



Permit with introductory note

The Environmental Permitting (England & Wales) Regulations 2016

Net Zero Teesside Power Limited

Net Zero Teesside Power Station and Carbon Capture Plant

Redcar

Cleveland

TS10 5QW

Permit number

EPR/PP3501LR

Net Zero Teesside Power Station and Carbon Capture Plant

Permit number EPR/PP3501LR

Introductory note

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

The main features of the permit are as follows.

The installation is located on the previous Redcar Steelworks site on the South Bank of the River Tees, approximately 750m west of Warrenby, 1.5km north-west of Dormanstown, and 400m to the south of the North Sea shoreline. There are a number nationally designated ecological sites situated in close proximity to the site including the Teesmouth and Cleveland Coast Site of Special Scientific Interest (SSSI)/ special Protection Area (SPA)/ Ramsar site located approximately 240m north of the site (at its nearest point).

The Installation will comprise of one Combined Cycle Gas Turbine (CCGT) power plant (with a thermal input capacity of approximately 1,400 Megawatts thermal (MWth) with post combustion carbon capture and carbon dioxide (CO₂) electrically driven compression plant. The installation will also include electrically powered auxiliary boilers to provide heat/steam during commissioning, start-up, shut-down and maintaining carbon capture equipment in a hot or warm stand-by state when the CCGT is off-line. Emergency gas oil generators will also be used to provide electrical power in the event of interruption of fuel supply and/or simultaneous loss of power generation and external power failure to the site.

The installation will operate under the following Environmental Permitting Regulations (EPR) Schedule 1-Part 2 activities:

- Section 1.1 Part A(1)(a) Burning of fuel in an appliance with a rated thermal input of 50 or more MW;
- Section 6.10 Part A(1): Capture of carbon dioxide streams from an installation for the purposes of geological storage

The installation will generate electricity from the combustion of natural gas within the CCGT. Hot exhaust gases from the combustion process will drive the gas turbine, along with steam generated from the heat of the exhaust gas in the heat recovery steam generator (HRSG). The plant can operate in both CO₂ abated and unabated mode. When operating in CO₂ abated mode the combustion gases from the CCGT will be pre-treated before entering the carbon capture plant. This treatment will include selective catalytic reduction (SCR) to reduce oxides of nitrogen (NO_x) and direct contact cooling to reduce the temperature of the gases. The carbon capture plant will then use an amine-based solvent contained in a packed column to strip CO₂ from the exhaust gases via a weak acid-base reaction. The CO₂-depleted exhaust gases will then pass through emissions abatement stages to minimise amine carry over and is then released to atmosphere via the absorber stack (A1). The solvent can accumulate impurities over time, and these are removed via a thermal solvent reclaiming process.

The CO₂ is removed from the CO₂ rich solvent by heat, using steam taken from the HRSG. The solvent is recirculated within the plant, whilst the CO₂ gas passes to the low-pressure compressor where it is compressed to a medium pressure and impurities (moisture, oxygen) are removed before the CO₂ is exported to a high pressure (HP) compressor where the CO₂ is compressed to a pressure of between 120-160 barg ('dense phase') and introduced into the CO₂ export pipeline and offshore permanent storage beneath the North Sea. The HP compressor is a directly associated activity (DAA) to the Section 6.10 Part A(1): carbon capture and storage activity and will be operated by a separate legal entity so has a separate Environmental Permit (EPR/FP3143QN), therefore this a multi-operator installation.

The installation can operate in either baseload or in flexible (dispatchable) mode. Baseload mode power refers to power generation that runs continuously at high levels of power output throughout the year. Dispatchable mode generation refers to highly flexible operation when the CCGT will be on demand and dispatched according to market conditions and requirements. The installation can operate without carbon

capture (CO₂ unabated mode) however this will not be the normal mode for the proposed installation. When operating in CO₂ unabated mode combustion gases will be released to atmosphere via the HRSG stack (A2). Cooling for the installation will be achieved through the use of mechanical draught cooling towers.

Waste-water and surface water run-off will be discharged to Tees Bay via emission point W1. Effluent from the direct contact cooler will undergo treatment via reverse osmosis on site to remove ammonia, with the resulting treated effluent either being re-used on site or discharged to Tees Bay via emissions point W1.

The requirements of the Industrial Emissions Directive (IED) are given force in England through the Environmental Permitting (England and Wales) Regulations 2016 (the EPR). This permit, for the operation of large combustion plant (LCP), as defined by articles 28 and 29 of the IED, implements the special provisions for LCP given in the IED. The IED makes special provisions for LCP under Chapter III and contains emission limit values (ELVs) applicable to LCP, referred to in Article 30(2) and set out in Annex V.

We have also assessed the permit application for compliance with the revised Best Available Techniques (BAT) Conclusions for the LCP sector published on 31st July 2017 including the incorporation of the relevant BAT Associate Emission Levels (AELs) into the permit.

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

Status log of the permit		
Description	Date	Comments
Application EPR/PP3501LR/A001	Duly made 30/06/2022	Application for 1400MW thermal input Power Station and Carbon Capture Plant
Schedule 5 Notice for further information issued	15/11/2022	Response received 31/03/2023 & 18/10/2023
Permit determined EPR/PP3501LR	14/05/2024	Permit issued to Net Zero Teesside Power Limited

Other Part A installation permits relating to this installation		
Operator	Permit number	Date of issue
Net Zero North Sea Storage Limited	FP3143QN	14/05/2024

End of introductory note

Permit

The Environmental Permitting (England and Wales) Regulations 2016

Permit number

EPR/PP3501LR

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

Net Zero Teesside Power Limited (“the operator”),

whose registered office is

**Chertsey Road
Sunbury On Thames
Middlesex
United Kingdom
TW16 7BP**

company registration number 12473751

to operate part of an installation at

**Net Zero Teesside Power Station and Carbon Capture Plant
Redcar
Cleveland
TS10 5QW**

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

Name	Date
Daniel Timney	14/05/2024

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 BEIS 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.

1.5 Multiple operator installations

- 1.5.1 Where the operator notifies the Environment Agency under condition 4.3.1 (a) or 4.3.1 (c), the operator shall also notify without delay the other operator(s) of the installation of the same information.

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, which is within the area edged in blue on the site plan that represents the extent of the installation covered by this permit and that of the other operator of the installation.

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: LCP687. The activities shall be operated in accordance with the “Electricity Supply Industry IED Compliance Protocol for Utility Boilers and Gas Turbines” dated November 2022 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: LCP687. 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 S1.5.
- 2.3.6 For the following activities referenced in schedule 1, table S1.1: LCP687. The effective Dry Low NOx threshold shall conform to the specifications set out in Schedule 1, tables S1.2 and S1.6.
- 2.3.7 For the following activities referenced in schedule 1, table S1.1: LCP687. The following conditions apply where there is a malfunction or breakdown of any abatement equipment:
Unless otherwise agreed in writing by the Environment Agency:
- (i) if a return to normal operations is not achieved within 24 hours, the operator shall reduce or close down operations;
 - (ii) the cumulative duration of breakdown in any 12-month period shall not exceed 120 hours; and
 - (iii) the cumulative duration of malfunction in any 12-month period shall not exceed 120 hours.
- 2.3.8 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.
- 2.3.9 The operator shall ensure that where waste produced by the activities is sent to a landfill site, it meets the waste acceptance criteria for that landfill.

2.4 Improvement programme

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

2.5 Pre-operational conditions

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

3 Emissions and monitoring

3.1 Emissions to water, air or land

- 3.1.1 There shall be no point source emissions to water, air or land except from the sources and emission points listed in schedule 3 tables S3.1, S3.1a, S3.1b, S3.2 and S3.3.
- 3.1.2 The limits given in schedule 3 shall not be exceeded.
- 3.1.3 The emission values from emission points A1 and A2 listed in schedule 3 tables S3.1 and S3.1a, measured during periods of abatement equipment malfunction and breakdown shall be disregarded for the purposes of compliance with tables S3.1 and S3.1a emission limit values.

- 3.1.4 Total annual emissions from the emission points set out in schedule 3 table S3.4 of a substance listed in schedule 3 table S3.4 shall not exceed the relevant limit in table S3.4.
- 3.1.5 The Operator shall carry out monitoring of groundwater and soil in accordance with IED articles 14(1)(b), 14(1) (e) and 16(2) of the IED to the protocol as detailed in the monitoring and maintenance plan and as approved in writing with the Environment Agency under PO10 in table S1.4.
- 3.1.6 For the following activities referenced in schedule 1, table S1.1 (AR1) the first monitoring measurements shall be carried out within four months of the issue date of the permit or of the date when the MCP is first put into operation, whichever is later.

