



# Permit with introductory note

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

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Covanta Energy Limited

Rookery Pit Energy Recovery Facility  
Rookery South  
Stewartby  
Bedfordshire

**Permit number**

**EPR/WP3234DY**

# Rookery Pit Energy Recovery Facility

## Permit number EPR/WP3234DY

### 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 A(1)(b) of the Environmental Permitting (England and Wales) Regulations 2016. The permit implements the requirements of the EU Directives on Industrial Emissions and Waste.

The main features of the permit are as follows:

The site is located at Rookery Pit, Stewartby, Bedfordshire at National Grid Reference TL01270 41091. The nearest residential receptor is South Pilling Farm at a distance of 250 meters from the installation. To the immediate west is the Marston Vale Millennium Country Park. Approximately 0.5 km to the north-west is Stewartby Lake. The town of Stewartby is approximately 1 km to the north and Marston Mortaine is approximately 1 km to the west. There are no Sites of Special Scientific Interest within 2 km of the installation and there are no European habitat sites within 10 km of the installation.

The installation will receive waste in refuse collection vehicles and bulk transfer vehicles. The waste will be delivered to the tipping hall where it will be tipped into the waste bunker. Gantry crane grabs will be used to homogenise the waste tipped into the storage pit and remove any unsuitable or non-combustible items. The grabs will transfer waste to one of the three feed hoppers which feed the three moving grate furnaces where the waste is burned.

Combustion for each line will be controlled by feeding primary air through the grate and secondary air will be injected above the waste. The furnaces will be designed to ensure that the combustion gases are maintained, after the last injection of combustion air, to at least 850 °C for a minimum of two seconds. Combustion air will be sourced from the waste reception hall, which will serve to keep the building under negative air pressure (aiding odour control within the waste reception areas).

Emissions to air will be via a 105 m high stack and will be minimised by cleaning the waste combustion gases as follows:

- Oxides of nitrogen (NOx) will be abated using Selective Non-Catalytic Reduction (SNCR)
- Acid Gases will be abatement using a lime abatement system
- Dioxins mercury and volatiles abated using activated carbon injection
- Particulate matter and metals abated by bag filters

Hot gases from the incineration of waste will pass through a series of heat exchangers and superheaters and finally through an economiser. The economiser will be used to preheat feedwater before it is supplied to the boiler. The design of the boilers, following a computerised fluid dynamics assessment, will ensure that the flue gas temperature is quickly reduced to minimise the risk of dioxin reformation. The steam generated in the boilers will be fed to a steam turbine which will generate electricity. Water for steam generation will be sourced from the mains and treated in a demineralisation plant prior to use in the boilers. Steam will be condensed in an air cooled condenser and recycled to the boiler. Process waste water will be re-used for quenching bottom ash.

Bottom ash will either be transferred off-site for processing, or transferred by conveyor to a storage area for processing into different size fractions. The processed material will then be stored prior to transfer off site. The processing and storage will all be carried out in enclosed areas.

Air pollution control (APC) residues will be stored in silos prior to removal from site in sealed tankers.

There are no discharges to sewer. Only uncontaminated site surface water will be discharged; via an interceptor and then into an onsite attenuation pond. The attenuation pond will subsequently discharge into

the Low Level Restoration Scheme (LLRS) for the Rookery South development site. The LLRS serves the whole Rookery Development area.

The Installation facility will generate electricity at a rate of 65 MWe with 60 MWe supplied to the grid. The facility will have the capability to alternatively provide up to 40 MWth of heat as steam when the viability of Combined Heat and Power (CHP) is established.

The operator will have an environmental management system and intends to have it certified to ISO 14001.

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>Description</b>	<b>Date</b>	<b>Comments</b>
Application EPR/WP3234DY/A001	Duly made 15/02/17	
Schedule 5 notice request for information dated	13/04/17	Response received on 19/05/17
Schedule 5 notice request for information dated	16/06/17	Response received 06/07/17
Request for additional information	21/07/17	Response received 26/07/17
Additional information received	11/08/17 and 07/09/17	
Consultation on draft decision	11/09/17	
Additional information received	22/12/17	Clarification on issues raised during the consultation on the draft decision.
Permit issued	26/01/18	

End of introductory note

# Permit

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

### Permit number

**EPR/WP3234DY**

The Environment Agency hereby authorises, under regulation 13 of the Environmental Permitting (England and Wales) Regulations 2016

**Covanta Energy Limited** (“the operator”),

whose registered office is

**Suite 1**

**3rd Floor**

**11-12 St. James's Square**

**London**

**United Kingdom**

**SW1Y 4LB**

company registration number **05845046**

to operate an installation at

**Rookery Pit Energy Recovery Facility**

**Rookery South**

**Stewartby**

**Bedfordshire**

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

Name	Date
Principal Permitting Team Leader	26/01/2018

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 viability of Combined Heat and Power (CHP) implementation at least every 4 years, or in response to any of the following factors, whichever comes sooner:
- (a) new plans for significant developments within 15 km of the installation;
  - (b) changes to the Local Plan;
  - (c) changes to the DECC UK CHP Development Map or similar; and
  - (d) new financial or fiscal incentives for CHP.

