



Permit with introductory note

The Environmental Permitting (England & Wales) Regulations 2016

C.Gen Killingholme Limited

C.Gen Killingholme Power Plant
Clough Lane
Killingholme
North Lincolnshire
DN40 3JP

Permit number

EPR/FP3838EB

C.Gen Killingholme Power Plant

Permit number EPR/FP3838EB

Introductory note

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

The main features of the permit are as follows:

This is a permit to operate a 800MWth Combined Cycle Gas Turbine (CCGT) power station, which will be fired on natural gas obtained from an existing local high pressure gas supply network. The gas turbine selected is the Mitsubishi Hitachi Power Systems M701F4, MHI F class model.

The site will be operated flexibly to support the requirements of the national grid.

Flue gases, resulting from the combustion of natural gas, will be discharged into the atmosphere through the Main Stack, emission point reference A1, which is 80m in height.

The Main Stack serves the Gas Turbine and Heat Recovery Steam Generator (HRSG) within the Power island STU. Natural gas will be burnt in the combustion chamber of the gas turbine producing hot, high-pressure gases. These gases will expand through the gas turbine to generate electricity. The hot, expanded gases are then used in the HRSG to generate steam, which is in turn then used in the steam turbine equipment to generate additional electricity. The spent steam will leave the steam turbine equipment passing to a condenser, which is cooled by water coming from the hybrid cooling towers. The resultant condensate will be returned to the HRSG for reuse.

The site will be regulated under the Environmental Permitting Regulations scheduled activity reference 1.1 Part A(1)(a)(ii) for burning any fuel in an appliance with a rated thermal input of 50 MW or more.

The Installation includes a main site and a cooling water intake and outfall from the River Humber adjacent to the existing CPK jetties. The site will utilise a hybrid cooling tower system..

The main plant discharge will be via the hybrid cooling tower return infrastructure that will discharge the cooling water purge back to the River Humber, known as emission point W1.

The site will incorporate an Environmental Management System ("EMS") which will be an integral part of its overall management system. It is the intention to certify the EMS to the ISO 14001 standard as soon as practicable after commissioning and hand over of the Project from the construction contractor to C.GEN.

The Operations Area is the land proposed for the Generating Station (Combined Cycle Gas Turbine Station). The Generating Station is made up of two principal elements:

1. the Power Island and the Gasification Plant. The Power Island comprises all the elements required for the Generating Station to operate as a CCGT plant; and
2. the Gasification Plant comprises the equipment required if the Generating Station is to operate as an IGCC plant. . The Operator withdrew their application to operate a Gasification plant, and so this permit only allows the Installation to operate as a CCGT operation. If, in the future, the Operator decide they want to operate the Gasification plant, they will need to apply for a variation to the permit to allow this.

In addition, the Generating Station will include Common Facilities for operation both as a CCGT or an IGCC plant, such as: cooling towers, offices and workshops, raw water treatment, waste water treatment and gas insulated switchgear.

The site, North Killingholme Power Plant (NKPP) is located approximately 5 km north west of Immingham Docks, on land adjacent to C.RO Ports Killingholme Ltd (CPK). To the south east of the site are the existing Centrica and E.ON Killingholme Power Stations. The Centrica Killingholme power station has now ceased operating. The nearest residential settlements to the Operations Area, are:

3. East Halton (approximately 1.2 km to the west);
4. North Killingholme (approximately 2 km to the south west); and
5. South Killingholme (approximately 3 km to the south west).

The Application Site is located wholly within the administrative boundary of North Lincolnshire Council and the parishes of North Killingholme and East Halton. The site is situated in the Yorkshire and the Humber region of England.

The site is centred at Ordnance Survey National Grid Reference TA 157 198.

The Humber Estuary is located approximately 0.5 km north east of the Operations Area (at its nearest point) and is the only European Site located within 15 km of the site. The Humber Estuary is designated as both a Special Area of Conservation (SAC) and a Special Protection Area (SPA) under the Habitats Regulations. The closest Site of Special Scientific Interest (SSSI) to the site is the North Killingholme Haven Pits SSSI located approximately 0.3 km east of the site (at its nearest point). The Humber Estuary SAC / SPA, as described above, is also a SSSI. Locally designated sites include East Halton Dismantled Railway Site of Nature Conservation Importance (SNCI); Chase Hill Wood Local Wildlife Site (LWS); and Halton Marsh Clay Pits LWS.

