

# Permit with introductory note

The Environmental Permitting (England & Wales) Regulations 2010

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Gaia Heat (Coeus) Limited

Immingham Biomass Boilers  
West Riverside  
Immingham  
South Humberside  
DN40 2QU

Permit number  
EPR/RP3130EG

# Immingham Biomass Boilers

## Permit Number EPR/RP3130EG

### Introductory note

#### ***This introductory note does not form a part of the permit***

This permit controls the operation of a waste co-incineration plant. The relevant listed activity is Section 5.1 Part A(1)(b) – co-incineration of non-hazardous waste in a waste co-incineration plant with a capacity exceeding 3 tonnes per hour. The permit implements the requirement of the EU Directives on Industrial Emissions and Waste.

The main features of the facility are as follows:

The plant is designed to produce process heating steam for the adjacent biodiesel production facility operated by Greenergy Biofuels Ltd by the burning of biomass and waste wood biomass in two solid fuel inclined moving grate combustion boiler units. The combustion boiler units each have a thermal input capacity of 5.5 MWth (11 MWth total and a combined throughput capacity of 3.28 tonnes per hour) and will supply process steam at 10 bar and 180 °C to the biodiesel facility. The plant will replace an existing medium fuel oil fired package boiler system of approximately 7 MWth that currently serves the site, and which will be decommissioned once this plant is operational. This biomass co-incineration plant and the adjacent biodiesel production facility form a single installation, with the respective activities at each part of the site being controlled by separate operators under separate environmental permits.

The installation is situated in a predominantly industrial location within the port/harbour area of Immingham Dock at grid reference 519623,416452. The town of Immingham lies approximately 2 km to the west and the Humber Estuary is immediately to the north and east of the site.

Pre-prepared biomass and waste wood biomass chip will be delivered via 'drop and swap' enclosed road transport trailers. The chipped waste biomass is then fed directly from these enclosed trailers to the moving grate combustion units via the fuel feed system.

The twin chamber furnace design ensures that a temperature of at least 850°C for a period of at least two seconds is achieved in the combustion chamber. To ensure that the temperature does not fall below 850°C, auxiliary burners firing low sulphur kerosene are automatically triggered by online process monitoring equipment. The auxiliary burners are also used to achieve and maintain the minimum furnace temperature during start up and shutdown periods. The combustion units are designed with provision for Selective Non-Catalytic Reduction (SNCR), involving the injection of urea into the combustion chamber, to enable the abatement of nitrogen oxides. The flue gas stream is also equipped with further abatement provision by hydrated lime and activated carbon injection prior to passing through a fabric bag filter arrangement for control of fine particulate release.

The combined cleaned flue gas from each combustion unit is continuously monitored for particulate matter, oxides of nitrogen, sulphur dioxide, carbon monoxide, total organic carbon, hydrogen chloride, hydrogen fluoride and ammonia prior to discharge through a 25 m tall stack.

Solid waste residues from the co-incineration process, incinerator bottom ash (IBA) from the furnace grate and air pollution control (APC) residues from the bag filter system are collected in separate enclosed containers prior to being removed from the site for subsequent treatment or disposal at an appropriately authorised facility.

The site has a minimal footprint and is totally surfaced with imperious concrete. Storm water and blow down water from the boiler steam cycle are collected in an interceptor break tank for monitoring prior to transfer to the oil/water separator plant on the Greenergy area of the installation.

The permit sets conditions controlling the management, operation and the control of emissions from the installation, including the monitoring and reporting of emissions to all environmental media.

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

<b>Status Log of the permit</b>		
<b>Detail</b>	<b>Date</b>	<b>Comments</b>
Application EPR/RP3130EG/A001	Duly made 10/01/14	
Permit EPR/RP3130EG issued	12/05/14	

<b>Other Part A installation permits relating to this installation</b>		
<b>Operator</b>	<b>Permit Number</b>	<b>Date of Issue</b>
Greenergy Biofuels Limited	EPR/BP3036ZJ	04/03/13

(Permit EPR/GP3232MH transferred from PX Biodiesel Immingham Limited on this date).

End of Introductory Note

# Permit

The Environmental Permitting (England and Wales) Regulations 2010

Permit number  
**EPR/RP3130EG**

The Environment Agency hereby authorises, under regulation 13 of the Environmental Permitting (England and Wales) Regulations 2010

**Gaia Heat (Coeus) Limited** (“the operator”),  
whose registered office is

**71a High Street  
Yarm  
North Yorkshire  
TS15 9BG**

company registration number **08567314**

to operate an installation at

**Immingham Biomass Boilers  
West Riverside  
Immingham  
South Humberside  
DN40 2QU**

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

Name	Date
<b>C G Morris</b>	<b>12/05/14</b>

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 recovered with a high level of energy efficiency and energy is used efficiently in the activities;
- (b) review and record at least every four years whether there are suitable opportunities to improve the energy recovery and efficiency of the activities; and
- (c) 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; and
- (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 waste disposal is necessary, this is undertaken in a manner which minimises its impact on the environment.

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

## 1.5 Multiple operator installations

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

# 2 Operations

## 2.1 Permitted activities

- 2.1.1 The operator is only authorised to carry out the activities specified in schedule 1 table S1.1 (the “activities”).
- 2.1.2 Waste authorised by this permit in condition 2.3.3 shall be clearly distinguished from any other waste on the site.

## 2.2 The site

- 2.2.1 The activities shall not extend beyond the site, being the land shown edged in red on the site plan at schedule 7 to this permit, which is within the area edged in green on the site plan that represents the extent of the installation covered by this permit and that of the other operator of the installation.

