



# Notice of variation and consolidation with introductory note

## The Environmental Permitting (England & Wales) Regulations 2016

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BWSC Generation Services UK Limited  
Snetterton Renewable Energy Plant  
Chalk Lane  
Snetterton  
Norfolk  
NR16 2JZ

### **Variation application number**

EPR/CP3337YX/V002

### **Permit number**

EPR/CP3337YX

# Snetterton Renewable Energy Plant

## Permit number EPR/CP3337YX

### 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 17<sup>th</sup> 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;
- Inclusion of process monitoring for energy efficiency in table S3.3.
- Inclusion of improvement condition 8 regarding fuel characterisation BAT9.
- Permit condition 2.3.7 has been included in the permit with corresponding improvement condition IC9 requiring the operator to submit a report in relation to potential black start operation of the plant.
- Condition 4.2.5 has been included in the permit. This sets out the reporting requirements for waste that is brought onto this installation. This condition was previously left out of the permit in error.
- Table S1.4 has been updated to reflect the temporary start up and shut down criteria agreed for the site. Improvement condition IC7 requires a future review of the criteria submitted.
- The site plan in Schedule 7 has been update to include the pipeline to discharge point W1. It has also been updated to include emission points to air and water.

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

#### **Main Features of the installation**

The facility covers an area of 9 hectares and is centred at National Grid Reference 600711, 291046, just north of the A11 road. It is located approximately 15km north east of Thetford, 25km south west of Norwich and 1.3km north east of the village of Snetterton.

Snetterton Biomass Plant (LPC 466) comprises a single conventional boiler with a steam cycle which drives a turbine to generate power. The boiler has a thermal input of approximately 130MW (~45MW electrical output) and is fuelled by 280,000 tonnes per year of biomass fuel comprising a mixture of straw types, miscanthus and virgin woodchip.

The facility comprises three fuel storage barns, two for straw type materials and one for wood-chip. The primary combustion chamber has a vibrating, water cooled grate providing heat to a multi-pass boiler with superheaters. There is a water treatment plant which provides conditioned water to the boiler producing superheated steam at a temperature of 540°C at a pressure of 112 bar. This steam passes into a single steam turbine. The steam turbine drives the rotor of an electrical generator for supply to the National Grid.

The flue gas produced in the primary combustion chamber, having passed through the boiler is cleaned prior to discharge. A Selective Catalytic Reduction (SCR) abatement system is in place to reduce oxides of nitrogen (NO<sub>x</sub>). Acid gases, such as sulphur dioxide (SO<sub>2</sub>) and hydrogen chloride (HCl) are adsorbed by hydrated lime being fed into the gas stream prior to the flue gas filter unit which arrests both the lime and particulate material carried over from the furnace. The residue from the filter plant is collected in a silo for off-site disposal.

The resultant, cleaned flue gases then emit to atmosphere through a 60m high exhaust stack which is located in a dedicated windshield. This stack is fitted with Continuous Emission Monitors (CEMs) to measure and record the flue gas concentrations of NO<sub>x</sub>, SO<sub>2</sub>, CO, dust, NH<sub>3</sub> and HCl, in addition periodic measurements of hydrogen fluoride (HF), mercury (Hg) are made.

The water supply for closed circuit process waters, soot blowing and ash conditioning require approximately 50 tonnes of water per day. Some of this comes from a rainwater harvesting system and in addition, as required, from the mains water supply. All process waste-water streams are either recycled within the process or routed to the waste-water treatment plant and treated effluent discharged to the River Thet. All surface water is captured by the on-site drainage system and passed through interceptors prior to discharge into the on-site surface water management system.

Solids produced by the combustion process include furnace bottom ash (solid residues from the boiler furnace), fly-ash and air pollution control residue (APC) which is captured by the filtration unit and transferred to storage. The bottom ash may be sold as fertiliser back to the local farming industry.

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

<b>Status log of the permit</b>		
<b>Description</b>	<b>Date</b>	<b>Comments</b>
Application EPR/AP3037FL/A001 received	Duly made 26/03/2012	Application for a Biomass Combustion Combined Heat and Power facility.
Additional information received	27/04/2012	Confirmation of site National Grid Reference.
Additional information received	15/06/2012	Assessment of nitrogen and acid deposition on local habitats.
Permit determined EPR/AP3037FL	26/09/2012	Permit issued to Icen Energy Limited.
Variation application EPR/AP3037FL/V002	Duly made 14/01/2014	Variation to increase the plant capacity, biomass feedstock and ammonia emission limit.
Variation determined EPR/AP3037FL/V002	17/03/2014	Varied permit issued.
Variation application EPR/AP3037FL/V004 received	Duly made 11/06/2015	Application for change of effluent discharge from sewer to the River Thet.
Additional Information received	23/11/2015	Response to Schedule 5 Notice requiring further information.
Variation determined EPR/AP3037FL/V003	15/12/2015	Environment Agency initiated variation required for compliance with Chapter III of the Industrial Emissions Directive. Pre-operational measure PO3 added to table S1.4 (deleted by V005).

