Permit with introductory note

The Environmental Permitting (England & Wales) Regulations 2010

Tilbury Green Power Limited

Tilbury Green Power
Former Cargill Sweeteners Facility
Tilbury Dock
Essex
RM18 7PU

Permit number

EPR/KP3936ZB

Tilbury Green Power
Permit number EPR/KP3936ZB

Introductory note

This introductory note does not form a part of the permit

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

The facility is located in the western section of the Port of Tilbury which is on the north side of the Thames Estuary at national grid reference TQ620771. The residential areas of Grays and Tilbury are situated nearby. The Thames Estuary & Marches Special Protection Area (SPA) and Ramsar are located within the 10km screening distance and there are also several Sites of Special Scientific Interest (SSSIs) and local wildlife sites located within the 2km screening distance.

The main features of the permit are as follows:

The facility will comprise of two incineration lines (Lines 1 and 2) with a maximum capacity totalling 535,000 tonnes per annum (tpa). The facility will be designed to be compliant with the requirements of Chapter IV of the IED – Waste Incineration. Each line will have the capacity to generate up to 30MW (total 60MW) of electricity and will be designed to be Combined Heat and Power (CHP) ready with the capacity to produce up to 4.5 MWth of heat for export to local users as either low-pressure steam or hot water.

Line 1 will consist of a biomass incineration facility with a maximum capacity of 235,000 tpa. It will also include a waste wood processing facility for the preparation of biomass for incineration.

Line 2 will consist of a Solid Recovered Fuel (SRF) incineration facility with a maximum capacity of 300,000 tpa. This will include an SRF preparation facility for separating recyclates from non-hazardous municipal (MSW) and commercial and industrial waste (C&I) waste to produce SRF.

The combustion process will employ a travelling grate system with the hot combustion gases being passed through a boiler. The steam generated in each boiler stream will be fed to a steam turbine (one per line) to generate electricity (up to 30MW per line). The electricity will be used at the facility and exported to the national grid.

Each incineration line has its own air pollution control system to minimise emissions to air. The system consists of Selective Non-Catalytic Reduction (SNCR) for oxides of nitrogen (injection of urea into the furnace chambers before the boilers), dry lime (for acid gases, preceding the fabric filter), activated carbon (for dioxins, furans and metals, preceding the fabric filter) and a multi-compartment fabric filter (for particulate matter, which will include metals, dioxins and furans, spent lime and spent carbon).

The treated exhaust gases from each incineration line will be released via two 100 metre high stacks. The emissions to air will comply with the emission limits in Annex VI of the IED.

Continuous and periodic monitoring will be undertaken for the exhaust gases in the stacks as required by Chapter IV and Annex VI of the IED.

Solid residues will be sampled on a regular basis to assess bottom ash burnout and to monitor the levels of specified pollutants.

Process effluents will be generated from boiler blow down losses and the water treatment facilities and will be collected and treated in the sedimentation basin. Treatment will provide acid dosing for pH adjustment and settlement of waste waters prior to discharge to sewer under a trade effluent consent.

Uncontaminated surface water run-off will be collected in the surface water drainage system. Where possible it will be harvested for domestic use with the remainder being discharged off site.

To ensure effective management of the facility a documented environmental management system (EMS) will be in place which will become certified to the ISO 14001 standard.

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

Status Log of the permit		
Detail	**Date**	**Comments**
Application EPR/KP3936ZB/A001	Duly made 21/11/13	
Further Information Notice dated 13/12/13	Response received/dated 16/01/14 CHP ready assessment received electronically 14/03/14	Waste production, air quality, abatement, CEMs and fuel capacity CHP ready
Email requiring clarification sent 21/01/14	Applicant response received electronically 08/04/14 08/04/14 & 29/04/14	Fuel capacity/design basis Biomass storage
Further Information Notice dated 30/01/14	Applicant response received electronically 14/03/14 Noise dated 25 February 2014 Air Quality dated March 2014	 Noise assessment Updated Air Quality and Emissions Assessment & Human Health Risk Assessment
Further Information Notice dated 05/03/14	Applicant response dated 12 March 2014 and additional email sent 08/04/14	Noise (additional)
Draft Decision EPR/KP3936ZB	09/06/14	
Final Decision	DD/MM/YY	

