



Notice of variation and consolidation with introductory note

The Environmental Permitting (England & Wales) Regulations 2010

Uniper UK Limited

Cottam Development Centre Power Station
Outgang Lane
Cottam
Retford
Nottinghamshire
DN22 0TF

Variation application number

EPR/NP3033RD/V002

Permit number

EPR/NP3033RD

Cottam Development Centre Power Station

Permit number EPR/NP3033RD

Introductory note

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

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 Industrial 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 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 this LCP under the Transitional National Plan (TNP) compliance route.

The net thermal input of the LCP is as follows: LCP 100, 704 MWth in CCGT mode and 696 MWth in OCGT mode.

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

- LCP 154 is changed to LCP 100.

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

Cottam Development Centre Power Station (CDC PS) is a combined cycle gas turbine (CCGT) operated by Uniper UK Limited. The station consists of one generating set, comprising of a gas turbine (GT) (Siemens V94.3A), generator, heat recovery steam generator (HRSG) and steam turbine (ST). It is a single shaft system with an efficiency rating stated as ~56.1% CCGT and 38.5% open cycle. The capacity output of the plant is approximately 400Mwe. The plant burns only natural gas, which is delivered by a dedicated pipeline (there is a facility to retro fit and commission distillate oil burners to the gas turbine). The electricity generated is transmitted into the national grid via the 400kV sub-station at Cottam Power Station. There is an auxiliary boiler on site 9.13MWth rating, burning distillate oil, which is available to supply auxiliary steam and central heating and for the provision of gland steam for the steam turbine. The distillate oil is supplied by road tanker and stored in a 1,000m³ tank held in a 110% bunded area. There is a diesel driven fire pump and emergency diesel generator that are also available for intermittent use on an as required and testing basis.

There are four point source emissions to air. A2 is the CCGT gas turbine exhaust and A1 is the gas turbine exhaust bypass stack used for open cycle operation. The height of stack A2 is 75m and stack A1 is 40m. There is no abatement to stacks A1 and A2. The gas turbine employs low NO_x premix burners. SO₂ is typically very low, and emissions of CO and smoke are minimised by good combustion control. CO, NO_x are monitored continuously. A3 is the auxiliary boiler stack run on distillate oil (sulphur content, 0.2%) which employs low NO_x rotational atomisers. A4 is a scrubber vent on the Hydrochloric Acid tank.

The site drainage system carries surface water via interceptors to W2 which is connected to Cottam Power Station's (CPS) drainage system, which then discharges into the River Trent. Ultra clean demineralised water is required for steam raising in the HRSG, this is backwashed and regenerated using hydrochloric acid and sodium hydroxide solution. The resulting effluents are neutralised before being discharged to the site drainage system to W2 and then on to CPS's drainage system. Cooling water is taken from the River Trent by CPS who supply the cooling water needs of CDCPS, via the CDC make-up water pump house, after use this is returned to CPS's cooling water system and returned to the River Trent. The water cooling towers are of a hybrid design to reduce visible plumes and have a fan fitted to induce the draught.

The Operator carried out an evaluation and assessment of environmental noise specifically for IPPC. This concluded that at the key residential properties the noise from traffic and industrial processes through the day and industrial processes in the evening and night time would be heard. Under normal circumstances the noise from CDC PS would only be apparent when other industrial activity reduced. Noise surveys indicate that the plant is in compliance with its planning consent level of 41 dBA at the nearest property hence is unlikely to cause annoyance under normal operation.

There are no SSSI's within 2km of the site, but several within 10km. There are no SAC or SPAs within 15km, however the site is within 50km downstream of the Humber estuary. Our previous assessment indicated that there were unlikely to be any adverse effects on the Humber Estuary from CDC PS.

CDC PS has an Environmental Management System which is certified to ISO14001 and is externally audited.

