in schedule7]	No parameters set	Emergency fire water pump fired in gas oil	-	-	-	Permanent sampling access not required
A6[Point A6 on site plan in schedule7]	No parameters set	Evaporative auxiliary cooling tower	-	-	-	Permanent sampling access not required
A7[Point A7 on site plan in schedule7]	No parameters set	Air cooled condenser	-	-	-	Permanent sampling access not required
A8 Natural gas vents	No parameters set	Compressor skids,metering streams,pig receiver,gas turbines,auxiliary boilers	-	-	-	Permanent sampling access not required

Table S3.1 Point source emissions to air from gas turbines >100MWth						
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**
A9 Steam vents	No parameters set	Auxiliary boilers and blow down vessels	-	-	-	Permanent sampling access not required
A10 Vents from storage tanks	No parameters set	Bulk chemical storage tanks	-	-	-	Permanent sampling access not required

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

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

Table S3.2 Point Source emissions to water (other than sewer) – emission limits and monitoring requirements						
Emission point ref. & location	**Parameter**	**Source**	**Limit (incl. unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
W1 on site plan in schedule 7 emission to River Thames	Temperature	Auxiliary cooling tower blowdown, reverse osmosis reject, filtration back-flush, electro-deionisation reject, site drainage, domestic sewage	30 ^{0}C	Instantaneous	Continuous	As agreed in writing with the Environment Agency
W1 on site plan in schedule 7 emission to River Thames	pH	Auxiliary cooling tower blowdown, reverse osmosis reject, filtration back-flush, electro-deionisation reject, site drainage, domestic sewage	6-9	Instantaneous	Continuous	As agreed in writing with the Environment Agency

Table S3.2 Point Source emissions to water (other than sewer) – emission limits and monitoring requirements						
Emission point ref. & location	**Parameter**	**Source**	**Limit (incl. unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
W1 on site plan in schedule 7 emission to River Thames	Total suspended solids	Auxiliary cooling tower blowdown, reverse osmosis reject, filtration back-flush, electro-deionisation reject, site drainage, domestic sewage	25 mg/l	24 hour time proportional composite sample	Weekly	As agreed in writing with the Environment Agency
W1 on site plan in schedule 7 emission to River Thames	Total chlorine	Auxiliary cooling tower blowdown, reverse osmosis reject, filtration back-flush, electro-deionisation reject, site drainage, domestic sewage	0.2 mg/l	24 hour time proportional composite sample	Weekly	As agreed in writing with the Environment Agency
W1 on site plan in schedule 7 emission to River Thames	Total hydrocarbons	Auxiliary cooling tower blowdown, reverse osmosis reject, filtration back-flush, electro-deionisation reject, site drainage, domestic sewage	10 mg/l	24 hour time proportional composite sample	Monthly	As agreed in writing with the Environment Agency
W1 on site plan in schedule 7 emission to River Thames	Mercury and its compounds, expressed as mercury (Total Hg)	Auxiliary cooling tower blowdown, reverse osmosis reject, filtration back-flush, electro-deionisation reject, site drainage, domestic sewage	0.002 mg/l	24 hour time proportional composite sample	Monthly	As agreed in writing with the Environment Agency
W1 on site plan in schedule 7 emission to River Thames	Cadmium and its compounds, expressed as cadmium (Total Cd*)*	Auxiliary cooling tower blowdown, reverse osmosis reject, filtration back-flush, electro-deionisation reject, site drainage, domestic sewage	0.01 mg/l	24 hour time proportional composite sample	Monthly	As agreed in writing with the Environment Agency

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,
Water monitoring	W1	Every 3 months	1 January, 1 April, 1 July, 1 October

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

Table S4.3 Chapter III Performance parameters for reporting to DEFRA		
Parameter	**Frequency of assessment**	**Units**
Thermal Input Capacity for each LCP	Annually	MW
Annual Fuel Usage for each LCP	Annually	TJ
Total Emissions to Air of NOx for each LCP	Annually	T
Total emissions to Air of SO_2 for each LCP	Annually	T
Total emissions to air of Dust for each LCP	Annually	T
Operating hours for each LCP	Annually	hr

Table S4.4 Reporting forms				
Media/ parameter	**Reporting format**	**Starting Point**	**Agency recipient**	**Date of form**
LCP	Form IED HR1 – operating hours	01/01/16	National	31/12/15
Air & Energy	Form IED AR1-SO_2, NOx and dust mass emission and energy	01/01/16	National	31/12/15
Air	Form IED CON 2- continuous monitoring	01/01/16	Area Office	31/12/15
CEMS	Form IED CEM –Invalidation log	01/01/16	Area Office	31/12/15
Resource Efficiency	Form REM 1 – resource efficiency annual report	01/01/16	National	31/12/15
Water	Form water 1 or other form as agreed in writing by the Environment Agency	01/01/16	Area Office	31//12/15

Schedule 5 – Notification

These pages outline the information that the operator must provide.