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, S3.1a, S3.1b and S3.2; and
 - (b) process monitoring specified in table S3.3.
- 3.5.2 The operator shall maintain records of all monitoring required by this permit including records of the taking and analysis of samples, instrument measurements (periodic and continuous), calibrations, examinations, tests and surveys and any assessment or evaluation made on the basis of such data.
- 3.5.3 Monitoring equipment, techniques, personnel and organisations employed for the emissions monitoring programme and the environmental or other monitoring specified in condition 3.5.1 shall have either MCERTS certification or MCERTS accreditation (as appropriate), where available, unless otherwise agreed in writing by the Environment Agency.
- 3.5.4 Permanent means of access shall be provided to enable sampling/monitoring to be carried out in relation to the emission points specified in schedule 3 tables S3.1, S3.1a and S3.2 unless otherwise agreed in writing by the Environment Agency.

3.6 Monitoring for Large Combustion Plant

- 3.6.1 All monitoring required by this permit shall be carried out in accordance with the provisions of Annex V of the Industrial Emissions Directive and the Large Combustion Plant Best Available Techniques Conclusions.
- 3.6.2 If the monitoring results for more than 10 days a year are invalidated within the meaning set out in condition 3.6.7, the operator shall:
 - (a) within 28 days of becoming aware of this fact, review the causes of the invalidations and submit to the Environment Agency for approval, proposals for measures to improve the reliability of the continuous measurement systems, including a timetable for the implementation of those measures; and
 - (b) implement the approved proposals.
- 3.6.3 Continuous measurement systems on emission points from the LCP shall be subject to quality control by means of parallel measurements with reference methods at least once every calendar year.
- 3.6.4 Unless otherwise agreed in writing by the Environment Agency in accordance with condition 3.6.5 below, the operator shall carry out the methods, including the reference measurement methods, to use and calibrate continuous measurement systems in accordance with the appropriate CEN standards.
- 3.6.5 If CEN standards are not available, ISO standards, national or international standards which will ensure the provision of data of an equivalent scientific quality shall be used, as agreed in writing with the Environment Agency.
- 3.6.6 Where required by a condition of this permit to check the measurement equipment, the operator shall submit a report to the Environment Agency in writing, within 28 days of the completion of the check.
- 3.6.7 Where Continuous Emission Monitors are installed to comply with the monitoring requirements in schedule 3, tables S3.1 and S3.1a; the Continuous Emission Monitors shall be used such that:

- (a) for the continuous measurement systems fitted to the LCP release points defined in table(s) S3.1 and S3.1a the validated hourly, monthly, yearly 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 ammonia releases of a single measured result shall be taken to be 40%;
- (e) the 95% confidence interval for carbon monoxide releases of a single measured result shall be taken to be 10%;
- (f) 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;
- (g) any day, in which more than three hourly average values are invalid shall be invalidated;
- (h) 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:
 - (i) 20 minutes of the period for open cycle turbines and engines; and
 - (ii) 40 minutes of the period for all other combustion appliances.

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.

4 Information

4.1 Records

4.1.1 All records required to be made by this permit shall:

- (a) be legible;
- (b) be made as soon as reasonably practicable;
- (c) if amended, be amended in such a way that the original and any subsequent amendments remain legible, or are capable of retrieval; and
- (d) be retained, unless otherwise agreed in writing by the Environment Agency, for at least 6 years from the date when the records were made, or in the case of the following records until permit surrender:
 - (i) off-site environmental effects; and
 - (ii) matters which affect the condition of the land and groundwater.

4.1.2 The operator shall keep on site all records, plans and the management system required to be maintained by this permit, unless otherwise agreed in writing by the Environment Agency.

4.2 Reporting

4.2.1 The operator shall send all reports and notifications required by the permit to the Environment Agency using the contact details supplied in writing by the Environment Agency.

- 4.2.2 A report or reports on the performance of the activities over the previous year shall be submitted to the Environment Agency by 31 January (or other date agreed in writing by the Environment Agency) each year. The report(s) shall include as a minimum:
- (a) a review of the results of the monitoring and assessment carried out in accordance with the permit including an interpretive review of that data;
 - (b) the resource efficiency metrics set out in schedule 4 table S4.2;
 - (c) the performance parameters set out in schedule 4 table S4.3 using the forms specified in table S4.4 of that schedule;
 - (d) where condition 2.3.7 applies, the cumulative duration of breakdown and cumulative duration of malfunction in any 12 month period; and
 - (e) The function and monitoring of the carbon capture plant in a format agreed with the Environment Agency. The report shall, as a minimum requirement give an account of the running of the process (including a summary of records of process monitoring requirements of table S3.3), the emissions into air compared with the emission limits in table S3.1 and S3.1a, and details of the waste generated.
- 4.2.3 Within 28 days of the end of the reporting period the operator shall, unless otherwise agreed in writing by the Environment Agency, submit reports of the monitoring and assessment carried out in accordance with the conditions of this permit, as follows:
- (a) in respect of the parameters and emission points specified in schedule 4 table S4.1;
 - (b) for the reporting periods specified in schedule 4 table S4.1 and using the forms specified in schedule 4 table S4.4; and
 - (c) giving the information from such results and assessments as may be required by the forms specified in those tables.
- 4.2.4 The operator shall, unless notice under this condition has been served within the preceding four years, submit to the Environment Agency, within six months of receipt of a written notice, a report assessing whether there are other appropriate measures that could be taken to prevent, or where that is not practicable, to minimise pollution.
- 4.2.5 Within 10 days of the notification of abatement equipment malfunction or breakdown (condition 2.3.7) the operator shall submit an Air Quality Risk Assessment as outlined in the IED Compliance Protocol (condition 2.3.2).

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.

- (d) of any malfunction or breakdown of abatement equipment relating to condition 2.3.7, the operator shall notify the Environment Agency within 48 hours unless notification has already been made under (a) to (c) above.

4.3.2 Any information provided under condition 4.3.1 shall be confirmed by sending the information listed in schedule 5 to this permit within the time period specified in that schedule.

4.3.3 Where the Environment Agency has requested in writing that it shall be notified when the operator is to undertake monitoring and/or spot sampling, the operator shall inform the Environment Agency when the relevant monitoring and/or spot sampling is to take place. The operator shall provide this information to the Environment Agency at least 14 days before the date the monitoring is to be undertaken.

4.3.4 The Environment Agency shall be notified within 14 days of the occurrence of the following matters, except where such disclosure is prohibited by Stock Exchange rules:

Where the operator is a registered company:

- (a) any change in the operator's trading name, registered name or registered office address; and
- (b) any steps taken with a view to the operator going into administration, entering into a company voluntary arrangement or being wound up.

Where the operator is a corporate body other than a registered company:

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

In any other case:

- (e) any change in the operator's name(s) or address(es); and
- (f) any steps taken with a view to the operator, or any one of them, going into bankruptcy, entering into a composition or arrangement with creditors, or, in the case of them being in a partnership, dissolving the partnership.

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

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

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

4.3.7 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 “without delay” or “immediately”, in which case it may be provided by telephone.

Schedule 1 – Operations

Table S1.1 activities			
Activity reference	Activity listed in Schedule 1 of the EP Regulations	Description of specified activity	Limits of specified activity
AR1	Section 1.1 Part A(1) (a): Burning any fuel in an appliance with a rated thermal input of 50 megawatts or more.	LCP687 (CCGT mode): Operation of a combined cycle gas turbine power plant (CCGT) burning gas to produce electricity (approximately 1400MW _{th})	From receipt of natural gas to discharge of exhaust gases (emission points A1 and A2) and wastes, and the generation of electricity and steam for use in the Heat Recovery Steam Generator (HRSG), steam turbine and carbon capture plant.
		Emergency gas oil generators to provide electrical power in the event of interruption of fuel supply and/or simultaneous loss of power generation and external power failure to the site. Schedule 25A – Medium Combustion Plant (MCP) and Specified generator that is excluded.	Emergency generators, as approved in response to pre-operational condition PO5, operated for the purpose of testing for no more than 1 hour per month per engine and no more than 500 hours operation per year in an emergency. Only one generator shall be tested at a time unless otherwise agreed in writing with Environment Agency. From receipt of gas oil to discharge of exhaust gases to emission point A3, and generation of electricity for emergency use at the installation only.
AR2	Section 6.10 Part A(1): Capture of carbon dioxide streams from an installation for the purposes of geological storage	Operation of a carbon capture plant involving the treatment of exhaust gas from the HRSG into the capture plant using an amine-based solvent to extract CO ₂ followed by compression, oxygen removal and dehydration of the CO ₂ for off-site transportation and long-term storage, and release of CO ₂ -abated flue gas to atmosphere.	From receipt of exhaust gases from the HRSG in the carbon capture plant to the treatment of exhaust gas prior to export of CO ₂ from the installation; release to atmosphere of treated exhaust gases from emission points A1; or venting of CO ₂ from emission point A4.

