Notice of variation and consolidation with introductory note

The Environmental Permitting (England & Wales) Regulations 2016

Uniper UK Limited

Grain Power Station
Isle of Grain
Rochester
Kent
ME3 0AR

Variation application number

EPR/EP3533RY/V006

Permit number

EPR/EP3533RY

Grain Power Station
Permit number EPR/EP3533RY

Introductory note

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

Under the Environmental Permitting (England & Wales) Regulations 2016 (schedule 5, part 1, paragraph 19) a variation may comprise a consolidated permit reflecting the variations and a notice specifying the variations included in that consolidated permit.

Schedule 2 of the notice comprises a consolidated permit which reflects the variations being made. All the conditions of the permit have been varied and are subject to the right of appeal.

Article 21(3) of the Industrial Emissions Directive (IED) requires the Environment Agency to review conditions in permits that it has issued and to ensure that the permit delivers compliance with relevant standards, within four years of the publication of updated decisions on Best Available Techniques (BAT) Conclusions. We have reviewed the permit for this installation against the revised BAT Conclusions for the large combustion plant sector published on 17th August 2017. Only activities covered by this BAT Reference Document have been reviewed and assessed.

This variation makes the below changes following the review under Article 21(3) of the Industrial Emissions Directive (IED) and the consolidation of the Environmental Permitting Regulations that came into force on the 4 January 2017:

- Revised emission limits and monitoring requirements for emissions to air applicable from 17 August 2021 in table S3.1a;
- An improvement condition (IC11) requiring a plan characterising the gas oil fuel to be in place by 2021; and
- Inclusion of process monitoring for energy efficiency in table S3.3.

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

Grain Power Station consists of four large combustion plants (LCPs), namely LCP 102, LCP 103, LCP 104 and LCP 105.

The net thermal input of the LCPs is:

- LCP 102 – two 113 MWth open cycle gas turbines (OCGTs),
- LCP 103 one 737 MWth combined cycle gas turbine (CCGT),
- LCP 104 one 746 MWth CCGT and,
- LCP 105 one 744 MWth CCGT.

LCP 102 consists of two OCGTs fired by gas oil and permitted to operate as a non-emergency plant to generate power for balancing services when required by the National Grid. LCP 102 is permitted to operate for up to 500 hours per year.

The CCGTs (LCP 103, LCP 104 and LCP 105) are fired by natural gas. Combustion gases are discharged to air via a dedicated windshield (93 metres height) for each CCGT. There is no supplementary firing of the Heat Recovery Steam Generators (HRSGs). The main pollutants are oxides of nitrogen which are minimised by the use of lean premix and two stage combustion.

LCP 103 and LCP 104 have been converted to operate in either standard, or a low load configuration. This gives the installation greater flexibility for meeting variable demands of the National Grid, when grid conditions require a reduced output from the Grain Power Station.

The CCGTs (LCP 103, LCP 104 and LCP 105) can also operate as a combined heat and power (CHP) system to supply otherwise excess heat to the adjacent Grain Liquid Natural Gas (LNG) installation operated by National Grid for the purposes of LNG re-evaporation. A closed demineralised water loop runs through

transfer pipes to the Grain LNG terminal. The heat transfer loop is operated by Uniper UK Limited. With the closed loop system, heat from the turbine cooling can be exported for use by the Grain LNG terminal and cooled water is returned to the steam turbine condenser to complete the loop.

The site is equipped with a direct, once-through cooling water system. Water is extracted from the River Medway estuary and pumped through underground culverts through condensers and coolers for the operational plant. The water exits the plant and travels in a second culvert to discharge back into the River Medway estuary.

A raw water treatment plant uses either estuarine or borehole water for the production of feed water for CCGT steam generation.

An electro-chlorination plant is used to produce sodium hypochlorite from sea water and used for dosing cooling water to prevent bio-fouling in the cooling water systems.

The site operates according to an environmental management system (EMS) accredited to ISO Standard 14001:2015.

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/RP3432SG/A001	Duly made 20/01/06	
Additional information received	10/07/06	
Permit determined EPR/RP3432SG	17/01/07	
Part surrender application EPR/RP3432SG/S002	Duly made 17/06/08	
Additional information received	23/09/08	
Additional information received	30/09/08	
Permit part surrendered EPR/RP3432SG/S002	15/10/08	
Variation application EPR/RP3432SG/V003	Duly made 20/08/09	
Variation issued EPR/RP3432SG/V003	23/04/10	
Variation determined EPR/RP3432SG/V004	11/03/13	Environment Agency initiated variation to incorporate Eel Regulations improvement condition.
Variation determined EPR/RP3432SG/V005	Issued 29/09/14	Environment Agency Initiated Variation, to add an improvement condition requiring a cost benefit appraisal to ensure compliance with the Eel Regulations. Effective 01/10/14.
Transfer application EPR/EP3533RY/T001 (full transfer of permit EPR/RP3432SG)	Duly made 09/07/15	Application to transfer the permit in full from E.ON(UK) PLC to Uniper UK Limited.
Transfer determined EPR/EP3533RY/T001	26/08/15	Full transfer of permit complete.

Status log of the permit		
Description	**Date**	**Comments**
Regulation 60 Notice sent to the Operator	31/10/14	Issue of a Notice under Regulation 60(1) of the Environmental Permitting Regulations (EPR). Environment Agency initiated review and variation to vary and update the permit to modern conditions.
Regulation 60 Notice re-issued	09/12/14	
Regulation 60 Notice response	27/03/15	Response received from the Operator.
Additional information received	30/06/15	Response to request for further information (RFI) dated 29/05/15.
Receipt of additional information	15/09/15	Proposals for low load operation on LCP 103.
Variation determined EPR/EP3533RY/V002	24/12/15	Varied and consolidated permit issued in modern condition format. Variation effective from 01/01/16.
Variation application EPR/EP3533RY/V003	Duly made 05/01/17	Registered office address changed.
Variation issued EPR/EP3533RY/V003	17/01/17	Varied permit issued to Uniper UK Limited.
Part surrender application EPR/EP3533RY/S004	Duly made 15/09/17	To surrender the land in the 'Grain A Power Station' area of the site – main boilers 1 & 4 and auxiliary boilers.
Request for further information by email 15/08/17	25/08/17	Updated site plan and non-technical summary received.
Permit part surrendered EPR/EP3533RY/S004	02/10/17	Varied and consolidated permit issued.
Variation application EPR/EP3533RY/V005	Duly made 22/10/18	Application to permit low partial load operation on LCP 104 (Unit 7).
Additional information received	31/10/18	Additional information on environmental management system procedure for monitoring of free chlorine at discharge point W1.
Variation determined EPR/EP3533RY/V005	23/11/18	Varied and consolidated permit issued.
Regulation 61 Notice sent to the Operator	01/05/18	Issue of a Notice under Regulation 61(1) of the EPR. Environment Agency initiated review and variation to vary the permit under IED to implement Chapter II following the publication of the revised Best Available Techniques (BAT) Reference Document for large combustion plant.
Regulation 61 Notice response	31/10/18	Response received from the Operator.
Request for further information by email 11/03/19	11/03/19	Request for further information on compliance with several BAT conclusions (6, 8, 12, 14, 38 and 44), general compliance for LCP 102, additional information on DLN effective point for LCP 103, 104 and 105.
Request for further information by email 26/03/19	26/03/19	Request for further information on compliance with BAT conclusion 14 and additional information on thermal rating of non-large combustion plants.