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

### 1.3 Efficient use of raw materials

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

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

- 1.4.1 The operator shall take appropriate measures to ensure that:
- (a) the waste hierarchy referred to in Article 4 of the Waste Framework Directive is applied to the generation of waste by the activities; 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 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 The activities shall, subject to the conditions of this permit, be operated using the techniques and in the manner described in the documentation specified in schedule 1, table S1.2, unless otherwise agreed in writing by the Environment Agency.
- 2.3.2 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.
- 2.3.3 Any raw materials or fuels listed in schedule 2 table S2.1 shall conform to the specifications set out in that table.
- 2.3.4 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; and
  - (c) it having been separately collected for recycling, it is subsequently unsuitable for recovery by recycling.
- 2.3.5 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.
- 2.3.6 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.
- 2.3.7 Waste 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(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; or
  - (e) there is a stoppage, disturbance or failure of the activated carbon abatement system other than under abnormal operating conditions.
- 2.3.8 The operator shall have at least one auxiliary burner in each line which shall be operated at start up, shut down and as required during operation to ensure that the operating temperature specified in condition 2.3.7 is maintained as long as incompletely burned waste is present in the combustion chamber. Unless the temperature specified in condition 2.3.7 is maintained in the combustion chamber, such burner(s) shall 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.
- 2.3.9 The operator shall record the beginning and end of each period of “abnormal operation”.
- 2.3.10 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.
- 2.3.11 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 stoppages, disturbances or failures of the abatement plant, or continuous emission monitors are out of service, as the case may be, for a total of 4 hours uninterrupted duration;
  - (b) there is a technically unavoidable stoppage, disturbance or failure of the activated carbon abatement system for a total of 4 hours uninterrupted duration;
  - (c) the cumulative duration of “abnormal operation” periods over 1 calendar year has reached 60 hours on an incineration line;
  - (d) 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;
  - (e) 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 agreed in writing with the Environment Agency, are unavailable.
- 2.3.12 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 on an incineration line.

2.3.13 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 S 3.4. 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 The Operator shall carry out monitoring of soil and groundwater in accordance with IED articles 14(1)(b), 14(1)(e) and 16(2) to the protocol approved in writing with the Environment Agency under PO6.

### **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) and S3.2
  - (b) process monitoring specified in table S3.3;
  - (c) residue quality in table S3.4.
- 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 of the emission limit values:
    - 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 or 10-minute averages 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 or 10 minute period, the half-hourly average or 10-minute average shall in any case be considered valid if measurements are available for a minimum of 20 minutes or 7 minutes during the half-hour or 10-minute period respectively. The number of half-hourly or 10-minute averages so validated shall not exceed 5 or 15 respectively per day;
  - (d) daily average values shall be determined as the average of all the valid half-hourly average or 10-minute average values within a calendar day. The daily average value shall be considered valid if no more than five half-hourly average or fifteen 10-minute 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;

implement the pests management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency

## 3.7 Fire prevention

- 3.7.1 The operator shall take all appropriate measures to prevent fires on site and minimise the risk of pollution from them including, but not limited to, those specified in any approved fire prevention plan.

## **4 Information**

### **4.1 Records**

- 4.1.1 All records required to be made by this permit shall:
- (a) be legible;
  - (b) be made as soon as reasonably practicable;
  - (c) if amended, be amended in such a way that the original and any subsequent amendments remain legible, or are capable of retrieval; and
  - (d) be retained, unless otherwise agreed in writing by the Environment Agency, for at least 6 years from the date when the records were made, or in the case of the following records until permit surrender:
    - (i) off-site environmental effects; and
    - (ii) matters which affect the condition of the land and groundwater.
- 4.1.2 The operator shall keep on site all records, plans and the management system required to be maintained by this permit, unless otherwise agreed in writing by the Environment Agency.

### **4.2 Reporting**

- 4.2.1 The operator shall send all reports and notifications required by the permit to the Environment Agency using the contact details supplied in writing by the Environment Agency.
- 4.2.2 A report or reports on the performance of the activities over the previous year shall be submitted to the Environment Agency by 31 January (or other date agreed in writing by the Environment Agency) each year. The report(s) shall include as a minimum:
- (a) a review of the results of the monitoring and assessment carried out in accordance with the permit including an interpretive review of that data;
  - (b) the annual production /treatment data set out in schedule 4 table S4.2;
  - (c) the 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 In the event:

- (a) that the operation of the activities gives rise to an incident or accident which significantly affects or may significantly affect the environment, the operator must immediately—
  - (i) inform the Environment Agency,
  - (ii) take the measures necessary to limit the environmental consequences of such an incident or accident, and
  - (iii) take the measures necessary to prevent further possible incidents or accidents;
- (b) of a breach of any permit condition the operator must immediately—
  - (i) inform the Environment Agency, and
  - (ii) take the measures necessary to ensure that compliance is restored within the shortest possible time;
- (c) of a breach of permit condition which poses an immediate danger to human health or threatens to cause an immediate significant adverse effect on the environment, the operator must immediately suspend the operation of the activities or the relevant part of it until compliance with the permit conditions has been restored.

