Notice of variation and consolidation with introductory note

The Environmental Permitting (England & Wales) Regulations 2016

Uniper UK Limited

Killingholme Power Station
Chase Hill Road
North Killingholme
North East Lincolnshire
DN40 3LU

Variation application number

EPR/VP3933RJ/V006

Permit number

EPR/VP3933RJ

Killingholme Power Station
Permit number EPR/VP3933RJ

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 1 of the notice specifies the conditions that have been varied and schedule 2 comprises a consolidated permit which reflects the variations being made.

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 (LCP) 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 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; 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:

Killingholme Power Station is located on the south bank of the Humber Estuary, approximately 5 km north-west of Immingham Dock to the east of the villages of East Halton and North Killingholme. The site covers an area of 43 hectares and is centred on NGR 515371 418965. There are Site of Special Scientific Interest within 2 km and Natura 2000 sites within 10 km of the installation as follows:

- North Killingholme Haven Pits, Humber Estuary – 1 km away
- Humber Flats, Marshes and Coast SPA and Ramsar – 4.2 km away

The LCPs on site will operate only in open-cycle mode to meet capacity demand during critical times of the year (less than 500 hours for each large combustion plant (LCP) per annum), allowing up to 2,000 hours operation for the installation with the four LCPs. The plant is classified as non-emergency plant for the purposes of the BAT Conclusions.

The net thermal input of the LCP(s) are as follows: LCP 108, LCP 109, LCP 110 and LCP 111 each consist of one 446 MWth open cycle gas turbine (OCGT).

The installation comprises two open cycle gas turbine modules, each consisting of two 150 MW(e) gas turbines. Each module has a gross baseload output of 300 MW(e). Each gas turbine has a thermal input of 446 MW. All the gas turbines are fitted with dry low NOx burners. Both modules now only operate in open cycle mode where the waste gases are emitted directly to atmosphere through four separate 33 m high bypass stacks.

There is one emission point (W1) to water for uncontaminated surface water discharged to the Humber Estuary. Surface water from the buildings passes through oil interceptors prior to release. Uncontaminated rainwater is collected in the rainwater collection pit prior to release. This pit can be isolated via a valve in the event of contamination.

There is an Environmental Management System in place which is certified to ISO14001.

The schedules specify the changes made to 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 SP3233LQ	Duly made 06/03/06	
Permit determined (EPR/SP3233LQ)	29/12/06	
Variation WP3832UJ (EPR/SP3233LQ/V002)	Duly made 20/06/07	
Variation determined WP3832UJ (EPR/SP3233LQ/V002)	08/04/08	
Variation determined EPR/SP3233LQ/V003	11/03/13	Environment Agency Initiated Variation, to incorporate Eel Regulations improvement condition.
Variation determined EPR/SP3233LQ/V004	Issued 29/09/14	Environment Agency Initiated Variation, to add an improvement condition requiring a cost benefit appraisal to ensure compliance with the Eels Regulations. Effective 01/10/14.
Application EPR/VP3933RJ/T001 (full transfer of permit EPR/SP3233LQ)	Duly made 09/07/2015	Application to transfer the permit in full to Uniper UK Limited.
Transfer determined EPR/VP3933RJ	26/08/2015	Full transfer of permit complete.
Regulation 60 Notice sent to the Operator	31/10/14	Issue of a Notice under Regulation 60(1) of the EPR. Environment Agency Initiated review and variation to vary the permit under IED to implement the special provisions for LCP under Chapter III, introducing new Emission Limit Values (ELVs) applicable to LCP, referred to in Article 30(2) and set out in Annex V. The permit is also updated to modern conditions.
Regulation 60 Notice response	27/03/15	Response received from the Operator.
Additional information received	30/06/15	Response to request for further information (RFI) dated 05/06/15.
Variation determined EPR/VP3933RJ/V002	24/12/15	Varied and consolidated permit issued in modern condition format. Variation effective from 01/01/16.
Administrative variation determined EPR/VP3933RJ/V003	16/06/16	Varied and consolidated permit issued to correct errors in original and change the monitoring requirements.
Notified of change of registered office address	Duly made 05/01/17	Registered office address changed to Compton House, 2300 The Crescent, Birmingham Business Park, Birmingham, B37 7YE.
Variation issued EPR/VP3933RJ	17/01/17	Varied permit issued to Uniper UK Limited.
Application EPR/VP3933RJ/V004 (variation and consolidation)	Duly made 22/09/17	Application to vary the permit.
Schedule 5 request for further information submitted 04/01/18	Response received 09/1/18	Air quality modelling files submitted.
Additional information	14/03/18	Updated emission points site plan.

