

Permit with introductory note

The Environmental Permitting (England & Wales) Regulations 2016

BIOMASS UK NO. 4. LIMITED

Plymouth EfW Facility
Unit 21-29 Belliver way,
Roborough,
Plymouth,
PL6 7BW

Permit number

EPR/BP3124SC

Plymouth EfW Facility

Permit number EPR/BP3124SC

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) – the incineration of non-hazardous waste in a waste incineration plant with a capacity exceeding 3 tonnes per hour. The permit implements the requirements of the EU Directives on Industrial Emissions and Waste.

The main features of the permit are as follows:

Furnace technology	Moving Grate
Number of lines	1.
Waste	Refuse Derived Fuel, Solid Recovered Fuels, Grade A – C Non-hazardous waste wood
Stack height	35m
Permitted plant capacity	60,000 tonnes per year
Electrical generation capacity	4.64 MWe (Gross) 3.9 MWe (Net)
Gross electrical efficiency	26.1%

The Installation is located at Units 21-29, Belliver Way, Roborough, Plymouth, Devon, PL6 7BW (National Grid Reference: SX 49890 62378).

The installation consists of one incineration line, with a maximum operating capacity of 60,000 tonnes per year. Generation of electricity is dependent on the use of an Organic Rankine Cycle (ORC). The ORC is a closed thermodynamic cycle which converts heat energy to mechanical energy, to electrical energy. The installation is built as CHP-Ready, with the potential to export up to 10MWth heat if economically viable opportunities are identified. A thermal oil boiler which is a machine that consists of an exchange body through which the thermal fluid circulates, which receives the energy in the form of heat is integral to the system.

Refuse derived fuel (RDF) solid recovered fuels (SRF) and mixed (PAS111:2012-Grade A-C) non-hazardous waste wood is delivered to the facility in enclosed vehicles and deposited into the internal reception area in loose form, inspected and then transferred through the use of mechanical shovel to the walking floor storage bunkers. Entry to the waste reception is via electronically fast acting roller shutter doors. Vehicles will enter backwards and discharge waste onto the floor of the waste reception hall. The doors are complete with air curtains to prevent odorous emissions escaping during the unloading of waste.

The combustion chamber is designed to achieve good burnout, ensuring that combustion gases are maintained at a minimum temperature of 850 °C for a minimum residence time of 2 seconds. Low oxides of nitrogen (NOx) auxiliary burners can be used to maintain the temperature in the combustion chamber if required. Primary combustion air is drawn into the chamber using an induced draft (ID) fan, maintaining negative pressure in the RDF reception area.

The thermal oil boiler is integral to the furnace; combustion gases heat the oil within the closed loop, with oil vapours expanding in the turbine to generate electricity. Air cooled condensers (ACCs) are used to condense the vapour back into a liquid before it is pumped back into the boiler. Flue gases from the combustion process are discharged via an induced draft (ID) fan and CEMs, to a 35m stack.

To ensure emissions meet BAT-AELs and are minimised, several techniques are used:

- i. Selective Non-Catalytic Reduction for abatement of NO_x
- ii. Flue gas recirculation for reduction of NO_x
- iii. Sodium bicarbonate and activated carbon injection for abatement of acid gases, heavy metals, and dioxins and furans
- iv. Impregnated ceramic filters, for particulate and NO_x abatement.

There will be no direct process effluent emissions to water from the installation. The facility is designed as a zero-discharge process. Process areas will have contained drainage, with process effluents re-used within the ash quench. There will be no discharge off-site of process effluents. All process waters used within the ash cooling and quench are retained within the wet ash exports and therefore not discharged.

Uncontaminated surface water is discharged into the local storm water drainage system via a stage 1 surface water interceptor.

S1 is defined as domestic emissions only and is therefore not covered by this permit.

There are two principal types of solid by-products produced from the operation of the facility. These are: Bottom Ash; and APC Air Pollution Control (APC) residues.

Treatment for recovery or disposal of solid residues take place away from the installation with only temporary storage on site.

The closest residential receptors are located 185m to the southeast at Lady Fern road, Belliver.

The following ecological receptors are located within the relevant distances to the site:

South Dartmoor Woods Special Area of Conservation (SAC) 1 distance 3,716m

South Dartmoor Woods SAC 2 distance 3,612m

South Dartmoor Woods SAC 3 distance 4,136m

Plymouth Sound and Estuaries SAC 1 distance 3,757m

Plymouth Sound and Estuaries SAC 2 distance 2,958m

Tamar estuaries complex Special Protection Area (SPA) 1 distance 2,562m

Tamar estuaries complex SPA 2 distance 3,589m

Dartmoor SAC 1 distance 7,733m

Dartmoor SAC 2 distance 10,156m

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

Status log of the permit		
Description	Date	Comments
Application received	Duly made 24/11/2023	Application for incineration permit
Additional information received Response to Request for further information dated 01/12/2023	Received 06/12/2023	Noise modelling files provided.
Additional information received Response to Request for further information dated 06/12/2023	03/01/2024	Payment made for newspaper Advertisement.
Additional information received	06/02/2024	Location of Process flow diagram

