



Waveney District Council  
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## **SUFFOLK COASTAL DISTRICT COUNCIL**

### **PART B PERMIT**

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

**Local Authority Pollution Prevention and  
Control (LAPPC)**

**Permit Reference: SCDC/CRE/5.1/3**

**Substantial Change Variation Number:  
15/03078/PPCAPP**

### **Installation Address**

East Suffolk Crematorium Limited  
Seven Hills Crematorium  
Felixstowe Road  
Nacton  
IPSWICH  
Suffolk  
IP10 0FG

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### Introductory note *[This introductory does not form a part of the Permit]*

The following Permit is issued under Regulation 13 of the Environmental Permitting (England and Wales) Regulations 2010 (S.I.2010 No. 675), to operate an installation carrying out activities covered by the description in Schedule 1 Part 2 Chapter 5 Section 5.1 Part B (b) of the Regulations, to the extent authorised by the Permit, namely **'the cremation of human remains'**.

Aspects of the operation of the installation which are not regulated by conditions of the Permit are subject to the Operator using the best available techniques for preventing or, where that is not practicable, reducing emissions from the installation.

Techniques include both the technology used and the way in which the installation is designed, built, maintained, operated, and decommissioned.

The Permit Conditions require the Operator to use Best Available Techniques (BAT), in each of the aspects of the management of the installation, to prevent and where that is not practicable to reduce emissions. The Conditions do not explain what 'BAT' is! In determining 'BAT', the Operator should pay particular attention to relevant sections of the Process Guidance Note 5/02 (12) and other relevant guidance.

A non-technical description of the installation is given in the Application, but the main features of the installation are as follows;

## Brief description of the installation regulated by this permit

### The Cremation of Human Remains:

*The activity at the installation is carried out using two gas fired cremators followed by size reduction of the cremated remains. The cremation takes place in two single ended Facultatieve Technologies Ltd cremators. A FT II and FTIII which discharge flue gases via a dry abatement plant and are subject to continuous emission monitoring equipment before being discharged to a 12 metre high exhaust chimney stack. The key pollutants to be controlled from this installation are; particulate matter, odour, hydrogen chloride, carbon monoxide, volatile organic compounds (from methane to polyaromatic hydrocarbons (PAH)), mercury compounds and polychlorinated dibenzo-p-dioxins and furans (PCCD/F), often referred to simply as dioxins. Control is via a programmable data logging system which automatically regulates flow through the abatement plant and shadows performance to ensure the system meets the emission control limits of the permit. A Data Acquisition system and Continuous Emission Monitoring System (CEMS) package records the combustion parameters and communicates these to the operators.*

The **Status Log** provides information relating to previous Permits at this site.

<b>Superseded Permits and Variation Notices relating to this installation</b>			
<u>Holder</u>	<u>Reference Number</u>	<u>Date of Issue</u>	<u>Summary details</u>
East Suffolk Crematorium Ltd	SCDC/CRE/5.1/1	22/09/2010	Initial Permit
East Suffolk Crematorium Ltd	SCDC/CRE/5.1/2	18/03/2013	Permit Variation

## Talking to us

The Local Authority can be contacted by telephone on 01394 383789, Fax 01394 385100, e-mail [environment@eastsuffolk.gov.uk](mailto:environment@eastsuffolk.gov.uk) or by writing to the Environmental Protection Team at, Suffolk Coastal District Council, Melton Hill, Woodbridge, Suffolk, IP12 1AU.

**If you are reporting a malfunction or failure of permitted activity outside normal working office hours, you should phone 01502 527132. This line directs you to a call centre at Waveney District Council and is exclusively for reporting genuine emergencies.**

## Public Registers

Considerable information relating to Permits is available on public registers in accordance with the requirements of the Environmental Permitting (England and Wales) Regulations 2010 (as amended). Certain information may be withheld from public registers where it is commercially confidential or contrary to national security.

## Confidentiality

The Permit requires the Operator to provide information to Suffolk Coastal District Council. The Council will place the information onto the public registers in accordance with the requirements of “Environmental Permitting (England and Wales) Regulations 2010”. If the Operator considers that any information provided is commercially confidential, it may apply to the Suffolk Coastal District Council to have such information withheld from the register as provided in “Environmental Permitting (England and Wales) Regulations 2010”. To enable Suffolk Coastal District Council to determine whether the information is commercially confidential, the Operator should provide clear justification for each item wishing to be kept from the register. The onus is on the operator to provide a clear justification for each item to be kept from the register. It will not simply be sufficient to say that the process is a trade secret.

