Permit with introductory note

The Environmental Permitting (England & Wales) Regulations 2010

Tyseley Urban Resource Centre Limited

Tyseley Urban Resource Centre
Hay Hall Road
Tyseley
Birmingham
B11 2AU

Permit number

EPR/UP3231NQ

Tyseley Urban Resource Centre
Permit Number EPR/UP3231NQ

Introductory note

This introductory note does not form a part of the permit

This permit controls the operation of an installation, whose purpose is the disposal of waste with energy recovery in an incineration plant. The relevant listed activity is Section 5.1A(1)(b): the incineration of non-hazardous waste in an incineration plant with a capacity exceeding 3 tonnes per hour. The permit implements the requirement of the EU Directive on Industrial Emissions.

The main features of the permit are as follows:

The Tyseley Urban Resource Centre utilises a fluidised bed gasification process combined with a plasma convertor. The combination of the two processes produces a user gas with a CV typically in the range of 8-9 MJ/Nm^3 which, following cleaning, is used to directly fuel high efficiency gas engines to generate electricity and heat. At the same time the process vitrifies the ash producing Plasmarok which is recognised as a product satisfying End of Waste Criteria. This is the Gasplasma process and is proprietary technology.

The facility occupies 2.4 hectares of land and is located within an existing industrial area established in the early 1900s. Hay Hall Road is to the north of the site with commercial units beyond. Kings Road is to the east and the main Birmingham to London railway line and station (Tyseley Station) to the south / south-east. To the west of the site is a lorry park. There are no European conservation sites or SSSIs within the relevant distances of the site but there are several non-statutory conservation sites within 2 km.

The activity comprises three distinct processes:

- **Fuel Preparation**: Up to 50,000 tonnes per annum of non-hazardous mixed waste is received on site. The removal of metals, plastic and other recyclate, residual moisture and reject materials produces 35,000 tpa of Refuse Derived Fuel (RDF) as feedstock for the Gasplasma process. RDF is dried using a drier with steam batteries providing the heat source; the steam used for this operation is recovered from the Gasplasma process. Magnets remove ferrous metals and eddy current separators remove non-ferrous metals for recycling.
- **Syngas Production**: RDF is fed into the gasifier with steam and oxygen to convert the mixed materials into useful gases. This process provides sufficient heat to maintain the fluid bed temperature and produce “crude syngas”. The crude syngas contains significant quantities of long chain hydrocarbons which would condense as tars and residues if it was allowed to cool. The ash component of the RDF is automatically removed from the base of the gasifier through the bed screening process and conveyed to a hopper where it is metered into the plasma converter. Residues, chars or ash are not removed from the process at this stage.

  Crude syngas is passed from the gasifier to the plasma converter. In the centre of the plasma converter is a graphite electrode from which a thermal plasma arc is generated. The crude syngas is exposed to elevated temperatures and intense ultraviolet light in order to “crack” it to reform the tars and residues into the basic composition of hydrogen, carbon monoxide, carbon dioxide and water. This product is known as syngas and is passed to a boiler for cooling.

  During the syngas cooling stage, steam is produced in the boiler and used in the drying of RDF and in the Gasplasma process.

  Inside the plasma converter ash and dust particles drop out of the gas stream. These particles are captured in a molten slag pool which builds up in the base of the plasma converter. This

molten material is continuously removed from the plasma converter via an overflow weir and cooled for use as a vitrified and stable material.

The dry gas cleaning system uses ceramic filters to remove fine particulate materials from the syngas stream and neutralises acid gases and removes heavy metal vapour using sodium bicarbonate and activated carbon. The syngas is then further cooled by direct contact with liquor in a scrubber train which also removes ammonia and acid gases. The effluent from the scrubbers is discharged from the system for treatment and discharged to sewer.

During start up and shutdown the combustion gas is diverted to a flare to ensure it is oxidised prior to release to atmosphere. The flare will be supported by the use of natural gas or propane gas.

- **Power Generation**: the conversion of the syngas into electrical power using two nominally 3.0 MWe gas engines (thermal input rating of 8.5 MWth per engine). In addition, hot exhaust gases from the engines are passed through Organic Rankine Cycle (ORC) plant to drive generators that produce an additional 0.58 MW electricity. The exhaust gases from each engine pass through a selective catalytic reduction (SCR) unit to abate NOx and a catalytic oxidiser to abate CO. The cleaned exhaust gases from each engine pass through separate flues that are jointly housed in a single 40m high stack.

The facility has 11 point source emissions to air, 1 point source emission to surface water and 1 point source emission to sewer. MCERTS certified Continuous Emission Monitors for emissions to air are installed for each engine on the flue of each engine within the common stack.

The Operator has implemented an Odour Management Plan for the site to minimise and monitor point source and potential fugitive emissions of odour. The operator will seek to obtain ISO14001 certification within 12 months of operations commencing on site.

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

Status Log of the permit		
Detail	**Date**	**Comments**
Application EPR/UP3231NQ/A001	Duly made 19/12/13	
Additional Information Received	19/12/13	Email #1 general clarification
	07/01/14	Email #2 revised ERA and H1
	22/01/14	Email #3 revised energy balance and general clarification
	23/01/14	Email #4 meteorological data supplied
	27/01/14	Email #5 general clarification
	27/01/14	Email #6 abnormal operation assessment; general clarification
	29/01/14	Email #7 general clarification
	13/02/14	Email #8 information on dioxin formation
	24/02/14	Email #9 further air quality clarification
	04/03/14	Email #10 abnormal operation clarification
	12/03/14	Email #11 CO_2 balance information
	13/03/14	Email #12 further information on noise issues
	08/04/14	Email #13 further information on noise issues
	11/04/14	Email #14 addition to noise assessment
	14/04/14	Email #15 amendment to noise assessment
Permit determined	24/04/14	

End of Introductory Note

Permit

The Environmental Permitting (England and Wales) Regulations 2010

Permit number
EPR/UP3231NQ

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

Tyseley Urban Resource Centre Limited ("the operator"),

whose registered office is

Marston Gate
Stirling Road
South Marston Industrial Estate
Swindon
SN3 4DE

company registration number 8588204.

to operate an installation at
Tyseley Urban Resource Centre
Hay Hall Road
Tyseley
Birmingham
B11 2AU

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

Name	Date
Thomas Ruffell	**24 April 2014**

Authorised on behalf of the Environment Agency

Conditions

1 Management

1.1 General management

1.1.1 The operator shall manage and operate the activities:

(a) in accordance with a written management system that identifies and minimises risks of pollution, including those arising from operations, maintenance, accidents, incidents, non-conformances, closure and those drawn to the attention of the operator as a result of complaints; and

(b) using sufficient competent persons and resources.