Status log of the permit		
Description	**Date**	**Comments**
Variation determined EPR/VP3933RJ/V005	03/05/18	Varied permit issued to Uniper UK Limited.
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.
Variation determined EPR/VP3933RJ/V006 (Billing ref: DP3204PF)	02/10/19	Varied and consolidated permit issued. Effective from 02/10/19

End of introductory note

Notice of variation and consolidation

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/VP3933RJ

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

Killingholme Power Station
Chase Hill Road
North Killingholme
North East Lincolnshire
DN40 3LU

to the extent set out in the schedules.

The notice shall take effect from 02/10/2019.

Name	Date
Ben Evans	**02/10/2019**

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/VP3933RJ

This is the consolidated permit referred to in the variation and consolidation notice for application EPR/VP3933RJ/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 an installation at

Killingholme Power Station
Chase Hill Road
North Killingholme
North East Lincolnshire
DN40 3LU

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

Name	Date
Ben Evans	**02/10/2019**

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 red 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 108, LCP 109, LCP 110 and LCP 111. Without prejudice to condition 2.3.1, the activities shall be operated in accordance with the "Electricity Supply Industry IED Compliance Protocol for Utility Boilers and Gas Turbines" 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: LCP108, LCP109, LCP 110 and LCP 111. The activities shall not operate for more than 500 hours per year.

2.3.6 The operator shall ensure that where waste produced by the activities is sent to a relevant waste operation, that operation is provided with the following information, prior to the receipt of the waste:

(a) the nature of the process producing the waste;

(b) the composition of the waste;

(c) the handling requirements of the waste;

(d) the hazardous property associated with the waste, if applicable; and

(e) the waste code of the waste.

2.3.7 The operator shall ensure that where waste produced by the activities is sent to a landfill site, it meets the waste acceptance criteria for that landfill.

2.4 Improvement programme

2.4.1 The operator shall complete the improvements specified in schedule 1 table S1.3 by the date specified in that table unless otherwise agreed in writing by the Environment Agency.

2.4.2 Except in the case of an improvement which consists only of a submission to the Environment Agency, the operator shall notify the Environment Agency within 14 days of completion of each improvement.

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 and S3.2.

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

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

3.2 Emissions of substances not controlled by emission limits

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

3.2.2 The operator shall:

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

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

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

3.3 Odour

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

3.3.2 The operator shall:

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

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

3.4 Noise and vibration

3.4.1 Emissions from the activities shall be free from noise and vibration at levels likely to cause pollution outside the site, as perceived by an authorised officer of the Environment Agency, unless the operator has used appropriate measures, including, but not limited to, those specified in any

approved noise and vibration management plan to prevent or where that is not practicable to minimise the noise and vibration.

3.4.2 The operator shall:

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

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

3.5 Monitoring

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

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

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 annual production /treatment data set out in schedule 4 table S4.2;

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

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

(e) where condition 2.3.5 applies 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.

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

(a) the Environment Agency shall be notified at least 14 days before making the change; and

(b) the notification shall contain a description of the proposed change in operation.

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

4.3.7 The operator shall inform the Environment Agency in writing of the closure of any LCP within 28 days of the date of closure.

4.4 Interpretation

4.4.1 In this permit the expressions listed in schedule 6 shall have the meaning given in that schedule.

4.4.2 In this permit references to reports and notifications mean written reports and notifications, except where reference is made to notification being made "immediately", in which case it may be provided by telephone.