Information may also be excluded from the public register on the grounds of National Security. If it is considered that the inclusion of information on a public register is contrary to the interests of national security, the operator may apply to the Secretary of State/Welsh Ministers, specifying the information and indicating the apparent nature of risk to national security. The operator must inform the local authority of such an application that will not include the information on the public register until the Secretary of State/Welsh Ministers has decided the matter.

## 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 following conditions changes such that the conditions no longer reflect the activity and require alteration. You must submit a formal Application to Environmental Protection Team at Suffolk Coastal District Council. The ‘Status Log’ within the introduction note will include summary details of each permit variation issued.

## Surrender of the permit

Where an Operator intends to cease the operation of an installation (in whole or in part) Suffolk Coastal District Council should be informed in writing, such notification must include the information specified in Regulation 24 or 25 of the Environmental Permitting (England and Wales) Regulations 2010.

## 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 has to be made by both the existing and proposed holders, in accordance with Regulation 21 of Environmental Permitting (England and Wales) Regulations 2010. A transfer will be allowed unless Suffolk Coastal District Council 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.

## Enforcement and Offences

If Suffolk Coastal District Council are of the opinion that you have contravened or are likely to contravene a condition of this Permit it may serve an Enforcement Notice; in accordance with Regulation 36 of the Environmental Permitting (England and Wales) Regulations 2010. If Suffolk Coastal District Council is of the opinion that the continued operation of the installation involves a risk of serious pollution it will serve a Suspension Notice under Regulation 37 of the Environmental Permitting (England and Wales) Regulations 2010.

Offences detailed in Regulation 38 of the Environmental Permitting (England and Wales) Regulations 2010 include failing to comply with or contravening a condition in this Permit, failing to comply with an enforcement notice or suspension notice, intentionally making a false entry in any records kept under a condition of this Permit. A person found guilty of an offense, upon summary conviction could be liable (i) to the maximum penalty of a £50,000 fine and/or twelve months imprisonment, or (ii) upon conviction to an unlimited fine and/or five years imprisonment.

## Responsibility under the workplace health & safety legislation

This Permit is given in relation to the requirements of Environmental Permitting (England and Wales) Regulations 2010. It must not be taken to replace any responsibilities you may have under Workplace Health and Safety legislation.

## Appeals against permit conditions

Anyone who is aggrieved by the conditions attached to a Permit can appeal to the Secretary of State for the Environment. Appeals must be made in accordance with the requirements of Regulation 31 and Schedule 6 of the Environmental Permitting (England and Wales) Regulations 2010. The right to appeal does not apply in circumstances where a notice implements a Direction of the Secretary of State given under Regulations 61 or 62 or a direction or when determining an appeal. **Appeals must be received by the Appeal Body at the following address no later than 2 months from the date of the Notice being appealed against.**

The Planning Inspectorate  
Environmental Team, Major and Specialist Casework  
Room 4/04 Kite Wing  
Temple Quay House  
2 The Square  
Temple Quay  
BRISTOL  
BS1 6PN

Tel: 0117 372 8812  
Fax: 0117 372 6093

If an appeal is made, the main parties will be kept informed about the next steps, and will also normally be provided with additional copies of each other's representations.

To withdraw an appeal, which may be done at any time, the appellant must notify the Planning Inspectorate in writing and copy the notification to the local authority who must in turn notify anyone with an interest in the appeal.

The appeal must be in the form of a written notice or letter stating that the person wishes to appeal against the conditions of the Permit. The following items must be included:-

- a written notice;
- a statement of the grounds of appeal;
- a statement indicating whether the appellant wishes the appeal to be dealt with by written representations procedure or hearing;
- a copy of the relevant permit;
- a copy of any relevant correspondence between the appellant and the regulator; and
- a copy of any decision or notice, which is the subject matter of the appeal.
- a statement indicating whether the appellant wishes the appeal to be in the form of hearing or dealt with by way of written representations.

Appellants should state whether any of the information enclosed with the appeal has been the subject of a successful application for commercial confidentiality under Regulation 48 of the Environmental Permitting (England and Wales) Regulations 2010, and provide relevant details, see below. Unless such information is provided, all documents submitted will be open to inspection.