Status log of the permit		
Description	Date	Comments
Response to Request for further information dated 06/02/2024		
Additional information received Response to Schedule 5 dated 19/06/2024	19/07/2024	Clarification of Raw materials, Air emissions, Dust Management Plan, Updated Form Part B6, Updated Odour Management Plan
Additional information received Response to Request for further information dated 25/07/2024	01/08/2024	Response received 01/08/2024 & 06/08/2024 Payment for DEMP, updated site Plan, confirmation of shutter open during deliveries,
Additional information received Response to Request for further information dated 09/08/2024	20/08/2024	Confirmation that Auxillary Burners to only operate on start up and shut down, Carbon filters to be used as alternate extraction, emergency generator will be sized for the full load of the incineration plant, Emergency release valve to be used in emergency scenarios only.
Additional information received Response to Request for further information dated 10/09/2024	10/09/2024	Updated Dust management plan V2
Additional information received Response to Request for further information dated 24/09/2024	24/09/2024	Confirmation that reagent will be separate lines with continuous dosage.
Permit determined	29/11/2024	Permit issued to Biomass UK No.4

End of introductory note

Permit

The Environmental Permitting (England and Wales) Regulations 2016

Permit number

EPR/BP3124SC

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

BIOMASS UK NO. 4. LIMITED (“the operator”),

whose registered office is

80 Fenchurch Street

London

EC3M 4AE

company registration number 12271489

to operate an installation at

Plymouth EfW Facility

Unit 21-29 Belliver way,

Roborough,

Plymouth,

PL6 7BW

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

Name	Date
Hannah Finney	29/11/2024

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.
 - (c) referenced in schedule 1, table S1.1 (AR1), in accordance with a written other than normal operating conditions (OTNOC) management plan.
- 1.1.2 Records demonstrating compliance with condition 1.1.1 shall be maintained.
- 1.1.3 The operator shall review the written management system at least every 3 years or otherwise as requested by the Environment Agency.
- 1.1.4 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 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 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.

- 2.3.5 Waste paper, metal, plastic or glass that has been separately collected for the purpose of preparing for re-use or recycling shall not be accepted. Waste from the treatment of these separately collected wastes shall only be accepted if incineration delivers the best environmental outcome in accordance with regulation 12 of the Waste (England and Wales) Regulations 2011.
- 2.3.6 Separately collected fractions other than those listed in condition 2.3.5 shall not be accepted unless they are unsuitable for recovery by recycling.
- 2.3.7 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.
- 2.3.8 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.
- 2.3.9 Waste shall not be charged if:
- (a) the combustion chamber temperature is below 850 °C,
 - (b) any continuous emission limit value in schedule 3 table S3.1(a) is exceeded during abnormal operation; or
 - (c) any continuous emission limit value in schedule 3 table S3.1 is exceeded, other than during abnormal operation; or
 - (d) continuous emission monitors to demonstrate compliance with any continuous emission limit value in schedule 3 table S3.1 are unavailable other than during abnormal operation; or
 - (e) there is a stoppage, disturbance or failure of the activated carbon abatement system, other than during abnormal operation.
 - (f) continuous emission monitors to demonstrate compliance with the emission limit values for particulates, TOC or CO in schedule 3 are unavailable unless alternative techniques, as agreed in writing with the Environment Agency, are used to demonstrate compliance with those emission limit values.
- 2.3.10 The operator shall record the beginning and end of each period of “abnormal operation”.
- 2.3.11 During a period of “abnormal operation”, the operator shall restore normal operation of the failed equipment or replace the failed equipment as soon as possible.
- 2.3.12 The operator shall interpret the start of the period of “abnormal operation” as the earliest of the following:
- (a) a technically unavoidable stoppage, disturbance, or failure of continuous emission monitors.
 - (b) a technically unavoidable stoppage, disturbance, or failure of the activated carbon abatement system
 - (c) Any other technically unavoidable stoppage, disturbance, or failure of the plant which is causing or could lead to an exceedance of an emission limit value in table S3.1.
- 2.3.13 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) The failed equipment has not been repaired and brought back into normal operation and a single period of abnormal operation reaches a duration of 4 hours after the start of abnormal operation on an incineration line
- (d) Abnormal operation occurs on an incineration line and the cumulative duration of abnormal operation periods over 1 calendar year has reached 60 hours on that incineration line;

2.3.14 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 2.3.9 is maintained as long as incompletely burned waste is present in the combustion chamber. Unless the temperature specified in condition 2.3.9 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.

2.3.15 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, S3.1a, and S3.2.

3.1.2 The limits given in schedule 3, subject to condition 3.2.1, 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 limits and monitoring for emission to air for incineration plant

3.2.1 The limits for emissions to air apply as follows:

- (a) The limits in table S3.1 shall not be exceeded except during periods of abnormal operation.
- (b) The limits in table S3.1 (a) shall not be exceeded.