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 LP3631SL	Duly made 04/04/06	
Additional Information Received	28/07/06	
Permit determined	30/11/06	
Regulation 60 Notice sent to the Operator	29/01/15	Issue of a Notice under Regulation 60(1) of the EPR. Environment Agency Initiated review and variation to vary the permit under IED to implement the special provisions for LCP under Chapter III, introducing new Emission Limit Values (ELVs) applicable to LCP, referred to in Article 30(2) and set out in Annex V. The permit is also updated to modern conditions.
Regulation 60 Notice response	27/03/15	Response received from the Operator.
Regulation 60 additional information received	30/06/15	Response to request for further information (RFI) dated 04/06/15.
Application EPR/NP3033RD/T001 (full transfer of permit EPR/LP3631SL)	Duly made 09/07/15	Application to transfer the permit in full to Uniper UK Limited. Transfer progressed while Environment Agency Initiated review underway for Chapter III.
Transfer determined EPR/NP3033RD	26/08/15	Full transfer of permit complete.
Regulation 60 additional information received	02/11/15	Response to request for further information (RFI) dated 15/10/15

Status log of the permit		
Description	Date	Comments
Regulation 60 additional information received	21/12/15	Email confirming chosen compliance route (TNP) for LCP 100. Letter dated 18/12/15.
Variation determined EPR/NP3033RD/V002 (PAS Billing ref: DP3338RS)	24/12/2015	(Regulation 60 – Chapter III Review) Varied and consolidated permit issued in modern condition format. Variation effective from 01/01/2016.

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/NP3033RD

Issued to

Uniper UK Limited (“the operator”)

whose registered office is

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

company registration number 2796628

to operate an installation at

**Cottam Development Centre Power Station
Outgang Lane
Cottam
Retford
Nottinghamshire
DN22 0TF**

to the extent set out in the schedules.

The notice shall take effect from 01/01/2016

Name	Date
Claire Roberts	24/12/2015

Authorised on behalf of the Environment Agency

Schedule 1

All conditions have been varied by the consolidated permit as a result of an Environment Agency initiated variation.

Schedule 2 – consolidated permit

Consolidated permit issued as a separate document.

Permit

The Environmental Permitting (England and Wales) Regulations 2010

Permit number

EPR/NP3033RD

This is the consolidated permit referred to in the variation and consolidation notice for application EPR/NP3033RD/V002 authorising,

Uniper UK Limited (“the operator”),

whose registered office is

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

company registration number 2706628

to operate an installation at

Cottam Development Centre Power Station

**Outgang Lane
Cottam
Retford
Nottinghamshire
DN22 0TF**

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

Name	Date
Claire Roberts	24/12/2015

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;
- (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: LCP100. Without prejudice to condition 2.3.1, the activities shall be operated in accordance with the “Electricity Supply Industry IED Compliance Protocol for Utility Boilers and Gas Turbines” revision 1 dated February 2015 or any later version unless otherwise agreed in writing by the Environment Agency.
- 2.3.3 If notified by the Environment Agency that the activities are giving rise to pollution, the operator shall submit to the Environment Agency for approval within the period specified, a revision of any plan or other documentation (“plan”) specified in schedule 1, table S1.2 or otherwise required under this permit which identifies and minimises the risks of pollution relevant to that plan, and shall implement the approved revised plan in place of the original from the date of approval, unless otherwise agreed in writing by the Environment Agency.
- 2.3.4 Any raw materials or fuels listed in schedule 2 table S2.1 shall conform to the specifications set out in that table.
- 2.3.5 For the following activities referenced in schedule 1, table S1.1: LCP100. Standby fuel gas oil may be used for periods of up to 10 days during times of interruption to the gas supply.
- 2.3.6 For the following activities referenced in schedule 1, table S1.1: LCP100. The end of the start up period and the start of the shutdown period shall conform to the specifications set out in Schedule 1, tables S1.2 and S1.4.
- 2.3.7 The operator shall ensure that where waste produced by the activities is sent to a relevant waste operation, that operation is provided with the following information, prior to the receipt of the waste:
- (a) the nature of the process producing the waste;
 - (b) the composition of the waste;
 - (c) the handling requirements of the waste;
 - (d) the hazardous property associated with the waste, if applicable; and
 - (e) the waste code of the waste.
- 2.3.8 The operator shall ensure that where waste produced by the activities is sent to a landfill site, it meets the waste acceptance criteria for that landfill.