**An appeal will not suspend the effect of the Permit; the Permit must still be complied with.**

The operator and Suffolk Coastal District Council will normally be expected to pay their own expenses during an appeal. Where a hearing or inquiry is held as part of the appeal process, by virtue of paragraph 5(6) of Schedule 6 of the Environmental Permitting (England and Wales) Regulations 2010, either the appellant or the authority can apply for costs. Applications for costs are normally heard towards the end of the proceedings and will only be allowed if the party claiming them can show that the other side behaved unreasonably and put them to unnecessary expense. There is no provision for costs to be awarded where appeals are dealt with by written representatives.

**End of Introduction**

**Permit issued under**  
**The Pollution Prevention and Control Act 1999**  
**The Environmental Permitting (England & Wales)**  
**Regulations 2010 (as amended)**

**Permit Reference Number: SCDC/CRE/5.1/3**

**Substantial Change Variation: 15/03078/PPCAPP**

Suffolk Coastal District Council (the Regulator) in exercise of its powers under Regulation 20 of the Environmental Permitting (England & Wales) Regulations 2010 (as amended)

**hereby gives notice of a variation to the permit at the following installation:-**

**East Suffolk Crematorium Limited (“the operator”),  
Seven Hills Crematorium  
Felixstowe Road  
Nacton  
IPSWICH  
Suffolk  
IP10 0FG**

To the extent permitted by and subject to the following conditions, within the installation boundary identified on Site Plan attached at page 22 of this Permit.

**Signed**



**Dated**

**23/10/2015**

**Clive Pink**

Environmental Health Officer

Authorised to sign on behalf of Suffolk Coastal District Council

## **EXTENT AND LIMIT OF THE INSTALLATION**

The Operator is authorised to carry out the activities and/or associated activities specified in **Table A**.

<b>Table A</b>		
<b>Activities under Schedule 1 Part 2 Chapter 5 Section 5.1 Part B of the Regulations or Associated Activity</b>	<b>Description of specified activity</b>	<b>Limits of specified activity</b>
Part 2 Chapter 5 Section 5.1 Part B.	The cremation of human remains using FTII and FTIII gas fired cremators manufactured by Facultatieve Technologies Ltd.	As per the Conditions set out below, utilising two fully automated cremators, fitted with a continuous monitoring and control system and data logging function within the site boundary.
Directly associated activity.	The reduction of cremated remains following cremation using a cremulator (ash processor).	As per the Conditions set out below, utilising a self contained ash processing unit within the site cremator building.

### **Description of Installation:**

The activities at the Installation are the cremation of human remains in two gas fired cremators followed by the size reduction of cremated remains in a cremulator. The cremations take place in two single ended Facultatieve Technologies Ltd cremators. The cremators are as follows:

- FTII maximum size of coffin 2350 mm long, 860 mm wide and 700 mm high.
- FTIII maximum size of coffin 2350 mm long, 1050 mm wide and 700 mm high.

Both cremators have mercury abatement fitted & working. The cremators each comprise a primary chamber into which the coffin is inserted and within which the primary combustion takes place by way of an end wall mounted burner and top and side air supply nozzles. The hearth has an integral rake down area for collection of ashes. The waste gas produced exits the primary chamber via transfer ports in the chamber sidewall, descending below the solid hearth into the secondary combustion zone in which the gas phase combustion takes place. The secondary chamber is a single path flue system situated underneath and to one side of the primary chamber. The secondary chambers of both cremators have a volume of 3.22m<sup>3</sup>. The gases are heated if necessary by the secondary zone burner and treated by the introduction of additional air. The flue gases make numerous passes within the secondary combustion zone, where the temperature is maintained above the required minimum temperature of 800°C and a minimum residence time of 2



seconds is achieved when operating through the abatement system. The minimum temperature is automatically increased to 850°C in the event of unabated cremator operation, using the bypass flues installed. The secondary chamber achieves the minimum temperatures stated before the interlocked charging door will open to accept a coffin. Feedback to the control system from an oxygen monitor at the combustion chamber exit ensures close control is always maintained. The temperatures of the main chamber, secondary chamber inlet and outlet are continuously monitored and recorded as are the oxygen concentrations of the secondary chamber outlet.