<b>Status log of the permit</b>		
<b>Description</b>	<b>Date</b>	<b>Comments</b>
Variation determined EPR/AP3037FL/V004	16/03/2016	Varied permit issued.
Regulation 60 Notice sent to the Operator	11/05/2016	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.
Regulation 60 Notice response	23/06/2016	Response received from the Operator.
Variation determined EPR/AP3037FL/V005	26/09/2016	Varied and consolidated permit issued in modern condition format.
Application EPR/CP3337YX/T001 (full transfer of permit EPR/AP3037FL)	Duly made 19/07/2017	Application to transfer the application in full to BWSC Generation Services LTD.
Transfer determined EPR/CP3337YX	05/09/2017	Full transfer of permit complete.
Regulation 61 Notice sent to the Operator	01/05/2018	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.	18/10/2018	Response received from the Operator.
Additional information in response to regulation 61(1) Notice	01/04/2019, 30/04/2019	Compliance and operating techniques identified in response to BAT Conclusions 2, 4, 6, 9, 10, 12, 16 and 17.
Additional information in response to regulation 61(1) Notice	02/07/2019	Compliance and operating techniques identified in response to BAT Conclusions 2, 9 and 27
Additional information received EPR/CP3337YX/V002	12/02/2020	Updated drainage plans received.
Additional information received EPR/CP3337YX/V002	09/06/20, 10/06/20	Temporary Start-up and Shut-down criteria.
Additional information received EPR/CP3337YX/V002	12/06/20	Data showing percentage sulphur and chlorine content of fuels combusted at this installation for period 2019 and year to date for 2020. Weighted average for sulphur content of fuels over this period.
Additional information received EPR/CP3337YX/V002	15/06/20	Weight average of chlorine content of fuels combusted at installation for period 2019 and year to date for 2020.
Variation determined EPR/CP3337YX/V002 (Billing ref: FP3331QZ)	18/06/2020	Varied and consolidated permit issued. Effective from 18/06/20

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/CP3337YX**

## Issued to

**BWSC Generation Services UK Limited** (“the operator”)

whose registered office is

### **3 The Point**

**Lions Way**

**Sleaford**

**Lincolnshire**

**United Kingdom**

**NG34 8GG**

company registration number 08366245

to operate a regulated facility at

### **Snetterton Renewable Energy Plant**

**Chalk Lane**

**Snetterton**

**Norfolk**

**NR16 2JZ**

to the extent set out in the schedules.

The notice shall take effect from 18/06/20

<b>Name</b>	<b>Date</b>
<b>Rebecca Warren</b>	<b>18/06/20</b>

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/CP3337YX**

This is the consolidated permit referred to in the variation and consolidation notice for application EPR/CP3337YX/V002 authorising,

**BWSC Generation Services UK Limited** (“the operator”),

whose registered office is

**3 The Point**

**Lions Way**

**Sleaford**

**Lincolnshire**

**United Kingdom**

**NG34 8GG**

company registration number 08366245

to operate a regulated facility at

**Snetterton Renewable Energy Plant**

**Chalk Lane**

**Snetterton**

**Norfolk**

**NR16 2JZ**

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

Name	Date
Rebecca Warren	18/06/20

Authorised on behalf of the Environment Agency

# Conditions

## 1 Management

### 1.1 General management

- 1.1.1 The operator shall manage and operate the activities:
- (a) in accordance with a written management system that identifies and minimises risks of pollution, including those arising from operations, maintenance, accidents, incidents, non-conformances, closure and those drawn to the attention of the operator as a result of complaints; and
  - (b) using sufficient competent persons and resources.
- 1.1.2 Records demonstrating compliance with condition 1.1.1 shall be maintained.
- 1.1.3 Any person having duties that are or may be affected by the matters set out in this permit shall have convenient access to a copy of it kept at or near the place where those duties are carried out.

### 1.2 Energy efficiency

- 1.2.1 The operator shall:
- (a) take appropriate measures to ensure that energy is used efficiently in the activities;
  - (b) take appropriate measures to ensure the efficiency of energy generation at the permitted installation is maximised;
  - (c) review and record at least every four years whether there are suitable opportunities to improve the energy efficiency of the activities; and
  - (d) take any further appropriate measures identified by a review.
- 1.2.2 The operator shall review the viability of Combined Heat and Power (CHP) implementation at least every 4 years, or in response to any of the following factors, whichever comes sooner:
- (a) new plans for significant developments within 15 km of the installation;
  - (b) changes to the Local Plan;
  - (c) changes to the DECC UK CHP Development Map or similar; and
  - (d) new financial or fiscal incentives for CHP.

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

### 1.3 Efficient use of raw materials

- 1.3.1 The operator shall:
- (a) take appropriate measures to ensure that raw materials and water are used efficiently in the activities;
  - (b) maintain records of raw materials and water used in the activities;
  - (c) review and record at least every four years whether there are suitable alternative materials that could reduce environmental impact or opportunities to improve the efficiency of raw material and water use; and
  - (d) take any further appropriate measures identified by a review.



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

- 1.4.1 The operator shall take appropriate measures to ensure that:
- (a) the waste hierarchy referred to in Article 4 of the Waste Framework Directive is applied to the generation of waste by the activities;
  - (b) any waste generated by the activities is treated in accordance with the waste hierarchy referred to in Article 4 of the Waste Framework Directive; and
  - (c) where disposal is necessary, this is undertaken in a manner which minimises its impact on the environment.
- 1.4.2 The operator shall review and record at least every four years whether changes to those measures should be made and take any further appropriate measures identified by a review.

## **2 Operations**

### **2.1 Permitted activities**

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

### **2.2 The site**

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

### **2.3 Operating techniques**

- 2.3.1 The activities shall, subject to the conditions of this permit, be operated using the techniques and in the manner described in the documentation specified in schedule 1, table S1.2, unless otherwise agreed in writing by the Environment Agency.
- 2.3.2 For the following activities referenced in schedule 1, table S1.1: LCP466. 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 activity A1 (LCP466) referenced in schedule 1, table S1.1, the end of the start-up period and the start of the shut-down period shall conform to the specifications set out in Schedule 1, tables S1.2 and S1.4.
- 2.3.6 For the following activities referenced in schedule 1, table S1.1: LCP466. The following conditions apply where there is a malfunction or breakdown of any abatement equipment:
- Unless otherwise agreed in writing by the Environment Agency:

- (i) if a return to normal operations is not achieved within 24 hours, the operator shall reduce or close down operations, or shall operate the activities using low polluting fuels;
- (ii) the cumulative duration of breakdown in any 12-month period shall not exceed 120 hours; and
- (iii) the cumulative duration of malfunction in any 12-month period shall not exceed 120 hours.

