

# Permit with introductory note

## The Environmental Permitting (England & Wales) Regulations 2010

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4Evergreen Technologies Limited  
Kemsley Park Energy from Waste  
Kemsley Park  
Sittingbourne  
Kent  
ME10 2FE

**Permit number**

**EPR/YP3137VY**

# Kemsley Park Energy from Waste

## Permit number EPR/YP3137VY

### Introductory note

#### **This introductory note does not form a part of the permit**

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

The Installation is located at Kemsley Park, north-west of Sittingbourne at national grid reference TQ9127966820. It is located on an area of land immediately to the west of Barge Way and occupies an area of approximately 1.7 hectares.

The main features of the permit are as follows:

The facility will use pyrolysis to process up to 48,000 tonnes per year of refuse derived fuel (RDF) with the subsequent recovery of energy in the form of electricity and heat. The facility will have the capacity to generate up to 10.4MW of electricity, with up to 8.2MW being exported to the grid. It will be designed to be compliant with the requirements of Chapter IV of the IED – Waste Incineration.

The RDF will be screened and dried in one of two rotating drum driers. Heat for the driers will be provided using hot, recirculated thermal oil from the high temperature Organic Rankine Cycle (ORC) unit.

On exiting the dryer, the exhaust gases will be drawn through a cyclone to remove particulate material. The exhaust gas from the cyclone will then be introduced into the main gas engine exhaust stream for further abatement in the regenerative thermal oxidiser (RTO).

Dried RDF is conveyed to the six electrically-heated pyrolysers where it will be broken down into synthesis gas (syngas) and carbon char.

The char is discharged from the pyrolyser units to the char storage area. After cooling and bagging, the char is taken off-site for re-use in a range of possible applications.

The syngas will pass through a cyclone to remove particulate material before passing through the cleaning system. The cleaning system incorporates closed-loop oil and water quench units to cool the gas and remove entrained fine particulate material. The water quench incorporates a sodium hydroxide gas scrubbing unit to neutralise acid gases, primarily sulphur dioxide and hydrogen chloride. The syngas then undergoes further treatment to remove hydrogen sulphide in three metal oxide scavenging units.

The cleaned syngas will be ducted to three inter-connected buffer storage vessels, each of 100m<sup>3</sup> capacity prior to feeding to twelve gas engines. The exhaust gas from the gas engines will pass through the RTO prior to discharge to atmosphere.

The RTO oxidises organic compounds in the engine gases to carbon dioxide and water and recovers as much heat energy as possible. The gases are held in the combustion chamber of the RTO at a temperature of 850°C for a minimum of two seconds.

The gas stream will then undergo selective catalytic reduction (SCR) to reduce oxides of nitrogen. After leaving the SCR, the treated exhaust gases will pass through two heat exchangers to recover energy from the gas stream for the ORC units. The two ORC units will have the potential to produce 1.4MW of electricity.

The treated gases will be discharged to atmosphere via the 30m plant discharge stack. The emissions to air will be required to comply with the emission limits in Annex VI of the IED. Continuous and periodic monitoring will be undertaken for the exhaust gases in the stacks as required by Chapter IV and Annex VI of the IED.

An assessment of the impact on human health and habitats receptors concludes no adverse impact. Habitats receptors include Special Protections Areas (SPA), Special Areas of Conservation (SAC) and

Ramsars within the screening distance of 10Km and Sites of Special Scientific Interest (SSSIs) within the screening distance of 2Km.

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

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

<b>Status log of the permit</b>		
<b>Description</b>	<b>Date</b>	<b>Comments</b>
Application EPR/YP3137VY/A001	Duly made 09/06/15	To pyrolyse up to 48,000 tonnes per year of RDF with energy recovery
Additional information	11/06/15	Response to our request for additional information on the Noise Impact Assessment sent 08/06/15
Request for further Information dated 15/06/15	15/06/15	HCl wet deposition modelling files
	17/06/15	Noise modelling files
Request for further Information dated 09/07/15	16/07/15	Odour, containment, energy efficiency, AQMA and Planning Application
Email from Applicant	20/07/15	Email in response to AQMAU queries – acoustic barrier
Request for further Information dated 29/07/15	06/08/15	Long term integrity and performance of the liner
	10/08/15	
	18/08/15	
	11/08/15	Habitats
Request for further Information dated 30/07/15	05/08/15	Noise
Permit EPR/YP3137VY determined	27/10/15	Permit issued to 4Evergreen Technologies Limited

End of introductory note

# Permit

## The Environmental Permitting (England and Wales) Regulations 2010

### Permit number

**EPR/YP3137VY**

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

**4Evergreen Technologies Limited** ("the operator"),

whose registered office is

**171-173 Gray's Inn Road**

**London**

**WC1X 8UE**

company registration number **07442233**

to operate an installation at

**Kemsley Park Energy from Waste**

**Kemsley Park**

**Sittingbourne**

**Kent**

**ME10 2FE**

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

Name	Date
Anne Nightingale	27/10/2015

Authorised on behalf of the Environment Agency

# Conditions

## 1 Management

### 1.1 General management

- 1.1.1 The operator shall manage and operate the activities:
- (a) in accordance with a written management system that identifies and minimises risks of pollution, including those arising from operations, maintenance, accidents, incidents, non-conformances, closure and those drawn to the attention of the operator as a result of complaints; and
  - (b) using sufficient competent persons and resources.
- 1.1.2 Records demonstrating compliance with condition 1.1.1 shall be maintained.
- 1.1.3 Any person having duties that are or may be affected by the matters set out in this permit shall have convenient access to a copy of it kept at or near the place where those duties are carried out.

### 1.2 Energy efficiency

- 1.2.1 The operator shall:
- (a) take appropriate measures to ensure that energy is recovered with a high level of energy efficiency and energy is used efficiently in the activities.
  - (b) review and record at least every four years whether there are suitable opportunities to improve the energy efficiency of the activities; and
  - (c) take any further appropriate measures identified by a review.
- 1.2.2 The operator shall review the practicability of Combined Heat and Power (CHP) implementation at least every 2 years. The results shall be reported to the Agency within 2 months of each review.