The two cremators share a common flue gas treatment system for the abatement of mercury, dioxins & furans, hydrogen chloride and particulate matter. The final discharge is at a height of 12 metres. The flue gas from the two cremators enters the Flue Gas Cooler (boiler) via a refractory lined duct, and is cooled to the filter operating temperature range of 120°C to 150°C. The heat removed from the flue gas is transferred in the water / glycol circulation system to a dedicated air blast cooler located externally from the filter equipment. After the Flue Gas Cooler (boiler) reagent additive Factivate 20 is automatically added to the flue gases. The flue gases and the Factivate are homogeneously mixed within the waste gas stream prior to entering the filter. Within the fabric filter, a cake of additive and dust builds up on the filter bags, thus improving filter efficiencies and filter bag lifespan.

The automatic control system for the fabric filter cleaning controls the operation of the filter (e.g. differential pressure) and ensures that there is sufficient additive (Factivate) on the filter bags during operation. The adsorption of the mercury, dioxins and furans occurs with the Factivate in the flue gas stream and in the dust/additive cake on the filter bags. Furthermore, the concentration of acidic gases such as Sulphur Dioxide (SO<sub>2</sub>) and especially Hydrogen Fluoride (HF) and Hydrogen Chloride (HCl) is reduced by reaction with the chemical reagent. During the cleaning process, the released dust cake falls into the filter hopper. A motorised mechanical screw conveyor transports the dust and spent reagent to a container for disposal offsite for mercury reclamation. Typically the automatic cleaning process occurs once a day – at shutdown, so ensuring that the filter is cleaned of “used additive” and particulate matter at the end of every operational day. Operation starts the following day using only fresh additive. Carbon monoxide, particulate matter and oxygen are continuously monitored at the exit of the abatement system and the results are continuously displayed and recorded.

The cooled calcinated remains are placed in the Facultatieve Technologies Ltd High Speed Cremulator where the remains are milled into a fine powder. The Cremulator is fitted with a filtration system to prevent dust emissions which exhausts internally. The Cremulator discharges the ashes into the cinerary box through a vacuum system.

The ashes are transferred from the cinerary box into an urn in the Facultatieve Technologies Cremated Remains Transfer Cabinet. The cabinet is fitted with a bag filter to prevent dust emissions, which exhausts internally.

## **Site Boundary**

The operator is authorised to carry out the activities as specified within the boundary known as Seven Hills Crematorium, Felixstowe Road, Nacton, Suffolk, IP10 0FG shown edged in red on the site plan at page 22 of this permit and not beyond.

## **CONDITIONS**

### **Emission limits and controls**

1. All emissions to air, other than steam or condensed water vapour shall be colourless and free from: persistent mist, fume and free from droplets.
2. All emissions to air shall be free from offensive odour beyond the site boundary, as indicated on the site plan at page 22 of this permit.
3. Emissions from the cremators exhaust chimney stack, including during start-up, shutdown, and normal operation shall be free from visible smoke and shall on no occasion exceed the equivalent of Shade 1 of the Ringelmann Chart, as described in British Standard BS 2742:1969.
4. There shall be no visible emission of ash or dust escaping from the building during the use of the cremulator (ash processing unit) or during any cleaning or maintenance of the cremator.
5. Releases to air from the cremators exhaust chimney stack, shall not exceed the limits specified in Table 1 as shown below: (expressed at Reference Conditions 273K and 101.3kPa with 11% oxygen v/v, dry gas unless otherwise stated). The introduction of dilution air to achieve emissions concentration limits is not permitted but the introduction of air to balance arrestment systems is permitted.
6. The Operator shall use Best Available Techniques (BAT) so as to prevent or where that is not practicable, to reduce fugitive emissions of substances to air from the permitted installation in particular from:-
  - The cremator building
  - Any pipes, valves and other associated ducts
7. The Operator shall use Best Available Techniques (BAT) so as to control flue gases and cremated remains, see Schedule 4 of this Permit.
8. Mercury abatement plant shall be operational so as to achieve the limits specified in Table 1 as shown below.
9. The cremulator/ash processing unit shall operate under negative pressure and discharge via a filter unit back into the cremator building.

