

PERMIT 009



POLLUTION PREVENTION AND CONTROL ACT 1999
 POLLUTION PREVENTION AND CONTROL (ENGLAND AND WALES)
 REGULATIONS 2000

PERMIT OF PROCESS

THIS IS TO CERTIFY THAT **Loughborough Crematorium,**
 AT **Leicester Road, Loughborough**

National Grid Ref: SK 545182

(The site location is shown on Appendix I/ 009 which forms part of this Permit)

has been duly permitted in accordance with Regulation 10 of the Pollution Prevention and Control (England and Wales) Regulations 2000 subject to the conditions outlined in this document.

Name of Operator: Dignity Crematorium Company Ltd
Registered Office Plantsbrook House, 94 The Parade, Sutton Coldfield
West Midlands B72 1PH

This Permit shall apply only to the premises occupied by the applicant, as specified and described in the Application for Permit submitted to the Borough of Charnwood. This Permit, consisting of 13 pages, shall be subject to replacement, variation or amendment, as may be considered appropriate by the Borough of Charnwood at any time, according to provisions of Regulations 12, 15, and 17 of the Pollution Prevention and Control (England and Wales) Regulations 2000

The conditions contained herein shall apply from the date of Permit unless otherwise stated.

Signed on behalf of Charnwood Borough Council

.....
 Matthew Holford, Environmental Health Manager
 (the delegated officer for the purpose)

Counter-signed Dated...29 June 2006

Directorate of Housing and Health, Environmental Protection
 Southfields, Southfields Road, Southfields Road, Loughborough LE11 2TX

PERMIT 009**LOUGHBOROUGH CREMATORIUM, LEICESTER ROAD, LOUGHBOROUGH****I.0 Process Description****I.1 Process**

The purpose of the plant is to carry out the cremation of human remains, together with the coffin. This process is included in Schedule I, Chapter 3, Section 3.5, Part B of the Pollution Prevention and Control (England and Wales) Regulations 2000. The best available techniques for pollution control from these processes are contained in Process Guidance Note PG 5/2(04) of the Secretary of State's Guidance for Crematoria

I.2 Plant Detail

The cremators are located in the Loughborough Crematorium, Leicester Road, Loughborough, which is shown on Appendix I/009

There are two Joule cremators located in the cremation room.

I.3 Plant Operation

The coffins are rested on the catafalque in the Chapel of Rest. After the service the coffin is moved to the bier trolley which transports the coffin to the cremator. The coffin is loaded into the cremator through the charge door when a sufficient temperature has been reached. The Crematorium handles approximately 30 cremations per week. Following completion of the cremation cycle the remains are raked out and stored in a covered container.

I.4 Emission Points

Emission Point		Emissions
I.	Stack containing the two flues from both cremators	Particulate carbon monoxide, hydrogen chloride, organic compounds.

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2.0 Monitoring, Sampling and Measurement of Emissions

2.1 As part of proper supervision the operator shall monitor emissions and make tests and inspections of the process. All sampling and tests required must be carried out when the cremator is operated at its usual operating capacity. The emissions which are required to be sampled are given in condition 3.6, together with their sampling frequency and suggested sampling technique.

2.2 The oxygen concentration at the outlet from the secondary combustion zone and at the point of continuous measurement of parameters referred to in condition 3.6 shall be continuously monitored.

2.3 All continuous monitoring instruments shall be checked daily and calibrated in accordance with the manufacturer's recommendations and at least once a year. Calibration of monitoring equipment must comply with paragraph 5.13 of PG 5/2.

All continuous monitor readings shall be continuously recorded and readings must be on immediate display to operating staff.

2.4 Visual and olfactory assessments of emissions emanating from the top of the chimney stack shall be made at least once a day from within the crematorium grounds, in particular to confirm continued operation of the particulate matter continuous monitoring instrument. Remedial action must be taken immediately in the case of abnormal emissions.