Status log of the permit		
Description	**Date**	**Comments**
Additional information received	26/04/19	Additional information from the Operator in response to requests of 11/03/19 and 26/03/19.
Variation determined EPR/EP3533RY/V006 (Billing ref: PP3703PG)	13/08/19	Varied and consolidated permit issued. Effective from 13/08/19

End of introductory note

The Environmental Permitting (England and Wales) Regulations 2016

The Environment Agency in exercise of its powers under regulation 20 of the Environmental Permitting (England and Wales) Regulations 2016 varies

Permit number

EPR/EP3533RY

Issued to

Uniper UK Limited ("the operator")

whose registered office is

Compton House
2300 The Crescent
Birmingham Business Park
Birmingham
B37 7YE

company registration number 02796628

to operate a regulated facility at

Grain Power Station
Isle of Grain
Rochester
Kent
ME3 0AR

to the extent set out in the schedules.

The notice shall take effect from 13/08/2019

Name	Date
Simon Hunt	**13/08/2019**

Authorised on behalf of the Environment Agency

Schedule 1

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

Schedule 2 – consolidated permit

Consolidated permit issued as a separate document.

Permit

The Environmental Permitting (England and Wales) Regulations 2016

Permit number

EPR/EP3533RY

This is the consolidated permit referred to in the variation and consolidation notice for application EPR/EP3533RY/V006 authorising,

Uniper UK Limited ("the operator"),

whose registered office is

Compton House
2300 The Crescent
Birmingham Business Park
Birmingham
B37 7YE

company registration number 02796628

to operate a regulated facility

Grain Power Station
Isle of Grain
Rochester
Kent
ME3 0AR

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

Name	Date
Simon Hunt	**13/08/2019**

Authorised on behalf of the Environment Agency

Conditions

1 Management

1.1 General management

1.1.1 The operator shall manage and operate the activities:

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

(b) using sufficient competent persons and resources.

1.1.2 Records demonstrating compliance with condition 1.1.1 shall be maintained.

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

1.2 Energy efficiency

1.2.1 The operator shall:

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

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

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

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

1.3 Efficient use of raw materials

1.3.1 The operator shall:

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

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

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

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

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

1.4.1 The operator shall take appropriate measures to ensure that:

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

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

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

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

2 Operations

2.1 Permitted activities

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

2.2 The site

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

2.3 Operating techniques

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

2.3.2 For the following activities referenced in schedule 1, table S1.1: LCP 102, LCP 103, LCP 104 and LCP 105. The activities shall be operated in accordance with the "Electricity Supply Industry IED Compliance Protocol for Utility Boilers and Gas Turbines" dated December 2015 or any later version unless otherwise agreed in writing by the Environment Agency.

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

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

2.3.5 For the following activities referenced in schedule 1, table S1.1: LCP 102. The activities shall not operate for more than 500 hours per year.

2.3.6 For the following activities referenced in schedule 1, table S1.1: LCP 102, LCP 103, LCP 104 and LCP 105. The end of the start up period and the start of the shutdown period shall conform to the specifications set out in Schedule 1, tables S1.2 and S1.4.

2.3.7 For the following activities referenced in schedule 1, table S1.1: LCP 103, LCP 104 and LCP 105. The effective Dry Low NOx threshold shall conform to the specifications set out in Schedule 1, tables S1.2 and S1.5.

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.

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, S3.2 and S3.3.

3.1.2 The limits given in schedule 3 shall not be exceeded.

3.1.3 Periodic monitoring shall be carried out at least once every 5 years for groundwater and 10 years for soil, unless such monitoring is based on a systematic appraisal of the risk of contamination.

3.2 Emissions of substances not controlled by emission limits

3.2.1 Emissions of substances not controlled by emission limits (excluding odour) shall not cause pollution. The operator shall not be taken to have breached this condition if appropriate measures, including, but not limited to, those specified in any approved emissions management plan, have been taken to prevent or where that is not practicable, to minimise, those emissions.

3.2.2 The operator shall:

(a) if notified by the Environment Agency that the activities are giving rise to pollution, submit to the Environment Agency for approval within the period specified, an emissions management plan which identifies and minimises the risks of pollution from emissions of substances not controlled by emission limits;

(b) implement the approved emissions management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

3.2.3 All liquids in containers, whose emission to water or land could cause pollution, shall be provided with secondary containment, unless the operator has used other appropriate measures to prevent or where that is not practicable, to minimise, leakage and spillage from the primary container.

3.3 Odour

3.3.1 Emissions from the activities shall be free from odour at levels likely to cause pollution outside the site, as perceived by an authorised officer of the Environment Agency, unless the operator has used appropriate measures, including, but not limited to, those specified in any approved odour management plan, to prevent or where that is not practicable to minimise the odour.

3.3.2 The operator shall:

(a) if notified by the Environment Agency that the activities are giving rise to pollution outside the site due to odour, submit to the Environment Agency for approval within the period specified, an odour management plan which identifies and minimises the risks of pollution from odour;

(b) implement the approved odour management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

3.4 Noise and vibration

3.4.1 Emissions from the activities shall be free from noise and vibration at levels likely to cause pollution outside the site, as perceived by an authorised officer of the Environment Agency, unless the operator has used appropriate measures, including, but not limited to, those specified in any approved noise and vibration management plan to prevent or where that is not practicable to minimise the noise and vibration.

3.4.2 The operator shall:

(a) if notified by the Environment Agency that the activities are giving rise to pollution outside the site due to noise and vibration, submit to the Environment Agency for approval within the period specified, a noise and vibration management plan which identifies and minimises the risks of pollution from noise and vibration;

(b) implement the approved noise and vibration management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

3.5 Monitoring

3.5.1 The operator shall, unless otherwise agreed in writing by the Environment Agency, undertake the monitoring specified in the following tables in schedule 3 to this permit:

(a) point source emissions specified in tables S3.1, S3.1a and S3.2;

(b) process monitoring specified in table S3.3.

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

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

3.5.4 Permanent means of access shall be provided to enable sampling/monitoring to be carried out in relation to the emission points specified in schedule 3 tables S3.1, 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, table 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 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 carbon monoxide releases of a single measured result shall be taken to be 10%;

(e) an invalid hourly average means an hourly average period invalidated due to malfunction of, or maintenance work being carried out on, the continuous measurement system. However, to allow some discretion for zero and span gas checking, or cleaning (by flushing), an hourly average period will count as valid as long as data has been accumulated for at least two thirds of the period. Such discretionary periods are not to exceed more than 5 in any one 24-hour period unless agreed in writing. Where plant may be operating for less than the 24-hour period, such discretionary periods are not to exceed more than one quarter of the overall valid hourly average periods unless agreed in writing; and

(f) any day, in which more than three hourly average values are invalid shall be invalidated.

4 Information

4.1 Records

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

(a) be legible;

(b) be made as soon as reasonably practicable;

(c) if amended, be amended in such a way that the original and any subsequent amendments remain legible, or are capable of retrieval; and

(d) be retained, unless otherwise agreed in writing by the Environment Agency, for at least 6 years from the date when the records were made, or in the case of the following records until permit surrender:

(i) off-site environmental effects; and

(ii) matters which affect the condition of the land and groundwater.

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

4.2 Reporting

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

4.2.2 A report or reports on the performance of the activities over the previous year shall be submitted to the Environment Agency by 31 January (or other date agreed in writing by the Environment Agency) each year. The report(s) shall include as a minimum:

(a) a review of the results of the monitoring and assessment carried out in accordance with the permit including an interpretive review of that data;

(b) the resource efficiency metrics set out in schedule 4 table S4.2;

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

(d) where condition 2.3.5 apply the hours of operation in any year.

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

(a) in respect of the parameters and emission points specified in schedule 4 table S4.1;

(b) for the reporting periods specified in schedule 4 table S4.1 and using the forms specified in schedule 4 table S4.4; and

(c) giving the information from such results and assessments as may be required by the forms specified in those tables.