## Table 1 – Emission Limits (Continuous & Non-Continuous)

Substance	Concentration limits	Type of monitoring	Monitoring frequency
<b>Mercury</b>	50 µg/m <sup>3</sup>	Periodic monitoring in the form of a manual extractive test	Annual
<b>Hydrogen Chloride</b> (excluding particulate matter)	30 mg/m <sup>3</sup> hourly average	Periodic monitoring in the form of a manual extractive test	Annual
<b>Total Particulate Matter</b>	20 mg/m <sup>3</sup> hourly average	Filter leak monitor <ul style="list-style-type: none"> <li>• Provide visual alarms and record levels and alarms</li> <li>• Set reference levels on commissioning (i.e. set levels at which alarms will activate)</li> </ul> <b>Plus</b> <ul style="list-style-type: none"> <li>• Instrument health check in accordance with manufacturer's instructions</li> </ul> <b>Plus</b> Periodic monitoring <ul style="list-style-type: none"> <li>• Set reference levels for continuous emission monitor (CEM) (i.e. set levels at which alarms will activate)</li> </ul>	Continuous Emission Monitoring System (CEMS)  <b>Plus</b> Annual  <b>Plus</b> Every 3 years
<b>Carbon Monoxide</b>	100 mg/m <sup>3</sup> reported as 2 x 30 minute averages	Qualitative monitoring <ul style="list-style-type: none"> <li>• Record data at 15 second intervals or less</li> <li>• Provide visual alarms and record alarm events</li> </ul> <b>Plus</b> Periodic Manual extractive test: <ul style="list-style-type: none"> <li>• Validation or continuous emissions monitor (CEM) output through comparison with periodic test results</li> </ul>	Continuous Emission Monitoring System (CEMS)  <b>Plus</b> Annual
<b>Organic Compounds</b> (excluding particulate matter) expressed as Carbon	20 mg/m <sup>3</sup> averaged over an hour of cremation	Periodic monitoring in the form of a manual extractive test	Annual
<b>PCDD/F (Dioxins)</b> (if the combustion provisions in Table 2 below are not met)	0.1ng/m <sup>3</sup> as ITEQ	Periodic monitoring <ul style="list-style-type: none"> <li>• Continuous monitoring of any temperature, oxygen and flow parameters that apply during the dioxin tests should be required by the permit</li> <li>• Interlock to prevent cremator loading unless those parameters are met</li> </ul>	Upon commissioning and after any substantial change

**Table 2 - Emission Parameters**

Parameter	Combustion provision	Type of monitoring	Monitoring frequency
Temperature	<ul style="list-style-type: none"> <li>Minimum of 800 °C (1073K) in the secondary chamber</li> <li>Minimum of 850 °C (1123K) in the secondary combustion chamber when operating under emergency conditions without abatement</li> </ul> <p>Measuring point should be at the last thermocouple</p>	<ul style="list-style-type: none"> <li>Measured at the exit of the secondary combustion zone; measuring point should be at the last measuring thermocouple</li> <li>Automatically record temperatures;</li> <li>Visual alarm when temperature falls below 800 °C (1073K)</li> </ul>	Continuous Emission Monitoring System (CEMS)
Residence time	2 seconds residence time 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 and after any substantial change
Oxygen	<p>At the end of the secondary combustion chamber;</p> <ul style="list-style-type: none"> <li>measured wet or dry, minimum average 6% and minimum 3%</li> </ul>	<ul style="list-style-type: none"> <li>Record of concentration at outlet of secondary combustion zone;</li> <li>Visual alarm and record alarm activations;</li> <li>During discontinuous tests, continuous reference oxygen measurements should be at the same sampling location as the parameters tested.</li> </ul>	Continuous Emission Monitoring System (CEMS)

**Note 1: Manual extractive testing** shall be carried out as per Schedule 3, unless otherwise agreed with the Environmental Protection Team at Suffolk Coastal District Council.

**Note 2: The results of the Continuous Emission Monitoring System (CEMS)** shall specify Total Particulate Matter, Oxygen, Carbon Monoxide, Temperature in the Primary, Secondary inlet and Secondary outlet chambers and Flue Temperature and be readily available to crematorium staff.

**Note 3: Exhaust flow rates** shall 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 shall not be permitted.

10. Where the emission parameters in Table 2 above, are not regularly met, the PCDD/F (Dioxin) limits in Table 1 above shall apply and be tested annually by manual extractive testing.