## 2.3 Operating techniques

- 2.3.1 (a) 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.
- (b) 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 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.
- 2.3.2 Any raw materials or fuels listed in schedule 2 table S2.1 shall conform to the specifications set out in that table.
- 2.3.3 Waste shall only be accepted if:
- (a) it is of a type and quantity listed in schedule 2 table S2.2; and
- (b) it conforms to the description in the documentation supplied by the producer or holder;
- (c) it having been separately collected for recycling, it is subsequently unsuitable for recovery by recycling.
- 2.3.4 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.

- 2.3.5 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.
- 2.3.6 Waste fuel shall not be charged, or shall cease to be charged, if:
- (a) the combustion chamber temperature is below, or falls below, 850°C; or
  - (b) any continuous emission limit value in schedule 3 table S3.1 is exceeded, other than under abnormal operating conditions ; or
  - (c) monitoring results required to demonstrate compliance with any continuous emission limit value in schedule 3 table S3.1 are unavailable other than under abnormal operating conditions.
- 2.3.7 The operator shall have at least one auxiliary burner in each line at start up or shut down or whenever the operating temperature falls below that specified in condition 2.3.6, as long as incompletely burned waste is present in the combustion chamber. Unless the temperature specified in condition 2.3.6 is maintained in the combustion chamber, such burner(s) may be fed only with fuels which result in emissions no higher than those arising from the use of gas oil, liquefied gas or natural gas.
- 2.3.8 The operator shall record the beginning and end of each period of “abnormal operation”.
- 2.3.9 During a period of “abnormal operation”, the operator shall restore normal operation of the failed equipment or replace the failed equipment as rapidly as possible.
- 2.3.10 Where, during “abnormal operation”, any of the following situations arise, waste shall cease to be charged until normal operation can be restored:
- (a) continuous measurement shows that an emission exceeds any emission limit value in schedule 3 table S3.1 due to disturbances or failures of the abatement systems, or continuous emission monitor(s) are out of service, as the case may be, for a total of 4 hours uninterrupted duration;
  - (b) the cumulative duration of “abnormal operation” periods over 1 calendar year has reached 60 hours.
- 2.3.11 The operator shall interpret the end of the period of “abnormal operation” as the earliest of the following:
- (a) when the failed equipment is repaired and brought back into normal operation;
  - (b) when the operator initiates a shut down of the waste combustion activity, as described in the application or as agreed in writing with the Environment Agency;
  - (c) when a period of four hours has elapsed from the start of the “abnormal operation”;
  - (d) when, in any calendar year, an aggregated period of 60 hours “abnormal operation” has been reached.
- 2.3.12 Bottom ash and APC residues shall not be mixed.

## **2.4 Improvement programme**

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

## **2.5 Pre-operational conditions**

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

# **3 Emissions and monitoring**

## **3.1 Emissions to water, air or land**

- 3.1.1 There shall be no point source emissions to water, air or land except from the sources and emission points listed in schedule 3 tables S3.1 and S3.2.

- 3.1.2 The limits given in schedule 3 shall not be exceeded.
- 3.1.3 Wastes produced at the site shall, as a minimum, be sampled and analysed in accordance with schedule 3 table S3.4. Additional samples shall be taken and tested and appropriate action taken, whenever:
- (a) disposal or recovery routes change; or
  - (b) it is suspected that the nature or composition of the waste has changed such that the route currently selected may no longer be appropriate.

## **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.
- 3.2.4 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.

## **3.3 Monitoring**

- 3.3.1 The operator shall, unless otherwise agreed in writing by the Environment Agency, undertake the monitoring specified in the following tables in schedule 3 to this permit:
- (a) point source emissions specified in tables S3.1 and S3.2;
  - (b) process monitoring specified in table S3.3;
  - (c) residue quality in table S3.4
- 3.3.2 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 continual), calibrations, examinations, tests and surveys and any assessment or evaluation made on the basis of such data.
- 3.3.3 Monitoring equipment, techniques, personnel and organisations employed for the emissions monitoring programme and the environmental or other monitoring specified in condition 3.3.1 shall have either MCERTS certification or MCERTS accreditation (as appropriate) unless otherwise agreed in writing by the Environment Agency. Newly installed CEMs, or CEMs replacing existing CEMs, shall have MCERTS certification and have an MCERTS certified range which is not greater than 1.5 times the daily emission limit value (ELV) specified in schedule 3 table S3.1. The CEM shall also be able to measure instantaneous values over the ranges which are to be expected during all operating conditions. If it is necessary to use more than one range setting of the CEM to achieve this requirement, the CEM shall be verified for monitoring supplementary, higher ranges.

- 3.3.4 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 table S3.1 unless otherwise agreed in writing by the Environment Agency.
- 3.3.5 Where Continuous Emission Monitors are installed to comply with the monitoring requirements in schedule 3 table S3.1; the Continuous Emission Monitors shall be used such that;
- (a) the values of the 95% confidence intervals of a single measured result at the daily emission limit value shall not exceed the following percentages:
- |   |     |
|---|-----|
| • Carbon monoxide   | 10% |
| • Sulphur dioxide   | 20% |
| • Oxides of nitrogen (NO & NO <sub>2</sub> expressed as NO <sub>2</sub> ) | 20% |
| • Particulate matter  | 30% |
| • Total organic carbon (TOC)  | 30% |
| • Hydrogen chloride   | 40% |
- (b) valid half-hourly average values shall be determined within the effective operating time (excluding the start-up and shut-down periods) from the measured values after having subtracted the value of the confidence intervals in condition 3.3.5 (a);
- (c) where it is necessary to calibrate or maintain the monitor and this means that data are not available for a complete half-hour period, the half-hourly average shall in any case be considered valid if measurements are available for a minimum of 20 minutes during the half-hour period. The number of half-hourly averages so validated shall not exceed 5 per day;
- (d) daily average values shall be determined as the average of all the valid half-hourly average values within a calendar day. The daily average value shall be considered valid if no more than five half-hourly average values in any day have been determined not to be valid;
- (e) no more than ten daily average values per year shall be determined not to be valid.