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

4.3 Notifications

4.3.1 In the event:

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

(i) inform the Environment Agency,

(ii) take the measures necessary to limit the environmental consequences of such an incident or accident, and

(iii) take the measures necessary to prevent further possible incidents or accidents;

(b) of a breach of any permit condition the operator must immediately—

(i) inform the Environment Agency, and

(ii) take the measures necessary to ensure that compliance is restored within the shortest possible time;

(c) of a breach of permit condition which poses an immediate danger to human health or threatens to cause an immediate significant adverse effect on the environment, the operator must

immediately suspend the operation of the activities or the relevant part of it until compliance with the permit conditions has been restored.

4.3.2 Any information provided under condition 4.3.1 (a)(i), 4.3.1 (b)(i) where the information relates to the breach of a condition specified in the permit shall be confirmed by sending the information listed in schedule 5 to this permit within the time period specified in that schedule.

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

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

Where the operator is a registered company:

(a) any change in the operator's trading name, registered name or registered office address; and

(b) any steps taken with a view to the operator going into administration, entering into a company voluntary arrangement or being wound up.

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

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

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

In any other case:

(e) the death of any of the named operators (where the operator consists of more than one named individual);

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

(g) 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 “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 MW or more.	LCP 103: Unit 6 - The operation of a Combined Cycle Gas Turbine with a net rated thermal input of 737 MW fired on natural gas for the generation of electricity and hot water. LCP 104: Unit 7 - The operation of a Combined Cycle Gas Turbine with a net rated thermal input of 746 MW fired on natural gas for the generation of electricity and hot water. LCP 105: Unit 8 - The operation of a Combined Cycle Gas Turbine with a net rated thermal input of 744 MW fired on natural gas for the generation of electricity and hot water.	From receipt of natural gas to discharge of exhaust gases and wastes, and the generation of electricity and hot water for export.
		LCP 102: Units 1 and 4 - The operation of 2 Open Cycle Gas Turbines with a total net rated thermal input of 113 MW each fired on gas-oil for the generation of electricity for balancing services as a non-emergency plant.	From receipt of gas oil to discharge of exhaust gases and wastes, and the generation of electricity. Operating hours for LCP 102 are limited up to 500 hours per year.
		Natural Gas Dew Point Heating: Heating of natural gas by mean of two hot water boilers burning natural gas. 2 boilers, 3.7 MW net rated thermal input each	From receipt of natural gas to emissions of flue gases through emission points A8(i) and A8(ii)
		Emergency Diesel Generators: 3 emergency generator generators, 0.75 MW net rated thermal input each	Emergency plant. From receipt of diesel fuel through to discharge of the exhaust gas.

Table S1.1 activities			
Activity reference	**Activity listed in Schedule 1 of the EP Regulations**	**Description of specified activity**	**Limits of specified activity**
		Emergency fire-fighting pump The burning of gas-oil/diesel in one fire-fighting pump.	From receipt of fuel through to discharge of the exhaust gas.
	Directly Associated Activity		
AR2	Boiler water treatment system.	Boiler feed-water treatment and supply for the fired boilers and the Heat Recovery Steam Generators.	From receipt of mains, borehole and estuarine cooling water to the supply of water suitable for the steam raising plant and the release of waste water to the cooling water system after neutralisation.
AR3	Fuel tanks, pumping and heating, fuel control systems	The storage tanks, pumping and heating sets for the oil and the firing control systems. The pressure reduction and cleaning systems for natural gas and the firing control systems for the gas turbines.	From receipt of fuel to the combustion on the fired equipment.
AR4	Kingsnorth to Grain Pipeline.	Pipeline for the transfer of oil from import terminal storage at Kingsnorth to Grain Power Station.	All equipment, pipework and associated heating systems associated with the transfer of oil contained within the installation boundary.
AR5	Grain Power Station to Grain LNG terminal heat pipeline and combined heat and power system	Pipeline for the transfer of heat from the CCGT condensers to the Grain LNG evaporation plant and return of cool water to the condensers.	All equipment, pipework and associated systems for the transfer of heat contained within the installation boundary.
AR6	Direct cooling system for station steam condensers and coolers.	The use of water from the River Medway to condense steam and cool operational plant.	The pumping, filtering and chemical treatment of the water, its use in the condensers and the discharge of the water back to the River Medway.
AR7	Directly associated activity	Surface water drainage.	Handling and storage of site drainage until discharge to the site surface water system.

Table S1.2 Operating techniques		
Description	**Parts**	**Date Received**
Application Section 2.1, 2.2 and 2.3 referring to the oil fired plant in the Application. (EPR/RP3432SG/A001)	The corresponding sections referring to the CCGTs are excluded.	20/01/06
Additional information covering the proposed CCGTs	Section 2.1, 2.2 and 2.3 in the additional information. All references to “staged application” and “oil firing” are excluded.	10/07/06
Variation application supporting document (EPR/RP3432SG/V003)	Sections 2.1, 2.2 and 2.10. Description of operating techniques for in-process controls, emissions control, abatement and monitoring for the CCGT/CHP plant.	20/08/09
Response to Regulation 60(1) Notice – request for information dated 31/10/14	Compliance route(s) and operating techniques identified in response to questions 2, 4, 5, 6, 7, 9ii, 10, 11. Compliance routes and operating techniques identified in response to questions 2 (compliance), 4 (configuration), 5 (net rated thermal input), 6 (MSUL/MSDL), 9i (ELVs), 11 (monitoring), 12 (low load operation). Excluding compliance route LHD for LCP 103, LCP 104 and LCP 105 and related operating techniques.	27/03/15
Receipt of additional information to the Regulation 60(1) Notice, requested by letter dated 29/05/15.	Compliance route and operating techniques identified in response to questions 1 (compliance), 2 (net rated thermal input), 3 (MSUL/MSDL), 4 (ELVs).	30/06/15
Receipt of additional information	Proposals for low load operation on unit 6 (LCP 103)	15/09/15
Receipt of additional information to the Regulation 60(1) Notice, requested by letter dated 29/05/15.	Compliance route and operating techniques identified in response to questions 1 (compliance), 2 (net rated thermal input), 3 (MSUL/MSDL), 4 (ELVs).	30/06/15
Receipt of additional information	Proposals for low load operation on unit 6 (LCP 103)	15/09/15
Variation application supporting document EPR/EP3533RY/V005	Proposals for low load operation on unit 7 (LCP 104) and alternative monitoring of free chlorine, included in application cover letter titled ‘Minor Technical Variation Application EPR/EP3533RY’, dated 21st March 2018.	05/09/18
Receipt of additional information EPR/EP3533RY/V005	Additional information on operator’s environmental management system procedure for monitoring of chlorine at discharge point W1, document titled ‘Total and Free Chlorine Test Procedure’.	31/10/18

Response to regulation 61(1) Notice dated 01/05/18 EPR/EP3533RY/V006	Compliance and operating techniques identified in response to the BAT Conclusions for large combustion plant published on 17th August 2017.	31/10/18
Additional information in response to regulation 61(1) Notice dated 01/05/18, requests for information dated 11/03/19 and 26/03/19 EPR/EP3533RY/V006	Document titled: "Follow-up Response (April 2019 v2) to the Environmental Permitting (England and Wales) Regulations 2016 Regulation 61(1) request for further information on compliance with BREF requirements for Large Combustion Plant" including the following: • Additional information on compliance, operating scenarios and operating techniques identified in response to BAT Conclusions for LCP 102. • Additional information on compliance and operating techniques identified in response to BAT Conclusions 6, 8, 12, 14, 38 and 44. • Additional information on DLN effective point for LCP 103, 104 and 105. • Additional information on thermal rating of non-large combustion plants at the installation.	26/04/19

Table S1.3 Improvement programme requirements		
Reference	**Requirement**	**Date**
IC11	BAT Conclusion 9 The operator shall submit a procedure for approval outlining how the gas oil characterisation will be carried out in order to fully meet the requirements of Best Available Techniques Conclusion 9. This shall include the plan for regular testing of all the parameters specified for this fuel in Best Available Techniques Conclusion 9. The operator shall implement the approved plan within the site Environmental Management System.	01/06/2021