1.1.2 Records demonstrating compliance with condition 1.1.1 shall be maintained.

1.1.3 Any person having duties that are or may be affected by the matters set out in this permit shall have convenient access to a copy of it kept at or near the place where those duties are carried out.

1.2 Energy efficiency

1.2.1 The operator shall:

(a) take appropriate measures to ensure that energy is recovered with a high level of energy efficiency and energy is used efficiently in the activities;

(b) review and record at least every four years whether there are suitable opportunities to improve the energy recovery and efficiency of the activities; and

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

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

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

1.3 Efficient use of raw materials

1.3.1 The operator shall:

(a) take appropriate measures to ensure that raw materials and water are used efficiently in the activities;

(b) maintain records of raw materials and water used in the activities;

(c) review and record at least every four years whether there are suitable alternative materials that could reduce environmental impact or opportunities to improve the efficiency of raw material and water use; and

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

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

1.4.1 The operator shall take appropriate measures to ensure that:

(a) the waste hierarchy referred to in Article 4 of the Waste Framework Directive is applied to the generation of waste by the activities; and

(b) any waste generated by the activities is treated in accordance with the waste hierarchy referred to in Article 4 or the Waste Framework Directive; and

(c) where waste disposal is necessary, this is undertaken in a manner which minimised its impact on the environment.

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

2 Operations

2.1 Permitted activities

2.1.1 The operator is only authorised to carry out the activities specified in schedule 1 table S1.1 (the "activities").

2.1.2 Waste authorised by this permit in condition 2.3.3 shall be clearly distinguished from any other waste on the site.

2.2 The site

2.2.1 The activities shall not extend beyond the site, being the land shown edged in green on the site plan at schedule 7 to this permit.

2.3 Operating techniques

2.3.1 (a) The activities shall, subject to the conditions of this permit, be operated using the techniques and in the manner described in the documentation specified in schedule 1, table S1.2, unless otherwise agreed in writing by the Environment Agency.

(b) If notified by the Environment Agency that the activities are giving rise to pollution, the operator shall submit to the Environment Agency for approval within the period specified, a revision of any plan specified in schedule 1, table S1.2 or otherwise required under this permit, and shall implement the approved revised plan in place of the original from the date of approval, unless otherwise agreed in writing by the Environment Agency.

2.3.2 Any raw materials or fuels listed in schedule 2 table S2.1 shall conform to the specifications set out in that table.

2.3.3 Waste shall only be accepted if:

(a) it is of a type and quantity listed in schedule 2 table S2.2; and

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

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

2.3.4 The operator shall ensure that where waste produced by the activities is sent to a relevant waste operation, that operation is provided with the following information, prior to the receipt of the waste:

(a) the nature of the process producing the waste;

(b) the composition of the waste;

(c) the handling requirements of the waste;

(d) the hazardous property associated with the waste, if applicable; and

(e) the waste code of the waste.

2.3.5 The operator shall ensure that where waste produced by the activities is sent to a landfill site, it meets the waste acceptance criteria for that landfill.

2.3.6 Fuel shall not be charged to the gas engines, or shall cease to be charged, if:

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

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

(c) monitoring results required to demonstrate compliance with any continuous emission limit value in schedule 3 table S3.1 are unavailable other than under abnormal operating conditions; or

(d) both of the combustion gas engines stop operating or malfunction simultaneously such that not all of the syngas produced at the gasifier can be combusted other than to flare.

2.3.7 The operator shall record the beginning and end of each period of “abnormal operation”.

2.3.8 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.

2.3.9 Where, during “abnormal operation”, any of the following situations arise, the operator shall, as soon as is practicable, cease the gasification of waste until normal operation can be restored:

(a) continuous measurement shows that an emission exceeds any emission limit value in schedule 3 table S3.1 due to disturbances or failures of the abatement systems, or continuous emission monitor(s) are out of service, as the case may be, for a total of 4 hours uninterrupted duration;

(b) the cumulative duration of “abnormal operation” periods over 1 calendar year has reached 60 hours;

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

2.3.10 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 gasification activity, as described in the application or as agreed in writing with the Environment Agency;

(c) when a period of four hours has elapsed from the start of the “abnormal operation”;

(d) when, in any calendar year, an aggregated period of 60 hours “abnormal operation” has been reached.

2.3.11 Vitrified slag and APC residues shall not be mixed.

2.4 Improvement programme

2.4.1 The operator shall complete the improvements specified in schedule 1 table S1.3 by the date specified in that table unless otherwise agreed in writing by the Environment Agency.

2.4.2 Except in the case of an improvement which consists only of a submission to the Environment Agency, the operator shall notify the Environment Agency within 14 days of completion of each improvement.

2.5 Pre-operational conditions

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

3 Emissions and monitoring

3.1 Emissions to water, air or land

3.1.1 There shall be no point source emissions to water, air or land except from the sources and emission points listed in schedule 3 tables S3.1, S3.2 and S3.3 except in “abnormal operation”, when there shall be no point source emissions to water, air or land except from the sources and emission points listed in schedule 3 tables S3.1(a), S3.2 and S3.3.