## 3.4 Odour

- 3.4.1 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.
- 3.4.2 The operator shall:
- (a) if notified by the Environment Agency that the activities are giving rise to pollution outside the site due to 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.

## 3.5 Noise and vibration

- 3.5.1 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.
- 3.5.2 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.

## **3.6 Pests**

3.6.1 The activities shall not give rise to the presence of pests which are likely to cause pollution, hazard or annoyance outside the boundary of the site. The operator shall not be taken to have breached this condition if appropriate measures, including, but not limited to, those specified in any approved pests management plan, have been taken to prevent or where that is not practicable, to minimise the presence of pests on the site.

3.6.2 The operator shall:

- (a) if notified by the Environment Agency, submit to the Environment Agency for approval within the period specified, a pests management plan which identifies and minimises risks of pollution, hazard or annoyance from pests;
- (b) implement the pests management plan, from the date of approval, unless otherwise agreed in writing by 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; and
  - (c) the performance parameters set out in schedule 4 table S4.3 using the forms specified in table S4.4 of that schedule.
  - (d) the functioning and monitoring of the incineration plant in a format agreed with the Environment Agency. The report shall, as a minimum requirement (as required by Chapter IV of the Industrial Emissions Directive) give an account of the running of the process and the emissions into air and water compared with the emission standards in the IED.
- 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 S4.4 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.

## 4.3 Notifications

### 4.3.1 The Operator shall

- (a) in the event 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) in the event 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) in the event of a breach of permit condition which poses an immediate danger to human health or threatens to cause an immediate significant adverse effect on the environment, the operator must immediately suspend the operation of the activities or the relevant part of it until compliance with the permit conditions has been restored.

- 4.3.2 Any information provided under condition 4.3.1 (a)(i), or 4.3.1 (b)(i) where the information relates to the breach of a limit 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:

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

In any other case:

- (a) the death of any of the named operators (where the operator consists of more than one named individual);
- (b) any change in the operator's name(s) or address(es); and
- (c) 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.

## **4.4 Interpretation**

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

4.4.2 In this permit references to reports and notifications mean written reports and notifications, except where reference is made to notification being made "without delay", 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>
S5.1 A(1) (b)	The co-incineration of non-hazardous waste in a waste co-incineration plant with a capacity exceeding 3 tonnes per hour.	From receipt of biomass fuel and waste biomass fuel to emission of exhaust gas and disposal of waste arising.  Waste types and quantities as specified in Table S2.2 of this permit.
<b>Directly Associated Activities</b>		
-	-	-

<b>Table S1.2 Operating techniques</b>		
<b>Description</b>	<b>Parts</b>	<b>Date Received</b>
Application EPR/RP3130EG/A001	<ul style="list-style-type: none"> <li>•Parts B2 and B3 of the Application Form.</li> <li>•The Supporting Information Document - Ref. 47065665_LERP0001.</li> <li>•The Site Condition Report – Ref. 47065665_LERP0002, Section 4.</li> <li>•The WID Compliance assessment – Ref. 47065665_LERP0003.</li> <li>• Not Duly Made response letters dated 17/12/13 and 20/12/13.</li> </ul>	Duly Made 10/01/14

<b>Table S1.3 Improvement programme requirements</b>		
<b>Reference</b>	<b>Requirement</b>	<b>Date</b>
IC1	The Operator shall submit a written report to the Environment Agency on the implementation of its Environmental Management System and the progress made in the certification of the system by an external body or if appropriate submit a schedule by which the EMS will be certified.	Within 15 months of the completion of commissioning.
IC2	The Operator shall submit a written proposal to the Environment Agency to carry out tests to determine the size distribution of the particulate matter in the exhaust gas emissions to air from emission point A1, identifying the fractions within the PM <sub>10</sub> and PM <sub>2.5</sub> ranges. The proposal shall include a timetable for approval by the Environment Agency to carry out such tests and produce a report on the results. On receipt of written agreement by the Environment Agency to the proposal and the timetable, the Operator shall carry out the tests and submit to the Environment Agency a report on the results.	Within 15 months of the completion of commissioning.
IC3	The Operator shall submit a written report to the Environment Agency on the commissioning of the installation. The report shall summarise the environmental performance of the plant as installed against the design parameters set out in the Application. The report shall also include a review of the performance of the facility against the conditions of this permit and details of procedures developed during commissioning for achieving and demonstrating compliance with permit conditions.	Within 6 months of the completion of commissioning.
IC4	The Operator shall carry out checks to verify the residence time, minimum temperature and oxygen content of the exhaust gases in the furnace whilst operating under the anticipated most unfavourable operating conditions. The results shall be submitted in writing to the Environment Agency.	Within 9 months of the completion of commissioning.
IC5	The Operator shall submit a written report to the Environment Agency describing the performance and optimisation of the Selective Non Catalytic Reduction (SNCR) system and combustion settings to minimise oxides of nitrogen (NO <sub>x</sub> ) emissions within the emission limit values described in this permit with the minimisation of nitrous oxide emissions. The report shall include an assessment of the level of NO <sub>x</sub> , N <sub>2</sub> O and NH <sub>3</sub> emissions that can be achieved under optimum operating conditions.  The report shall also provide details of the optimisation (including dosing rates) for the control of acid gases, metals and dioxins.	Within 12 months of the completion of commissioning.