End of Introductory Note

Permit

The Environmental Permitting (England and Wales) Regulations 2010

Permit number
EPR/KP3936ZB

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

Tilbury Green Power Limited ("the operator"),

whose registered office is

Express Energy Second Floor
Quayside Tower
252-260 Broad Street
Birmingham
B1 2HF

company registration number **06453656**

to operate an installation at

Tilbury Green Power
Former Cargill Sweeteners Facility
Tilbury Dock
Essex
RM18 7PU

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

Name	Date
[name of authorised person]	***[DD/MM/YYYY]***

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 efficiency of the activities; and

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

1.2.2 The operator shall provide and maintain steam and/or hot water pass-outs such that opportunities for the further use of waste heat may be capitalised upon should they become practicable.

1.2.3 The operator shall review the practicability of Combined Heat and Power (CHP) implementation at least every 2 years. The results shall be reported to the Agency within 2 months of each 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 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").

2.1.2 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 green on the site plan at schedule 7 to this permit.

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 tables S2.2 and S2.3; and

(b) it conforms to the description in the documentation supplied by the producer or holder; and

(c) it having been separately collected for recycling, it is subsequently unsuitable for recovery.

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 shall not be charged, or shall cease to be charged, if:

(a) the combustion chamber temperature is below, or falls below, 850^{o}C; or

(b) any continuous emission limit value in schedule 3 table S3.1(a) is exceeded; or

(c) any continuous emission limit value in schedule 3 table S3.1 is exceeded, other than under abnormal operating conditions; or

(d) 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”, on an incineration line, any of the following situations arise, waste shall cease to be charged on that line 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;

(c) continuous measurement shows that an emission exceeds any emission limit value in schedule 3 table S3.1 (a) due to disturbances or failures of the abatement systems;

(d) continuous emission monitors or alternative techniques to demonstrate compliance with the emission limit value(s) for particulates, TOC and / or CO in schedule 3 table S3.1 (a), as detailed in the application or as agreed in writing with the Environment Agency, are unavailable.

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, S3.2 and S3.3 except in “abnormal operation”, when 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(a), S3.2 and S3.3.

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 S3.5 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 The Operator shall carry out monitoring of groundwater at least once every 5 years; and of soil at least once every 10 years; to the protocol agreed in writing with the Environment Agency under PO8.

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, S3.1(a) , S3.2 and S3.3;

(b) process monitoring specified in table S3.4;

(c) residue quality in table S3.5.

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 continual), 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) 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.

3.5.4 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, S3.1(a),S3.2 and S3.3 unless otherwise agreed in writing by the Environment Agency.

3.5.5 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 & NO2 expressed as NO2) 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 3.5.5 (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.

3.6 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 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 S4.1 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.

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

Table S1.1 activities		
Activity listed in Schedule 1 of the EP Regulations.	**Description of specified activity**	**Limits of specified activity**
Section 5.1 A(1) (b)	The incineration of non-hazardous waste in a waste incineration plant with a capacity exceeding 3 tonnes per hour.	**Line 1 - Biomass** From receipt and processing of waste and exempt biomass, to emission of exhaust gas and removal of generated wastes from the site. Waste types and quantities as specified in Table S2.2 of this permit. The incineration of non-hazardous biomass with a maximum capacity of 235,000 tonnes per year.
Section 5.1 A(1) (b)	The incineration of non-hazardous waste in a waste incineration plant with a capacity exceeding 3 tonnes per hour.	**Line 2 - SRF** From receipt and processing of waste SRF, to emission of exhaust gas and removal of generated wastes from the site. Waste types and quantities as specified in Table S2.3 of this permit. The incineration of non-hazardous SRF with a maximum capacity of 300,000 tonnes per year.
Directly Associated Activities		
Electricity Generation	Generation of up to 60MWe (30MWe per line) electrical power using a steam turbine from energy recovered from the flue gases.	From receipt of steam, to the supply of power.
Back up electrical generator	For providing emergency electrical power to the plant in the event of supply interruption.	Emergency diesel generators, one per Line, will supply emergency power to run or safely shut down the Line.

