

Notice of variation and consolidation with introductory note

The Environmental Permitting (England & Wales) Regulations 2016

Omega Proteins Limited
Penrith Rendering Facility
Wildriggs
Greystoke Road
Penrith
Cumbria
CA11 0BX

Variation application number

EPR/HP3238AF/V002

Permit number

EPR/HP3238AF

Penrith Rendering Facility

Permit number EPR/HP3238AF

Introductory note

This introductory note does not form a part of the notice

Under the Environmental Permitting (England & Wales) Regulations 2016 (schedule 5, part 1, paragraph 19) a variation may comprise a consolidated permit reflecting the variations and a notice specifying the variations included in that consolidated permit.

Schedule 1 of the notice specifies the conditions that have been varied and schedule 2 comprises a consolidated permit which reflects the variations being made. Only the variations specified in schedule 1 are subject to a right of appeal.

The schedules specify the changes made to the permit.

The changes introduced by this variation (V002):

Changes to the poultry and mixed species blood processing lines

Introduction of a dedicated drying stage for mixed species blood processing, together with improvements to the equipment used to process poultry blood. The proposal also includes the installation of two self-contained wet scrubbers to provide dedicated odour abatement to the blood lines; venting to two new emission points: A8 (mixed species) and A9 (poultry).

Changes to poultry offal rendering line

Introduction of a new low temperature fat melting process falling under Section 6.8 Part A(2)(a), together with an additional offal cooker.

Operation of new thermal oxidisers

Installation of two new thermal oxidisers, as follows:

A new multi-fuel oxidiser with net rated thermal input of 29.8 MWth, fired primarily on solid biomass, but also capable of being fired by natural gas and/or tallow as auxiliary fuels. The plant is required to provide heat and energy to the Installation, as well as being a primary means of odour abatement.

As the plant has the option to be fuelled by non-hazardous waste comprising solid biomass and has a capacity of up to 5 tonnes per hour, the operation of this plant requires a new listed activity to be added to the permit:

Section 5.1 Part A(1)(b) – *incineration of non-hazardous waste in a waste incineration plant or waste co-incineration plant with a capacity of 3 tonnes or more per hour.*

For the purposes of the Industrial Emissions Directive (in particular Chapter IV) and the Environmental Permitting Regulations; the thermal oxidiser is a waste co-incineration plant because, notwithstanding the fact that waste will be thermally treated by the process; the process is deemed 'co-incineration' because it is considered that main purpose of this plant is the generation of energy (heat and power) for use on site. A key use of the plant will also be odour abatement.

The key features of the multi-fuel thermal oxidiser can be summarised in the table below:

Waste throughput (tonnes/line)	Up to 5 tonnes hour (via a single line)
Waste processed	Category 1 Meat and Bone Meal Grade A Waste Wood Wastewater treatment plant sludge

Number of lines	1
Technology	Rotary kiln
Auxiliary Fuels	Natural Gas or end of waste Tallow
Gas abatement	Activated charcoal, sodium bicarbonate

In addition, the Operator will also install a new gas fired thermal oxidiser, with a net rated thermal input of 23 MWth; fired primarily on natural gas, but also capable of being fired by tallow (that has met end of waste test) as an auxiliary fuel. This plant is required to provide support equipment for the provision of heat to the Installation, as well as being a means of odour abatement, should the primary multi-fuel oxidiser fail, require routine maintenance, or demand require it.

The old existing thermal oxidisers OX1 (9.3 MWth) and OX2 (11 MWth) will remain in-situ on site, but will be "moth-balled", only being brought back into use in an emergency scenario, subject to controls as specified by the Operating Techniques and permit conditions.

Main features of the Installation:

The installation is a Category 3 animal by-products processing plant which processes poultry and mixed species by-products (including offal, skin, carcass and off-cuts), poultry and mixed species blood, and poultry feathers to produce animal feed (meal) and oils (tallow) via the following process lines:

- Poultry offal rendering and low temperature fat melting lines comprising associated cookers, press and milling system.
- Mixed species offal rendering line comprising associated cooker, press and milling system.
- Feather processing line comprising associated hydrolyser, condenser, dryer and milling system.
- Poultry blood processing lines comprising associated equipment for the application of heat, coagulator, dryer, and milling system.
- Mixed species blood processing lines comprising associated equipment for the application of heat, dryer and coagulator.
- Process lines introduced by V002

The main activities are delivery, receipt and storage of raw materials and fuels; product processing (heating, cooking, drying and milling) and final product storage. Ancillary processes include the operation of thermal oxidisers, a boiler, chemical and oil storage, and washing and cleaning; including the operation of an effluent treatment plant, trailer shed and trailer wash.

The main emissions to air arise from three biofilters, two thermal oxidisers (one duty and one back-up; used for steam raising, electricity generation and odour abatement), steam raising boiler (also providing odour abatement when necessary) and two chemical scrubbers serving the blood processing lines as dedicated odour abatement.

Condensate, wash water, water from bunds and biofilter and yard water run-off are treated by an on-site effluent treatment plant prior to discharge to sewer for further treatment at Penrith Wastewater Treatment Works. Clean and uncontaminated roof water is collected separately for reuse or discharge into Myers Beck.

The River Eamont, a tributary of the River Eden, is approx. 1.4km to the south of the site and forms part of the designated Special Area of Conservation (SAC) and a Site of Special Scientific Interest (SSSI).

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

Status log of the permit		
Description	Date	Comments
Application EPR/HP3238AF/A001	Duly made 27/10/16	Application for an environmental permit.
Additional information received	26/06/17	Partial response to Schedule 5 notice dated 02/02/17
Additional information received	02/08/17	Schedule 5 notice dated 02/02/17 satisfied - Air dispersion modelling report and files received.
Additional information received	26/10/17	Revised air dispersion modelling report received.
Additional information received	13/12/17	Revised site drainage plan and trailer wash location plan and elevations.
Consultation on draft permit	19/12/17	Public consultation ended 02/02/2018.
Bespoke permit issued	07/03/18	Permit issued to Omega Proteins Limited.
Application EPR/HP3238AF/V002	Duly made 27/01/21	Application for a variation to make changes to the rendering and blood processing activities, including replacement thermal oxidisers.
Further information received	28/07/21	Response to Schedule 5 notice dated 05/05/21
Further information received	09/09/21	Response to Schedule 5 notice dated 05/05/21
Further information received	18/11/21	Response to Schedule 5 notice dated 05/05/21
Further information received	21/12/21	Response to Schedule 5 notice dated 05/05/21
Further information received	11/01/22	Response to Schedule 5 notice dated 05/05/21
Further information received	25/01/22	Response to Schedule 5 notice dated 05/05/21
Further information received	13/04/22	Further response to revised NIA questions
Consultation on draft permit	20/05/22	Consultation ended 20/06/2022
Variation issued EPR/HP3238AF (Billing ref: UP3637QJ)	01/07/22	Varied and consolidated permit issued.

End of introductory note

Notice of variation and consolidation

The Environmental Permitting (England and Wales) Regulations 2016

The Environment Agency in exercise of its powers under regulation 20 of the Environmental Permitting (England and Wales) Regulations 2016 varies

Permit number

EPR/HP3238AF

Issued to

Omega Proteins Limited (“the operator”)

whose registered office is

**Swales Moor Farm
Swales Farm Road
Halifax
West Yorkshire
HF3 6UF**

company registration number 03868711

to operate a regulated facility at

**Penrith Rendering Facility
Wildriggs
Greystoke Road
Penrith
Cumbria
CA11 0BX**

to the extent set out in the schedules.

The notice shall take effect from 01/07/2022

Name	Date
Principal Permitting Team Leader	01/07/2022

Authorised on behalf of the Environment Agency

Schedule 1

Only the following conditions have been varied by the consolidated permit EPR/HP3238AF/V002

The following conditions were varied as a result of the application made by the operator:

Condition 1.2.1 has been amended.

Condition 2.1.2 has been added.

Condition 2.3.4 has been added.

Conditions 2.3.7 to 2.3.13 have been added.

Conditions 3.1.3 and 3.1.4 have been added.

Conditions 3.2.1 and 3.2.2 have been added.

Condition 3.6.1 has been amended.

Conditions 3.6.3 and 3.6.4 have been amended.

Condition 3.8.1 has been added.

Condition 4.2.2 has been amended.

Condition 4.2.5 has been added.

Table S1.1 has been amended.

Table S1.2 has been amended.

Table S1.3 has been amended.

Table S1.4A has been amended.

Table S2.2 has been added.

Table S3.1 has been amended.