4.3.2 Any information provided under condition 4.3.1 (a)(i), 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.

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 "immediately" in which case it may be provided by telephone

# Schedule 1 – Operations

<b>Table S1.1 activities</b>		
<b>Activity listed in Schedule 1 of the EP Regulations</b>	<b>Description of specified activity</b>	<b>Limits of specified activity</b>
S5.1 A1 (b)	The incineration of non-hazardous waste in a waste incineration plant with a capacity of 3 tonnes per hour or more.	From receipt of waste to discharge of exhaust gases and removal of residues from site. The activity includes storage and processing of incinerator bottom ash. Storage and processing of incinerator bottom ash and storage of incinerator bottom ash aggregate to be in fully enclosed buildings.
<b>Directly Associated Activities</b>		
Electricity Generation	Generation of electrical power and heat using a steam turbine from energy recovered from the flue gases.	
Back up diesel electrical generator	For providing back up electrical power to enable the plant to be shut-down in the event of supply interruption.	
Surface water management	Management of uncontaminated surface water drainage	From collection of surface water drainage including reuse within site activities through to discharge from the Installation.

<b>Table S1.2 Operating techniques</b>		
<b>Description</b>	<b>Parts</b>	<b>Date Received</b>
Application	<ul style="list-style-type: none"> <li>The response to question 3 of application form B3</li> <li>Supporting information document – sections 1.4, 2.2.2, 2.2.3, 2.3, 2.4.2, 2.4.3, 2.4.4, 2.4.5, 2.5, 2.6.4, 2.6.5, 2.8, 2.9</li> </ul>	15/02/2017
Response to Schedule 5 Notice dated 13/04/17	<ul style="list-style-type: none"> <li>Response to questions 5, 7, 9, 29, 31, 32 and 33.</li> <li>Noise mitigation measures set out in the Acoustic Design Report Revision A</li> </ul>	19/05/17
Response to Schedule 5 Notice dated 16/06/17	<ul style="list-style-type: none"> <li>Response to questions 3, 5, 11, 12, 17, 18 and 23</li> </ul>	06/07/17
Response to Schedule 5 Notice dated 16/06/17	Dust management plan	06/07/17 and as updated in response to pre-operational condition PO10
Additional information	Fire Prevention Plan	26/07/17 and as updated in response to pre-operational condition PO9
Additional information	Response to questions 3, 4 and 6	26/07/17

<b>Table S1.2 Operating techniques</b>		
<b>Description</b>	<b>Parts</b>	<b>Date Received</b>
Additional information	Response to question 3	22/12/17

<b>Table S1.3 Improvement programme requirements</b>		
<b>Reference</b>	<b>Requirement</b>	<b>Date</b>
<b>IC1</b>	The Operator shall submit a written report to the Environment Agency on the implementation of its Environmental Management System (EMS) 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 completion of commissioning.
<b>IC2</b>	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, A2 and A3, identifying the fractions within the PM <sub>10</sub> , and PM <sub>2.5</sub> ranges. On receipt of written approval from 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.	Written proposal to be submitted before completion of commissioning.  Report of results to be submitted within 4 months of the completion of commissioning.
<b>IC3</b>	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 and confirm that the Environmental Management System (EMS) has been updated accordingly.	Within 4 months of the completion of commissioning.
<b>IC4</b>	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 and include a comparison with the CFD modelling submitted with PO5.	Within 4 months of the completion of commissioning.
<b>IC5</b>	The Operator shall submit a written report to the Environment Agency describing the performance and optimisation of: <ul style="list-style-type: none"> <li>• The Selective Non Catalytic Reduction (SNCR) system and combustion settings to minimise oxides of nitrogen (NO<sub>x</sub>).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.</li> <li>• The lime injection system for minimisation of acid gas emissions</li> <li>• The carbon injection system for minimisation of dioxin and heavy metal emissions.</li> </ul>	Within 6 months of the completion of commissioning.
<b>IC6</b>	The Operator shall carry out an assessment of the impact of emissions to air (in order to validate the assessment provided in the application) of the following component metals subject to emission limit values:	13 months from the completion of commissioning