2.5 The results of all monitoring and inspections (including continuous monitor charts and records) shall be recorded and retained at the crematorium for a minimum of two years and made available by the operator for examination by the local authority inspector. The operator will investigate any adverse results and take any corrective action immediately, and the action taken recorded in a log book.

2.6 A summary of continued monitoring results shall be forwarded to the local authority at least every six months. This information shall include:- the information outlined in paragraph 5.9 of the Secretary of State's Process Guidance Note for Crematoria.

This information shall be set out in a manner the same as or equivalent to the example report in Section 10 of the PG Note.

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- 2.7 In any case where the emission measurement exceeds the concentration limits specified, the results shall be forwarded to the local authority. Where any emission concentration is more than twice the specified emission concentration limit, the local authority shall be advised immediately.
- 2.8 The results of all non-continuous emission testing shall be forwarded to the local authority within 8 weeks of the completion of the sampling.
- 2.9 All methods for emissions testing shall comply with the monitoring protocol attached as Schedule A or any other UKAS approved monitoring technique.

PERMIT 009**3.0 Emission Limits and Controls**

- 3.1 All emissions to air, other than steam or water vapour, shall be colourless and free from persistent mist. All emissions to air shall be free from persistent fume and free from droplets.
- 3.2 Emissions from the cremator shall, in normal operation, be free from visible smoke and no emission from the cremator shall exceed the equivalent of Ringelmann Shade I (BS 2742: 1969).
- 3.3 All emissions shall be free from offensive odour beyond the process boundary as perceived by the inspector.
- 3.4 All pollutant concentrations shall be expressed at reference conditions; 273 K, 101.3 kPa and 11% oxygen, dry gas.
- 3.5 Where continuous monitoring is undertaken:
- a) No more than 5% of all 60-minute mean emission concentrations shall exceed the specified emission concentration limits, and
 - b) No-60 minute mean emission concentration shall exceed twice the specified emission concentration limits.

Compliance with this requirement shall be demonstrated on a weekly basis.

- 3.6 Table I contains the specified emission concentration limits and no results obtained from non-continuous monitoring shall exceed the following emission concentration limits:

Table I

Pollutant	Concentration	Mass Limit	Sampling Frequency
Hydrogen chloride		300g/h	Annual
Total particle matter	80mg/m ³ (averaged over 60 minutes for 95% of cremations)		Continuous
		120g/h	Annual
Carbon monoxide	100mg/mg ³ (averaged over the first hour for 95% of cremations)		Continuous

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Organic compounds		30g/h	Annual
Carbon monoxide	200mg/m ³ (averaged over the first hour for all cremations)		Annual

3.7 The temperature of combustion gases at the last admission of secondary air into and at the exit from the secondary combustion zone must be continuously monitored and recorded. An alarm shall be triggered when the temperature in the secondary combustion zone falls below 1123°K (850°C).

3.8 An interlock shall prevent the cremator loading which clauses 3.7 or 4.8 are not met.

3.9 In the event of the crematoria plant being unable to maintain compliance with clauses 3.7 and 4.8, the following emission limit will be required to be achieved:-

Pollutant	Concentration	Mass Limit	Sampling Frequency
Polychlorinated dibenzo-p-dioxin and furan (PCDD/F)	4.5 micrograms as ITEQ per 3 cremations	1 monogram/m ³ as ITEQ	When required by the local authority inspector.

3.10 The compliance with clause 4.8 relating to the residence time of gases in the secondary combustion zone shall be demonstrated by measurement and calculation of the volume flow rate of gases through the cremators when any new cremators are commissioned.

3.11 The operator shall inform the local authority of its intentions to install mercury abatement equipment at the installation by 30 June 2006. If the operator intends to install mercury abatement equipment, then it shall be fitted by 31 December 2012 and shall be capable of operating in a manner that complies with all of the relevant provisions of PG 5/2 and Additional Guidance Note AQ11(05).