### 1.3 Efficient use of raw materials

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

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

- 1.4.1 The operator shall take appropriate measures to ensure that:
- (a) the waste hierarchy referred to in Article 4 of the Waste Framework Directive is applied to the generation of waste by the activities; and
  - (b) any waste generated by the activities is treated in accordance with the waste hierarchy referred to in Article 4 of the Waste Framework Directive; and
  - (c) where disposal is necessary, this is undertaken in a manner which minimises its impact on the environment.
- 1.4.2 The operator shall review and record at least every four years whether changes to those measures should be made and take any further appropriate measures identified by a review.

## **2 Operations**

### **2.1 Permitted activities**

- 2.1.1 The operator is only authorised to carry out the activities specified in schedule 1 table S1.1 (the "activities").
- 2.1.2 Waste authorised by this permit shall be clearly distinguished from any other waste on the site.

### **2.2 The site**

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

### **2.3 Operating techniques**

- 2.3.1 The activities shall, subject to the conditions of this permit, be operated using the techniques and in the manner described in the documentation specified in schedule 1, table S1.2, unless otherwise agreed in writing by the Environment Agency.
- 2.3.2 If notified by the Environment Agency that the activities are giving rise to pollution, the operator shall submit to the Environment Agency for approval within the period specified, a revision of any plan specified in schedule 1, table S1.2 or otherwise required under this permit which identifies and minimises the risks of pollution relevant to that plan, and shall implement the approved revised plan in place of the original from the date of approval, unless otherwise agreed in writing by the Environment Agency.
- 2.3.3 Any raw materials or fuels listed in schedule 2 table S2.1 shall conform to the specifications set out in that table.
- 2.3.4 Waste shall only be accepted if:
- (a) it is of a type and quantity listed in schedule 2 table S2.2; and
  - (b) it conforms to the description in the documentation supplied by the producer or holder.
- 2.3.5 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 regenerative thermal oxidiser combustion chamber temperature is below, or falls below, 850°C; or
  - (b) any continuous emission limit value in schedule 3 table S3.1(a) is exceeded; or
  - (c) any continuous emission limit value in schedule 3 table S3.1 is exceeded, other than under abnormal operating conditions; or
  - (d) monitoring results required to demonstrate compliance with any continuous emission limit value in schedule 3 table S3.1 are unavailable other than under abnormal operating conditions.
- 2.3.8 The operator shall record the beginning and end of each period of “abnormal operation”.
- 2.3.9 During a period of “abnormal operation”, the operator shall restore normal operation of the failed equipment or replace the failed equipment as rapidly as possible.
- 2.3.10 Where, during “abnormal operation”, any of the following situations arise, waste shall cease to be charged into the pyrolyser until normal operation can be restored:
- (a) continuous measurement shows that an emission exceeds any emission limit value in schedule 3 table S3.1 due to disturbances or failures of the abatement systems, or continuous emission monitor(s) are out of service, as the case may be, for a total of 4 hours uninterrupted duration;
  - (b) the cumulative duration of “abnormal operation” periods over 1 calendar year has reached 60 hours;
  - (c) continuous measurement shows that an emission exceeds any emission limit value in schedule 3 table S3.1 (a) due to disturbances or failures of the abatement systems;
  - (d) continuous emission monitors or alternative techniques to demonstrate compliance with the emission limit value(s) for particulates, TOC and / or CO in schedule 3 table S3.1 (a), as agreed in writing with the Environment Agency, are unavailable.
- 2.3.11 The operator shall interpret the end of the period of “abnormal operation” as the earliest of the following:
- (a) when the failed equipment is repaired and brought back into normal operation;
  - (b) when the operator initiates a shut down of the waste combustion activity, as described in the application or as agreed in writing with the Environment Agency;
  - (c) when a period of four hours has elapsed from the start of the “abnormal operation”;
  - (d) when, in any calendar year, an aggregated period of 60 hours “abnormal operation” has been reached.
- 2.3.12 Char and APC residues shall not be mixed.

## **2.3 Improvement programme**

- 2.3.1 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.
- 2.3.2 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.

## **2.4 Pre-operational conditions**

- 2.4.1 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 and S3.2 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) and S3.2.
- 3.1.2 The limits given in schedule 3 shall not be exceeded.
- 3.1.3 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.
- 3.1.4 Wastes produced at the site shall, as a minimum, be sampled and analysed in accordance with schedule 3 table S 3.4 Additional samples shall be taken and tested and appropriate action taken, whenever:
- (a) disposal or recovery routes change; or
  - (b) it is suspected that the nature or composition of the waste has changed such that the route currently selected may no longer be appropriate.

### **3.2 Emissions of substances not controlled by emission limits**

- 3.2.1 Emissions of substances not controlled by emission limits (excluding odour) shall not cause pollution. The operator shall not be taken to have breached this condition if appropriate measures, including, but not limited to, those specified in any approved emissions management plan, have been taken to prevent or where that is not practicable, to minimise, those emissions.
- 3.2.2 The operator shall:
- (a) if notified by the Environment Agency that the activities are giving rise to pollution, submit to the Environment Agency for approval within the period specified, an emissions management plan which identifies and minimises the risks of pollution from emissions of substances not controlled by emission limits;
  - (b) implement the approved emissions management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.
- 3.2.3 All liquids in containers, whose emission to water or land could cause pollution, shall be provided with secondary containment, unless the operator has used other appropriate measures to prevent or where that is not practicable, to minimise, leakage and spillage from the primary container.
- 3.2.4 The Operator shall carry out monitoring of soil and groundwater in accordance with IED articles 14(1)(b), 14(1)(e) and 16(2) to the protocol agreed in writing with the Environment Agency under PO8.



### **3.3 Odour**

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

3.3.2 The operator shall:

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

### **3.4 Noise and vibration**

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

3.4.2 The operator shall:

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

### **3.5 Monitoring**

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

- (a) point source emissions specified in tables S3.1, S3.1(a) and S3.2;
- (b) process monitoring specified in table S3.3; and
- (c) residue quality in table S3.4.