2.4 Improvement programme

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

3 Emissions and monitoring

3.1 Emissions to water, air or land

- 3.1.1 There shall be no point source emissions to water, air or land except from the sources and emission points listed in schedule 3 tables S3.1 and S3.2.
- 3.1.2 The limits given in schedule 3 shall not be exceeded.
- 3.1.3 Total annual emissions from the LCP emission point set out in schedule 3 tables S3.1 and S3.2 of a substance listed in schedule 3 table S3.3 shall not exceed the relevant limit in table S3.3.
- 3.1.4 Periodic monitoring shall be carried out at least once every 5 years for groundwater and 10 years for soil, unless such monitoring is based on a systematic appraisal of the risk of contamination.

3.2 Emissions of substances not controlled by emission limits

- 3.2.1 Emissions of substances not controlled by emission limits (excluding odour) shall not cause pollution. The operator shall not be taken to have breached this condition if appropriate measures, including, but not limited to, those specified in any approved emissions management plan, have been taken to prevent or where that is not practicable, to minimise, those emissions.
- 3.2.2 The operator shall:
- (a) if notified by the Environment Agency that the activities are giving rise to pollution, submit to the Environment Agency for approval within the period specified, an emissions management plan which identifies and minimises the risks of pollution from emissions of substances not controlled by emission limits;
 - (b) implement the approved emissions management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.
- 3.2.3 All liquids in containers, whose emission to water or land could cause pollution, shall be provided with secondary containment, unless the operator has used other appropriate measures to prevent or where that is not practicable, to minimise, leakage and spillage from the primary container.

3.3 Odour

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

3.4 Noise and vibration

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

3.5 Monitoring

- 3.5.1 The operator shall, unless otherwise agreed in writing by the Environment Agency, undertake the monitoring specified in the following tables in schedule 3 to this permit:
- (a) point source emissions specified in tables S3.1 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 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 the purposes of the Industrial Emissions Directive Chapter III

- 3.6.1 All monitoring required by this permit shall be carried out in accordance with the provisions of Annex V of the Industrial Emissions Directive.
- 3.6.2 If the monitoring results for more than 10 days a year are invalidated within the meaning set out in condition 3.6.7, the operator shall:
- (a) within 28 days of becoming aware of this fact, review the causes of the invalidations and submit to the Environment Agency for approval, proposals for measures to improve the reliability of the continuous measurement systems, including a timetable for the implementation of those measures; and
 - (b) implement the approved proposals.
- 3.6.3 Continuous measurement systems on emission points from the LCP shall be subject to quality control by means of parallel measurements with reference methods at least once every calendar year.
- 3.6.4 Unless otherwise agreed in writing by the Environment Agency in accordance with condition 3.6.5 below, the operator shall carry out the methods, including the reference measurement methods, to

use and calibrate continuous measurement systems in accordance with the appropriate CEN standards.

- 3.6.5 If CEN standards are not available, ISO standards, national or international standards which will ensure the provision of data of an equivalent scientific quality shall be used, as agreed in writing with the Environment Agency.
- 3.6.6 Where required by a condition of this permit to check the measurement equipment, the operator shall submit a report to the Environment Agency in writing, within 28 days of the completion of the check.
- 3.6.7 Where Continuous Emission Monitors are installed to comply with the monitoring requirements in schedule 3, 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;
 - (d) where condition 2.3.5 applies, the start date and time, and the days and hours of operation for each period of standby fuel operation and
 - (e) For the following activities referenced in schedule 1, table S1.1: LCP100 (operating in open cycle mode), the hours of operation in any year.
- 4.2.3 Within 28 days of the end of the reporting period the operator shall, unless otherwise agreed in writing by the Environment Agency, submit reports of the monitoring and assessment carried out in accordance with the conditions of this permit, as follows:
- (a) in respect of the parameters and emission points specified in schedule 4 table S4.1;
 - (b) for the reporting periods specified in schedule 4 table S4.1 and using the forms specified in schedule 4 table S4.4; and
 - (c) giving the information from such results and assessments as may be required by the forms specified in those tables.
- 4.2.4 The operator shall, unless notice under this condition has been served within the preceding four years, submit to the Environment Agency, within six months of receipt of a written notice, a report assessing whether there are other appropriate measures that could be taken to prevent, or where that is not practicable, to minimise pollution.
- 4.2.5 For the following activities referenced in schedule 1, table S1.1: LCP100. Unless otherwise agreed in writing with the Environment Agency, within 1 month of the end of each quarter, the operator shall submit to the Environment Agency using the form IED RTA1, listed in table S4.4, the information specified on the form relating to the site's mass emissions.

