

# Permit with introductory note

## The Environmental Permitting (England & Wales) Regulations 2010

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Knottingley Power Limited  
Knottingley CCGT Power Station  
Common Lane  
Knottingley  
West Yorkshire  
WF11 8DA

**Permit number**

EPR/RP3431CZ

# **Knottingley CCGT Power Station**

## **Permit number EPR/RP3431CZ**

### **Introductory note**

#### **This introductory note does not form a part of the permit**

The main features of the permit are as follows.

Knottingley Combined Cycle Gas Turbine (CCGT) Power Station is located on a 20Ha site approximately 3km east of Knottingley in West Yorkshire. Other nearby conurbations include Kellingley 450m to the north-east and Pontefract town centre 7km to the south-west. The site is centred at Ordnance Survey Grid Reference 451505E, 423285N and comprises part of the former remediated Oxiris Chemical Works and adjoining agricultural land.

Knottingley CCGT Power Station generates electricity by combusting natural gas as permitted under Section 1.1A(1)(a) of the Environmental Permitting Regulations (EPR) and has a net electrical capacity of up to 1,400MWe generated by using two 700MWe CCGT power units (thermal input of 1,167MW each). The plant combusts natural gas only i.e: there will be no stand-by fuel. The generating plant comprises two gas turbines (GT), two heat recovery steam generators (HRSG) and two steam turbines (ST) in a combined cycle configuration within two separate turbine halls. The GT drive an electrical generator to generate electricity. The hot exhaust gases from the GT are used to raise steam from a water feed in the HRSG which in turn rotates a ST connected to another electrical generator to generate additional electricity. Spent steam is condensed and returned back into the HRSG for re-use. The exhaust gases leave the HRSG via a dedicated 75m high stack for each generation unit.

Two 25MWth auxiliary boilers (one for each GT) provide steam to enable start-up of the ST and have their own separate exhaust stacks (30m). There are also two 2MWth emergency diesel generators used to ensure the safe shut down of the plant, two 2.1MWth dew point heaters within the installation and a 0.1MW diesel fire-fighting pump on-site. All of these additional appliances have their own dedicated stacks.

Natural gas is supplied via an 8km pipeline and runs from the National Grid National/Regional Transmission System at Gateforth to the plant at Knottingley. Once on site the natural gas is filtered, metered and compressed. The electrical connection to the grid includes 250m of new 400kV overhead lines from the existing grid to a purpose built substation within the Knottingley CCGT installation.

There are separate water treatment plants for the cooling water treatment and the boiler make-up. For the boiler, mains water is treated on-site to produce high purity demineralised water. Carbohydrazide and ammonia in liquid form are added to the boiler water system to keep the water free of oxygen and in an alkaline state to prevent steel corrosion. Boiler blow down water and effluent produced by the boiler water treatment plant is discharged to the attenuation tank in the site drainage system and recycled to the cooling water make-up tank and eventually discharged to the River Aire via the cooling water system.

The cooling system comprises low plume hybrid cooling towers. For the cooling water, abstraction is from the River Aire via an underground pipe covered under a separate licence (NE/027/0018/015) and filtered on site. Used cooling water is returned to the River Aire via another pipeline to a discharge point (W1). Sodium hypochlorite is the biocide used in the cooling water plant to control slimes and algal growth. The combined cooling water, boiler blow down water and secondary treated sewage effluent discharge is returned to the River Aire up to 9<sup>0</sup>C warmer. Rainwater discharges to the attenuation tank in the site drainage system and is recycled to the cooling water make-up tank. Rainwater from oils/grease storage areas is collected via a separate drainage system and discharge to the attenuation tank via oil separators. During very high rainfall events or when the power plant is operating on part load or is shut down, flow that cannot be utilised by the cooling water system is diverted to the blow down collector tank from where the combined flow is pumped to the River Aire.

The installation was subject to a Development Consent Order (DCO) which was granted by the Secretary of State on 10 March 2015. The DCO requires the plant to be CHP-ready (combined heat and power) and carbon capture ready. Additional space has been allocated for this comprising available space within the turbine hall for CHP-readiness and extra land adjacent to the installation boundary for carbon capture readiness. At present no suitable heat customers have been identified from a detailed heat mapping exercise within a 15km radius of Knottingley CCGT Power Station. The site has a design life of 25 years.

The plant has an overall efficiency of around 60% and operates in one of three modes as follows:

- base load – operating at full capacity
- two shift mode – a few hours in the morning and evening
- reduced load – mainly during the night.

For operation in two shift mode, Knottingley CCGT Power Station operates at full load to meet the hours of peak demand and at reduced load dropping to 30% of its maximum design capability (base load) in order to operate as Spinning Reserve Plant (SRP). SPR can rapidly increase load and supply additional power and are used when other power generating plant in operation cannot maintain the stability of the National Grid. Emissions of nitrogen oxides (NOx) and carbon monoxide (CO) will comply with the Industrial Emissions Directive (IED), 2010/75/EU, Annex V emissions limit values (ELVs) when in SRP mode i.e. from a load of 30%.

