Department for Environment Food & Rural Affairs

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Process Guidance Note 5/03(13)

Statutory guidance for animal carcase incineration

Revised: July 2013

Llywodraeth Cymru
Welsh Government

DOE
Department of the Environment
www.doeni.gov.uk

The Scottish Government

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Defra would like to acknowledge the work of the Environment Agency's Local Authority Unit in the drafting of this guidance note.

Revision of the guidance

The electronic version of this publication is updated from time to time with new or amended guidance. **Table 0.1** is an index to the latest changes (minor amendments are generally not listed).

Table 0.1 - Revision of the guidance

Date of amendment	Section/ paragraph where change can be found	Nature of amendment
July 2013	Throughout	Addition of colour coding to tables
March 2013	Paragraphs 1.6, 1.12, 1.13, 3.5, 3.6, 3.7, 4.6 and Appendix 1.	New Animal Health and Veterinary Laboratories Agency guidance replacing the 'low capacity incineration guidance' associated changes.

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1. Introduction

Legal basis

1.1 This note applies to the whole of the UK. It is issued by the Secretary of State, the Welsh Government, the Scottish Government and the Department of the Environment in Northern Ireland (DoE NI) to give guidance on the conditions appropriate for the control of emissions into the air from animal carcase incineration with a disposal rate of 50 kilograms per hour to 1 tonne per hour and capacity of under 10 tonnes per day. It is published only in electronic form and can be found on the Defra website. It supersedes PG5/3 (04) and NIPG5/3 (04).

1.2 This guidance document is compliant with the Code of Practice on Guidance on Regulation page 6 of which contains the "golden rules of good guidance". If you feel this guidance breaches the code or you notice any inaccuracies within the guidance, please contact us.

1.3 This is one of a series of statutory notes1 giving guidance on the Best Available Techniques (BAT)2. The notes are all aimed at providing a strong framework for consistent and transparent regulation of installations regulated under the statutory Local Air Pollution Prevention and Control (LAPPC) regime in England and Wales, Scotland and Northern Ireland. The note will be treated as one of the material considerations when determining any appeals against a decision made under this legislation.

1.4 In general terms, what are BAT for one installation in a sector are likely to be BAT for a comparable installation. Consistency is important where circumstances are the same. However, in each case it is, in practice, for regulators (subject to appeal) to decide what are BAT for each individual installation, taking into account variable factors such as the configuration, size and other individual characteristics of the installation, as well as the locality (e.g. proximity to particularly sensitive receptors).

1.5 The note also, where appropriate, gives details of any mandatory requirements affecting air emissions which are in force at the time of publication, such as those contained in Regulations or in Directions from the Government. In the case of this note, at the time of publication there were no such mandatory requirements.

[1] this and other notes in the series are issued as statutory guidance in England and Wales under regulation 64(2) of the Environmental Permitting Regulations. The notes are also issued as statutory guidance in Northern Ireland and as guidance in Scotland.

[2] further guidance on the meaning of BAT can be found for England and Wales, Scotland, and Northern Ireland.

1.6 In **Section 4** and **Section 5**, arrows are used to indicate the matters which should be considered for inclusion as permit conditions. It is important to note, however, that this should not be taken as a short cut for regulators to a proper determination of BAT or to disregard the explanatory material which accompanies the arrows. In individual cases it may be justified to:

- include additional conditions;
- include different conditions;
- not include conditions relating to some of the matters indicated.

In addition, conditions will need to be derived from other parts of the note, in particular to specify emission limits, compliance deadlines and mandatory requirements arising from directions or other legislation. A simplified Application From and Permit are included as Appendix 1 & 2 respectively to aid regulation of under 50kg/hr incinerators as identified in Para 1.13.

Who is the guidance for?

1.7 This guidance is for:

Regulators

- local authorities in England and Wales, who must have regard to this statutory guidance when determining applications for permits and reviewing extant permits;
- the Scottish Environment Protection Agency (SEPA) in Scotland, and district councils or the Northern Ireland Environment Agency (NIEA), in Northern Ireland;

Operators who are best advised also to have regard to it when making applications and in the subsequent operation of their installation;

Members of the public who may be interested to know what the Government considers, in accordance with the legislation, amounts to appropriate conditions for controlling air emissions for the generality of installations in this particular industry sector.

Updating the guidance

1.8 The guidance is based on the state of knowledge and understanding, at the time of writing, of what constitute BAT for this sector. The note may be amended from time to time to keep up with developments in BAT, including improvements in techniques, changes to the economic parameters, and new understanding of environmental impacts and risks. The updated version will replace the previous version on the Defra website and will include an index to the amendments.

1.9 Reasonable steps will be taken to keep the guidance up-to-date to ensure that those who need to know about changes to the guidance are informed of any published revisions. However, because there can be rapid changes to matters referred to in the guidance – for example to legislation – it should not be assumed that the most recent version of this note reflects the very latest legal requirements; these requirements apply.

Consultation

1.10 This note has been produced in consultation with relevant trade bodies, representatives of regulators including members of the Industrial Pollution Liaison Committee and other potentially-interested organisations.

Policy and procedures

1.11 General guidance explaining LAPPC and setting out the policy and procedures is contained in separate documents for England and Wales, Scotland and Northern Ireland.

When to use another note rather than PG5/03

1.12 Where the consumption of the animal carcase incinerator with a disposal rate of greater than 50 kilograms per hour is greater than 10 tonnes per day then Guidance Note SG10 should be used.

1.13 Where the incinerator site is limited to under 50 kilograms per hour. Guidance of what constitutes under 50 kg/hour can be found on the Animal Health website.

2. Timetable for compliance and reviews

Existing processes or activities

2.1 This note contains all the provisions from previous editions which have not been removed. Some have been amended. For installations in operation at the date this note is published, the regulator should have already issued or varied the permit having regard to the previous editions. If they have not done so, this should now be done.

2.2 The new provisions of this note and the dates by which compliance with these provisions is expected are listed in **Table 2.1**, together with the paragraph number where the provision is to be found. Compliance with the new provisions should normally be achieved by the dates shown. Permits should be varied as necessary, having regard to the changes and the timetable.

Table 2.1 - Compliance timetable

Guidance	Relevant paragraph/row in this note	Compliance date
There are no new provisions in this note likely of themselves to result in a need to vary existing permit conditions. For a full list of changes made by this note, excluding very minor ones, see **Table 6.1**.		

2.3 Replacement plant should normally be designed to meet the appropriate standards specified for new installations/activities.

2.4 Where provisions in the preceding guidance note have been deleted or relaxed, permits should be varied as necessary as soon as reasonably practicable.

2.5 For new activities, the permit should have regard to the full standards of this guidance from the first day of operation.

2.6 For substantially changed activities, the permit should normally have regard to the full standards of this guidance with respect to the parts of the activity that have been substantially changed and any part of the activity affected by the change, from the first day of operation.