2.3.7 The emission limit values from emission points A1 listed in table S3.1 and S3.1a of Schedule 3 following the issue of a Black Start Instruction by the National Grid shall be disregarded for the purposes of compliance whilst that instruction remains effective in accordance with the report submitted in response to improvement condition IC9.

2.3.8 Waste shall only be accepted if:

- (a) it is of a type and quantity listed in schedule 2 table(s) S2.2 and
- (b) it conforms to the description in the documentation supplied by the producer and holder.

2.3.9 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.

2.3.10 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 The emission values from emission point(s) A1 listed in schedule 3 table S3.1, measured during periods of abatement equipment malfunction and breakdown shall be disregarded for the purposes of compliance with Table S3.1 emission limit values.

3.1.4 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.
- (d) where condition 2.3.6 applies, the cumulative duration of breakdown and cumulative duration of malfunction in any 12 month period.

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

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

- (b) for the reporting periods specified in schedule 4 table S4.1 and using the forms specified in schedule 4 table S4.4; and
  - (c) giving the information from such results and assessments as may be required by the forms specified in those tables.
- 4.2.4 The operator shall, unless notice under this condition has been served within the preceding four years, submit to the Environment Agency, within six months of receipt of a written notice, a report assessing whether there are other appropriate measures that could be taken to prevent, or where that is not practicable, to minimise pollution.
- 4.2.5 Within 1 month of the end of each quarter, the operator shall submit to the Environment Agency using the form made available for the purpose, the information specified on the form relating to the site and the waste accepted and removed from it during the previous quarter, if during that quarter the total amount accepted exceeds 100 tonnes of non-hazardous waste or 10 tonnes of hazardous waste.
- 4.2.6 Within 10 days of the notification of abatement equipment malfunction or breakdown (condition 2.3.6) the operator shall submit an Air Quality Risk Assessment as outlined in the IED Compliance Protocol (condition 2.3.2).

### 4.3 Notifications

- 4.3.1 In the event:
- (a) that the operation of the activities gives rise to an incident or accident which significantly affects or may significantly affect the environment, the operator must immediately—
    - (i) inform the Environment Agency,
    - (ii) take the measures necessary to limit the environmental consequences of such an incident or accident, and
    - (iii) take the measures necessary to prevent further possible incidents or accidents;
  - (b) of a breach of any permit condition the operator must immediately—
    - (i) inform the Environment Agency, and
    - (ii) take the measures necessary to ensure that compliance is restored within the shortest possible time;
  - (c) of a breach of permit condition which poses an immediate danger to human health or threatens to cause an immediate significant adverse effect on the environment, the operator must immediately suspend the operation of the activities or the relevant part of it until compliance with the permit conditions has been restored.
  - (d) of any malfunction or breakdown of abatement equipment relating to condition 2.3.13, the operator shall notify the Environment Agency within 48 hours unless notification has already been made under (a) to (c) above.
- 4.3.2 Any information provided under condition 4.3.1 (a)(i), 4.3.1 (b)(i) where the information relates to the breach of a condition specified in the permit, or 4.3.1 (d) where the information relates to malfunction or breakdown of abatement equipment 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

<b>Table S1.1 activities</b>		
<b>Activity listed in Schedule 1 of the EP Regulations</b>	<b>Description of specified activity</b>	<b>Limits of specified activity</b>
Section 1.1 Part A(1)(a): Burning any fuel in an appliance with a rated thermal input of 50 megawatts or more.	LCP466 up to 130MWth: Combustion of biomass fuel in a boiler and generation of electricity with a steam turbine  Diesel generator (477kW) for providing emergency electrical power to the plant in the event of supply interruption.	The receipt of solid biomass at the facility to the discharge of combustion gases and the export of steam to the turbine.  Waste types specified in table S2.2 of this permit.  From receipt of diesel fuel to production of electricity in the event of power failure at the site.
Section 5.4 Part A(1)(a)(ii)	Disposal of non-hazardous waste with a capacity exceeding 50 tonnes per day involving physico-chemical treatment.  (Excludes activities covered by Council Directive 91/271/EEC concerning urban waste-water treatment)	From the receipt of process effluent to its treatment within a dosing and settlement treatment plant pending discharge to the River Thet.  Discharge to river shall only be made when emission limits specified in table S3.2 of this permit are met, and when river flow is between 0.055 m <sup>3</sup> /s and 8.3 m <sup>3</sup> /s (as measured at Redbridge gauging station).
<b>Directly Associated Activity</b>		
Directly associated activity	Diesel storage	Storage of diesel fuel for use at start-up and shut-down of the boiler plant, for the back-up generator and for the catalyst regeneration burner.
Directly associated activity	The generation and export of electricity	The receipt of steam at the steam turbine to return of condensate to the main boiler and discharge from ion exchange resin regeneration to the cooling water return and the export of electricity to the national grid.
Directly associated activity	Surface water drainage	Handling and storage of site drainage from rainwater collection system, settlement lagoons, sumps and drains to discharge to the cooling water return or ditch referenced W2 in Table S3.2.
Directly associated activity	Waste handling and storage	From receipt of waste from on-site activities to storage and despatch from site.