Table S1.1 activities			
Activity reference	Activity listed in Schedule 1 of the EP Regulations	Description of specified activity	Limits of specified activity
	Directly Associated Activity		
AR3	Directly associated activity	Storage of gas oil for use in emergency gas oil generators.	From receipt of raw materials to dispatch for use.
AR4	Directly associated activity	Water treatment – The pumping, filtering and chemical treatment of raw water from 3 rd party supply for use in the cooling water circuit, capture plant and boiler (steam cycle).	From receipt of raw materials to dispatch to chemical effluent and dirty water system.
AR5	Directly associated activity	Electric auxiliary boiler providing steam/heat for use within the carbon capture plant.	
AR6	Directly associated activity	Discharge to Tees Bay of cooling water blow-down, steam condensate, treated direct contact cooler effluent and surface water run-off.	From collection of effluents and surface water run-off to discharge at emission point W1.
AR7	Directly associated activity	Treatment of effluent from the direct contact cooler using reverse osmosis.	From the receipt of effluent from the direct contact cooler to treatment and release at W2 to emission point W1.

Table S1.2 Operating techniques		
Description	Parts	Date Received
Application EPR/PP3501LR/A001	Responses to question in Part B3 of the application form and Appendix 1 Non-technical summary, supporting document and appendices Response to request for information for duly making dated 22/04/2022 - Response to questions 2, 4, 5 and 6	Duly made 30/06/2022
Response to Schedule 5 Notice issued on 15/11/2022	Response to questions 1, 2, 3, 4, 5, 8, 9, 10, 11, 12, 13, 14, 16, 17, 18, 19, 20, 21, 22, 24, 25, 26, 27 and 28 CO ₂ Venting Modelling Assessment V4	31/03/2023 & 18/10/2023
Response to information request made on 02/02/2023 via email	Additional information on viability of heat recovery from Direct Contact Cooler; and a Sankey Diagram.	31/03/2023
Response to information request made on 15/02/2023 via email	Additional information on proposed effluent treatment plant	31/03/2023
Response to information request made on 28/03/2023 & 04/05/2023 via email	Additional information on proposed discharge to Tees Bay	29/03/2023 & 08/05/2023
Response to information request made on 09/05/2023 via email	Additional information on key features of the CO ₂ venting systems	24/05/2023
Response to information request made on 16/05/2023 via email	Clarification on proposed use of Selective Catalytic Reduction (SCR)	16/05/2023
Additional Information	Technical Note to the Environment Agency on CO ₂ Capture Rates	11/07/2023
Response to information request made on 05/07/2023 via email	BAT Assessment for Effluent Treatment	29/08/2023
Additional Information	Updated Technical Note to the Environment Agency and Natural England on Nitrogen Deposition – Dated 18/03/2024	18/03/2024

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
IC1	<p><u>MSUL and MSDL</u></p> <p>The Operator shall submit a written report in writing to the Environment Agency for assessment and written approval to define the “minimum start up load” (MSUL) and “minimum shut-down load” (MSDL) for LCP687.</p> <p>The report shall include a written justification 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. the output load as a percentage of the rated thermal output of the combustion plant (%). <p>And / Or</p> <ul style="list-style-type: none"> iii. at least three criteria (operational parameters and / or discrete processes as detailed in the Annex) or equivalent operational parameters that suit the technical characteristics of the plant, which can be met at the end of start-up or start of shut-down as detailed in Article (9) 2012/249/EU. 	Within 12 months of the date on which fuel is first burnt
IC2	<p><u>Net rated thermal input</u></p> <p>The Operator shall submit a written report to the Environment Agency for assessment and written which provides the net rated thermal input for LCP687.</p> <p>Evidence to support this figure, in order of preference, shall be in the form of:-</p> <ul style="list-style-type: none"> a) performance test results* during contractual guarantee testing or at commissioning (quoting the specified standards or test codes), b) manufacturer’s contractual guarantee value, c) published reference data, e.g., Gas Turbine World Performance Specifications (published annually); d) design data, e.g., nameplate rating of a boiler or design documentation for a burner system; e) operational efficiency data as verified and used for heat accountancy purposes; f) data provided as part of Due Diligence during acquisition, <p>*Performance test results shall be used if these are available.</p>	Within 12 months of the date on which fuel is first burnt
IC3	<p><u>SCR optimisation</u></p> <p>The Operator shall submit a written report to the Environment Agency for assessment and written approval describing the performance and optimisation of the Selective Catalytic Reduction (SCR) system and combustion settings to minimise oxides of nitrogen (NOx) emissions within the emission limit values described in this permit with the minimisation of nitrous oxide (N₂O) emissions. The report shall include an assessment of the level of NOx and N₂O emissions that can be achieved under optimum operating conditions.</p>	Within 4 months of the completion of commissioning.

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
IC4	<p><u>Commissioning</u></p> <p>The Operator shall submit a written report to the Environment Agency for assessment and written approval on the commissioning of the installation. The report shall summarise the environmental performance of the installation as set out in the commissioning plan required by pre operational condition PO2 in table S1.4 of this permit.</p> <p>The report shall include:</p> <ul style="list-style-type: none"> • a summary of the environmental performance of the plant as installed against the design parameters and risk assessments set out in the application and updated in response to the pre-operational conditions in this permit; • 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 and confirm that the Environmental Management System (EMS) has been updated accordingly. 	Within 3 months of the completion of commissioning.
IC5	<p><u>Monitoring location</u></p> <p>The Operator shall submit a written report to the Environment Agency for assessment and written approval on the assessment of air emissions monitoring locations A1 and A2 during commissioning of the installation.</p> <p>The report shall include:</p> <ul style="list-style-type: none"> • whether the air monitoring locations meet the requirements of BS EN 15259 and supporting Method Implementation Document (MID). • the results and conclusions of the assessment including where necessary proposals for improvements to meet the requirements. <p>Where notified in writing by the Environment Agency that the requirements are not met, the Operator shall submit proposals or further proposals for rectifying this in accordance with timescale in the notification.</p> <p>The proposals shall be implemented in accordance with Environment Agency's written approval.</p>	Before the installation is commissioned

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
IC6	<p><u>Monitoring exercise at W1</u></p> <p>The Operator shall carry out a monitoring exercise on the final discharge to Tees Bay at emission point W1 when the site is fully operational. The Operator shall monitor the final effluent discharge to Tees Bay at least once a month for at least 12 consecutive months for the full suite of pollutants that have been modelled in the Water Quality Risk Assessment submitted and approved in accordance with PO6 in table S1.4 of this permit. The monitoring shall be carried out in accordance with relevant Environment Agency Guidance:</p> <p>Monitoring discharges to water: guidance on selecting a monitoring approach - GOV.UK (www.gov.uk)</p> <p>Monitoring discharges to water: CEN and ISO monitoring methods - GOV.UK (www.gov.uk)</p> <p>Monitoring discharges to water: alternative monitoring methods - GOV.UK (www.gov.uk)</p> <p>Monitoring discharges to water: analytical quality control charts - GOV.UK (www.gov.uk)</p>	<p>Within 14 months of completion of commissioning or as agreed in writing with the Environment Agency</p>
IC7	<p><u>Monitoring exercise at W1 – review</u></p> <p>The Operator shall submit a written report to the Environment Agency for assessment and written approval detailing the results of the monitoring exercise (IC6) and the conclusions from the review.</p> <p>Following completion of the monitoring exercise completed in accordance with IC6 in this table the Operator shall use the discharge monitoring results to review and verify the conclusions of the existing Water Quality Risk Assessment.</p>	<p>Within 2 months from the completion of IC6 or as agreed in writing with the Environment Agency</p>
IC8	<p><u>Dry low NO_x</u></p> <p>The operator shall submit a written report to the Environment Agency for assessment and written approval to define when dry low NO_x operation is effective.</p> <p>The report shall include:</p> <ul style="list-style-type: none"> • an output load or operational parameters to justify when the dry low NO_x operation is effective. • the NO_x profile through effective dry low NO_x to 70% and then to full load. <p>See Note 1 in this table.</p>	<p>Within 4 months of the completion of commissioning</p>
IC9	<p><u>NO_x and CO emissions</u></p> <p>The operator shall submit a written report to the Environment Agency for assessment and written approval on their proposed achievable emission limit values (ELVs) for NO_x and CO.</p> <p>ELVs shall be expressed as a daily mean of validated hourly averages from minimum start-up load (MSUL) to baseload, supported by a summary of emissions data.</p> <p>See Note 2 in this table.</p>	<p>Within 6 months of the completion of commissioning</p>