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

3.5.3 Monitoring equipment, techniques, personnel and organisations employed for the emissions monitoring programme and the environmental or other monitoring specified in condition 3.5.1 shall have either MCERTS certification or MCERTS accreditation (as appropriate) unless otherwise agreed in writing by the Environment Agency. Newly installed CEMs, or CEMs replacing existing CEMs, shall have MCERTS certification and have an MCERTS certified range which is not greater than 1.5 times the daily emission limit value (ELV) specified in schedule 3 table S3.1. The CEM shall also be able to measure instantaneous values over the ranges which are to be expected during all operating conditions. If it is necessary to use more than one range setting of the CEM to achieve this requirement, the CEM shall be verified for monitoring supplementary, higher ranges.

- 3.5.4 Permanent means of access shall be provided to enable sampling/monitoring to be carried out in relation to the emission points specified in schedule 3 tables S3.1, S3.1(a), and S3.2 unless otherwise agreed in writing by the Environment Agency.
- 3.5.5 Where Continuous Emission Monitors are installed to comply with the monitoring requirements in schedule 3 table S3.1; the Continuous Emission Monitors shall be used such that;
- (a) the values of the 95% confidence intervals of a single measured result at the daily emission limit value shall not exceed the following percentages of the emission limit values:
 

• Carbon monoxide	10%
• Sulphur dioxide	20%
• Oxides of nitrogen (NO & NO <sub>2</sub> expressed as NO <sub>2</sub> )	20%
• Particulate matter	30%
• Total organic carbon (TOC)	30%
• Hydrogen chloride	40%
  - (b) valid half-hourly average values shall be determined within the effective operating time (excluding the start-up and shut-down periods) from the measured values after having subtracted the value of the confidence intervals in condition 3.5.5 (a);
  - (c) where it is necessary to calibrate or maintain the monitor and this means that data are not available for a complete half-hour period, the half-hourly average shall in any case be considered valid if measurements are available for a minimum of 20 minutes during the half-hour period. The number of half-hourly averages so validated shall not exceed 5 per day;
  - (d) daily average values shall be determined as the average of all the valid half-hourly average values within a calendar day. The daily average value shall be considered valid if no more than five half-hourly average 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.

## 4 Information

### 4.1 Records

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

## 4.2 Reporting

- 4.2.1 The operator shall send all reports and notifications required by the permit to the Environment Agency using the contact details supplied in writing by the Environment Agency.
- 4.2.2 A report or reports on the performance of the activities over the previous year shall be submitted to the Environment Agency by 31 January (or other date agreed in writing by the Environment Agency) each year. The report(s) shall include as a minimum:
- (a) a review of the results of the monitoring and assessment carried out in accordance with the permit including an interpretive review of that data;
  - (b) the annual production /treatment data set out in schedule 4 table S4.2; and
  - (c) the performance parameters set out in schedule 4 table S4.3 using the forms specified in table S4.4 of that schedule.
  - (d) the functioning and monitoring of the incineration plant in a format agreed with the Environment Agency. The report shall, as a minimum requirement (as required by Chapter IV of the Industrial Emissions Directive) give an account of the running of the process and the emissions into air and water compared with the emission standards in the IED.
- 4.2.3 Within 28 days of the end of the reporting period the operator shall, unless otherwise agreed in writing by the Environment Agency, submit reports of the monitoring and assessment carried out in accordance with the conditions of this permit, as follows:
- (a) in respect of the parameters and emission points specified in schedule 4 table S4.1;
  - (b) for the reporting periods specified in schedule 4 table S4.1 and using the forms specified in schedule 4 table S4.4 ; and
  - (c) giving the information from such results and assessments as may be required by the forms specified in those tables.
- 4.2.4 The operator shall, unless notice under this condition has been served within the preceding four years, submit to the Environment Agency, within six months of receipt of a written notice, a report assessing whether there are other appropriate measures that could be taken to prevent, or where that is not practicable, to minimise pollution.
- 4.2.5 Within 1 month of the end of each quarter, the operator shall submit to the Environment Agency using the form made available for the purpose, the information specified on the form relating to the site and the waste accepted and removed from it during the previous quarter.

## 4.3 Notifications

### 4.3.1 In the event:

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

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

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

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

Where the operator is a registered company:

- (a) any change in the operator's trading name, registered name or registered office address; and
- (b) any steps taken with a view to the operator going into administration, entering into a company voluntary arrangement or being wound up.

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

- (a) any change in the operator's name or address; and
- (b) any steps taken with a view to the dissolution of the operator.

In any other case:

- (a) the death of any of the named operators (where the operator consists of more than one named individual);
- (b) any change in the operator's name(s) or address(es); and
- (c) any steps taken with a view to the operator, or any one of them, going into bankruptcy, entering into a composition or arrangement with creditors, or, in the case of them being in a partnership, dissolving the partnership.

- 4.3.5 Where the operator proposes to make a change in the nature or functioning, or an extension of the activities, which may have consequences for the environment and the change is not otherwise the subject of an application for approval under the Regulations or this permit:
- (a) the Environment Agency shall be notified at least 14 days before making the change; and
  - (b) the notification shall contain a description of the proposed change in operation.
- 4.3.6 The Environment Agency shall be given at least 14 days notice before implementation of any part of the site closure plan.
- 4.3.7 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

<b>Table S1.1 activities</b>		
<b>Activity listed in Schedule 1 of the EP Regulations</b>	<b>Description of specified activity</b>	<b>Limits of specified activity</b>
Section 5.1 Part A(1)(b)	The incineration of non-hazardous waste in a waste incineration plant with a capacity exceeding 3 tonnes per hour.	From the pyrolysis of non-hazardous RDF in up to 6 pyrolysers with a combined maximum capacity of 48,000 tonnes per year, to emission of exhaust gas and disposal of waste arising.  Waste type and quantity as specified in Table S2.2 of this permit.