4.3 Notifications

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

(c) of a breach of permit condition which poses an immediate danger to human health or threatens to cause an immediate significant adverse effect on the environment, the operator must immediately suspend the operation of the activities or the relevant part of it until compliance with the permit conditions has been restored.

4.3.2 Any information provided under condition 4.3.1 (a)(i) 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:

- (c) any change in the operator's name or address; and
- (d) any steps taken with a view to the dissolution of the operator.

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

- (a) the Environment Agency shall be notified at least 14 days before making the change; and
- (b) the notification shall contain a description of the proposed change in operation.

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

4.3.7 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.	<p>LCP100 (CCGT mode): Operation of a combined cycle gas turbine with a net thermal input of 704MW for the generation of electricity.</p> <p>LCP100 (OCGT mode): Operation of an open cycle gas turbine with a net rated thermal input of 696MW for the generation of electricity.</p> <p>Auxiliary boiler (AB1): Operation of an auxiliary boiler with a rated thermal input of 9.3MW.</p>	<p>From receipt of natural gas or gas oil to discharge of exhaust gases and wastes, and the generation of electricity for export.</p> <p>To supply auxiliary steam and central heating, and for the provision of gland steam for the steam turbine.</p>
Directly Associated Activity			
A2	Directly associated activity	Surface water drainage	Handling and storage of site drainage until discharge to CPS (Cottam Power Station) site surface water system.
A3	Directly associated activity	Water treatment	From receipt of raw materials to dispatch to chemical effluent and dirty water system.

Table S1.2 Operating techniques		
Description	Parts	Date Received
Application	The response to section 2.1, and 2.2 in the Application.	06/03/2006
Response to regulation 60(1) Notice – request for information dated 31/10/14	<p>Compliance routes and operating techniques identified in response to questions 2 (selected compliance route), 4 (configuration of LCP), 10 (derogation to not undertake monitoring when on standby fuels), 11 (monitoring requirements).</p> <p>Excluding compliance routes ELV & LHD for LCP100 and related operating techniques.</p>	Received 27/03/15

Table S1.2 Operating techniques		
Description	Parts	Date Received
Receipt of additional information to the regulation 60(1) Notice. requested by letter dated 04/06/15	Operating techniques identified in response to questions 5 (net rated thermal input), 6 (minimum start up load and minimum shut down load).	Received 30/06/15
Receipt of additional information to the regulation 60(1) Notice requested by email dated 15/10/15	Operating techniques identified in response to questions 5 (net rated thermal input), 9 (ELV justification). Excluding compliance routes ELV & LHD for LCP100 and related operating techniques.	Received 02/11/15
Receipt of additional information to the regulation 60(1) Notice.	Confirmation of the compliance routes chosen for LCP100.	Email dated 21/12/15 Letter dated 18/12/15

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
IC1	The Operator shall as identified in the application B2.4.7 complete a waste minimisation audit within 1 year of the permit issue, in line with sector guidance note – combustion activities.	Complete
IC2	The operator shall as identified in the application B2.4.10 complete a water efficiency audit within 2 years of the issue of the permit, in line with sector guidance note – combustion activities.	Complete
IC3	The operator shall as identified in the application B2.6.1 complete an assessment of the best practical environmental options of some or all of the wastes on site, in line with sector guidance note – Combustion Activities.	Complete
IC4	The Operator shall submit a full accident management plan as identified in the application B2.8.2. in line with sector guidance note – Combustion Activities. This plan should also include contingency measures where the closure/stoppage of Cottam Power station will affect the normal running of CDC.	Complete
IC5	The Operator shall submit a report to the Agency, detailing how they intend to modify their plant hardware and software to reduce start up times of the module by 10 to 30 minutes, (As stated in the application B2.7.6) the report should include predicted CO ₂ savings, costs and implementation date of the project.	Complete
IC6	The Operator shall develop a written Site Closure Plan with regard to the requirements set out in Section 2.11 of the Agency Guidance Note IPPC Combustion Activities. Upon completion of the plan a summary of the document shall be submitted to the Agency in writing	Complete
IC7	The Operator shall submit in writing details of the method for the determination of particulate matter and sulphur dioxide from emission point A1 and A2 including details of the verification of the suitability of such a method	Complete