Schedule 1 – Operations

Table S1.1 activities			
Activity reference	**Activity listed in Schedule 1 of the EP Regulations**	**Description of specified activity**	**Limits of specified activity**
AR1	Section 1.1 A (1) (a): Burning any fuel in an appliance with a rated thermal input of 50 megawatts or more.	LCP108:Unit GT 11 The operation of a Gas Turbine in Open Cycle mode with a net rated thermal input of 446MW fired on natural gas for the generation of electricity. LCP 109:Unit GT 12 The operation of a Gas Turbine in Open Cycle mode with a net rated thermal input of 446MW fired on natural gas for the generation of electricity. LCP 110:Unit GT 21 The operation of a Gas Turbine in Open Cycle mode with a net rated thermal input of 446MW fired on natural gas for the generation of electricity. LCP 111:Unit GT 22 The operation of a Gas Turbine in Open Cycle mode with a net rated thermal input of 446MW fired on natural gas for the generation of electricity.	From receipt of natural gas and gas oil to discharge of exhaust gases and wastes, and the generation of electricity. Operating hours limited to 500 per year as per Condition 2.3.5.
	Directly Associated Activity		
AR2	Directly associated activity	Oil storage	From receipt of raw materials to dispatch for use.
AR3	Directly associated activity	Surface water drainage into the Humber Estuary	Handling and storage of site drainage until discharge to the Humber Estuary.
AR4	Directly associated activity	Miscellaneous utility systems (including emergency diesel generator lubrication system and control systems)	From receipt of raw materials to dispatch for use.

Table S1.2 Operating techniques		
Description	**Parts**	**Date Received**
Application	The response to section 2.1 in the application	06/03/06
Response to regulation 60(1) Notice – request for information dated 31/10/14	Compliance routes and operating techniques identified in response to questions 2 (Compliance route), 4 (Configuration), 5 (Net rated thermal input), 6 (Minimum start up load and minimum shut down load), 9 (Proposed ELVs), 10 (Use of standby fuel on LCP), 11 (Monitoring requirements). Excluding compliance route ELV and LHD for LCP108, LCP109, LCP 110 and LCP 111. and related operating techniques	27/03/15
Receipt of additional information to the regulation 60(1) Notice. requested by letter dated 05/06/15	Compliance route(s) and operating techniques identified in response to questions 5 (Net rated thermal input), 6 (Minimum start up load and minimum shut down load), 9 (Proposed ELVs).	Received 30/06/15
Receipt of additional information to the regulation 60(1) Notice.	Confirmation of the compliance routes chosen for LCP108, LCP109, LCP 110 and LCP 111	Received 15/12/15
Receipt of additional information	Monitoring Proposals	Received 18/04/16
Application EPR/VP3933RJ/V005	Parts C2, C3 of the application documents and all referenced supporting information	Duly Made 22/09/17
Receipt of additional information following Schedule 5 request for information sent 04/01/18	Air quality modelling files	Received 09/01/18
Additional information EPR/VP3933RJ/V005	Updated emission points site plan.	Received 14/03/18
Response to regulation 61(1) Notice – request for information dated 01/05/18 EPR/VP3933RJ/V006	Compliance and operating techniques identified in response to the BAT Conclusions for large combustion plant published on 17th August 2017 in the form of a spreadsheet.	31/10/18

Table S1.3 Improvement programme requirements		
Reference	**Requirement**	**Date**
Improvement conditions IC1 – IC12 have been confirmed complete and removed through variation EPR/VP3933RJ/V006.		

Table S1.4 Start-up and Shut-down thresholds		
Emission Point and Unit Reference	**"Minimum Start-Up Load"** **Load in MW and as percent of rated power output (%)**	**"Minimum Shut-Down Load"** **Load in MW and as percent of rated power output (%)**
A2 LCP 108 GT11 Bypass stack	105 MW; 70%	90 MW; 60%
A4 LCP 109 GT 12 Bypass stack	105 MW; 70%	90 MW; 60%
A6 LCP 110 GT 21 Bypass stack	105 MW; 70%	90 MW; 60%
A8 LCP 111 GT 22 Bypass stack	105 MW; 70%	90 MW; 60%
As permitted by the commission implementing decision document (2012/249/EU) article 9, at least two of the above criteria must be met to determine the end of start-up and start of shutdown.		