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
IC10	<p><u>Carbon capture efficiency</u></p> <p>The Operator shall submit a written report to the Environment Agency for assessment and written approval detailing the carbon capture efficiency of the Carbon Capture Plant and CCGT under normal operating conditions (calculated using the methodology as approved in accordance with PO2 in table S1.4 of this permit) averaged over one year of operation as specified in table S3.3 of this permit.</p> <p>Should the normal operating conditions carbon capture efficiency reported be less than the design capture performance specification of 95%, the Operator shall carry out an analysis of the issues affecting the performance of the plant with respect to achievement of the 95% carbon capture rate and either;</p> <ul style="list-style-type: none"> • propose remedial actions for approval by the Environment Agency designed to improve capture efficiency, or; • provide an acceptable justification to the Environment Agency that a 95% capture rate is not reasonably achievable and that no further remedial action is to be taken. 	Within 15 months from the completion of commissioning.
IC11	<p><u>Monitoring</u></p> <p>The Operator shall submit a written report to the Environment Agency for assessment and written approval with reference to the monitoring requirements set in table S3.1 of this permit.</p> <p>The report must contain:</p> <ul style="list-style-type: none"> • the results of tests carried out for species to be considered for bi-annual monitoring • assessment of the results and conclusions of the assessment • proposals to change monitoring to bi-annual <p>The proposals shall be implemented in accordance with Environment Agency's written approval.</p>	At least 3 months prior to the proposed start of bi-annual monitoring
IC12	<p><u>Solvent degradation</u></p> <p>The Operator shall submit a written report to the Environment Agency for assessment and written approval on the degradation of absorber solvent quality. The report shall review the findings from the monitoring of absorber solvent quality over 12 months of operation, including but not limited to the monitoring carried out in accordance with table S3.3 of this permit. The report shall include:</p> <ul style="list-style-type: none"> • an investigation into the reasons for solvent degradation and how degradation effects the performance of the plant over time. • a review of the options for reducing the rate of solvent degradation; and proposals for the implementation of any measures identified from the review. <p>The proposals shall be implemented in accordance with Environment Agency's written approval.</p>	15 months from the completion of commissioning

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
<p>Note 1: Effective dry low NO_x thresholds are defined in table S1.6 of this permit, until IC8 has been completed compliance with ELVs will be based on 70% to baseload.</p> <p>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 of this permit.</p>		

Table S1.4 Pre-operational measures	
Reference	Pre-operational measures
PO1	<p><u>EMS</u></p> <p>Prior to the commencement of commissioning, the Operator shall send a summary of the site EMS to the Environment Agency and make available for inspection all documents and procedures which form part of the EMS. The EMS shall be developed in line with the requirements set out in Environment Agency web guide on developing a management system for environmental permits (found on www.gov.uk).</p> <p>The documents and procedures set out in the EMS shall form the written management system referenced in condition 1.1.1 (a) of the permit.</p>
PO2	<p><u>Commissioning plan</u></p> <p>At least 3 months prior to the commencement of commissioning, the Operator shall submit a written commissioning plan, including timelines for completion, for assessment and written approval by the Environment Agency. The commissioning plan shall include, but not be limited to:</p> <ul style="list-style-type: none"> • the timelines for the commissioning and the expected durations of these activities. • the expected emissions to the environment during the different stages of commissioning; risk assessment demonstrating that the environmental risks are not significant throughout all the phases of commissioning; the expected durations of commissioning activities and the actions to be taken to protect the environment and report to the Environment Agency in the event that actual emissions exceed expected emissions. • proposal for the validation of the approved noise assessment that is submitted in response to pre-operational condition PO4 in this table. • a methodology for approval to demonstrate the carbon capture efficiency of the plant. The approved methodology shall be used to demonstrate the carbon capture efficiency of the plant as part of the commissioning activities, and, after the commissioning phase, for process monitoring and reporting purposes in compliance with the conditions of the permit. • a methodology for approval for quantifying total mass of CO₂ emissions during short duration venting that may be required during the start-up sequence of the carbon capture plant and during other than normal operating conditions. <p>The commissioning activities shall be carried out in accordance with the commissioning plan approved by the Environment Agency.</p>

Table S1.4 Pre-operational measures	
Reference	Pre-operational measures
PO3	<p><u>Recovery of heat</u></p> <p>Prior to the commencement of commissioning, the Operator shall submit a report for assessment and written approval by the Environment Agency. The report shall contain a comprehensive review of the options available for utilising the heat generated by the combustion process and carbon capture plant in order to ensure that it is recovered as far as practicable. The review shall detail any identified proposals for improving the recovery and utilisation of waste heat and shall provide a timetable for their implementation.</p>
PO4	<p><u>Noise Impact Assessment (NIA)</u></p> <p>Following the completion of the final design of the Installation and at least 6 months prior to the commencement of commissioning the Operator shall submit an updated NIA for assessment and written approval by the Environment Agency. The NIA shall be in accordance with BS4142:2014 (Rating industrial noise affecting mixed residential and industrial areas) or other methodology as agreed with the Environment Agency. The assessment shall be based on the final design of the installation and include consideration of CO₂ venting as a noise source.</p>
PO5	<p><u>Emergency gas oil generators</u></p> <p>Following the completion of the final design of the installation and at least 6 months prior to the commencement of commissioning the Operator shall submit a report for assessment and written approval by the Environment Agency for the emergency gas oil generators.</p> <p>The report shall include:</p> <ul style="list-style-type: none"> • the number, size (MWth) and emission point locations • an updated emissions to air risk assessment (including air dispersion modelling), for emissions of combustion gases from the proposed generators based on the final design of the installation. The assessment shall follow the methodology set out in Environment Agency guidance https://www.gov.uk/guidance/air-emissions-risk-assessment-for-your-environmental-permit. • In the event that the assessment shows that impacts will lead to the exceedance of an environmental standard for air quality and/or relevant critical level or critical load at a relevant conservation/habitat site (as defined in Environment Agency https://www.gov.uk/guidance/air-emissions-risk-assessment-for-your-environmental-permit.) then the Operator shall submit proposals for approval for appropriate emissions abatement.
PO6	<p><u>Water Quality Assessment W1</u></p> <p>Following the completion of the final design of the installation and at least 6 months prior to the commencement of discharges of effluent and surface water runoff to Tees Bay from emission point W1, the Operator shall submit an updated Water Quality Assessment for assessment and written approval by the Environment Agency. The assessment shall be written in accordance with Environment Agency guidance Surface water pollution risk assessment for your environmental permit - GOV.UK (www.gov.uk) and H1 annex D2: assessment of sanitary and other pollutants in surface water discharges - GOV.UK (www.gov.uk)</p>

Table S1.4 Pre-operational measures	
Reference	Pre-operational measures
PO7	<p><u>Drainage plan</u></p> <p>Following the completion of the final design of the installation and at least 6 months prior to the commencement of commissioning the Operator shall submit to the Environment Agency a drainage plan based on the final design of the installation.</p>
PO8	<p><u>CO₂ assessment</u></p> <p>Following the completion of the final design of the Installation and at least 12 months prior to the commencement of commissioning the Operator shall submit a report for assessment and written approval by the Environment Agency. The report shall include:</p> <ul style="list-style-type: none"> • An updated assessment of the impact of CO₂ emissions on human health from the short duration venting that may be required during the start-up sequence of the carbon capture plant, during other than normal operating conditions and plant commissioning. The assessment shall be carried out in accordance with environmental risk assessment methodology set out in Environment Agency guidance https://www.gov.uk/guidance/air-emissions-risk-assessment-for-your-environmental-permit, with impacts compared with CO₂ acute exposure levels to humans. • A management plan detailing operating techniques to minimise potential CO₂ phase changes, solid effects and dense gas behaviour when venting CO₂ atmosphere.
PO9	<p><u>Baseline conditions</u></p> <p>At least 6 months prior to the commencement of commissioning the Operator shall submit an updated report for assessment and written approval by the environment Agency on the baseline conditions of soil and groundwater at the installation. The report shall contain:</p> <ul style="list-style-type: none"> • the information necessary to determine the state of soil and groundwater contamination so as to make a quantified comparison with the state upon definitive cessation of activities provided for in Article 22(3) of the IED. • all information needed to meet the information requirements of the EA H5 Site Condition Report Guidance Environmental permitting: H5 Site condition report - GOV.UK (www.gov.uk); and Article 22(2) of the IED including European Commission Guidance Note Concerning Baseline Reports under Article 22(2) (2014/C 136/03). <p>The report shall be implemented in accordance with that agreed with the Environment Agency.</p>