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
IC8	For LCPD LCP 154 (now LCP 100 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 LCPD LCP was a NERP plant the final quarter submissions shall be provided on the RTA 1 form to the NERP Registry.	28/01/16
IC9	The Operator shall submit a report in writing to the Environment Agency which includes an assessment of the proposed ELVs for Oxides of Nitrogen for the IED Chapter III '1,500 hours derogation' compliance route. The report shall also include:- <ul style="list-style-type: none"> a) A review of the proposed ELVs and any amendment to those proposed ELVs based upon this assessment. b) A Best Available Technique (BAT) justification for the setting of the resulting ELVs, this should include site specific assessments. c) With reference to the Environment Agency's Horizontal Guidance Note 1, a revised site specific air impact assessment utilising the proposed monthly ELV for the long term impact and the 95 percentile ELV for the short term impact. 	31/03/16
IC10	The operator shall provide a report in writing to the Environment Agency. The report shall contain a proposed emission limit which applies when the load varies between MSUL/MSDL and base load during the daily reference period, for emission points A1 and A2 for oxides of nitrogen. The report shall also provide justification for this limit and an assessment of the impacts of emissions at this limit using our H1 guidance or equivalent methodology.	31/12/16

Table S1.4 Start-up and Shut-down thresholds		
Emission Point and Unit Reference	"Minimum start up load" Load in MW and as percent of rated power output (%)	"Minimum shut-down load" Load in MW and as percent of rated power output (%)
A1, LCP100	100 MW; 36%	100 MW; 36%
A2, LCP100	200 MW; 50%	200 MW; 50%

Schedule 2 – Waste types, raw materials and fuels

Table S2.1 Raw materials and fuels	
Raw materials and fuel description	Specification
Natural Gas	-
Gas oil	Not exceeding 0.1% w/w sulphur content

Schedule 3 – Emissions and monitoring

Emission point ref. & location	Parameter	Source	Limit (including unit)-these limits do not apply during start up or shut down.	Reference period	Monitoring frequency	Monitoring standard or method
A1 [point A1 on site plan in schedule 7]	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	LCP 100 Gas turbine by-pass stack fired on natural gas	60 mg/m ³ 70% to base load ^{1,3}	Monthly mean of validated hourly averages	Continuous	BS EN 14181
			60 mg/m ³ 70% to base load ^{1,3} 75 mg/m ³ MSUL/MSDL to base load ^{2,3}	95% of validated daily means within a calendar year		
			60 mg/m ³ 70% to base load ^{1,3}	95% of validated hourly averages within a calendar year		
A1 [point A1 on site plan in schedule 7]	Carbon Monoxide	LCP 100 Gas turbine by-pass stack fired on natural gas	50 mg/m ³ 70% to base load ^{1,3}	Monthly mean of validated hourly averages	Continuous	BS EN 14181
			50 mg/m ³ 70% to base load ^{1,3} 110 mg/m ³ MSUL/MSDL to base load ³	Daily mean of validated hourly averages		
			50 mg/m ³ 70% to base load ^{1,3}	95% of validated hourly averages within a calendar year		