Schedule 2 – Waste types, 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
Natural gas	-

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	**Parameter**	**Source**	**Limit (including unit)**	**Reference Period**	**Monitoring frequency**	**Monitoring standard or method**
A2 Gas turbine 11 bypass stack	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)	LCP No. 108 Gas turbine fired on natural gas	-	-	Every 2 years	Agreed in writing with the Environment Agency
	Sulphur dioxide	LCP No. 108 Gas turbine fired on natural gas	-	-	Every 2 years	Agreed in writing with the Environment Agency
	Carbon Monoxide	LCP No. 108 Gas turbine fired on natural gas	-	-	Every 2 years	Agreed in writing with the Environment Agency
A4 Gas turbine 12 bypass stack	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)	LCP No. 109 Gas turbine fired on natural gas	-	-	Every 2 years	Agreed in writing with the Environment Agency
	Sulphur dioxide	LCP No. 109 Gas turbine fired on natural gas	-	-	Every 2 years	Agreed in writing with the Environment Agency
	Carbon Monoxide	LCP No. 109 Gas turbine fired on natural gas	-	-	Every 2 years	Agreed in writing with the Environment Agency
A6 Gas turbine 21 bypass stack	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)	LCP No. 110 Gas turbine fired on natural gas	-	-	Every 2 years	Agreed in writing with the Environment Agency
	Sulphur dioxide	LCP No. 110 Gas turbine fired on natural gas	-	-	Every 2 years	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	**Parameter**	**Source**	**Limit (including unit)**	**Reference Period**	**Monitoring frequency**	**Monitoring standard or method**
	Carbon Monoxide	LCP No. 110 Gas turbine fired on natural gas	-	-	Every 2 years	Agreed in writing with the Environment Agency
A8 Gas turbine 22 bypass stack	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)	LCP No. 111 Gas turbine fired on natural gas	-	-	Every 2 years	Agreed in writing with the Environment Agency
	Sulphur dioxide	LCP No. 111 Gas turbine fired on natural gas	-	-	Every 2 years	Agreed in writing with the Environment Agency
	Carbon Monoxide	LCP No. 111 Gas turbine fired on natural gas	-	-	Every 2 years	Agreed in writing with the Environment Agency
A10 Station fuel gas vent pipe	No parameters set	Station fuel gas vent pipe	-	-	-	No permanent sampling access required.
Miscellaneous process and building vents	No parameters set	-	-	-	-	No permanent sampling access required.

Table S3.1a Point source emissions to air – emission limits and monitoring requirements shall apply from 17 August 2021						
Emission point ref. & location	**Parameter**	**Source**	**Limit (including unit)**	**Reference Period**	**Monitoring frequency**	**Monitoring standard or method**
A2 Gas turbine 11 bypass stack	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)	LCP No. 108 Gas turbine fired on natural gas	140mg/m^3 Note 1	-	Concentration by calculation, every 2 years	Agreed in writing with the Environment Agency
	Sulphur dioxide	LCP No. 108 Gas turbine fired on natural gas	-	-	Concentration by calculation, every 2 years	Agreed in writing with the Environment Agency
	Carbon Monoxide	LCP No. 108 Gas turbine fired on natural gas	-	-	Concentration by calculation, every 2 years	Agreed in writing with the Environment Agency
A4 Gas turbine 12 bypass stack	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)	LCP No. 109 Gas turbine fired on natural gas	140mg/m^3 Note 1	-	Concentration by calculation, every 2 years	Agreed in writing with the Environment Agency
	Sulphur dioxide	LCP No. 109 Gas turbine fired on natural gas	-	-	Concentration by calculation, every 2 years	Agreed in writing with the Environment Agency
	Carbon Monoxide	LCP No. 109 Gas turbine fired on natural gas	-	-	Concentration by calculation, every 2 years	Agreed in writing with the Environment Agency
A6 Gas turbine 21 bypass stack	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)	LCP No. 110 Gas turbine fired on natural gas	140mg/m^3 Note 1	-	Concentration by calculation, every 2 years	Agreed in writing with the Environment Agency
	Sulphur dioxide	LCP No. 110 Gas turbine fired on natural gas	-	-	Concentration by calculation, every 2 years	Agreed in writing with the Environment Agency