Table S1.2 Operating techniques		
Description	**Parts**	**Date Received**
Application	The response to question 3 Operating techniques, given in Part B3 of the application form. Includes Table 3a – Technical Standards Application Supporting Information	21/11/13
Response to Schedule 5 Notice dated 13/12/13	The response to item1 (Waste Production), item 3 (Abatement) and item 4 (CEMs)	16/01/14
Response to email requiring clarification sent 21/01/14	Fuel capacity/design basis - Email from Applicant – Plant Capacity Clarification	08/04/14
Environment Agency Technical Guidance Note (TGN7.01)	All Parts – How to comply with your environmental permit - reducing fire risk at sites storing combustible materials	Refer to PO6 in Table S1.4 of this permit.

Table S1.3 Improvement programme requirements		
Reference	**Requirement**	**Date**
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 12 months of the date on which waste is first burnt.
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 points A1 and A2, identifying the fractions within the PM_{10}, and $PM_{2.5}$ 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 6 months of the completion of commissioning of each line.
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 4 months of the completion of commissioning of each line.
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 4 months of the completion of commissioning of each line.

Table S1.3 Improvement programme requirements		
Reference	**Requirement**	**Date**
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_x) 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_x and N_2O 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 and dioxins	Within 4 months of the completion of commissioning of each line.
IC6	The Operator shall carry out an assessment of the impact of emissions to air of the following component metals subject to emission limit values, i.e. As, Cr, and Ni. 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.	15 months from commencement of operations of each line.
IC7	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 and Table S3.1(a) complies with the requirements of BS EN 14181, specifically the requirements of QAL1, QAL2 and QAL3.	Initial calibration report to be submitted to the Environment Agency within 3 months of completion of commissioning of each line. Full summary evidence compliance report to be submitted within 18 months of commissioning of each line.

Table S1.4 Pre-operational measures	
Reference	**Pre-operational measures**
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 send a report to the Environment Agency which will contain a comprehensive review of the options available for utilising the heat generated by the waste incineration process in order to ensure that it is recovered as far as practicable. The review shall detail any identified proposals for improving the recovery and utilisation of waste heat and shall provide a timetable for their implementation.

Table S1.4	Pre-operational measures
Reference	**Pre-operational measures**
PO3	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.
PO4	Prior to the commencement of commissioning of each line; 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.
PO5	Prior to the commencement of commissioning, the Operator shall submit a written report to the Agency detailing the waste acceptance procedure to be used at the site. The waste acceptance procedure shall include the process and systems by which wastes unsuitable for incineration at the site will be controlled. The procedure shall be implemented in accordance with the written approval from the Agency.
PO6	Prior to the commencement of commissioning of Line 1 (biomass), the Operator shall submit a written report for approval by the Environment Agency detailing the storage arrangements for processed and unprocessed biomass at the site. The storage arrangements shall have specific regard to TGN 7.01, or other such appropriate guidance as is adopted, for the storage of combustible materials and include specific details of the odour and dust control measures to be implemented. The storage arrangements and control measures shall be implemented in accordance with the written approval from the Environment Agency.
PO7	After completion of furnace design and at least three calendar months before any furnace operation; the operator shall submit a written report to the Environment Agency of the details of the computational fluid dynamic (CFD) modelling. The report shall demonstrate whether the design combustion conditions comply with the residence time and temperature requirements as defined by Article 50(2) of the IED.
PO8	The Operator shall submit the written protocol referenced in condition 3.2.4 for the monitoring of soil and groundwater for approval by the Environment Agency. The protocol shall demonstrate how the Operator will meet the requirements of Articles 14(1)(b), 14(1)(e) and 16(2) of the IED. The procedure shall be implemented in accordance with the written approval from the Environment Agency.
PO9	Prior to the commencement of construction of Line 2 (SRF) the Operator shall submit a report for approval by the Environment Agency detailing the design specification of the Line. The report shall include specific details of waste storage arrangements and the dust and odour control measures to be implemented (e.g. air-lock system). If there have been changes to the design which require a variation to the permit, an application for a variation shall be submitted to the Environment Agency prior to the commencement of construction of the Line.

