



Hereby permits:

Bath and North East Somerset Council, The Guildhall, High Street, Bath
BA1 5AW

To operate a Part B installation at:

Haycombe Cemetery and Crematorium, Whiteway Road, Bath BA2 2RQ

Under the provisions of:

POLLUTION PREVENTION AND CONTROL ACT 1999
ENVIRONMENTAL PERMITTING (ENGLAND AND WALES)
REGULATIONS 2016

Permit reference:

EP 045

Signed on behalf of Bath and North East Somerset Council

Signed:  Date: 22nd March 2018

Leigh Sanderson

**Senior Public Protection Officer (Environmental Monitoring)
An authorised officer of the Council**

INTRODUCTORY NOTE

This introductory note does not form part of the permit.

This Environmental Permit (the Permit) is issued by Bath and North East Somerset Council (the Council) under Regulation 13(1) of the Environmental Permitting (England and Wales) Regulations 2016 (S.I. 2016 No.1154), to operate an installation prescribed in Schedule 1, Part 2 of those regulations to the extent specified in the conditions of this permit.

The requirements of this Permit shall be effective from the date of service unless otherwise specified within the Permit. Where a Variation Notice has been served, the conditions contained within that Variation Notice shall be effective from the date that the Notice is served, unless a specific implementation date is allocated to specific conditions.

For the purpose of this Permit, the legal operator of the installation is **Bath and North East Somerset Council, The Guildhall, High Street, Bath BA1 5AW.**

This Permit contains specific conditions that must be complied with. It shall be noted that aspects of the operation of the activity which are not regulated by Permit conditions are subject to the guidance and recommendations detailed within the **Process Guidance Note 5/2 (12) (Revised September 2012) Statutory Guidance for Crematoria.** The Operator shall use the best available techniques for preventing or, where that is not practicable, reducing emissions from the installation.

DESCRIPTION OF AUTHORISED ACTIVITY

The cremation of human remains is an activity prescribed within Schedule 1, Part 2, Chapter 5, Section 5.1, Part B of the Environmental Permitting (England and Wales) Regulations 2016 (S.I. 2016 No.1154). This installation utilises two Furnace Construction cremators, both fired with natural gas or LPG, with individual exhaust flues exiting from the same chimney. Each Furnace Construction cremator is fitted with its own continuous particulate monitor and its own analyser for the monitoring of oxygen and carbon monoxide. Both cremators operate with mercury arrestment plant. The size reduction of cremated remains is a directly associated activity.

STATUS LOG

The status log sets out the permitting history.

STATUS LOG			
DETAIL	REFERENCE	DATE	COMMENTS
Permit Issued	EPA 45	12.09.1991	
Variation Notice	EPA 45/V1	20.09.2000	
Variation Notice	EPA 45/V2	19.05.2003	
Environmental Permit	EPA 45	06.04.2008	Transfer to Environmental Permit by virtue of Regulation 69 of the Environmental Permitting (England and Wales) Regulations 2007
Variation Notice & Permit	EPA 45/V3 & EPA 45/C1	14.06.2012	Variation to take account of the Environmental Protection (England) (Crematoria Mercury Emissions Burden Sharing Certification) Direction 2010 and to amend the emission limits
Environmental Permit	EPA 45/C2	13.03.2013	
Variation Notice & Permit	EP 045/V1 & EP 045	22.03.2018	Variation following permit review

End of Introductory Note

PERMIT CONDITIONS

Emission limits and monitoring

- All activities shall comply with the emission limits and provisions with regard to releases in Tables 1 and 2. The reference conditions for limits are 273.1K, 101.3kPa, 11% oxygen v/v, dry gas unless otherwise stated.

Table 1 – Abated cremators – emissions limits and monitoring			
Substance	Concentration limits	Type of monitoring	Monitoring frequency
Mercury	50 µg/m ³	Periodic monitoring (Note 1)	Annual
Hydrogen chloride (excluding particulate matter)	30 mg/m ³ hourly average	Periodic monitoring	Annual
Total particulate matter	20 mg/m ³ hourly average	Filter leak monitor <ul style="list-style-type: none"> Provide visual alarms and record levels and alarms Set reference levels on commissioning (i.e. set levels at which alarms will activate) Plus Instrument health check (i.e. service according to manufacturer's instructions) Plus Periodic monitoring <ul style="list-style-type: none"> Set reference levels for continuous emission monitor (CEM) (i.e. set levels at which alarms will activate) 	Continuous Plus Annual Plus Every 3 years
Carbon monoxide	100 mg/m ³ reported as 2 x 30 minute averages	Qualitative monitoring <ul style="list-style-type: none"> Record data at 15 second intervals or less Provide visual alarms and record alarm events Plus Periodic test: <ul style="list-style-type: none"> Validation of continuous emissions monitor (CEM) output through comparison with periodic test results 	Continuous Plus Annual
Organic compounds (excluding particulate matter) expressed as carbon	20 mg/m ³ averaged over an hour of cremation	Periodic monitoring	Annual