Table S1.4 Pre-operational measures	
Reference	Pre-operational measures
PO10	<p><u>Monitoring and maintenance plan</u></p> <p>At least 6 months prior to the commencement of commissioning the Operator shall submit a written protocol for assessment and written approval by the Environment Agency in the form of a monitoring and maintenance plan for the monitoring of soil and groundwater.</p> <p>The protocol shall demonstrate how the Operator will meet the requirements of Articles 14(1)(b), 14(1)(e) and 16(2) of the IED, the Water Framework Directive and Groundwater Daughter Directive</p> <p>As a minimum the plan should include but not be limited to the following;</p> <ul style="list-style-type: none"> • proposals for monitoring of soil quality; • identification of monitoring points; • sample collection methodology; • sampling frequency; • laboratory testing; • baseline soil and groundwater quality; • maintenance, inspection and contingency proposals; • robust justification for the duration of periodic monitoring of soils and groundwater through a systematic appraisal of the risk of contamination and reporting requirements. <p>This plan should also provide a methodology for the appropriate decommissioning of any redundant historic or current ground investigation boreholes present on the site which have been installed but which are not required for monitoring purposes.</p> <p>The procedures above shall be implemented in accordance with the written approval from the Environment Agency.</p>
PO11	<p><u>Boreholes</u></p> <p>At least 3 months prior to the commencement of commissioning the Operator shall submit a validation report detailing how redundant historic and current ground investigation boreholes have been decommissioned for approval of the Environment Agency.</p>
PO12	<p><u>Air quality assessment</u></p> <p>Following the completion of the final design of the installation and at least 6 months prior to the commencement of commissioning the Operator shall submit an updated air quality assessment (for emission points A1 and A2) for assessment and written approval by the Environment Agency.</p> <p>The assessment shall review and update the air quality risk assessment submitted with the permit application and be carried out in accordance with environmental risk assessment methodology set out in Environment Agency guidance https://www.gov.uk/guidance/air-emissions-risk-assessment-for-your-environmental-permit.</p>

Table S1.4 Pre-operational measures	
Reference	Pre-operational measures
PO13	<p><u>PCC other than normal operating conditions (OTNOC) plan</u></p> <p>Following the completion of the final design of the Installation and at least 6 months prior to the commencement of commissioning the Operator shall submit to the Environment Agency for assessment and written approval a post combustion carbon capture (PCC) plant OTNOC management plan. The plan shall set out any potential 'other than normal operating conditions (OTNOC)' for the PCC plant, taking into consideration both internal and external causes of OTNOC. OTNOC shall include periods of start-up and shut-down and the plan shall detail measures to (i) minimise the occurrence of OTNOC that are within operator control except for periods of start-up and shut-down associated with dispatchable power generation; and (ii) reduce the impact of all OTNOC events.</p> <p>The plan shall also set out proposals for measuring and reporting carbon capture performance during periods of start-up and shut down; and proposals for reviewing and optimising capture performance periodically so capture rates are as high as reasonably practical during these periods.</p>
PO14	<p><u>Process monitoring methods</u></p> <p>Following the completion of the final design of the installation and at least 6 months prior to the commencement of commissioning the Operator shall submit to the Environment Agency for assessment and written approval methodologies for the following process monitoring requirements for absorber amine solvent quality as required in table S3.3 of this permit:</p> <ul style="list-style-type: none"> • percent active amine (MEA) • carbon dioxide loading (rich amine) • heat stable salts • soluble iron concentration (rich and lean amine) • colour
PO15	<p><u>Emissions to Air</u></p> <p>Following the completion of the final design of the Installation and at least 6 months prior to the prior to the first combustion of a fuel or first firing the Operator shall submit to the Environment Agency for approval in writing a report proposing annual mass emissions limits or operating techniques, with associated calculation and reporting methods for parameters which could contribute to nutrient nitrogen deposition at the Coatham Dunes area of the Teesmouth and Cleveland Coast Site of Special Scientific Interest (SSSI). Compliance with the limits or operating techniques shall ensure that nutrient nitrogen deposition rates at this receptor do not exceed 1% of the lower end of the critical load range for nutrient nitrogen deposition.</p>

Table S1.5 Start-up and Shut-down thresholds		
Emission Point and Unit Reference	“Minimum Start-Up Load” Load in MW and as percent of rated power output (%)	“Minimum Shut-Down Load” Load in MW and as percent of rated power output (%)
A2 LCP687 Unit1	To be agreed in writing by the Environment Agency, following the outcome of improvement condition IC1 in table S1.3 of this permit.	To be agreed in writing by the Environment Agency, following the outcome of improvement condition IC1 in table S1.3 of this permit

Table S1.6 Dry Low NOx effective definition	
Emission Point and Unit Reference	Dry Low NOx effective definition Load in MW and as percent of rated power output (%)
A2 LCP287 Unit1	Load: As approved in accordance with IC8 in table S1.3 of this permit.

Schedule 2 – Raw materials and fuels

Table S2.1 Raw materials and fuels	
Raw materials and fuel description	Specification
Gas oil	Not exceeding 0.1% w/w sulphur content
Monoethanolamine (MEA)	Diethanolamine (DEA) not exceeding 0.2% content (unless otherwise agreed with the Environment Agency).

Schedule 3 – Emissions and monitoring

Emission point reference	Parameter	Source	Limit (including unit)	Reference period ^{Note2}	Monitoring frequency	Monitoring standard or method
A1 as shown on site plan in Schedule 7.	Oxides of nitrogen (NO and NO ₂ expressed as NO ₂)	Absorber stack	34 mg/m ³ Effective DLN to baseload ^{Note 4}	Yearly average	Continuous	BS EN 14181
			51.7 mg/m ³ Effective DLN to baseload ^{Note 4}	Monthly mean of validated hourly averages		
			45.8 mg/m ³ Effective DLN to baseload ^{Note 3} To be confirmed following completion of IC1 MSUL/MSDL to base load ^{Note 3}	Daily mean of validated hourly averages		
			103.3 mg/m ³ Effective DLN to baseload ^{Note 4}	95% of validated hourly averages within a calendar year		
	Carbon monoxide		34.4 mg/m ³ Effective DLN to baseload ^{Note 4}	Yearly average		
			103.3 mg/m ³ Effective DLN to baseload ^{Note 4}	Monthly mean of validated hourly averages		

Table S3.1 Point source emissions to air for CCGT operating with carbon capture (CO ₂ abated mode).						
Emission point reference	Parameter	Source	Limit (including unit)	Reference period ^{Note2}	Monitoring frequency	Monitoring standard or method
			113.7 mg/m ³ Effective DLN to baseload ^{Note 4} To be confirmed following completion of IC1 MSUL/MSDL to base load ^{Note 3}	Daily mean of validated hourly averages		
			206.7 mg/m ³ Effective DLN to baseload ^{Note 4}	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
	Sulphur Trioxide		-	Daily average or average over the sampling period	Once every year	As agreed in writing with the Environment Agency
	Oxygen		No limit	-	Continuous as appropriate to reference	BS EN 14181
	Water vapour				Continuous as appropriate to reference ^{Note1}	
	Stack gas temperature				Continuous as appropriate to reference	Traceable to national standards
Stack gas pressure			Continuous as appropriate to reference			