3.2.2 Where Continuous Emission Monitors are installed to comply with the monitoring requirements in schedule 3 table S3.1 and S3.1(a); 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 ₂ expressed as NO ₂)	20%
• Particulate matter	30%
• Total organic carbon (TOC)	30%
• Hydrogen chloride	40%
• Ammonia	40%
• Mercury	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 3.2.2 (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 calculated as follows:

- (i) the average of valid half hourly averages or 10 minute averages over calendar day excluding half hourly averages or 10 minute averages during periods of abnormal operation. 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.

3.3 Emissions of substances not controlled by emission limits

3.3.1 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.

3.3.2 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.

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

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

3.4 Odour

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

3.5 Noise and vibration

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

3.5.2 The operator shall:

- (a) if notified by the Environment Agency that the activities are giving rise to pollution outside the site due to noise and vibration, submit to the Environment Agency for approval within the period specified, a noise and vibration management plan which identifies and minimises the risks of pollution from noise and vibration;
- (b) implement the approved noise and vibration management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

3.6 Monitoring

3.6.1 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;
- (b) process monitoring specified in table S3.3;
- (c) residue quality in table S3.4

3.6.2 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.

3.6.3 Monitoring equipment, techniques, personnel and organisations employed for the emissions monitoring programme and the environmental or other monitoring specified in condition 3.6.1 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 unless otherwise agreed in writing by the Environment Agency 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. Newly installed Data handling and acquisition systems (DAHS), or DAHS replacing existing DAHS, shall have MCERTS certification.

- 3.6.4 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, S3.3, S3.4 unless otherwise agreed in writing by the Environment Agency.

3.7 Pests

- 3.7.1 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.
- 3.7.2 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.

3.8 Fire prevention

- 3.8.1 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 using the annual report form specified in schedule 4, table S4.4 or otherwise in a format agreed with the Environment Agency. 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
 - (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.

- (d) of activation of the emergency release valve the operator must inform the Environment Agency immediately
- 4.3.2 Any information provided under condition 4.3.1 (a), (b) or (c), 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 day's 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

Table S1.1 activities			
Activity reference	Activity listed in Schedule 1 of the EP Regulations	Description of specified activity	Limits of specified activity
AR1	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 emission of exhaust gas and removal from site of waste arising. Waste types and quantities as specified in Table S2.2 of this permit.
Directly Associated Activities			
AR2	Electricity Generation	Generation of electrical power using an Organic Rankine Cycle turbine from energy recovered from the flue gases.	Generation of electricity to use on site (parasitic load) and export to the national grid.
AR3	Back up electrical generator	For providing emergency electrical power to the plant in the event of supply interruption.	Emergency use to a maximum of 500 hours operation per year. Maximum of 50 hours testing per year.

Table S1.2 Operating techniques		
Description	Parts	Date Received
Application EPR/BP3124SC/A001	Section 3 Part 3 – technical standards EPR permit application support document SOL_21_P024_COG Annex B Sol_21_Po24_COG_EMS Summary Annex D SOL_21__po24_COG_Fire Prevention Plan i1 Annex E Environmental Risk assessment Annex I Noise Impact assessment	Duly Made 24/11/2023
Response to Schedule 5 Notice dated 19/06/24	Updated Form B6 Updated Odour management plan reference SOL_24_P)53_AVI Issue 2 Schedule 5 response letter dated 11/07/24 regarding, discharge to sewer, clarification of raw materials, inclusion of a site closure plan	19/07/2024
Additional information	Shutter doors will remain open for delivery/unloading Only	25/07/2024
Additional information	Updated site plan	01/08/2024
Additional information	Clarification that Auxiliary burners will only operate on start up and shut down, Carbon filters to be used when plant not operational. Emergency release valve only to be deployed in an emergency scenario	20/08/2024
Additional information	Sol_24_PO53_AVI_Dust Management Plan V2	10/09/2024

Table S1.2 Operating techniques		
Description	Parts	Date Received
Additional information	Clarification that reagent dosage will be separate with continuous dosage	24/09/2024

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 (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. The report shall also include details of a review of the OTNOC management plan and any updates to the plan following the review.	Within 12 months of the completion of commissioning.
IC2	The Operator shall submit a written proposal to the Environment Agency to carry out tests to determine the size distribution of the particulate matter in the exhaust gas emissions to air from emission point A1, identifying the fractions within the PM ₁₀ , and PM _{2.5} 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.	Within 6 months of the completion of commissioning.
IC3	The Operator shall submit a written report to the Environment Agency for approval 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.
IC4	The operator shall notify the Environment Agency of the proposed date(s) that validation testing is planned for.	Notification at least 3 weeks prior to validation testing
	During commissioning the operator shall carry out validation testing to validate the residence time, minimum temperature and oxygen content of the gases in the furnace whilst operating under normal load and most unfavourable operating conditions. The validation shall be to the methodology as approved through pre-operational condition PO9.	Validation tests completed before the end of commissioning
	The operator shall submit a written report to the Environment Agency for approval on the validation of residence time, oxygen and temperature whilst operating under normal load, minimum turn down and overload conditions. The report shall identify the process controls used to ensure residence time and temperature requirements are complied with during operation of the incineration plant	Report submitted within 2 months of the completion of commissioning.
IC5	The Operator shall submit a written report to the Environment Agency for approval describing the performance and optimisation of: <ul style="list-style-type: none"> The sodium bicarbonate injection system for minimisation of acid gas emissions 	Within 4 months of the completion of commissioning.