Table S3.1(a) has been added.

Table S3.4 has been amended.

Table S3.5 has been added.

Tables S4.1, S4.2, S4.3 and S4.4 have been amended.

Schedule 6 and Schedule 7 have been updated.

The following conditions were varied as a result of an Environment Agency initiated variation:

Table S1.3 has been updated to reflect the satisfaction of previous improvement conditions, as stated.

Table S3.1 has been amended to reflect the requirement for the monitoring of odour related parameters for existing plant used for odour abatement, as stated.

Schedule 2 – consolidated permit

Consolidated permit issued as a separate document.

Permit

The Environmental Permitting (England and Wales) Regulations 2016

Permit number

EPR/HP3238AF

This is the consolidated permit referred to in the variation and consolidation notice for application EPR/HP3238AF/V002 authorising,

Omega Proteins Limited (“the operator”),

whose registered office is

Swales Moor Farm

Swales Farm Road

Halifax

West Yorkshire

HF3 6UF

company registration number 03868711

to operate an installation at

Penrith Rendering Facility

Wildriggs

Greystoke Road

Penrith

Cumbria

CA11 0BX

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

Name	Date
Principal Permitting Team Leader	01/07/2022

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.

1.3 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 For the following activities referenced in schedule 1, table S1.1, AR8; 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 and holder.
- 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 during abnormal operation; 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 abatement plant, other than under abnormal operating conditions.

2.3.8 The operator shall record the beginning and end of each period of "abnormal operation".

2.3.9 During a period of "abnormal operation", the operator shall restore normal operation of the failed equipment or replace the failed equipment as rapidly as possible.

2.3.10 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 could lead to an exceedance of an emission limit value in table S3.1.

2.3.11 The operator shall interpret the end of the period of "abnormal operation" as the earliest of the following:

- (a) when the failed equipment is repaired and brought back into normal operation;
- (b) when the operator initiates a shut down of the waste combustion activity, as described in the application or as agreed in writing with the Environment Agency;
- (c) 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;

2.3.12 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.

2.3.13 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 specified in schedule 1 table S1.4A shall not be brought into operation until the measures specified in schedule that table have been completed.

2.5.2 The operations specified in schedule 1 table S1.4B shall not commence until the measures specified in that table 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, S3.1(a), S3.1(b), S3.2 and S3.3.
- 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 S3.5.
- 3.1.4 Additional samples shall be taken and tested and appropriate action taken, whenever:
- disposal or recovery routes change; or
 - 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 Co-incineration plant

- 3.2.1 The limits for emissions to air apply as follows:
- The limits in table S3.1(a) shall not be exceeded
 - The limits in table S3.1 shall not be exceeded except during periods abnormal operation.
- 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;
- 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%
 - valid half-hourly average values shall be determined within the effective operating time (excluding the start-up and shut-down periods) from the measured values after having subtracted the value of the confidence intervals in condition 3.2.2 (a).
 - where it is necessary to calibrate or maintain the monitor and this means that data are not available for a complete half-hour period, the half-hourly average shall in any case be considered valid if measurements are available for a minimum of 20 minutes during the half-hour. The number of half-hourly averages so validated shall not exceed 5 per day;
 - daily average values shall be calculated as follows:
 - for the daily average values in table S3.1, the average of valid half hourly averages over a calendar day excluding half hourly averages during periods of abnormal operation. The

daily average value shall be considered valid if no more than five half-hourly average values in any day have been determined not to be valid.

- (e) no more than ten daily average values per year shall be determined not to be valid.

3.3 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.
- 3.4.2 The operator shall:
- (a) if notified by the Environment Agency that the activities are giving rise to pollution outside the site due to odour, submit to the Environment Agency for approval within the period specified, an odour management plan which identifies and minimises the risks of pollution from odour;
 - (b) implement the approved odour management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

3.5 Noise and vibration

- 3.5.1 Emissions from the activities shall be free from noise and vibration at levels likely to cause pollution outside the site, as perceived by an authorised officer of the Environment Agency, unless the operator has used appropriate measures, including, but not limited to, those specified in any approved noise and vibration management plan to prevent or where that is not practicable to minimise the noise and vibration.
- 3.5.2 The operator shall:
- (a) if notified by the Environment Agency that the activities are giving rise to pollution outside the site due to noise and vibration, submit to the Environment Agency for approval within the period specified, a noise and vibration management plan which identifies and minimises the risks of pollution from noise and vibration;

- (b) implement the approved noise and vibration management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

3.6 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 and S3.3;
 - (b) process monitoring specified in table S3.4;
 - (c) residue quality in table S3.5.
- 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 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.
- 3.6.4 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 and S3.3 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 forms 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; and
- (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.
- 4.2.6 The operator shall submit to the Environment Agency an annual report of the efficiency of the biofilters. This shall include but not be limited to, the assessment of the efficiency to reduce odours, the summary of maintenance and any re-commissioning planned or conducted, assessment of back pressure, venting and cracking. Thereafter the operator shall submit the report within one month of the end of each year, unless otherwise agreed in writing by the Environment Agency.

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 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 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.

4.3.4 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.

4.3.5 The Environment Agency shall be given at least 14 days notice before implementation of any part of the site closure plan.

4.3.6 Where the operator has entered into a climate change agreement with the Government, the Environment Agency shall be notified within one month of:

- (a) a decision by the Secretary of State not to re-certify the agreement;
- (b) a decision by either the operator or the Secretary of State to terminate the agreement; and
- (c) any subsequent decision by the Secretary of State to re-certify such an agreement.

4.4 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	Section 6.8 Part A(1)(c) <i>Disposing of or recycling animal carcasses or animal waste, other than by rendering or by incineration falling within Section 5.1, at a plant with a treatment capacity exceeding 10 tonnes per day of animal carcasses or animal waste or both in aggregate.</i>	Heat treatment and drying of mixed species blood.	From receipt of raw material to storage and dispatch of finished product. Production of blood meal operates using gas fired low NOx burners with an aggregated net rated thermal input of 4 MWth
AR2		Heat treatment and drying of poultry blood.	
AR3		Hydrolysis of poultry feathers.	
AR4		Dedicated drying stage for mixed species blood.	
AR5	Section 6.8 Part A(2)(a) <i>Disposing of or recycling animal carcasses or animal waste by rendering at plant with a treatment capacity exceeding 10 tonnes per day of animal carcasses or animal waste or both in aggregate.</i>	Recycling of animal by-products comprising poultry offal by rendering.	From receipt of raw material to storage and dispatch of finished product.
AR6		Recycling of animal by-products comprising mixed species offal by rendering.	
AR7		Recycling of animal by-products comprising poultry offal by low temperature fat melting.	
AR8	Section 5.1 Part A(1)(b) <i>The incineration of non-hazardous waste in a waste co- incineration plant with a capacity of 3 tonnes per hour or more.</i>	The operation a multi-fuel thermal oxidiser, primarily fuelled on solid biomass, with a net rated thermal input of 29.8 MWth; used as duty plant for raising steam, generation of electricity and providing odour abatement.	From receipt of fuels to emission of exhaust gas and disposal of waste arising. Solid biomass comprising of the waste types and quantities as specified in Table S2.2 of this permit. The maximum incineration capacity of the plant is 5 tonnes per hour.
AR9	Section 5.4 Part A(1)(b)(i) <i>Recovery or a mix of recovery and disposal of non-hazardous waste with a capacity exceeding 75 tonnes per day involving biological treatment.</i>	Treatment of waste water arising from the processes on site by dissolved air floatation, activated sludge process and reverse osmosis.	From production of effluent to re-use on site or discharge to sewer.