Table S3.1 Point source emissions to air for CCGT operating with carbon capture (CO ₂ abated mode).						
Emission point reference	Parameter	Source	Limit (including unit)	Reference period ^{Note2}	Monitoring frequency	Monitoring standard or method
	Carbon dioxide				Continuous as appropriate to reference	BS EN 14181
	Stack gas volume flow				Continuous	BS EN 16911
	As required by the Method Implementation Document for BS EN 15259 (Homogeneity test)		-	-	Pre-operation and when there is a significant operational change	BS EN 15259
	Ammonia		3 mg/m ³	Annual Average	Continuous	BS EN 14181
	Formaldehyde		0.5 mg/m ³	Average over the sampling period	Monthly until the requirements of IC11 have been agreed, then as bi-annual.	Isokinetic CEN TS 17638
	Acetaldehyde		5.3 mg/m ³			Isokinetic based on CEN TS 17638
	Total amines (expressed as MEA) CAS No 141-43-5		1 mg/m ³			Isokinetic impinger method based on EN 14791 to be agreed with the EA in writing
	Monoethanolamine (MEA) CAS No 141-43-5		No limit set			
	Ethylamine (EA) CAS No 75-04-7					
	Methyl diethanolamine (MDEA) CAS No 105-59-9					
	Diethanolamine (DEA) CAS No 111-42-2					
	Dimethylamine (DMA) CAS No 124-40-3					

Table S3.1 Point source emissions to air for CCGT operating with carbon capture (CO ₂ abated mode).						
Emission point reference	Parameter	Source	Limit (including unit)	Reference period ^{Note2}	Monitoring frequency	Monitoring standard or method
	Morpholine (MOR) CAS No 110-91-8					
	Monomethylamine (MMA) CAS No 74-89-5					
	2-(ethylamine) ethanol CAS No 110-73-6					
	Total nitrosamines expressed as N-nitrosodimethylamine (NDMA) CAS No. 62-75-9		0.002 mg/m ³			
	N-nitrosodimethylamine CAS No. 62-75-9		No limit set			
	N-nitrosomorpholine CAS No. 59-89-2					
	N-nitrosomethylethylamine CAS No. 65-75-9					
	N-nitrosodiethylamine CAS No. 55-18-5					
	N-nitrosodiisopropylamine CAS No. 601-77-4					
	N-nitrosodipropylamine CAS No. 621-64-7					
	N-nitrosodibutylamine CAS No. 924-16-3					
	N-nitrosodibenzylamine CAS No. 5335-53-8					
	N-(2-hydroxyethyl)ethylenediamine CAS No. 111-41-1					
	N-nitrosomorpholine CAS No. 59-89-2					

Table S3.1 Point source emissions to air for CCGT operating with carbon capture (CO₂ abated mode).						
Emission point reference	Parameter	Source	Limit (including unit)	Reference period^{Note2}	Monitoring frequency	Monitoring standard or method
	N-nitrosodiethanolamine (NDELA) 1116-54-CAS No. 1116-54-7					
	N-nitrosomethylethylamine CAS No. 10595-95-6					
	N-nitrosopyrrolidine CAS No. 930-55-2					
	N-nitrosodibenzylamine CAS No. 5336-53-8					
A4- location(s) as agreed in accordance with Pre-Operational Condition PO8 in table S1.4 of this permit.	CO ₂ Vent(s)	Carbon dioxide	No limit set	-	-	-

Note 1: The continuous measurement of the water vapour content of the flue-gas is not necessary if the flue-gas is dried before analysis.

Note 2: “average over the sampling period” means the average value of three consecutive measurements of at least 30 minutes each or as agreed in writing with the Environment Agency.

Note 3: 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 of this permit.

Note 4: This ELV applies between the effective dry low NO_x threshold and baseload once IC8 in table S1.3 of this permit has been completed. Effective dry low NO_x thresholds are defined in table S1.6 of this permit, until IC8 has been completed compliance with ELVs will be based on 70% to baseload.

Table S3.1a Point source emissions to air for CCGT operating in CO ₂ unabated mode.						
Emission point ref. & location	Parameter	Source	Limit (including unit)	Reference period ^{Note2}	Monitoring frequency	Monitoring standard or method
A2 as shown on site plan in Schedule 7.	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	Emissions from HRSG Stack LCP No. 687 Gas turbine fired on natural gas	33.3 mg/m ³ Effective DLN to baseload ^{Note 4}	Yearly average	Continuous	BS EN 14181
			50 mg/m ³ Effective DLN to baseload ^{Note 4}	Monthly mean of validated hourly averages		
			44.4 mg/m ³ Effective DLN to baseload ^{Note 4} To be confirmed following completion of IC1 MSUL/MSDL to base load ^{Note 3}	Daily mean of validated hourly averages		
			100 mg/m ³ Effective DLN to baseload ^{Note 4}	95% of validated hourly averages within a calendar year		
	Carbon Monoxide		33.3 mg/m ³ Effective DLN to baseload ^{Note 4}	Yearly average		
			100 mg/m ³ Effective DLN to baseload ^{Note 4}	Monthly mean of validated hourly averages		

Table S3.1a Point source emissions to air for CCGT operating in CO₂ unabated mode.

Emission point ref. & location	Parameter	Source	Limit (including unit)	Reference period ^{Note2}	Monitoring frequency	Monitoring standard or method
			110 mg/m ³ Effective DLN to baseload ^{Note 4} To be confirmed following completion of IC1 MSUL/MSDL to base load ^{Note 3}	Daily mean of validated hourly averages		
			200 mg/m ³ Effective DLN to baseload ^{Note 4}	95% of validated hourly averages within a calendar year	Continuous	
	Sulphur dioxide		-	-	At least every 6 months	Concentration by calculation, as agreed in writing with the Environment Agency
	Ammonia		3 mg/Nm ³	Annual Average	Continuous	BS EN 14181
	Sulphur Trioxide		-	Daily average or average over the sampling period	Once every year	As agreed in writing with the Environment Agency

Table S3.1a Point source emissions to air for CCGT operating in CO₂ unabated mode.

Emission point ref. & location	Parameter	Source	Limit (including unit)	Reference period^{Note2}	Monitoring frequency	Monitoring standard or method
	Flow		-	-	Continuous As appropriate to reference	EN ISO 16911 and M2
	Oxygen		-	-	Continuous As appropriate to reference	BS EN 14181
	Water vapour		-	-	Continuous As appropriate to reference ^{Note1}	BS EN 14181
	Stack gas temperature		-	-	Continuous As appropriate to reference	Traceable to national standards
	Stack gas pressure		-	-	Continuous As appropriate to reference	Traceable to national standards
	As required by the Method Implementation Document for BS EN 15259		-	-	Pre-operation and when there is a significant operational change	BS EN 15259

Note 1: The continuous measurement of the water vapour content of the flue-gas is not necessary if the flue-gas is dried before analysis.

Note 2: "average over the sampling period" means the average value of three consecutive measurements of at least 30 minutes each or as agreed in writing with the Environment Agency.

Note 3: 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 of this permit.

Note 4: This ELV applies between the effective dry low NO_x threshold and baseload once IC8 in table S1.3 of this permit has been completed. Effective dry low NO_x thresholds are defined in table S1.6 of this permit, until IC8 has been completed compliance with ELVs will be based on 70% to baseload.

Table S3.1b Point Source emissions to air – emission limits and monitoring requirements						
Emission point ref. & location	Source	Parameter	Limit (incl. unit)	Reference period	Monitoring frequency	Monitoring standard or method <small>Note1</small>
A3 – locations as agreed in accordance with Pre-Operational Condition PO5 in table S1.4 of this permit.	Emergency gas oil generator(s)	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	No limit	Periodic	First monitoring measurements shall be carried out within four months of the issue date of the permit or of the date when the MCP is first put into operation, whichever is later. Then after 500 hours operation and no less frequent than every 5 years.	MCERTS BS EN 14792
		Carbon monoxide	No limit			MCERTS BS EN 15058
<p>Note 1: Monitoring requirements are defined at a temperature of 273.15 K, a pressure of 101.3 kPa and after correction for the water vapour content of the waste gases at a standardised O₂ content of 6% for solid fuels, 15% for engines and gas turbines and 3% all other MCPs</p>						

Table S3.2 Point Source emissions to water (other than sewer) – emission limits and monitoring requirements						
Emission point ref. & location	Source	Parameter	Limit (incl. unit)	Reference period	Monitoring frequency	Monitoring standard or method
W1 on site plan emission to Tees Bay	Waste water emission from site – includes cooling water blowdown, steam condensate, treated direct contact cooler effluent and surface water runoff.	Requirement as agreed in accordance with IC7 in table S1.3 of this permit.				
W2- location as agreed in writing with the Environment Agency Emission from effluent treatment plant to W1 and then to Tees Bay	Treated direct contact cooler effluent.	Flow	-	--	Continuous	MCERTS self-monitoring of effluent flow scheme
		pH	-	-	Continuous	BS6068-2.50
		Temperature	-	-	Continuous	
		Total organic carbon (TOC)	50 mg/l	24-hour flow proportional sample	At least once every month	EN 1484
		Chemical oxygen demand (COD)	150 mg/l	24-hour flow proportional sample	At least once every month	BS ISO 15705
		Total suspended solids (TSS)	30 mg/l	24-hour flow proportional sample	At least once every month	EN 872
		Fluoride (F ⁻)	25 mg/l	24-hour flow proportional sample	At least once every month	EN ISO 10304-1