<b>Table S1.2 Operating techniques</b>		
<b>Description</b>	<b>Parts</b>	<b>Date Received</b>
Application received EPR/AP3037FL/A001	All management and control techniques described in the application specifically: The Non-Technical summary, Operating Techniques - Technical Overview of Operation Section 2.3.3 - Environmental Management System Section 2.3.5 - Operations and Maintenance Section 2.5.3.5 - Water Quality and Resources Section 3.3 - Operating Techniques Section 3.4 - Monitoring	Duly Made 26/03/2012
Variation application EPR/AP3037FL/V002	Application forms Part C2 and C3 and referenced supporting information.	Duly Made 14/01/2014
Variation application EPR/AP3037FL/V004 and additional information.	Application for substantial variation parts :- Forms C2, C3 (revised), W4048-150318 – EP Supporting Info, Environmental Risk Assessment, DEM7323-RT001-R09-00-Water Quality Assessment, Ecological Risk Assessment, H1v2_72, 2014.S2.K01.001.RA.Plant Effluent System, additional information provided 27th May 2015, S1901-0010-0003JRS and Clarification on Duly Making.	11/06/2015
Schedule 5 Response	All information including: 915 Buffer Tanks Location; 2014.S2.K01.002.R0 Trade Effluent System, MCM7593-RT001-R01-00, w4048-151123 – Treatment details.	23/11/2015
Additional information received	Email providing clarification on monitoring / testing prior to discharge from Buffer Storage Tanks.	25/02/2016
Response to regulation 60(1) Notice – request for information dated 11/05/2016	Compliance route and operating techniques identified in response to questions 1 (compliance route) and 2 (LCP configuration).	Received 23/06/2016
Full Regulation 60 Notice response	Spreadsheet	Received 10/01/2017
Response to Improvement Condition 1	Final commissioning report July 2017 ref 2014-ENV-01-01.	10/08/2017
Response to regulation 61(1) Notice – request for information dated 01/05/18 EPR/CP3337YX/V002	Compliance and operating techniques identified in response to the BAT Conclusions for large combustion plant published on 17th August 2017.	18/10/2018
Additional information in response to regulation 61(1) Notice EPR/CP3337YX/V002	Compliance and operating techniques identified in response to BAT Conclusions 2, 4, 6, 9, 10, 12, 16 and 17.	01/04/2019, 30/04/2019
Additional information in response to regulation 61(1) Notice EPR/CP3337YX/V002	Compliance and operating techniques identified in response to BAT Conclusions 2, 9 and 27.	02/07/2019

<b>Table S1.2 Operating techniques</b>		
<b>Description</b>	<b>Parts</b>	<b>Date Received</b>
Additional information received EPR/CP3337YX/V002	Updated drainage management plans reference 2014.CO.700.000 and 2014.S2.K01.001; and Updated site layout plan including effluent outfall pipeline reference W4048-d01.	12/02/2020
Additional information received EPR/CP3337YX/V002	Temporary Start-up- and shut-down criteria.	09/06/20 and 10/06/20
Additional information received EPR/CP3337YX/V002	Data showing percentage sulphur content of fuels combusted at this installation for period 2019 and year to date for 2020. Weighted average for sulphur content of fuels over this period.	12/06/20
Additional information received EPR/CP3337YX/V002	Weighted average of chlorine content of fuels combusted at installation for period 2019 and year to date for 2020.	15/06/20

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
Improvement conditions IC1, IC2, IC4 and IC6 – confirmed completed and therefore deleted from the permit through EPR/CP3337YX/V002.		
IC3	A written report shall be submitted to the Environment Agency of the results of an assessment of whether there are other appropriate measures that could be taken to prevent, or where that is not practicable, to minimise pollution for the activities covered by this permit. The report shall be in sufficient detail to allow a permit review. The report shall also contain a time-scale for the implementation of any individual measures identified to improve the performance of the installation, including emissions control performance, as appropriate following the review.	48 months after the completion of commissioning
IC5	<p>The operator shall provide a detailed report containing a review of 12 months of monthly monitoring data (for the following pollutants) as required by table S3.2:-</p> <ul style="list-style-type: none"> <li>• Arsenic</li> <li>• Cadmium</li> <li>• Chromium III</li> <li>• Chromium VI</li> <li>• Copper</li> <li>• Lead</li> <li>• Nickel</li> <li>• Zinc</li> </ul> <p>The report shall include an assessment of measured emissions in comparison to predicted emissions (as provided within application data). Where emission concentrations are higher than predicted, the operator shall provide:-</p> <p>i) a detailed justification for this, ii) a detailed assessment of impacts (using the actual data), and iii) submit improvement proposals (with timescales for their implementation) in order to remove such variances.</p> <p>The report shall seek written approval from the Environment Agency. Limits and Monitoring requirements specified within table S3.2 may be subject to change (by the Environment Agency) following the completion of this condition.</p>	6 months from permit issue
IC7	<p>The operator shall submit a revised report in writing to the Environment Agency for acceptance. The report shall define and provide a written justification of the “minimum start-up load” and “minimum shut-down load”, for each unit within the LCP as required by the Implementing Decision 2012/249/EU in terms of:</p> <ol style="list-style-type: none"> <li>i. The output load (i.e. electricity, heat or power generated) (MW); and</li> <li>ii. This output load as a percentage of the rated thermal output of the combustion plant (%).</li> </ol> <p>And / Or</p> <ol style="list-style-type: none"> <li>iii. At least three criteria (operational parameters and / or discrete processes as detailed in the Annex) or equivalent operational parameters that suit the technical characteristics of the plant, which can be met at the end of start-up or start of shut-down as detailed in Article (9) 2012/249/EU.</li> </ol>	31/12/2020

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
Improvement conditions IC1, IC2, IC4 and IC6 – confirmed completed and therefore deleted from the permit through EPR/CP3337YX/V002.		
IC8	<p><u>BAT Conclusion 9</u></p> <p>The operator shall submit a procedure for approval outlining how the LCP fuel will be characterised with regards to F, K, Na and Metals and Metalloids (As, Cd, Co, Cr, Cu, Mn, Ni, Pb, Sb, Se, Tl, V, Zn) in line with Best Available Techniques Conclusion 9 in order to improve general performance of combustion and to reduce emissions to air. The procedure must include, but is not limited to, the following elements:</p> <p>Initial fuel characterisation; Regular testing of the fuel quality to check that it is consistent with the initial characterisation and according to the plant design specifications; and Subsequent adjustments of the plant settings as and when needed and practicable.</p>	01/06/2021
IC9	<p>A written report shall be submitted to the Environment Agency for approval. The report shall contain an impact assessment demonstrating that there is no significant environmental risk associated with black start operations and propose a methodology for minimisation of environmental impact during such a period of operation and for reporting instances of black start operation.</p> <p>The plant can be operated as set out in condition 2.3.7 of the permit once the report has been approved by the Environment Agency. The methodology for operation and reporting set out in the report shall be implemented by the Operator from the date of approval by the Environment Agency.</p>	12 months from issue of variation EPR/CP3337YX/V002