Particulate matter	50 mg/m ³ with no correction for oxygen concentration or water vapour	Gross filter failure detection	Testing at commissioning
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Note 1 – the Environment Agency monitoring guidance, M2, advises that “the choice of a suitable averaging period is strongly influenced by the expected short-term variability in emission levels and whether peaks are important”. Also “the averaging time for manual techniques is often constrained by the need for a sampling run of appropriate duration ... because manual techniques have an associated analytical end-method stage (e.g. weighing of particulate samples) for which a sufficient mass of pollutant must be sampled to achieve an adequate limit of detection (LOD)... “. For these reasons, regulators are advised to ensure that those undertaking monitoring liaise with the relevant analytical laboratory to determine the detection limit of the analytical method in order to obtain an estimate of the expected concentration of the monitored substance in the stack gas and calculate the sampling time required to ensure that the LOD of the sampling method is met. In any case it is not expected that the duration of sampling runs will be less than 30 minutes or longer than 8 hours.

Table 2 – Abated cremators – combustion provisions and monitoring			
Parameter	Combustion provision	Type of monitoring	Monitoring frequency
Temperature	<ul style="list-style-type: none"> •Minimum of 800°C (1073K) in the secondary combustion chamber •Minimum of 850°C (1123K) in the secondary combustion chamber when operating under emergency conditions without abatement - measuring point should be at the last measuring thermocouple 	<ul style="list-style-type: none"> •Measure at the exit of the secondary combustion zone; measuring point should be at the last measuring thermocouple • Automatically record temperatures • Visual alarm when temperature falls below 1073K (800°C) • Record alarm activations • Interlock to prevent cremator loading below 800°C 	Continuous
Residence time	2 seconds residence time (minimum) in the secondary combustion chamber without correction for temperature, oxygen or water vapour	Measurement and calculation of the volume rate of the flue gases throughout the cremation cycle at the cremator exit	Upon commissioning of new or replacement cremators
Oxygen	At the end of the secondary combustion chamber: <ul style="list-style-type: none"> • measured wet or dry, minimum average 6% and minimum 3% 	<ul style="list-style-type: none"> •Record of concentration at outlet of secondary combustion zone • Visual alarm and record alarm activations • During discontinuous tests, continuous reference oxygen measurements shall be at the same sampling location as the parameters tested 	Continuous

Continuous emissions monitoring (all substances)

2. All continuous monitoring readings shall be on display to appropriately trained operating staff.
3. Instruments shall be fitted with audible and visual alarms to warn the operator of arrestment plant failure.
4. The activation of alarms shall be automatically recorded.
5. All continuous monitors shall be operated, maintained and calibrated (or referenced, in the case of filter leak devices) in accordance with the manufacturers' instructions, which shall be made available for inspection by the regulator. The relevant maintenance and calibration (or referencing) shall be recorded.
6. 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 shall confirm that zero is more appropriate than the measured stack concentration if there is no flow.
7. Any continuous emissions monitors used shall provide reliable data >95% of the operating time, (i.e. availability >95%). A manual or automatic procedure shall be in place to detect instrument malfunction and to monitor instrument availability.
8. The introduction of dilution air to achieve emission concentration limits is not permitted.

Sampling provisions

9. Sampling points on new plant shall be designed to comply with the British or equivalent standards.
10. The operator shall ensure that relevant stacks or ducts are fitted with facilities for sampling which allow compliance with the sampling standards.

Mercury abatement

11. The operator shall send the regulator, by no later than 1 April each year, a certificate from the Crematoria Abatement of Mercury Emissions Organisation (CAMEO) or appropriate evidence from a comparable audited burden sharing arrangement or scheme which specifies:
 - a. the total number of cremations in the past 12 months/calendar year;
 - b. the number of cremations undertaken in cremators fitted with operational mercury abatement equipment in the previous 12 months; or

- c. the number of cremations undertaken in the previous 12 months and the proportion of those subject to burden sharing arrangements under which money is paid for the benefit of abated crematoria; or
- d. in cases where mercury abatement is fitted but fewer than 50% of cremations at the installation were undertaken in cremators fitted with it in the previous 12 months, the relevant information in both b) and c).