<b>Table S1.2 Operating techniques</b>		
<b>Description</b>	<b>Parts</b>	<b>Date Received</b>
Application	The response to question 3 Operating techniques, given in Part B3 of the application form. Includes Table 3a – Technical Standards  Application Supporting Information Document (P2079/R005) dated March 2015	09/06/15
Response to Schedule 5 Notice dated 09/07/15	The response to questions 1.1 to 1.4 - Odour	16/07/15
Email from Applicant	Email in response to AQMAU queries – the gate of the acoustic barrier will only be opened for HGV movements	20/07/15
Response to Schedule 5 Notice dated 30/07/15	Acoustic specification of buildings	05/08/15
Emails from Applicant	Specification for the impermeable liner of the retention basin	06/08/15 10/08/15 18/08/15
Fire Prevention Plan	All parts, as approved	Refer to PO2 in Table S1.4 of this permit.

<b>Table S1.3 Improvement programme requirements</b>		
<b>Reference</b>	<b>Requirement</b>	<b>Date</b>
<b>IC1</b>	The Operator shall submit a written report to the Environment Agency on the implementation of its Environmental Management System (EMS) and how this is compliant with certified systems.	Within 12 months of the date on which waste is first pyrolysed
<b>IC2</b>	<p>The Operator shall submit a written proposal to the Environment Agency to carry out tests to determine the size distribution of the particulate matter in the exhaust gas emissions to air from emission point A1, identifying the fractions within the PM<sub>10</sub>, and PM<sub>2.5</sub> ranges. The proposal shall include a timetable for approval by the Environment Agency to carry out such tests and produce a report on the results.</p> <p>On receipt of written agreement by the Environment Agency to the proposal and the timetable, the Operator shall carry out the tests and submit to the Environment Agency a report on the results.</p>	Within 6 months of the completion of commissioning
<b>IC3</b>	The Operator shall submit a written report to the Environment Agency on the commissioning of the Installation. The report shall summarise the environmental performance of the plant as installed against the design parameters set out in the Application. The report shall also include a review of the performance of the facility against the conditions of this permit and details of procedures developed during commissioning for achieving and demonstrating compliance with permit conditions.	Within 4 months of the completion of commissioning
<b>IC4</b>	The Operator shall carry out checks to verify the residence time, minimum temperature and oxygen content of the exhaust gases in the regenerative thermal oxidiser (RTO) whilst operating under the anticipated most unfavourable operating conditions. The results shall be submitted in writing to the Environment Agency.	Within 4 months of the completion of commissioning
<b>IC5</b>	<p>The Operator shall submit a written report to the Environment Agency describing the performance and optimisation of the Selective Catalytic Reduction (SCR) system and combustion settings to minimise oxides of nitrogen (NO<sub>x</sub>) emissions within the emission limit values described in this permit with the minimisation of nitrous oxide emissions. The report shall include an assessment of the level of NO<sub>x</sub>, N<sub>2</sub>O and NH<sub>3</sub> emissions that can be achieved under optimum operating conditions.</p> <p>The report shall also provide details of the optimisation (including dosing rates) for the control of acid gases.</p>	Within 4 months of the completion of commissioning
<b>IC6</b>	<p>The Operator shall carry out an assessment of the impact of emissions to air of the following component metals subject to emission limit values: Cd, As, Pb, Cr, Mn, and Ni.</p> <p>A report on the assessment shall be made to the Environment Agency.</p> <p>Emissions monitoring data obtained during the first year of operation shall be used to compare the actual emissions with those assumed in the impact assessment submitted with the Application. An assessment shall be made of the impact of each metal against the relevant EQS/EAL. In the event that the assessment shows that an EQS/EAL can be exceeded, the report shall include proposals for further investigative work.</p>	15 months from commencement of operations

<b>Table S1.3 Improvement programme requirements</b>		
<b>Reference</b>	<b>Requirement</b>	<b>Date</b>
<b>IC7</b>	<p>The Operator shall carry out an assessment of the impact from emissions to air of:  oxides of nitrogen;  ammonia; and  nitrogen deposition.</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.</p> <p>The assessment shall have specific regard to the impact at The Swale and Medway Estuary &amp; Marshes (SPA, Ramsar and SSSI) by comparison of process contributions with the relevant critical levels and loads. In the event that the assessment shows that critical levels and loads can be exceeded as a result of emissions from the Installation, the report shall include proposals for further investigative work.</p> <p>A report on the assessment shall be made to the Environment Agency.</p>	15 months from commencement of operations
<b>IC8</b>	<p>The Operator shall submit a written summary report to the Environment Agency to confirm by the results of calibration and verification testing that the performance of Continuous Emission Monitors for parameters as specified in Table S3.1 and Table S3.1(a) complies with the requirements of BS EN 14181, specifically the requirements of QAL1, QAL2 and QAL3.</p>	<p>Initial calibration report to be submitted within 3 months of completion of commissioning.</p> <p>Full summary evidence compliance report to be submitted within 18 months of commissioning.</p>