Schedule 2 - Waste types, raw materials and fuels

Table S2.1 Raw materials and fuels	
Raw materials and fuel description	**Specification**
Fuel Oil	< 0.1% sulphur content

Table S2.2 Permitted waste types and quantities for incineration plant – Line 1 - Biomass	
Maximum quantity	The quantity of wastes accepted for incineration shall not exceed **235,000** tonnes a year.
Waste code	**Description**
02	**WASTES FROM AGRICULTURE, HORTICULTURE, AQUACULTURE, FORESTRY, HUNTING AND FISHING, FOOD PREPARATION AND PROCESSING**
02 01	**wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing**
02 01 03	plant-tissue waste
02 01 07	wastes from forestry
02 01 09	agrochemical waste other than those mentioned in 02 01 08
03	**WASTES FROM WOOD PROCESSING AND THE PRODUCTION OF PANELS AND FURNITURE, PULP, PAPER AND CARDBOARD**
03 01	**wastes from wood processing and the production of panels and furniture**
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
03 03	**wastes from pulp, paper and cardboard production and processing**
03 03 01	waste bark and wood
15	**WASTE PACKAGING; ABSORBENTS, WIPING CLOTHS, FILTER MATERIALS AND PROTECTIVE CLOTHING NOT OTHERWISE SPECIFIED**
15 01	**packaging (including separately collected municipal packaging waste)**
15 01 03	wooden packaging
17	**CONSTRUCTION AND DEMOLITION WASTES (INCLUDING EXCAVATED SOIL FROM CONTAMINATED SITES)**
17 02	**wood, glass and plastic**
17 02 01	wood
19	**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**
19 12	**wastes from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified**
19 12 07	wood other than that mentioned in 19 12 06
19 12 10	combustible waste (refuse derived fuel)
20	**MUNICIPAL WASTES (HOUSEHOLD WASTE AND SIMILAR COMMERCIAL, INDUSTRIAL AND INSTITUTIONAL WASTES) INCLUDING SEPARATELY COLLECTED FRACTIONS**
20 01	**separately collected fractions (except 15 01)**
20 01 38	wood other than that mentioned in 20 01 37

Table S2.3 Permitted waste types and quantities for incineration plant - Line 2 - SRF	
Maximum quantity	The quantity of wastes accepted for Line 2 shall not exceed **300,000** tonnes a year.
Waste code	**Description**
02	**WASTES FROM AGRICULTURE, HORTICULTURE, AQUACULTURE, FORESTRY, HUNTING AND FISHING, FOOD PREPARATION AND PROCESSING**
02 01	**wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing**
02 01 04	waste plastics (except packaging)
02 01 07	wastes from forestry
04	**WASTES FROM THE LEATHER, FUR AND TEXTILE INDUSTRIES**
04 02	**wastes from the textile industry**
04 02 15	wastes from finishing other than those mentioned in 04 02 14
04 02 21	wastes from unprocessed textile fibres
04 02 22	wastes from processed textile fibres
15	**WASTE PACKAGING; ABSORBENTS, WIPING CLOTHS, FILTER MATERIALS AND PROTECTIVE CLOTHING NOT OTHERWISE SPECIFIED**
15 01	**packaging (including separately collected municipal packaging waste)**
15 01 01	paper and cardboard packaging
15 01 02	plastic packaging
15 01 05	composite packaging
15 01 06	mixed packaging
15 01 09	textile packaging
15 02	**absorbents, filter materials, wiping cloths and protective clothing**
15 02 03	absorbents, filter materials, wiping cloths and protective clothing other than those mentioned in 15 02 02
16	**WASTES NOT OTHERWISE SPECIFIED IN THE LIST**
16 01	**End-of-life vehicles from different means of transport (including off-road machinery) and wastes from dismantling of end-of-life vehicles and vehicle maintenance(except 13, 14, 16 06 and 16 08)**
16 01 19	plastic
17	**CONSTRUCTION AND DEMOLITION WASTES (INCLUDING EXCAVATED SOIL FROM CONTAMINATED SITES)**
17 02	**wood, glass and plastic**
17 02 03	plastic
17 09	**other construction and demolition wastes**
17 09 04	mixed construction and demolition wastes other than those mentioned in 17 09 01, 17 09 02 and 17 09 03
19	**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**
19 02	**wastes from physico/chemical treatments of waste (including dechromatation, decyanidation, neutralisation)**
19 02 03	premixed wastes composed only of non-hazardous wastes
19 02 10	combustible wastes other than those mentioned in 19 02 08 and 19 02 09
19 05	**wastes from aerobic treatment of solid wastes**
19 05 01	non-composted fraction of municipal and similar wastes
19 05 02	non-composted fraction of animal and vegetable waste
19 12	**waste from the mechanical treatment of waste(e.g. sorting crushing, compacting, pelletising) not otherwise specified**
19 12 01	paper and cardboard