Permit reviews

2.7 Under LAPPC, the legislation requires permits to be reviewed periodically but does not specify a frequency. It is considered for this sector that a frequency of once every eight years ought normally to be sufficient for the purposes of the appropriate Regulations3. Further guidance on permit reviews is contained in the appropriate Guidance Manual for England and Wales, Scotland and Northern Ireland. Regulators should use any opportunities to determine the variations to permits necessitated by paragraph 2.2 above in conjunction with these reviews.

2.8 Conditions should also be reviewed where complaint is attributable to the operation of the process and is, in the opinion of the regulator, justified.

3 For details see England and Wales chapter 26, Scotland, Practical guide section 10, Northern Ireland Part B Guidance page 9, Northern Ireland Part C Guidance chapter 17.

3. Activity description

Regulations

3.1 This note applies to LAPPC installations for the incineration of animal carcases with a disposal rate of 50 kilograms per hour to 1 tonne per hour and capacity of under 10 tonnes per day. The activities for regulation are listed in **Table 3.1**.

Table 3.1 - Regulations listing activities

LAPPC	England and Wales	Scotland	Northern Ireland
	EPR Schedule 1 reference	PPC Schedule 1 reference	PPC Schedule 1 reference
Part B	Section 5.1 Part B	Section 5.1, Part B	n/a
Part C	n/a	n/a	Section 5.1 Part C
The links are to the original version of the Regulations. A consolidated version is not available on www.legislation.gov.uk.			

3.2 Animal carcase incineration installations that meet all these four conditions are prescribed for LAPPC

- capacity is under 1 tonne per hour;
- and capacity is over 50 kilograms per hour - if a site operates several "low capacity incinerators" then the total aggregated capacity of the incinerators is used to define the capacity;
- and the treatment capacity does not exceed 10 tonnes per day;
- and only animal carcases are burnt (Packaging used to prevent infectivity may also be burnt provided that the packaging does not contain PVC).

3.3 This note does not apply to:

- installations which burn animal carcases only but with a capacity over 1 tonne per hour;
- installations which burn animal carcases with a treatment capacity over 10 tonnes per day;
- installations which burn animal carcases with a treatment capacity of less than 50 kilograms per hour i.e. "low capacity incinerators".

3.4 Processes covered by this note are obligated under EU Regulations (EC) No 1069/2009 and (EC) No 142/2011 and as such must satisfy the regulators of the relevant regulations[4] . The regulators in England, Wales and Scotland are the Animal Health and Veterinary Laboratories Agency (AHVLA) and in Northern Ireland Department of Agriculture and Rural Development (DARD) and the local regulators of LAPPC.

Compliance with the provisions of this note will satisfy the LAPPC part of the Animal By-Product Regulations obligations. This note does not intend to deal with pollution of soil, water or groundwater, biosecurity, or risks to operatives' health.

Pet crematoria

3.5 Pet crematoria cremate pet bodies with care, separately or communally, with or without the return of ashes to the owner.

Low capacity incinerator sites

3.6 Incinerator sites where there are more than one incinerator with an aggregate capacity of more than 50 kilograms/hour may operate as a low capacity site if the incinerators are operated separately through an "interlock" which prevents simultaneous use of a single emission point - flue or vent.

Incinerators

3.7 Animal carcase incinerators can typically be operated by

- loading continuously, without a cool-down period for weeks or months (unlikely to fall under this Guidance unless the incinerator capacity is small); **or**
- reloading before the previous load has burnt out, with a cool-down period every day of operation; **or**
- single load, with a cool-down period after each load.

3.8 The calculation of throughput varies with style of operation. Although the courts determine the interpretation of the law, within this note the following ways of calculating throughput should be of use to regulators and operators of processes and activities.

- continuous loaders - weight of average load divided by average period between load;

4.The Animal By-Products (Enforcement) (England) Regulations 2011, The Animal By-Products (Enforcement) (Scotland) Regulations 2011, The Animal By-Products (Enforcement) Regulations (Northern Ireland) 2011

- reloaders - total weight loaded between cool-downs divided by time from first loading after cool-down to when waste is combusted;

- single load - weight loaded between cool-downs divided by time from loading to when waste is combusted;

- "when waste is combusted" one indication for this might be when the temperature in the secondary zone legally falls below 850ºC.

- Incinerator manufacturers can declare the throughput of the various models. Low capacity incinerators either have Defra type approval found here **or** the more recent models have a manufacturers declaration of the throughput. A model declaration can be found here.

3.9 Some animal carcase incinerators reload once the load volume in the combustor has diminished and may reload several times in a day before the previous load is completely combusted. At the end of the day when waste is completely combusted, the primary chamber temperature is then allowed to fall, and once cooler the ash is removed. In this note, reloading incinerators should be treated as continuous incinerators if the period from when all waste is combusted to the next loading is less than 6 hours.

3.10 Most animal carcase incinerators are loaded via the top or side, and via a sealed feeder or through a door opened during loading. The load may be in pieces or loaded whole. Automatic feed can be via ram feeder, bin feeder or horizontal feed hopper which should be a sealed unit which does not emit fumes during loading. Mechanical feed might be by forklift with modified half barrel into the feed mechanism or direct into the combustion chamber.

3.11 Where used, loading doors shall be open for the minimum period to allow loading. The opening time will be dependant upon the unit in use - times will be consistent with the operating manual, however the period when the loading doors are open will be less than 3 minutes.

3.12 Grates are usually fixed hearth to catch liquids e.g. fat that melts, stepped hearths are less common.

3.13 Continuous incinerators and some reloaders have automatic de-ashing arrangements.

3.14 Fuels used include natural gas, LPG, gas oil, and red diesel.

3.15 The secondary chamber varies in shape and location, often depending on the space available on site. It is designed with no dead zones to promote the thorough mixing of gases.

4. Emission limits, monitoring and other provisions

4.1 Emissions of the substances listed in **Table 4.1** should be controlled.

4.2 The emission limit values and provisions described in this section are achievable using the best available techniques described in **Section 5**. Monitoring of emissions should be carried out according to the method specified in this section or by an equivalent method agreed by the regulator. Where reference is made to a British, European, or International standard (BS, CEN or ISO) in this section, the standards referred to are correct at the date of publication. (Users of this note should bear in mind that the standards are periodically amended, updated or replaced.) The latest information regarding the monitoring standards applicable can be found at the Source Testing Association website. Further information on monitoring can be found in Environment Agency publications, M1 and M2.

4.3 All activities should comply with the emission limits and provisions with regard to releases in **Table 4.1**.

The reference conditions for limits in Section 4 are: 273.1K, 101.3kPa, 11% Oxygen, dry gas.

Table 4.1 should be considered in conjunction with the monitoring paragraphs found later in this section.