<b>Table S1.4 Pre-operational measures</b>	
<b>Reference</b>	<b>Pre-operational measures</b>
<b>PO1</b>	Prior to the commencement of commissioning, the Operator shall send a summary of the site Environment Management System (EMS) to the Environment Agency and make available for inspection all documents and procedures which form part of the EMS. The EMS shall be developed in line with the requirements set out in Section 1 of How to comply with your environmental permit. The documents and procedures set out in the EMS shall form the written management system referenced in condition 1.1.1 (a) of the permit.
<b>PO2</b>	Prior to the commencement of commissioning, the Operator shall submit to the Environment Agency for approval a Fire Prevention Plan developed in line with the requirements set out in our Fire prevention plans guidance (version 2, March 2015).
<b>PO3</b>	Prior to the commencement of commissioning, the Operator shall send a report to the Environment Agency which will contain a comprehensive review of the options available for utilising the heat generated by the pyrolysis process in order to ensure that it is recovered as far as practicable. The review shall detail any identified proposals for improving the recovery and utilisation of waste heat and shall provide a timetable for their implementation.
<b>PO4</b>	Prior to the commencement of commissioning, the Operator shall submit to the Environment Agency for approval a protocol for the sampling and testing of pyrolysis char and gas clean-up residues for the purposes of assessing its hazard status. Sampling and testing shall be carried out in accordance with the protocol as approved.
<b>PO5</b>	Prior to the commencement of commissioning; the Operator shall provide a written commissioning plan, including timelines for completion, for approval by the Environment Agency. The commissioning plan shall include the expected emissions to the environment during the different stages of commissioning, the expected durations of commissioning activities and the actions to be taken to protect the environment and report to the Environment Agency in the event that actual emissions exceed expected emissions. Commissioning shall be carried out in accordance with the commissioning plan as approved.
<b>PO6</b>	Prior to the commencement of commissioning, the Operator shall submit a written report to the Environment Agency detailing the waste acceptance procedure to be used at the site. The waste acceptance procedure shall include the process and systems by which wastes unsuitable for incineration at the site will be controlled.  The procedure shall be implemented in accordance with the written approval from the Environment Agency.
<b>PO7</b>	After completion of RTO design and at least three calendar months before any RTO operation; the operator shall submit a written report to the Agency of the details of the computational fluid dynamic (CFD) modelling. The report shall demonstrate whether the design combustion conditions comply with the residence time and temperature requirements as defined by Chapter IV and Annex VI of the IED.

<b>Table S1.4 Pre-operational measures</b>	
<b>Reference</b>	<b>Pre-operational measures</b>
<b>PO8</b>	<p>The Operator shall submit the written protocol referenced in condition 3.2.4 for the monitoring of soil and groundwater for approval by the Environment Agency. The protocol shall demonstrate how the Operator will meet the requirements of Articles 14(1)(b), 14(1)(e) and 16(2) of the IED.</p> <p>The procedure shall be implemented in accordance with the written approval from the Agency.</p>
<b>PO9</b>	<p>At least three months before operation, the Operator shall submit a written report to the Environment Agency specifying arrangements for continuous and periodic monitoring of emissions to air to comply with Environment Agency guidance notes M1 and M2. The report shall include the following:</p> <ul style="list-style-type: none"> <li>Plant and equipment details, including accreditation to MCERTS</li> <li>Methods and standards for sampling and analysis</li> <li>Details of monitoring locations, access and working platforms</li> </ul>

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

Table S2.1 Raw materials and fuels	
Raw materials and fuel description	Specification
-	-

Table S2.2 Permitted waste types and quantities for pyrolysis plant	
Maximum quantity	48,000 tonnes per annum
Waste code	Description
19	Wastes from waste management facilities, off-site waste water treatment plants and the preparation of water intended for human consumption and water for industrial use
19 12	wastes from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified
19 12 10	combustible waste (refuse derived fuel-RDF)

## Schedule 3 – Emissions and monitoring

Emission point ref. & location [Site Plan Schedule 7]	Parameter	Source	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard(s) or method(s)
A1	Particulate matter	Gas Engines via RTO	30 mg/m <sup>3</sup>	½-hr average	Continuous measurement	BS EN 14181 and BS EN 15267-3
			10 mg/m <sup>3</sup>	daily average		
A1	Total Organic Carbon (TOC)		20 mg/m <sup>3</sup>	½-hr average	Continuous measurement	BS EN 14181 and BS EN 15267-3
			10 mg/m <sup>3</sup>	daily average		
A1	Hydrogen chloride (HCl)		60 mg/m <sup>3</sup>	½-hr average	Continuous measurement	BS EN 14181 and BS EN 15267-3
			10 mg/m <sup>3</sup>	daily average		
A1	Hydrogen fluoride (HF)		4 mg/m <sup>3</sup>	½-hr average	Continuous measurement	BS EN 14181 and BS EN 15267-3
			1 mg/m <sup>3</sup>	daily average		
A1	Carbon monoxide (CO)		100 mg/m <sup>3</sup>	½-hr average	Continuous measurement	BS EN 14181 and BS EN 15267-3
			50 mg/m <sup>3</sup>	daily average		
A1	Sulphur dioxide (SO <sub>2</sub> )		200 mg/m <sup>3</sup>	½-hr average	Continuous measurement	BS EN 14181 and BS EN 15267-3
			50 mg/m <sup>3</sup>	daily average		
A1	Oxides of nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )		400 mg/m <sup>3</sup>	½-hr average	Continuous measurement	BS EN 14181 and BS EN 15267-3
			200 mg/m <sup>3</sup>	daily average		

<b>Table S3.1 Point source emissions to air – emission limits and monitoring requirements</b>						
<b>Emission point ref. &amp; location [Site Plan Schedule 7]</b>	<b>Parameter</b>	<b>Source</b>	<b>Limit (including unit)</b>	<b>Reference period</b>	<b>Monitoring frequency</b>	<b>Monitoring standard(s) or method(s)</b>
A1	Cadmium & thallium and their compounds (total)	Gas Engines via RTO	0.05 mg/m <sup>3</sup>	periodic over minimum 30 minute, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS EN 14385
A1	Mercury and its compounds		0.05 mg/m <sup>3</sup>	periodic over minimum 30 minute, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS EN 13211
A1	Sb, As, Pb, Cr, Co, Cu, Mn, Ni and V and their compounds (total)		0.5 mg/m <sup>3</sup>	periodic over minimum 30 minute, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS EN 14385
A1	Ammonia (NH <sub>3</sub> )		-	daily average	Continuous measurement	BS EN 14181 and BS EN 15267-3
A1	Nitrous oxide (N <sub>2</sub> O)		-	daily average	Continuous measurement	BS EN 14181 and BS EN 15267-3
A1	Dioxins / furans (I-TEQ)		0.1 ng/m <sup>3</sup>	periodic over minimum 6 hours, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS EN 1948 Parts 1, 2 and 3
A1	Dioxins / furans (WHO-TEQ Humans / Mammals)		-	periodic over minimum 6 hours, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS EN 1948 Parts 1, 2 and 3