Domestic foul sewage is treated onsite in a package sewage treatment plant (STP). This permit includes a secondary treated sewage effluent discharge with a capacity of less than 20 cubic metres per day. The effluent from the STP is either pumped to the cooling tower make up sump for reuse or diverted to the cooling water blow down tank and discharged with the cooling water to the River Aire. This provides some dilution to the treated sewage effluent before release to the River Aire. Conditions have been added to the environmental permit specifically for this STP.

The requirements of the IED 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 IED, implements the special provisions for LCP given in the IED, by the 01 January 2016 (Article 82(3)). The IED makes special provisions for LCP under Chapter III, introducing new ELVs applicable to LCP, referred to in Article 30(2) and set out in Annex V.

The Operator has chosen to operate this LCP under the ELV compliance route. The net thermal input of the LCPs is as follows: LCP420 – one 1,167MWth CCGT and LCP421 - one 1,167MWth CCGT.

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

<b>Status log of the permit</b>		
<b>Description</b>	<b>Date</b>	<b>Comments</b>
Application EPR/RP3431CZ/A001	Duly made 08/05/2015	Application for a 1,400MWe CCGT power station comprising two power units.
Additional information received	27/07/2015	Revised risk assessment for emissions to air.
Additional information received	06/10/2015	Confirmation of CHP-ready space allocation.
Additional information received	18/11/2015	Revised site plan with detailed emission points.
Permit determined EPR/RP3431CZ	22/12/2015	Permit issued to Knottingley Power Limited.

End of introductory note

# Permit

## The Environmental Permitting (England and Wales) Regulations 2010

### Permit number

**EPR/RP3431CZ**

The Environment Agency hereby authorises, under regulation 13 of the Environmental Permitting (England and Wales) Regulations 2010

**Knottingley Power Limited** (“the operator”),

whose registered office is

**Tricor Suite**

**4th Floor**

**50 Mark Lane**

**London**

**EC3R 7QR**

company registration number 05902446

to operate regulated facilities at

**Knottingley CCGT Power Station**

**Common Lane**

**Knottingley**

**West Yorkshire**

**WF11 8DA**

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

Name	Date
J Linton	22/12/2015

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 For the following activities referenced in schedule 1, table S1.1 (A1 to A4), 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.
- 1.2.2 The operator shall review the viability of Combined Heat and Power (CHP) implementation at least every 4 years, or in response to any of the following factors, whichever comes sooner:
- (a) new plans for significant developments within 15km of the installation;
  - (b) changes to the Local Plan;
  - (c) changes to the DECC UK CHP Development Map or similar; and
  - (d) new financial or fiscal incentives for CHP.

The results shall be reported to the Agency within 2 months of each review, including where there has been no change to the original assessment in respect of the above factors.

### 1.3 Efficient use of raw materials

- 1.3.1 For the following activities referenced in schedule 1, table S1.1 (A1 to A4), 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.
- 2.2.2 The discharge activity referenced in schedule 1, table S1.1 (A5), shall take place at the discharge point marked on the site plan at schedule 7 to this permit, and as listed in table S3.2.

### **2.3 Operating techniques**

- 2.3.1 For the following activities referenced in schedule 1, table S1.1 (A1 to A4), 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 activity referenced in schedule 1, table S1.1 (A5), the sewage treatment plant shall conform to all relevant British Standards in force at the time of installation.
- 2.3.3 For the following activities referenced in schedule 1, table S1.1 (LCP420 and LCP421), 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.
- 2.3.4 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.
- 2.3.5 Any raw materials or fuels listed in schedule 2 table S2.1 shall conform to the specifications set out in that table.
- 2.3.6 For the following activities referenced in schedule 1, table S1.1 (LCP420 and LCP421), the end of the start up period and the start of the shutdown period shall conform to the specifications set out in Schedule 1, tables S1.2 and S1.5.

- 2.3.7 The operator shall ensure that where waste produced by the activities is sent to a relevant waste operation, that operation is provided with the following information, prior to the receipt of the waste:
- (a) the nature of the process producing the waste;
  - (b) the composition of the waste;
  - (c) the handling requirements of the waste;
  - (d) the hazardous property associated with the waste, if applicable; and
  - (e) the waste code of the waste.
- 2.3.8 The operator shall ensure that where waste produced by the activities is sent to a landfill site, it meets the waste acceptance criteria for that landfill.

## **2.4 Improvement programme**

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

## **2.5 Pre-operational conditions**

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

# **3 Emissions and monitoring**

## **3.1 Emissions to water, air or land**

- 3.1.1 There shall be no point source emissions to water, air or land except from the sources and emission points listed in schedule 3 tables S3.1 and S3.2.
- 3.1.2 The limits given in schedule 3 shall not be exceeded.
- 3.1.3 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;
- (b) process monitoring specified in table S3.3.

- 3.5.2 The operator shall maintain records of all monitoring required by this permit including records of the taking and analysis of samples, instrument measurements (periodic and continuous), calibrations, examinations, tests and surveys and any assessment or evaluation made on the basis of such data.