Table S2.3 Permitted waste types and quantities for incineration plant - Line 2 - SRF	
Maximum quantity	The quantity of wastes accepted for Line 2 shall not exceed **300,000** tonnes a year.
Waste code	**Description**
19 12 04	plastic and rubber
19 12 08	textiles
19 12 10	combustible waste (refuse derived fuel)
19 12 12	other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11
20	**MUNICIPAL WASTES (HOUSEHOLD WASTE AND SIMILAR COMMERCIAL, INDUSTRIAL AND INSTITUTIONAL WASTES) INCLUDING SEPARATELY COLLECTED FRACTIONS**
20 01	**separately collected fractions (except 15 01)**
20 01 01	paper and cardboard
20 01 08	biodegradable kitchen and canteen waste
20 01 10	clothes
20 01 11	textiles
20 01 25	edible oil and fat
20 01 38	wood other than that mentioned in 20 01 37
20 01 39	plastics
20 02 02	**garden and park wastes (including cemetery waste)**
20 02 01	biodegradable waste
20 03	**other municipal wastes**
20 03 01	mixed municipal waste
20 03 02	waste from markets
20 03 03	street cleaning residues
20 03 07	bulky waste

Schedule 3 – Emissions and monitoring

Table S3.1 Point source emissions to air – emission limits and monitoring requirements						
Emission point ref. & location [identified on site plan in Schedule 7]	**Parameter**	**Source**	**Limit (including unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard(s) or method(s)**
A1	Particulate matter	Line 1	30 mg/m^3	½-hr average	Continuous measurement	BS EN 14181
A2		Line 2				
A1	Particulate matter	Line 1	10 mg/m^3	daily average	Continuous measurement	BS EN 14181
A2		Line 2				
A1	Total Organic Carbon (TOC)	Line 1	20 mg/m^3	½-hr average	Continuous measurement	BS EN 14181
A2		Line 2				
A1	Total Organic Carbon (TOC)	Line 1	10 mg/m^3	daily average	Continuous measurement	BS EN 14181
A2		Line 2				
A1	Hydrogen chloride (HCl)	Line 1	60 mg/m^3	½-hr average	Continuous measurement	BS EN 14181
A2		Line 2				
A1	Hydrogen chloride (HCl)	Line 1	10 mg/m^3	daily average	Continuous measurement	BS EN 14181
A2		Line 2				
A1	Hydrogen fluoride (HF)	Line 1	2 mg/m^3	periodic over minimum 1-hour period	Quarterly in first year. Then Bi-annual	BS ISO 15713
A2		Line 2				
A1	Carbon monoxide (CO)	Line 1	100 mg/m^3	½-hr average	Continuous measurement	BS EN 14181
A2		Line 2				
A1	Carbon monoxide (CO)	Line 1	50 mg/m^3	daily average	Continuous measurement	BS EN 14181
A2		Line 2				
A1	Sulphur dioxide (SO_2)	Line 1	200 mg/m^3	½-hr average	Continuous measurement	BS EN 14181
A2		Line 2				
A1	Sulphur dioxide (SO_2)	Line 1	50 mg/m^3	daily average	Continuous measurement	BS EN 14181
A2		Line 2				

Table S3.1 Point source emissions to air – emission limits and monitoring requirements						
Emission point ref. & location [identified on site plan in Schedule 7]	**Parameter**	**Source**	**Limit (including unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard(s) or method(s)**
A1	Oxides of nitrogen (NO and NO_2 expressed as NO_2)	Line 1	400 mg/m^3	½-hr average	Continuous measurement	BS EN 14181
A2		Line 2				
A1	Oxides of nitrogen (NO and NO_2 expressed as NO_2)	Line 1	200 mg/m^3	daily average	Continuous measurement	BS EN 14181
A2		Line 2				
A1	Cadmium (Cd) & thallium (Tl) and their compounds (total)	Line 1	0.05 mg/m^3	periodic over minimum 30 minute, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS EN 14385
A2		Line 2				
A1	Mercury (Hg) and its compounds	Line 1	0.05 mg/m^3	periodic over minimum 30 minute, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS EN 13211
A2		Line 2				
A1	Sb, As, Pb, Cr, Co, Cu, Mn, Ni and V and their compounds (total)	Line 1	0.5 mg/m^3	periodic over minimum 30 minute, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS EN 14385
A2		Line 2				
A1	Ammonia (NH_3)	Line 1	-	½-hr average and / or daily average	Continuous where CEM installed.	BS EN 14181
A2		Line 2				
A1	Nitrous oxide (N_2O)	Line 1	-	periodic over minimum 1-hour period	For periodic measurement, quarterly in the first year of operation, then bi-annual	BS EN ISO 21258
A2		Line 2				
A1	Dioxins / furans (I-TEQ)	Line 1	0.1 ng/m^3	periodic over minimum 6 hours, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS EN 1948 Parts 1, 2 and 3
A2		Line 2				
A1	Dioxins / furans (WHO-TEQ Humans / Mammals)	Line 1	-	periodic over minimum 6 hours, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS EN 1948 Parts 1, 2 and 3
A2		Line 2				
A1	Dioxins / furans (WHO-TEQ	Line 1	-	periodic over minimum	Quarterly in first year. Then Bi-	BS EN 1948 Parts 1, 2 and 3