<b>Table S3.1 Point source emissions to air – emission limits and monitoring requirements</b>						
<b>Emission point ref. &amp; location [Site Plan Schedule 7]</b>	<b>Parameter</b>	<b>Source</b>	<b>Limit (including unit)</b>	<b>Reference period</b>	<b>Monitoring frequency</b>	<b>Monitoring standard(s) or method(s)</b>
A1	Dioxins / furans (WHO-TEQ Fish)	Gas Engines via RTO	-	periodic over minimum 6 hours, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS EN 1948 Parts 1, 2 and 3
A1	Dioxins / furans (WHO-TEQ Birds)		-	periodic over minimum 6 hours, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS EN 1948 Parts 1, 2 and 3
A1	Dioxin-like PCBs (WHO-TEQ Humans / Mammals)		-	periodic over minimum 6 hours, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS EN 1948 Part 4
A1	Dioxin-like PCBs (WHO-TEQ Fish)		-	periodic over minimum 6 hours, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS EN 1948 Part 4
A1	Dioxin-like PCBs (WHO-TEQ Birds)		-	periodic over minimum 6 hours, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS EN 1948 Part 4
A1	Specific individual polycyclic aromatic hydrocarbons (PAHs), as specified in Schedule 6.		-	periodic over minimum 6 hours, maximum 8 hour period	Quarterly in first year. Then Bi-annual	BS ISO 11338 Parts 1 and 2.

<b>Table S3.1(a) Point source emissions to air during abnormal operation of pyrolysis plant – emission limits and monitoring requirements</b>						
<b>Emission point ref. &amp; location</b>	<b>Parameter</b>	<b>Source</b>	<b>Limit (including unit)</b>	<b>Reference period</b>	<b>Monitoring frequency</b>	<b>Monitoring standard or method</b>
A1	Particulate matter	Gas Engines via RTO	150 mg/m <sup>3</sup>	½-hr average	Continuous measurement	BS EN 14181 and BS EN 15267-3 during abatement plant failure
A1	Total Organic Carbon (TOC)		20 mg/m <sup>3</sup>	½-hr average	Continuous measurement	BS EN 14181 and BS EN 15267-3 during abatement plant failure
A1	Carbon monoxide (CO)		100 mg/m <sup>3</sup>	½-hr average	Continuous measurement	BS EN 14181 and BS EN 15267-3 during abatement plant failure

<b>Table S3.2 Point Source emissions to water (other than sewer) and land – emission limits and monitoring requirements</b>						
<b>Emission point ref. &amp; location [Site Plan Schedule 7]</b>	<b>Source</b>	<b>Parameter</b>	<b>Limit (incl. unit)</b>	<b>Reference Period</b>	<b>Monitoring frequency</b>	<b>Monitoring standard or method</b>
W1	Uncontaminated surface water from the detention basin	No parameters set	No limit set	-	-	-

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



<b>Table S3.4 Residue quality</b>					
<b>Emission point reference or source or description of point of measurement</b>	<b>Parameter</b>	<b>Limit</b>	<b>Monitoring frequency</b>	<b>Monitoring standard or method *</b>	<b>Other specifications</b>
Char	TOC	<3%	Monthly in the first year of operation. Then Quarterly	Environment Agency Guidance, 'TGN M4 – Guidelines for Ash Sampling and Analysis'	
Char	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'	
Char	Total soluble fraction and metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) soluble fractions		Before use of a new disposal or recycling route	Environment Agency Guidance, 'TGN M4 – Guidelines for Ash Sampling and Analysis'	

\* Or other equivalent standard as agreed in writing with the Environment Agency.

## Schedule 4 – Reporting

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

<b>Table S4.1 Reporting of monitoring data</b>			
<b>Parameter</b>	<b>Emission or monitoring point/reference</b>	<b>Reporting period</b>	<b>Period begins</b>
Emissions to air Parameters as required by condition 3.5.1	A1	Quarterly	1 Jan, 1 Apr, 1 Jul and 1 Oct
TOC Parameters as required by condition 3.5.1	Char	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	Char	Quarterly (but monthly for the first year of operation)	1 Jan, 1 Apr, 1 Jul and 1 Oct
Total soluble fraction and metals (Antimony, Cadmium, Thallium, Mercury, Lead, Chromium, Copper, Manganese, Nickel, Arsenic, Cobalt, Vanadium, Zinc) soluble fractions Parameters as required by condition 3.5.1	Char	Before use of a new disposal or recycling route	
Functioning and monitoring of the incineration plant as required by condition 4.2.2		Annually	1 Jan

<b>Table S4.2: Annual production/treatment</b>	
<b>Parameter</b>	<b>Units</b>
Total Refuse Derived Fuel (RDF) received 1	tonnes
Total RDF pyrolysed	tonnes
Electrical energy produced by the gas engine-generator sets and the ORC-generator sets	KWhrs
Electrical energy exported	KWhrs
Electrical energy used on Installation	KWhrs
Waste heat utilised by the Installation	KWhrs

Note 1: All RDF delivered to the installation, including that which is subsequently rejected.

<b>Table S4.3 Performance parameters</b>		
<b>Parameter</b>	<b>Frequency of assessment</b>	<b>Units</b>
Electrical energy exported, imported and used at the Installation	Quarterly	KWhrs / tonne of waste pyrolysed
Natural gas consumption	Quarterly	m <sup>3</sup> per tonne of waste pyrolysed (dry basis)
Mass of Char produced	Quarterly	kg per tonne of waste pyrolysed (dry basis)
Urea consumption	Quarterly	kg per tonne of waste pyrolysed (dry basis)
Sodium hydroxide consumption	Quarterly	kg per tonne of waste pyrolysed (dry basis)
Iron oxide consumption	Quarterly	kg per tonne of waste pyrolysed (dry basis)
Water consumption	Quarterly	m <sup>3</sup> per tonne of waste pyrolysed (dry basis)
Periods of abnormal operation	Quarterly	Number of occasions and cumulative hours for current calendar year for each line.