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	Sulphur dioxide	LCP 100 Gas turbine by-pass stack 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 100 Gas turbine by-pass stack fired on natural gas	-	-	Continuous As appropriate to reference	BS EN 14181
A1 [point A1 on site plan in schedule 7	Water Vapour	LCP 100 Gas turbine by-pass stack 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 100 Gas turbine by-pass stack 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 100 Gas turbine by-pass stack fired on natural gas	-	-	Continuous As appropriate to reference	Traceable to national standards
A1 [point A1 on site plan in schedule 7	Stack Gas Volume Flow	LCP 100 Gas turbine by-pass stack fired on natural gas	-	-	Continuous	BS EN 16911 & TGN M2
A2 [Point A2 on site plan in Schedule 7]	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	LCP100 Gas turbine fired on natural gas	60 mg/m ³ 70% to base load ^{1,3}	Monthly mean 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
A2 [Point A2 on site plan in Schedule 7]	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	LCP100 Gas turbine fired on natural gas	60 mg/m ³ 70% to base load ^{1,3} 75 mg/m ³ MSUL/MSDL to base load ^{2,3}	95% of validated daily means within a calendar year	Continuous	BS EN 14181
A2 [Point A2 on site plan in Schedule 7]	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	LCP100 Gas turbine fired on natural gas	60 mg/m ³ 70% to base load ^{1,3}	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
A2 [Point A2 on site plan in Schedule 7]	Carbon Monoxide	LCP100 Gas turbine fired on natural gas	50 mg/m ³ 70% to base load ^{1,3}	Monthly mean of validated hourly averages	Continuous	BS EN 14181
			50 mg/m ³ 70% to base load ^{1,3}	Daily mean of validated hourly averages		
			110 mg/m ³ MSUL/MSDL to base load ³			
A2 [Point A2 on site plan in Schedule 7]	Sulphur Dioxide	LCP100 Gas turbine fired on natural gas	-	-	At least every 6 months	Concentration by calculation as agreed in writing with the Environment Agency
A2 [Point A2 on site plan in Schedule 7]	Oxygen	LCP100 Gas turbine fired on natural gas	-	-	Continuous As appropriate to reference	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
A2 [Point A2 on site plan in Schedule 7]	Water Vapour	LCP100 Gas turbine fired on natural gas	-	-	Continuous As appropriate to reference	BS EN 14181
A2 [Point A2 on site plan in Schedule 7]	Stack gas temperature	LCP100 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	LCP100 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 Volume Flow	LCP No. 100 Gas turbine fired on natural gas	-	-	Continuous	BS EN 16911 & TGN M2
A1 and A2 [Point A1 and Point A2 on site plan in Schedule 7]	As required by the Method Implementation Document for BS EN 15259	LCP100 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 schedule 7]	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	AB1 Auxiliary boiler	-	-	-	-
	Carbon Monoxide		-	-	-	-
	Oxides of sulphur		-	-	-	-
A4 [point A4 on site plan in schedule 7]	Hydrochloric Acid	Hydrochloric acid tank	-	-	-	-

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

Note 2: This ELV applies when the load varies between MSUL/MSDL and base load during the daily reference period until IC 10 is approved in writing by the Environment Agency. MSUL and MSDL are defined in Table S1.5.

Note 3: This ELV does not apply when standby fuels are used under condition 2.3.5

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 Trent via Cottam Power Station Cooling Water System (b)	Suspended Solids	Discharge of cooling water system purge and HRSG blowdown	120 mg/litre	Weekly composite	Every 3 months	BS EN 872-2005
W1 on site plan in schedule 7 emission to River Trent via Cottam Power Station Cooling Water System (b)	Flow	Discharge of cooling water system purge and HRSG blowdown	Not set	Continuous	Every 3 months	Flow meter, as agreed with Agency
W1 on site plan in schedule 7 emission to River Trent via Cottam Power Station Cooling Water System (b)	Mineral oil and hydrocarbon	Discharge of cooling water system purge and HRSG blowdown	None visible	Weekly composite	Every 3 months	As agreed with Agency
W1 on site plan in schedule 7 emission to River Trent via Cottam Power Station Cooling Water System (b)	Temperature	Discharge of cooling water system purge and HRSG blowdown	30°C	Continuous	Every 3 months	As agreed with Agency
W1 on site plan in schedule 7 emission to River Trent via Cottam Power Station Cooling Water System (b)	Total residual chlorine	Discharge of cooling water system purge and HRSG blowdown	0.25 mg/litre	Continuous	Every 3 months	As agreed with Agency

Emission point ref. & location	Parameter	Source	Limit (incl. unit)	Reference period	Monitoring frequency	Monitoring standard or method
W2 on site plan in schedule 7 emission to Cottam power Station drainage system ^(a)	Suspended Solids	Surface water drains, Water treatment plant,	50 mg/litre	Weekly composite	Every 3 months	BS EN 872-2005
W2 on site plan in schedule 7 emission to Cottam power Station drainage system ^(a)	pH	Surface water drains, Water treatment plant,	6.5 - 9	Weekly composite	Every 3 months	BS 6068-2.50:1995
W2 on site plan in schedule 7 emission to Cottam power Station drainage system ^(a)	Mineral oil and hydrocarbon	Surface water drains, Water treatment plant,	5 mg/litre	Weekly composite	Every 3 months	As agreed with Agency

Note (a) Discharge to Cottam Power Stations Storm and Surface Water system.