- 3.5.3 Monitoring equipment, techniques, personnel and organisations employed for the emissions monitoring programme and the environmental or other monitoring specified in condition 3.5.1 shall have either MCERTS certification or MCERTS accreditation (as appropriate), where available, unless otherwise agreed in writing by the Environment Agency.

- 3.5.4 Permanent means of access shall be provided to enable sampling/monitoring to be carried out in relation to the emission points specified in schedule 3 tables S3.1 and S3.2 unless otherwise agreed in writing by the Environment Agency.

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

- 3.6.1 For the following activities referenced in schedule 1, table (A1 to A4), 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 For the following activities referenced in schedule 1, table S1.1: (A1 to A4), 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 For the following activities referenced in schedule 1, table S1.1: (A1 to A4), 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 For the following activity referenced in schedule 1, table S1.1 (A5), the Environment Agency shall be notified as soon as reasonably practicable following detection, within the site of the regulated facility of:
- (a) 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; and
  - (b) any breach of a limit specified in schedule 3 table S3.2.
- Any other significant adverse environmental effects, which may have been caused by the activity, shall also be notified to the Environment Agency as soon as reasonably practicable following detection.
- 4.3.3 Any information provided under condition 4.3.1(a)(i), 4.3.1(b)(i) and 4.3.2 where the information relates to the breach of a condition specified in the permit, or 4.3.2 where the information relates to malfunction, breakdown or failure of equipment or techniques for the discharge activity only referenced in schedule 1, table S1.1 (A5), shall be confirmed by sending the information listed in schedule 5 to this permit within the time period specified in that schedule.
- 4.3.4 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.
- 4.3.5 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.

- 4.3.6 For the following activities referenced in schedule 1, table S1.1: (A1 to A4), 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.
- 4.3.7 For the following activity referenced in schedule 1, table S1.1 (A5), where the operator proposes to make a change in the nature of the activity by increasing the concentration of, or the addition of, or allowing the introduction of, a substance to the activity to an extent that the operator considers could have a significant adverse environmental effect on the receiving waters, and the change is not the subject of an application for approval under the EP Regulations or under the terms of this permit:
- (a) the Environment Agency shall be notified in writing at least 14 days before the increase or addition or allowing the introduction; and
  - (b) the notification shall contain a description of the proposed change.
- 4.3.8 The Environment Agency shall be given at least 14 days notice before implementation of any part of the site closure plan.
- 4.3.9 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.
- 4.3.10 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

<b>Table S1.1 Activities</b>			
<b>Activity reference</b>	<b>Activity listed in Schedule 1 of the EP Regulations</b>	<b>Description of specified activity</b>	<b>Limits of specified activity</b>
A1	Section 1.1 A(1) (a): burning any fuel in an appliance with a rated thermal input of 50 megawatts or more.	<p>LCP420 and LCP421: operation of a combined cycle gas turbine power plant (CCGT) each with a net rated thermal input of 1,167MW burning gas to produce electricity.</p> <p>AB1 and AB2: operation of a gas fired auxiliary boiler each with a net rated thermal input of 25MWth.</p> <p>DPH1 and DPH2: operation of a gas fired dew point heater each with a net rated thermal input of 2.1MWth.</p> <p>DG1 and DG2: operation of an emergency diesel generator each with a net rated thermal input of 2MWth.</p>	<p>From receipt of natural gas to discharge of exhaust gases and the generation of electricity.</p> <p>From receipt of natural gas to discharge of exhaust gases and the generation of steam.</p> <p>From receipt of natural gas to discharge of exhaust gases.</p> <p>From receipt, storage and handling of diesel to discharge of exhaust gases.</p>
<b>Directly Associated Activity</b>			
A2	Directly associated activity	Surface water drainage.	Handling and storage of site drainage until discharge to the site surface water system.
A3	Directly associated activity	Water treatment.	From receipt of raw materials to dispatch to chemical effluent and dirty water system.
A4	Directly associated activity	0.1MW diesel fire fighting pump.	From receipt, storage and handling of diesel to discharge of exhaust gases.
<b>Activity reference</b>	<b>Description of activities for water quality operations</b>		<b>Limits of activities</b>
A5	Discharge of secondary treated sewage effluent via W1.		N/A.