<b>Table S4.4 Reporting forms</b>		
<b>Media/parameter</b>	<b>Reporting format</b>	<b>Date of form</b>
Air	Form air 1 or other form as agreed in writing by the Environment Agency	2015
Residue	Form residue 1 other form as agreed in writing by the Environment Agency	2015
Water usage	Form water usage 1 or other form as agreed in writing by the Environment Agency	2015
Energy usage	Form energy 1 or other form as agreed in writing by the Environment Agency	2015
Other performance indicators	Form performance 1 or other form as agreed in writing by the Environment Agency	2015

# 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	

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

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

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

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

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

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

Name*	
Post	
Signature	
Date	

\* authorised to sign on behalf of the operator

## Schedule 6 – Interpretation

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

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

“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.

“*Char*” means the solid residue remaining in the pyrolyser once pyrolysis of a given quantity of waste has been completed.

“CEM” Continuous emission monitor

“CEN” means Comité Européen de Normalisation “bi-annual” means twice per year with at least five months between tests;

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

“dioxin and furans” means polychlorinated dibenzo-p-dioxins and polychlorinated dibenzofurans.

“disposal”. Means any of the operations provided for in Annex I to Directive 2008/98/EC of the European Parliament and of the Council on waste.

“emissions to land” includes emissions to groundwater.

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

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

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

“hazardous property” has the meaning in Annex III of the Waste Framework Directive.

“incineration line” means all of the incineration equipment related to a common discharge to air location.

“Industrial Emissions Directive” means DIRECTIVE 2010/75/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 24 November 2010 on industrial emissions.

“ISO” means International Standards Organisation.

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

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

“PAH” means Poly-cyclic aromatic hydrocarbon, and comprises Anthanthrene, Benzo[a]anthracene, Benzo[b]fluoranthene, Benzo[k]fluoranthene, Benzo[b]naph(2,1-d)thiophene, Benzo[c]phenanthrene,

Benzo[ghi]perylene, Benzo[a]pyrene, Cholanthrene, Chrysene, Cyclopenta[c,d]pyrene, Dibenzo[ah]anthracene, Dibenzo[a,i]pyrene Fluoranthene, Indo[1,2,3-cd]pyrene, Naphthalene

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

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

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

“shut down” is any period during which the plant is being returned to a non-operational state and within which waste has ceased to be pyrolysed.

“*start-up*” is, any period during which the plant is being returned to an operational state and within which waste has yet to be pyrolysed and steady-state conditions have yet to be reached.

“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 char, this means the total carbon content of all organic species present in the ash (excluding carbon in elemental form).

“Waste code” means the six digit code referable to a type of waste in accordance with the List of Wastes and in relation to hazardous waste, includes the asterisk.

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

“year” means calendar year ending 31 December.

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

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

- (a) in relation to emissions from gas engines, the concentration in dry air at a temperature of 273K, at a pressure of 101.3 kPa and with an oxygen content of 5% dry;
- (b) 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
- (c) 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
- (d) in relation to gases from incineration plants other than those burning waste oil, the concentration in dry air at a temperature of 273K, at a pressure of 101.3 kPa and with an oxygen content of 11% dry.

For dioxins/furans and dioxin-like PCBs the determination of the toxic equivalence concentration (I-TEQ, & WHO-TEQ for dioxins/furans, WHO-TEQ for dioxin-like PCBs) stated as a release limit and/ or reporting requirement, the mass concentrations of the following congeners have to be multiplied with their respective toxic equivalence factors before summing. When reporting on measurements of dioxins/furans and dioxin-like PCBs, the toxic equivalence concentrations should be reported as a range based on: all congeners less than the detection limit assumed to be zero as a minimum, and all congeners less than the detection limit assumed to be at the detection limit as a maximum. However the minimum value should be used when assessing compliance with the emission limit value in table S3.1.

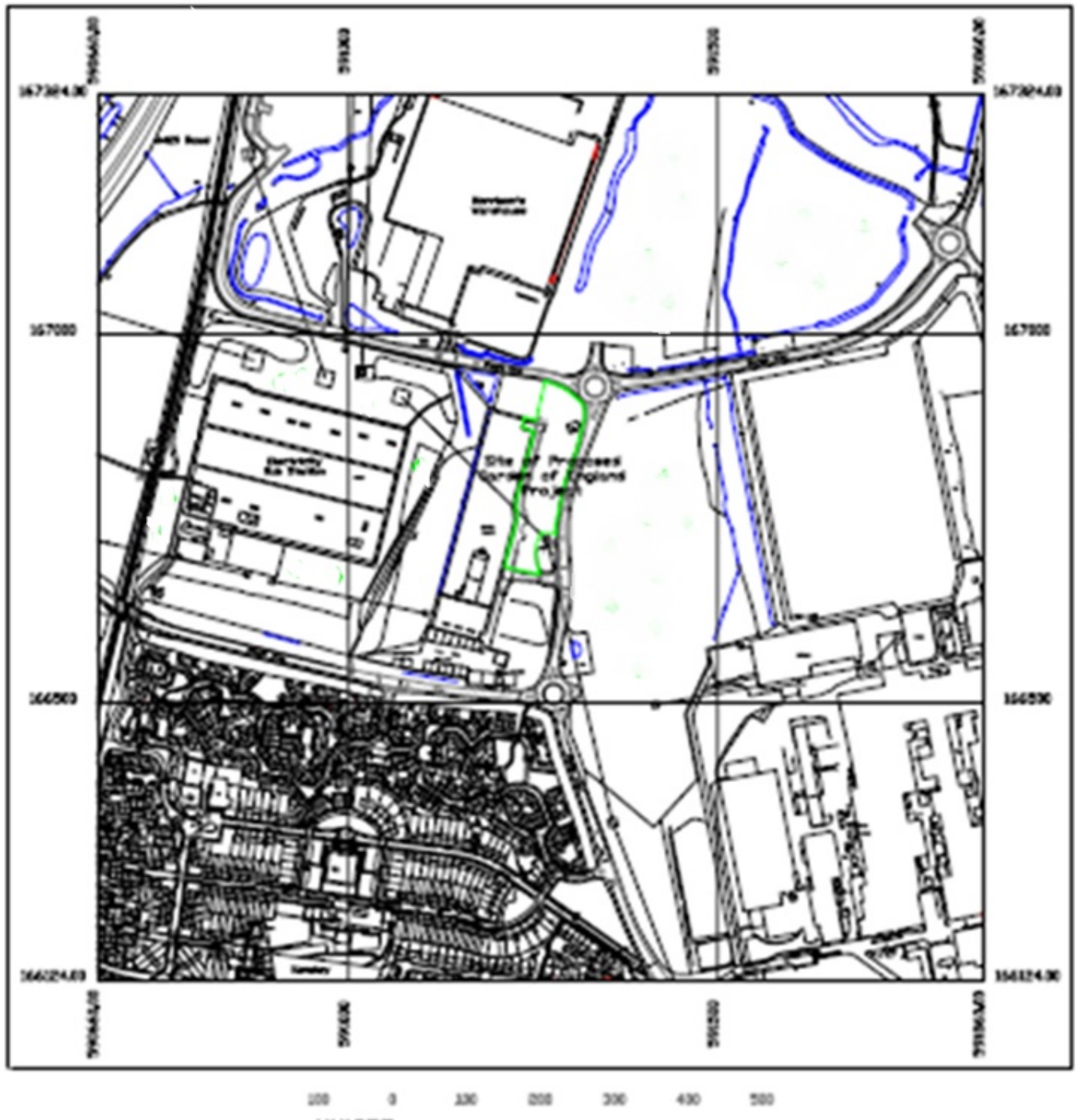
<b>TEF schemes for dioxins and furans</b>				
<b>Congener</b>	<b>I-TEF</b>	<b>WHO-TEF</b>		
	<b>1990</b>	<b>2005</b>	<b>1997/8</b>	
		<b>Humans / Mammals</b>	<b>Fish</b>	<b>Birds</b>
<b>Dioxins</b>				
2,3,7,8-TCDD	1	1	1	1
1,2,3,7,8-PeCDD	0.5	1	1	1
1,2,3,4,7,8-HxCDD	0.1	0.1	0.5	0.05
1,2,3,6,7,8-HxCDD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