## **Monitoring, Measurement and Recording of Emissions – Continuous Emission Monitoring**

11. Emissions into the air from the two cremators shall be continuously monitored to provide reliable data for >95% of the operating time and the results electronically recorded.
12. The continuous monitoring equipment shall be fitted with audible & visual alarms situated appropriately to warn trained operating staff of arrestment plant failure. Alarms shall be set to trigger at 75% of the emission limits stated in this Permit.
13. The operation, maintenance and calibration of continuous emissions monitoring equipment shall be undertaken in accordance with manufacturer's instructions and shall be recorded in a logbook.
14. Continuous monitor readings of both cremators shall include; Total Particulate Matter, Oxygen, Carbon Monoxide, Temperature in the Primary, Secondary inlet and Secondary outlet chambers and Flue Temperature and shall be on display and readily available to trained crematorium operating staff.
15. The alarms shall be set to activate whenever the 60-minute mean emissions exceed limits given in Condition 5 Table 1 above or if the temperature or the oxygen level falls below that given in Table 2. Emission events resulting in the alarms being activated shall be electronically recorded.
16. The operator shall check the monitoring display at periodic intervals during each cremation, and, as a minimum, following charging and at regular intervals thereafter until raking down. Emission concentrations may be reported as zero when the plant is off and there is no flow from the stack.
17. Before commencing each day's cremations, the operator shall check the summary of electronically recorded readings of emissions for the previous day of operation. A note shall be made in the logbook of the time, date, and operators name when the previous day's readings were checked. Where results exceed the criteria set out in Condition 5 Table 1 above, the operator shall carry out an investigation to identify the cause of the exceedence. The outcome of the investigation shall be recorded in the logbook.
18. Where any 60-minute mean emission concentration is more than twice the specified emission concentration limit, the Environmental Protection Team at Suffolk Coastal District Council shall be advised immediately.
19. A summary of continuous monitoring results shall be forwarded to the Local Authority every 6 months for periods ending June and December. The report shall include the information listed in Schedule 2, and be forwarded to the Environmental Protection Team at Suffolk Coastal District Council within 4 weeks of the end of the period to which it relates.

## **Sampling, Measurement and Recording of Emissions – Non-Continuous Monitoring**

20. Emissions into the air from the two cremators shall be tested annually so as to demonstrate compliance with the pollutants stated in Condition 5 Table 1. Monitoring shall be undertaken from safe stack sampling locations, using the manual extractive testing methods set out in Schedule 3 of this Permit.
21. At least seven days prior to any manual extractive testing of the cremators exhaust stack as required by Condition 20, advanced notification shall be given in writing to Environmental Protection Team at Suffolk Coastal District Council.
22. The monitoring exercises shall be undertaken during normal conditions, at full capacity unless otherwise agreed and the results of all such non-continuous emission testing shall be forwarded to the Environmental Protection Team at Suffolk Coastal District Council within 8 weeks of the completion of the sampling.
23. All manual extractive testing shall be undertaken by MCERTS certified personnel in accordance with the emission monitoring protocols, as shown in Schedule 3 of this Permit. Prior to any deviations in the sampling regime, approval shall be sought and agreed by the Environmental Protection Team at Suffolk Coastal District Council.
24. Where any emission concentration is more than twice the specified emission concentration limit or is likely to adversely affect the local community, the Environmental Protection Team at Suffolk Coastal District Council shall be advised immediately.

## **Monitoring and Recording of Emissions – General Monitoring**

25. A daily visual and olfactory assessment of emissions from the cremator exhaust chimney stack shall be made downwind of the cremator building whilst cremation is taking place. The results of all assessments shall be recorded in a logbook.
26. Where an emission is observed in contravention of the 'emission limits and controls' in Conditions 1, 2, 3, or 4, or when any malfunction or breakdown has led to or is likely to lead to an emission of pollutants, then:-
  - (a) immediate investigation shall be carried out;
  - (b) prompt corrective action shall be taken;
  - (c) if the corrective action is not immediately effective, then action to mitigate any effects shall be taken until normal operations can be restored; and

- (d) all such observations, findings, results of the investigation and actions taken under headings (b) and (c) in this Condition shall be entered in a logbook in accordance with Condition 61 of this permit.
27. Adverse results from any continuous or non continuous monitoring should be investigated as soon as possible. Corrective action should be taken, the details of which should be logged, then followed by re-testing to demonstrate compliance with the appropriate Conditions.
28. Where visible emissions that, in the opinion of an authorised officer of the Council, might be attributable to the installation, the operator shall be asked to carry out a visual assessment of cremators exhaust chimney stack to ascertain if there is a problem. If any visual emission is present, action shall be undertaken in accordance with Condition 26.
29. In addition to the combustion details and emission values submitted each month the number of cremations with and without mercury abatement plant operating shall be submitted to the Environmental Protection Team at Suffolk Coastal District Council.