Table S1.1 activities			
Activity reference	Activity listed in Schedule 1 of the EP Regulations	Description of specified activity	Limits of specified activity
	Directly Associated Activity		
AR10	Operation of combustion plant	The use of the following dual fuel (natural gas or tallow) fired plant used as duty or back-up plant, as specified, for raising steam used and providing odour abatement: 8 MWth Boiler (Duty/Back-up). 23 MWth Thermal oxidiser (Support/Back-up only) Thermal oxidisers OX1 (9.3 MWth) and OX2 (11 MWth) to be used in an emergency only	Operation of combustion plant for steam raising and odour abatement from receipt of fuel to emission of waste gases to air. Support/back-up plant shall only be operated when operational conditions require it. Emergency plant shall only be operated when duty and back-up systems are non-operational.
AR11	Operation of biological filters for odour treatment	The use of three biofilters BF1, BF2 and BF3 and associated equipment for the treatment of odorous air.	Operation of biofilters and associated equipment for odour abatement from receipt of odorous fume to release of treated waste gases to air.
AR12	Operation of wet scrubbers for odour treatment	The use of 2 x wet scrubbers and associated equipment for the treatment of odorous air arising from blood processing.	Operation of wet scrubbers and associated equipment for odour abatement from receipt of odorous fume to release of treated waste gases to air.
AR13	Operation of trailer reception facilities	The use of a trailer shed for the temporary storage of raw material trailers.	The temporary storage of raw material trailers onsite in a building for a period of up to 24 hours from ingress of raw material trailers to egress off site.
AR14	Operation of trailer wash facilities	The use of a vehicle wash building to clean out raw material trailers following tipping.	The washing of trailers in a building from ingress of raw material trailers to egress off site.
AR15	Handling and storage of chemicals and oils	The handling and storage of chemicals and oils.	The handling and storage of chemicals and oils in designated areas from receipt of chemicals and oils to use within the installation.
AR16	Handling and storage of generated wastes.	The handling and storage of waste products produced on site.	The handling and storage of waste in designated areas from generation of waste to removal off-site.

Table S1.2 Operating techniques		
Description	Parts	Date Received
Application reference EPR/HP3238AF/A001	<p>Answers to Section 3 on EP application form Part B3 including references to:</p> <p>Technical Guidance Note EPR 6.10</p> <p>Sector Guidance Note IPPC SG8</p> <p>Slaughterhouses and Animal By-products BREF.</p> <p>Additional guidance on Odour Management H4.</p> <p>The following sections of the application supporting information:</p> <p>Installation Information, Report Reference P137-R01A-F3, dated October 2016.</p> <p>Trailer Shed Information, Report Reference P137-R01C-F3, dated 17 October 2016.</p> <p>Effluent Treatment Information, Report Reference P137-R01B-F3, dated 17 October 2016.</p> <p>H1 Assessment, Report Reference P137-R02-F3, dated 17 October 2016.</p> <p>Updated Duly Making Responses, Report Reference P137-R09-F3, dated 19 October 2016.</p>	Duly Made 27/10/16
Response to Schedule 5 Notice dated 02/02/17	Report Reference P137-R10-F2, dated June 2017.	26/06/17
Application reference EPR/HP3238AF/V002	<p>Answers to Section 3 on EP application form Part C3 including references to:</p> <p>Sector Guidance Note IPPC SG8.</p> <p>Slaughterhouses and Animal By-products BREF.</p> <p>Waste Incineration BREF BAT Conclusions.</p> <p>The following sections of the application supporting information:</p> <p>Technical Description Thermal Oxidiser, Report reference OP-PV-RO1C v2.0, dated October 2019.</p> <p>Technical Description Poultry Line, Report reference OP-PV-RO1B & Addendum, dated October 2019.</p> <p>Technical Description Blood Line, Report reference OP-PV-R01A V3.0 (updated Nov 2021) & Addendum, dated October 2019.</p> <p>BAT Assessment, Report reference OP-PV-R04-BAT & Addendums, dated October 2019.</p> <p>Approved Odour Management Plan</p>	Duly made 27/01/2121

Table S1.2 Operating techniques		
Description	Parts	Date Received
Responses to Schedule 5 notice dated 05/05/21	All responses to Schedule 5 Notice including revised Fire Prevention Plan (V002).	28/07/21 09/09/21 21/12/21 11/01/22 25/01/22 13/04/22

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
Management and control of fugitive odour requirements		
IC1	<p>The operator shall submit a report detailing a comprehensive review of the integrity of process buildings, sheds and associated infrastructure, plant and equipment undertaken by a suitably qualified engineer.</p> <p>The report shall specifically detail all risk areas and points of weakness (such as but not limited to the abatement systems, air extraction system, sample points, ducting, pipework, pipe penetrations, doorways and building joints) and identify that suitable engineering standards are achieved, demonstrated by an appropriate validation method such as smoke testing.</p> <p>Where the operator has been unable to demonstrate integrity, the operator shall identify where improvements can be made to minimise the potential for fugitive emissions and provide a schedule of works for proposed improvements with timescales for completion.</p>	Complete
Management and control of odour sources and abatement equipment		
IC2	<p>The operator shall submit a report detailing a comprehensive review to identify and characterise all sources of odour and the options available to effectively treat odour at the installation.</p> <p>The operator shall have regard for areas where there is the potential for improvements to the identified and characterised odour sources and the chosen abatement technique.</p>	Complete
IC3	<p>The operator shall submit a report detailing a comprehensive review of ventilation and air extraction systems on site, undertaken by a suitably qualified engineer.</p> <p>The report shall include details of how balancing and airflow management are achieved, monitored and verified (including replacement air) and determine if the measures are fit for purpose.</p> <p>The report shall evaluate potential improvements which can be made to the source extraction and positioning of ducting, local exhaust ventilation and replacement air vents.</p>	Complete
IC4	<p>Having regard for the outcome of the reviews undertaken for IC2 & IC3, the operator shall provide justification for the abatement systems used to treat each odour source and demonstrate how they are fit for purpose and represent BAT.</p> <p>Where this is not the case, the operator shall provide a schedule of works for proposed improvements with timescales for completion.</p>	Complete
IC5	<p>The operator shall submit a report detailing a comprehensive review of the monitoring of extracted air, including in-house analysis and process control, to review trends and identify and explain any variation in load, with regard to ensuring the operation of abatement systems is fully optimised.</p> <p>Where potential improvements are identified, the report shall include a schedule of works for proposed improvements with timescales for completion.</p>	Complete

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
IC6	<p>The operator shall put in place permanent appropriate infrastructure and instrumentation to enable continuous monitoring and process control of the biofilters and associated equipment to ensure their operation is fully optimised.</p> <p>In satisfying this requirement, the operator shall have regard for the Process Monitoring requirements in Table S3.4 of the permit and shall also include installed inspection windows on the humidifiers (maintained to enable a clear visible view into chamber at all times), regular monitoring arrangements for humidifiers and biofilters, and details of how monitoring results are linked to process control, including the recharge/purging procedures for the humidifiers.</p>	Complete
IC7	<p>Having regard for the improved monitoring and process control arrangements achieved by completion of IC6, the operator shall put in place a procedure, incorporated into the Environment Management System, to ensure meaningful process control of the biofilters is undertaken at the installation, including but not limited to trigger levels, corrective actions and contingency arrangements.</p>	Complete
IC8	<p>The operator shall undertake a review of the efficiency of each biofilter, having regard for the variability in load upon each biofilter bed and the impact of this upon performance, in particular the Empty Bed Residence Time (EBRT).</p> <p>The operator shall use the results of the review to evaluate options for the pre-treatment of the waste gas streams as a reasonably practicable solution to reduce the overall load on the biofilters and subsequently improve performance.</p>	Complete
IC9	<p>The operator shall install additional odour abatement measures (carbon filters) on tanks which are identified as having a high odour potential (especially sludge tanks and feather water tanks) to further mitigate against the risk of odorous emissions from the installation.</p> <p>The operator shall confirm completion of the works in writing to the Environment Agency and update the site OMP and EMS accordingly.</p>	Complete
IC10	<p>The operator shall install a Cleaning in Place (CiP) system on tanks identified as having a high odour potential (especially blood, sludge and feather water tanks) to further mitigate against the risk of odorous emissions from the installation.</p> <p>The operator shall confirm completion of the works in writing to the Environment Agency and update the site tank inventory accordingly.</p>	Complete
Management and control of housekeeping standards		
IC11	<p>The operator shall undertake a documented (including before and after photographs) deep clean of tipping sheds, production areas, yard areas and tank bunds.</p> <p>The deep clean shall establish a baseline condition for future housekeeping standards as part of the overall management and control of fugitive emissions from the installation.</p>	Complete
Review and update Odour Management Plan		
IC12	<p>The operator shall further develop the existing odour management plan (OMP) for approval in writing by the Environment Agency. The revised plan shall have regard for the requirements/outcomes of IC1 to IC11 and also ensure the following are robustly addressed:</p> <ul style="list-style-type: none"> - Location and distance to sensitive receptors. 	Complete