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

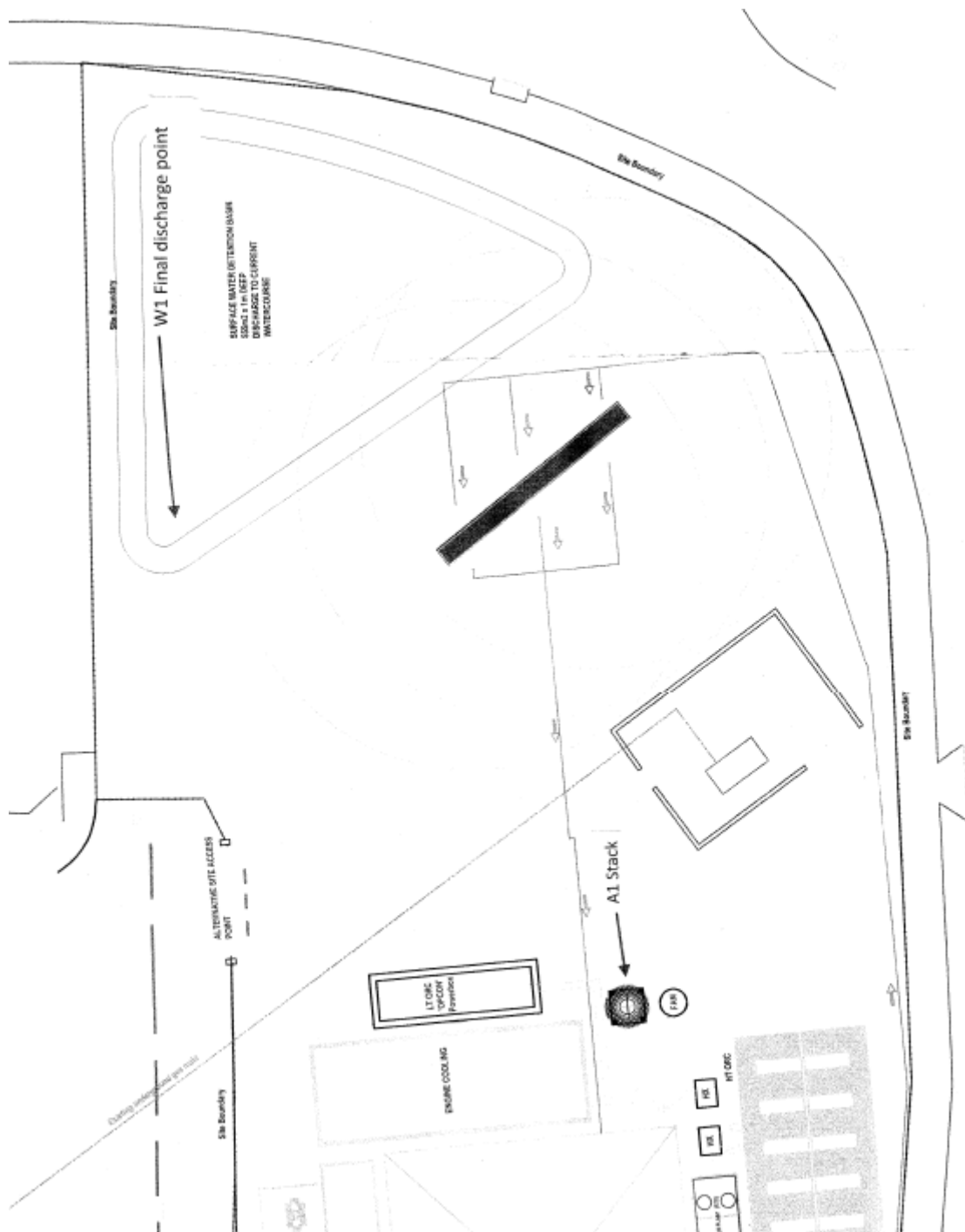
# Schedule 7 – Site plan

Site plan showing installation boundary edged in green



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# Site plan showing emission points (A1, W1)



END OF PERMIT