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4.0 Chimneys, Vents and Process Exhausts

- 4.1 The chimney height shall be 12.5 metres above ground level and 4.5 metres above the roof ridge level.
- 4.2 Chimneys or vents shall be designed to achieve an efflux velocity of not less than 15m/sec in normal operation.
- 4.3 Chimney flues and the ductwork leading to the chimney shall be insulated to minimise the cooling of waste gases and prevent liquid condensation on internal surfaces.

Chimney flues and ductwork shall be cleaned every 6 months to prevent accumulation of material. Care shall be taken in handling residues produced whenever the chimney flues and ductwork are cleaned. (Operators should bear in mind their obligations under waste disposal legislation as to the safe disposal of these residues. The Environment Agency will advise on suitable disposal outlets).

- 4.4 Chimneys or process vents shall not be fitted with any restriction at the final opening, for example a plate, cap or cowl, where it is necessary to achieve dispersion of the residual pollutants.
- 4.5 All cremators shall be designed to ensure complete combustion and shall be fitted with a secondary combustion zone. The temperature of gases at the entrance to and exit from the secondary combustion zone shall be continuously monitored and continuously recorded. Visual alarms must be triggered when the temperature in the secondary combustion zone falls below that specified in condition 4.8 below.
- 4.6 The gases shall be held at 1123K (850°C) for two seconds in the secondary combustion zone. The concentration of oxygen at the outlet of the secondary combustion zone shall be not more than 6% by volume if measured on a wet basis or an average of 6% by volume with a minimum of 3% by volume if measured dry
- 4.7 The charging system shall be interlocked to prevent the introduction of a coffin to the primary combustion zone unless the secondary combustion zone temperature exceeds that specified in condition 4.8 relevant to the cremator residence time of gases in the secondary combustion zone.
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5.0 Materials Handling

- 5.1 PVC and melamine materials shall not be cremated. Cardboard coffins shall not contain chlorine in the wet strength agent. Packaging for stillbirth, neonatal and foetal remains shall not include chlorinate plastics..
- 5.2 Coffins containing lead or zinc shall not be cremated.
- 5.3 The cremator shall be designed and operated in order to prevent the discharge of smoke, fumes, or other substances during charging.
- 5.4 The cremator and all ductwork shall be made and maintained leakproof if under negative pressure and gastight if under positive pressure to prevent the escape of gases from the ductwork or cremator to the air.
- 5.5 The remains in the cremator shall only be moved when calcination is completed.
- 5.6 The removal of ash and non-combustible residues shall be undertaken carefully so as to prevent dust emissions. Cremated remains shall be moved and stored in a covered container.
- 5.7 Dust emissions during the treatment of cremated remains shall be minimised. In meeting this requirement, all activities involving the handling of cremated remains which are likely to generate fugitive dust shall be undertaken in the ash processor and the ash transfer vent with the dust extraction facilities in operation

It is acceptable to monitor emissions from any arrestment plant fitted on commissioning testing only. Subsequent performance can be demonstrated indicatively, for example by the use of a pressure drop indicator on the bag filter.

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6.0 General

- 6.1 In addition to the specified conditions included in this Permit, a duty is implicitly imposed on the operator to use BAT in relation to any aspect of the process that is not covered by the specific conditions. This is the so-called 'residual' BAT duty. The Secretary of State's Process Guidance Notes (PG's) contain the Secretary of State's views on the techniques appropriate in order to achieve the BAT objectives.

Essentially they relate to any aspect of the process not regulated by the specific conditions in the Permit and require that the best available techniques not entailing excessive cost shall be used:-

- (a) For preventing the release of substances prescribed for air into the air, or where that is not practical by such means, for reducing the release into the air of such substances to a minimum and for rendering harmless any such substances which are so released and
 - (b) For rendering harmless any other substances which might cause harm if released into the air.
- 6.2 Persons employed on the premises, whether employed by the company, or otherwise, shall be given such information, training and supervision as is necessary for the achievement of compliance with this Permit. Matters covered by such information in training shall include:-
- a) Start-up and shut-down of process operations
 - b) Plant failure and other emergencies
 - c) Inspection and monitoring procedures as specified in these conditions.