<b>Table S1.2 Operating techniques</b>		
<b>Description</b>	<b>Parts</b>	<b>Date Received</b>
Application EPR/RP3731CZ/A001	Sections B3.3a, B3.3b and B3.3c of the application supporting documentation in response to Section 3a – Technical Standards, Part B3 of the application form.	02/02/2015
Receipt of additional information for EPR/RP3731CZ/A001	Revised site plan showing re-numbered emissions to air and to water points at the installation.	18/11/2015
Receipt of additional information for EPR/RP3731CZ/A001	Confirmation by the operator of the power station operating regime (2x 700MW natural gas fired CCGT power units).	08/12/2015

<b>Table S1.3 Improvement programme requirements</b>		
<b>Reference</b>	<b>Requirement</b>	<b>Date</b>
IC1	<p>The Operator shall submit a report in writing to the Environment Agency for acceptance. The report shall define and provide a written justification of the “minimum start up load” and “minimum shut-down load”, for each unit within the LCP as required by the Implementing Decision 2012/249/EU in terms of:</p> <ul style="list-style-type: none"> <li>i. The output load (i.e. electricity, heat or power generated) (MW); and</li> <li>ii. This output load as a percentage of the rated thermal output of the combustion plant (%).</li> </ul> <p>And / Or</p> <ul style="list-style-type: none"> <li>iii. At least three criteria (operational parameters and/or discrete processes as detailed in the Annex) or equivalent operational parameters that suit the technical characteristics of the plant, which can be met at the end of start-up or start of shut-down as detailed in Article (9) 2012/249/EU.</li> </ul>	1 month after completion of commissioning
IC2	<p>The operator shall provide a report in writing to the Environment Agency for acceptance which provides the net rated thermal input for LCP420 and LCP421. The net rated thermal input is the ‘as built’ value unless the plant has been modified significantly resulting in an improvement of the plant efficiency or output that increases the rated thermal input (which typically requires a performance test to demonstrate that guaranteed improvements have been realised). Evidence to support this figure, in order of preference, shall be in the form of:-</p> <ul style="list-style-type: none"> <li>a) Performance test results* during contractual guarantee testing or at commissioning (quoting the specified standards or test codes),</li> <li>b) Performance test results after a significant modification (quoting the specified standards or test codes),</li> <li>c) Manufacturer’s contractual guarantee value,</li> <li>d) Published reference data, e.g., Gas Turbine World Performance Specifications (published annually),</li> <li>e) Design data, e.g., nameplate rating of a boiler or design documentation for a burner system,</li> <li>f) Operational efficiency data as verified and used for heat accountancy purposes,</li> <li>g) Data provided as part of Due Diligence during acquisition.</li> </ul> <p>*Performance test results shall be used if these are available.</p>	6 months after completion of commissioning
IC3	<p>The Operator shall confirm to the Environment Agency, within six months of operation, the implementation of its Environmental Management System and the progress made in the certification of the system by an external accredited certification body.</p>	Within 6 months of the start of station operation



<b>Table S1.4A Pre-operational measures</b>	
<b>Reference</b>	<b>Pre-operational measures</b>
PO1	<p>Prior to the commencement of the build programme, the Operator is required to confirm in writing the preferred configuration for the build from the submitted options of:</p> <ul style="list-style-type: none"> <li>- Three separate 500MWe generating units totalling 1,500MWe</li> <li>- Two separate 600MWe generating units totalling 1,200MWe</li> <li>- Two separate 700MWe generating units totalling 1,400MWe.</li> </ul>
PO2	<p>The operator is required to provide to the Environment Agency an updated Site Condition Report (SCR) once the remediation work has been completed at the site and before the plant starts operating. The revised SCR should also include the location of the proposed site groundwater monitoring wells.</p>
PO3	<p>The operator is required to confirm if timber will be used within the cooling towers. If timber is to be used within the cooling towers then the operator is required to provide a specification of the pre-installation timber washing regime to the Environment Agency.</p>

<b>Table S1.5 Start-up and Shut-down thresholds</b>		
<b>Emission Point and Unit Reference</b>	<b>“Minimum Start-Up Load” Load in MW and as percent of rated power output (%)</b>	<b>“Minimum Shut-Down Load” Load in MW and as percent of rated power output (%)</b>
A1 and A2 – LCP420 and LCP421	To be agreed in writing by the Environment Agency, following the outcome of improvement condition IC1 and pre-operational condition PO1.	To be agreed in writing by the Environment Agency, following the outcome of improvement condition IC1 and pre-operational condition PO1.

## Schedule 2 – Waste types, raw materials and fuels

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

## Schedule 3 – Emissions and monitoring

Table S3.1 Point source emissions to air from Gas Turbines >100MWth						
Emission point ref. & location	Parameter	Source	Limit (inclu. unit) - these limits do not apply during start up or shut down	Reference period	Monitoring frequency	Monitoring standard or method
HRSG Stack 1 (A1) and HRSG Stack 2 (A2) on site plan in Schedule 7	Oxides of Nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )	LCP420 and LCP421 Gas turbine fired on natural gas	50mg/m <sup>3</sup> 70% to base load <sup>1</sup>	Monthly mean of validated hourly averages	Continuous	BS EN 14181
			55mg/m <sup>3</sup> 70% to base load <sup>1</sup> 55mg/m <sup>3</sup> MSUL/MSDL to base load <sup>2</sup>	Daily mean of validated hourly averages		
			100mg/m <sup>3</sup> 70% to base load <sup>1</sup>	95% of validated hourly averages within a calendar year		
	Carbon Monoxide		100mg/m <sup>3</sup> 70% to base load <sup>1</sup>	Monthly mean of validated hourly averages	Continuous	BS EN 14181
			110mg/m <sup>3</sup> 70% to base load <sup>1</sup> 110mg/m <sup>3</sup> MSUL/MSDL to base load <sup>2</sup>	Daily mean of validated hourly averages		
			200mg/m <sup>3</sup> 70% to base load <sup>1</sup>	95% of validated hourly averages within a calendar year		
	Sulphur dioxide		---	---	At least every 6 months	Concentration by calculation as agreed in writing with the Environment Agency
	Oxygen				Continuous	BS EN 14181
	Water Vapour				As appropriate to	Traceable to national
	Stack gas temperature					