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
	<ul style="list-style-type: none"> - Details of any changes made to procedures, infrastructure, plant and equipment on site and an assessment of the impact of these changes on odour. - Impact of metrological conditions on sensitive receptors. - History of odour pollution locally, review of complaints and lessons learnt. - Materials management. - Monitoring of odour and associated action levels. - BAT measures for containment and abatement of odorous emissions. - Impact of emergencies and incidents on odorous emissions. <p>The operator shall implement the approved OMP from the date of approval by the Environment Agency. As part of the approved OMP, the operator shall undertake a regular review of the plan (in particular following any complaints, identified operational issues and/or any changes on site) and formally update the plan annually.</p>	
Management and control of primary containment measures		
IC13	<p>The operator shall provide a report detailing a comprehensive review of all storage tanks on site, undertaken by a suitably qualified engineer to an established engineering standard.</p> <p>The report shall include but not be limited to confirmation of age, condition, anticipated future operational life, filling and emptying arrangements, venting, overfill protection (such as level control and alarms), together with details of containment measures.</p> <p>The report shall determine if the tanks and containment measures are fit for purpose, having regard for the relevant guidance or, where this is not the case, provide a schedule of works for proposed improvements or tank decommission with timescales for completion.</p>	07/09/2018
IC14	<p>The operator shall remove the redundant tallow storage tank (Tank Reference 7), and any other redundant tanks (such as Feather Condensate Tank Reference 4) which are a source of potential odour emissions.</p> <p>The operator shall confirm in writing to the Environment Agency when the works are completed and update the site tank inventory accordingly.</p>	Complete
Management and control of secondary containment measures		
IC15	<p>The operator shall provide a report detailing a comprehensive review of the structural integrity of all bunds on site, undertaken by a suitably qualified engineer to an established engineering standard.</p> <p>The report shall determine if bunds are fit for purpose and appropriately sized; having regard for the relevant guidance (CIRIA Report C376). Where improvements to bunding and containment are identified in order to meet the required standard, the operator shall provide a schedule of works with timescales for completion.</p>	Complete
Management and control of drains and drainage systems		
IC16	<p>The operator shall undertake a CCTV survey of sub-surface drainage systems within the installation boundary (including the culverted watercourse) and provide a structural report to establish the integrity of the systems and demonstrate that the risk of fugitive emissions from the installation are minimised.</p> <p>Where the requirement for improvements is identified, the report shall include a schedule of works for the proposed improvements with timescales for completion</p>	07/06/2018

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
IC17	The operator shall remove the “emergency” valves and isolate any pipework to ensure the cessation of emergency discharges to Myers Beck. The operator shall confirm completion of the works in writing to the Environment Agency and update the site drainage plan accordingly.	Complete
IC18	The operator shall produce a site drainage plan which provides a clear diagrammatic record of the routing of all inspection drains, subsurface pipework/culverts/drains, sumps, screens and interceptors within the boundary of the installation. A copy of the plan shall be provided to the Environment Agency for our records and a copy shall be included and referred to in the relevant written procedures for the site including the Environment Management System and Accident Management Plan.	Complete
IC19	Having regard for the outcomes of IC16 to IC18, the operator shall undertake a review of the risk to the environment from the site drainage systems and devise an inspection and maintenance programme, as part of the Environment Management System, to minimise the risk. The review shall have regard for the nature and volume of waste waters, local groundwater vulnerability and the proximity of drainage systems to surface water and be confirmed in writing to the Environment Agency.	Complete
IC20	Following completion of IC11, the operator shall ensure that all operational areas are equipped with an impervious surface, spill containment kerbs, sealed construction joints and are connected to sealed drainage. Where significant defects are identified these shall be repaired and a programme detailing the ongoing maintenance and repair of minor defects shall be provided to the Environment Agency. Relevant site plans and written procedures shall be updated accordingly upon completion and confirmed in writing to the Environment Agency.	Complete
Management and control of the effluent treatment system		
IC21	The operator shall submit a report detailing the outcome of the commissioning of the effluent treatment system, including a review of the monitoring data and performance parameters against the design parameters set out in the permit application, to demonstrate that the environmental performance of the plant is consistently achieving the desired treatment and demonstrates BAT, having regard for the composition, age and health of the biomass within the effluent treatment plant.	Complete
IC22	Where not addressed by completion of IC15, the operator shall confirm in writing to the Environment Agency the secondary containment measures in place for the effluent treatment system and demonstrate how they are fit for purpose in preventing the accidental loss of containment from the system.	07/09/2018
IC23	The operator shall submit a summary report to demonstrate that the EMS has been updated accordingly to reflect the operational procedures (including contingency arrangements), monitoring arrangements and implementation of staff training requirements for the operation of the new effluent treatment plant.	Complete
IC24	The operator shall submit a report detailing a review of the management, handling and contingency arrangements for the effluent treatment plant sludge. Where management of the sludge is dependent on subsequent land spreading operations, the operator shall ensure that a system is introduced to ensure timely management of the necessary exemptions	Complete

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
	and land spreading deployments and where this is carried out by contractors or 3rd parties a system of due diligence audits and checks are conducted.	
Review and update site condition report		
IC25	<p>The operator shall review and update the existing SCR/SPMP for the installation to ensure all on site risks and associated control measures are robustly identified and addressed, including but not limited to:</p> <ul style="list-style-type: none"> - The requirements of the IED, as described in permit condition 3.1.3. - The construction of the abstraction borehole drilled on site in October 2015. - The construction of the trailer shed. - The construction of the trailer wash. - The construction of the effluent treatment plant. 	07/03/2019
Management and control of noise		
IC26	<p>(i) The operator shall submit a comprehensive noise assessment undertaken by an experienced and suitably qualified person (i.e. a noise consultant with an appropriate qualification accredited by the Institute of Acoustics), 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). Any noise sources identified as exhibiting tonal contributions shall also be quantified by means of frequency analysis. The report shall further quantify and confirm the cumulative effect of plant and equipment working concurrently (including new plant/equipment such as the Effluent Treatment Plant and Vehicle Shed). The overall conclusion should demonstrate no significant noise pollution from the site as a whole.</p> <p>(ii) On completion of the assessment a copy of the survey shall be submitted to the Environment Agency in the form of a report with an interpretation of the results and conclusions drawn. Where specific recommendations are made in the report to pursue improved noise attenuation measures and associated management/inspection/monitoring/maintenance regimes; a suitable timescale for implementation and periodic review should be included. Such improved attenuation measures and regimes shall be demonstrated to be compliant with the requirements of BAT for this type of installation and will require the written agreement of the Environment Agency, prior to adoption.</p>	<p>(i) deemed complete by submission of BS4142 assessment for V002</p> <p>(ii) to be completed within 6 months of issue of V002</p>
Management and control of water usage		
IC27	<p>The operator shall undertake a comprehensive water efficiency audit at the installation and use the results to devise a programme of quantitative improvements to demonstrate BAT.</p> <p>The operator shall provide a summary of this audit together with a schedule of works for proposed improvements, with timescales for completion, in writing to the Environment Agency.</p>	Complete
Management and control of energy usage		
IC28	The operator shall confirm in writing to the Environment Agency what measures have been implemented on site since the permit application has been made to improve the energy efficiency at the installation.	Complete

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
IC29	<p>The operator shall carry out a comprehensive energy efficiency audit at the installation and use the results to devise a programme of quantitative improvements to demonstrate BAT.</p> <p>The operator shall provide a summary of this audit together with a schedule of works for proposed improvements, with timescales for completion, in writing to the Environment Agency.</p>	Complete
Management and control of planned preventative maintenance		
IC30	<p>The operator shall implement a robust planned preventative maintenance programme for key plant, infrastructure and equipment as part of the written EMS, ensuring there are adequate provisions for reporting, tracking and completing outstanding actions.</p> <p>A summary of the programme shall be submitted in writing to the Environment Agency.</p>	08/05/2018
Emissions and monitoring		
IC31	<p>The operator shall undertake a review of the emissions and monitoring as listed in Table S3.1 of the permit to demonstrate that the sampling and monitoring regime on site is in accordance with the Environment Agency Technical Guidance Notes M1 (version 8 August 2017) and M2 (version 12 August 2017). The operator shall ensure that all sample points on site are appropriately marked and recorded, both in situ and upon a plan which forms part of the Environment Management System. A summary report of the review and the plan shall be submitted in writing to the Environment Agency.</p>	Complete
IC32	<p>The operator shall undertake a review of the emissions and monitoring as listed in Tables S3.2 and S3.3 of the permit to demonstrate that the sampling and monitoring regime on site is in accordance with the Environment Agency Technical Guidance Note M18 (version 6 September 2017). The operator shall ensure that all emission and sample points on site are appropriately marked and recorded, both in situ and upon a plan which forms part of the Environment Management System. A summary report of the review and the plan shall be submitted in writing to the Environment Agency.</p>	07/09/2018
Commissioning and validation of multi-fuel thermal oxidation unit		
IC33	<p>The operator shall submit a written report to the Environment Agency on the commissioning of the plant. 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.</p>	Within 4 months of the completion of commissioning.
IC34	<p>The operator shall notify the Environment Agency of the proposed date(s) that validation testing is planned for.</p>	Notification at least 3 weeks prior to validation testing
	<p>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 PO6.</p>	Validation tests completed before the end of commissioning