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
	<ul style="list-style-type: none"> The carbon injection system for minimisation of dioxin and heavy metal emissions. The Selective Non Catalytic Reduction (SNCR) system and combustion settings to minimise oxides of nitrogen (NO_x). The report shall include an initial assessment of the level of NO_x, N₂O and NH₃ emissions that can be achieved under optimum operating conditions. 	
IC6	The Operator shall submit a written summary report to the Environment Agency for approval to confirm 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 EN 14181, specifically the requirements of QAL1, QAL2 and QAL3. The report shall include the results of calibration and verification testing,	<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 18 months of completion of commissioning.</p>
IC7	During commissioning, the operator shall carry out tests to demonstrate whether the furnace combustion air will 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 and into the furnace with dead spots minimised. The operator shall also carry out tests of methods used to maintain negative pressure during shut-down periods to ensure that adequate extraction will be achieved. The operator shall submit a report to the Environment Agency, for approval, summarising the findings along with any proposed improvements if required	Within 6 months of completion of commissioning.
IC8	The operator shall carry out a programme of dioxin and dioxin like PCB monitoring over a period and frequency agreed with the Environment Agency. The operator shall submit a report to the Environment Agency with an analysis of whether dioxin emissions can be considered to be stable.	Within 6 months of completion of commissioning or as agreed in writing with the Environment Agency
IC9	The operator shall carry out a programme of mercury monitoring over a period and frequency agreed with the Environment Agency. The operator shall submit a report to the Environment Agency for approval with an analysis of whether the waste feed to the plant can be proven to have a low and stable mercury content.	Within 6 months of completion of commissioning or as agreed in writing with the Environment Agency
IC10	<p>During commissioning, the operator shall carry out tests to assess whether the air monitoring location(s) meet the requirements of BS EN 15259 and supporting Method Implementation Document (MID).</p> <p>A written report shall be submitted for approval setting out the results and conclusions of the assessment including where necessary proposals for improvements to meet the requirements. The report shall specify the design of the ports for PM10 and PM2.5 sampling.</p>	Report to be submitted to the Agency within 3 months of completion of commissioning.

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
	<p>Where notified in writing by the Environment Agency that the requirements are not met, the operator shall submit proposals or further proposals for rectifying this in accordance with the time scale in the notification.</p> <p>The proposals shall be implemented in accordance with the Environment Agency's written approval.</p>	
IC11	<p>The operator shall submit a written report to the Environment Agency for assessment and written approval.</p> <p>The report must contain:</p> <ul style="list-style-type: none"> • An assessment of noise during normal operations in accordance with the procedures given in BS4142:2014 (Rating industrial noise affecting mixed residential and industrial areas) and BS7445: 2003 (Description and measurement of environmental noise) or other methodology as agreed with the Environment Agency • The assessment shall include, but not be limited to: <ul style="list-style-type: none"> - A review of the noise sources from the facility. Where any noise source(s) are identified as exhibiting tonal contributions, they shall be quantified by means of frequency analysis. - A review of noise levels from static plant. - Considerations of on-site vehicle movements. • A review of the noise assessment against the noise impact assessment ref P2251-REP01-BDH provided within the application EPR/BP3124SC/A001 to validate the application assessment or any amended noise impact assessment as approved under PO8. <p>You must implement the proposals in the report in line with the timescales agreed with the Environment Agency</p>	<p>Report to be submitted to the Agency within 6 months of completion of commissioning.</p>

Table S1.4 Pre-operational measures	
Reference	Pre-operational measures
PO1	<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 obtain the Environment Agency's written approval to the EMS summary.</p> <p>The summary shall include a copy of the full other than normal operating conditions (OTNOC) management plan which shall be prepared in accordance with BAT 18 of the BAT conclusions and include:</p> <ul style="list-style-type: none"> • a list of potential OTNOC situations that are considered to be abnormal operation under the definition in Schedule 6 of this permit. • a definition of start-up and shut-down conditions having regard to any Environment Agency guidance on start-up and shut-down. • any updates on the design of critical equipment to minimise OTNOC since the permit application