<b>Table S1.3 Improvement programme requirements</b>		
<b>Reference</b>	<b>Requirement</b>	<b>Date</b>
	<ul style="list-style-type: none"> <li>As and Cr</li> </ul> <p>A report on the assessment shall be made to the Environment Agency.</p> <p>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 environment standard (ES). The report shall include proposals for further investigative work if required.</p>	
<b>IC7</b>	<p>The Operator shall submit a written summary report to the Environment Agency to confirm the results of calibration and verification testing for the performance of Continuous Emission Monitors for parameters as specified in Table S3.1 and Table S3.1(a). Testing shall confirm compliance with the requirements of BS EN 14181, specifically the requirements of QAL1, QAL2 and QAL3.</p>	<p>Initial calibration report to be submitted to the Agency within 3 months of completion of commissioning.</p> <p>Full summary evidence compliance report to be submitted within 12 months of completion of commissioning.</p>
<b>IC8</b>	<p>The Operator shall undertake a noise assessment during normal operations in accordance with the procedures given in BS4142: 2014 (Rating industrial noise affecting mixed residential and industrial areas) in order to verify the assessment provided within the application. The assessment shall include, but not be limited to:</p> <ul style="list-style-type: none"> <li>A review of the noise sources from the facility. Where any noise sources are identified as exhibiting tonal contributions, they shall be quantified by means of frequency analysis.</li> <li>A review of noise mitigation measures</li> </ul> <p>A report shall be provided to the Environment Agency detailing the findings of the assessment and a review of whether any improvements are required together with proposals for their implementation.</p>	<p>Within 4 months of the completion of commissioning.</p>

<b>Table S1.4 Pre-operational measures</b>	
<b>Reference</b>	<b>Pre-operational measures</b>
<b>PO1</b>	<p>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 Environment Agency web guide on developing a management system for environmental permits (<a href="http://www.gov.uk">www.gov.uk</a>). 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.</p>
<b>PO2</b>	<p>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, including operating as CHP or supplying district heating, 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 heat and shall provide a timetable for their implementation.</p>
<b>PO3</b>	<p>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</p>

<b>Table S1.4 Pre-operational measures</b>	
<b>Reference</b>	<b>Pre-operational measures</b>
	purposes of assessing its hazard status. Sampling and testing shall be carried out in accordance with the protocol as approved. The protocol shall be in line with Environment Agency guidance M4 (Guidelines for Ash Sampling and Analysis).
<b>PO4</b>	Prior to the commencement of commissioning, the Operator shall provide a written commissioning plan, including timelines for completion, for approval by the Environment Agency and obtain the Environment Agency's written approval to it. 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.
<b>PO5</b>	After completion of furnace design and at least three calendar months before commencement of commissioning; 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 Chapter IV and Annex VI of the Industrial Emissions Directive.
<b>PO6</b>	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 Industrial Emissions Directive. The procedure shall be implemented in accordance with the written approval from the Environment Agency.
<b>PO7</b>	At least three months before the commencement of commissioning, the Operator shall submit a written report to the Environment Agency specifying arrangements for continuous and periodic monitoring of emissions to air to comply with Environment Agency guidance notes M1 and M2. The report shall include the following: <ul style="list-style-type: none"> <li>• Plant and equipment details, including accreditation to MCERTS</li> <li>• Methods and standards for sampling and analysis</li> <li>• Details of monitoring locations, access and working platforms</li> </ul>
<b>PO8</b>	During commissioning, the operator shall carry out tests to demonstrate whether the furnace combustion air will provide the required air flows to ensure that negative pressure is achieved throughout the reception hall. The tests shall demonstrate whether air is pulled through the reception hall and bunker area into the furnace with dead spots minimised. The operator shall submit a report to the Environment Agency for approval, and obtain the Environment Agency's written approval to it, summarising the findings along with any proposed improvements if required.
<b>PO9</b>	The operator shall confirm if any changes are required to the fire prevention plan after the detailed design stage of the installation. The operator shall submit a revised version of the plan that was submitted with the application (if required) to the Environment Agency for approval. The revised plan shall include details of the fire water supply and confirm that it complies with fire service requirements regarding the flow and pressure. The plan shall be in line with current Environment Agency guidance on fire prevention plans.
<b>PO10</b>	If it is proposed to undertake on-site processing of IBA, the operator shall submit an updated dust management plan, after detailed design stage of the IBA facility, to the Environment Agency and obtain written approval from the Environment Agency. The plan shall include the location of suppression system nozzles and dust monitoring equipment and the frequency of monitoring. The plan shall also include details of the IBAA storage building to demonstrate that storage will be in a fully enclosed building.
<b>PO11</b>	Prior to the commencement of commissioning, the Operator shall submit a written report to the Agency detailing the waste acceptance procedures 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 identified and dealt with. The procedures shall be implemented in accordance with the written approval from the Agency.