3.1.2 The limits given in schedule 3 shall not be exceeded.

3.1.3 Wastes produced at the site shall, as a minimum, be sampled and analysed in accordance with schedule 3 table S3.6. Additional samples shall be taken and tested and appropriate action taken, whenever:

(a) disposal or recovery routes change; or

(b) it is suspected that the nature or composition of the waste has changed such that the route currently selected may no longer be appropriate.

3.1.4 The Operator shall carry out monitoring of groundwater at least once every 5 years; and of soil at least once every 10 years; to the protocol agreed in writing with the Environment Agency under Pre-operational condition PO4 in schedule 1 table S1.4.

3.2 Emissions of substances not controlled by emission limits

3.2.1 Emissions of substances not controlled by emission limits (excluding odour) shall not cause pollution. The operator shall not be taken to have breached this condition if appropriate measures, including, but not limited to, those specified in any approved emissions management plan, have been taken to prevent or where that is not practicable, to minimise, those emissions.

3.2.2 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 Monitoring

3.3.1 The operator shall, unless otherwise agreed in writing by the Environment Agency, undertake the monitoring specified in the following tables in schedule 3 to this permit:

(a) point source emissions specified in tables S3.1, S3.1(a), S3.2 and S3.3;

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

(c) process monitoring specified in table S3.5;

(d) residue quality in table S3.6.

3.3.2 The operator shall maintain records of all monitoring required by this permit including records of the taking and analysis of samples, instrument measurements (periodic and continual), calibrations, examinations, tests and surveys and any assessment or evaluation made on the basis of such data.

3.3.3 Monitoring equipment, techniques, personnel and organisations employed for the emissions monitoring programme and the environmental or other monitoring specified in condition 3.3.1 shall have either MCERTS certification or MCERTS accreditation (as appropriate) unless otherwise agreed in writing by the Environment Agency. Newly installed CEMs, or CEMs replacing existing CEMs, shall have MCERTS certification and have an MCERTS certified range which is not greater than 1.5 times the daily emission limit value (ELV) specified in schedule 3 table S3.1. The CEM shall also be able to measure instantaneous values over the ranges which are to be expected during all operating conditions. If it is necessary to use more than one range setting of the CEM to achieve this requirement, the CEM shall be verified for monitoring supplementary, higher ranges.

3.3.4 The provisions for monitoring shall meet the requirements of BS EN 15259. 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.

3.3.5 Where Continuous Emission Monitors are installed to comply with the monitoring requirements in schedule 3 table S3.1; the Continuous Emission Monitors shall be used such that;

(a) the values of the 95% confidence intervals of a single measured result at the daily emission limit value shall not exceed the following percentages:

Carbon monoxide	10%
Sulphur dioxide	20%
Oxides of nitrogen (NO & NO_2 expressed as NO_2)	20%
Particulate matter	30%
Total organic carbon (TOC)	30%
Hydrogen chloride	40%

(b) valid half-hourly average values shall be determined within the effective operating time (excluding the start-up and shut-down periods) from the measured values after having subtracted the value of the confidence intervals in condition 3.3.5(a);

(c) where it is necessary to calibrate or maintain the monitor and this means that data are not available for a complete half-hour period, the half-hourly average shall in any case be considered valid if measurements are available for a minimum of 20 minutes during the half-hour period. The number of half-hourly averages so validated shall not exceed 5 per day;

(d) daily average values shall be determined as the average of all the valid half-hourly average values within a calendar day. The daily average value shall be considered valid if no more than five half-hourly average values in any day have been determined not to be valid;

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

3.4 Odour

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

3.5 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.

3.6 Pests

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

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 Report or reports on the performance of the activities over the previous year shall be submitted to the Environment Agency by 31 January (or other date agreed in writing by the Environment Agency) each year. The report(s) shall include as a minimum:

(a) a review of the results of the monitoring and assessment carried out in accordance with the permit including an interpretive review of that data;

(b) the annual production /treatment data set out in schedule 4 table S4.2; and

(c) the performance parameters set out in schedule 4 table S4.3 using the forms specified in table S4.4 of that schedule.

(d) the functioning and monitoring of the incineration plant in a format agreed with the Environment Agency. The report shall, as a minimum requirement (as required by Chapter IV of the Industrial Emissions Directive) give an account of the running of the process and the emissions into air and water compared with the emission standards in the IED.

4.2.3 Within 28 days of the end of the reporting period the operator shall, unless otherwise agreed in writing by the Environment Agency, submit reports of the monitoring and assessment carried out in accordance with the conditions of this permit, as follows:

(a) in respect of the parameters and emission points specified in schedule 4 table S4.1;

(b) for the reporting periods specified in schedule 4 table S4.1 and using the forms specified in schedule 4 table S4.4 ; and

(c) giving the information from such results and assessments as may be required by the forms specified in those tables.

4.2.4 The operator shall, unless notice under this condition has been served within the preceding four years, submit to the Environment Agency, within six months of receipt of a written notice, a report assessing whether there are other appropriate measures that could be taken to prevent, or where that is not practicable, to minimise pollution.

4.2.5 Within 1 month of the end of each quarter, the operator shall submit to the Environment Agency using the form made available for the purpose, the information specified on the form relating to the site and the waste accepted and removed from it during the previous quarter.

4.3 Notifications

4.3.1 The Operator shall:

(a) in the event that the operation of the activities gives rise to an incident or accident which significantly affects or may significantly affect the environment, the operator must immediately —

(i) inform the Environment Agency,

(ii) take the measures necessary to limit the environmental consequences of such an incident or accident, and

(iii) take the measures necessary to prevent further possible incidents or accidents;

(b) in the event of a breach of any permit condition, the operator must immediately —

(i) inform the Environment Agency, and

(ii) take the measures necessary to ensure that compliance is restored within the shortest possible time;

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

4.3.2 Any information provided under condition 4.3.1(a)(i), or 4.3.1(b)(i) where the information relates to the breach of a limit specified in the permit, shall be confirmed by sending the information listed in schedule 5 to this permit within the time period specified in that schedule.