Table S3.1a Point source emissions to air – emission limits and monitoring requirements shall apply from 17 August 2021						
Emission point ref. & location	**Parameter**	**Source**	**Limit (including unit)**	**Reference Period**	**Monitoring frequency**	**Monitoring standard or method**
	Carbon Monoxide	LCP No. 110 Gas turbine fired on natural gas	-	-	Concentration by calculation, every 2 years	Agreed in writing with the Environment Agency
A8 Gas turbine 22 bypass stack	Oxides of Nitrogen (NO and NO_2 expressed as NO_2)	LCP No. 111 Gas turbine fired on natural gas	140mg/m^3 Note 1	-	Concentration by calculation, every 2 years	Agreed in writing with the Environment Agency
	Sulphur dioxide	LCP No. 111 Gas turbine fired on natural gas	-	-	Concentration by calculation, every 2 years	Agreed in writing with the Environment Agency
	Carbon Monoxide	LCP No. 111 Gas turbine fired on natural gas	-	-	Concentration by calculation, every 2 years	Agreed in writing with the Environment Agency
A10 Station fuel gas vent pipe	No parameters set	Station fuel gas vent pipe	-	-	-	No permanent sampling access required.
Miscellaneous process and building vents	No parameters set	-	-	-	-	No permanent sampling access required.

Note 1:

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	**Parameter**	**Source**	**Limit (incl. unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
W1 emission to Humber Estuary	No parameters set	Uncontaminated surface water	No limits set	-	-	-

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 108, LCP 109, LCP 110 and LCP 111	Net electrical efficiency	After each modification that could significantly affect these parameters	By calculation	

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	A2, A4, A6, A8	Every 2 years	1 January
Carbon Monoxide	A2, A4, A6, A8	Every 2 years	1 January
Sulphur dioxide	A2, A4, A6, A8	Every 2 years	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
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 and other Performance parameters		
Parameter	**Frequency of assessment**	**Units**
Thermal Input Capacity for each LCP	Annually	MW
Annual Fuel Usage for each LCP	Annually	TJ

Table S4.3 Large Combustion Plant Performance parameters for reporting to DEFRA and other Performance parameters		
Parameter	**Frequency of assessment**	**Units**
Total Emissions to Air of NOx for each LCP	Annually	t
Total Emissions to Air of SO2 for each LCP	Annually	t
Total Emissions to Air of Dust for each LCP	Annually	t
Operating Hours for each LCP (Load Factor)	Annually	hr

Table S4.4 Reporting forms				
Media/ parameter	**Reporting format**	**Starting Point**	**Agency recipient**	**Date of form**
Air & Energy	Form IED AR1 – SO_2, NO_x and dust mass emission and energy	01/01/16	National and Area Office	01/01/17 or as agreed in writing
LCP	Form IED HR1 – operating hours	01/01/16	National and Area Office	31/12/15
Resource Efficiency	Form REM1 – resource efficiency annual report	01/01/16	National and Area Office	31/12/15
Water	Form water 1 or other form as agreed in writing by the Environment Agency	01/01/16	Area Office	31/12/15

Schedule 5 – Notification

These pages outline the information that the operator must provide.

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

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

Part A

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

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

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

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

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

Part B – to be submitted as soon as practicable

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

Name*	
Post	
Signature	
Date	

* authorised to sign on behalf of the operator

Schedule 6 – Interpretation

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

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

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

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

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

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

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

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

“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.

“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 to land” includes emissions to groundwater.

“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.

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

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

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

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

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

“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.

“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.

“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.