Table S3.1 Point source emissions to air – emission limits and monitoring requirements						
Emission point ref. & location [identified on site plan in Schedule 7]	**Parameter**	**Source**	**Limit (including unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard(s) or method(s)**
A2	Fish)	Line 2		6 hours, maximum 8 hour period	annual	
A1	Dioxins / furans (WHO-TEQ Birds)	Line 1	-	periodic over minimum 6 hours, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS EN 1948 Parts 1, 2 and 3
A2		Line 2				
A1	Dioxin-like PCBs (WHO-TEQ Humans / Mammals)	Line 1	-	periodic over minimum 6 hours, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS EN 1948-4
A2		Line 2				
A1	Dioxin-like PCBs (WHO-TEQ Fish)	Line 1	-	periodic over minimum 6 hours, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS EN 1948-4
A2		Line 2				
A1	Dioxin-like PCBs (WHO-TEQ Birds)	Line 1	-	periodic over minimum 6 hours, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS EN 1948-4
A2		Line 2				
A1	Specific individual poly-cyclic aromatic hydrocarbons (PAHs), as specified in Schedule 6.	Line 1	-	periodic over minimum 6 hours, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS ISO 11338 Parts 1 and 2
A2		Line 2				

Table S3.1(a) Point source emissions to air during abnormal operation of incineration plant – emission limits and monitoring requirements						
Emission point ref. & location [identified on site plan in schedule 7]	**Parameter**	**Source**	**Limit (including unit)**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
A1	Particulate matter	Line 1	150 mg/m^3	½-hr average	Continuous measurement	BS EN 14181 during abatement plant failure
A2		Line 2				
A1	Total Organic Carbon (TOC)	Line 1	20 mg/m^3	½-hr average	Continuous measurement	BS EN 14181 during abatement plant failure
A2		Line 2				
A1	Carbon monoxide (CO)	Line 1	100 mg/m^3	½-hr average	Continuous measurement	BS EN 14181 during abatement plant failure
A2		Line 2				

Table S3.2 Point Source emissions to water (other than sewer) and land – emission limits and monitoring requirements						
Emission point ref. & location	**Parameter**	**Source**	**Limit (incl. unit)**	**Reference Period**	**Monitoring frequency**	**Monitoring standard or method**
W1	No parameters set	Uncontaminated Surface water	No limit set	-	-	-

Table S3.3 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 (incl. unit)**	**Reference Period**	**Monitoring frequency**	**Monitoring standard or method**
S1	No parameters set	Sedimentation basin (boiler blow down, water run off from ash quench)	No limit set	-	-	-

Table S3.4 Process monitoring requirements				
Location or description of point of measurement	**Parameter**	**Monitoring frequency**	**Monitoring standard or method**	**Other specifications**
Location close to the Combustion Chamber inner wall (for Lines 1 and 2) or as identified and justified in Application.	Temperature (° C)	Continuous	Traceable to national standards	As agreed in writing with the Agency.
A1	Exhaust gas temperature	Continuous	Traceable to national standards	As agreed in writing with the Agency.
A2				
A1	Exhaust gas pressure	Continuous	Traceable to national standards	As agreed in writing with the Agency.
A2				
A1	Exhaust gas oxygen content	Continuous	BS EN 14181	
A2				
A1	Exhaust gas water vapour content	Continuous	BS EN 14181	Unless gas is dried before analysis of emissions.
A2				

Table S3.5 Residue quality					
Emission point reference or source or description of point of measurement	**Parameter**	**Limit**	**Monitoring frequency**	**Monitoring standard or method ***	**Other specifications**
Bottom Ash	TOC	<3%	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.	-	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	-	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.	-	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	-	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.