Table 4.1 - Emission limits, monitoring and other provisions				
Row	**Determinand**	**Emission limits/provisions**	**Monitoring**	**Monitoring frequency**
1	Total Particulate Matter	100mg/m^3	Indicative monitoring and recording	Continuous
			Manual extractive test	Annual
2	Hydrogen Chloride (excluding particulate matter)	100mg/m^3	Manual extractive testing	Annual
3	Carbon Monoxide	100mg/m^3 as an hourly average 150mg/m^3 for 95% of all measurements, determined as 10 minute averages, in any 24 hour period	Quantitative monitoring and recording	Continuous
			Manual extractive test	Annual
4	Organic Compounds (excluding particulate matter)	10 mg/m^3 as total carbon	Manual extractive test	Annual Manual extractive test
5	Oxygen	Minimum 3% and average 6% by volume	Measure at or after the end of retention zone in secondary chamber and	Continuously
			Measure at same location as annual manual extractive tests	Concurrently throughout annual manual extractive tests
6	Secondary Chamber Temperature	Minimum 850°C[5] at start and at or after the end of retention zone in secondary chamber	Measure at start and at or after the end of retention zone in secondary chamber	Continuously
7	Secondary Chamber retention time	Minimum 2 seconds[5] after the last injection of combustion air	Demonstrate or calculate	On commissioning

5. EC142/2011 gives the option for gas resulting from the process to be raised to a temperature of 850 ^{o}C for at least 2 seconds or to a temperature of 1100 ^{o}C for 0.2 seconds.

Monitoring, investigating and reporting

4.4 The charging system must be interlocked to prevent the addition of any material to the combustion zone if the secondary chamber temperature is below 850°C[5]. Mechanical charging should be required. Automatic feed should be required for new plant.

4.5 Continuous incinerators (i.e. those with a cool down period of less than 6 hours) should be fitted with automatic de-ashing.

4.6 There may be cases where there is more than one incinerator on the same premises which have an aggregated capacity of 50 kilograms an hour or more. They may operate as less than 50kg/hr plant provided they are operated separately either:

a) through an "interlock" which prevents simultaneous use of a single emission point - flue or vent; **or**

b) are co-located but independent and the aggregated value of the units is less than 50kg/hr.

Also, these <50kg/hr plant should not need any more monitoring than specified in operation section of the Animal Health website. There may also be opportunities for local authority regulators to work with the Animal Health and Veterinary Laboratories Agency so as to reduce the number of inspection visits.

4.7 The operator should monitor emissions, make tests and inspections of the activity. The need for and scope of testing (including the frequency and time of sampling) will depend on local circumstances.

- The operator should keep records of inspections, tests and monitoring, including all non-continuous monitoring, inspections and visual assessments. Records should be:
  - kept on site;
  - kept by the operator for at least two years; **and**
  - made available for the regulator to examine.
- If any records are kept off-site they should be made available for inspection within one working week of any request by the regulator.

Annual manual tests should be undertaken when the incinerator is operated at 100% of its design capacity, at under 10 tonnes per day, and over an appropriate period of the incineration cycle. The operator should state date, time and state why the period of the incineration cycle is suitable for sampling.

Information required by the regulator

4.8 The regulator needs to be informed of monitoring to be carried out and the results. The results should include process conditions at the time of monitoring.

- The operator should notify the regulator at least 7 days before any periodic monitoring exercise to determine compliance with emission limit values. The operator should state the provisional time and date of monitoring, pollutants to be tested and the methods to be used.

- The results of non-continuous emission testing should be forwarded to the regulator within 8 weeks of completion of the sampling.

- Adverse results from any monitoring activity (both continuous and non-continuous) should be investigated by the operator as soon as the monitoring data has been obtained. The operator should:

  - identify the cause and take corrective action;

  - clearly record as much detail as possible regarding the cause and extent of the problem, and the remedial action taken;

  - re-test to demonstrate compliance as soon as possible; **and** inform the regulator of the steps taken and the re-test results.

Visible emissions

4.9 The aim should be to prevent any visible airborne emission from any part of the process. This aim includes all sites regardless of location. Monitoring to identify the origin of a visible emission should be undertaken and a variety of indicative techniques are available.

- where ambient monitoring is carried out it may also be appropriate for the regulator to specify recording of wind direction and strength;

- where combustion units are in use for dryers then the combustion process should be controlled and equipment maintained as appropriate.

4.10 Emissions from combustion processes in normal operation should be free from visible smoke. During start up and shut down the emissions should not exceed the equivalent of Ringelmann Shade 1 as described in British Standard BS 2742:2009.

- All other releases to air, other than condensed water vapour, should be free from persistent visible emissions.

- All emissions to air should be free from droplets.

Where there are problems that, in the opinion of the regulator, may be attributable to the installation, such as local complaints of visual emissions or where dust from the installation is being detected beyond the site boundary, the operator should investigate in order to find out which part of their operation(s) is the cause.

If this inspection does not lead to correction of the problem then the operator should inform the regulator who will determine whether ambient air monitoring is necessary. Ambient monitoring may either be by a British Standard method or by a method agreed with the regulator.

Whilst problems are ongoing, a visual check should also be made at least once per day/shift, by the operator, when an installation is being operated. The time, location and result of these checks, along with weather conditions such as indicative wind direction and strength, should be recorded. Once the source of the emission is known, corrective action should be taken without delay and where appropriate the regulator may want to vary the permit in order to add a condition requiring the particular measure(s) to be undertaken.

Emissions of odour

4.11 The overall aim should be that all emissions are free from offensive odour outside the site boundary, as perceived by the regulator. However, the location of the installation will influence the assessment of the potential for odour impact as local meteorological conditions may lead to poor dispersion conditions. Where the site has a low odour impact due to its remoteness from sensitive receptors, the escape of offensive odour beyond the installation would be unlikely to cause harm.

4.12 Where there are problems that, in the opinion of the regulator, may be attributable to the installation, such as local complaints of odour or where odour from the installation is being detected beyond the site boundary, the operator should investigate in order to find out which part of their operation(s) is the cause.

4.13 Whilst problems are ongoing, a boundary check should also be made at least once per day/shift, by the operator, when an installation is being operated. The time, location and result of these checks, along with weather conditions such as indicative wind direction and strength, should be recorded. Once the source of the emission is known, corrective action should be taken without delay and where appropriate the regulator may want to vary the permit in order to add a condition requiring the particular measure(s) to be undertaken.

Abnormal events

4.14 The operator should respond to problems which may have an adverse effect on emissions to air.

- In the case of abnormal emissions, malfunction or breakdown leading to abnormal emissions the operator should:
  - investigate and undertake remedial action immediately;
  - adjust the process or activity to minimise those emissions; **and**
  - promptly record the events and actions taken.
- The regulator should be informed without delay, whether or not there is related monitoring showing an adverse result:
  - if there is an emission that is likely to have an effect on the local community; **or**
  - in the event of the failure of key arrestment plant, for example, bag filtration plant or scrubber units.
- The operator should provide a list of key arrestment plant and should have a written procedure for dealing with its failure, in order to minimise any adverse effects.