<b>Table S1.3 Improvement programme requirements</b>		
<b>Reference</b>	<b>Requirement</b>	<b>Date</b>
IC6	The Operator shall submit a written summary report to the Environment Agency to confirm by the results of calibration and verification testing that the performance of Continuous Emission Monitors for parameters as specified in Table S3.1 complies with the requirements of BS EN 14181, specifically the requirements of QAL1, QAL2 and QAL3.	Initial calibration report to be submitted to the Agency within 3 months of completion of commissioning.  Full summary evidence compliance report to be submitted within 18 months of completion of commissioning.
IC7	The Operator shall carry out an assessment of the impact of emissions to air of the following component metals subject to emission limit values, Chromium, Nickel and Arsenic. A report on the assessment shall be made to the Environment Agency.  Emissions monitoring data obtained during the first year of operation shall be used to compare the actual emissions with those assumed in the impact assessment submitted with the Application. An assessment shall be made of the impact of each metal against the relevant EQS/EAL. In the event that the assessment shows that an EQS/EAL can be exceeded, the report shall include proposals for further investigative work.	18 months from commencement of operations.
IC8	The Operator shall undertake a study to assess the variability in composition of the supplied waste wood biomass fuel relative to the fuel composition specification provided in Table 4.5.2 of Section 4.5 of the Supporting Information to the Application. A report detailing the findings of the study shall be provided to the Environment Agency.	Within 12 months of the completion of commissioning.

<b>Table S1.4 Pre-operational measures</b>	
<b>Reference</b>	<b>Pre-operational measures</b>
PO1	Prior to the commencement of commissioning, the Operator shall send a summary of the site Environment Management System (EMS) to the Environment Agency and make available for inspection all documents and procedures which form part of the EMS. The EMS shall be developed in line with the requirements set out in Section 1 of 'How to comply with your environmental permit'. The documents and procedures set out in the EMS shall form the written management system referenced in condition 1.1.1 (a) of the permit.
PO2	Prior to the commencement of commissioning, the Operator shall submit to the Environment Agency for approval a protocol for the sampling and testing of incinerator bottom ash for the purposes of assessing its hazard status. Sampling and testing shall be carried out in accordance with the protocol as approved.

<b>Table S1.4 Pre-operational measures</b>	
<b>Reference</b>	<b>Pre-operational measures</b>
PO3	Prior to the commencement of commissioning, the Operator shall provide a written commissioning plan, including timelines for completion, for approval by the Environment Agency. The commissioning plan shall include the expected emissions to the environment during the different stages of commissioning, the expected durations of commissioning activities and the actions to be taken to protect the environment and report to the Environment Agency in the event that actual emissions exceed expected emissions. Commissioning shall be carried out in accordance with the commissioning plan as approved.
PO4	Prior to the completion of the commissioning period, the Operator shall produce a schedule of potential plant malfunction criteria and their associated alarm/notification mechanisms. The schedule shall include an assigned allocation of responsibilities and timescales for initial attendance to these malfunction incidents by the respective Operator, Maintenance Contractor or Greenergy site staff. The documented schedule shall be provided to the Environment Agency for approval.

## Schedule 2 - Waste types, raw materials and fuels

**Table S2.1 Raw materials and fuels**

Raw materials and fuel description	Specification
Kerosene – support fuel	< 0.1% sulphur content

**Table S2.2 Permitted waste types and quantities for incineration.**

<b>Maximum quantity</b>	28,000 tonnes of pre chipped waste wood per annum
<b>Waste code</b>	<b>Description</b>
<b>03 Wastes from Wood Processing and the Production of Panels and Furniture, Pulp, paper and Cardboard.</b>	
	<i>wastes from wood processing and the production of panels and furniture.</i>
03 01 05	Sawdust, shavings, cuttings, wood, particle board and veneer other than those mentioned in 03 01 04*.
<b>15 Waste Packaging, Absorbants, Wiping Cloths, Filter Materials and Protective Clothing not otherwise specified</b>	
	<i>packaging (including separately collected municipal packaging waste)</i>
15 01 03	Wooden packaging
<b>17 Construction and Demolition Wastes (including excavated soil from contaminated sites)</b>	
	<i>wood, glass and plastic</i>
17 02 01	Wood
<b>19 Wastes from Waste Management Facilities, Off-Site Waste Water Treatment Plants and the Preparation of Water for Human Consumption and Water for Industrial Use</b>	
	<i>wastes from the physiochemical treatments of waste (including dechromatation, decyanidation, neutralization)</i>
19 12 07	Wood other than that mentioned in 19 12 06*
<b>20 Municipal Wastes (Household Waste and Similar Commercial, Industrial and Institutional Wastes)</b>	
	<i>separately collected fractions (except 15 01)</i>
20 01 38	Wood other than that mentioned in 20 01 37*

## Schedule 3 – Emissions and monitoring

<b>Table S3.1 Point source emissions to air – emission limits and monitoring requirements</b>						
<b>Emission point ref. &amp; location</b>	<b>Parameter</b>	<b>Source</b>	<b>Limit (including unit)</b>	<b>Reference period</b>	<b>Monitoring frequency</b>	<b>Monitoring standard(s) or method(s)</b>
A1 - as shown on the Site Plan in Figure 3 of the Application	Particulate matter	Co-incineration exhaust gases via heat recovery boiler and APC plant	45 mg/m <sup>3</sup>	½-hr average	Continuous measurement	BS EN 14181
	Particulate matter	Co-incineration exhaust gases via heat recovery boiler and APC plant	15 mg/m <sup>3</sup>	daily average	Continuous measurement	BS EN 14181
	Total Organic Carbon (TOC)	Co-incineration exhaust gases via heat recovery boiler and APC plant	30 mg/m <sup>3</sup>	½-hr average	Continuous measurement	BS EN 14181
	Total Organic Carbon (TOC)	Co-incineration exhaust gases via heat recovery boiler and APC plant	15 mg/m <sup>3</sup>	daily average	Continuous measurement	BS EN 14181
	Hydrogen chloride	Co-incineration exhaust gases via heat recovery boiler and APC plant	90 mg/m <sup>3</sup>	½-hr average	Continuous measurement	BS EN 14181
	Hydrogen chloride	Co-incineration exhaust gases via heat recovery boiler and APC plant	15 mg/m <sup>3</sup>	daily average	Continuous measurement	BS EN 14181