Gas usage, carbon dioxide emissions and carbon footprint

12. The operator shall keep simple records of quarterly gas consumption for inspection by the regulator. Consumption shall be converted into CO₂ equivalent emissions using the following conversion equation:

$$\text{Gas usage (kWh)} \times \text{conversion factor for natural gas} = \text{kgCO}_2\text{e}$$

Monitoring, investigating and reporting

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

Information required by the regulator

15. The operator shall notify the regulator at least 7 days before any periodic monitoring exercise to determine compliance with emission limit values. The operator shall state the provisional time and date of monitoring, pollutants to be tested and the methods to be used.
16. The results of non-continuous emission testing shall be forwarded to the regulator within 8 weeks of completion of the sampling, and by the end of January each year.
17. Adverse results from any monitoring activity (both continuous and non-continuous) shall be investigated by the operator as soon as the monitoring data has been obtained. The operator shall:
 - 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.
18. Every 6 months a report shall be submitted containing the following continuous monitoring data for carbon monoxide. The reports shall be submitted by the end of April each year for the period covering the previous October to March, and by the end of October each year for the period covering the previous April to September. The data shall be submitted covering each period of either four weeks or a calendar month:
- Values that exceed the 95% limit for carbon monoxide in that period;
 - 60-minute mean emission values that exceed the 100% limit for carbon monoxide in that period;
 - A list of the highest 60-minute mean emission value for each period; and
 - The 95th percentile value for each period.
19. For temperature and oxygen, the operator shall report the following continuous monitoring values to the regulator every 6 months:
- secondary chamber entrance temperature, 4-weekly/monthly maximum and minimum (of 5-minute averages);
 - secondary chamber exit temperature, 4-weekly/monthly maximum and minimum (of 5-minute averages);
 - oxygen concentration, 4-weekly/monthly minimum (of 5-minute averages).
20. Where any values have been exceeded in any 4-weekly/monthly or 6-monthly reporting period, records shall be kept that identify the number of times that the limit was exceeded during the reporting period, the levels of the exceedance, and the time, date and cremation reference. This data shall be kept available.
21. The 6-monthly reports referred to in Conditions 18 and 19 shall be presented in a format that enables the regulator to check compliance.

Visible and odorous emissions

22. Emissions from cremations shall be free from visible smoke.

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

24. All emissions to air shall be free from droplets.

25. There shall be no offensive odour outside the site boundary, as perceived by the regulator.

Abnormal events

26. In the case of abnormal emissions, malfunction or breakdown leading to abnormal emissions, the operator shall:

- investigate and undertake remedial action immediately;
- adjust the process or activity to minimise those emissions; and
- promptly record the events and actions taken.

27. The regulator shall 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; or
- in the event of the use of the bypass or emergency relief vent.

28. The operator shall provide a list of key arrestment plant, and shall have a written procedure for dealing with its failure, in order to minimise any adverse effects.

Failure of abatement plant

29. In the event of the use of an emergency relief vent/bypass during cremation:

- the failure, its cause and cure should be entered in the log; and
- the regulator shall be notified immediately (preferably by fax or e-mail).

30. Emergency relief vent/bypass shall only be used:

- when the heat removal plant has failed and the abatement plant would be damaged; or

- during warm-up and shutdown, provided that compliance be demonstrated with the carbon monoxide limit.

Waste materials

31. Dusty materials, dusty wastes and wastes containing mercury shall be kept tightly contained.

Coffin materials and cremator design

32. PVC and melamine shall not be used in coffin construction or furnishings.
33. Cardboard coffins shall not contain chlorine in the wet-strength agent (e.g. not using polyamidoamine-epichlorhydrin based resin (PAA-E)).
34. Packaging for stillbirth, neonatal and foetal remains shall not include any chlorinated plastics.
35. Coffins containing lead or zinc shall not be cremated.
36. The cremator shall be designed and operated in order to prevent the discharge of smoke or fumes during charging.
37. 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 for good combustion in the permit.
38. The cremator and all ductwork shall be made and maintained gas tight if under positive pressure to prevent the escape of gases from the ductwork or cremator to the air.

Good combustion

39. All cremators shall be designed to ensure complete combustion and shall be fitted with a secondary combustion zone.
40. The manufacturer shall state the volume of the secondary combustion zone.
41. When re-bricking a cremator, the convolutions of the secondary combustion chamber shall be maintained and the volume of the chamber recalculated and restated.

Cremated remains

42. The remains in the cremator shall only be moved when calcination is completed.

43. The removal of ash and non-combustible residues from the cremator shall be undertaken carefully so as to prevent dust emissions via the flue.

44. Cremated remains shall be moved and stored in a covered container.

Cremation standards in the event of mass fatalities

45. Spares and consumables subject to continual wear shall be held on site or shall be available at short notice from guaranteed local suppliers so that plant breakdowns can be rectified rapidly.

46. A simple plan shall be maintained for dealing with emergencies which give rise to mass fatalities. The plan shall mainly address the holding of additional spares and consumables and the training of suitable numbers of staff.

Stacks, vents and process exhausts

47. Flues and ductwork shall be cleaned to prevent accumulation of materials as part of the routine maintenance programme.