The site is within the relevant screening distances for several Air Quality Management Areas including Scunthorpe, Low Santon, Immingham, Grimsby and Hull.

The installation was subject to a Development Consent Order (DCO) which was granted by the Secretary of State on 11 September 2014 with a Correction Order effective from 27 October 2015. The DCO requires the plant to be CHP-ready (combined heat and power) and carbon capture ready. Options for the implementation of CHP-readiness have been identified, investigated and set out within the applicant's CHP assessment (reference: 22 March 2013, Document Reference: 8.5). Customers were acknowledged and identified by the Applicant but nothing was deemed suitable at the time of assessment.

Extra land has been set aside for carbon capture readiness as explained within Carbon Capture Readiness Feasibility Study/ Carbon Capture and Storage Design Concept Report, 22 March 2013, Document Reference: 8.4.

The site has a design life of 30 years. The overall combined cycle efficiency of the plant will be 58% at ISO conditions and will operate principally at base load – operating at full capacity – but will be able to run down to 50% load and still be compliant with the Industrial Emissions Directive.

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

The Operator has chosen to operate this LCP under the ELV compliance route. The net thermal input of the LCPs is as follows: LCP470 – one 800MWth CCGT.

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

Status log of the permit		
Description	Date	Comments
Application EPR/FP3838EB/A001	10/03/14 Duly Made	Application for 470MWe Combined Cycle Gas Turbine (CCGT) Power Station.
Schedule 5 Issued	21/11/2014	Further information requested.

Status log of the permit		
Description	Date	Comments
Schedule 5 part response	13/01/2015	Flare Sensitivity Data and Analysis, Screening of Gen-Set Engines and Diesel Generators and Further Information Response.
Schedule 5 part response	17/08/2015	North Killingholme Power Project, Environmental Permit Application, C.GEN Killingholme Ltd, reference 3514058B, Final
Schedule 5 part response	22/02/2016 & 23/02/2016	Revised Application Forms & Supporting Documentation
Schedule 5 part response	22/04/2016	Revised H1 assessment & data
Schedule 5 part response	27/04/2016	Revised Air Quality & Noise Assessments
Schedule 5 part response	12/10/2016	Review of emissions, including noise, assessment ensuring validity. Check of emissions, receptors and designations since time of original submission.
Schedule 5 part response	06/02/2017	Turbine Update
Schedule 5 Issued	14/02/2017	Further information requested on discharges to water assessment.
Schedule 5 part response	10/03/2017	Further information on water discharges.
Schedule 5 Response	20/04/2017	Dilution spreadsheets & conclusions for water discharges
Permit determined EPR/FP3838EB (Billing ref. FP3838EB)	10/08/2017	Permit issued to C.Gen Killingholme Limited.

End of introductory note.

Permit

The Environmental Permitting (England and Wales) Regulations 2016

Permit number

EPR/FP3838EB

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

C.Gen Killingholme Limited ("the operator"),

whose registered office is

**130 Shaftesbury Avenue
2nd Floor
London
W1D 5EU**

company registration number 06422434

to operate an installation at

**C.Gen Killingholme Power Plant
Clough Lane
Killingholme
North Lincolnshire
DN40 3JP**

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

Name	Date
J Linton	10/08/2017

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.
- 1.2.2 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 15 km 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 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”).
- 2.1.2 Waste authorised by this permit shall be clearly distinguished from any other waste on the site.

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: LCP470. 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 December 2015 or any later version unless otherwise agreed in writing by the Environment Agency.
- 2.3.3 If notified by the Environment Agency that the activities are giving rise to pollution, the operator shall submit to the Environment Agency for approval within the period specified, a revision of any plan or other documentation (“plan”) specified in schedule 1, table S1.2 or otherwise required under this permit which identifies and minimises the risks of pollution relevant to that plan, and shall implement the approved revised plan in place of the original from the date of approval, unless otherwise agreed in writing by the Environment Agency.
- 2.3.4 Any raw materials or fuels listed in schedule 2 table S2.1 shall conform to the specifications set out in that table.
- 2.3.5 For the following activities referenced in schedule 1, table S1.1: LCP470. The end of the start up period and the start of the shutdown period shall conform to the specifications set out in Schedule 1, tables S1.2 and S1.5
- 2.3.6 The operator shall ensure that where waste produced by the activities is sent to a relevant waste operation, that operation is provided with the following information, prior to the receipt of the waste:
- (a) the nature of the process producing the waste;