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
IC35	<p>The operator shall submit a written report to the Environment Agency on the validation of residence time, oxygen and temperature whilst operating under normal load, minimum turn down and overload conditions.</p> <p>The report shall identify the process controls used to ensure residence time and temperature requirements are complied with during operation of the co-incineration plant.</p>	Report submitted within 2 months of the completion of commissioning.
IC36	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 A5, identifying the fractions within the PM10, and PM2.5 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.
IC37	<p>The Operator shall carry out an assessment of the impact of emissions to air of all component metals subject to emission limit values. 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 EQS/EAL. In the event that the assessment shows that an environmental standard can be exceeded, the report shall include proposals for further investigative work.</p>	15 months from the completion of commissioning
IC38	The Operator shall submit a written summary report to the Environment Agency 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 BS 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>
IC39	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
IC40	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 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

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
IC41	The Operator shall submit a report to the Environment Agency for approval on start-up and shut-down conditions over the first 12 months of operation. The report shall identify any amendments to the start-up and shut-down definitions that were described in the application.	Within 15 months of completion of commissioning or as agreed in writing with the Environment Agency

Table S1.4A Pre-operational measures	
Reference	Pre-operational measures for activities AR1 and AR2
PO1	Prior to the operation of activities AR1 and AR2, the operator shall install additional odour abatement measures (carbon filters) to blood tanks on site to further mitigate against the risk of odorous emissions from the installation. The operator shall confirm completion of the works in writing to the Environment Agency and update the relevant written procedures accordingly.
Reference	Pre-operational measures for activity AR8
PO2	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.
PO3	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.
PO4	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.
PO5	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 to comply with Environment Agency guidance notes M1, M2 and M20. The report shall include the following: <ul style="list-style-type: none"> • Plant and equipment details, including accreditation to MCERTS • Methods and standards for sampling and analysis • Details of monitoring locations, access and working platforms
PO6	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

Table S1.4A Pre-operational measures	
	temperature and oxygen content of the gases in the furnace whilst operating under normal load, minimum turn down and overload conditions.
Reference	Pre-operational measures for activity AR12
PO7	<p>The Operator shall submit report detailing completion of a comprehensive monitoring programme of the operational performance and emissions characteristics of the wet scrubbers serving the blood processing operations, including the predicted impacts of emissions to air from modelling.</p> <p>The emissions from the scrubbers shall be directed to the biological filter beds until such a time when the Environment Agency is satisfied that the operational parameters and performance of the scrubbers, together with their predicted odour impacts are demonstrated to be suitable to be permitted to emit via emissions points A8 and A9.</p>

Table S1.4B Pre-operational measures for future development		
Reference	Operation	Pre-operational measures
FD1	Trailer shed	The operator shall submit a written report to establish the health of the biofilters and to demonstrate that the additional load of the extracted air from the proposed trailer shed can be accommodated, having regard for the requirements/outcomes of IC2 to IC8.
FD2		The operator shall submit written details of the door operating procedures for the trailer shed including but not limited to the operation of interlocks, system controls and alarms to prevent the emission of fugitive odour.
FD3	Trailer wash	The operator shall submit details of the drainage arrangements for the trailer wash for approval by the Environment Agency, including but not limited to details of effluent traps/gully pots/interceptors, containment and contingency arrangements, having regard for the requirements/outcomes of IC16 to IC20.
FD4		The operator shall submit a written report to demonstrate that water efficiency has been considered in the design of the trailer wash system and demonstrate how ongoing monitoring of water usage will be undertaken and audited, having regard for the requirements/outcomes of IC27.
FD5		The operator shall provide written details of the door operating procedures for the trailer wash, including but not limited to the use of interlocks, system controls and alarms to prevent the emission of fugitive odour.

Schedule 2 – Waste types, raw materials and fuels

Raw materials and fuel description	Specification
Tallow oil fuel	Meeting the Environment Agency End of Waste Test <0.015 % Chlorine content
Sodium Hydroxide	<0.03ppm Mercury content

Maximum quantity	Maximum capacity of plant: 5 tonnes per hour Maximum throughput: 43,800 tonnes per year
Specification/Waste code	Description
Solid biomass	Meat and Bone Meal meeting either of the descriptions as follows:
To meet EA EoW Test	Meat and Bone Meal as a biomass fuel, meeting the Environment Agency End of Waste (EoW) Test
02 01 02	Animal tissue – Meat and Bone Meal
02 02 02	Animal tissue – Meat and Bone Meal
02 02 03	Materials unsuitable for consumption or processing – Meat and Bone Meal
Solid Biomass	Grade A wood chips meeting the description as follows:
Woodchip	Grade A waste wood chipped into suitable sized chips for combustion and classified as a biomass fuel under BLS (reference number – BLS 0512743-004)
Solid biomass	De-watered sludges from on-site effluent treatment meeting the description as follows:
02 02 04	De-watered sludges from on-site effluent treatment

Schedule 3 – Emissions and monitoring

Emission point ref. & location	Source	Parameter	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard(s) or method(s)
A1, A2 & A3	Biological filter bed BF1, BF2 & BF3 stacks	Odour units (inlet and outlet)	No limit set (OUE)	Periodic	Annually	BS EN 13725
		Odour compounds	--	Periodic	Annually	BS EN 13649
		Ammonia	No limit set (mg/m ³)	Periodic	Annually	EN ISO 21877
		Hydrogen sulphide	No limit set (mg/m ³)	Periodic	Annually	US EPA method 11
A4	8 MWth Boiler stack	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	300 mg/m ³	Periodic	Annually	BS EN 14792
		Sulphur Dioxide	175 mg/m ³ (Liquid fuel fired)	Periodic	Annually	BS EN 14791
			10 mg/m ³ (Natural gas fired)	Periodic		
		Carbon Monoxide	150 mg/m ³ (Liquid fuels fired)	Periodic	Annually	BS EN 15058
			50 mg/m ³ (Natural gas fired)	Periodic		
		Ammonia	No limit set (mg/m ³)	Periodic	Annually	EN ISO 21877
		Particulate Matter	50 mg/m ³	Periodic	Annually	BS EN 13284-1
		Visible smoke	No dark smoke	Instantaneous	Daily	Visual inspection

Table S3.1 Point source emissions to air – emission limits and monitoring requirements						
Emission point ref. & location	Source	Parameter	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard(s) or method(s)
A5	Penrith (OX1) 9.3 MWth thermal oxidiser (emergency use)	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	300 mg/m ³	Periodic	Representative based on operation	BS EN 14792
		Sulphur Dioxide	175 mg/m ³ (Liquid fuel fired)	Periodic	Representative based on operation	BS EN 14791
			10 mg/m ³ (Natural gas fired)			
		Carbon Monoxide	150 mg/m ³ (Liquid fuels fired)	Periodic	Representative based on operation	BS EN 15058
			50 mg/m ³ (Natural gas fired)			
		Ammonia	No limit set (mg/m ³)	Periodic	Representative based on operation	EN ISO 21877
		Particulate Matter	50 mg/m ³	Periodic	Representative based on operation	BS EN 13284-1
		Visible smoke	No dark smoke	Instantaneous	Daily when operational	Visual inspection
		Odour units (inlet and outlet)	No limit set (OUE)	Periodic	Representative based on operation	BS EN 13725
Odour compounds	--	Periodic	Representative based on operation	BS EN 13649		

Table S3.1 Point source emissions to air – emission limits and monitoring requirements						
Emission point ref. & location	Source	Parameter	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard(s) or method(s)
		Hydrogen sulphide	No limit set (mg/m ³)	Periodic	Representative based on operation	US EPA method 11
A6	Bradford (OX2) 11 MWth thermal oxidiser (emergency use)	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	300 mg/m ³	Periodic	Representative based on operation	BS EN 14792
		Sulphur Dioxide	175 mg/m ³ (Liquid fuel fired)	Periodic	Representative based on operation	BS EN 14791
			10 mg/m ³ (Natural gas fired)			
		Carbon Monoxide	150 mg/m ³ (Liquid fuels fired)	Periodic	Representative based on operation	BS EN 15058
			50 mg/m ³ (Natural gas fired)			
		Ammonia	No limit set (mg/m ³)	Periodic	Representative based on operation	EN ISO 21877
		Particulate Matter	50 mg/m ³	Periodic	Representative based on operation	BS EN 13284-1
		Visible smoke	No dark smoke	Instantaneous	Daily when operational	Visual inspection
		Odour units (inlet and outlet)	No limit set (OUE)	Periodic	Representative based on operation	BS EN 13725
Odour compounds	--	Periodic	Representative based on operation	BS EN 13649		