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

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

<b>Table S2.2 Permitted waste types and quantities for incineration plant</b>	
<b>Maximum quantity</b>	<b>585,000 tonnes per year (total for 3 lines)</b>
<b>Waste code</b>	<b>Description</b>
<b>02</b>	<b>Wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing, food preparation and processing</b>
<b>02 01</b>	<b>wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing</b>
02 01 03	plant-tissue waste
<b>02 06</b>	<b>wastes from the baking and confectionery industry</b>
02 06 01	materials unsuitable for consumption or processing
<b>03</b>	<b>Wastes from wood processing and the production of panels and furniture, pulp, paper and cardboard</b>
<b>03 01</b>	<b>wastes from wood processing and the production of panels and furniture</b>
03 01 01	waste bark and cork
03 01 05	sawdust, shavings, cuttings, wood, particle board and veneer other than those mentioned in 03 01 04
<b>03 03</b>	<b>wastes from pulp, paper and cardboard production and processing</b>
03 03 01	waste bark and wood
03 03 07	mechanically separated rejects from pulping of waste paper and cardboard
<b>04</b>	<b>Wastes from the leather, fur and textile industries</b>
<b>04 02</b>	<b>wastes from the textile industry</b>
04 02 10	organic matter from natural products (for example grease, wax)
04 02 21	wastes from unprocessed textile fibres
04 02 22	wastes from processed textile fibres
<b>15</b>	<b>Waste packaging, absorbents, wiping cloths, filter materials and protective clothing not otherwise specified</b>
<b>15 01</b>	<b>packaging (including separately collected municipal packaging waste)</b>
15 01 01	paper and cardboard packaging
15 01 02	plastic packaging
15 01 03	wooden packaging
15 01 05	composite packaging
15 01 06	mixed packaging
15 01 07	glass packaging

<b>Table S2.2 Permitted waste types and quantities for incineration plant</b>	
<b>Maximum quantity</b>	<b>585,000 tonnes per year (total for 3 lines)</b>
<b>Waste code</b>	<b>Description</b>
15 01 09	textile packaging
<b>16</b>	<b>Wastes not otherwise specified in the list</b>
<b>16 03</b>	<b>off-specification batches and unused products</b>
16 03 04	inorganic wastes other than those mentioned in 16 03 03
16 03 06	organic wastes other than those mentioned in 16 03 05
<b>17</b>	<b>Construction and demolition wastes (including excavated soil from contaminated sites)</b>
<b>17 02</b>	<b>wood, glass and plastic</b>
17 02 01	wood
17 02 03	plastic
<b>18</b>	<b>Wastes from human or animal health care and/or related research (except kitchen and restaurant wastes not arising from immediate health care)</b>
<b>18 01</b>	<b>wastes from natal care, diagnosis, treatment or prevention of disease in humans</b>
18 01 04	wastes whose collection and disposal is not subject to special requirements in order to prevent infection (for example dressings, plaster casts, linen, disposable clothing, diapers)
<b>18 02</b>	<b>wastes from research, diagnosis, treatment or prevention of disease involving animals</b>
18 02 03	wastes whose collection and disposal is not subject to special requirements in order to prevent infection
<b>19</b>	<b>Wastes from waste management facilities, off-site waste water treatment plants and the preparation of water intended for human consumption and water for industrial use</b>
<b>19 02</b>	<b>wastes from physico/chemical treatments of waste (including dechromatation, decyanidation, neutralisation)</b>
19 02 03	premixed wastes composed only of non-hazardous wastes
<b>19 05</b>	<b>wastes from aerobic treatment of solid wastes</b>
19 05 01	non-composted fraction of municipal and similar wastes
19 05 02	non-composted fraction of animal and vegetable waste
19 05 03	off-specification compost
<b>19 06</b>	<b>wastes from anaerobic treatment of waste</b>
19 06 04	digestate from anaerobic treatment of municipal waste
19 06 06	digestate from anaerobic treatment of animal and vegetable waste
<b>19 12</b>	<b>wastes from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified</b>
19 12 01	paper and cardboard
19 12 04	plastic and rubber
19 12 07	wood other than that mentioned in 19 12 06
19 12 08	textiles
19 12 10	combustible waste (refuse derived fuel)