Note (b) Point of control is OS National grid reference SK 8155 7944 and SK 8171 7948 discharge into ponds of Cottam Power Station cooling towers 1B and 2B

Substance	Medium	Limit (including unit)		Emission Points
Oxides of nitrogen	Air	Assessment year	LCP TNP Limit	LCP100
		01/01/16 and subsequent years until 31/12/19	Emission allowance figure shown in the TNP Register as at 30 April the following year	
		01/01/20 - 30/06/20		

Schedule 4 – Reporting

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

Parameter	Emission or monitoring point/reference	Reporting period	Period begins
Oxides of nitrogen	A1 & A2	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
Operating hours	A1 & A2	Every 3 months	1 January, 1 April, 1 July, 1 October
Emissions to Water Parameters as required by condition 3.5.1	W1 & W2	Every 3 months	1 January, 1 April, 1 July, 1 October

Parameter	Units
Electricity Exported	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 NO _x for each LCP	Annually	t
Total Emissions to Air of SO ₂ for each LCP	Annually	t
Total Emissions to Air of Dust for each LCP	Annually	t
Operating Hours for each LCP	Annually	hr

Table S4.4 Reporting forms				
Media/ parameter	Reporting format	Starting Point	Agency recipient	Date of form
Air & Energy	Form IED AR1 – SO ₂ , NO _x and dust mass emission and energy	01/01/16	National	31/12/15
Air	Form IED RTA1 –TNP quarterly emissions summary log	01/01/16	National	31/12/15
LCP	Form IED HR1 – operating hours	01/01/16	National	31/12/15
Air	Form IED CON 2 – continuous monitoring	01/01/16	Area Office	31/12/15
CEMs	Form IED CEM – Invalidation Log	01/01/16	Area Office	31/12/15
Air	Form IED PM1 - discontinuous monitoring and load	01/01/16	Area Office	31/12/15
Resource Efficiency	Form REM1 – resource efficiency annual report	01/01/16	National	31/12/15
Water	Form water 1 or other form as agreed in writing by the Environment Agency	01/01/16	Area Office	01/10/06

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	
Measures taken, or intended to be taken, to stop the emission	

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

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

Part B – to be submitted as soon as practicable

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

Name*	
Post	
Signature	
Date	

* authorised to sign on behalf of the operator

Schedule 6 – Interpretation

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

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

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

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

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

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

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

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

“CEN” means Comité Européen de Normalisation.

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

“disposal”. Means any of the operations provided for in Annex I to Directive 2008/98/EC of the European Parliament and of the Council on waste.

“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 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.

“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.

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

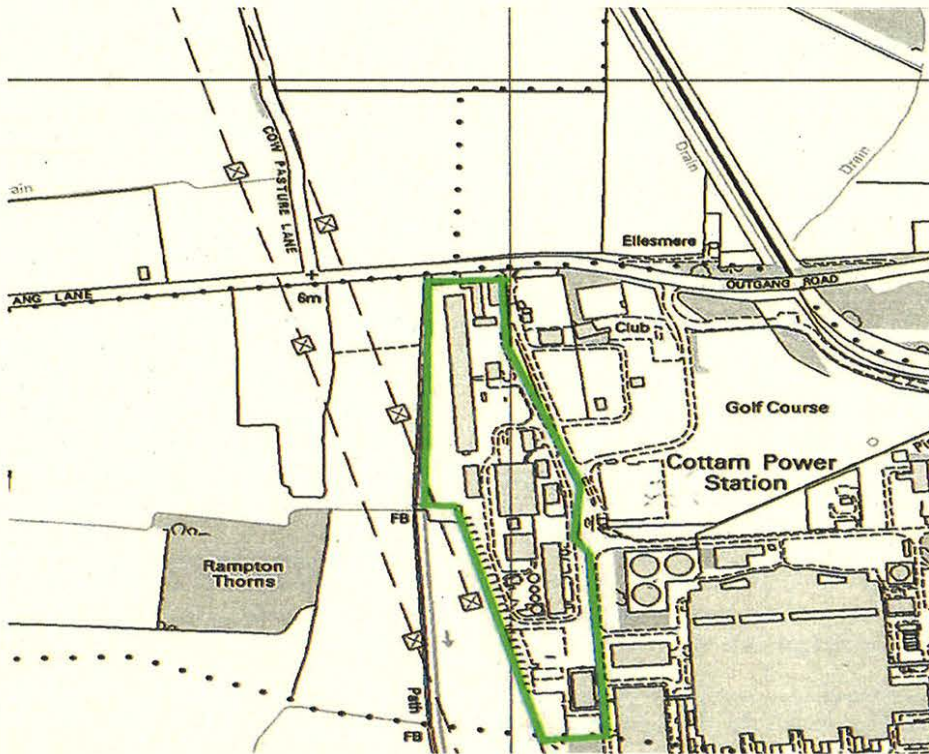
“TNP Register” means the register maintained by the Environment Agency in accordance with regulation 4 of the Large Combustion Plants (Transitional National Plan) Regulations 2015 SI2015 No.1973.