Table S3.1 Point source emissions to air – emission limits and monitoring requirements						
Emission point ref. & location	Source	Parameter	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard(s) or method(s)
		Hydrogen sulphide	No limit set (mg/m ³)	Periodic	Representative based on operation	US EPA method 11
A7	29.8 MWth Multi-fuel thermal oxidiser 25.3m high multi-flue stack [Note 1]	Particulate matter	7.5 mg/m ³	Daily average	Continuous measurement	BS EN 14181
		Total Organic Carbon (TOC)	15 mg/m ³	Daily average	Continuous measurement	BS EN 14181
		Hydrogen chloride	9 mg/m ³	Daily average	Continuous measurement	BS EN 14181
		Hydrogen fluoride	1.5 mg/m ³	Daily average	Continuous measurement	BS EN 14181
		Carbon monoxide	75 mg/m ³	Daily average	Continuous measurement	BS EN 14181
		Sulphur dioxide	45 mg/m ³	Daily average	Continuous measurement	BS EN 14181
		Oxides of nitrogen (NO and NO ₂ expressed as NO ₂)	180 mg/m ³	Daily average	Continuous measurement	BS EN 14181
		Cadmium & thallium and their compounds (total)	0.03 mg/m ³	Average of three consecutive measurements of at least 30 minutes each	Quarterly in first year. Then Bi-annual	BS EN 14385
		Mercury and its compounds	0.03 mg/m ³	Average of three consecutive measurements of at least 30 minutes each	Quarterly in first year then Bi-annual.	BS EN 13211

Table S3.1 Point source emissions to air – emission limits and monitoring requirements						
Emission point ref. & location	Source	Parameter	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard(s) or method(s)
		Sb, As, Pb, Cr, Co, Cu, Mn, Ni and V and their compounds (total)	0.45 mg/m ³	Average of three consecutive measurements of at least 30 minutes each	Quarterly in first year. Then Bi-annual	BS EN 14385
		Dioxins / furans (I-TEQ)	0.06 ng/m ³ or 0.09 ng/m ³ if long term limit is specified by the Environment Agency after completion of IC39 or specified by the Environment Agency in line with sampling protocol	periodic over minimum 6 hours, maximum 8 hour period or value over sampling period of 2 to 4 weeks for long term sampling	Monthly for first 6 months and accelerated monitoring as agreed through IC39, quarterly for following 6 months and then bi-annually; or long term monitoring if specified by the Environment Agency after completion of IC39 or specified by the Environment Agency in line with sampling protocol	EN 1948 Parts 1, 2 and 3 or CEN TS 1948-5 if specified by the Environment Agency after completion of IC39 or specified by the Environment Agency in line with sampling protocol

Table S3.1 Point source emissions to air – emission limits and monitoring requirements						
Emission point ref. & location	Source	Parameter	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard(s) or method(s)
		Dioxin-like PCBs (WHO-TEQ Humans / Mammals, Fish, Birds)	No limit set	periodic over minimum 6 hours, maximum 8 hour period or value over sampling period of 2 to 4 weeks for long term sampling	Monthly for first 6 months and accelerated monitoring as agreed through IC39, quarterly for following 6 months and then bi-annually; or long term monitoring if specified by the Environment Agency after completion of IC39 or specified by the Environment Agency in line with sampling protocol No monitoring is required if emissions have been shown to be below 0.01	EN 1948 Parts 1, 2 and 4 or CEN TS 1948-5 if specified by the Environment Agency after completion of IC39 or specified by the Environment Agency in line with sampling protocol

Table S3.1 Point source emissions to air – emission limits and monitoring requirements						
Emission point ref. & location	Source	Parameter	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard(s) or method(s)
					ng/m ³ as agreed with the Environment Agency.	
		Dioxins / furans (WHO-TEQ Humans / Mammals, Fish, Birds)	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
		Specific individual polycyclic aromatic hydrocarbons (PAHs), as specified in Schedule 6.	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.
		Carbon dioxide	No limit set	Continuous	Continuous	EN 14181
		Exhaust gas temperature	No limit set	-	Continuous	Traceable to national standards
		Exhaust gas pressure	No limit set	-	Continuous	Traceable to national standards
		Exhaust gas flow	No limit set	-	Continuous	BS EN 16911-2
		Exhaust gas oxygen content	No limit set	-	Continuous	EN 14181
		Exhaust gas water vapour content	No limit set	-	Continuous	EN 14181
		Odour units (inlet and outlet)	No limit set (OUE)	Periodic	Annually	BS EN 13725
		Odour compounds	--	Periodic	Annually	BS EN 13649
		Ammonia	No limit set (mg/m ³)	Periodic	Annually	EN ISO 21877

Table S3.1 Point source emissions to air – emission limits and monitoring requirements						
Emission point ref. & location	Source	Parameter	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard(s) or method(s)
		Hydrogen sulphide	No limit set (mg/m ³)	Periodic	Annually	US EPA method 11
		Visible smoke	No dark smoke	Instantaneous	Daily	Visual inspection
A8 & A9 [Note 2]	Chemical scrubber stacks, serving blood processing plant	Odour units (inlet and outlet)	No limit set (OUE)	Periodic	Annually	BS EN 13725
		Odour compounds	--	Periodic	Annually	BS EN 13649
		Ammonia	No limit set (mg/m ³)	Periodic	Annually	EN ISO 21877
		Hydrogen sulphide	No limit set (mg/m ³)	Periodic	Annually	US EPA method 11
A10	23 MWth Gas-fuelled thermal oxidiser (support/back-up plant) 25.3m high multi-flue stack	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	300 mg/m ³	Periodic	Annually	BS EN 14792
		Sulphur Dioxide	175 mg/m ³ (Liquid fuel fired)	Periodic	Annually	BS EN 14791
			10 mg/m ³ (Natural gas fired)	Periodic	Annually	
		Carbon Monoxide	150 mg/m ³ (Liquid fuel fired)	Periodic	Annually	BS EN 15058
			50 mg/m ³ (Natural gas fired)	Periodic	Annually	
		Particulate Matter	50 mg/m ³	Periodic	Annual	BS EN 13284-1
		Odour units (inlet and outlet)	No limit set (OUE)	Periodic	Annually	BS EN 13725
		Odour compounds	--	Periodic	Annually	BS EN 13649

Table S3.1 Point source emissions to air – emission limits and monitoring requirements						
Emission point ref. & location	Source	Parameter	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard(s) or method(s)
		Ammonia	No limit set (mg/m ³)	Periodic	Annually	EN ISO 21877
		Hydrogen sulphide	No limit set (mg/m ³)	Periodic	Annually	US EPA method 11
		Visible smoke	No dark smoke	Instantaneous	Daily	Visual inspection
<p>Note 1: The emission limits specified for emission point A7 only apply when the multi-fuel thermal oxidiser is fuelled by biomass (as specified in table S2.2). The relevant limits for this plant when operated using gas or end of waste tallow as a fuel are the same as those limits specified for emission point A10 (gas fired thermal oxidiser).</p> <p>Note 2: No emissions are permitted from point sources A8 & A9 until PO7 is satisfied, as agreed in writing with the Environment Agency.</p>						

Table S3.1(a) Point source emissions to air during abnormal operation of co-incineration plant – emission limits and monitoring requirements						
Emission point ref. & location	Source	Parameter	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
A7	Multi-fuel thermal oxidiser 25.3m high multi-flue stack, when fired using solid biomass only.	Particulate matter	225 mg/m ³	½-hr average	Continuous measurement	BS EN 14181 or alternative surrogate as agreed in writing with the environment agency during failure of the continuous emission monitor
		Total Organic Carbon (TOC)	30 mg/m ³	½-hr average	Continuous measurement	BS EN 14181 or alternative surrogate as agreed in writing with the environment agency during failure of the continuous emission monitor
		Carbon monoxide	150 mg/m ³	½-hr average	Continuous measurement	BS 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 sewer, effluent treatment plant or other transfers off-site – emission limits and monitoring requirements						
Emission point ref. & location	Source	Parameter	Limit (incl. Unit)	Reference period	Monitoring frequency	Monitoring standard or method
EP1 on site plan in Schedule 7 emission to United Utilities Penrith Sewage Treatment Works	On-site effluent treatment system	Total daily discharge volume	No Limit Set	24-hour total	Continuous	MCERTS self-monitoring of effluent flow scheme
		pH	6 – 10	Instantaneous	Continuous	pH probe