Start up and shutdown

4.15 Higher emissions may occur during start-up and shut-down of a process. These emissions can be reduced, by minimising, where possible, the number of start-ups and shut-downs and having adequate procedures in place for start-up, shut-down and emergency shut-downs.

- The number of start-ups and shut downs should be kept to the minimum that is reasonably practicable.
- All appropriate precautions must be taken to minimise emissions during start-up and shutdown.

Continuous monitoring

4.16 Continuous monitoring can be either ‘quantitative’ or ‘indicative’. With quantitative monitoring the discharge of the pollutant(s) of concern is measured and recorded numerically. For pollution control this measurement is normally expressed in milligrams per cubic metre of air (mg/m^3). Where discharge of the pollutant concerned is controlled by measuring an alternative parameter (the ‘surrogate’ measurement), this surrogate is also expressed numerically.

Continuous indicative monitoring is where a permanent device is fitted, for example, to detect leaks in a bag filter, but the output, whether expressed numerically or not, does not show the true value of the discharge. When connected to a continuous recorder it will show that emissions are gradually (or rapidly) increasing, and therefore maintenance is required. Alternatively it can trigger an alarm when there is a sudden increase in emissions, such as when arrestment plant has failed.

4.17 Where continuous indicative monitoring has been specified, the information provided should be used as a management tool. Where used, the monitor should be set up to provide a baseline output when the plant is known to be operating under the best possible conditions and emissions are complying with the requirements of the permit. Where used to trigger alarms, the instrument manufacturer should be able to set an output level which corresponds to around 75% of the emission limit. Thus the alarms are activated in response to this significant increase in pollutant loading above the baseline, so that warning of the changed state is given before an unacceptable emission occurs. The regulator may wish to agree the alarm trigger level.

4.18 Where continuous monitoring is required, it should be carried out as follows:

- All continuous monitoring readings should be on display to appropriately trained operating staff.
- Instruments should be fitted with audible and visual alarms, situated appropriately to warn the operator of arrestment plant failure or malfunction.
- The activation of alarms should be automatically recorded.
- All continuous monitors should be operated, maintained and calibrated (or referenced, in the case of indicative monitors) in accordance with the manufacturers’ instructions, which should be made available for inspection by the regulator. The relevant maintenance and calibration (or referencing, in the case of indicative monitors) should be recorded.

- Emission concentrations may be reported as zero when the plant is off and there is no flow from the stack. If required a competent person should confirm that zero is more appropriate than the measured stack concentration if there is no flow.

- Any continuous monitor used should provide reliable data >95% of the operating time, (i.e. availability >95%). A manual or automatic procedure should be in place to detect instrument malfunction and to monitor instrument availability.

Calibration and compliance monitoring

4.19 Compliance monitoring can be carried out either by use of a continuous emissions monitor (CEM), or by a specific extractive test carried out at a frequency agreed with the regulator.

4.20 Where a CEM is used for compliance purposes it must be periodically checked, (calibrated), to ensure the readings being reported are correct. This calibration is normally done by carrying out a parallel stand-alone extractive test and comparing the results with those provided by the CEM.

4.21 For extractive testing the sampling should meet the following requirements:

- For batch processes, where the production operation is complete within, say, 2 hours, then the extractive sampling should take place over a complete cycle of the activity.

4.22 Should the activity either be continuous, or have a batch cycle that is not compatible with the time available for sampling, then the data required should be obtained over a minimum period of 2 hours in total.

- For demonstration of compliance where a CEM is used no daily mean of all 15-minute mean emission concentrations should exceed the specified emission concentration limits during normal operation (excluding start-up and shut-down); **and**

- No 15-minute mean emission concentration should exceed twice the specified emission concentration limits during normal operation (excluding start-up and shut-down).

- For extractive testing, no result of monitoring should exceed the emission limit concentrations specified.

4.23 Exhaust flow rates should be consistent with efficient capture of emissions, good operating practice and meeting the requirements of the legislation relating to the workplace environment.

- The introduction of dilution air to achieve emission concentration limits should not be permitted.

Dilution air may be added for waste gas cooling or improved dispersion where this is shown to be necessary because of the operational requirements of the plant, but this additional air should be discounted when determining the mass concentration of the pollutant in the waste gases.

Varying of monitoring frequency

4.24 Where non-continuous quantitative monitoring is required, the frequency may be varied. Where there is consistent compliance with emission limits, regulators may consider reducing the frequency. However, any significant process changes that might have affected the monitored emission should be taken into account in making the decision.

4.25 When determining "consistent compliance" the following are cases which might not qualify for a reduction in monitoring:

a) variability of results: cases where monitoring results vary widely and include results in the range 30-45mg/m^3 (when the emission limit is 50mg/m^3)

b) the margin between the results and the emission limit: cases where results over a period are 45mg/m^3 or more (when the emission limit is 50mg/m^3).

Consistent compliance should be demonstrated using the results from at least;

- three or more consecutive annual monitoring campaigns; **or**
- two or more consecutive annual monitoring campaigns supported by continuous monitoring.

Where a new or substantially changed process is being commissioned, or where emission levels are near to or approach the emission concentration limits, regulators should consider increasing the frequency of testing.

4.26 A reduction in monitoring frequency should not be permitted where continuous quantitative or indicative monitoring is required. These types of monitoring are needed to demonstrate at all times when the plant is operating, that either the emission limits are being complied with or that the arrestment equipment is functioning correctly.

Monitoring of unabated releases

4.27 Where emission limit values are consistently met without the use of abatement equipment, the monitoring requirement for those pollutants should be dispensed with subject to the “Varying of monitoring frequency” paragraphs above.

Representative sampling

4.28 Whether sampling on a continuous or non-continuous basis, care is needed in the design and location of sampling systems, in order to obtain representative samples for all release points.

- Sampling points on new plant should be designed to comply with the British or equivalent standards (see **paragraph 4.2).**
- The operator should ensure that relevant stacks or ducts are fitted with facilities for sampling which allow compliance with the sampling standards.

5. Control techniques

Summary of best available techniques

5.1 **Table 5.1** provides a summary of the best available techniques that can be used to control the process in order to meet the emission limits and provisions in **Section 4**. Provided that it is demonstrated to the satisfaction of the regulator that an equivalent level of control will be achieved, then other techniques may be used.