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

- Unless otherwise stated, any references in this permit to concentrations of substances in emissions into air means: In relation to emissions from combustion processes, the concentration in dry air at a temperature of 273K, at a pressure of 101.3 kPa and with an oxygen content of 3% dry for liquid and gaseous fuels, 6% dry for solid fuels; and/or
- In relation to emissions from gas turbine 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

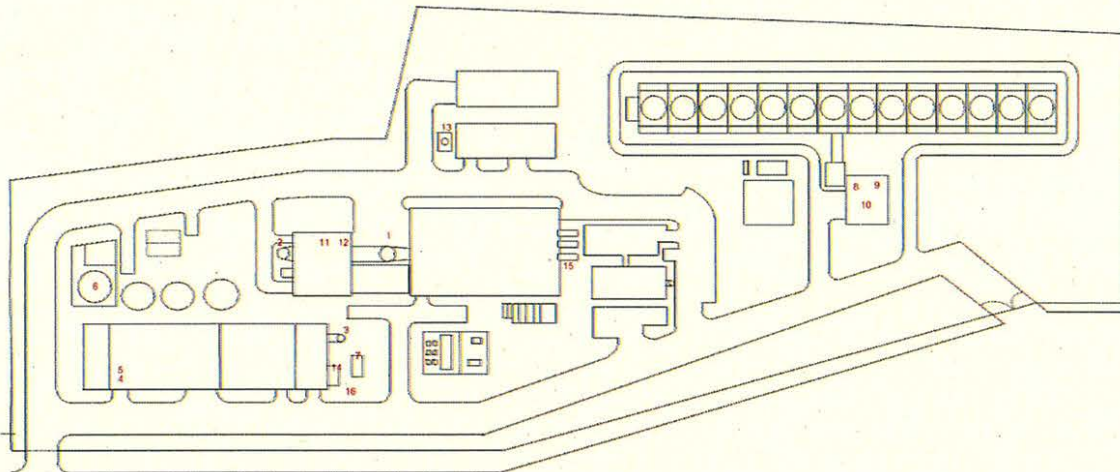
“year” means calendar year ending 31 December.

Schedule 7 – Site plan



Site plan 1

Cottam Development Centre Power Station Site Plan



- | | | |
|---------------------------------------|--------------------------------|---|
| 1 Emission to Air A1 GT Bypass Stack | 8 Sulphuric Acid Tank | 15 Emission to Water W1 Cooling Water purge |
| 2 Emission to Air A2 GT Stack | 9 Sodium Hypochlorite Tank | 16 Emission to Water W2 Site Drainage Final Discharge |
| 3 Emission to Air A3 Auxiliary Boiler | 10 Hardness Stabiliser Tank | |
| 4 Hydrochloric Acid Tank | 11 Ammonia storage Tank | |
| 5 Sodium Hydroxide Tank | 12 Dilute Ammonia Storage Tank | |
| 6 Gas Oil Tank | 13 Waste Oil Storage Tank | |
| 7 Emergency Diesel Generator Dry Tank | 14 Redundant Gas Oil Tank | |

Site plan 1a

END OF PERMIT