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 (%)
A1 LCP 466	<p><b>Temporary MSUL Criteria</b> which applies until the completion of IC7:</p> <p>Boiler load <math>\geq 55\text{MW}_{\text{th}}</math> (equates to 18MWe or 42% of rated electrical output) AND Start-up Burner OUT of service AND Catalyst Flue Gas Inlet Temperature <math>\geq 168^{\circ}\text{C}</math>.</p>	<p><b>Temporary MSDL Criteria</b> which applies until the completion of IC7:</p> <p>Boiler load <math>\leq 55\text{MW}_{\text{th}}</math> (equates to 18MWe or 42% of rated electrical output) OR Start-up Burner IN service OR Catalyst Flue Gas Inlet Temperature <math>\leq 168^{\circ}\text{C}</math>.</p>
A1 LCP 466	<p><b>Permanent MSUL Criteria:</b></p> <p>To be agreed in writing by the Environment Agency, following the outcome of improvement condition IC7 in table S1.3 of this permit.</p>	<p><b>Permanent MSDL Criteria:</b></p> <p>To be agreed in writing by the Environment Agency, following the outcome of improvement condition IC7 in table S1.3 of this permit.</p>

## Schedule 2 – Raw materials and fuels

Table S2.1 Raw materials and fuels	
Raw materials and fuel description	Specification
Diesel oil	Not exceeding 0.1 % w/w sulphur content

Table S2.2 Permitted waste types and quantities for use as fuels. Industrial Emissions Directive Chapter IV excluded waste only.	
Biomass Feedstock	Maximum throughput of 280,000 tonnes per annum.
Waste code	Description
<b>02</b>	<b>Wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing, food preparation and processing</b>
<b>02 01</b>	<b>wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing</b>
02 01 03	plant-tissue waste
02 01 07	wastes from forestry
<b>02 03</b>	<b>wastes from fruit, vegetables, cereals, edible oils, cocoa, coffee, tea and tobacco preparation and processing; conserve production; yeast and yeast extract production, molasses preparation and fermentation</b>
02 03 04	materials unsuitable for consumption or processing
<b>03</b>	<b>Wastes from wood processing and the production of panels and furniture, pulp, paper and cardboard</b>
<b>03 01</b>	<b>wastes from wood processing and the production of panels and furniture</b>
03 01 01	waste bark and cork
03 01 05	sawdust, shavings, cuttings, wood, particle board and veneer other than those mentioned in 03 01 04
<b>19</b>	<b>Wastes from waste management facilities, off-site waste water treatment plants and the preparation of water intended for human consumption and water for industrial use</b>
<b>19 12</b>	<b>wastes from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified</b>
19 12 07	wood other than that mentioned in 19 12 06 – chapter IV excluded waste only

## Schedule 3 – Emissions and monitoring

Table S3.1 Point source emissions to air from biomass boiler - emission limits and monitoring requirements shall apply until 16 August 2021						
Emission point ref. & location	Parameter	Source	Limit (including unit)-these limits do not apply during start up or shut down.	Reference period	Monitoring frequency	Monitoring standard or method
A1 [boiler plant exhaust stack]	Oxides of nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )	LCP 466 biomass fired boiler	200 mg/m <sup>3</sup>	Calendar monthly mean	Continuous	BS EN 14181
A1 [boiler plant exhaust stack]	Oxides of nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )	LCP 466 biomass fired boiler	200 mg/m <sup>3</sup>	Daily mean of validated hourly averages	Continuous	BS EN 14181
A1 [boiler plant exhaust stack]	Oxides of nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )	LCP 466 biomass fired boiler	400 mg/m <sup>3</sup>	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
A1 [boiler plant exhaust stack]	Sulphur dioxide	LCP 466 biomass fired boiler	200 mg/m <sup>3</sup>	Calendar monthly mean	Continuous	BS EN 14181
A1 [boiler plant exhaust stack]	Sulphur dioxide	LCP 466 biomass fired boiler	200 mg/m <sup>3</sup>	Daily mean of validated hourly averages	Continuous	BS EN 14181
A1 [boiler plant exhaust stack]	Sulphur dioxide	LCP 466 biomass fired boiler	400 mg/m <sup>3</sup>	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
A1 [boiler plant exhaust stack]	Dust	LCP 466 biomass fired boiler	20 mg/m <sup>3</sup>	Calendar monthly mean	Continuous	BS EN 14181
A1 [boiler plant exhaust stack]	Dust	LCP 466 biomass fired boiler	20 mg/m <sup>3</sup>	Daily mean of validated hourly averages	Continuous	BS EN 14181
A1 [boiler plant exhaust stack]	Dust	LCP 466 biomass fired boiler	40 mg/m <sup>3</sup>	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181

<b>Table S3.1 Point source emissions to air from biomass boiler</b>						
<b>- emission limits and monitoring requirements shall apply until 16 August 2021</b>						
<b>Emission point ref. &amp; location</b>	<b>Parameter</b>	<b>Source</b>	<b>Limit (including unit)-these limits do not apply during start up or shut down.</b>	<b>Reference period</b>	<b>Monitoring frequency</b>	<b>Monitoring standard or method</b>
A1 [boiler plant exhaust stack]	Oxygen	LCP 466 biomass fired boiler	-	-	Continuous as appropriate to reference	BS EN 14181
A1 [boiler plant exhaust stack]	Water vapour	LCP 466 biomass fired boiler	-	-	Continuous as appropriate to reference	BS EN 14181
A1 [boiler plant exhaust stack]	Stack gas temperature	LCP 466 biomass fired boiler	-	-	Continuous as appropriate to reference	Traceable to national standards
A1 [boiler plant exhaust stack]	Stack gas pressure	LCP 466 biomass fired boiler	-	-	Continuous as appropriate to reference	Traceable to national standards
A1 [boiler plant exhaust stack]	As required by the Method Implementation Document for BS EN 15259	LCP 466 biomass fired boiler	-	-	Pre-operation and when there is a significant operational change	BS EN 15259
A1 [boiler plant exhaust stack]	Hydrogen Chloride	LCP 466 biomass fired boiler	25 mg/Nm <sup>3</sup>	Daily mean of validated hourly averages	Continuous	BS EN 14181
A1 [boiler plant exhaust stack]	Ammonia	LCP 466 biomass fired boiler	10 mg/Nm <sup>3</sup>	Daily mean of validated hourly averages	Continuous	BS EN 14181