Table S3.3 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
SW1 on site plan in schedule 7 emission to Myers Beck	Clean and uncontaminated roof water from process buildings as shown on “Site Drainage Plan” received 12 December 2017.	Visual appearance	No adverse visible effect on Myers Beck	Instantaneous	Daily	Recorded and documented visual inspection
		Chemical oxygen demand (COD)	No limit set	Spot sample	Weekly	In-house monitoring periodically validated by a recognised testing standard.
		Total nitrogen (as N)	No limit set	Spot sample	Weekly	
SW2 on site plan in Schedule 7 emission to Myers Beck	Clean and uncontaminated roof water from process buildings as shown on “Site Drainage Plan” received 12 December 2017.	Visual appearance	No adverse visible effect on Myers Beck	Instantaneous	Daily	Recorded and documented visual inspection
		Chemical oxygen demand (COD)	No limit set	Spot sample	Weekly	In-house monitoring periodically validated by a recognised testing standard.
		Total nitrogen (as N)	No limit set	Spot sample	Weekly	
SW3 on site plan in Schedule 7 emission to Myers Beck	Clean and uncontaminated roof water from trailer shed as shown on “Site Drainage Plan” received 12 December 2017.	Visual appearance	No adverse visible effect on Myers Beck	Instantaneous	Daily	Recorded and documented visual inspection
		Chemical oxygen demand (COD)	No limit set	Spot sample	Weekly	In-house monitoring periodically validated by a recognised testing standard.
		Total nitrogen (as N)	No limit set	Spot sample	Weekly	

Table S3.4 Process monitoring requirements				
Emission point reference or source or description of point of measurement	Parameter	Monitoring frequency	Monitoring standard or method [Note 1]	Other specifications [Note 2]
Gas inlets of Biofilters 1, 2 and 3	Flow rate	Periodically calculated	--	--
	Ammonia concentration	Continuous	--	Rolling programme established for each biofilter [Note 4]
	Hydrogen sulphide concentration			
Biobed of Biofilters 1, 2 and 3	Temperature	Continuous	--	Measured within Plenum Chamber
	Media pH	Monthly	--	Core sample to established methodology [Note 3]
	Moisture content	Monthly	--	--
	Back pressure	Continuous	--	--
	Residence time	Periodically calculated	--	--
	Media inspection	Daily	Visual inspection	No compaction, pooling or dry spots
	Retaining wall inspection	Weekly	Visual inspection	No damage or impairment
	Functioning of water sprays (irrigation system)	Daily (when operating)	Visual inspection	Fully operational to provide adequate coverage
Leachate from biofilters 1, 2 and 3	pH	Weekly	--	--
Humidifier water	Ammonia concentration	Daily	--	Monitoring frequency to be reviewed following assessment of 3 months of monitoring data.
	Bacteria levels	Daily	--	
On site weather station	Wind direction	Continuous	--	--
	Wind speed	Continuous	--	--
	Atmospheric temperature	Continuous	--	--
	Atmospheric humidity	Continuous	--	--
All thermal oxidisers	Operation times	Continuous (whilst operational)	--	--
	Recorded fan speed	Continuous	--	Referred to as 'effluent fan speed" by the plant supplier and operator

Table S3.4 Process monitoring requirements				
Emission point reference or source or description of point of measurement	Parameter	Monitoring frequency	Monitoring standard or method [Note 1]	Other specifications [Note 2]
	Combustion chamber temperature (°C)	Continuous	--	--
	Residence time (s)	Periodically calculated upon plant modifications or process changes	--	--
	Carbon monoxide	Continuous	--	--
	Oxygen	Continuous	--	--
Boilers	Operation times	Continuous (whilst operational)	--	--
	Carbon monoxide	Continuous	--	--
	Oxygen	Continuous	--	--
	Temperature	Continuous	--	--
Sumps/catch pits/interceptors (as identified by "integrity check 240#" and/or completion of IC18)	Visual inspection	Weekly	--	--
	Visual inspection when empty	Annual	--	--
Effluent treatment plant	Dissolved oxygen	Continuous	--	--
	Mixed liquor suspended solids (MLSS)	Periodic	--	--
	Sludge age	Periodic	--	--
	Biological profile of sludge	Periodic	--	--
	Final effluent quality	Weekly	24-hour proportional composite sample	In house monitoring of Suspended Solids, Ammonia and COD. Validated by comparison with monitoring undertaken by sewerage undertaker.
Reverse osmosis plant	Permeate reject volume	Daily	Tank volume/level indicator	--

Table S3.4 Process monitoring requirements				
Emission point reference or source or description of point of measurement	Parameter	Monitoring frequency	Monitoring standard or method [Note 1]	Other specifications [Note 2]
Odour abatement condensers	Operation times	Continuous (whilst operational)	--	--
	Inlet temperature	Continuous (whilst operational)	--	--
	Outlet temperature	Continuous (whilst operational)	--	--
Chemical scrubbers	pH, redox, liquor flow rate and pressure drop	Continuous (whilst operational)	--	--
Multi-fuel thermal oxidiser as co-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	
<p>Note 1: Unless otherwise specified, all monitoring is to be undertaken to an appropriate standard in accordance with condition 3.6.3</p> <p>Note 2: All monitoring and inspections are to be recorded and documented in accordance with condition 3.6.2 and retained for inspection by the Environment Agency.</p> <p>Note 3: To be agreed in writing by the Environment Agency</p>				

Table S3.5 Residue quality					
Emission point reference or source or description of point of measurement	Parameter	Limit	Monitoring frequency	Monitoring standard or method *	Other specifications
Bottom Ash	TOC	3%	Monthly in the first year of operation. Then Quarterly	BS EN 14899 and either BS EN 13137 or BS EN 15936	Environment Agency Guidance, 'TGN M4 – Guidelines for Ash Sampling and Analysis'
Bottom Ash	Protein	--	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.	--	Monthly in the first year of operation. Then Quarterly	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'	--

Schedule 4 – Reporting

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

Table S4.1 Reporting of monitoring data			
Parameter	Emission or monitoring point/reference	Reporting period	Period begins
Emissions to air Parameters as required by condition 3.5.1.	A7	Quarterly	1 Jan, 1 Apr, 1 Jul and 1 Oct
	A1, A2, A3, A4, A5,A6, A8	Annually	1 Jan
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
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
Emissions to water. Parameters as required by condition 3.6.1	SW1, SW2, SW3	Every 12 months	1 January
Biofilter Efficiency. Parameters as required by condition 4.2.6	Biofilters	Every 12 months	1 January

Table S4.2: Annual production/treatment	
Parameter	Units
Offal processed by rendering	Tonnes
Blood processed by heat treatment/drying	Tonnes
Feathers processed by hydrolysis	Tonnes
Offal processed by low temperature fat melting	Tonnes
Total MBM used as solid biomass to fuel multi-fuel thermal oxidation unit	Tonnes
Total Grade A Waste Wood used as solid biomass to fuel multi-fuel thermal oxidation unit	Tonnes
Total Sewage Sludge used as solid biomass to fuel multi-fuel thermal oxidation unit	Tonnes
Electrical energy produced for use at installation	KWh
Thermal energy produced for use at installation	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	-
Water usage	Annually	m ³
Energy usage	Annually	MWh
Bottom Ash residue	Annually	Route, tonnes and tonnes / tonne of waste incinerated
APC residue	Annually	Route, tonnes and tonnes / 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	Version 2.1, dated 11/11/19
Air	Forms air 1-9 or other forms as agreed in writing by the Environment Agency	Dated Feb 2022
Water and Land	Form water 1 or other form as agreed in writing by the Environment Agency	07/03/18
Water and raw material usage	Form WU/RM1 or other form as agreed in writing by the Environment Agency	07/03/18
Energy usage	Form energy 1 or other form as agreed in writing by the Environment Agency	07/03/18
Waste disposal/recovery	Annual performance report template	Version 2.1, dated 11/11/19
Residue quality	Annual performance report template	Version 2.1, dated 11/11/19
Other performance indicators	Form performance 1 or other form as agreed in writing by the Environment Agency	Dated June 2022

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 2.3.10 and ends as defined in condition 2.3.11. 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.