## **Control Techniques and Cremator Design**

30. Coffins containing lead or zinc shall not be cremated.
31. Coffins or furnishings containing melamine or products manufactured in polyvinyl chloride (PVC) shall not be cremated. Cardboard coffins shall be checked for possible polyamidoamine-epichlorhydrin (PAA-E) based resin and not cremated if found to be a constituent.
32. Packaging for stillbirth, neonatal and foetal remains shall containing chlorinated plastics shall not be cremated.
33. The cremators charging system shall be interlocked to prevent the introduction of a coffin to the primary combustion zone unless the secondary combustion zone temperature exceeds 800°C (automatically increased to 850°C in the event of unabated cremator operation).
34. The cremators and all ductwork shall be leak-proof under negative pressure and maintained gas tight if under positive pressure to prevent the escape of gases from the ductwork or cremators to the air. The ductwork, flue and exhaust stack shall be adequately insulated to maintain temperature.
35. The cremators shall be designed and operated in order to prevent the discharge of smoke, fumes or other substances during charging.
36. The cremators shall be fitted with a primary and secondary combustion zone. The volume of the secondary combustion zone shall be declared within the plant maintenance notes. When re-bricking or re-lining the convolutions of either secondary combustion chamber the volume shall be recalculated and restated.

37. The temperature in the cremators primary combustion zone, and the point of exit of gases from the secondary combustion zone, shall be continuously monitored using thermocouples, and continuously recorded.
38. The temperature of gases in the cremators secondary combustion zone shall be maintained at not less than 800°C (1073 K) at all times during the cremation cycle and for so long as combustible material is in the cremator. The minimum residence time for gases in the secondary combustion zone shall be maintained at not less than 2 seconds.
39. The temperature monitoring system shall be equipped with an audible and visual alarm, which shall be triggered when the temperature in the secondary combustion zone falls below 800°C.
40. The concentration of oxygen at the outlet of the secondary combustion zone shall not be less than 3% by volume (dry gas) or 6% by volume (wet gas).

### **Disposal of Residues**

41. Remains in the cremator shall only be removed when calcination is completed.
42. Cremated remains shall only be removed from the cremators with care in covered containers.
43. Cremated remains shall only be treated in an Ash Processor/Cremulator. The exhaust from the unit shall be kept under negative pressure and filtered before venting back into the cremator room of the building.
44. All dusty materials and dusty waste including those containing mercury, shall be kept in tightly closed containers and shall be disposed of in accordance with the appropriate waste legislation.

### **Process Exhaust Chimney Stack**

45. The chimney serving the cremator shall comprise of a single stack, which shall terminate and discharge emissions at a minimum height of 12 metres above ground level, as measured at the highest point from the base of the plant.
46. The emissions to air from the extract chimney stack shall be designed to achieve an efflux velocity of 15 m/sec during normal operation conditions. No restriction shall be placed on the final opening of the stack discharge to cause any aerodynamic down wash or loss of dispersion.



## **Maintenance**

47. All plant and equipment used in operating the Permitted Installation, the failure of which could lead to an adverse impact on the environment, shall be maintained in good operating condition.
48. A master list of all relevant plant and equipment, including part numbers and specifications shall be maintained on site together with a written or electronic maintenance programme, detailing when such plant and equipment should be cleaned, serviced, calibrated, and replaced. A copy of the maintenance programme shall be made available for inspection on the request of any officer from the Environmental Protection Team at Suffolk Coastal District Council.
49. Essential spares and consumables (i.e. filter bags) shall be held on site or shall alternatively be available at short notice from a contractor or supplier so that plant breakdowns can be rectified within 48 hours. Details of any such a contract shall be kept at the premises and be available for inspection on request by the Environmental Protection Team at Suffolk Coastal District Council.
50. The cremator and associated ductwork shall be kept in a clean condition so as to ensure sensitive monitoring and electrical equipment is free from dust and particulate matter.