<b>Table S2.2 Permitted waste types and quantities for incineration plant</b>	
<b>Maximum quantity</b>	<b>585,000 tonnes per year (total for 3 lines)</b>
<b>Waste code</b>	<b>Description</b>
19 12 12	other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11
<b>20</b>	<b>Municipal wastes (household waste and similar commercial, industrial and institutional wastes) including separately collected fractions</b>
<b>20 01</b>	<b>separately collected fractions (except 15 01)</b>
20 01 01	paper and cardboard
20 01 08	biodegradable kitchen and canteen waste
20 01 10	clothes
20 01 11	textiles
20 01 38	wood other than that mentioned in 20 01 37
20 01 39	plastics
<b>20 02</b>	<b>garden and park wastes (including cemetery waste)</b>
20 02 01	biodegradable waste
<b>20 03</b>	<b>other municipal wastes</b>
20 03 01	mixed municipal waste
20 03 02	waste from markets
20 03 03	street-cleaning residues
20 03 04	septic tank sludge
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	Parameter	Source	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard(s) or method(s)
A1, A2 , A3 (Three flues as part of one stack – shown as A1 on plan in schedule 7)	Particulate matter	Incineration exhaust gases	30 mg/m <sup>3</sup>	½-hr average	Continuous measurement	BS EN 14181 and BS EN 15267-3
	Particulate matter		10 mg/m <sup>3</sup>	daily average		
	Total Organic Carbon (TOC)		20 mg/m <sup>3</sup>	½-hr average		
	Total Organic Carbon (TOC)		10 mg/m <sup>3</sup>	daily average		
	Hydrogen chloride		60 mg/m <sup>3</sup>	½-hr average		
	Hydrogen chloride		10 mg/m <sup>3</sup>	daily average		
	Carbon monoxide		150 mg/m <sup>3</sup>	95% of all 10-minute averages in any 24-hour period		
	Carbon monoxide		50 mg/m <sup>3</sup>	daily average		
	Sulphur dioxide		200 mg/m <sup>3</sup>	½-hr average		
	Sulphur dioxide		50 mg/m <sup>3</sup>	daily average		
	Oxides of nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )		400 mg/m <sup>3</sup>	½-hr average		
	Oxides of nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )		200 mg/m <sup>3</sup>	daily average		

<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, A2 , A3 (Three flues as part of one stack – shown as A1 on plan in schedule 7)	Hydrogen Fluoride	Incineration exhaust gases	2 mg/m <sup>3</sup>	periodic over minimum 1-hour period	Quarterly in first year. Then Bi-annual	BS ISO 15713
	Cadmium & thallium and their compounds (total)		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		0.05 mg/m <sup>3</sup>	periodic over minimum 30 minute, maximum 8 hour period		BS EN 13211
	Sb, As, Pb, Cr, Co, Cu, Mn, Ni and V and their compounds (total)		0.5 mg/m <sup>3</sup>	periodic over minimum 30 minute, maximum 8 hour period		BS EN 14385
	Ammonia (NH <sub>3</sub> )		No limit set	½-hr average and daily average	Continuous measurement	BS EN 14181 and BS EN 15267-3
	Nitrous oxide (N <sub>2</sub> O)			periodic over minimum 1-hour period	For periodic measurement, quarterly in the first year of operation, then bi-annual	BS EN ISO 21258
	Dioxins / furans (I-TEQ)		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						
Emission point ref. & location	Parameter	Source	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard(s) or method(s)
A1, A2 , A3 (Three flues as part of one stack – shown as A1 on plan in schedule 7)	Dioxins / furans (WHO-TEQ Humans / Mammals)	Incineration exhaust gases	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)					BS EN 1948 Parts 1, 2 and 3
	Dioxins / furans (WHO-TEQ Birds)					BS EN 1948 Parts 1, 2 and 3
	Dioxin-like PCBs (WHO-TEQ Humans / Mammals)					BS EN 1948-4
	Dioxin-like PCBs (WHO-TEQ Fish)					BS EN 1948-4
	Dioxin-like PCBs (WHO-TEQ Birds)					BS EN 1948-4
	Specific individual polycyclic aromatic hydrocarbons (PAHs), as specified in Schedule 6.					BS ISO 11338 Parts 1 and 2.
A4 (Shown as point 10 on plan in schedule 7)	No parameters set	Emergency Diesel Generators	No limit set	-	-	-

<b>Table S3.1(a) Point source emissions to air during abnormal operation of incineration plant – 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 or method</b>
A1, A2 , A3 (Three flues as part of one stack – shown as A1 on plan in schedule 7)	Particulate matter	Incineration exhaust gases	150 mg/m <sup>3</sup>	½-hr average	Continuous measurement	BS EN 14181 and BS EN 15267-3 during abatement plant failure
	Total Organic Carbon (TOC)	Incineration exhaust gases	20 mg/m <sup>3</sup>	½-hr average	Continuous measurement	BS EN 14181 and BS EN 15267-3 during abatement plant failure
	Carbon monoxide	Incineration exhaust gases	150 mg/m <sup>3</sup>	10 minute average	Continuous measurement	BS EN 14181 and BS EN 15267-3 during abatement plant failure

<b>Table S3.2 Point Source emissions to water (other than sewer) and land – emission limits and monitoring requirements</b>						
<b>Emission point ref. &amp; location</b>	<b>Source</b>	<b>Parameter</b>	<b>Limit (incl. unit)</b>	<b>Reference Period</b>	<b>Monitoring frequency</b>	<b>Monitoring standard or method</b>
W1 (emission from surface water attenuation pond as shown on drawing number 2118-001 X2 in the Application)	Uncontaminated surface water run-off via interceptor	No limits set	-	-	-	-