<b>Table S3.1(a) Point source emissions to air</b>						
<b>- emission limits and monitoring requirements shall apply from 17 August 2021</b>						
<b>Emission point ref. &amp; location</b>	<b>Parameter</b>	<b>Source</b>	<b>Limit (including unit)-these limits do not apply during start up or shut down.</b>	<b>Reference period</b>	<b>Monitoring frequency</b>	<b>Monitoring standard or method</b>
A1 [boiler plant exhaust stack]	Oxides of Nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )	LCP No. 466 biomass fired boiler	200 mg/Nm <sup>3</sup>	Monthly mean of validated hourly averages	Continuous	BS EN 14181
A1 [boiler plant exhaust stack]	Oxides of Nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )	LCP No. 466 biomass fired boiler	200 mg/Nm <sup>3</sup>	Daily mean of validated hourly averages	Continuous	BS EN 14181
A1 [boiler plant exhaust stack]	Oxides of Nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )	LCP No. 466 biomass fired boiler	400 mg/Nm <sup>3</sup>	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
A1 [boiler plant exhaust stack]	Oxides of Nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )	LCP No. 466 biomass fired boiler	180 mg/Nm <sup>3</sup>	Yearly average	Continuous	BS EN 14181
A1 [boiler plant exhaust stack]	Carbon monoxide	LCP No. 466 biomass fired boiler	160 mg/Nm <sup>3</sup>	Yearly average	Continuous	BS EN 14181
A1 [boiler plant exhaust stack]	Sulphur Dioxide	LCP No. 466 biomass fired boiler	200 mg/Nm <sup>3</sup>	Monthly mean of validated hourly averages	Continuous	BS EN 14181
A1 [boiler plant exhaust stack]	Sulphur Dioxide	LCP No. 466 biomass fired boiler	200 mg/Nm <sup>3</sup>	Daily mean of validated hourly averages	Continuous	BS EN 14181
A1 [boiler plant exhaust stack]	Sulphur Dioxide	LCP No. 466 biomass fired boiler	400 mg/Nm <sup>3</sup>	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
A1 [boiler plant exhaust stack]	Sulphur Dioxide	LCP No. 466 biomass fired boiler	100 mg/Nm <sup>3</sup>	Yearly average	Continuous	BS EN 14181
A1 [boiler plant exhaust stack]	Hydrogen chloride	LCP No. 466 biomass fired boiler	25 mg/Nm <sup>3</sup>	Daily mean of validated hourly averages	Continuous	BS EN 14181



<b>Table S3.1(a) Point source emissions to air</b>						
<b>- emission limits and monitoring requirements shall apply from 17 August 2021</b>						
<b>Emission point ref. &amp; location</b>	<b>Parameter</b>	<b>Source</b>	<b>Limit (including unit)-these limits do not apply during start up or shut down.</b>	<b>Reference period</b>	<b>Monitoring frequency</b>	<b>Monitoring standard or method</b>
A1 [boiler plant exhaust stack]	Hydrogen chloride	LCP No. 466 biomass fired boiler	25 mg/Nm <sup>3</sup>	Yearly average	Continuous	BS EN 14181
A1 [boiler plant exhaust stack]	Hydrogen fluoride	LCP No. 466 biomass fired boiler	<1 mg/Nm <sup>3</sup>	Average over the sampling period	At least once a year	BS EN 14181
A1 [boiler plant exhaust stack]	Dust	LCP No. 466 biomass fired boiler	20 mg/Nm <sup>3</sup>	Calendar monthly mean	Continuous	BS EN 14181
A1 [boiler plant exhaust stack]	Dust	LCP No. 466 biomass fired boiler	18 mg/Nm <sup>3</sup>	Daily average or average over the sampling period	Continuous	BS EN 14181
A1 [boiler plant exhaust stack]	Dust	LCP No. 466 biomass fired boiler	40 mg/Nm <sup>3</sup>	95% of validated hourly averages within a calendar year	Continuous	BS EN 14181
A1 [boiler plant exhaust stack]	Dust	LCP No. 466 biomass fired boiler	12 mg/Nm <sup>3</sup>	Yearly average	Continuous	BS EN 14181
A1 [boiler plant exhaust stack]	Mercury	LCP No. 466 biomass fired boiler	5 µg/Nm <sup>3</sup>	Average over the sampling period	At least once every year	EN 13211
A1 [boiler plant exhaust stack]	Ammonia	LCP No. 466 biomass fired boiler	10 mg/Nm <sup>3</sup>	Yearly average	Continuous	EN 14181
A1 [boiler plant exhaust stack]	Flow	LCP No. 466 biomass fired boiler	-	-	Continuous As appropriate to reference	EN ISO 16911
A1 [boiler plant exhaust stack]	Oxygen	LCP No. 466 biomass fired boiler	-	-	Continuous As appropriate to reference	BS EN 14181
A1 [boiler plant exhaust stack]	Water Vapour	LCP No. 466 biomass fired boiler	-	-	Continuous As appropriate to reference	BS EN 14181