Table S4.1 Reporting of monitoring data			
Parameter	**Emission or monitoring point/reference**	**Reporting period**	**Period begins**
Emissions to air Parameters as required by condition 3.5.1	A1, A2	Quarterly	1 Jan, 1 Apr, 1 Jul and 1 Oct
TOC Parameters as required by condition 3.5.1	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 3.5.1	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 3.5.1	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 3.5.1	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 3.5.1	APC Residues	Before use of a new disposal or recycling route	
Functioning and monitoring of the incineration plant as required by condition 4.2.2		Annually	1 Jan

Table S4.2: Annual production/treatment	
Parameter	**Units**
Total Biomass incinerated – Line 1	tonnes
Total SRF incinerated – Line 2	tonnes
Electrical energy produced (Line 1 and Line 2)	KWhrs
Thermal energy produced e.g. steam for export (Line 1 and Line 2)	KWhrs
Electrical energy exported	KWhrs
Electrical energy used on installation	KWhrs
Waste heat utilised by the installation	KWhrs

Table S4.3 Performance parameters		
Parameter	**Frequency of assessment**	**Units**
Electrical energy produced, exported, imported and used at the installation	Quarterly	KWhrs / tonne of waste incinerated
Fuel oil consumption (Line 1 and Line 2)	Quarterly	Kgs / tonne of waste incinerated
Mass of Bottom Ash produced (Line 1 and Line 2)	Quarterly	Kgs / tonne of waste incinerated
Mass of APC residues produced (Line 1 and Line 2)	Quarterly	Kgs / tonne of waste incinerated
Mass of Other solid residues produced (Line 1 and Line 2)	Quarterly	Kgs / tonne of waste incinerated
Urea consumption (Line 1 and Line 2)	Quarterly	Kgs / tonne of waste incinerated
Activated Carbon consumption (Line 1 and Line 2)	Quarterly	Kgs / tonne of waste incinerated
Lime consumption (Line 1 and Line 2)	Quarterly	Kgs / tonne of waste incinerated
Water consumption (Line 1 and Line 2)	Quarterly	m^3 / tonne of waste incinerated
Periods of abnormal operation (Line 1 and Line 2)	Quarterly	No of occasions and cumulative hours for current calendar year for each line.

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	2014
Residues	Form residues1 or other form as agreed in writing by the Environment Agency	2014
Energy usage	Form energy 1 or other form as agreed in writing by the Environment Agency	2014
Other performance indicators	Form performance 1 or other form as agreed in writing by the Environment Agency	2014

Schedule 5 - Notification

These pages outline the information that the operator must provide.

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

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

Part A

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

(a) Notification requirements for any activity that gives rise to an incident or accident which significantly affects or may significantly affect the environment	
To be notified Immediately	
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 permit condition	
To be notified immediately	
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**

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:	
Description of where the effect on the environment was detected	
Substances(s) detected	
Concentrations of substances detected	
Date of monitoring/sampling	

Part B - to be submitted as soon as practicable

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

Name*	
Post	
Signature	
Date	

* authorised to sign on behalf of the operator

Schedule 6 - Interpretation

"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 [other than continuous emission monitors for releases to air of particulates, TOC and/or CO], during which the concentrations in the discharges into air and the purified waste water of the regulated substances may exceed the normal 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 transported by the grate.

"CEM" Continuous emission monitor.

"CEN" means Commité 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 I to Directive 2008/98/EC of the European Parliament and of the Council on waste.

"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.

"incineration line" means all of the 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.*

"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.

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

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

"s*hut down"* is any period where the plant is being returned to a non-operational state and there is no waste being burned 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 as described in the application or agreed in writing with the Environment Agency.

"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.

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

"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 gases from 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 11% dry.