Table 5.1 - Summary of control techniques

Source	Substance	Control techniques
Flue Gas	Odour	Good Combustion
	Particulate Matter	Good combustion, low gas velocity in combustion phase, if necessary arrest emissions
	Sulphur Oxides	Limit sulphur in fuel oil, arrest if necessary
	Carbon monoxide	Good Combustion
	Hydrogen chloride	Arrest if necessary
	Volatile Organic Compounds	Good combustion
	Dioxins	Avoid combusting precursors. Good combustion, if necessary particle arrestment
Ash	Particulate Matter	Contain

Techniques to control emissions from contained sources

5.2 Good combustion includes the continuous control of primary and secondary combustion including oxygen and carbon monoxide levels and achieves satisfactory burnout.

5.3 At the design stage, the 2 second residence time might be calculated from manufacturer's data but during commissioning the 2 second residence time should be demonstrated, either be measured or be calculated from actual combustion data, e.g. measured gas flow rates and pressures together with the known volume of the secondary chamber. Good mixing of the gases in the secondary chamber should be designed in. CFD (computational fluid dynamics) is not required, but should be acceptable. The 2 seconds is not corrected for temperature, so very high temperatures which arise from too rapid incineration can cause non-compliance due to the larger volume of gases combusted at the same time as the gases occupy a larger volume due to their higher temperature.

5.4 For new plant, loading and reloading should be by sealed unit. Where reloading through unsealed routes is not avoidable, the furnace should be open for the minimum time, which should not in any case exceed 180 seconds. Melted fat or other liquids should not run out of doors or other openings. Skinned fresh meat, and frozen meat will require different times and procedures to control emissions and achieve burn out e.g. a lower primary chamber temperature for skinned fresh meat may be needed to slow the initial rate of combustion.

Particulate Matter

5.5 Good combustion. Sealed loading and reloading. Emissions of particulate matter via the flue should be filtered if necessary to meet the emission limit. Where loading is not sealed, the incinerator should be indoors to prevent windwhipping of ash while the door is open. During deashing air flows should be controlled to minimise ash pickup from the bed. Continuous incinerators should have automatic de-ashing

Dioxins

5.6 Good combustion and low particulate emissions minimise the emission of dioxins (polychlorinated dibenzo-p-dioxins and polychlorinated dibenzofurans). PVC packaging should not be used.

Techniques to control fugitive emissions

Odour control

5.7 Odour from the receipt, handling and storage of animal carcases may cause offence at or beyond the process boundary. Prevention should involve

- the careful siting of animal carcase storage;
- setting different maximum storage times for un-refrigerated, refrigerated and frozen carcases; (up to one shift un-refrigerated may be reasonable, but if odour problems are expected or caused then refrigeration should be provided)
- preventing spillage of solid or liquids while carcases are being transferred e.g. carcases should be carried not dragged, e.g. half-barrel shovel for carrying carcases avoids dripping;
- vehicles, containers, trailers storage areas, loaders and all equipment should be designed for easy cleaning and disinfection, impervious and kept clean;
- storage areas where carcases are handled should have a resistant finish and slope to a holding pit.

Dust and spillage control

5.8 De-ashing should be enclosed and made directly into an enclosed transport skip. Where the enclosure is not tightly sealed, there should be air extraction and a filter.

5.9 All spillages should be cleared as soon as possible; solids by vacuum cleaning, wet methods, or other appropriate techniques. Dry sweeping of dusty spillages should not be permitted.

5.10 A high standard of housekeeping should be maintained.

Air quality

Dispersion & dilution

5.11 Pollutants that are emitted via a stack require sufficient dispersion and dilution in the atmosphere to ensure that they ground at concentrations that are deemed harmless. This is the basis upon which stack heights are calculated using HMIP Technical Guidance Note (Dispersion) D1. The stack height so obtained is adjusted to take into account local meteorological data, local topography, nearby emissions and the influence of plant structure.

5.12 The calculation procedure of D1 is usually used to calculate the required stack height but alternative dispersion models may be used in agreement with the regulator. An operator may choose to meet tighter emission limits in order to reduce the required stack height.

5.13 Where an emission consists purely of air and particulate matter, (i.e. no products of combustion or any other gaseous pollutants are emitted) the above provisions relating to stack height calculation for the purpose of dispersion and dilution should not normally be applied. Revised stack height calculations should not be required as a result of publication of this revision of the PG note, unless it is considered necessary because of a breach or serious risk of breach of an EC Directive limit value or because it is clear from the detailed review and assessment work that the permitted process itself is a significant contributor to the problem.

5.14 Where offensive odour is likely outside the process site boundary the assessment of stack or vent height should take into account the need to render harmless residual offensive odour.

Ambient air quality management

5.15 In areas where air quality standards or objectives are being breached or are in serious risk of breach and it is clear from the detailed review and assessment work under Local Air Quality Management that the permitted process itself is a significant contributor to the problem, it may be necessary to impose tighter emission limits. If the standard that is in danger of being exceeded is not an EC Directive requirement, then industry is not expected to go beyond BAT to meet it. Decisions should be taken in the context of a local authority's Local Air Quality Management action plan. For example, where a permitted process is only responsible to a very small extent for an air quality problem, the authority should not unduly penalise the operator of the process by requiring disproportionate emissions reductions. Paragraph 59 of the Air Quality Strategy 2007 [Volume 1] gives the following advice:

"...In drawing up action plans, local authority environmental health/pollution teams are expected to engage local authority officers across different departments, particularly, land-use and transport planners to ensure the actions are supported by all parts of the authority. In addition, engagement with the wider panorama of relevant stakeholders, including the public, is required to ensure action plans are fit-for-purpose in addressing air quality issues. It is vital that all those organisations, groups and individuals that have an impact upon local air quality, buy-in and work towards objectives of an adopted action plan."

Stacks, vents and process exhausts

5.16 Liquid condensation on internal surfaces of stacks and exhaust ducts might lead to corrosion and ductwork failure or to droplet emission. Adequate insulation will minimise the cooling of waste gases and prevent liquid condensation by keeping the temperature of the exhaust gases above the dewpoint. A leak in a stack/vent and the associated ductwork, or a build up of material on the internal surfaces may affect dispersion:

5.17 Flues and ductwork should be cleaned to prevent accumulation of materials, as part of the routine maintenance programme.

5.18 When dispersion of pollutants discharged from the stack (or vent) is necessary, the target exit velocity should be 15m/s under normal operating conditions, (but see paragraph below regarding wet plumes). In order to ensure dispersion is not impaired by either low exit velocity at the point of discharge, or deflection of the discharge, a cap, or other restriction, should not be used at the stack exit. However, a cone may sometimes be useful to increase the exit velocity to achieve greater dispersion.

5.19 An exception to the above is where wet arrestment is used as the abatement. Unacceptable emissions of droplets could occur from such plant where the linear velocity in the stack exceeds 9m/s. To reduce the potential of droplet emissions a mist eliminator should be used. Where a linear velocity of 9m/s is exceeded in existing plant consideration should be given to reducing this velocity as far as practicable to ensure such droplet entrainment and fall out does not happen.