<b>Table S3.1(a) Point source emissions to air</b>						
<b>- emission limits and monitoring requirements shall apply from 17 August 2021</b>						
<b>Emission point ref. &amp; location</b>	<b>Parameter</b>	<b>Source</b>	<b>Limit (including unit)-these limits do not apply during start up or shut down.</b>	<b>Reference period</b>	<b>Monitoring frequency</b>	<b>Monitoring standard or method</b>
A1 [boiler plant exhaust stack]	Stack gas temperature	LCP No. 466 biomass fired boiler	-	-	Continuous As appropriate to reference	Traceable to national standards
A1 [boiler plant exhaust stack]	Stack gas pressure	LCP No. 466 biomass fired boiler	-	-	Continuous As appropriate to reference	Traceable to national standards
A1 [boiler plant exhaust stack]	As required by the Method Implementation Document for BS EN 15259	LCP No. 466 biomass fired boiler	-	-	Pre-operation and when there is a significant operational change	BS EN 15259

Table S3.2 Point Source emissions to water (other than sewer) – emission limits and monitoring requirements						
Emission point ref. & location	Source	Parameter	Limit (incl. unit)	Reference Period	Monitoring frequency	Monitoring standard or method
W1 (599651,292389) to River Thet [as shown on application document W4048-d11-I00 and in Schedule 7 Note 1]	Effluent treatment plant	Maximum effluent flow	115.8 m <sup>3</sup> /day	Total daily volume	Continuous	MCERTs
		15-minute instantaneous or averaged flow	No limit set. [record as m <sup>3</sup> /s]	15 minute	Continuous	
		pH	6 - 9	Instantaneous	Continuous	BS ISO 10523
		Suspended solids	40 mg/l	24-hour flow proportional sample	weekly for first 3 months of operation, then monthly thereafter	BS EN 872
		Chemical oxygen demand (COD)	100 mg/l			BS 6068-2.34
		Biochemical oxygen demand (BOD)	30 mg/l			BS EN 1899-1
		Ammoniacal nitrogen (expressed as N)	20 mg/l (max)			SCA blue book 48 ISBN 0117516139
			15 mg/l (for 95% of all measured values of periodic samples taken over one month)			
		Arsenic	No Limit Set Note 2	24-hour flow proportional sample	weekly for first 2 months of operation, then monthly thereafter Note 2	BS EN 26595 ISO 6595 BS
		Cadmium				BS EN ISO 5961
		Chromium III				BS EN 1233
		Chromium VI				BS EN 1233
		Copper				BS 6068-2.29 ISO 8288
		Lead				
		Nickel				
Zinc						
W2 (600832, 291142) [as shown in Schedule 7] hydrobrake outfall to Northern ditch	Surface water drainage, as defined in application document drawing	Oil and grease				No visible emission

system, tributary of River Thet	2014-S2-K01-001					
<p>Note 1 Discharge to River Thet shall only be made when the river flow is between 0.055 m<sup>3</sup>/s and 8.3 m<sup>3</sup>/s (as measured at Redbridge gauging station).</p> <p>Note 2 To be revised following the collection of 12 months of monitoring data as required by Improvement Condition IC5 in table S1.3 of this permit.</p>						

<b>Table S3.3 Process monitoring requirements</b>				
<b>Emission point reference or source or description of point of measurement</b>	<b>Parameter</b>	<b>Monitoring frequency</b>	<b>Monitoring standard or method</b>	<b>Other specifications</b>
LCP 466	Net electrical efficiency	After each modification which that could significantly affect these parameters	EN Standards or equivalent	-

## Schedule 4 – Reporting

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

<b>Table S4.1 Reporting of monitoring data</b>			
<b>Parameter</b>	<b>Emission or monitoring point/reference</b>	<b>Reporting period</b>	<b>Period begins</b>
Oxides of nitrogen	A1	Every 3 months for continuous monitoring	1 January, 1 April, 1 July, 1 October
		Every year where there is a yearly average	1 January
Carbon monoxide	A1	Every year where there is a yearly average	1 January
Sulphur dioxide	A1	Every 3 months for continuous monitoring	1 January, 1 April, 1 July, 1 October
		Every year where there is a yearly average	1 January
Hydrogen chloride	A1	Every 3 months for continuous monitoring	1 January, 1 April, 1 July, 1 October
		Every year where there is a yearly average	1 January
Hydrogen fluoride	A1	Annually	1 January
Dust	A1	Every 3 months for continuous monitoring	1 January, 1 April, 1 July, 1 October
		Every year where there is a yearly average	1 January
Mercury	A1	Annually	1 January
Ammonia	A1	Annually	1 January
Emissions to water Parameters as required by condition 3.5.1	W1	Every 6 months	1 January, 1 July
Functioning and monitoring of the thermal treatment plant as required condition 4.2.2		Annual	1 January

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

<b>Table S4.3 Large Combustion Plant Performance parameters for reporting to DEFRA</b>		
<b>Parameter</b>	<b>Frequency of assessment</b>	<b>Units</b>
Thermal Input Capacity for each LCP	Annually	MW
Annual Fuel Usage for each LCP	Annually	TJ
Total Emissions to Air of NO <sub>x</sub> for each LCP	Annually	t
Total Emissions to Air of SO <sub>2</sub> for each LCP	Annually	t
Total Emissions to Air of Dust for each LCP	Annually	t
Operating Hours for each LCP	Annually	hr

<b>Table S4.4 Reporting forms</b>		
<b>Media/ parameter</b>	<b>Reporting format</b>	<b>Agency recipient</b>
Air & Energy	Form IED AR1 – SO <sub>2</sub> , NO <sub>x</sub> and dust mass emission and energy Form as agreed in writing by the Environment Agency.	National and Area Office
LCP	Form IED HR1 – operating hours Form as agreed in writing by the Environment Agency.	National and Area Office
Air	Form IED CON 1 – continuous monitoring. Form as agreed in writing by the Environment Agency.	Area Office
LCP	Form IED BD1 - Cumulative annual rolling malfunction and breakdown hours Form as agreed in writing by the Environment Agency.	Area Office
Air	Form IED MF1 – pollutant concentrations when during any day with malfunction or breakdown of abatement plant Form as agreed in writing by the Environment Agency.	Area Office
CEMs	Form IED CEM – Invalidation Log Form as agreed in writing by the Environment Agency.	Area Office
Air	Form IED PM1 - discontinuous monitoring and load. Form as agreed in writing by the Environment Agency.	Area Office
Resource Efficiency	Form REM1 – resource efficiency annual report. Form as agreed in writing by the Environment Agency.	National and Area Office
Water	Form water 1 or other form as agreed in writing by the Environment Agency	Area Office

# Schedule 5 – Notification

These pages outline the information that the operator must provide.