4.3.3 Where the Environment Agency has requested in writing that it shall be notified when the operator is to undertake monitoring and/or spot sampling, the operator shall inform the Environment Agency when the relevant monitoring and/or spot sampling is to take place. The operator shall provide this information to the Environment Agency at least 14 days before the date the monitoring is to be undertaken.

4.3.4 The Environment Agency shall be notified within 14 days of the occurrence of the following matters, except where such disclosure is prohibited by Stock Exchange rules:

Where the operator is a registered company:

(a) any change in the operator's trading name, registered name or registered office address; and

(b) any steps taken with a view to the operator going into administration, entering into a company voluntary arrangement or being wound up.

Where the operator is a corporate body other than a registered company:

(a) any change in the operator's name or address; and

(b) any steps taken with a view to the dissolution of the operator.

4.3.5 Where the operator proposes to make a change in the nature or functioning, or an extension of the activities, which may have consequences for the environment and the change is not otherwise the subject of an application for approval under the Regulations or this permit:

(a) the Environment Agency shall be notified at least 14 days before making the change; and

(b) the notification shall contain a description of the proposed change in operation.

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

4.4 Interpretation

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

4.4.2 In this permit references to reports and notifications mean written reports and notifications, except where reference is made to notification being made "without delay", in which case it may be provided by telephone.

Schedule 1 - Operations

Table S1.1 activities		
Activity listed in Schedule 1 of the EP Regulations	**Description of specified activity**	**Limits of specified activity**
S5.1 A(1)(b)	The incineration of non-hazardous waste in an incineration plant with a capacity exceeding 3 tonnes per hour.	From receipt of waste to emission of exhaust gas and disposal of waste arising. Waste types and quantities as specified in Table S2.2 of this permit. Generation of 3.0 MWe electrical power in each of two gas engines from the combustion of syngas produced in the gasification part of the plant.
Directly Associated Activities		
Organic Rankine cycle generator	Generation of 0.58 MWe additional electrical power by the recovery of heat from the exhaust gas of the gas engines.	The export of electricity to the grid and for on-site operations.
Back up electrical generator	For providing emergency electrical power.	The use of electricity for on-site plant and equipment operation in the event of supply interruption.
Back up natural gas boiler	For providing emergency steam.	The use of steam on the plant in the event of supply interruption.

Table S1.2 Operating techniques		
Description	**Parts**	**Date Received**
Application	Section entitled Operational Techniques including a description of: ▪ plant capacity ▪ the waste feed cessation system ▪ start-up and shut-down ▪ derogation of temperature monitoring in the combustion chamber ▪ energy recovery from the installation ▪ temperature, oxygen, water vapour and pressure at Air Release sampling points ▪ continuous measurement of flow, pH and temperature at the discharge points to sewer Section entitled Environmental Risk Assessment including a description of: ▪ Odour management ▪ Noise management ▪ Fugitive emission management	Duly Made 19/12/13
Additional information	Email #3 additional information item 12 regarding effluent treatment	22/01/14
	Email #7 additional information: For incinerators, alternative arrangements for CO, TOC and dust monitoring to make use of the relevant abnormal operation condition during CEM failure	29/01/14

Table S1.3 Improvement programme requirements		
Reference	**Requirement**	**Date**
IC1	The operator shall carry out a programme of tests, in accordance with a method to be agreed with the Environment Agency, to determine the size distribution of the particulate matter in the exhaust gas emissions to air from emission points A8a and A8b, identifying the fractions within the PM_{10} and $PM_{2.5}$ ranges. The programme shall conclude with the submission of a report on the results.	Programme to commence within 6 months of the completion of commissioning and be completed within 6 months of this date.
IC2	The operator shall submit a written post-commissioning report to the Environment Agency which shall include: • a review of performance of the facility during the commissioning phase against the conditions of this permit. • details of optimisation of the NOx emission abatement system; how the Selective Catalytic Reduction (SCR) system and combustion settings are controlled to optimise NH_3, NOx and N_2O emissions. • details of procedures developed during commissioning for achieving and demonstrating satisfactory process control and covering the range of designed operating rates.	Within 6 months of the completion of commissioning.
IC3	The Operator shall submit • a written summary report to the Agency to confirm by the results of calibration and verification testing that the performance of Continuous Emission Monitors for parameters as specified in Table S3.1 and Table S3.1(a) complies with the requirements of BS EN 14181, specifically the requirements of QAL1, QAL2 and QAL3. • a full summary evidence compliance report	Within 4 months of the completion of commissioning. Within 18 months of the completion of commissioning
IC4	The Operator shall submit a written report to the Environment Agency on the implementation of its Environmental Management System and the progress made in the accreditation of the system by an external body or if appropriate submit a schedule by which the EMS will be subject to accreditation.	Within 15 months of the completion of commissioning.
IC5	The Operator shall carry out an assessment of the impact of emissions to air of Cd, As, Pb, Mn and Ni. The assessment shall predict the impact of the metals against the relevant EQS/EAL through the use of emissions monitoring data obtained during the first year of operation and air dispersion modelling. In the event that the assessment shows that an EQS/EAL can be exceeded, the report shall include proposals for further investigative work. A report of the assessment shall be made to the Environment Agency.	Within 15 months of the commencement of operations