Table S3.2 Point Source emissions to water (other than sewer) – emission limits and monitoring requirements						
Emission point ref. & location	Source	Parameter	Limit (incl. unit)	Reference period	Monitoring frequency	Monitoring standard or method
		Sulphide, easily released (S ²⁻)	0.2 mg/l	24-hour flow proportional sample	At least once every month	-
		Sulphite (SO ₃ ²⁻)	20 mg/l	24-hour flow proportional sample	At least once every month	EN ISO 10304-1
		Arsenic (As)	50 µg/l	24-hour flow proportional sample	At least once every month	EN ISO 11885 or EN ISO 17294-2)
		Cadmium (Cd)	5 µg/l	24-hour flow proportional sample	At least once every month	EN ISO 11885 or EN ISO 17294-2)
		Chromium (Cr)	50 µg/l	24-hour flow proportional sample	At least once every month	EN ISO 11885 or EN ISO 17294-2)
		Copper (Cu)	50 µg/l	24-hour flow proportional sample	At least once every month	EN ISO 11885 or EN ISO 17294-2)
		Nickel (Ni)	50 µg/l	24-hour flow proportional sample	At least once every month	EN ISO 11885 or EN ISO 17294-2)
		Lead (Pb)	20 µg/l	24-hour flow proportional sample	At least once every month	EN ISO 11885 or EN ISO 17294-2)
		Zinc (Zn)	200 µg/l	24-hour flow proportional sample	At least once every month	EN ISO 11885 or EN ISO 17294-2)

Table S3.2 Point Source emissions to water (other than sewer) – emission limits and monitoring requirements						
Emission point ref. & location	Source	Parameter	Limit (incl. unit)	Reference period	Monitoring frequency	Monitoring standard or method
		Mercury (Hg)	3 µg/l	24-hour flow proportional sample	At least once every month	EN ISO 12846 or EN ISO 17852
		Chloride (Cl ⁻)	-	24-hour flow proportional sample	At least once every month	EN ISO 10304-1 or EN ISO 15682
		Total nitrogen	-	24-hour flow proportional sample	At least once every month	EN 12260

Table S3.3 Process monitoring requirements				
Emission point reference or source or description of point of measurement	Parameter	Monitoring frequency	Monitoring standard or method	Other specifications
LCP 687 operating in CO ₂ abated mode.	Net electrical efficiency	Once within 4 months after commissioning and then after each modification which that could significantly affect these parameters.	EN Standards or equivalent	-
LCP 687 operating in CO ₂ unabated mode.				
Absorber amine solvent quality, activity AR2 in table S1.1	Percent active amine (MEA)	1-2 days or otherwise agreed in writing with the Environment Agency	As agreed in writing with the Environment Agency in accordance with PO14 in table S1.4.	-
Absorber amine solvent quality, activity AR2 in table S1.1	Carbon dioxide loading (rich amine)	Every 2 days or otherwise agreed in writing with the Environment Agency		-
Absorber amine solvent quality, activity AR2 in table S1.1	Heat stable salts	Every day during the first month of operation then 1 per week, or otherwise agreed in writing with the Environment Agency.		-
Absorber amine solvent quality, activity AR2 in table S1.1	Soluble iron concentration – rich amine			
Absorber amine solvent quality, activity AR2 in table S1.1	Soluble iron concentration – Lean amine following stripper	Once per week, or otherwise agreed in writing with the Environment Agency		-
Absorber amine solvent quality, activity AR2 in table S1.1	Colour	Weekly, or otherwise agreed in writing with the Environment Agency.		-

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
Absorber amine solvent quality, activity AR2 in table S1.1	Degradation products – including but not limited to amines, nitrosamines, nitramines (in absorber amine prior to reclaiming and after reclaiming)	Monthly, or otherwise agreed in writing with the Environment Agency	BSEN ISO 10695, or otherwise agreed in writing with the Environment Agency	-
Carbon capture performance	Carbon capture efficiency (%) during normal operation.	Continuous	Calculation by method traceable to national standards compliant with UK ETS, to be agreed in writing with the Environment Agency as part of PO2 in Table S1.4 of this permit.	See Note 1
	Carbon capture efficiency (%) during start-up and shut-down.			
Venting of CO ₂ from Carbon Capture Plant – venting locations as identified in the assessment provided in response to PO8 in table S1.4 of this permit.	<ul style="list-style-type: none"> - Duration of event - Total mass of CO₂ emissions (tonnes / event) 	Event specific, total annual	Calculation by method traceable to national standards compliant with UK ETS, to be agreed in writing with the Environment Agency as part of PO2 in Table S1.4 of this permit.	The operator shall identify the root cause of the venting event and consider ways to prevent or reduce the frequency and duration of reoccurrence.
<p>Note 1: Instantaneous and annual average Carbon Capture Efficiency to be monitored. Annual average Carbon Capture Efficiency to be averaged over 1 year of operations (from 1st of January) during normal operation. Excluding periods of OTNOC. OTNOC includes venting of CO₂ during periods of time when the CO₂ transport and storage system is not available due to causes external to the operations of the installation; and periods of start-up and shut-down.</p>				

Table S3.4 Annual limits			
Emission point	Substance	Medium	Limit (including unit)
A1 as shown on site plan in Schedule 7.	As approved in accordance with pre-operational condition PO15 in table S1.4	Air	As approved in accordance with pre-operational condition PO15 in table S1.4.

Schedule 4 – Reporting

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

Table S4.1 Reporting of monitoring data			
Parameter	Emission or monitoring point/reference	Reporting period	Period begins
Emissions to air Parameters as required by condition 3.5.1.	A1 & A2.	Every 3 months for continuous monitoring and monthly monitoring	1 January, 1 April, 1 July, 1 October
		Every 6 months for monthly and bi-annual monitoring	1 January, 1 July
		Every year where there is an annual average	1 January
Emissions to Water Parameters as required by condition 3.5.1.	W1 & W2	Every 6 months	1 January, 1 July
- Number of events - Duration of events - Root cause analysis for each event and preventative / frequency reduction measures Total mass of CO ₂ emissions (tonnes / event)	Venting from Carbon Capture Plant- venting locations as identified in the assessment provided in response to PO8 in table S1.4 of this permit.	Annually	1 January

Table S4.2 Resource Efficiency Metrics	
Parameter	Units
Electricity Exported	GWhr
Heat Exported	GWhr
Mechanical Power Provided	GWhr
Fossil Fuel Energy Consumption	GWhr
Non-Fossil Fuel Energy Consumption	GWhr
Annual Operating Hours	hr
Water Abstracted from Fresh Water Source	m ³
Water Abstracted from Borehole Source	m ³
Water Abstracted from Estuarine Water Source	m ³
Water Abstracted from Sea Water Source	m ³

Table S4.2 Resource Efficiency Metrics	
Parameter	Units
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	tonnes
Hazardous Waste Transferred for Recovery at another installation	tonnes
Non-Hazardous Waste Transferred for Disposal at another installation	tonnes
Non-Hazardous Waste Transferred for Recovery at another installation	tonnes
Waste recovered to Quality Protocol Specification and transferred off-site	tonnes
Waste transferred directly off-site for use under an exemption / position statement	tonnes
Efficiency of carbon dioxide capture (Carbon Capture Plant) during normal operation	%
Efficiency of carbon dioxide capture (Carbon Capture Plant) during start-up and shut-down	%
Total (thermal and electrical) energy use per tonne of carbon dioxide captured (Carbon Capture Plant)	kW/Tonne CO ₂ captured
Amine solvent usage	tonnes
Ammonia/urea usage (SCR)	tonnes
Gas oil usage	tonnes
Total CO ₂ captured	tonnes
Total CO ₂ vented to atmosphere	tonnes

Table S4.3 Large Combustion Plant 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
Operating Hours for each LCP	Annually	hr

Table S4.4 Reporting forms		
Media/ parameter	Reporting format	Agency recipient
Air & Energy	Form IED AR1 – SO ₂ , NO _x and dust mass emission and energy. Form as agreed in writing by the Environment Agency.	National and Area Office
Air	Form Air 1 – Carbon Capture Plant emissions or other form as agreed in writing by the Environment Agency	Area Office
LCP	Form IED HR1 – operating hours. Form as agreed in writing by the Environment Agency.	National and Area Office