- (b) the composition of the waste;
 - (c) the handling requirements of the waste;
 - (d) the hazardous property associated with the waste, if applicable; and
 - (e) the waste code of the waste.
- 2.3.7 The operator shall ensure that where waste produced by the activities is sent to a landfill site, it meets the waste acceptance criteria for that landfill.

2.4 Improvement programme

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

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.
- 2.5.2 The operations specified in schedule 1 table S1.4B shall not commence until the measures specified in that table 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

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.

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

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

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

4.3 Notifications

4.3.1 In the event:

- (a) that the operation of the activities gives rise to an incident or accident which significantly affects or may significantly affect the environment, the operator must immediately—

- (i) inform the Environment Agency,
 - (ii) take the measures necessary to limit the environmental consequences of such an incident or accident, and
 - (iii) take the measures necessary to prevent further possible incidents or accidents;
- (b) of a breach of any permit condition the operator must immediately—
- (i) inform the Environment Agency, and
 - (ii) take the measures necessary to ensure that compliance is restored within the shortest possible time;
- (c) of a breach of permit condition which poses an immediate danger to human health or threatens to cause an immediate significant adverse effect on the environment, the operator must immediately suspend the operation of the activities or the relevant part of it until compliance with the permit conditions has been restored.
- 4.3.2 Any information provided under condition 4.3.1(a)(i), or 4.3.1 (b)(i) where the information relates to the breach of a condition specified in the permit shall be confirmed by sending the information listed in schedule 5 to this permit within the time period specified in that schedule.
- 4.3.3 Where the Environment Agency has requested in writing that it shall be notified when the operator is to undertake monitoring and/or spot sampling, the operator shall inform the Environment Agency when the relevant monitoring and/or spot sampling is to take place. The operator shall provide this information to the Environment Agency at least 14 days before the date the monitoring is to be undertaken.
- 4.3.4 The Environment Agency shall be notified within 14 days of the occurrence of the following matters, except where such disclosure is prohibited by Stock Exchange rules:
- Where the operator is a registered company:
- (a) any change in the operator's trading name, registered name or registered office address; and
 - (b) any steps taken with a view to the operator going into administration, entering into a company voluntary arrangement or being wound up.
- Where the operator is a corporate body other than a registered company:
- (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 Where the operator has entered into a climate change agreement with the Government, the Environment Agency shall be notified within one month of:
- (a) a decision by the Secretary of State not to re-certify the agreement;
 - (b) a decision by either the operator or the Secretary of State to terminate the agreement; and
 - (c) any subsequent decision by the Secretary of State to re-certify such an agreement.
- 4.3.8 The operator shall inform the Environment Agency in writing of the closure of any LCP within 28 days of the date of closure.

4.4 Interpretation

- 4.4.1 In this permit the expressions listed in schedule 6 shall have the meaning given in that schedule.
- 4.4.2 In this permit references to reports and notifications mean written reports and notifications, except where reference is made to notification being made “immediately”, in which case it may be provided by telephone.

Schedule 1 – Operations

Table S1.1 activities			
Activity reference	Activity listed in Schedule 1 of the EP Regulations	Description of specified activity	Limits of specified activity
A1	Section 1.1 A(1) (a): Burning any fuel in an appliance with a rated thermal input of 50 megawatts or more.	LCP470 (CCGT mode): Operation of a 800MWth input combined cycle gas turbine power plant (CCGT) burning gas to produce electricity. 30MWth auxiliary boiler for production of steam for start-up of the plant. Two emergency diesel generator units, with a combined total electrical output of the order of up to 1.5 MWe (consisting of two units that will share a common stack (windshield).	From receipt of natural gas to discharge of exhaust gases and the generation of electricity.
Directly Associated Activity			
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	Waste water treatment plant	From receipt of raw materials to dispatch to chemical effluent and dirty water system.
A4	Directly associated activity	Raw and process water treatment plant	From receipt of water to treatment, use and discharge.
A5	Directly associated activity	Oil storage tanks	From receipt and storage of lubrication oil, transformer oil and other oils to use in systems and plant to removal from site.