Table S1.4 Pre-operational measures	
Reference	**Pre-operational measures**
PO1	Prior to the commencement of commissioning, the Operator shall submit a summary of the site Environment Management System (EMS) to the Environment Agency and make available for inspection all documents and procedures which form part of the EMS. The EMS shall be developed in line with the requirements set out in Section 1 of *How to comply with your environmental permit* (EPR1.00). The documents and procedures set out in the EMS shall form the written management system referenced in condition 1.1.1(a) of the permit.
PO2	Prior to the commencement of commissioning, the Operator shall submit to the Environment Agency for approval a protocol for the sampling and testing of the vitrified slag 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 provide a written commissioning plan for approval by the Agency. The plan shall include: • the expected emissions to the environment during the different stages of commissioning, • the expected durations of commissioning activities and estimated timeline for completion • the actions to be taken to protect the environment and report to the 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 the written protocol referenced in condition 3.1.4 for the monitoring of soil and groundwater for approval by the Environment Agency. The protocol shall demonstrate how the Operator will meet the requirements of Articles 14(1)(b), 14(1)(e) and 16(2) of the IED. The protocol shall be implemented in accordance with the written agreement from the Agency.
PO5	Prior to the commencement of commissioning the operator shall provide the Environment Agency with a written report for approval describing the detailed programme of noise and vibration monitoring that will be carried out at the site at the commissioning stage and also when the plant is fully operational as proposed in the Application. The report shall include confirmation of locations, time, frequency and methods of monitoring. The monitoring programme shall be carried out in accordance with the Environment Agency's written approval.
PO6	Prior to the commencement of commissioning the operator shall provide the Environment Agency with a written report for approval, describing the detail of the fire water retention system – its capacity and the design criteria for such capacity.

Schedule 2 - Waste types, raw materials and fuels

Table S2.1 Raw materials and fuels	
Raw materials and fuel description	**Specification**
Natural gas, propane	< 0.1% sulphur content

Table S2.2 Permitted waste types and quantities for the Gasplasma (incineration) plant	
Maximum quantity	Total capacity 50,000 tonnes per year.
Waste code	**Description**
02	**WASTES FROM AGRICULTURE, HORTICULTURE, AQUACULTURE, FORESTRY, HUNTING AND FISHING, FOOD PREPARATION AND PROCESSING**
02 01	**wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing**
02 01 03	plant-tissue waste
02 01 07	wastes from forestry
03	**WASTES FROM WOOD PROCESSING AND THE PRODUCTION OF PANELS AND FURNITURE, PULP, PAPER AND CARDBOARD**
03 01	**wastes from wood processing and the production of panels and furniture**
03 01 01	waste bark and cork
03 03	**wastes from pulp, paper and cardboard production and processing**
03 03 01	waste bark and wood
03 03 07	mechanically separated rejects from pulping of waste paper and cardboard
03 03 08	wastes from sorting of paper and cardboard destined for recycling
15	**WASTE PACKAGING; ABSORBENTS, WIPING CLOTHS, FILTER MATERIALS AND PROTECTIVE CLOTHING NOT OTHERWISE SPECIFIED**
15 01	**packaging (including separately collected municipal packaging waste)**
15 01 01	paper and cardboard packaging
15 01 02	plastic packaging
15 01 03	wooden packaging
15 01 04	metallic packaging
15 01 05	composite packaging
15 01 06	mixed packaging
15 01 09	textile packaging
15 02	**absorbents, filter materials, wiping cloths and protective clothing**
15 02 03	absorbents, filter materials, wiping cloths and protective clothing other than those mentioned in 15 02 02
17	**CONSTRUCTION AND DEMOLITION WASTES (INCLUDING EXCAVATED SOIL FROM CONTAMINATED SITES)**
17 02	**wood, glass and plastic**
17 02 01	wood

Table S2.2 Permitted waste types and quantities for the Gasplasma (incineration) plant	
Maximum quantity	Total capacity 50,000 tonnes per year.
Waste code	**Description**
17 02 03	plastic
19	**WASTES FROM WASTE MANAGEMENT FACILITIES, OFF-SITE WASTE WATER TREATMENT PLANTS AND THE PREPARATION OF WATER INTENDED FOR HUMAN CONSUMPTION AND WATER FOR INDUSTRIAL USE**
19 02	**wastes from physico/chemical treatments of waste (including dechromatation, decyanidation, neutralisation)**
19 02 10	combustible wastes other than those mentioned in 19 02 08 and 19 02 09
19 08	**wastes from waste water treatment plants not otherwise specified**
19 08 01	screenings
19 10	**wastes from shredding of metal-containing wastes**
19 10 04	fluff-light fraction and dust other than those mentioned in 19 10 03*
19 12	**wastes from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified**
19 12 01	paper and cardboard
19 12 04	plastic and rubber
19 12 07	wood other than that mentioned in 19 12 06
19 12 08	textiles
19 12 10	combustible waste (refuse derived fuel)
19 12 12	other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11
20	**MUNICIPAL WASTES (HOUSEHOLD WASTE AND SIMILAR COMMERCIAL, INDUSTRIAL AND INSTITUTIONAL WASTES) INCLUDING SEPARATELY COLLECTED FRACTIONS**
20 01	**separately collected fractions (except 15 01)**
20 01 01	paper and cardboard
20 01 08	biodegradable kitchen and canteen waste
20 01 10	clothes
20 01 11	textiles
20 01 38	wood other than that mentioned in 20 01 37
20 01 39	plastics
20 02	**garden and park wastes (including cemetery waste)**
20 02 01	biodegradable waste
20 03	**other municipal wastes**
20 03 01	mixed municipal waste
20 03 02	waste from markets
20 03 03	street-cleaning residues