Table S3.1 Point source emissions to air from Gas Turbines >100MWth						
Emission point ref. & location	Parameter	Source	Limit (inclu. unit) - these limits do not apply during start up or shut down	Reference period	Monitoring frequency	Monitoring standard or method
	Stack gas pressure				reference	standards
HRSG Stack 1 (A1) and HRSG Stack 2 (A2) on site plan in Schedule 7	As required by the Method Implementation Document for BS EN 15259	LCP420 and LCP421 Gas turbine fired on natural gas	---	---	Pre-operation and when there is a significant operational change	BS EN 15259
Stacks A3 and A4 on site plan in Schedule 7	Oxides of Nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )	Auxiliary boiler fired on natural gas (25MWth)	---	---	---	---
	Carbon Monoxide					
Stacks A5 and A6 on site plan in Schedule 7	Oxides of Nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )	Emergency diesel generator (2MWth)	---	---	---	---
	Carbon Monoxide					
	Sulphur dioxide					
	Dust					
Stacks A7 and A8 on site plan in Schedule 7	Oxides of Nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )	Dew point heater fired on natural gas (2.1MWth)	---	---	---	---
	Carbon Monoxide					

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. MSUL and MSDL are defined in Table S1.5.

**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
Combined cooling water, boiler blow down water and secondary treated sewage effluent via W1 on site plan in schedule 7, emission to River Aire (NGR SE 521 243)	pH	Combined cooling water, boiler blow down water and secondary treated sewage effluent	6-9	Instantaneous	Continuous	BS EN ISO 10523:2012
	Maximum daily flow		17,000m <sup>3</sup> /day	Total daily volume, 24 hour period beginning 00.01	Continuous	---
	Temperature		≤9°C above river temperature, 30°C (Note 1)	Instantaneous	Continuous	BS EN ISO 10523:2012
	Visual appearance		The discharge must so far as is reasonably practicable have no significant adverse visible effect on the receiving water, watercourse bed or any plants or animals within the watercourse	Instantaneous (visual examination)	N/A	Visual examination
	Visible oil or grease		No significant trace present in surface water so far as is reasonably practicable	Instantaneous (fortnightly visual examination)	---	No significant trace - visual examination

Note 1 – Compliance is achieved where no more than one 5 minute period exceeds the ELV during any 24 hour period.

**Table S3.3 Process monitoring requirements**

Emission point reference or source or description of point of measurement	Parameter	Monitoring frequency	Monitoring standard or method	Other specifications
Combined cooling water, boiler blow down water and secondary treated sewage effluent via W1 on site plan in schedule 7, emission to River Aire (NGR SE 521 243).	Residual Chlorine	Continuous	---	≤0.2mg/l
Effluent Treatment Plant	Maximum daily flow			<20m <sup>3</sup> /day

## 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 to A2	Every 3 months	1 January, 1 April, 1 July, 1 October
Carbon monoxide	A1 to A2	Every 3 months	1 January, 1 April, 1 July, 1 October
Sulphur dioxide	A1 to A2	Every 6 months	1 January, 1 July
Emissions to Water Parameters as required by Condition 3.5.1	W1	Every 6 months	1 January, 1 July

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 <sup>3</sup>
Water Abstracted from Borehole Source	m <sup>3</sup>
Water Abstracted from Estuarine Water Source	m <sup>3</sup>
Water Abstracted from Sea Water Source	m <sup>3</sup>
Water Abstracted from Mains Water Source	m <sup>3</sup>
Gross Total Water Used	m <sup>3</sup>
Net Water Used	m <sup>3</sup>
Hazardous Waste Transferred for Disposal at another installation	t
Hazardous Waste Transferred for Recovery at another installation	t
Non-Hazardous Waste Transferred for Disposal at another installation	t
Non-Hazardous Waste Transferred for Recovery at another installation	t
Waste recovered to Quality Protocol Specification and transferred off-site	t
Waste transferred directly off-site for use under an exemption/position statement	t

Parameter	Frequency of assessment	Units
Thermal Input Capacity for each LCP	Annually	MW

<b>Table S4.3 Chapter III performance parameters for reporting to DEFRA</b>		
<b>Parameter</b>	<b>Frequency of assessment</b>	<b>Units</b>
Annual Fuel Usage for each LCP	Annually	TJ
Total Emissions to Air of NO <sub>x</sub> for each LCP	Annually	t
Total Emissions to Air of SO <sub>2</sub> for each LCP	Annually	t
Total Emissions to Air of Dust for each LCP	Annually	t
Operating Hours for each LCP (Load Factor)	Annually	hr