**Table S3.1 Point source emissions to air – emission limits and monitoring requirements**

<b>Emission point ref. &amp; location</b>	<b>Parameter</b>	<b>Source</b>	<b>Limit (including unit)</b>	<b>Reference period</b>	<b>Monitoring frequency</b>	<b>Monitoring standard(s) or method(s)</b>
A1 - as shown on the Site Plan in Figure 3 of the Application	Hydrogen fluoride	Co-incineration exhaust gases via heat recovery boiler and APC plant	6 mg/m <sup>3</sup>	½-hr average	Continuous measurement	BS ISO 14181
	Hydrogen fluoride	Co-incineration exhaust gases via heat recovery boiler and APC plant	1.5 mg/m <sup>3</sup>	daily average	Continuous measurement	BS ISO 14181
	Carbon monoxide	Co-incineration exhaust gases via heat recovery boiler and APC plant	150 mg/m <sup>3</sup>	½-hr average	Continuous measurement	BS EN 14181
	Carbon monoxide	Co-incineration exhaust gases via heat recovery boiler and APC plant	75 mg/m <sup>3</sup>	daily average	Continuous measurement	BS EN 14181
	Sulphur dioxide	Co-incineration exhaust gases via heat recovery boiler and APC plant	300 mg/m <sup>3</sup>	½-hr average	Continuous measurement	BS EN 14181
	Sulphur dioxide	Co-incineration exhaust gases via heat recovery boiler and APC plant	75 mg/m <sup>3</sup>	daily average	Continuous measurement	BS EN 14181
	Oxides of nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )	Co-incineration exhaust gases via heat recovery boiler and APC plant	600 mg/m <sup>3</sup>	½-hr average	Continuous measurement	BS EN 14181

**Table S3.1 Point source emissions to air – emission limits and monitoring requirements**

<b>Emission point ref. &amp; location</b>	<b>Parameter</b>	<b>Source</b>	<b>Limit (including unit)</b>	<b>Reference period</b>	<b>Monitoring frequency</b>	<b>Monitoring standard(s) or method(s)</b>
A1 - as shown on the Site Plan in Figure 3 of the Application	Oxides of nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )	Co-incineration exhaust gases via heat recovery boiler and APC plant	300 mg/m <sup>3</sup>	daily average	Continuous measurement	BS EN 14181
	Cadmium & thallium and their compounds (total)	Co-incineration exhaust gases via heat recovery boiler and APC plant	0.05 mg/m <sup>3</sup>	periodic over minimum 30 minute, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS EN 14385
	Mercury and its compounds	Co-incineration exhaust gases via heat recovery boiler and APC plant	0.05 mg/m <sup>3</sup>	periodic over minimum 30 minute, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS EN 13211
	Sb, As, Pb, Cr, Co, Cu, Mn, Ni and V and their compounds (total)	Co-incineration exhaust gases via heat recovery boiler and APC plant	0.5 mg/m <sup>3</sup>	periodic over minimum 30 minute, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS EN 14385
	Ammonia (NH <sub>3</sub> )	Co-incineration exhaust gases via heat recovery boiler and APC plant	No Limit Set	daily average	Continuous	BS EN 14181
	Nitrous oxide (N <sub>2</sub> O)	Co-incineration exhaust gases via heat recovery boiler and APC plant	No Limit Set	periodic over minimum 1-hour period	Quarterly in the first year of operation, then bi-annual	BS EN ISO 21258
	Dioxins / furans (I-TEQ)	Co-incineration exhaust gases via heat recovery boiler and APC plant	0.1 ng/m <sup>3</sup>	periodic over minimum 6 hours, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS EN 1948 Parts 1, 2 and 3

**Table S3.1 Point source emissions to air – emission limits and monitoring requirements**

<b>Emission point ref. &amp; location</b>	<b>Parameter</b>	<b>Source</b>	<b>Limit (including unit)</b>	<b>Reference period</b>	<b>Monitoring frequency</b>	<b>Monitoring standard(s) or method(s)</b>
A1 - as shown on the Site Plan in Figure 3 of the Application	Dioxins / furans (WHO-TEQ Humans / Mammals)	Co-incineration exhaust gases via heat recovery boiler and APC plant	No Limit Set	periodic over minimum 6 hours, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS EN 1948 Parts 1, 2 and 3
	Dioxins / furans (WHO-TEQ Fish)	Co-incineration exhaust gases via heat recovery boiler and APC plant	No Limit Set	periodic over minimum 6 hours, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS EN 1948 Parts 1, 2 and 3
	Dioxins / furans (WHO-TEQ Birds)	Co-incineration exhaust gases via heat recovery boiler and APC plant	No Limit Set	periodic over minimum 6 hours, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS EN 1948 Parts 1, 2 and 3
	Dioxin-like PCBs (WHO-TEQ Humans / Mammals)	Co-incineration exhaust gases via heat recovery boiler and APC plant	No Limit Set	periodic over minimum 6 hours, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS EN 1948-4
	Dioxin-like PCBs (WHO-TEQ Fish)	Co-incineration exhaust gases via heat recovery boiler and APC plant	No Limit Set	periodic over minimum 6 hours, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS EN 1948-4
	Dioxin-like PCBs (WHO-TEQ Birds)	Co-incineration exhaust gases via heat recovery boiler and APC plant	No Limit Set	periodic over minimum 6 hours, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS EN 1948-4
	Specific individual poly-cyclic aromatic hydrocarbons (PAHs), as specified in Schedule 6.	Co-incineration exhaust gases via heat recovery boiler and APC plant	No Limit Set	periodic over minimum 6 hours, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS ISO 11338 Parts 1 and 2.