All operating staff must hold certification from a suitable organisation of their proficiency in operating cremators or, in the case of unqualified staff, must be under the direction supervision of an experienced certified technician. Certified evidence of this proficiency must be made available to the inspector on request.

A list must be displayed at or near the cremator control panel which identifies all operators who hold such certification. This list must include the dates on which the training was given, certificate issued and the identify of the instructor.

No person other than those identified on the above list, their instructors, service engineers, or qualified representatives of the plant manufacturers may operate the

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cremator. Certified evidence of this proficiency must be made available to the inspector on request.

- 6.3 A nominated person shall, at all times, be responsible for the implementation of the conditions of this Permit. Charnwood Borough Council will be informed within 21 days of issue of the Permit of the name of the nominated person.

Any changes in the identity of the person so nominated under this condition shall be notified to Charnwood Borough Council within 21 days of the changing taking place.

Adequate arrangements shall be made for deputising for the nominated person in the event of a holiday, sickness or other absence.

- 6.4 Any proposed 'relevant change' in the process (within the meaning of Section 11(11) of the Act) shall be notified to Charnwood Borough Council as required by section 7(8)(b) of the act.

- 6.5 Nothing in this Permit shall be taken to imply a standard lower than that required under the provisions of the Health and Safety at Work etc Act 1974 or under the relevant statutory provisions as defined in Section 53 of that Act.

- 6.6 There shall at all times be safe access to enable monitoring to be carried out by employees or contractors of the Company, an authorised officer of Charnwood Borough Council or any consultants employed by them.

- 6.7 Effective control of emissions requires the maintenance and proper use of equipment in accordance with the manufacture's instructions, and the proper supervision of process operations. Effective preventive maintenance shall be employed on all plant and equipment concerned with the control of emissions to air. There shall be adequate provisions for the supply of essential spares and consumables. Daily and weekly maintenance checks shall be made on the cremators and other plant associated with pollution control equipment. Records of the checks shall be made available to the local authority inspector on request.

- 6.8 Any malfunction or breakdown leading to abnormal emissions shall be dealt with promptly and process operations adjusted until normal operations can be restored. All such malfunctions shall be recorded in the log book. If there is likely to be an effect on the local community the local authority shall be informed without delay. The local authority may need to identify key arrestment plant the failure of which should be notified to them immediately.
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EXPLANATORY NOTES

These notes do not comprise part of Permit Serial No.009 but contain guidance relevant to the Permit.

1. You should note that Regulation 12(10) of the Regulations provides that in relation to any aspect of the process not regulated by conditions 2.1 to 6.8 the best available techniques ('BAT') shall be used for the purpose of preventing or, where that is not practicable, reducing emissions into the air.

Section 3(7) of the Regulations describes 'BAT' as meaning the most effective and advanced stage in the development of activities and their methods of operation which indicates the practical suitability of particular techniques for providing in principle the basis for emission limit values designed to prevent and, where that is not practicable, generally to reduce emissions and the impact on the environment as a whole.

2. This Permit is issued under the Pollution Prevention and Control (England and Wales) Regulations 2000. The responsibility you have under legislation for Health, Safety and Welfare in the workplace remains in force. In addition, the Permit does not relieve you of your obligations to obtain planning permission, hazardous substances consent, discharge consent from the Environment Agency Building Regulations approval, or a Waste Disposal Licence.
 3. Any proposed 'change in operation' in the process (within the meaning of Regulation 2(1)) shall be notified to Charnwood Borough Council as required by Section 16(1) of the Regulations.
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