Table S1.4 Start-up and Shut-down thresholds		
Emission Point and Unit Reference	**"Minimum start up load"** **Load in MW and as percent of rated power output (%)** **and/or when two of the criteria listed below for the LCP or unit have been met.**	**"Minimum shut-down load"** **Load in MW and as percent of rated power output (%)** **and/or when two of the criteria listed below for the LCP or unit have been met.**
A3 Unit 6 LCP 103 Standard operation	220 MW; 51%	220 MW; 51%
A3 Unit 6 LCP 103 Low part load operation	135 MW; 31% Flame on Low part load combustion mode selected.	135 MW; 31% Flame off Low part load combustion mode deselected.
A4 Unit 7 LCP 104 Standard operation	220 MW; 51%	220 MW; 51%
A4 Unit 7 LCP 104 Low part load operation	135 MW; 31% Flame on Low part load combustion mode selected.	135 MW; 31% Flame off Low part load combustion mode deselected.
A5 Unit 8 LCP 105	220 MW; 51%	220 MW; 51%
A2 Unit 1-A2(1) Unit 4-A2(4) LCP 102	As soon as the gas turbine start up is initiated.	As soon as the gas turbine is off load.

Table S1.5 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 (%) or when two of the criteria listed below for the LCP or unit have been met, whichever is soonest**
A3 Unit 6 LCP 103	261 MW; 60%
A4 Unit 7 LCP 104	261 MW; 60%
A5 Unit 8 LCP 105	261 MW; 60%

Schedule 2 – Raw materials and fuels

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

Schedule 3 – Emissions and monitoring

Table S3.1 Point source emissions to air - emission limits and monitoring requirements shall apply until 16 August 2021						
Emission point ref. & location - on site plan in schedule 7	**Parameter**	**Source**	**Limit (including unit)-these limits do not apply during start up or shut down.**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
A2	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)	LCP 102 Open Cycle Gas Turbine fired on gas oil (Units 1 and 4)	-	-	Every 4,380 operational hours or 2 years, whichever is sooner	By calculation method agreed in writing with the Environment Agency
	Sulphur dioxide		-	-		
	Dust		-	-		
	Carbon monoxide		-	-		
A3	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)	LCP 103 Combined Cycle Gas Turbine fired on natural gas (Unit 6)	50 mg/m^3 70% to base load[1]	Monthly mean of validated hourly averages	Continuous	BS EN 14181
A3	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)	LCP 103 Combined Cycle Gas Turbine fired on natural gas (Unit 6)	50 mg/m^3 70% to base load[1] 83 mg/m^3 MSUL/MSDL to base load[2]	Daily mean of validated hourly averages	Continuous	BS EN 14181
A3	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)	LCP 103 Combined Cycle Gas Turbine fired on natural gas (Unit 6)	75 mg/m^3 70% to base load[1]	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181

Table S3.1 Point source emissions to air - emission limits and monitoring requirements shall apply until 16 August 2021						
Emission point ref. & location - on site plan in schedule 7	**Parameter**	**Source**	**Limit (including unit)-these limits do not apply during start up or shut down.**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
A3	Carbon monoxide	LCP 103 Combined Cycle Gas Turbine fired on natural gas (Unit 6)	50 mg/m^3 70% to base load[1]	Monthly mean of validated hourly averages	Continuous	BS EN 14181
A3	Carbon monoxide	LCP 103 Combined Cycle Gas Turbine fired on natural gas (Unit 6)	50 mg/m^3 70% to base load[1] 110 mg/m^3 MSUL/MSDL to base load[2]	Daily mean of validated hourly averages	Continuous	BS EN 14181
A3	Carbon monoxide	LCP 103 Combined Cycle Gas Turbine fired on natural gas (Unit 6)	100 mg/m^3 70% to base load[1]	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
A3	Sulphur dioxide	LCP 103 Combined Cycle Gas Turbine fired on natural gas (Unit 6)	-	-	At least every 6 months	Concentration by calculation, as agreed in writing with the Environment Agency
A3	Oxygen	LCP 103 Combined Cycle Gas Turbine fired on natural gas (Unit 6)	-	-	Continuous As appropriate to reference	BS EN 14181

Table S3.1 Point source emissions to air - emission limits and monitoring requirements shall apply until 16 August 2021						
Emission point ref. & location - on site plan in schedule 7	**Parameter**	**Source**	**Limit (including unit)-these limits do not apply during start up or shut down.**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
A3	Water Vapour	LCP 103 Combined Cycle Gas Turbine fired on natural gas (Unit 6)	-	-	Continuous As appropriate to reference	BS EN 14181
A3	Stack gas temperature	LCP 103 Combined Cycle Gas Turbine fired on natural gas (Unit 6)	-	-	Continuous As appropriate to reference	Traceable to national standards
A3	Stack gas pressure	LCP 103 Combined Cycle Gas Turbine fired on natural gas (Unit 6)	-	-	Continuous As appropriate to reference	Traceable to national standards
A3	As required by the Method Implementation Document for BS EN 15259	LCP 103 Combined Cycle Gas Turbine fired on natural gas (Unit 6)	-	-	Pre-operation and when there is a significant operational change	BS EN 15259
A4	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)	LCP 104 Combined Cycle Gas Turbine fired on natural gas (Unit 7)	50 mg/m^3 70% to base load[1]	Monthly mean of validated hourly averages	Continuous	BS EN 14181
A4	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)	LCP 104 Combined Cycle Gas Turbine fired on natural gas (Unit 7)	50 mg/m^3 70% to base load[1] 83 mg/m^3 MSUL/MSDL to base load[2]	Daily mean of validated hourly averages	Continuous	BS EN 14181

Table S3.1 Point source emissions to air - emission limits and monitoring requirements shall apply until 16 August 2021						
Emission point ref. & location - on site plan in schedule 7	**Parameter**	**Source**	**Limit (including unit)-these limits do not apply during start up or shut down.**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
A4	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)	LCP 104 Combined Cycle Gas Turbine fired on natural gas (Unit 7)	75 mg/m^3 70% to base load[1]	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
A4	Carbon monoxide	LCP 104 Combined Cycle Gas Turbine fired on natural gas (Unit 7)	50 mg/m^3 70% to base load[1]	Monthly mean of validated hourly averages	Continuous	BS EN 14181
A4	Carbon monoxide	LCP 104 Combined Cycle Gas Turbine fired on natural gas (Unit 7)	50 mg/m^3 70% to base load[1] 110 mg/m^3 MSUL/MSDL to base load[2]	Daily mean of validated hourly averages	Continuous	BS EN 14181
A4	Carbon monoxide	LCP 104 Combined Cycle Gas Turbine fired on natural gas (Unit 7)	100 mg/m^3 70% to base load[1]	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
A4	Sulphur dioxide	LCP 104 Combined Cycle Gas Turbine fired on natural gas (Unit 7)	-	-	At least every 6 months	Concentration by calculation, as agreed in writing with the Environment Agency

Table S3.1 Point source emissions to air - emission limits and monitoring requirements shall apply until 16 August 2021						
Emission point ref. & location - on site plan in schedule 7	**Parameter**	**Source**	**Limit (including unit)-these limits do not apply during start up or shut down.**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
A4	Oxygen	LCP 104 Combined Cycle Gas Turbine fired on natural gas (Unit 7)	-	-	Continuous As appropriate to reference	BS EN 14181
A4	Water Vapour	LCP 104 Combined Cycle Gas Turbine fired on natural gas (Unit 7)	-	-	Continuous As appropriate to reference	BS EN 14181
A4	Stack gas temperature	LCP 104 Combined Cycle Gas Turbine fired on natural gas (Unit 7)	-	-	Continuous As appropriate to reference	Traceable to national standards
A4	Stack gas pressure	LCP 104 Combined Cycle Gas Turbine fired on natural gas (Unit 7)	-	-	Continuous As appropriate to reference	Traceable to national standards
A4	As required by the Method Implementation Document for BS EN 15259	LCP 104 Combined Cycle Gas Turbine fired on natural gas (Unit 7)	-	-	Pre-operation and when there is a significant operational change	BS EN 15259
A5	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)	LCP 105 Combined Cycle Gas Turbine fired on natural gas (Unit 8)	50 mg/m^3 70% to base load[1]	Monthly mean of validated hourly averages	Continuous	BS EN 14181