<b>Table S4.4 Reporting forms</b>				
<b>Media/ parameter</b>	<b>Reporting format</b>	<b>Starting Point</b>	<b>Agency recipient</b>	<b>Date of form</b>
LCP	Form IED HR1 – operating hours	01/01/2016	National	31/12/2015
Air and Energy	Form IED AR1 – SO <sub>2</sub> , NO <sub>x</sub> , dust mass emission and energy	01/01/2016	National	31/12/2015
Air	Form IED CON 2 - SO <sub>2</sub> and NO <sub>x</sub> concentration emissions	01/01/2016	Area Office	31/12/2015
CEMs	Form IED CEM – invalidation log	01/01/2016	Area Office	31/12/2015
Resource Efficiency	Form REM1 – resource efficiency annual report	01/01/2016	National	31/12/2015
Water	Form water 1 or other form as agreed in writing by the Environment Agency	01/01/2016	Area Office	31/12/2015

# 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	

<b>(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</b>	
<b>FOR THE POWER STATION FACILITY: To be notified within 24 hours of detection</b>	
<b>FOR THE SEWAGE TREATMENT PACKAGE PLANT FACILITY: To be notified within 7 days of detection unless otherwise agreed in writing by the Environment Agency</b>	
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>(b) Notification requirements for the breach of a limit</b>	
<b>To be notified within 24 hours of detection unless otherwise specified below</b>	
Emission point reference/ source	
Parameter(s)	
Limit	
Measured value and uncertainty	
Date and time of monitoring	



<b>(b) Notification requirements for the breach of a limit</b>	
<b>To be notified within 24 hours of detection unless otherwise specified below</b>	
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

<b>(c) Notification requirements for the detection of any significant adverse environmental effect</b>	
<b>To be notified within 24 hours of detection</b>	
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.	

<b>Name*</b>	
<b>Post</b>	
<b>Signature</b>	
<b>Date</b>	

\* 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.

“annually” means once every year.

“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.

“DLN” means dry, low NO<sub>x</sub> burners.

“emissions to land” includes emissions to groundwater.

“Energy efficiency” the ISO base load net plant efficiency means the performance value established by acceptance testing following commissioning or performance testing following improvements made to the plant that could affect the efficiency.

“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 windshaft or stack, where the total thermal input is 50 MW or more, based on net calorific value. The calculation of thermal input, excludes individual combustion plants with a rated thermal input below 15MW.

“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.

“SI” means site inspector.

“significant adverse visible effect” means dead or distressed fish, other animals or plants in the vicinity of the discharge, appreciable deposit of solid material; significant growth of sewage fungus; appreciable discolouration.

“significant pollution” means a category 1 or category 2 incident indicated by the Common Incident Classification Scheme (CICS).

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.

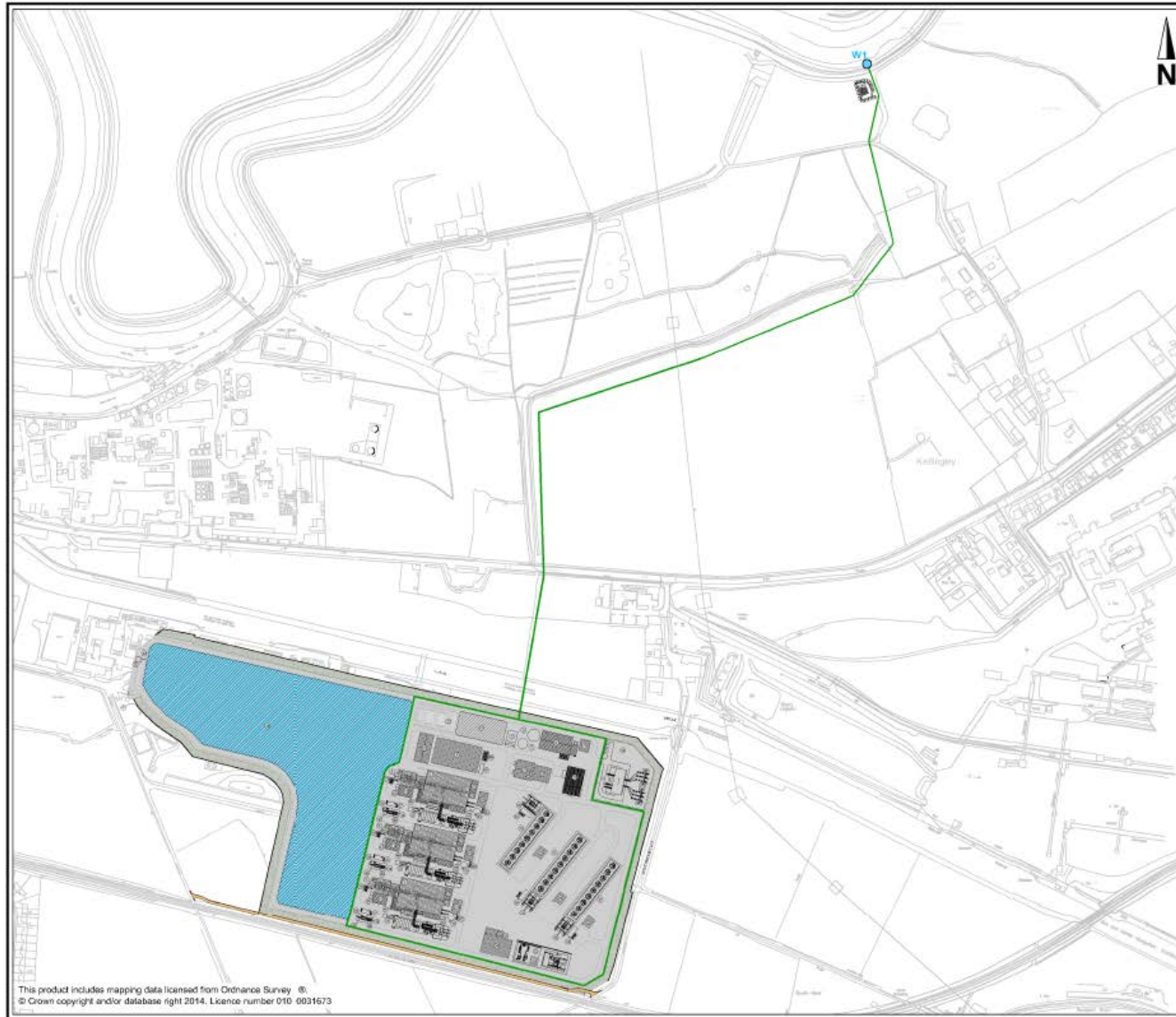
Unless otherwise stated, any references in this permit to concentrations of substances in emissions into air means:

- 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.

“year” means calendar year ending 31 December.

# Schedule 7 – Site plan

The effluent from the sewage treatment plant is being discharged from the same outlet point as the cooling water (W1).



KEY:  
 Installation Boundary  
 Combined Discharge to River Aire



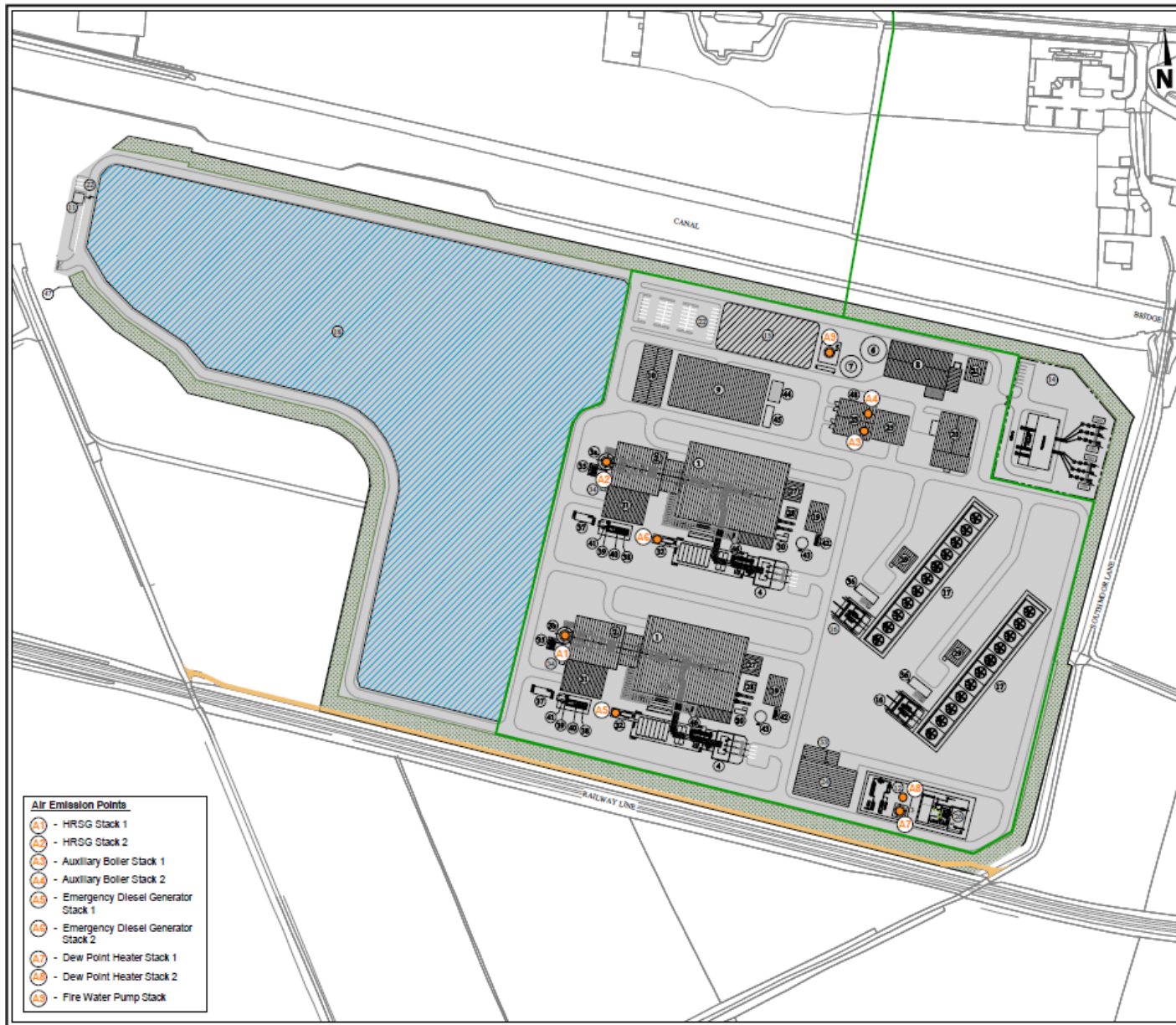
**KNOTTINGLEY POWER PROJECT**

**FIGURE 2**  
 INSTALLATION BOUNDARY

SCALE	PROJECT No.
1:5000 @ A3	KU073100
CONTENT	DRAWN
KG	AJR
CHECKED	DATE
ADJ	NOVEMBER 2015



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- KEY:**  
 Installation Boundary      Air Emission Point
- NOTES:**  
 1. LAYOUTS ARE INDICATIVE AND SHALL NOT BE USED FOR CONSTRUCTION.
- DRAWING KEY:**
1. TURBINE BUILDING
  2. HEAT RECOVERY STEAM GENERATOR
  - 3a. HRSG STACK
  - 3b. HRSG STACK
  - 3c. HRSG STACK
  4. MAIN TRANSFORMER
  5. FIRE PROTECTION PUMPHOUSE
  6. FIRE FIGHTING AND RAIN STORAGE WATER TANK
  7. DEMINERALISED WATER STORAGE TANK
  8. WATER TREATMENT PLANT
  9. WORKSHOP AND STORE BUILDING
  10. ADMINISTRATION BUILDING & CONTROL ROOM
  11. SECURITY ENTRANCE
  12. GAS RECEIVING STATION (METERING & FILTRATION)
  13. GAS SOLER
  14. GIS SUBSTATION
  15. LAYDOWN
  16. COOLING WATER PUMPHOUSE
  17. HYBRID COOLING TOWER
  18. RESERVED FOR CARBON CAPTURE
  19. AUXILIARY COOLING BUILDING
  20. WATER PRE-TREATMENT AREA
  21. WATER INTAKE STRUCTURE
  22. CAR PARK