Table S1.2 Operating techniques		
Description	Parts	Date Received
Application EPR/FP3838EB/A001	Form EPB; Application for an environmental permit, Part B3 new bespoke installation permit, response to section 3a & 3b – technical standards & General requirements.	22/02/2016

Table S1.2 Operating techniques		
Description	Parts	Date Received
Application EPR/FP3838EB/A001	Section 4.3 & 4.5 of North Killingholme Power Project Application for a New Bespoke Environmental Permit, July 2015	22/02/2016
Application EPR/FP3838EB/A001	Revised application and supporting information. Amended to reflect the on-site operation of CCGT only, removing the proposal for application to undertake IGCC activities on site.	22/02/2016 & 23/02/2016

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
IC1	<p>The Operator shall submit a report in writing to the Environment Agency for acceptance. The report shall define and provide a written justification of the “minimum start up load” and “minimum shut-down load”, for each unit within the LCP as required by the Implementing Decision 2012/249/EU in terms of:</p> <ul style="list-style-type: none"> i. The output load (i.e. electricity, heat or power generated) (MW); and ii. This output load as a percentage of the rated thermal output of the combustion plant (%). <p>And / Or</p> <p>At least three criteria 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.</p>	1 month after completion of commissioning

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
IC2	<p>The operator shall provide a report in writing to the Environment Agency for acceptance which provides the net rated thermal input for LCP470. 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> <p>a) Performance test results* during contractual guarantee testing or at commissioning (quoting the specified standards or test codes),</p> <p>b) Performance test results after a significant modification (quoting the specified standards or test codes),</p> <p>c) Manufacturer's contractual guarantee value,</p> <p>d) Published reference data, e.g., Gas Turbine World Performance Specifications (published annually),</p> <p>e) Design data, e.g., nameplate rating of a boiler or design documentation for a burner system,</p> <p>f) Operational efficiency data as verified and used for heat accountancy purposes,</p> <p>g) Data provided as part of Due Diligence during acquisition.</p> <p>*Performance test results shall be used if these are available.</p>	6 months after completion of commissioning
IC3	<p>The Operator shall submit a written report to the Environment Agency on the implementation of its Environmental Management System and the progress made in the certification of the system by an external body or if appropriate submit a schedule by which the EMS will be certified.</p> <p>The Environmental Management System will include a full accident risk assessment and management plan which will be made available for review and approval (in writing) by the Environment Agency.</p>	Within 12 months of the date on which fuel is first burnt.
IC4	<p>The Operator shall submit a written report to the Environment Agency on the commissioning of the installation.</p> <p>The report shall summarise the results of the commissioning programme, the environmental performance of the plant as installed against the design parameters set out in the Application and any significant changes to the information provided in the permit application EPR/FP3838EB/A001.</p> <p>The report shall also include a review of the performance of the facility against the conditions of this permit and details of procedures developed during commissioning for achieving and demonstrating compliance with permit conditions.</p>	Within 1 month of the completion of commissioning.

Table S1.4A Pre-operational measures	
Reference	Pre-operational measures
PO1	The Operator shall notify the Environment Agency at least 14 days prior to fuel being burned on the Installation for the first time.
PO2	<p>The Operator shall submit a written report to the Environment Agency providing full detailed design details for the site (including drainage).</p> <p>The Operator shall undertake a review of the Environmental Permit application against the final plans for the installation, prior to construction, to:</p> <ol style="list-style-type: none"> I. ensure that the final proposals will meet the requirements for BAT; and II. the application still accurately reflects the final design and operating proposals III. provide an updated site layout plan, detailing the precise and accurate location of plant and all emission points. <p>The Operator shall submit the findings of this review within the written report to the Environment Agency for approval in writing by the Environment Agency.</p>
PO3	Prior to undertaking commissioning of the plant the applicant will submit, to the environment agency, a reviewed and revised Combined Heat and Power Assessment in line with the Environment Agency's latest Guidance (CHP Ready Guidance for Combustion and Energy from Waste Power Plants, V1.0 February 2013), for written acceptance and approval from the Environment Agency.
PO4	Confirm compliance with BS EN 15259 in respect of monitoring location and stack gas velocity profile for emission point A1
PO5	A site closure plan will be submitted to the Environment Agency in order to outline the proposals for the decommissioning of the Project and the reinstatement of the Operations Area.