Table S3.1 Point source emissions to air - emission limits and monitoring requirements shall apply until 16 August 2021						
Emission point ref. & location - on site plan in schedule 7	**Parameter**	**Source**	**Limit (including unit)-these limits do not apply during start up or shut down.**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
A5	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)	LCP 105 Combined Cycle Gas Turbine fired on natural gas (Unit 8)	50 mg/m^3 70% to base load[1] 83 mg/m^3 MSUL/MSDL to base load[2]	Daily mean of validated hourly averages	Continuous	BS EN 14181
A5	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)	LCP 105 Combined Cycle Gas Turbine fired on natural gas (Unit 8)	75 mg/m^3 70% to base load[1]	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
A5	Carbon monoxide	LCP 105 Combined Cycle Gas Turbine fired on natural gas (Unit 8)	50 mg/m^3 70% to base load[1]	Monthly mean of validated hourly averages	Continuous	BS EN 14181
A5	Carbon monoxide	LCP 105 Combined Cycle Gas Turbine fired on natural gas (Unit 8)	50 mg/m^3 70% to base load[1] 110 mg/m3 MSUL/MSDL to base load[2]	Daily mean of validated hourly averages	Continuous	BS EN 14181
A5	Carbon monoxide	LCP 105 Combined Cycle Gas Turbine fired on natural gas (Unit 8)	100 mg/m^3 70% to base load[1]	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181

Table S3.1 Point source emissions to air - emission limits and monitoring requirements shall apply until 16 August 2021						
Emission point ref. & location - on site plan in schedule 7	**Parameter**	**Source**	**Limit (including unit)-these limits do not apply during start up or shut down.**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
A5	Sulphur dioxide	LCP 105 Combined Cycle Gas Turbine fired on natural gas (Unit 8)	-	-	At least every 6 months	Concentration by calculation, as agreed in writing with the Environment Agency
A5	Oxygen	LCP 105 Combined Cycle Gas Turbine fired on natural gas (Unit 8)	-	-	Continuous As appropriate to reference	BS EN 14181
A5	Water Vapour	LCP 105 Combined Cycle Gas Turbine fired on natural gas (Unit 8)	-	-	Continuous As appropriate to reference	BS EN 14181
A5	Stack gas temperature	LCP 105 Combined Cycle Gas Turbine fired on natural gas (Unit 8)	-	-	Continuous As appropriate to reference	Traceable to national standards
A5	Stack gas pressure	LCP 105 Combined Cycle Gas Turbine fired on natural gas (Unit 8)	-	-	Continuous As appropriate to reference	Traceable to national standards
A5	As required by the Method Implementation Document for BS EN 15259	LCP 105 (Combined Cycle Gas Turbine fired on natural gas (Unit 8)	-	-	Pre-operation and when there is a significant operational change	BS EN 15259

Table S3.1 Point source emissions to air - emission limits and monitoring requirements shall apply until 16 August 2021						
Emission point ref. & location - on site plan in schedule 7	**Parameter**	**Source**	**Limit (including unit)-these limits do not apply during start up or shut down.**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
A7	None	Three emergency diesel generators and one diesel fire-fighting pump	-	-	-	-
A8 (i)	None	Gas fired hot water boiler for gas heaters	-	-	-	-
A8 (ii)	None	Gas fired hot water boiler for gas heaters	-	-	-	-
A9 [3]	None	Gas vents at gas reception facility and at shut off valves at each turbine	-	-	-	-
A10 [3]	None	Vents from oil storage tanks and pipework	-	-	-	-
A11 [3]	None	Turbine oil cooler vents	-	-	-	-
A12 [3]	None	Electrochlorination plant hydrogen detrainment vent	-	-	-	-
A13 [3]	None	Electrochlorination plant hydrogen detrainment vent	-	-	-	-

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

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

Note 3: Venting points are not included on the site plan in Schedule 7 of this permit.

Table S3.1a Point source emissions to air - emission limits and monitoring requirements shall from 17 August 2021						
Emission point ref. & location - on site plan in schedule 7	**Parameter**	**Source**	**Limit (including unit)-these limits do not apply during start up or shut down.**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
A2	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)	LCP 102 Open Cycle Gas Turbine fired on gas oil (Units 1 and 4)	300 mg/m^3 note 4	-	Every 2 years	By calculation method agreed in writing with the Environment Agency
	Sulphur dioxide		66 mg/m^3	-		
	Dust		10 mg/m^3	-		
	Carbon monoxide		-	-		
A3	Flue gas flow	LCP 103 Combined Cycle Gas Turbine fired on natural gas (Unit 6)	-	-	Continuous determination	EN ISO 16911
A3	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)	LCP 103 Combined Cycle Gas Turbine fired on natural gas (Unit 6)	42.5 mg/m^3 Effective-DLN to base load note1	Yearly mean of validated hourly averages	Continuous	BS EN 14181
A3	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)	LCP 103 Combined Cycle Gas Turbine fired on natural gas (Unit 6)	50 mg/m^3 Effective-DLN to base load note 1	Monthly mean of validated hourly averages	Continuous	BS EN 14181
A3	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)	LCP 103 Combined Cycle Gas Turbine fired on natural gas (Unit 6)	50 mg/m^3 Effective-DLN to base load note 1 75 mg/m^3 MSUL/MSDL to base load note 2	Daily mean of validated hourly averages	Continuous	BS EN 14181

Table S3.1a Point source emissions to air - emission limits and monitoring requirements shall from 17 August 2021						
Emission point ref. & location - on site plan in schedule 7	**Parameter**	**Source**	**Limit (including unit)-these limits do not apply during start up or shut down.**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
A3	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)	LCP 103 Combined Cycle Gas Turbine fired on natural gas (Unit 6)	75 mg/m^3 Effective-DLN to base load note 1	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
A3	Carbon monoxide	LCP 103 Combined Cycle Gas Turbine fired on natural gas (Unit 6)	50 mg/m^3 Effective-DLN to base load note 1	Yearly mean of validated hourly averages	Continuous	BS EN 14181
A3	Carbon monoxide	LCP 103 Combined Cycle Gas Turbine fired on natural gas (Unit 6)	50 mg/m^3 Effective-DLN to base load note 1	Monthly mean of validated hourly averages	Continuous	BS EN 14181
A3	Carbon monoxide	LCP 103 Combined Cycle Gas Turbine fired on natural gas (Unit 6)	50 mg/m^3 Effective-DLN to base load note 1 110 mg/m^3 MSUL/MSDL to base load note 2	Daily mean of validated hourly averages	Continuous	BS EN 14181
A3	Carbon monoxide	LCP 103 Combined Cycle Gas Turbine fired on natural gas (Unit 6)	100 mg/m^3 Effective-DLN to base load note 1	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181