Management

Management techniques

5.20 Important elements for effective control of emissions include:

- proper management, supervision and training for process operations;
- proper use of equipment;
- effective preventative maintenance on all plant and equipment concerned with the control of emissions to the air; **and**
- ensuring that spares and consumables - in particular, those subject to continual wear – are held on site, or available at short notice from guaranteed local suppliers, so that plant breakdowns can be rectified rapidly. This is important with respect to arrestment plant and other necessary environmental controls. It is useful to have an audited list of essential items.

Appropriate management systems

5.21 Effective management is central to environmental performance; it is an important component of BAT and of achieving compliance with permit conditions. It requires a commitment to establishing objectives, setting targets, measuring progress and revising the objectives according to results. This includes managing risks under normal operating conditions and in accidents and emergencies. It is therefore desirable that installations put in place some form of structured environmental management approach, whether by adopting published standards (ISO 14001 or the EU Eco Management and Audit Scheme [EMAS]) or by setting up an environmental management system (EMS) tailored to the nature and size of the particular process. Operators may also find that an EMS will help identify business savings.

Regulators should use their discretion, in consultation with individual operators, in agreeing the appropriate level of environmental management. Simple systems which ensure that LAPPC considerations are taken account of in the day-to-day running of a process may well suffice, especially for small and medium-sized enterprises. Regulators are urged to encourage operators to have an EMS for all their activities, but it is outside the legal scope of an LAPPC permit to require an EMS for purposes other than LAPPC compliance. For further information/advice on EMS refer to the appropriate chapter of the appropriate Guidance Manual for England and Wales, Scotland and Northern Ireland.

Training

5.22 Staff at all levels need the necessary training and instruction in their duties relating to control of the process and emissions to air. In order to minimise risk of emissions, particular emphasis should be given to control procedures during start-up, shut down and abnormal conditions. Training may often sensibly be addressed in the EMS referred to above.

- All staff whose functions could impact on air emissions from the activity should receive appropriate training on those functions. This should include:
  - awareness of their responsibilities under the permit;
  - steps that are necessary to minimise emissions during start-up and shutdown;
  - actions to take when there are abnormal conditions, or accidents or spillages that could, if not controlled, result in emissions.
- The operator should maintain a statement of training requirements for each post with the above mentioned functions and keep a record of the training received by each person. These documents should be made available to the regulator on request.

Maintenance

5.23 Effective preventative maintenance plays a key part in achieving compliance with emission limits and other provisions. All aspects of the process including all plant, buildings and the equipment concerned with the control of emissions to air should be properly maintained. In particular:

- The operator should have the following available for inspection by the regulator:
  - a written maintenance programme for all pollution control equipment; **and**
  - a record of maintenance that has been undertaken.

6. Summary of changes

The main changes to this note, with the reasons for the change, are summarised in **Table 6.1**. Minor changes that will not impact on the permit conditions e.g. slight alterations to the Process Description have not been recorded.

Table 6.1 - Summary of changes			
Section/ paragraph/ row	**Change**	**Reason**	**Comment**
Introduction			
Title of note	Statutory Guidance - Changed from Secretary of State's Guidance	Accommodation of the devolved administrations	
Full note	Simplification of Text	Clarify Note	
	Addition of hyperlinks	Change to electronic format	Removes the need for extensive footnotes/references
Emission limits, monitoring and other provisions			
Allowance of incineration of packaging	PVC packaging used to contain infectivity. Protect human health and match full PPC sector requirement Ensures a clear policy with regard to WID	Allowance of incineration of packaging	PVC packaging used to contain infectivity. Protect human health and match full PPC sector requirement Ensures a clear policy with regard to WID
Para 4.6	Removal of single under 50kg/hr incinerators from general monitoring.	Bring incinerators which independently fall under the low capacity scheme into line with the requirements of this scheme while retaining Part B regulation.	Clarifies a uniform issue and ensures a balance with competitor sites regarding emission control and costs.
Table 4.1 Row 6 & 7	Addition of footnote to clarify that there is a new temperature and residence time option.	Ensure that Guidance Note reflects regulations.	Unlikely to be used within Part B due to the complexity of the combustion unit required but needs to be identified for completeness.
Control Techniques			
	Revised text describing approach to take to visible and odorous emissions. Removal of arrowed condition suggesting inclusion of an odour boundary condition.	Allows more flexibility in managing visible/odorous emissions	Conditions requiring boundary checks will normally only be appropriate where potential odour is particularly offensive

7. Further information

Sustainable consumption and production (SCP)

Both business and the environment can benefit from adopting sustainable consumption and production practices. Estimates of potential business savings include:

- £6.4 billion a year UK business savings from resource efficiency measures that cost little or nothing;
- 2% of annual profit lost through inefficient management of energy, water and waste;
- 4% of turnover is spent on waste.

When making arrangement to comply with permit conditions, operators are strongly advised to use the opportunity to look into what other steps they may be able to take. Regulators may be willing to provide assistance and ideas, although cannot be expected to act as unpaid consultants.

Health and safety

Operators of installations must protect people at work as well as the environment:

- requirements of a permit should not put at risk the health, safety or welfare of people at work or those who may be harmed by the work activity;
- equally, the permit must not contain conditions whose only purpose is to secure the health of people at work. That is the job of the health and safety enforcing authorities.

Where emission limits quoted in this guidance conflict with health and safety limits, the tighter limit should prevail because:

- emission limits under the relevant environmental legislation relate to the concentration of pollutant released into the air from prescribed activities;
- exposure limits under health and safety legislation relate to the concentration of pollutant in the air breathed by workers;
- these limits may differ since they are set according to different criteria. It will normally be quite appropriate to have different standards for the same pollutant, but in some cases they may be in conflict (for example, where air discharged from a process is breathed by workers). In such cases, the tighter limit should be applied to prevent a relaxation of control.

Further advice on responding to incidents

The UK Environment Agencies have published guidance on producing an incident response plan to deal with environmental incidents. Only those aspects relating to air emissions can be subject to regulation via a Part B (Part C in NI) permit, but regulators may nonetheless wish to informally draw the attention of all appropriate operators to the guidance.

It is not envisaged that regulators will often want to include conditions, in addition to those advised in this PG note, specifying particular incident response arrangements aimed at minimising air emissions. Regulators should decide this on a case-by-case basis. In accordance with BAT, any such conditions should be proportionate to the risk, including the potential for harm from air emissions if an incident were to occur. Account should therefore be taken of matters such as the amount and type of materials held on site which might be affected by an incident, the likelihood of an incident occurring, the sensitivity of the location of the installation, and the cost of producing any plans and taking any additional measures.