Table S1.5 Start-up and Shut-down thresholds		
Emission Point and Unit Reference	“Minimum Start-Up Load” Load in MW and as percent of rated power output (%)	“Minimum Shut-Down Load” Load in MW and as percent of rated power output (%)
A1 LCP470	To be agreed in writing by the Environment Agency, following the outcome of improvement condition IC1.	To be agreed in writing by the Environment Agency, following the outcome of improvement condition IC1.

Schedule 2 – Waste types, raw materials and fuels

Table S2.1 Raw materials and fuels	
Raw materials and fuel description	Specification
Natural gas	-
Diesel (Distillate Fuel Oil)	Not exceeding 0.1% w/w sulphur content

Schedule 3 – Emissions and monitoring

Table S3.1 Point source emissions to air						
Emission point ref. & location	Parameter	Source	Limit (including unit)-these limits do not apply during start up or shut down.	Reference period	Monitoring frequency	Monitoring standard or method
A1 [Point A1 on site plan in Schedule 7]	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	LCP No.470 Gas turbine fired on natural gas	50 mg/m ³ 70% to base load ¹	Monthly mean of validated hourly averages	Continuous	BS EN 14181
A1 [Point A1 on site plan in schedule 7]	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	LCP No.470 Gas turbine fired on natural gas	55 mg/m ³ 70% to base load ¹ 55 mg/m ³ MSUL/MSDL to base load ²	Daily mean of validated hourly averages	Continuous	BS EN 14181
A1 [Point A1 on site plan in schedule 7]	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	LCP No.470 Gas turbine fired on natural gas	100 mg/m ³ 70% to base load ¹	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
A1 [Point A1 on site plan in schedule 7]	Carbon Monoxide	LCP No. 470 Gas turbine fired on natural gas	90 mg/m ³ 70% to base load ¹	Monthly mean of validated hourly averages	Continuous	BS EN 14181
A1 [Point A1 on site plan in schedule 7]	Carbon Monoxide	LCP No.470 Gas turbine fired on natural gas	110 mg/m ³ 70% to base load ¹ 110 mg/m ³ MSUL/MSDL to base load ²	Daily mean of validated hourly averages	Continuous	BS EN 14181
A1 [Point A1 on site plan in schedule 7]	Carbon Monoxide	LCP No.470 Gas turbine fired on natural gas	200 mg/m ³ 70% to base load ¹	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181

Table S3.1 Point source emissions to air						
Emission point ref. & location	Parameter	Source	Limit (including unit)-these limits do not apply during start up or shut down.	Reference period	Monitoring frequency	Monitoring standard or method
A1 [Point A1 on site plan in schedule 7]	Sulphur dioxide	LCP No.470 Gas turbine fired on natural gas	-	-	At least every 6 months	Concentration by calculation, as agreed in writing with the Environment Agency
A1 [Point A1 on site plan in schedule 7]	Oxygen	LCP No.470 Gas turbine fired on natural gas	-	-	Continuous As appropriate to reference	BS EN 14181
A1 [Point A1 on site plan in schedule 7]	Water Vapour	LCP No.470 Gas turbine fired on natural gas	-	-	Continuous As appropriate to reference	BS EN 14181
A1 [Point A1 on site plan in schedule 7]	Stack gas temperature	LCP No.470 Gas turbine fired on natural gas	-	-	Continuous As appropriate to reference	Traceable to national standards
A1 [Point A1 on site plan in schedule 7]	Stack gas pressure	LCP No.470 Gas turbine fired on natural gas	-	-	Continuous As appropriate to reference	Traceable to national standards
A1 [Point A1 on site plan in schedule 7]	As required by the Method Implementation Document for BS EN 15259	LCP No.470 Gas turbine fired on natural gas	-	-	Pre-operation and when there is a significant operational change	BS EN 15259
M1 [Point M1 on site plan in schedule 7]	-	Vent Scrubber for Acid Tank; water treatment	-	-	-	-

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] ³	-	Gas fired auxiliary boiler	-	-	-	-
A1 [Point A1 on site plan in schedule 7] ³	-	Emergency diesel generators	-	-	-	-

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.