Table S3.1a Point source emissions to air - emission limits and monitoring requirements shall from 17 August 2021						
Emission point ref. & location - on site plan in schedule 7	**Parameter**	**Source**	**Limit (including unit)-these limits do not apply during start up or shut down.**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
A3	Sulphur dioxide	LCP 103 Combined Cycle Gas Turbine fired on natural gas (Unit 6)	-	-	At least every 6 months	Concentration by calculation, as agreed in writing with the Environment Agency
A3	Oxygen	LCP 103 Combined Cycle Gas Turbine fired on natural gas (Unit 6)	-	-	Continuous As appropriate to reference	BS EN 14181
A3	Water Vapour	LCP 103 Combined Cycle Gas Turbine fired on natural gas (Unit 6)	-	-	Continuous As appropriate to reference	BS EN 14181
A3	Stack gas temperature	LCP 103 Combined Cycle Gas Turbine fired on natural gas (Unit 6)	-	-	Continuous As appropriate to reference	Traceable to national standards
A3	Stack gas pressure	LCP 103 Combined Cycle Gas Turbine fired on natural gas (Unit 6)	-	-	Continuous As appropriate to reference	Traceable to national standards
A3	As required by the Method Implementation Document for BS EN 15259	LCP 103 Combined Cycle Gas Turbine fired on natural gas (Unit 6)	-	-	Pre-operation and when there is a significant operational change	BS EN 15259

Table S3.1a Point source emissions to air - emission limits and monitoring requirements shall from 17 August 2021						
Emission point ref. & location - on site plan in schedule 7	**Parameter**	**Source**	**Limit (including unit)-these limits do not apply during start up or shut down.**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
A4	Flue gas flow	LCP 103 Combined Cycle Gas Turbine fired on natural gas (Unit 6)	-	-	Continuous determination	EN ISO 16911
A4	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)	LCP 104 Combined Cycle Gas Turbine fired on natural gas (Unit 7)	42.5 mg/m^3 Effective-DLN to base load note 1	Yearly mean of validated hourly averages	Continuous	BS EN 14181
A4	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)	LCP 104 Combined Cycle Gas Turbine fired on natural gas (Unit 7)	50 mg/m^3 Effective-DLN to base load note 1	Monthly mean of validated hourly averages	Continuous	BS EN 14181
A4	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)	LCP 104 Combined Cycle Gas Turbine fired on natural gas (Unit 7)	50 mg/m^3 Effective-DLN to base load note 1 75 mg/m^3 MSUL/MSDL to base load note 2	Daily mean of validated hourly averages	Continuous	BS EN 14181
A4	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)	LCP 104 Combined Cycle Gas Turbine fired on natural gas (Unit 7)	75 mg/m^3 Effective-DLN to base load note 1	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181

Table S3.1a Point source emissions to air - emission limits and monitoring requirements shall from 17 August 2021						
Emission point ref. & location - on site plan in schedule 7	**Parameter**	**Source**	**Limit (including unit)-these limits do not apply during start up or shut down.**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
A4	Carbon monoxide	LCP 104 Combined Cycle Gas Turbine fired on natural gas (Unit 7)	50 mg/m^3 Effective-DLN to base load note 1	Yearly mean of validated hourly averages	Continuous	BS EN 14181
A4	Carbon monoxide	LCP 104 Combined Cycle Gas Turbine fired on natural gas (Unit 7)	50 mg/m^3 Effective-DLN to base load note 1	Monthly mean of validated hourly averages	Continuous	BS EN 14181
A4	Carbon monoxide	LCP 104 Combined Cycle Gas Turbine fired on natural gas (Unit 7)	50 mg/m^3 Effective-DLN to base load note 1 110 mg/m^3 MSUL/MSDL to base load note 2	Daily mean of validated hourly averages	Continuous	BS EN 14181
A4	Carbon monoxide	LCP 104 Combined Cycle Gas Turbine fired on natural gas (Unit 7)	100 mg/m^3 Effective-DLN to base load note 1	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181

Table S3.1a Point source emissions to air - emission limits and monitoring requirements shall from 17 August 2021						
Emission point ref. & location - on site plan in schedule 7	**Parameter**	**Source**	**Limit (including unit)-these limits do not apply during start up or shut down.**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
A4	Sulphur dioxide	LCP 104 Combined Cycle Gas Turbine fired on natural gas (Unit 7)	-	-	At least every 6 months	Concentration by calculation, as agreed in writing with the Environment Agency
A4	Oxygen	LCP 104 Combined Cycle Gas Turbine fired on natural gas (Unit 7)	-	-	Continuous As appropriate to reference	BS EN 14181
A4	Water Vapour	LCP 104 Combined Cycle Gas Turbine fired on natural gas (Unit 7)	-	-	Continuous As appropriate to reference	BS EN 14181
A4	Stack gas temperature	LCP 104 Combined Cycle Gas Turbine fired on natural gas (Unit 7)	-	-	Continuous As appropriate to reference	Traceable to national standards
A4	Stack gas pressure	LCP 104 Combined Cycle Gas Turbine fired on natural gas (Unit 7)	-	-	Continuous As appropriate to reference	Traceable to national standards

Table S3.1a Point source emissions to air - emission limits and monitoring requirements shall from 17 August 2021						
Emission point ref. & location - on site plan in schedule 7	**Parameter**	**Source**	**Limit (including unit)-these limits do not apply during start up or shut down.**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
A4	As required by the Method Implementation Document for BS EN 15259	LCP 104 Combined Cycle Gas Turbine fired on natural gas (Unit 7)	-	-	Pre-operation and when there is a significant operational change	BS EN 15259
A5	Flue gas flow	LCP 103 Combined Cycle Gas Turbine fired on natural gas (Unit 6)	-	-	Continuous determination	EN ISO 16911
A5	Carbon monoxide	LCP 104 Combined Cycle Gas Turbine fired on natural gas (Unit 7)	50 mg/m^3 Effective-DLN to base load note 1	Yearly mean of validated hourly averages	Continuous	BS EN 14181
A5	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)	LCP 105 Combined Cycle Gas Turbine fired on natural gas (Unit 8)	42.5 mg/m^3 Effective-DLN to base load note 1	Yearly mean of validated hourly averages	Continuous	BS EN 14181
A5	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)	LCP 105 Combined Cycle Gas Turbine fired on natural gas (Unit 8)	50 mg/m^3 Effective-DLN to base load note 1	Monthly mean of validated hourly averages	Continuous	BS EN 14181
A5	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)	LCP 105 Combined Cycle Gas Turbine fired on natural gas (Unit 8)	50 mg/m^3 Effective-DLN to base load note 1 75 mg/m^3 MSUL/MSDL to base load note 2	Daily mean of validated hourly averages	Continuous	BS EN 14181

Table S3.1a Point source emissions to air - emission limits and monitoring requirements shall from 17 August 2021						
Emission point ref. & location - on site plan in schedule 7	**Parameter**	**Source**	**Limit (including unit)-these limits do not apply during start up or shut down.**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
A5	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)	LCP 105 Combined Cycle Gas Turbine fired on natural gas (Unit 8)	75 mg/m^3 Effective-DLN to base load note 1	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
A5	Carbon monoxide	LCP 105 Combined Cycle Gas Turbine fired on natural gas (Unit 8)	50 mg/m^3 Effective-DLN to base load note 1	Yearly mean of validated hourly averages	Continuous	BS EN 14181
A5	Carbon monoxide	LCP 105 Combined Cycle Gas Turbine fired on natural gas (Unit 8)	50 mg/m^3 Effective-DLN to base load note 1	Monthly mean of validated hourly averages	Continuous	BS EN 14181
A5	Carbon monoxide	LCP 105 Combined Cycle Gas Turbine fired on natural gas (Unit 8)	50 mg/m^3 Effective-DLN to base load note 1 110 mg/m3 MSUL/MSDL to base load note 2	Daily mean of validated hourly averages	Continuous	BS EN 14181
A5	Carbon monoxide	LCP 105 Combined Cycle Gas Turbine fired on natural gas (Unit 8)	100 mg/m^3 Effective-DLN to base load note 1	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181