Table S4.4 Reporting forms		
Media/ parameter	Reporting format	Agency recipient
Air	Form IED CON 2 – continuous monitoring. Form as agreed in writing by the Environment Agency	Area Office
Air	Form IED PM1 – discontinuous monitoring and load. Form as agreed in writing by the Environment Agency.	Area Office
LCP	Form IED BD1 – Cumulative annual rolling malfunction and breakdown hours. Form as agreed in writing by the Environment Agency.	Area Office
Air	Form IED MF1 – pollutant concentrations when during any day with malfunction or breakdown of abatement plant. Form as agreed in writing by the Environment Agency.	Area Office
Air	Form AQRA2 – Air Quality Risk Assessment for Other Than Normal Operating Conditions. Form as agreed in writing by the Environment Agency.	Area Office
Resource Efficiency	Form REM1 – resource efficiency annual report Form as agreed in writing by the Environment Agency.	National and Area Office
CEMs	Form IED CEM – Invalidation Log. Form as agreed in writing by the Environment Agency.	Area Office
Water	Form Water1 – emissions to water or other form as agreed in writing by the Environment Agency	Area Office
Process (CO ₂ venting)	Form Process1 (CO ₂ Venting) – Process monitoring or other form as agreed in writing by the Environment Agency	Area Office

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 breach of permit conditions not related to limits	
To be notified within 24 hours of detection	
Condition breached	
Date, time and duration of breach	
Details of the permit breach i.e. what happened including impacts observed.	
Measures taken, or intended to be taken, to restore permit compliance.	

(d) 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

Part C Malfunction or Breakdown of LCP abatement equipment

Permit Number	
Name of operator	
Location of Facility	
LCP Number	
Malfunction or breakdown	
Date of malfunction or breakdown	

(a) Notification requirements for any malfunction and breakdown of abatement equipment as defined by the Industrial Emission Directive*.	
To be notified within 48 hours of abatement equipment malfunction and breakdown	
Time at which malfunction or breakdown commenced	
Time at which malfunction or breakdown ceased	
Duration of the breakdown event in hours and minutes	
Reasons for malfunction or breakdown	
Where the abatement plant has failed, give the hourly average concentration of all measured pollutants.	
Cumulative breakdown operation in current year (at end of present event)	
Cumulative malfunction operation in current year (at end of present event)	
Name**	

Post	
Signature **	
Date	

* See section 3.6 and Appendix E of ESI Compliance Protocol for guidance

** 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.

“average over the sampling period” means the average value of three consecutive measurements of at least 30 minutes each or as agreed in writing with the Environment Agency.

“average of samples obtained during one year” means the average of the values obtained during one year of the periodic measurements taken with the monitoring frequency set for each parameter.

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

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

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

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

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

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

“CEN” means 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.

“combined heat and power” (CHP) or Cogeneration means the simultaneous generation in one process of thermal energy and electrical or mechanical energy.

“commissioning” means testing of the installation that involves any operation of a Large Combustion Plant referenced in schedule 1, table S1.1 or as agreed with the Environment Agency.

“daily average” means the average over a period of 24 hours of validated hourly averages obtained by continuous measurements.

“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.

“emergency plant” means a plant which operates for the sole purpose of providing power at a site during an onsite emergency and/or during a black start and which does not provide balancing services or demand side response services.

“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.

“Energy efficiency” means the annual net plant energy efficiency, the value for which is 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.

“gas oil” includes diesel and is defined in Article 3(19) of the MCPD.

“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, as read in accordance with Schedule 1A to the Environmental Permitting (England and Wales) Regulations 2016.

“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.

“limited operating hours MCP” means an MCP that meets the requirements of paragraph 8 of Part 2 of Schedule 25A of the EP Regulations.

“low polluting fuels” means biomass or coal with an average as-received sulphur content of less than 0.4% by mass as described in the ESI IED Compliance Protocol for Utility Boilers and Gas Turbines.

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

“MCERTS” means the Environment Agency’s Monitoring Certification Scheme.

“MCR” means maximum continuous rating.

“medium combustion plant” or “MCP” means a combustion plant with a rated thermal input equal to or greater than 1 MW but less than 50 MW.

“Medium Combustion Plant Directive” or “MCPD” means Directive 2015/2193/EU of the European Parliament and of the Council on the limitation of emissions of certain pollutants into the air from medium combustion plants, as read in accordance with Schedule 1A to the Environmental Permitting (England and Wales) Regulations 2016.

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

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

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

“ncv” means net calorific value.

“Net electrical efficiency” means the ratio between the net electrical output (electricity produced minus the imported energy) and the fuel/feedstock energy input (as the fuel/feedstock lower heating value) at the combustion unit boundary over a given period of time.

“new MCP” means an MCP first put into operation on or after 20/12/2018.

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

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

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

“SI” means site inspector.

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

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

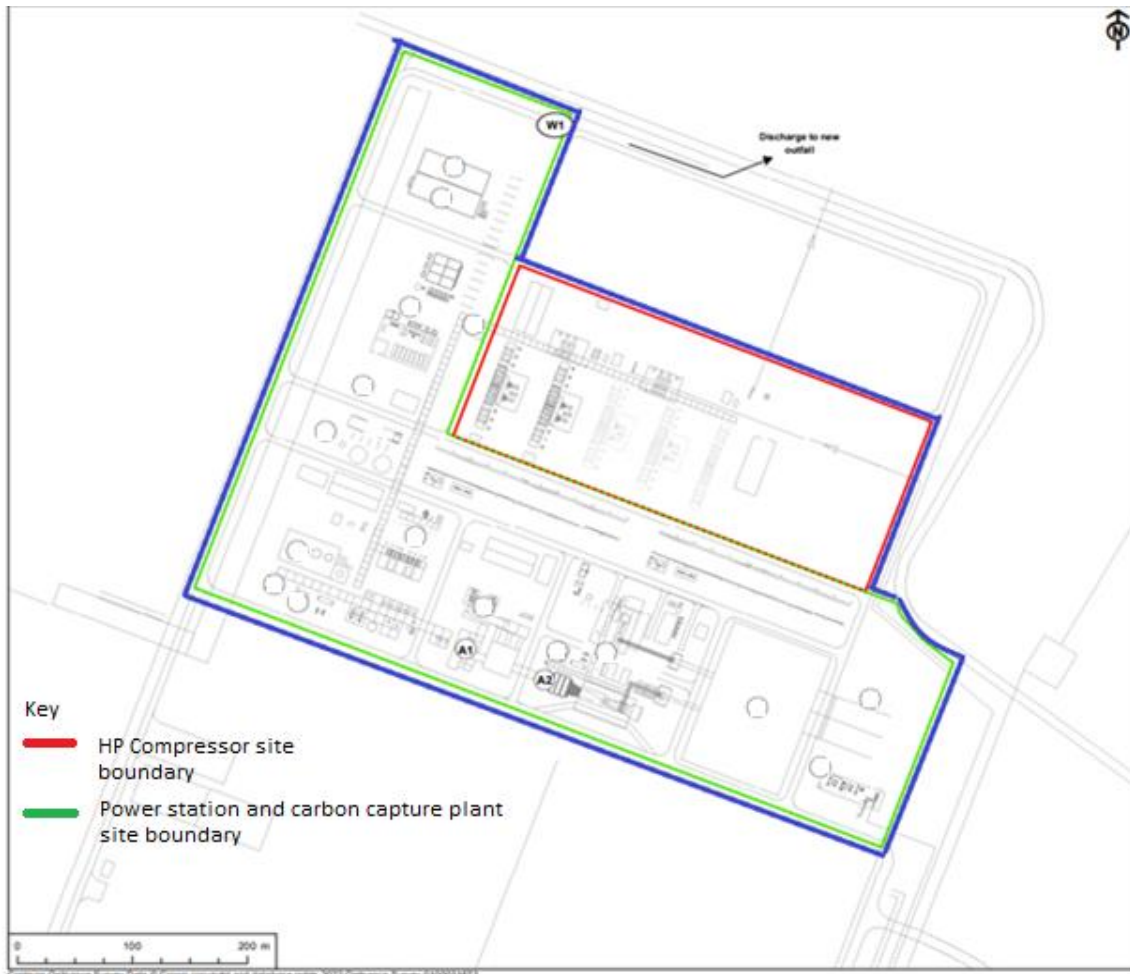
Unless otherwise stated, any references in this permit to concentrations of substances in emissions into air means:

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

“year” means calendar year ending 31 December.

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

Schedule 7 – Site plan



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