Note 3: An updated location plan to be provided through completion of pre-operational condition PO2.

Emission point ref. & location	Parameter	Source	Limit (incl. unit)	Reference period	Monitoring frequency	Monitoring standard or method
Combined effluents from the HRSG, the demineralisation plant and cooling tower purge via W1 on site plan in schedule 7, emission to River Humber	Visual appearance	Combined effluents from the HRSG, the demineralisation plant and cooling tower purge	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
	Temperature		≤10°C above river temperature, 30°C	Instantaneous	Continuous	BS EN ISO 10523:2012
	PH		6-9	Instantaneous	Continuous	BS EN ISO 10523

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
	Maximum Daily Flow		423,360 m ³ per day	24 hour period beginning 00.01	Continuous	
	Oil or grease		No visible emission	24-hour flow proportional sample	Daily	No significant trace - visual examination
	Residual Chlorine		500 µg/l	24-hour flow proportional sample	Daily	BS EN ISO 7393-1

Schedule 4 – Reporting

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

Parameter	Emission or monitoring point/reference	Reporting period	Period begins
Oxides of nitrogen	A1	Every 3 months	1 January, 1 April, 1 July, 1 October
Carbon Monoxide	A1	Every 3 months	1 January, 1 April, 1 July, 1 October
Sulphur dioxide	A1	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 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

Table S4.2: Resource Efficiency Metrics	
Parameter	Units
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 (Load Factor)	Annually	hr

Table S4.4 Reporting forms				
Media/ parameter	Reporting format	Starting Point	Agency recipient	Date of form
LCP	Form IED HR1 – operating hours	01/01/2017	National and Area Office	31/12/2015
Air & Energy	Form IED AR1 – SO ₂ , NO _x and dust mass emission and energy	01/01/16	National and Area Office	01/01/17
Air	Form IED CON 2 - SO ₂ and NO _x concentration emissions	01/01/2017	Area Office	31/12/2015
CEMs	Form IED CEM – invalidation log	01/01/2017	Area Office	31/12/2015
Resource Efficiency	Form REM1 – resource efficiency annual report	01/01/2017	National and Area Office	31/12/2015
Water	Form water 1 or other form as agreed in writing by the Environment Agency	01/01/2017	Area Office	31/03/2017

Schedule 5 – Notification

These pages outline the information that the operator must provide.

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

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

Part A

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

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

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

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

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

Part B – to be submitted as soon as practicable

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

Name*	
Post	
Signature	
Date	

* authorised to sign on behalf of the operator

Schedule 6 – Interpretation

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

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

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

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

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

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

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

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

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

“CEN” means Comité Européen de Normalisation.

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

“Commissioning” means testing of the installation that involves any operation of LCP470 referenced in schedule 1, table S1.1 or as agreed with the 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.

“emissions to land” includes emissions to groundwater.

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

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

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

“SI” means site inspector.

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

“Waste code” means the six digit code referable to a type of waste in accordance with the List of Wastes and in relation to hazardous waste, includes the asterisk.