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

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

Part A

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

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

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

(b) Notification requirements for the breach of a limit	
To be notified within 24 hours of detection unless otherwise specified below	
Date and time of monitoring	
Measures taken, or intended to be taken, to stop the emission	

Time periods for notification following detection of a breach of a limit	
Parameter	**Notification period**

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

Part B – to be submitted as soon as practicable

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

Name*	
Post	
Signature	
Date	

* authorised to sign on behalf of the operator

Schedule 6 – Interpretation

"accident" means an accident that may result in pollution.

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

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

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

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

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

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

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

"breakdown" has the meaning given in the ESI IED Compliance Protocol for Utility Boilers and Gas Turbines

"calendar monthly mean" means the value across a calendar month of all validated hourly means.

"CEN" means Commité 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.

"DLN" means dry, low NOx burners.

"emissions to land" includes emissions to groundwater.

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

"EP Regulations" means The Environmental Permitting (England and Wales) Regulations SI 2010 No.675 and words and expressions used in this permit which are also used in the Regulations have the same meanings as in those Regulations.

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

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

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

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

"malfunction" has the meaning given in the ESI IED Compliance Protocol for Utility Boilers and Gas Turbines

"MCERTS" means the Environment Agency's Monitoring Certification Scheme.

"MCR" means maximum continuous rating.

"MSDL" means minimum shut-down load as defined in Implementing Decision 2012/249/EU

"MSUL" means minimum start-up load as defined in Implementing Decision 2012/249/EU

"Natural gas" means naturally occurring methane with no more than 20% by volume of inert or other constituents.

"ncv" means net calorific value.

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

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

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

"SI" means site inspector

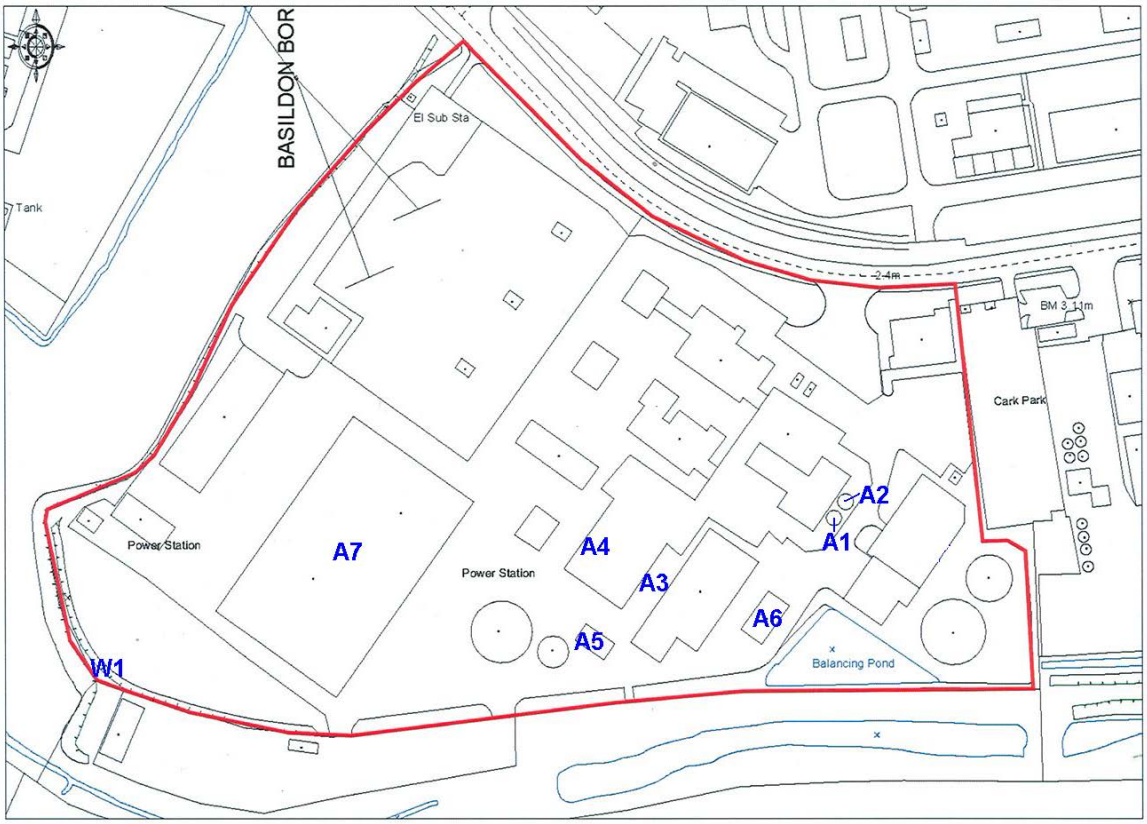
Where a minimum limit is set for any emission parameter, for example pH, reference to exceeding the limit shall mean that the parameter shall not be less than that limit.

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



END OF PERMIT