Table S3.1a Point source emissions to air - emission limits and monitoring requirements shall from 17 August 2021						
Emission point ref. & location - on site plan in schedule 7	**Parameter**	**Source**	**Limit (including unit)-these limits do not apply during start up or shut down.**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
A5	Sulphur dioxide	LCP 105 Combined Cycle Gas Turbine fired on natural gas (Unit 8)	-	-	At least every 6 months	Concentration by calculation, as agreed in writing with the Environment Agency
A5	Oxygen	LCP 105 Combined Cycle Gas Turbine fired on natural gas (Unit 8)	-	-	Continuous As appropriate to reference	BS EN 14181
A5	Water Vapour	LCP 105 Combined Cycle Gas Turbine fired on natural gas (Unit 8)	-	-	Continuous As appropriate to reference	BS EN 14181
A5	Stack gas temperature	LCP 105 Combined Cycle Gas Turbine fired on natural gas (Unit 8)	-	-	Continuous As appropriate to reference	Traceable to national standards
A5	Stack gas pressure	LCP 105 Combined Cycle Gas Turbine fired on natural gas (Unit 8)	-	-	Continuous As appropriate to reference	Traceable to national standards

Table S3.1a Point source emissions to air - emission limits and monitoring requirements shall from 17 August 2021						
Emission point ref. & location - on site plan in schedule 7	**Parameter**	**Source**	**Limit (including unit)-these limits do not apply during start up or shut down.**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
A5	As required by the Method Implementation Document for BS EN 15259	LCP 105 (Combined Cycle Gas Turbine fired on natural gas (Unit 8)	-	-	Pre-operation and when there is a significant operational change	BS EN 15259
A7	None	Three emergency diesel generators (emergency plant) and one diesel fire-fighting pump	-	-	-	-
A8 (i)	None	Gas fired hot water boiler for gas heaters	-	-	-	-
A8 (ii)	None	Gas fired hot water boiler for gas heaters	-	-	-	-
A9 note 3	None	Gas vents at gas reception facility and at shut off valves at each turbine	-	-	-	-
A10 note 3	None	Vents from oil storage tanks and pipework	-	-	-	-
A11 note 3	None	Turbine oil cooler vents	-	-	-	-
A12 note 3	None	Electrochlorination plant hydrogen detrainment vent	-	-	-	-
A13 note 3	None	Electrochlorination plant hydrogen detrainment vent	-	-	-	-

Table S3.1a Point source emissions to air - emission limits and monitoring requirements shall from 17 August 2021						
Emission point ref. & location - on site plan in schedule 7	**Parameter**	**Source**	**Limit (including unit)-these limits do not apply during start up or shut down.**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
Note 1: This ELV applies when the load is > Effective-DLN, as specified in Table S1.5, throughout the reference period. Note 2: This ELV applies when the load varies between MSUL/MSDL and base load during the daily reference period. MSUL and MSDL are defined in Table S1.4 of this permit. Note 3: Venting points are not included on the site plan in Schedule 7 of this permit. Note 4: This is an industry benchmark emission level from reported industry performance documented in JEP report JEP17EMG02 / UTG/18/ERG/CT/773/R 'Maintaining the Emissions Performance of Open Cycle Gas Turbines that operate for less than 500 hours per year', October 2018.						

Table S3.2 Point Source emissions to water (other than sewer) – emission limits and monitoring requirements						
Emission point ref. & location – emission to River Medway at grid reference TQ 8930 7550	**Parameter**	**Source**	**Limit (incl. unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
W1	Flow	Turbine cooling water and process releases	226,008 m^3/h.	Any sample	Continuous	SCA Estimation of Flow and Load. (ISBN 01175264X) or as agreed with the Environment Agency
W1	Free chlorine	Cooling water treatment	0.1 mg/l	Daily average [1]	Daily periodic [1]	BS EN ISO 7393-2 (or as agreed with the Environment Agency)
W1	Maximum cooling water temperature increase	Heat from condensers	18°C	Instantaneous	Continuous	As agreed with the Environment Agency

Table S3.2 Point Source emissions to water (other than sewer) – emission limits and monitoring requirements						
Emission point ref. & location – emission to River Medway at grid reference TQ 8930 7550	**Parameter**	**Source**	**Limit (incl. unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
W1	Oil and grease	Turbine cooling water and process releases	None visible	-	Daily	Visual check at station drains discharge point to W1 outfall
Note 1: Compliance with daily average emission limit to be based on all the spot samples collected and tested over a given day. Daily periodic monitoring to consist of a minimum of 2 samples per day, or as 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**
LCP 102	Net electrical efficiency	After each modification which that could significantly affect this parameter	By calculation	
LCP 103	Net electrical efficiency	After each modification which that could significantly affect this parameter	EN Standards or equivalent	
LCP 104	Net electrical efficiency	After each modification which that could significantly affect this parameter	EN Standards or equivalent	
LCP 105	Net electrical efficiency	After each modification which that could significantly affect this parameter	EN Standards or equivalent	

Schedule 4 – Reporting

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

Table S4.1 Reporting of monitoring data			
Parameter	**Emission or monitoring point/reference**	**Reporting period**	**Period begins**
Oxides of nitrogen	A3, A4, A5	Every 3 months	1 January, 1 April, 1 July, 1 October
Carbon monoxide	A3, A4, A5	Every 3 months	1 January, 1 April, 1 July, 1 October
Sulphur dioxide	A3, A4, A5	Every 6 months	1 January, 1 July
Oxides of nitrogen, carbon monoxide, sulphur dioxide, dust	A2	Every 2 years	1 January
Emissions to water Parameters as required by condition 3.5.1	W1	Every 3 months	1 January, 1 April, 1 July, 1 October

Table S4.2: Resource Efficiency Metrics	
Parameter	**Units**
Electricity Exported	GWhr
Heat Exported	GWhr
Mechanical Power Provided	GWhr
Fossil Fuel Energy Consumption	GWhr
Non-Fossil Fuel Energy Consumption	GWhr
Annual Operating Hours	hr
Water Abstracted from Fresh Water Source	m^3
Water Abstracted from Borehole Source	m^3
Water Abstracted from Estuarine Water Source	m^3
Water Abstracted from Sea Water Source	m^3
Water Abstracted from Mains Water Source	m^3
Gross Total Water Used	m^3
Net Water Used	m^3
Hazardous Waste Transferred for Disposal at another installation	t
Hazardous Waste Transferred for Recovery at another installation	t
Non-Hazardous Waste Transferred for Disposal at another installation	t
Non-Hazardous Waste Transferred for Recovery at another installation	t
Waste recovered to Quality Protocol Specification and transferred off-site	t
Waste transferred directly off-site for use under an exemption / position statement	t

Table S4.3 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 NOx for each LCP	Annually	t
Total Emissions to Air of SO_2 for each LCP	Annually	t
Total Emissions to Air of Dust for each LCP	Annually	t
Operating Hours for each LCP	Annually	hr

Table S4.4 Reporting forms			
Media/ parameter	**Reporting format**	**Agency recipient**	**Date of form**
Air & Energy	Form IED AR1 – SO_2, NO_x and dust mass emission and energy	National and Area Office	31/12/15
LCP	Form IED HR1 – operating hours	National and Area Office	31/12/15
Air	Form IED CON 2 – continuous monitoring	Area Office	31/12/15
CEMs	Form IED CEM – Invalidation Log	Area Office	31/12/15
Resource Efficiency	Form REM1 – resource efficiency annual report	N National and Area Office	31/12/15
Water	Form Water 1	Area Office	V6 Nov 06

Schedule 5 – Notification

These pages outline the information that the operator must provide.

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

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

Part A

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

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

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

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

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

Part B – to be submitted as soon as practicable

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

Name*	
Post	
Signature	
Date	

* authorised to sign on behalf of the operator

Schedule 6 – Interpretation

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

“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.

“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.

“Black Start” means the procedure to recover from a total or partial shutdown of the UK Transmission System which has caused an extensive loss of supplies. This entails isolated power stations being started individually and gradually being reconnected to other power stations and substations in order to form an interconnected system again.