Appendix 1 - Model Permit Application form

Application for a permit for an animal carcass incinerator operating at a rate of 50 kilograms or more per hour and less than 10 tonnes per day.

Local Authority Pollution Prevention and Control
Pollution Prevention and Control Act, 1999
Environmental Permitting (England and Wales) Regulations 2010

Introduction

When to use this form

Use this form if you are applying for a permit to a Local Authority to operate an animal carcass incinerator operating at a rate of 50 kilograms or more per hour and less than 10 tonnes per day.

The appropriate fee must be enclosed with the application to enable it to be processed further. When complete, send the form and the fee and any additional information to:

[Insert local authority address]

If you need help and advice

We have made the application form as straightforward as possible, but please get in touch with us at the local authority address given above if you need any advice on how to set out the information we need.

For the purposes of Section G of the form, a relevant offence is any conviction for an offence relating to the environment or environmental regulation.

For Local Authority use		
Application reference	Officer reference	Date received

LAPPC application form - to be completed by the operator

A The basics

A1 Name and address of the installation

Postcode: Telephone:

A2 Details of any existing environmental permit or consent

(for waste operations, include planning permission for the site, plus established use certificates, a certificate of lawful existing use, or evidence why the General Permitted Development Order applies.)

A3 Operator details

(The 'operator' = the person who it is proposed will have control over the installation in accordance with the permit (if granted).)

Name: Trading name, if different:
Registered office address: Principal office address, if different:
Company registration number:

A4 Any holding company?

Is the operator a subsidiary of a holding company within the meaning of section 1159 of the Companies Act 2006? If "yes" please fill in details of the ultimate holding company.

☐ Yes ☐ No

Name: Trading name, if different:
Registered office address: Principal office address, if different:
Company registration number:

A5 Who can we contact about your application?

It will help to have someone who we can contact directly with any questions about your application. The person you name should have the authority to act on behalf of the operator - This can be an agent or consultant.

Name and position: _____ Telephone: _____ Email: _____

B The installation

B1 What activities are or will be carried on at the installation?

Please include “directly associated activities” – this term is explained in Annex III in Part B of the general guidance manual.

B2 Why is the application being made?

☐ new installation

☐ change to existing installation means it now needs a permit

B3 Site maps – please provide:

- **A location map with a red line round the boundary of the installation**

Document reference: _____

- **A site plan or plans showing where all the relevant activities are on site:**

a) where the processing plant will be installed

b) the areas and buildings/structures designated for materials and waste storage and the type of storage

c) the conveyors and transfer points

d) any directly associated activities or waste operations.

To save applying for permit variations, you can also show where on site you might want to use for storage etc in the future.

Document reference: _____

C The details

C1 Which of the following will the animal carcasses be stored in?

a) silo ☐ (tick all that apply)
b) bulk storage tank ☐
c) within a building ☐
d) in fully-enclosed containers/packaging ☐
e) other - please specify ☐

C2 How will raw materials, finished products and waste be moved on site?

a) fully-enclosed transport ☐ *(tick all that apply)*
b) sheeted transport ☐
c) other - please specify ☐

C3 Do you have environmental management procedures and policy?

☐ Yes ☐ No

If 'yes', please supply a copy.

C4 Are there any sites of special scientific interest (SSSIs) or European protected sites nearer than any of the following distances to the proposed installation?

- 2km - where the installation includes Part B combustion, incineration (not cremation), iron and steel, or non-ferrous metal activities 1km - where the installation involves mineral or cement and lime activities
- 1km - where the installation involves mineral or cement and lime activities
- ½ km - in all other cases?

☐ Yes ☐ No

If 'yes', is the installation likely to have a significant effect on these sites and, if so, what are the implications for the purposes of the Conservation (Natural Habitats etc) Regulations 1994 (see appendix 2 of Annex XVII of the general guidance manual)

C5 Will emissions from the activity potentially have significant environmental effects (including nuisance)?

☐ Yes ☐ No If 'yes',

a) list the potential significant local environmental effects (including nuisance) of the foreseeable emissions

Document Reference: _____

b) enclose a copy of any environmental impact assessment been carried out for the installation under planning legislation or for any other purpose.

D Anything else?

Please tell us of anything else you would like us to take account of:

Document reference: _____

E Application fee

You must enclose the relevant fee with your application.

If your application is successful you will also have to pay an annual subsistence charge, so please say who you want invoices to be sent to.

Name and position:_____

Telephone:_____

Email:_____

F Protection of information

F1 Any confidential or national security information in your application?

If there is any information in your application you think should be kept off the public register for confidentiality or national security reasons, please say what and why. General guidance manual chapter 8 advises on what may be excluded. *(Do not include any national security information in your application. Send it, plus the omitted information, to the Secretary of State or Welsh Ministers who will decide what, if anything, can be made public.)*

Document reference : _____

F2 Please note: data protection

The information you give will be used by the Council to process your application. It will be placed on the relevant public register and used to monitor compliance with the permit conditions. We may also use and or disclose any of the information you give us in order to:

- consult with the public, public bodies and other organisations;
- carry out statistical analysis, research and development on environmental issues;
- provide public register information to enquirers;
- make sure you keep to the conditions of your permit and deal with any matters relating to your permit;
- investigate possible breaches of environmental law and take any resulting action;
- prevent breaches of environmental law;
- offer you documents or services relating to environmental matters;
- respond to requests for information under the Freedom of Information Act 2000 and the Environmental Information Regulations 2004; (if the Data Protection Act allows)
- assess customer service satisfaction and improve our service.

We may pass on the information to agents/representatives who we ask to do any of these things on our behalf.

F3 Please note: it is an offence to provide false information

It is an offence under regulation 38 of the EP Regulations, for the purpose of obtaining a permit (for yourself or anyone else), to:

- make a false statement which you know to be false or misleading in a material particular;
- recklessly make a statement which is false or misleading in a material particular;
- intentionally to make a false entry in any record required to be kept under any environmental permit condition;
- with intent to deceive, to forge or use a document issued or required for any purpose under any environmental permit condition.

If you make a false statement:

- we may prosecute you; **and**
- if you are convicted, you are liable to a fine or imprisonment (or both).

G Declarations A and B for signing, please

These declarations should be signed by the person listed in answer to question A3. Where more than one person is identified as the operator, all parties should sign. Where a company or other body corporate is the operator, an authorised person should sign and provide evidence of authority from the board.

Declaration A: I/We certify

EITHER - As evidence of my/our competence to operate this installation in accordance with the EP Regulations, no offences have been committed in the previous five years relating to the environment or environmental regulation.

OR - The following offences have been committed in the previous five years which may be relevant to my/our competence to operating this installation in accordance with the regulations:

Signature:_____ Name:_____

Position:_____ Date:_____

Declaration B:

I/We certify that the information in this application is correct. I/We apply for a permit in respect of the particulars described in this application (including the listed supporting documentation) I/we have supplied.