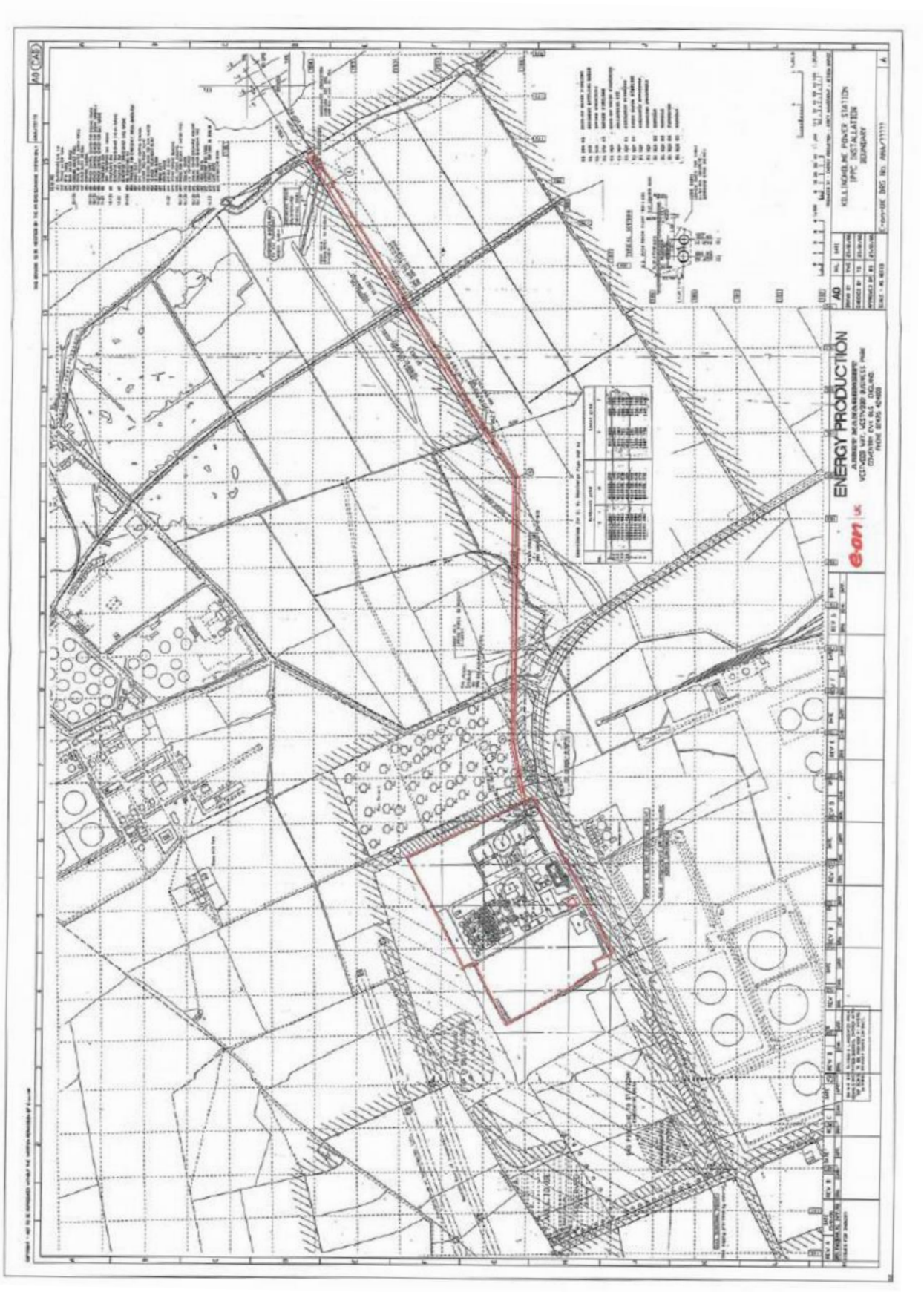
Where a minimum limit is set for any emission parameter, for example pH, reference to exceeding the limit shall mean that the parameter shall not be less than that limit.