<b>Table S3.3 Process monitoring requirements</b>				
<b>Emission point reference or source or description of point of measurement</b>	<b>Parameter</b>	<b>Monitoring frequency</b>	<b>Monitoring standard or method</b>	<b>Other specifications</b>
As agreed in writing with the Environment Agency	Wind Speed and Direction	Continuous	Anemometer	
Location close to the Combustion Chamber inner wall or as identified and justified in Application.	Temperature (°C)		Traceable to national standards	As agreed in writing with the Agency.
A1, A2, A3	Exhaust gas temperature		Traceable to national standards	As agreed in writing with the Agency.
A1, A2, A3	Exhaust gas pressure		Traceable to national standards	As agreed in writing with the Agency.
A1, A2, A3	Exhaust gas oxygen content		BS EN 15267-3 BS EN 14181	
A1, A2, A3	Exhaust gas water vapour content		BS EN 15267-3 BS EN 14181	Unless gas is dried before analysis of emissions.

<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	TOC	<3%	Monthly in the first year of operation. Then Quarterly	Environment Agency Guidance, 'TGN M4 – Guidelines for Ash Sampling and Analysis'	
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 limits set	Monthly in the first year of operation. Then Quarterly	Environment Agency Guidance, 'TGN M4 – Guidelines for Ash Sampling and Analysis'	
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	Environment Agency Guidance, 'TGN M4 – Guidelines for Ash Sampling and Analysis'	
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	Environment Agency Guidance, 'TGN M4 – Guidelines for Ash Sampling and Analysis'	
APC Residues	Total soluble fraction and metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic,		Before use of a new disposal or recycling route	Environment Agency Guidance, 'TGN M4 – Guidelines for Ash Sampling and Analysis'	

**Table S3.4 Residue quality**

<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>
	Cobalt, Vanadium, Zinc) soluble fractions				

\* 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 3.5.1	A1, A2, A3	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

<b>Parameter</b>	<b>Units</b>
Total Municipal Waste Incinerated	tonnes
Total Commercial Waste Incinerated	tonnes
Electrical energy produced	KWh
Thermal energy produced e.g. steam for export	KWh
Electrical energy exported	KWh
Electrical energy used on installation	KWh
Waste heat utilised by the installation	KWh
Incinerator bottom ash exported	tonnes
Incinerator bottom ash aggregate exported	tonnes

<b>Parameter</b>	<b>Frequency of assessment</b>	<b>Units</b>
Electrical energy exported, imported and used at the installation	Annually	KWh / tonne of waste incinerated
Fuel oil consumption	Annually	m <sup>3</sup> / tonne of waste incinerated
Mass of Bottom Ash exported	Annually	Kg / tonne of waste incinerated
Mass of APC residues exported	Annually	Kg / tonne of waste incinerated
Ammonia consumption	Annually	Kg / tonne of waste incinerated
Activated Carbon consumption	Annually	Kg / tonne of waste incinerated
Lime consumption	Annually	Kg / tonne of waste incinerated
Water consumption	Annually	Kg / tonne of waste incinerated
Periods of abnormal operation	Annually	No of occasions and cumulative hours for current calendar year for each line.

<b>Media/parameter</b>	<b>Reporting format</b>	<b>Date of form</b>
Air	Form air 1 to 7 or other forms as agreed in writing by the Environment Agency	January 2018
Water and raw material usage	Form WU/RM1 1 or other form as agreed in writing by the Environment Agency	January 2018
Energy usage	Form energy 1 or other form as agreed in writing by the Environment Agency	January 2018
Waste disposal/recovery	Form R1 or other form as agreed in writing by the Environment Agency	January 2018

<b>Table S4.4 Reporting forms</b>		
<b>Media/parameter</b>	<b>Reporting format</b>	<b>Date of form</b>
Residue quality	Form residues 1 and 2 or other forms as agreed in writing by the Environment Agency	January 2018
Other performance indicators	Form performance 1 or other form as agreed in writing by the Environment Agency	January 2018

# 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	EPR/WP3234DY
Name of operator	Covanta Energy Limited
Location of Facility	Rookery Pit Energy Recovery Facility
Time and date of the detection	

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

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

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

<b>Time periods for notification following detection of a breach of a limit</b>	
<b>Parameter</b>	<b>Notification period</b>

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

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

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

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, 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.

“bottom ash” means ash falling through the grate or transported by the grate

“CEM” Continuous emission monitor

“CEN” means Comité Européen de Normalisation

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

“Commissioning” means testing of the new incineration plant that involves any operation of the furnace or as agreed with the Environment Agency.

“daily average” for releases of substances to air means the average of valid half-hourly averages or 10 minute averages for CO 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.

“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.

“Fully enclosed building” means a construction that is fully enclosed (except for ventilation) consisting of walls and a roof with the objective of minimising fugitive emissions.