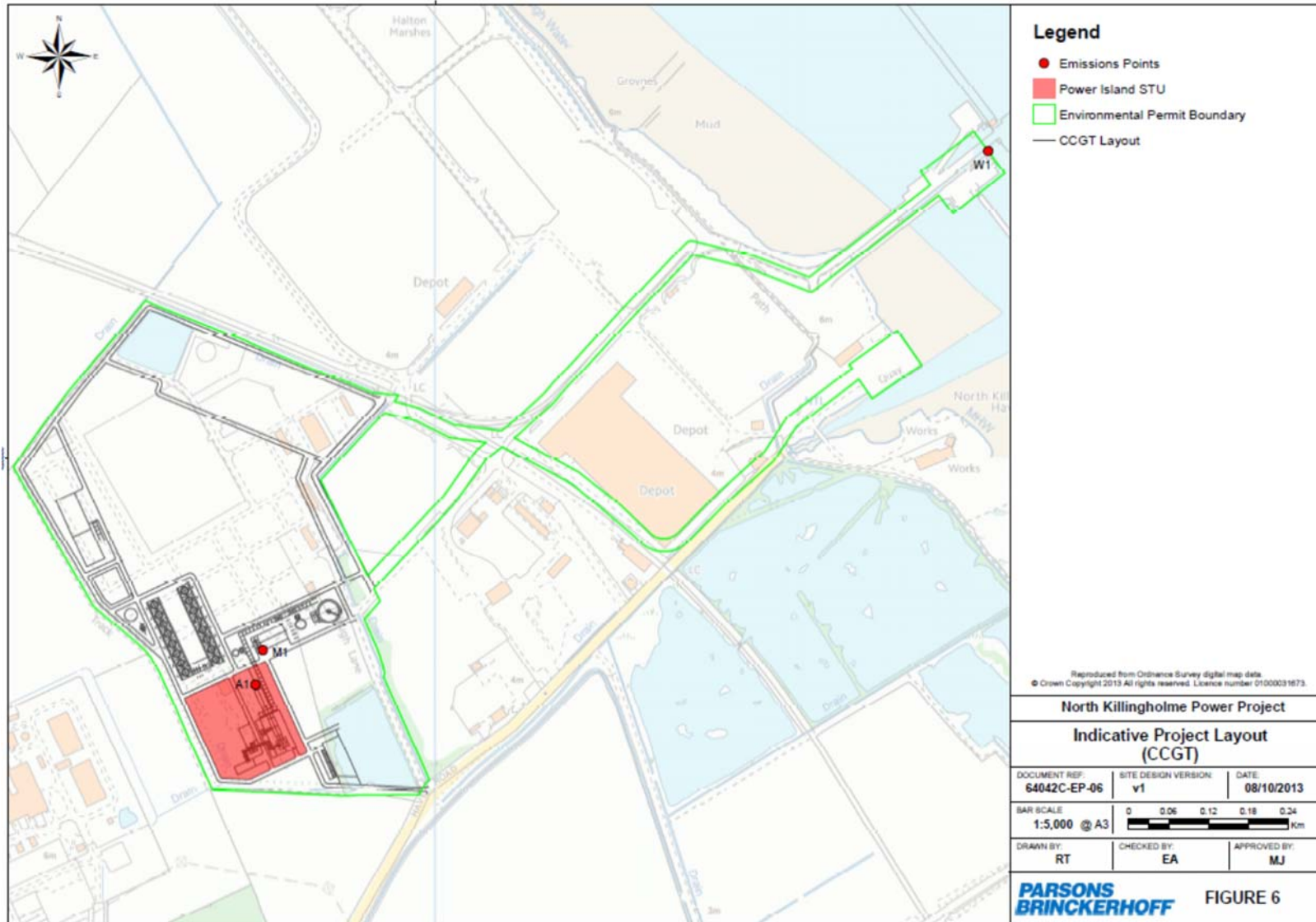
Where a minimum limit is set for any emission parameter, for example pH, reference to exceeding the limit shall mean that the parameter shall not be less than that limit.

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

- in relation to emissions from combustion processes, the concentration in dry air at a temperature of 273K, at a pressure of 101.3 kPa and with an oxygen content of 3% dry for liquid and gaseous fuels, 6% dry for solid fuels; and/or
- in relation to emissions from gas turbine or compression ignition engine combustion processes, the concentration in dry air at a temperature of 273K, at a pressure of 101.3kPa and with an oxygen content of 15% dry for liquid and gaseous fuels; and/or
- in relation to emissions from combustion processes comprising a gas turbine with a waste heat boiler, the concentration in dry air at a temperature of 273K, at a pressure of 101.3kPa and with an oxygen content of 15% dry, unless the waste heat boiler is operating alone, in which case, with an oxygen content of 3% dry for liquid and gaseous fuels; and/or
- in relation to emissions from non-combustion sources, the concentration at a temperature of 273K and at a pressure of 101.3 kPa, with no correction for water vapour content.

“year” means calendar year ending 31 December.

Schedule 7 – Site plan



END OF PERMIT

Permit number
EPR/FP3838EB