Schedule 3 – Emissions and monitoring

Table S3.1 Point source emissions to air – emission limits and monitoring requirements					
Emission point ref. & location [2]	**Parameter**	**Limit**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
A1: Waste reception and fuel preparation area vent	Particulate matter	10 mg/m^3	Periodic over minimum 1 hour period	Quarterly in first year. Then bi-annual [1]	BS EN 13284-1 and MID
A2: RDF Drier exhaust air treatment (RTO)	Particulate matter	10 mg/m^3	Periodic over minimum 1 hour period	Quarterly in first year. Then bi-annual [1]	BS EN 13284-1 and MID
	Total Organic Carbon (TOC)	20 mg/m^3	Periodic over minimum 1 hour period	Quarterly in first year. Then bi-annual [1]	BS ISO 15713
	Odour (beyond site boundary)	None detected	Spot	Monthly	Olefactory
A3, A4: Local extraction	None specified	None set	---	---	---
A5, A6: Oxygen and Nitrogen plant vents	None specified	None set	---	---	---
A7: Flare	None specified	None set	---	---	---
A8a, A8b: CHP exhaust stack flues	Particulate matter	30 mg/m^3	½-hr average	Continuous measurement	BS EN 14181
	Particulate matter	10 mg/m^3	Daily average	Continuous measurement	BS EN 14181
	Total Organic Carbon (TOC)	20 mg/m^3	½-hr average	Continuous measurement	BS EN 14181
	Total Organic Carbon (TOC)	10 mg/m^3	Daily average	Continuous measurement	BS EN 14181
	Hydrogen chloride	60 mg/m^3	½-hr average	Continuous measurement	BS EN 14181
	Hydrogen chloride	10 mg/m^3	Daily average	Continuous measurement	BS EN 14181
	Hydrogen fluoride	2 mg/m^3	Periodic over minimum 1-hour period	Quarterly in first year. Then bi-annual	BS ISO 15713
	Carbon monoxide	100 mg/m^3	½-hr average	Continuous measurement	BS EN 14181
	Carbon monoxide	50 mg/m^3	Daily average	Continuous measurement	BS EN 14181
	Sulphur dioxide	200 mg/m^3	½-hr average	Continuous measurement	BS EN 14181
	Sulphur dioxide	50 mg/m^3	Daily average	Continuous measurement	BS EN 14181
	Oxides of nitrogen (NO and NO_2 expressed as NO_2)	400 mg/m^3	½-hr average	Continuous measurement	BS EN 14181

Table S3.1 Point source emissions to air – emission limits and monitoring requirements					
Emission point ref. & location [2]	**Parameter**	**Limit**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
	Oxides of nitrogen (NO and NO_2 expressed as NO_2)	200 mg/m^3	Daily average	Continuous measurement	BS EN 14181
	Cadmium & thallium and their compounds (total)	0.05 mg/m^3	Periodic over minimum 30 minutes, maximum 8 hours	Quarterly in first year. Then bi-annual	BS EN 14385
	Mercury and its compounds	0.05 mg/m^3	Periodic over minimum 30 minutes, maximum 8 hours	Quarterly in first year. Then bi-annual	BS EN 13211
	Sb, As, Pb, Cr, Co, Cu, Mn, Ni and V and their compounds (total)	0.5 mg/m^3	Periodic over minimum 30 minutes, maximum 8 hours	Quarterly in first year. Then bi-annual	BS EN 14385
	Ammonia (NH_3)	None set	Periodic over minimum 1 hour period	Quarterly in first year. Then bi-annual [1]	Procedural requirments of BS EN 14791
	Nitrous oxide (N_2O)	None set	Periodic over minimum 1 hour period	Quarterly in first year. Then bi-annual	BS EN ISO 21258
	Dioxins / furans (I-TEQ)	0.1 ng/m^3	Periodic over minimum 6 hours, maximum 8 hours	Quarterly in first year. Then bi-annual	BS EN 1948 Parts 1, 2 and 3
	Dioxins / furans (WHO-TEQ Humans / Mammals)	None set	Periodic over minimum 6 hours, maximum 8 hours	Quarterly in first year. Then bi-annual	BS EN 1948 Parts 1, 2 and 3
	Dioxins / furans (WHO-TEQ Fish)				
	Dioxins / furans (WHO-TEQ Birds)				
	Dioxin-like PCBs (WHO-TEQ Humans / Mammals)	None set	Periodic over minimum 6 hours, maximum 8 hours	Quarterly in first year. Then bi-annual	BS EN 1948-4
	Dioxin-like PCBs (WHO-TEQ Fish)				
	Dioxin-like PCBs (WHO-TEQ Birds)				
	Specific individual poly-cyclic aromatic hydrocarbons (PAHs), as specified in Schedule 6.	None set	Periodic over minimum 6 hours, maximum 8 hours	Quarterly in first year. Then bi-annual	BS ISO 11338 Parts 1 and 2.
A9: Back-up steam boiler vent	None specified	None set	---	---	---

Table S3.1 Point source emissions to air – emission limits and monitoring requirements					
Emission point ref. & location [2]	**Parameter**	**Limit**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
A10: Emergency generator vent	None specified	None set	---	---	---

Note [1]: After the first year of operation, this frequency may be reviewed with the agreement of the Environment Agency.

Note [2]: location of emission points are shown on drawing P160-MG-13073100-E submitted as part of the application

Table S3.1(a) Point source emissions to air during abnormal operation of incineration plant – emission limits and monitoring requirements					
Emission point ref. & location	**Parameter**	**Limit**	**Reference period**	**Monitoring frequency**	**Monitoring standard or method**
A8a, A8b: CHP exhaust stack flues	Particulate matter	150 mg/m^3	½-hr average	Continuous measurement	BS EN 15267-3 during abatement plant failure
	Total Organic Carbon (TOC)	20 mg/m^3			
	Carbon monoxide	100 mg/m^3			

Table S3.2 Point Source emissions to water (other than sewer) and land – emission limits and monitoring requirements					
Emission point ref. & location	Parameter	**Limit**	**Reference Period**	**Monitoring frequency**	**Monitoring standard or method**
SW1 Uncontaminated surface water run-off, via interceptor	Visible oil	None visible	Spot sample	Monthly	--