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

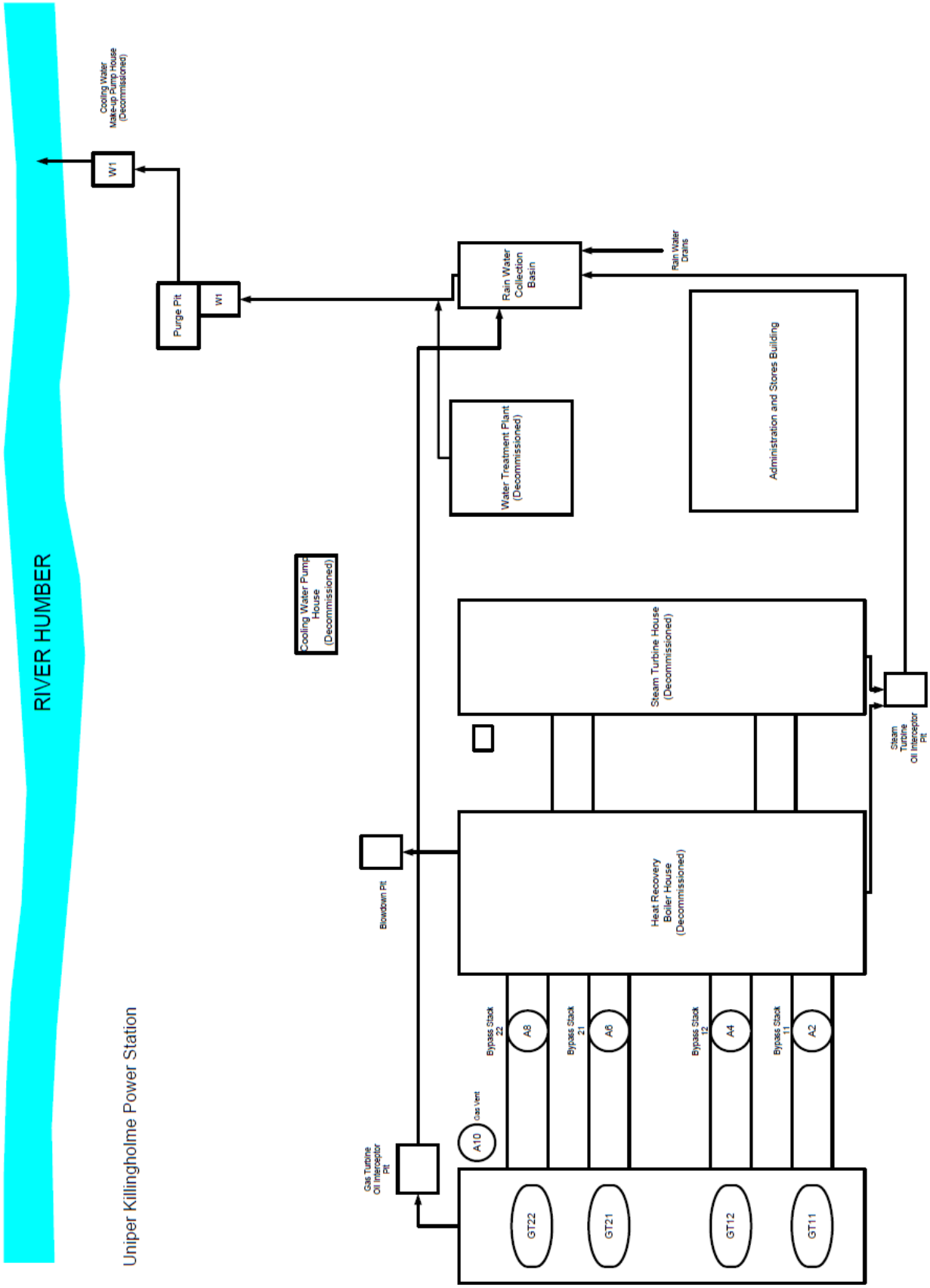
- in relation to emissions from combustion processes, the concentration in dry air at a temperature of 273K, at a pressure of 101.3 kPa and with an oxygen content of 3% dry for liquid and gaseous fuels, 6% dry for solid fuels; and/or
- in relation to emissions from gas turbine or compression ignition 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.

Schedule 7 – Site plan



Plan showing emission points



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