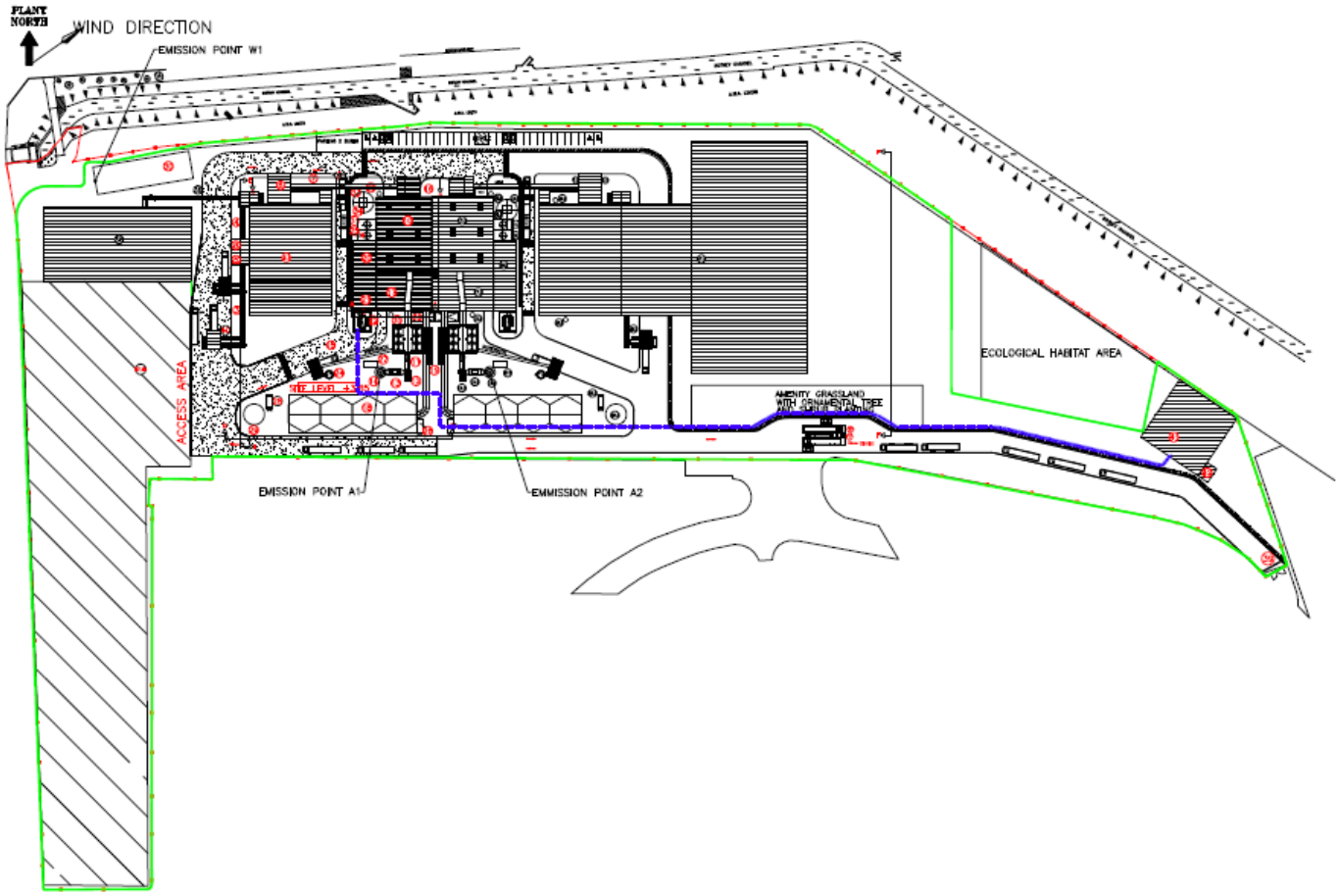
For dioxins/furans and dioxin-like PCBs the determination of the toxic equivalence concentration (I-TEQ, & WHO-TEQ for dioxins/furans, WHO-TEQ for dioxin-like PCBs) stated as a release limit and/ or reporting requirement, the mass concentrations of the following congeners have to be multiplied with their 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 then the detection limit assumed to be at the detection limit as a maximum. However the minimum value should be used when assessing compliance with the emission limit value in table S3.1.

TEF schemes for dioxins and furans				
Congener	***I-TEF***	***WHO-TEF***		
	1990	**2005**	**1997/8**	
		Humans / Mammals	***Fish***	***Birds***
Dioxins				
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*	*-*	*-*
Furans				
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***
Non-ortho PCBs			
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*
Mono-ortho PCBs			
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

Site plan – The ‘activities’



Site plan – Location

END OF PERMIT