**Table S3.2 Point source emissions to sewer, effluent treatment plant or other transfers off-site– emission limits and monitoring requirements**

Emission point ref. & location	Parameter	Source	Limit	Reference Period	Monitoring frequency	Monitoring standard or method
W1 - as shown on the Site Plan in Figure 3 of the Application – release to Greenergy Biofuels oil separator treatment process	Temperature	Surface water and boiler blow down water via break tank	30°C		On batch release	
	pH	Surface water and boiler blow down water via break tank	5 - 9		On batch release	BS ISO 10523
	Suspended Solids	Surface water and boiler blow down water via break tank	30 mg/l		On batch release	BS EN 872:1996
	Oil and Grease	Surface water and boiler blow down water via break tank	Non Visible		On batch release	Visual assessment

**Table S3.3 Process monitoring requirements**

Location <sup>[1]</sup> or description of point of measurement	Parameter	Monitoring frequency	Monitoring standard or method	Other specifications
Location close to the Combustion Chamber inner wall or as identified and justified in Application.	Temperature (° C)	Continuous	Traceable to national standards	As agreed in writing with the Agency.
A1 - as shown on the Site Plan in Figure 3 of the Application	Exhaust gas temperature	Continuous	Traceable to national standards	As agreed in writing with the Agency.
A1 - as shown on the Site Plan in Figure 3 of the Application	Exhaust gas pressure	Continuous	Traceable to national standards	As agreed in writing with the Agency.
A1 - as shown on the Site Plan in Figure 3 of the Application	Exhaust gas oxygen content	Continuous	BS EN 15267-3 BS EN 14181	
A1 - as shown on the Site Plan in Figure 3 of the Application	Exhaust gas water vapour content	Continuous	BS EN 15267-3 BS EN 14181	Unless gas is dried before analysis of emissions.

Note [1]: Location as described in the Application.

<b>Table S3.4 Residue quality</b>					
<b>Emission point reference or source or description of point of measurement</b>	<b>Parameter</b>	<b>Limit</b>	<b>Monitoring frequency</b>	<b>Monitoring standard or method *</b>	<b>Other specifications</b>
Bottom Ash	Loss on ignition (LOI)	<5%	Monthly in the first year of operation. Then Quarterly	Environment Agency ash sampling protocol.	
Bottom Ash	Metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) and their compounds, dioxins/furans and dioxin-like PCBs.	No Limit Set	Monthly in the first year of operation. Then Quarterly	Sampling and analysis as per Environment Agency ash sampling protocol.	
Bottom Ash	Total soluble fraction and metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) soluble fractions	No Limit Set	Before use of a new disposal or recycling route	Sampling and analysis as per Environment Agency ash sampling protocol.	
APC Residues	Metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) and their compounds, dioxins/furans and dioxin-like PCBs.	No Limit Set	Monthly in the first year of operation. Then Quarterly	Sampling and analysis as per Environment Agency ash sampling protocol.	
APC Residues	Total soluble fraction and metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) soluble fractions	No Limit Set	Before use of a new disposal or recycling route	Sampling and analysis as per Environment Agency ash sampling protocol.	

\* Or other equivalent standard as agreed in writing with the Environment Agency.

## 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>
Emissions to air Parameters as required by condition 3.3.1	A1	Monthly	At the start of each calendar month following the completion of commissioning
LOI Parameters as required by condition 3.3.1	Bottom Ash	Quarterly (but monthly for the first year of operation)	1 Jan, 1 Apr, 1 Jul and 1 Oct
Metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) and their compounds, dioxins/furans and dioxin-like PCBs Parameters as required by condition 3.3.1	Bottom Ash	Quarterly (but monthly for the first year of operation)	1 Jan, 1 Apr, 1 Jul and 1 Oct
Total soluble fraction and metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) soluble fractions Parameters as required by condition 3.3.1	Bottom Ash	Before use of a new disposal or recycling route	
Metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) and their compounds, dioxins/furans and dioxin-like PCBs Parameters as required by condition 3.3.1	APC Residues	Quarterly (but monthly for the first year of operation)	1 Jan, 1 Apr, 1 Jul and 1 Oct
Total soluble fraction and metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) soluble fractions Parameters as required by condition 3.3.1	APC Residues	Before use of a new disposal or recycling route	
Functioning and monitoring of the co-incineration plant as required by condition 4.2.2		Annually	1 Jan

**Table S4.2: Annual production/treatment**

Parameter	Units
Total Waste biomass fuel co-incinerated (a)	tonnes
Total Virgin biomass fuel co-incinerated (b)	tonnes
Total biomass fuel co- incinerated (a + b)	tonnes
Heat energy exported as steam from the plant	tonnes at 180°C
Total Incinerator Bottom Ash (IBA) produced	tonnes
Total quantity APC Residue produced	tonnes

**Table S4.3 Performance parameters**

Parameter	Frequency of assessment	Units
Total waste biomass fuel co-incinerated	Quarterly	tonnes
Kerosene fuel oil consumption	Quarterly	Kg / tonne of biomass incinerated
Mass of Bottom Ash produced	Quarterly	Kg / tonne of biomass incinerated
Mass of APC residues produced	Quarterly	Kg / tonne of biomass incinerated
Urea consumption	Quarterly	Kg / tonne of waste incinerated
Activated Carbon consumption	Quarterly	Kg / tonne of waste incinerated
Hydrated Lime consumption	Quarterly	Kg / tonne of waste incinerated
Water consumption	Quarterly	m <sup>3</sup> / tonne of waste incinerated
Periods of abnormal operation	Monthly	No of occasions and cumulative hours for current calendar year.
Periods of bagfilter bypass operation	Quarterly	No of occasions and cumulative hours for current calendar year.