48. When dispersion of pollutants discharged from the stack (or vent) is necessary, the target exit velocity shall be 15m/sec during peak operating conditions to achieve adequate dispersal.

49. Stacks shall not be fitted with any cap or other restriction at the stack exit, with the exception of a cone which may be required to increase the exit velocity of emissions.

Training

50. All staff whose functions could impact on air emissions from the activity shall receive appropriate training on those functions, including:

- awareness of their responsibilities under the permit;
- steps that are necessary to minimise emissions during start up and shut down; and
- actions to take when there are abnormal conditions, or accidents or spillages that could, if not controlled, result in emissions.

51. The operator shall 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.

Maintenance

52. The operator shall 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.

These documents shall be made available to the regulator on request.

53. The cremators shall have written maintenance and cleaning programmes with respect to pollution control equipment, including control instrumentation and the cremator secondary chamber, ducts and flues, and abatement plant. These documents shall be made available to the regulator on request.

General conditions

54. 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.

55. If the operator proposes to make a change in operation of the installation, the operator must, at least 28 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.

End of Conditions

FURTHER INFORMATION

Confidentiality

The Permit requires the Operator to provide information to Bath & North East Somerset Council. The information will be placed on a public register in accordance with the requirements of the EP Regulations. If the Operator considers that any information provided is commercially confidential, it may apply to Bath & North East Somerset Council to have such information withheld from the register as provided in the EP Regulations. To enable Bath & North East Somerset Council to determine whether or not the information is commercially confidential, the Operator should clearly identify the information in question and should specify clear and precise reasons.

Variations to the Permit

This Permit may be varied in the future. If at any time the activity or any aspect of the activity regulated by the Permit conditions changes such that the conditions no longer reflect the activity and require alteration, then an application form providing these details shall be submitted to the Regulator. Please contact the Regulator for an application to vary the Permit conditions.

Surrender of the Permit

Where an Operator intends to cease the operation of the installation (in whole or in part), then an application form providing these details shall be submitted to the Regulator. Please contact the Regulator for an application to surrender the Permit.

Transfer of the Permit or part of the Permit

Before the Permit can be wholly or partially transferred to another person, a joint application to transfer the Permit must be made by both the existing and proposed holders, in accordance with Regulation 21 of the EP Regulations. A transfer will be allowed unless the Local Authority considers that the proposed holder will not be the person who will have control over the operation of the installation or will not ensure compliance with the conditions of the transferred Permit. Please contact the Regulator for an application to transfer the permit.

Responsibility under Workplace Health and Safety Legislation

This Permit is given in relation to the requirements of the EP Regulations. It must not be taken to replace any responsibilities you may have under workplace health and safety legislation.

Appeals

Anyone who is aggrieved by the conditions attached to a Permit can appeal to the Secretary of State for the Environment or the Secretary of State for Wales, as appropriate. Appeals must be received by the appropriate Secretary of State no later than 6 months from the date of the decision (normally the date on the bottom of the Permit).

Appeals relating to processes in England and Wales should be sent to the Planning Inspectorate at the following address:

The Planning Inspectorate
Environmental Pollution Administration
Room 4/19 Eagle Wing
2 The Square
Temple Quay
Bristol BS1 6PN

Guidance on the appeals procedure is contained in Regulation 31 and Schedule 6 of the EP Regulations.

The appeal must be in the form of a written notice or letter stating that the Operator/person wishes to appeal, and must list the condition(s) which is/are being appealed against. For an appeal to be valid, the following items **must** be included:

- a) a statement of the grounds of appeal
- b) a statement indicating whether the appellant (the person making the appeal) wishes the appeal to be dealt with:
 - by a hearing attended by both parties and conducted by an Inspector appointed by the Secretary of State, or
 - by both parties sending the Secretary of State written statements of their case (and having the opportunity to comment on one another's statements)
- c) a copy of any relevant application
- d) a copy of any relevant permit
- e) a copy of any relevant correspondence between the appellant and the Regulator
- f) a copy of any decision or notice which is the subject matter of the appeal.

At the same time, the Notice of Appeal and documents a) and b) must be sent to the Council, and the appellant should inform the appropriate Secretary of State that this has been done.

Please Note

- An appeal will **not** suspend the effect of the conditions appealed against; the conditions must still be complied with.
- In determining an appeal against one or more conditions, the Act allows the Secretary of State in addition to quash any of the other conditions not subject to the appeal and to direct the Local Authority either to vary any of these conditions or to add new conditions.
- 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 an unlimited fine and/or 6 months imprisonment. In a Crown Court it is an unlimited fine and/or 5 years imprisonment.

Contact details of the Regulator

Environmental Monitoring
Public Protection & Health Improvement
Bath & North East Somerset Council
Lewis House
Manvers Street
Bath BA1 1JG

Tel: 01225 396693

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Appendix I: Location Plan