(Please note that each individual operator must sign the declaration themselves, even if an agent is acting on their behalf.)

Signature:_____ Name:_____

Position:_____ Date:_____

Signature:_____ Name:_____

Position:_____ Date:_____

Signature:_____ Name:_____

Position:_____ Date:_____

Appendix 2 - Model Permit

This Appendix contains a model permit for an animal carcass incinerator operating at a rate of 50 kilograms or more per hour and less than 10 tonnes per day – see paragraph 1.1 of this note and paragraph 3.6 of the General Guidance Manual on Policy and Procedures.

Notes:

- text in the model permit written in *italics* is advice to regulators.
- text in the model permit in [square brackets] offers choice to regulators or indicates where information needs to be inserted from the application;
- text bracketed with asterisks (eg *Alarms shall be tested at least once a week*.) may be omitted by a regulator where the past performance of the plant gives the local authority sufficient reassurance about operator compliance – "earned recognition";
- the model permit has been drafted for local authorities in England and Wales. Regulators in Scotland and Northern Ireland will need to amend the legal heading and, where appropriate, references to 'Council';
- references to 'installation' will need to be substituted with 'mobile plant' in relevant cases, and other amendments made accordingly;
- the purpose of the activity description is to set down the main characteristics of the activity, including any directly associated activities, so it is clear to all concerned what is being authorised by the permit and therefore what changes would need further approval. Regulators are advised to include a description of any key items of abatement and monitoring equipment the operator intends to use or is using;
- it should normally be sufficient for records relating to simplified permits to be kept for no more than [24] months. Where, however, as a result of a 'low risk' rating, inspections are undertaken less often, regulators may want to specify a period which ensures the records are available at the next inspection.

[ ] COUNCIL
POLLUTION PREVENTION AND CONTROL ACT 1999
Environmental Permitting Regulations 2010 (as amended)

Permit ref. no:

Name and address of person (A) authorised to operate the installation ('the operator'): **Registered number and office of company:** (if appropriate)

Address of permitted installation (B)

The installation boundary is shown in the plan attached to this permit.

Activity description

Conditions

The operator (**A**) is authorised to operate the activity[6] at the installation (**B**) subject to the following conditions.

1. No particulate matter shall be emitted beyond the installation boundary.

2. Incinerators shall operate at 850^{o}C for the combustion of animal carcasses.

3. Any temperature monitors shall be calibrated in accordance with the manufacturer's instructions. A copy of the instructions shall be available for inspection on request.

Control, monitoring and test techniques

4. Animal carcasses should be processed as soon as possible and storage shall be limited to 3 days as a maximum.

5. Processing records shall be maintained which will track carcass arrival and disposal times and dates.

6. All spillages shall be cleared as soon as possible by vacuum cleaning, wet methods, or other techniques that minimise dust.

7. The operator shall have available for inspection a record of the maintenance that has been undertaken.

8. Flues and ductwork shall be cleaned regularly to prevent accumulation of materials.

9. Staff at all levels shall receive the necessary training and instruction to enable them to comply with the conditions of this permit.

10. The operator shall notify the Council of any changes to the persons nominated in the application as the primary point of contact, and deputy.

11. A copy of this permit shall be kept at the permitted installation. All staff who should be aware of its content shall be told where it is kept.

12. All records made in compliance with this permit shall be kept in a written or computer log book or by using some other systematic method, and shall be clear and legible. If any entry is amended, a clear statement of the reason for doing so shall be included. Unless otherwise in this permit, all records required to be taken shall be kept available for inspection for at least 18 months years from the date of its being made. A copy of the manufacturers' instructions referred to in this permit shall be available for inspection on request.

Best available techniques

13. The best available techniques shall be used to prevent or, where that is not practicable, reduce emissions from the installation in relation to any aspect of the operation of the installation which is not regulated by any other condition of this permit.

14. If the operator proposes to make a change in operation of the installation, he must, at least 14 days before making the change, notify the regulator in writing. The notification must contain a description of the proposed change in operation. It is not necessary to make such a notification if an application to vary this permit has been made and the application contains a description of the proposed change. In this condition 'change in operation' means a change in the nature or functioning, or an extension, of the installation, which may have consequences for the environment.

[6] listed in Section 5.1, Part B, (a) in Part 2 of Schedule 1 to the Environmental Permitting Regulations

Table 1 - Emission limits, monitoring and other provisions				
Row	**Determinand**	**Emission limits/provisions**	**Monitoring**	**Monitoring frequency**
1	Total Particulate Matter	100mg/m^3	Indicative monitoring and recording	Continuous
			Manual extractive test	Annual
2	Hydrogen Chloride (excluding particulate matter)	100mg/m^3	Manual extractive testing	Annual
3	Carbon Monoxide	100mg/m^3 as an hourly average 150mg/m^3 for 95% of all measurements, determined as 10 minute averages, in any 24 hour period	Quantitative monitoring and recording	Continuous
			Manual extractive test	Annual
4	Organic Compounds (excluding particulate matter)	10 mg/m^3 as total carbon	Manual extractive test	Annual Manual extractive test
5	Oxygen	Minimum 3% and average 6% by volume	Measure at or after the end of retention zone in secondary chamber and	Continuously
			Measure at same location as annual manual extractive tests	Concurrently throughout annual manual extractive tests
6	Secondary Chamber Temperature	Minimum 850°C at start and at or after the end of retention zone in secondary chamber (see note e)	Measure at start and at or after the end of retention zone in secondary chamber	Continuously
7	Secondary Chamber retention time	Minimum 2 seconds after the last injection of combustion air (see note e)	Demonstrate or calculate	On commissioning

Notes:

a) The reference conditions for limits in Table 1 are: 273.1K, 101.3kPa, 11% Oxygen, dry gas.

b) All periodic monitoring shall be representative, and shall use standard methods.

c) *All periodic monitoring results shall be checked by the operator on receipt and sent to the Council within 8 weeks of the monitoring being undertaken.*

d) The [ ] emission limits do not apply during start-up and shut down. All emissions shall be kept to a minimum during these periods.

e) EC142/2011 gives the option for gas resulting from the process to be raised to a temperature of 850 ^{o}C for at least 2 seconds or to a temperature of 1100 ^{o}C for 0.2 seconds.

Right to Appeal

You have the right of appeal against this permit within 6 months of the date of the decision. The Council can tell you how to appeal [*or supply details with the permit*]. You will normally be expected to pay your own expenses during an appeal.

You will be liable for prosecution if you fail to comply with the conditions of this permit. If found guilty, the maximum penalty for each offence if prosecuted in a Magistrates Court is £50,000 and/or 6 months imprisonment. In a Crown Court it is an unlimited fine and/or 5 years imprisonment.

Our enforcement of your permit will be in accordance with the Regulators' Compliance Code