Table S1.4 Pre-operational measures	
Reference	Pre-operational measures
	<p>The Operator shall 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 (found on www.gov.uk) and BAT 1 of the incineration BAT conclusions. The EMS shall include the approved OTNOC management plan.</p> <p>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>
PO2	<p>Prior to the commencement of commissioning, the Operator shall send a report to the Environment Agency, and obtain the Environment Agency's written approval to it, 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>
PO3	<p>Prior to the commencement of commissioning, the Operator shall submit to the Environment Agency, and obtain the Environment Agency's written approval to it, 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.</p>
PO4	<p>Prior to the commencement of commissioning, the Operator shall submit to the Environment Agency, and obtain the Environment Agency's written approval to it, 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.</p>
PO5	<p>Prior to the commencement of commissioning, the Operator shall submit a written report to the Agency, and obtain the Environment Agency's written approval to it, 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.</p>
PO6	<p>No later than one month after the final design of the furnace and combustion chamber, the operator shall submit a written report to the Environment Agency, and obtain the Environment Agency's written approval to it, of the details of the computational fluid dynamic (CFD) modelling. The report shall explain how the furnace has been designed to comply with the residence time and temperature requirements as defined by Chapter IV and Annex VI of the IED whilst operating under normal load and the most unfavourable operating conditions (including minimum turn down and overload conditions), and that the design includes sufficient monitoring ports to support subsequent validation of these requirements during commissioning.</p>
PO7	<p>At least three months before (or other date agreed in writing with the Environment Agency) the commencement of commissioning, the Operator shall submit a written report to the Environment Agency, and obtain the Environment Agency's written approval to it, specifying arrangements for continuous and periodic monitoring of emissions to air (for all monitoring points listed in table S3.1) to comply with EN 15259 and Environment Agency guidance notes on monitoring stack emissions measuring locations, techniques and standards for periodic monitoring and TGN M20 for quality assurance of CEMS. The report shall include the following:</p> <ul style="list-style-type: none"> • Details of monitoring locations, access and working platforms

Table S1.4 Pre-operational measures	
Reference	Pre-operational measures
	<ul style="list-style-type: none"> • Evidence that CEMS are MCERTS certified at the appropriate range • Evidence that data handling and acquisition systems are MCERTS certified • Methods and standards for periodic monitoring • Procedures for the quality assurance of CEMS, which includes evidence of completion of CEMS' functional tests and setting up quality assurance level (QAL) 3 checks, prior to completing a QAL2
PO8	<p>At least 3 months before the commencement of commissioning and following the confirmation of the final detailed design of the plant, the Operator shall submit an updated Noise Impact Assessment Report and Noise Management Plan.</p> <p>The plan must follow Environment Agency Noise Management Plan guidance.</p> <p>The Operator must implement the proposals in the plan as agreed with the Environment Agency.</p>
PO9	<p>At least 3 months before the commencement of commissioning (or other date agreed in writing with the Environment Agency) the Operator shall submit, for approval by the Environment Agency, a methodology (having regard to Technical Report P4-100/TR Part 2 Validation of Combustion Conditions) to verify the residence time, minimum temperature and oxygen content of the gases in the furnace whilst operating under normal load, minimum turn down and overload conditions.</p>

Schedule 2 – Waste types, 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	
Maximum quantity	60,000 tonnes per 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 04	waste plastics (except packaging)
02 06	wastes from the baking and confectionery industry
02 06 01	materials unsuitable for consumption or processing
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 07	mechanically separated rejects from pulping of waste paper and cardboard
03 03 08	wastes from sorting of paper and cardboard destined for recycling
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 03	wooden packaging
15 01 05	composite packaging
15 01 09	textile 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 01	paper and cardboard

Table S2.2 Permitted waste types and quantities for incineration plant	
Maximum quantity	60,000 tonnes per year
Waste code	Description
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)
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 11	textiles
20 01 38	wood other than that mentioned in 20 01 37
20 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	Parameter	Source	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard(s) or method(s)
A1 (as shown on the site plan in Schedule 7)	Particulate matter	Flue gases from incineration line	30 mg/m ³	½-hr average	Continuous	EN 14181
A1 (as shown on the site plan in Schedule 7)	Particulate matter	Flue gases from incineration line	5 mg/m ³	daily average	Continuous	EN 14181
A1(as shown on the site plan in Schedule 7)	Total Organic Carbon (TOC)	Flue gases from incineration line	20 mg/m ³	½-hr average	Continuous	EN 14181
A1(as shown on the site plan in Schedule 7)	Total Organic Carbon (TOC)	Flue gases from incineration line	10 mg/m ³	daily average	Continuous	EN 14181
A1(as shown on the site plan in Schedule 7)	Hydrogen chloride	Flue gases from incineration line	60 mg/m ³	½-hr average	Continuous	EN 14181
A1(as shown on the site plan in Schedule 7)	Hydrogen chloride	Flue gases from incineration line	6 mg/m ³	daily average	Continuous	EN 14181