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

“CEN” means Commité Européen de Normalisation.

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

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

“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.

“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.

“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 limit.

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

“hazardous property” has the meaning in Annex lll of the Waste Framework Directive.

“hazardous waste” has the meaning given in the Hazardous Waste (England and Wales) Regulations 2005 (as amended).

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

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

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

“MCR” means maximum continuous rating.

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

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

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

“ncv” means net calorific value.

“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.

“Non-emergency plant” means a plant which provides balancing services or demand side response services.

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

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

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

“SI” means site inspector.

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

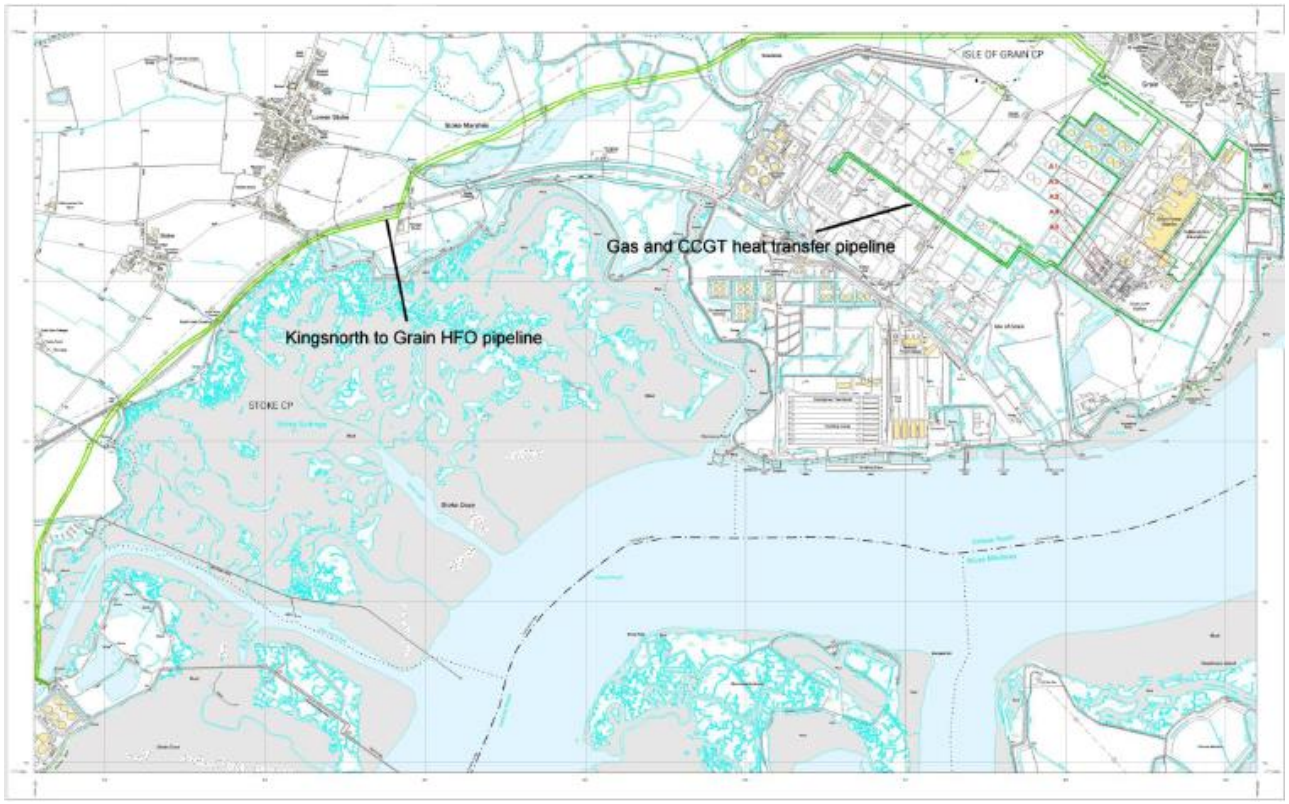
Unless otherwise stated, any references in this permit to concentrations of substances in emissions into air means:

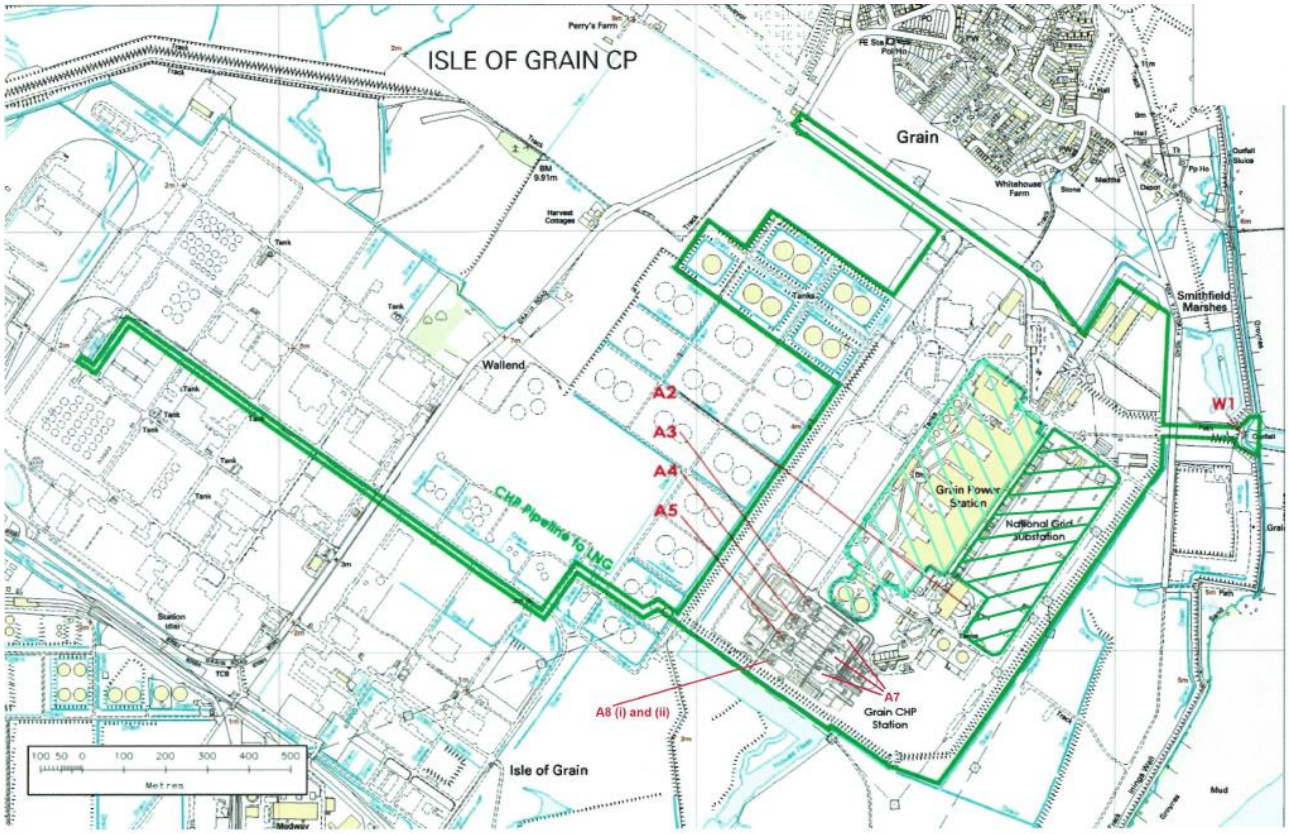
- in relation to emissions from combustion processes, the concentration in dry air at a temperature of 273K, at a pressure of 101.3 kPa and with an oxygen content of 3% dry for liquid and gaseous fuels, 6% dry for solid fuels; and/or
- in relation to emissions from gas turbine or compression ignition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

“year” means calendar year ending 31 December.

“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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