  23. AUXILIARY BOILER
  24. GAS COMPRESSOR BUILDING/AREA
  25. WATER PRE-TREATMENT BUILDING
  26. AGULFIS TRAP SYSTEM
  27. CONDENSATE POLISHER
  28. OIL WATER SEPARATOR
  29. CHEMICAL DOSING STATION INCLUDING ELECTRICAL MODULES
  30. DOSING SYSTEM SKID
  31. SOLER FRIED PUMP BUILDING
  32. AUXILIARY ELECTRICAL MODULES
  33. GAS COMPRESSOR UTILITY ROOMS
  34. EMISSION & AMBIENT MONITORING SYSTEM
  35. BLOW DOWN TANK
  36. COOLING WATER TREATMENT
  37. GENERAL AND UNIT SERVICES MOOS CONTAINER
  38. PULL GAS COAGULATING FILTER
  39. PULL GAS DRAINS TANK
  40. PULL GAS FLOW MEASUREMENT SYSTEM
  41. PULL GAS PERFORMANCE HEATER
  42. HYDROGEN STORAGE
  43. CONDENSATE STORAGE TANK & MAKE UP PUMP
  44. GREASE & OIL STORAGE
  45. HAZARDOUS MATERIALS
  46. PIPE RACK
  47. SITE BOUNDARY
  48. EMERGENCY GENERATOR

- Air Emission Points**
- A1 - HRSG Stack 1
  - A2 - HRSG Stack 2
  - A3 - Auxiliary Boiler Stack 1
  - A4 - Auxiliary Boiler Stack 2
  - A5 - Emergency Diesel Generator Stack 1
  - A6 - Emergency Diesel Generator Stack 2
  - A7 - Dew Point Heater Stack 1
  - A8 - Dew Point Heater Stack 2
  - A9 - Fire Water Pump Stack

**Nottinghamly**  
power

**KNOTTINGLEY POWER PROJECT**

**FIGURE 3b**  
**OPTION 2: INSTALLATION LAYOUT AND EMISSION POINTS (2 UNITS)**

SCALE	PROJECT CODE
1:2,500 @ A3	KU073100
CONTENT	DRAWN
ECBI	AJR
CHECKED	DATE
ADJ	NOVEMBER 2015



END OF PERMIT

Permit number  
EPR/RP3431CZ