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(as shown on the site plan in Schedule 7)	Hydrogen fluoride	Flue gases from incineration line	1 mg/m ³	Average of three consecutive measurements of at least 30 minutes each	Quarterly in first year of operation. Then Bi-annually	CEN TS 17340
A1(as shown on the site plan in Schedule 7)	Carbon monoxide	Flue gases from incineration line	150 mg/m ³	95% of all 10-minute averages in any 24-hour period	Continuous	EN 14181
A1(as shown on the site plan in Schedule 7)	Carbon monoxide	Flue gases from incineration line	50 mg/m ³	daily average	Continuous	EN 14181
A1(as shown on the site plan in Schedule 7)	Sulphur dioxide	Flue gases from incineration line	200 mg/m ³	½-hr average	Continuous	EN 14181
A1(as shown on the site plan in Schedule 7)	Sulphur dioxide	Flue gases from incineration line	30 mg/m ³	daily average	Continuous	EN 14181
A1(as shown on the site plan in Schedule 7)	Oxides of nitrogen (NO and NO ₂ expressed as NO ₂)	Flue gases from incineration line	400 mg/m ³	½-hr average	Continuous	EN 14181
A1(as shown on the site plan in Schedule 7)	Oxides of nitrogen (NO and NO ₂ expressed as NO ₂)	Flue gases from incineration line	100 mg/m ³	daily average	Continuous	EN 14181
A1(as shown on the site)	Cadmium & thallium and their compounds (total)	Flue gases from	0.02 mg/m ³	Average of three consecutive	Quarterly in first year. Then Bi-annually	EN 14385

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)
plan in Schedule 7)		incineration line		measurements of at least 30 minutes each		
A1(as shown on the site plan in Schedule 7)	Mercury and its compounds	Flue gases from incineration line	0.02 mg/m ³ Limit does not apply if continuous monitoring has been specified by the Environment Agency	Average of three consecutive measurements of at least 30 minutes each	Quarterly in first year and accelerated monitoring at frequency agreed through IC 9. Then Bi-annually. Not required if continuous monitoring has been specified by the Environment Agency	EN 13211
A1(as shown on the site plan in Schedule 7)	Mercury and its compounds	Flue gases from incineration line	0.02 mg/m ³	Daily average	Continuous Not required unless continuous monitoring has been specified by the Environment Agency after completion of IC9 or if specified by the Environment Agency in line with sampling protocol	EN 14181
A1(as shown on the site plan in Schedule 7)	Sb, As, Pb, Cr, Co, Cu, Mn, Ni and V and their compounds (total)	Flue gases from incineration line	0.3 mg/m ³	Average of three consecutive measurements of at least 30 minutes each	Quarterly in first year. Then Bi-annually	EN 14385
A1(as shown on the site plan in Schedule 7)	Exhaust gas temperature	Flue gases from incineration line	No limit set	-	Continuous	Traceable to national standards

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(as shown on the site plan in Schedule 7)	Exhaust gas pressure	Flue gases from incineration line	No limit set	-	Continuous	Traceable to national standards
A1(as shown on the site plan in Schedule 7)	Exhaust gas flow	Flue gases from incineration line	No limit set	-	Continuous	BS EN 16911-2
A1(as shown on the site plan in Schedule 7)	Exhaust gas oxygen content	Flue gases from incineration line	No limit set	-	Continuous	EN 14181
A1(as shown on the site plan in Schedule 7)	Exhaust gas water vapour content	Flue gases from incineration line	No limit set	-	Continuous	EN 14181
A1(as shown on the site plan in Schedule 7)	Ammonia (NH ₃)	Flue gases from incineration line	10 mg/m ³	daily average	Continuous	EN 14181
A1(as shown on the site plan in Schedule 7)	Nitrous oxide (N ₂ O)	Flue gases from incineration line	No limit set	½-hr average and / or daily average	Continuous	EN 14181
A1(as shown on the site plan in Schedule 7)	Carbon dioxide	Flue gases from incineration line	No limit set	Continuous	Continuous	EN 14181
A1(as shown on the site plan in Schedule 7)	Dioxins / furans (I-TEQ)	Flue gases from	0.04 ng/m ³	periodic over minimum 6 hours,	Monthly for first 6 months and accelerated monitoring as agreed through IC8,	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)
plan in Schedule 7)		incineration line	and 0.06 ng/m ³ if long term limit is specified by the Environment Agency after completion of IC8 or specified by the Environment Agency in line with sampling protocol	maximum 8 hour period and value over sampling period of 2 to 4 weeks for long term sampling	quarterly for following 6 months and then bi-annually; and long term monitoring if specified by the Environment Agency after completion of IC8 or specified by the Environment Agency in line with sampling protocol	and CEN TS 1948-5 if specified by the Environment Agency after completion of IC8 or specified by the Environment Agency in line with sampling protocol
A1(as shown on the site plan in Schedule 7)	Dioxin-like PCBs (WHO-TEQ Humans / Mammals, Fish, Birds)	Flue gases from incineration line	No limit set	periodic over minimum 6 hours, maximum 8 hour period	Quarterly for first year then bi-annually	EN 1948 Parts 1, 2 and 4