**Table S4.4 Reporting forms**

Media/parameter	Reporting format	Date of form
Air	Form Air 1-8 or other form as agreed in writing by the Environment Agency	12/05/14
Residues	Form Residues 1 or other form as agreed in writing by the Environment Agency	12/05/14
Energy usage	Form Energy 1 or other form as agreed in writing by the Environment Agency	12/05/14
Other performance indicators	Form Performance 1 or other form as agreed in writing by the Environment Agency	12/05/14

# 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	<b>EPR/RP3130EG</b>
Name of operator	<b>Gaia Heat (Coelus) Limited</b>
Location of Facility	<b>Immingham Biomass Boilers</b>
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	
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.	

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

\* authorised to sign on behalf of **Gaia Heat (Coelus) Limited**

## Schedule 6 - Interpretation

*“abatement equipment”* means that equipment dedicated to the removal of polluting substances from releases from the installation to air or water media.

*“abnormal operation”* means any technically unavoidable stoppages, disturbances, or failures of the abatement plant or the measurement devices, during which the emissions into the air and the discharges of waste water may exceed the prescribed emission limit values.

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

*“APC residues”* means air pollution control residues

*“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.

*“bi-annual”* means twice per year with at least five months between tests;

*“bottom ash”* means ash falling through the grate and transported by the grate.

*“CEM”* Continuous emission monitor

*“CEN”* means Comité Européen de Normalisation

*“daily average”* for releases of substances to air means the average of valid half-hourly averages over a calendar day during normal operation.

*“dioxin and furans”* means polychlorinated dibenzo-p-dioxins and polychlorinated dibenzofurans.

*“disposal”* means any of the operations provided for in Annex IIA to Directive 2008/98/EC of the Waste Framework Directive.

*“emissions to land”* includes emissions to groundwater.

*“EP Regulations”* means The Environmental Permitting (England and Wales) Regulations SI 2010 No.675 and words and expressions used in this permit which are also used in the Regulations have the same meanings as in those Regulations.

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

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

*“hazardous property”* has the meaning given in Schedule 3 of the Hazardous Waste (England and Wales) Regulations 2005 No.894 and the Hazardous Waste (Wales) Regulations 2005 No. 1806 (W.138).

*“incineration line”* means all of the incineration or co-incineration equipment related to a common discharge to air location.

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

*“ISO”* means International Standards Organisation.

“LOI” means loss on ignition a technique used to determine the combustible material by heating the ash residue to a high temperature

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

“PAH” means Poly-cyclic aromatic hydrocarbon, and comprises Anthanthrene, Benzo[a]anthracene, Benzo[b]fluoranthene, Benzo[k]fluoranthene, Benzo[b]naph(2,1-d)thiophene, Benzo[c]phenanthrene, Benzo[ghi]perylene, Benzo[a]pyrene, Cholanthrene, Chrysene, Cyclopenta[c,d]pyrene, Dibenzo[ah]anthracene, Dibenzo[a,i]pyrene Fluoranthene, Indo[1,2,3-cd]pyrene, Naphthalene

“PCB” means *Polychlorinated Biphenyl*. *Dioxin-like PCBs are the non-ortho and mono-ortho PCBs listed in the table below.*

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

“quarterly” for reporting/sampling means after/during each 3 month period, January to March; April to June; July to September and October to December and, when sampling, with at least 2 months between each sampling date.

“recovery” means any of the operations provided for in Annex IIB to Directive 2008/98/EC of the Waste Framework Directive.

“shut down” is any period where the plant is being returned to a non-operational state as described in the application or agreed in writing with the Environment Agency.

“start up” is any period, where the plant has been non-operational, after igniting the auxiliary burner until waste has been fed to the plant in sufficient quantity to cover the grate and to initiate steady-state conditions.

“TOC” means Total Organic Carbon. In respect of releases to air, this means the gaseous and vaporous organic substances, expressed as TOC. In respect of Bottom Ash, this means the total carbon content of all organic species present in the ash (excluding carbon in elemental form).

“Waste code” means the six digit code referable to a type of waste in accordance with the List of Wastes (England) Regulations 2005, or List of Wastes (Wales) Regulations 2005, as appropriate, and in relation to hazardous waste, includes the asterisk.

“WFD” means Waste Framework Directive (Directive 2008/98/EC of the European Parliament and Council).

“year” means calendar year ending 31 December.

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:

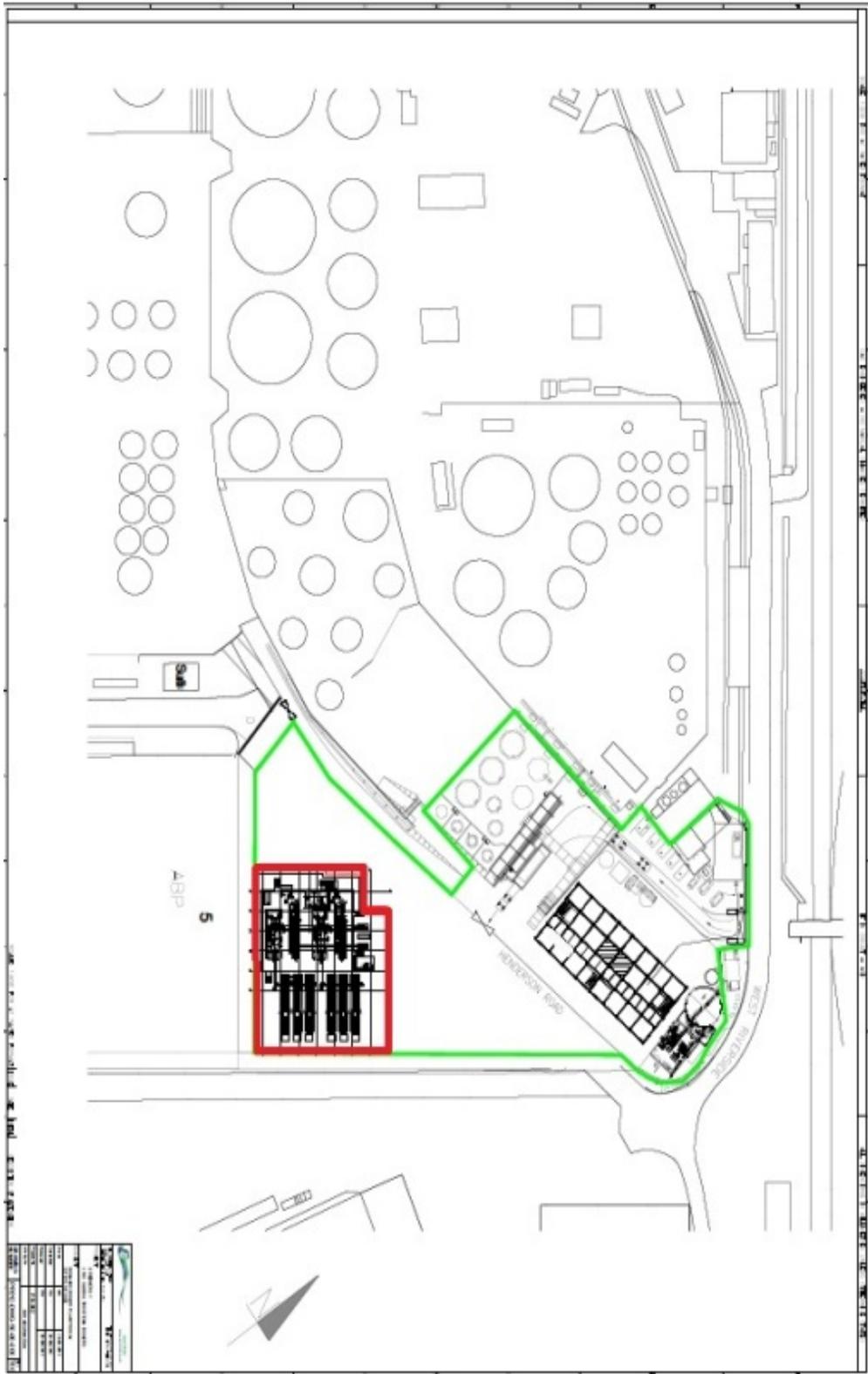
- (a) in relation to emissions from non-combustion sources, the concentration at a temperature of 273K and at a pressure of 101.3 kPa, with no correction for water vapour content.
- (b) in relation to gases from incineration and co-incineration plants other than those burning waste oil, the concentration in dry air at a temperature of 273K, at a pressure of 101.3 kPa and with an oxygen content of 6% dry.

For dioxins/furans and dioxin-like PCBs the determination of the toxic equivalence concentration (I-TEQ, & WHO-TEQ for dioxins/furans, WHO-TEQ for dioxin-like PCBs) stated as a release limit and/ or reporting requirement, the mass concentrations of the following congeners have to be multiplied with their respective toxic equivalence factors before summing. When reporting on measurements of dioxins/furans and dioxin-like PCBs, the toxic equivalence concentrations should be reported as a range based on: all congeners less than the detection limit assumed to be zero as a minimum, and all congeners less than the detection limit assumed to be at the detection limit as a maximum.

TEF schemes for dioxins and furans				
Congener	I-TEF	WHO-TEF		
	1990	2005	1997/8	
		Humans / Mammals	Fish	Birds
<b>Dioxins</b>				
2,3,7,8-TCDD	1	1	1	1
1,2,3,7,8-PeCDD	0.5	1	1	1
1,2,3,4,7,8-HxCDD	0.1	0.1	0.5	0.05
1,2,3,6,7,8-HxCDD	0.1	0.1	0.01	0.01
1,2,3,7,8,9-HxCDD	0.1	0.1	0.01	0.1
1,2,3,4,6,7,8-HpCDD	0.01	0.01	0.001	<0.001
OCDD	0.001	0.0003	-	-
<b>Furans</b>				
2,3,7,8-TCDF	0.1	0.1	0.05	1
1,2,3,7,8-PeCDF	0.05	0.03	0.05	0.1
2,3,4,7,8-PeCDF	0.5	0.3	0.5	1
1,2,3,4,7,8-HxCDF	0.1	0.1	0.1	0.1
1,2,3,7,8,9-HxCDF	0.1	0.1	0.1	0.1
1,2,3,6,7,8-HxCDF	0.1	0.1	0.1	0.1
2,3,4,6,7,8-HxCDF	0.1	0.1	0.1	0.1
1,2,3,4,6,7,8-HpCDF	0.01	0.01	0.01	0.01
1,2,3,4,7,8,9-HpCDF	0.01	0.01	0.01	0.01
OCDF	0.001	0.0003	0.0001	0.0001

TEF schemes for dioxin-like PCBs			
Congener	WHO-TEF		
	2005	1997/8	
	Humans / mammals	Fish	Birds
<b>Non-ortho PCBs</b>			
3,4,4',5-TCB (81)	0.0001	0.0005	0.1
3,3',4,4'-TCB (77)	0.0003	0.0001	0.05
3,3',4,4',5 - PeCB (126)	0.1	0.005	0.1
3,3',4,4',5,5'-HxCB(169)	0.03	0.00005	0.001
<b>Mono-ortho PCBs</b>			
2,3,3',4,4'-PeCB (105)	0.00003	<0.000005	0.0001
2,3,4,4',5-PeCB (114)	0.00003	<0.000005	0.0001
2,3',4,4',5-PeCB (118)	0.00003	<0.000005	0.00001
2',3,4,4',5-PeCB (123)	0.00003	<0.000005	0.00001
2,3,3',4,4',5-HxCB (156)	0.00003	<0.000005	0.0001
2,3,3',4,4',5'-HxCB (157)	0.00003	<0.000005	0.0001
2,3',4,4',5,5'-HxCB (167)	0.00003	<0.000005	0.00001
2,3,3',4,4',5,5'-HpCB (189)	0.00003	<0.000005	0.00001

# Schedule 7 - Site plan



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