Table S3.3 Point source emissions to sewer, effluent treatment plant or other transfers off-site– emission limits and monitoring requirements					
Emission point ref. & location	Parameter	**Limit**	**Reference Period**	**Monitoring frequency**	**Monitoring standard or method**
FW1 Effluent Treatment plant	None specified	None set	---	---	---

Table S3.4 Noise monitoring requirements				
Location or description of point of measurement	**Parameter**	**Monitoring frequency**	**Monitoring standard or method**	**Other specifications**
Noise survey at, or nearby, sensitive receptors and at representative locations on the site boundary	Noise	Once within 6 months of the completion of commissioning	BS 4142:1997	Plant to be operating at as high a rate as practicable. Survey to be carried out in accordance with the requirements of PO5

Table S3.5 Process monitoring requirements			
Location or description of point of measurement	**Parameter**	**Monitoring frequency**	**Monitoring standard or method**
A8a, A8b	Exhaust gas temperature	Continuous	MCERTS
	Exhaust gas pressure	Continuous	BS EN 15267-3, BS EN 14181
	Exhaust gas oxygen content	Continuous	BS EN 15267-3, BS EN 14181
	Exhaust gas water vapour content	Continuous	BS EN 15267-3, BS EN 14181

Table S3.6 Vitrified slag product and Waste residue quality				
Emission point reference	**Parameter**	**Limit**	**Monitoring frequency**	**Monitoring standard or method [1]**
Vitrified Slag product Waste 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.	None set	Monthly in the first year of operation. Then Quarterly [2]	Sampling and analysis as per Environment Agency ash sampling protocol.
Vitrified Slag product Waste APC Residues	Total soluble fraction and metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) soluble fractions	None set	Before use of a new disposal or recycling route	Sampling and analysis as per Environment Agency ash sampling protocol.

Note [1]: Or other equivalent standard as agreed in writing with the Environment Agency.

Note [2]: After the first year of operation, this frequency may be reviewed with the agreement of the Environment Agency.

Schedule 4 - Reporting

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

Table S4.1 Reporting of monitoring data

Parameter	Emission or monitoring point/reference	Reporting period	Period begins
Emissions to air Parameters as required by condition 3.3.1	A1, A2, A8a, A8b	Quarterly	1 Jan, 1 Apr, 1 Jul, 1 Oct
Emissions to water Parameters as required by condition 3.3.1	SW1	Quarterly, Annually	1 Jan, 1 Apr, 1 Jul, 1 Oct
Noise monitoring Parameters as required by condition 3.3.1	Noise survey as specified in Table S3.4	Once only after 6 months	Commissioning completion date
Metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) and their compounds, dioxins/furans and dioxin-like PCBs Parameters as required by condition 3.3.1	Vitrified Slag product	Quarterly (but monthly for the first year of operation)	1 Jan, 1 Apr, 1 Jul, 1 Oct
Total soluble fraction and metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) soluble fractions Parameters as required by condition 3.3.1	Vitrified Slag product	Before use of a new disposal or recycling route	
Metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) and their compounds, dioxins/furans and dioxin-like PCBs Parameters as required by condition 3.3.1	Waste APC Residues	Quarterly (but monthly for the first year of operation)	1 Jan, 1 Apr, 1 Jul, 1 Oct
Total soluble fraction and metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) soluble fractions Parameters as required by condition 3.3.1	Waste APC Residues	Before use of a new disposal or recycling route	
Functioning and monitoring of the incineration plant as required by condition 4.2.2	---	Annually	1 Jan
Flare operation: frequency and duration	Flare stack, A7	Quarterly	1 Jan, 1 Apr, 1 Jul, 1 Oct

Table S4.2: Annual production/treatment	
Parameter	**Units**
Total waste treated to produce RDF	tonnes
Total RDF produced and gasified	tonnes
Electrical energy produced	MWh
Electrical energy exported	MWh
Electrical energy used on installation	MWh
Thermal energy produced e.g. steam	MWh
Waste heat utilised by the installation	MWh

Table S4.3 Performance parameters		
Parameter	**Frequency of assessment**	**Units**
Electrical energy exported, imported and used at the installation	Quarterly	kWh / tonne of RDF gasified
Natural gas consumption	Quarterly	kg / tonne of RDF gasified
Mass of vitrified slag produced	Quarterly	kg / tonne of RDF gasified
Mass of waste APC residues produced	Quarterly	kg / tonne of RDF gasified
Mass of Other solid residues produced	Quarterly	kg / tonne of RDF gasified
Urea consumption	Quarterly	kg / tonne of RDF gasified
Activated Carbon consumption	Quarterly	kg / tonne of RDF gasified
Sodium Bicarbonate consumption	Quarterly	kg / tonne of RDF gasified
Water consumption	Quarterly	kg / tonne of RDF gasified
Oxygen consumption	Quarterly	kg / tonne of RDF gasified
Periods of abnormal operation	Quarterly	No of occasions and cumulative hours duration for current calendar year for each line
Flare operation	Quarterly	No of occasions and cumulative hours duration for current calendar year

Table S4.4 Reporting forms		
Media/parameter	**Reporting format**	**Date of form**
Air	Forms **Air 1-6** or other forms as agreed in writing by the Environment Agency	25/03/14
	Forms **Air 7-10** or other forms as agreed in writing by the Environment Agency	03/04/14
Vitrified slag and Residues	Form **Residues1** or other form as agreed in writing by the Environment Agency	03/04/14
Energy and other indicators	Form **Performance 1** or other form as agreed in writing by the Environment Agency	03/04/14
Annual performance indicators	Forms **Annual Performance 1and 2** or other form as agreed in writing by the Environment Agency	03/04/14
Noise	In a form or report as agreed in writing by the Environment Agency	---

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	
Measures taken, or intended to be taken, to stop the emission	

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

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

Part B - to be submitted as soon as practicable

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

Name*	
Post	
Signature	
Date	

* authorised to sign on behalf of the operator

Schedule 6 - Interpretation

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

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

"accident" means an accident that may result in pollution.