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(as shown on the site plan in Schedule 7)	Dioxins / furans (WHO-TEQ Humans / Mammals, Fish, Birds)	Flue gases from incineration line	No limit set	periodic over minimum 6 hours, maximum 8 hour period	Quarterly in first year. Then Bi-annually	EN 1948 Parts 1, 2 and 3
A1(as shown on the site plan in Schedule 7)	Polybrominated dibenzodioxins and furans	Flue gases from incineration line	No limit set	periodic over minimum 6 hours, maximum 8 hour period	Quarterly in first year. Then Bi-annually	Method based on procedural requirements of EN 1948
A1(as shown on the site plan in Schedule 7)	Specific individual polycyclic aromatic hydrocarbons (PAHs), as specified in Schedule 6.	Flue gases from incineration line	No limit set	periodic over minimum 6 hours, maximum 8 hour period	Quarterly in first year then annually	BS ISO 11338 Parts 1 and 2.
A2 (as shown on the site plan in Schedule 7)	No Parameter set	Emergency release valve	No limit set	--	--	--
'Back-up generator' as shown on the site plan in Schedule 7)	Carbon monoxide	Back-up electrical generator	No limit set	In line with web guide 'Monitoring stack emissions: low risk MCPs and specified generators' Published 16 February 2021 (formerly known as TGN M5)	Every 1500 hours of operation or once every five years (whichever comes first).	In line with web guide 'Monitoring stack emissions: low risk MCPs and specified generators' Published 16 February 2021 (formerly known as TGN M5)

Table S3.1(a) Point source emissions to air during abnormal operation of incineration plant – emission limits and monitoring requirements						
Emission point ref. & location	Parameter	Source	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
A1 (as shown on the site plan in Schedule 7)	Particulate matter	Flue gases from incineration line	150 mg/m ³	½-hr average	Continuous	EN 14181 or alternative surrogate as agreed in writing with the environment agency during failure of the continuous emission monitor
A1 (as shown on the site plan in Schedule 7)	Total Organic Carbon (TOC)	Flue gases from incineration line	20 mg/m ³	½-hr average	Continuous	EN 14181 or alternative surrogate as agreed in writing with the environment agency during failure of the continuous emission monitor
A1 (as shown on the site plan in Schedule 7)	Carbon monoxide	Flue gases from incineration line	150 mg/m ³	95% of all 10-minute averages in any 24-hour period	Continuous	EN 14181 or alternative surrogate as agreed in writing with the environment agency during failure of the continuous emission monitor

Table S3.2 Point Source emissions to water (other than sewer) and land – emission limits and monitoring requirements						
Emission point ref. & location	Source	Parameter	Limit (incl. unit)	Reference Period	Monitoring frequency	Monitoring standard or method
W1 (as shown on the site plan in Schedule 7)	Uncontaminated Surface water run-off	No parameters set	No limit set	-	-	-

Table S3.3 Process monitoring requirements				
Emission point reference or source or description of point of measurement	Parameter	Monitoring frequency	Monitoring standard or method	Other specifications
As identified in the Application	Wind Speed and Direction	Continuous	Anemometer	
Location close to the Combustion Chamber inner wall or as identified and justified in Application.	Temperature (° C)	Continuous	Traceable to national standards	As agreed in writing with the Agency.
Incineration plant	Gross electrical efficiency	Within 6 months of first operation and then within 6 months of any modification that significantly affects energy efficiency	Performance test at full load or other method as agreed in writing with the Environment Agency	

Table S3.4 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 or otherwise as agreed in writing with the Environment Agency	3% or otherwise as agreed in writing with the Environment Agency	Monthly in the first year of operation. Then Quarterly or otherwise as agreed in writing with the Environment Agency	EN 14899 and either EN 13137 or EN 15936 or otherwise as agreed in writing with the Environment Agency	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.		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'	

Table S3.4 Residue quality					
Emission point reference or source or description of point of measurement	Parameter	Limit	Monitoring frequency	Monitoring standard or method *	Other specifications
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	Environment Agency Guidance, 'TGN M4 – Guidelines for Ash Sampling and Analysis'	

* 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 3.6.1.	A1	Quarterly	1 Jan, 1 Apr, 1 Jul and 1 Oct
TOC Parameters as required by condition 3.6.1	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 3.6.1	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 3.6.1	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 3.6.1	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 3.6.1	APC Residues	Before use of a new disposal or recycling route	

Table S4.2: Annual production/treatment	
Parameter	Units
Total Refuse Derived Fuel incinerated	tonnes
Total Solid Recovered fuels incinerated	tonnes
Total Waste Wood incinerated	tonnes

Table S4.2: Annual production/treatment	
Parameter	Units
Electrical energy produced	kWh
Thermal energy produced e.g. for export	kWh
Electrical energy exported	kWh
Electrical energy used on installation	kWh
Waste heat utilised by the installation	kWh

Table S4.3 Performance parameters		
Parameter	Frequency of assessment	Units
Annual Report as required by condition 4.2.2	Annually	-
Electrical energy exported, imported and used at the installation	Annually	kWh / tonne of waste incinerated
Fuel oil consumption	Annually	kg / tonne of waste incinerated
Bottom Ash residue	Annually	Route, tonnes and tonnes / tonne of waste incinerated
APC residue	Annually	Route, tonnes and tonnes / tonne of waste incinerated
Urea consumption	Annually	kg / tonne of waste incinerated
Activated Carbon consumption	Annually	kg / tonne of waste incinerated
Sodium Bicarbonate 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.