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

“*Hazardous property*” has the meaning in Annex III of the Waste Framework Directive

“incineration line” means all of the incineration equipment related to a single flue discharge to air.

“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.

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

"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, Dibenz[a,h]anthracene, Dibenz[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.

"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.

"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 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 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 than 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.

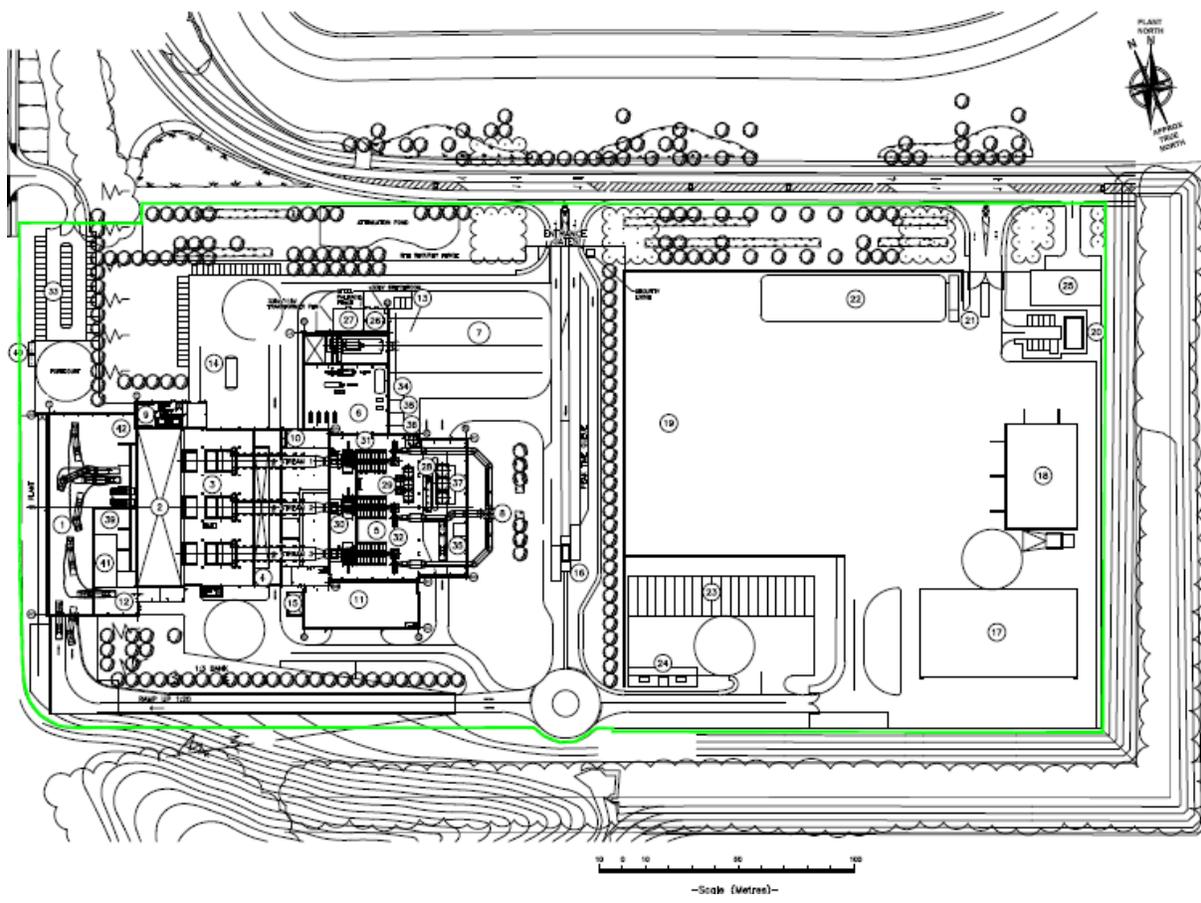
<b>TEF schemes for dioxins and furans</b>				
<b>Congener</b>	<b>I-TEF</b>	<b>WHO-TEF</b>		
	<b>1990</b>	<b>2005</b>	<b>1997/8</b>	
		<b>Humans / Mammals</b>	<b>Fish</b>	<b>Birds</b>
<b>Dioxins</b>				
2,3,7,8-TCDD	1	1	1	1
1,2,3,7,8-PeCDD	0.5	1	1	1
1,2,3,4,7,8-HxCDD	0.1	0.1	0.5	0.05
1,2,3,6,7,8-HxCDD	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

<b>TEF schemes for dioxin-like PCBs</b>			
<b>Congener</b>	<b>WHO-TEF</b>		
	<b>2005</b>	<b>1997/8</b>	
	<b>Humans / mammals</b>	<b>Fish</b>	<b>Birds</b>
<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

TEF schemes for dioxin-like PCBs			
Congener	WHO-TEF		
	2005	1997/8	
	Humans / mammals	Fish	Birds
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





END OF PERMIT