“bottom ash” means ash falling through the grate/transported by the grate, or collected via a collection system.

“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 co-incineration plant that involves any operation of the furnace or as agreed with the Environment Agency.

“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 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

“co-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

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

“OTNOC” means operation other than normal operating conditions, excluding start-up and shut-down and periods of abnormal operation, as defined in the OTNOC management plan approved through pre-operational condition PO1 or otherwise as agreed in writing with the Environment Agency.

“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[ah]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.

“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 to initiate steady-state conditions as described in the application or agreed in writing with the Environment Agency.

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

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

“year” means calendar year ending 31 December

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

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

- (a) in relation to emissions from 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 co-incineration plants the concentration in dry air at a temperature of 273K, at a pressure of 101.3 kPa and with an oxygen content of 6% dry

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

based on: all congeners less than the detection limit assumed to be zero as a minimum, and all congeners less than the detection limit assumed to be at the detection limit as a maximum. However the minimum value should be used when assessing compliance with the emission limit value in table S3.1.

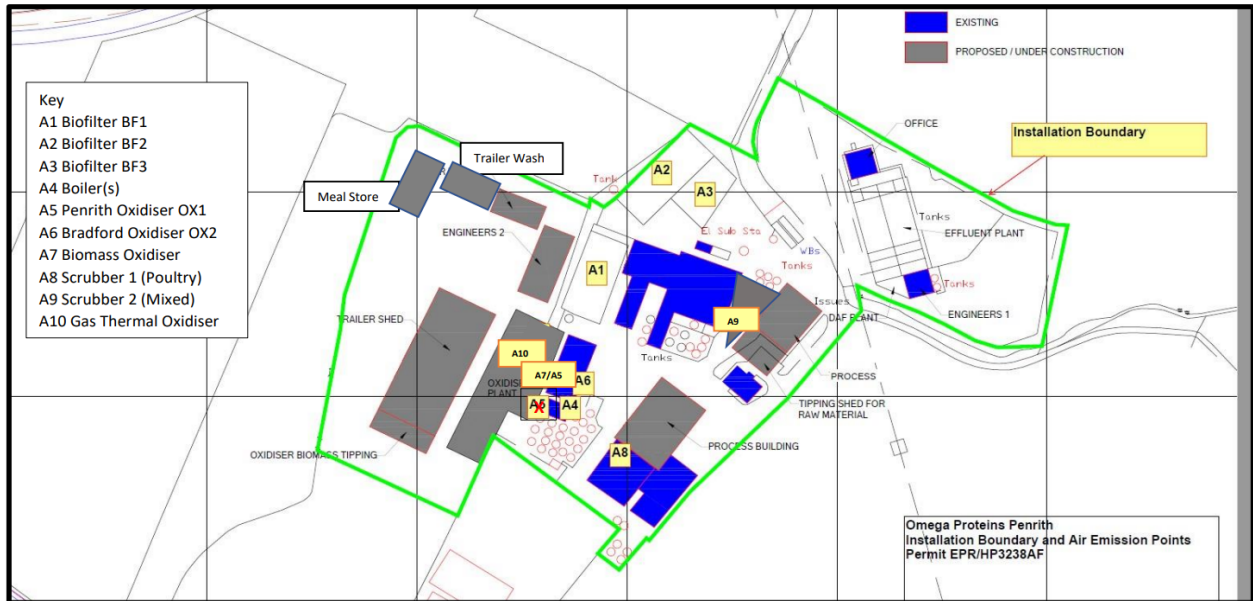
TEF schemes for dioxins and furans				
Congener	I-TEF	WHO-TEF		
	1990	2005	1997/8	
		Humans / Mammals	Fish	Birds
Dioxins				
2,3,7,8-TCDD	1	1	1	1
1,2,3,7,8-PeCDD	0.5	1	1	1
1,2,3,4,7,8-HxCDD	0.1	0.1	0.5	0.05
1,2,3,6,7,8-HxCDD	0.1	0.1	0.01	0.01
1,2,3,7,8,9-HxCDD	0.1	0.1	0.01	0.1
1,2,3,4,6,7,8-HpCDD	0.01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

TEF schemes for dioxin-like PCBs			
Congener	WHO-TEF		
	2005	1997/8	
	Humans / mammals	Fish	Birds
Non-ortho PCBs			
3,4,4',5-TCB (81)	0.0001	0.0005	0.1
3,3',4,4'-TCB (77)	0.0003	0.0001	0.05
3,3',4,4',5 - PeCB (126)	0.1	0.005	0.1
3,3',4,4',5,5'-HxCB(169)	0.03	0.00005	0.001
Mono-ortho PCBs			

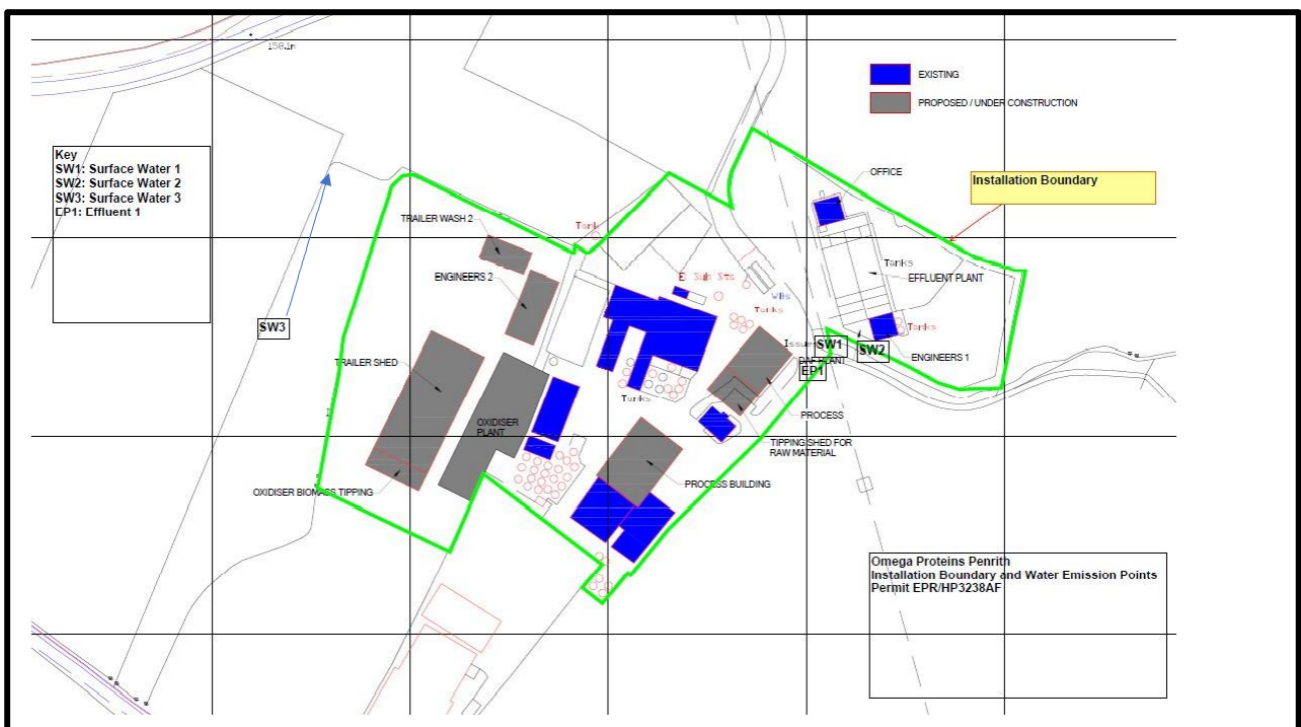
TEF schemes for dioxin-like PCBs			
Congener	WHO-TEF		
	2005	1997/8	
	Humans / mammals	Fish	Birds
2,3,3',4,4'-PeCB (105)	0.00003	<0.000005	0.0001
2,3,4,4',5-PeCB (114)	0.00003	<0.000005	0.0001
2,3',4,4',5-PeCB (118)	0.00003	<0.000005	0.00001
2',3,4,4',5-PeCB (123)	0.00003	<0.000005	0.00001
2,3,3',4,4',5-HxCB (156)	0.00003	<0.000005	0.0001
2,3,3',4,4',5'-HxCB (157)	0.00003	<0.000005	0.0001
2,3',4,4',5,5'-HxCB (167)	0.00003	<0.000005	0.00001
2,3,3',4,4',5,5'-HpCB (189)	0.00003	<0.000005	0.00001

Schedule 7 – Site plan

Installation boundary and air emission points



Sewer and water emission points



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END OF PERMIT