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

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

## Part A

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

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

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



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

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

## Part B – to be submitted as soon as practicable

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

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

\* authorised to sign on behalf of the operator

## Part C Malfunction or Breakdown of LCP abatement equipment

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

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

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

\*\* authorised to sign on behalf of the operator

## Schedule 6 – Interpretation

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

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

“annually” means once every year.

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

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

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

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

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

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

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

“biomass” means:

(a) vegetable matter from agriculture and forestry;

(b) vegetable waste from the food processing industry, if the heat generated is recovered;

(c) fibrous vegetable waste from virgin pulp production and from production of paper from pulp, if it is co-incinerated at the place of production and the heat generated is recovered;

(d) cork waste; and

(e) wood waste with the exception of wood waste which may contain halogenated organic compounds or heavy metals as a result of treatment with wood preservatives or coating, and which includes in particular such wood waste originating from construction and demolition waste.

“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.

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

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

“CEN” means Comité Européen de Normalisation.

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

“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<sub>x</sub> burners.

“dynamic emission limit value” (DELV) means an emission limit that varies in accordance with Article 40 of the Industrial Emissions Directive.

“emissions to land” includes emissions to groundwater.

“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.

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

“List of Wastes” means the list of wastes established by Commission Decision 2000/532/EC replacing Decision 94/3/EC establishing a list of wastes pursuant to Article 1(a) of Council Directive 75/442/EEC on waste and Council Decision 94/904/EC establishing a list of hazardous waste pursuant to Article 1(4) of Council Directive 91/689/EEC on hazardous waste, as amended from time to time.

“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.

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

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

“MCR” means maximum continuous rating.

“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.

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

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

“SI” means site inspector.

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

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

“Waste Framework Directive” or “WFD” means Waste Framework Directive 2008/98/EC of the European Parliament and of the Council on waste.

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.

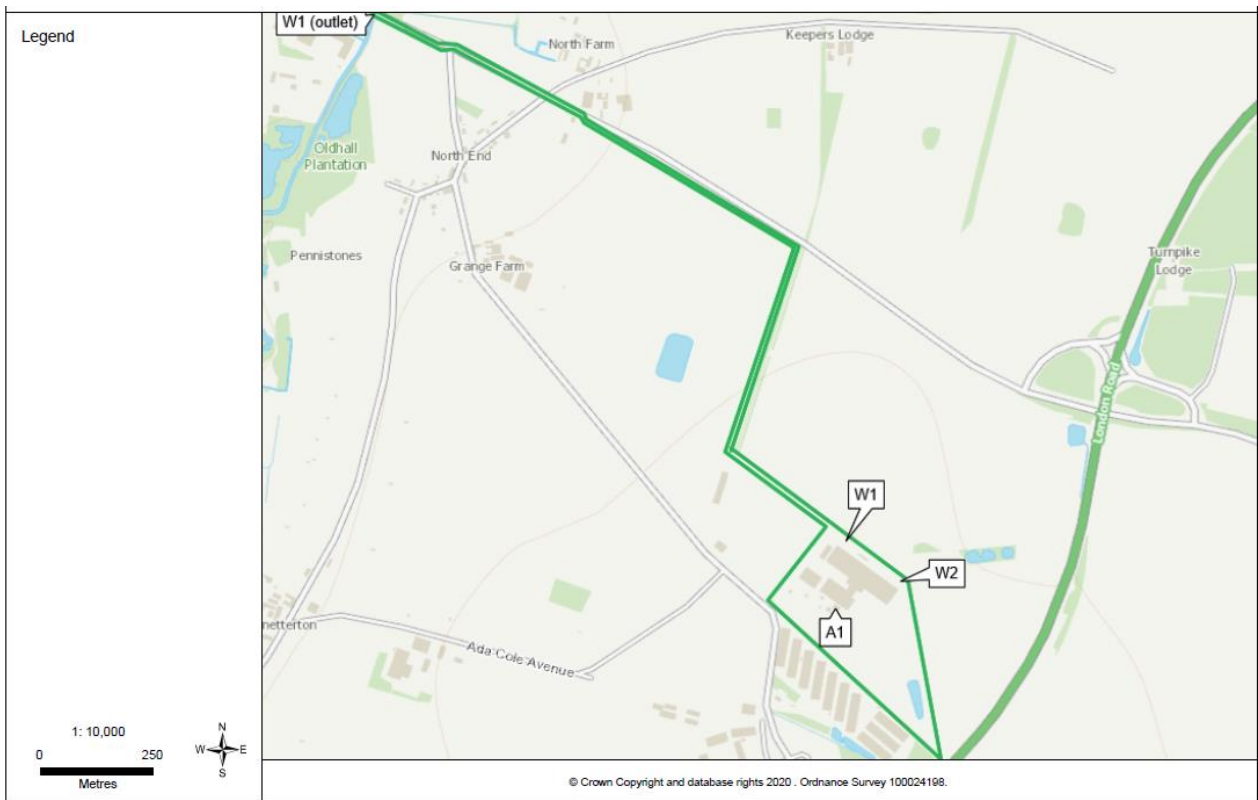
Unless otherwise stated, any references in this permit to concentrations of substances in emissions into air means:

- 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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