"APC residues" means air pollution control residues.

"application" means the application for this permit, together with any additional information supplied by the operator as part of the application and any response to a notice served under Schedule 5 to the EP Regulations.

"authorised officer" means any person authorised by the Environment Agency under section 108(1) of The Environment Act 1995 to exercise, in accordance with the terms of any such authorisation, any power specified in section 108(4) of that Act.

"bi-annual" means twice per year with at least five months between tests.

"CEM" means Continuous Emission Monitor.

"CEN" means Commité Européen de Normalisation.

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

"dioxin and furans" means polychlorinated dibenzo-p-dioxins and polychlorinated dibenzofurans.

"disposal" means any of the operations provided for in Annex IIA to Directive 2008/98/EC of the Waste Frameword Directive.

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

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

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

"Industrial Emissions Directive (IED)" means Directive 2010/75/EU Of The European Parliament and of the Council of 24 November 2010 on industrial emissions.

"ISO" means International Standards Organisation.

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

"MCERTS" means the Environment Agency's Monitoring Certification Scheme.

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

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

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

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

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

"shut down" is any period where the plant is being returned to a non-operational state and there is no waste being consumed.

"start up" is any period, where the plant has been non-operational, after igniting the auxiliary burner until waste has been fed to the plant in sufficient quantity to initiate steady-state conditions as described in the application.

"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 Vitrified Slag, this means the total carbon content of all organic species present in the material (excluding carbon in elemental form).

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

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

"*year*" means calendar year ending 31 December.

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

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

a) in relation to emissions from non-combustion sources, the concentration at a temperature of 273K and at a pressure of 101.3 kPa, with no correction for water vapour content

b) in relation to gases from incineration plants other than those burning waste oil, the concentration in dry air at a temperature of 273K, at a pressure of 101.3 kPa and with an oxygen content of 11% dry,

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

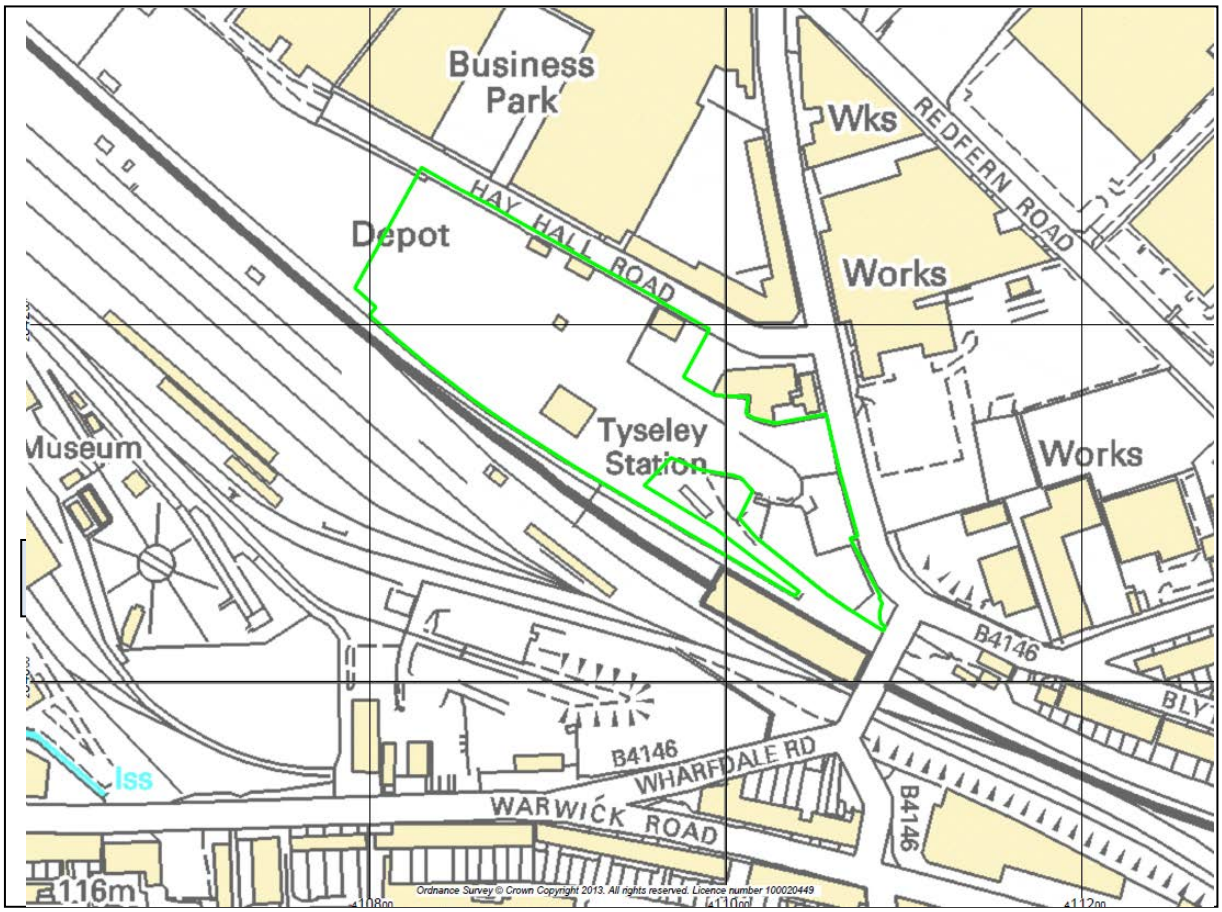
- all congeners less than the detection limit assumed to be zero as a minimum, and
- all congeners less than the detection limit assumed to be at the detection limit as a maximum.

The minimum value should be used when assessing compliance with the emission limit value in table S3.1.

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

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

Schedule 7 - Site plan



END OF PERMIT