Table S4.4 Reporting forms		
Media/parameter	Reporting format	Date of form
Annual report required by condition 4.2.2	Annual performance report template	-
Air	Forms air 1-9 or other forms as agreed in writing by the Environment Agency	Put date of issue
Residue quality	Form residue 1 and 2 or other form as agreed in writing by the Environment Agency	Put date of issue
Other performance indicators	Form performance 1 or other form as agreed in writing by the Environment Agency	Put date of issue

Schedule 5 – Notification

These pages outline the information that the operator must provide.

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

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

Part A

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

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

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

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

Time periods for notification following detection of a breach of a limit	
Parameter	Notification period

(c) Notification requirements for the breach of permit conditions not related to limits	
To be notified within 24 hours of detection	
Condition breached	
Date, time and duration of breach	
Details of the permit breach i.e. what happened including impacts observed.	
Measures taken, or intended to be taken, to restore permit compliance.	

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

Part B – to be submitted as soon as practicable

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

Name*	
Post	
Signature	
Date	

* authorised to sign on behalf of the operator

Schedule 6 – Interpretation

“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 plant or the measurement devices. Abnormal operation starts as defined in condition 2.3.12 and ends as defined in condition 2.3.13. Abnormal operation is limited to 4 hours for a single occurrence and a total of 60 hours per year per line.

“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.

“BAT conclusions” means Commission Implementing Decision (EU) 2019/2010 of 12 November 2019 establishing the best available techniques (BAT) conclusions, under Directive 2010/75/EU of the European Parliament and of the Council, for Waste Incineration

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

“CEM” Continuous emission monitor

“CEN” means Comité Européen de Normalisation

“bi-annually” 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.

Daily average emissions value means ‘the average of at least 43 valid half hourly averages or for CO the average of at least 43 valid half hourly averages or 129 valid 10 min averages’

“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 2016 No.1154 and words and expressions used in this permit which are also used in the Regulations have the same meanings as in those Regulations.

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

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

‘*Hazardous property*’ has the meaning in Annex III of the Waste Framework Directive

‘*Hazardous waste*’ has the meaning given in the Hazardous Waste (England and Wales) Regulations 2005 (as amended)

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 as read in accordance with Schedule 1A to the Environmental Permitting (England and Wales) Regulations 2016.

“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, 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.

“Pests” means Birds, Vermin and Insects.

“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.

“start up” is any period, where the plant has been non-operational, until waste has been fed to the plant in a sufficient quantity to initiate steady-state conditions as described in the application or as agreed in writing with the Environment Agency.

“shut down” is any period where the plant is being returned to a non-operational state as described in the application or as 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

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

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

- (a) in relation to emissions from combustion processes, the concentration in dry air at a temperature of 273K, at a pressure of 101.3 kPa and with an oxygen content of 3% dry for liquid and gaseous fuels, 6% dry for solid fuels; and/or
- (b) in relation to emissions from non-combustion sources, the concentration at a temperature of 273K and at a pressure of 101.3 kPa, with no correction for water vapour content
- (c) 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.

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			

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

“year” means calendar year ending 31 December.

When the following terms appear in the waste code list in Schedule 2, table 2.2 , they have the meaning given below:

‘hazardous substance’ means a substance classified as hazardous as a consequence of fulfilling the criteria laid down in parts 2 to 5 of Annex I to Regulation (EC) No 1272/2008

‘heavy metal’ means any compound of antimony, arsenic, cadmium, chromium (VI), copper, lead, mercury, nickel, selenium, tellurium, thallium and tin, as well as these materials in metallic form, as far as these are classified as hazardous substances

‘PCBs’ means

- polychlorinated biphenyls
- polychlorinated terphenyls
- monomethyl-tetrachlorodiphenyl methane, Monomethyl-dichloro-diphenyl methane, Monomethyldibromo-diphenyl methane
- any mixture containing any of the above mentioned substances in a total of more than 0,005 %by weight

‘transition metals’ means any of the following metals: any compound of scandium, vanadium, manganese, cobalt, copper, yttrium, niobium, hafnium, tungsten, titanium, chromium, iron, nickel, zinc, zirconium, molybdenum and tantalum, as well as these materials in metallic form, as far as these are classified as hazardous substances

‘stabilisation’ means processes which change the hazardousness of the constituents in the waste and transform hazardous waste into non-hazardous waste

‘solidification’ means processes which only change the physical state of the waste by using additives without changing the chemical properties of the waste

'partly stabilised wastes' means wastes containing, after the stabilisation process, hazardous constituents which have not been changed completely into non-hazardous constituents and could be released into the environment in the short, middle or long term.

Schedule 7 – Site plan



Legend

- Air Emission Points ▲
- W1 ◆
- S1 ●
- Backup Generator ○
- Site Boundary □

Site Details:

Plymouth EFW Facility, Units
21-29
1 Belliver Way, Roborough
Plymouth, Devon
PL6 7BW

Site Grid Reference:

SX 49890 62378



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Project Number: SOL_24_P053_AVI
Doc Ref: Energy from waste Facility-
Plymouth
Map Title: Site Boundary and
Emission Points
Date: 05/07/2024
Drawn by: RM
Checked by: JE

END OF PERMIT