## **Operations without Abatement Plant**

51. In the event of abatement plant failure, heat removal plant failure leading to desisted use of the abatement plant or essential works which require the abatement plant to be disabled, the cremator may be used for a maximum period of 48 hours without abatement. The Environmental Protection Team at Suffolk Coastal District Council shall be notified immediately and repair works discussed. Longer unabated periods will only be permitted by further agreement in extreme circumstances.
52. During agreed unabated operation the cremator shall not:
  - Emit black smoke,
  - Emit dark smoke continuously for more than two minutes,
  - Emit dark smoke for an aggregated period exceeding five minutes in any working day.If unabated operation exceeds the above emission criteria, the cremator shall cease use until it is able to comply or abatement is restored.
53. Emergency relief valves (ERV) or bypass systems shall only be permitted to 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 can be demonstrated with the carbon monoxide limit.Bypasses of the abatement plant during cremation which occur more than once a year shall be investigated and remedial action taken. Details shall also be recorded in a logbook.

## **Gas Usage, Carbon Dioxide Emissions and Carbon Footprint**

54. Records shall be kept of quarterly gas consumption, converted to carbon monoxide (CO<sub>2</sub>) equivalent emissions using the following conversion equation.

Gas usage (kWh) x conversion factor\* = kg CO<sub>2</sub> e

The current conversion factor\* for natural gas is available via this DEFRA link

<http://www.ukconversionfactorscarbonsmart.co.uk/>

## **Cremation Standards in the event of Mass Fatalities**

55. A simple plan shall be drawn up for dealing with emergencies which give rise to mass fatalities. The plan should mainly address the holding of additional spares and consumables, and the training and availability of suitable numbers of staff in the event of prolonged operation of the cremators. Documents pertaining to such a plan shall be made available in accordance with Condition 64.

## **Management and Training**

56. A copy of this Permit and those parts of the Application referred to in this Permit shall be available at all times, for reference by all staff carrying out work subject to the requirements of this Permit.
57. Staff at all levels shall be fully conversant with the requirements of the Permit and receive proper training and instruction in their duties. Particular emphasis shall be given to:
- Awareness of their individual responsibilities under the permit,
  - Minimising emissions on start up and shutdown,
  - Action to minimise emissions during abnormal conditions,
  - Care over maintenance and servicing of equipment.
58. The operator shall maintain a record of the skills and training requirements for all staff whose tasks in relation to the Permitted Installation may have an impact on the environment and shall keep records of all relevant staff training.

## **Incidents and Complaints**

59. The Operator shall maintain and implement written procedures for:-
- taking prompt remedial action, investigating and reporting actual or potential non-compliance with operating procedures or emission limits and if such events occur;

- investigating incidents, (including any malfunction, breakdown or failure of plant, equipment or techniques, down time, any short term and long term remedial measures and near misses) and prompt implementation of appropriate actions; and
- ensuring that detailed records are made of all such action and investigations.

60. The Operator shall record and investigate complaints concerning the Permitted Installation's effects or alleged effects on the environment. The record shall give the date and nature of complaint, time of complaint, name of complainant (if given), a summary of any investigation and the results of such investigation and any actions taken.

## **Records**

61. The results of all monitoring, inspections, tests and visual assessments shall be recorded in a logbook. The record shall include the time and date of the assessment, the result, and the name of the person undertaking the assessment. The logbook and monitoring records shall be retained by the operator for a minimum period of 2 years.

62. All records shall be provided on the request of the Environmental Protection Team at Suffolk Coastal District Council. Any historical records kept off-site shall be made available for inspection within one working week of such a request.

63. Records may be held in electronic form provided that a printout, verified by a responsible person, is made available on request by an authorised officer from the Environmental Protection Team at Suffolk Coastal District Council.

64. The Operator shall ensure that all records required to be made by this Permit and any other records made by it in relation to the operation of the Permitted Installation shall:-

- be made available for inspection by the Environmental Protection Team at Suffolk Coastal District Council at any reasonable time;
- be supplied to the Environmental Protection Team at Suffolk Coastal District Council on demand and without charge;
- be legible and made as soon as reasonably practicable;
- indicate any amendments which have been made and shall include the original record wherever possible; and
- be retained at the Permitted Installation, or other location agreed by the Environmental Protection Team at Suffolk Coastal District Council for a minimum period of 2 years from the date when the record were made, unless otherwise agreed in writing.

## Notifications

65. The Operator shall notify the Environmental Protection Team at Suffolk Coastal District Council **without delay** of:-
- the detection of any abnormal emissions in contravention of emission limits and controls in Conditions 1, 2, 3, 4, 5, 15 or 21 of the Permit;
  - the detection of any fugitive emission which has caused, is causing or may cause significant pollution unless the quantity emitted is so trivial that it would be incapable of causing significant pollution;
  - the detection of any accident, malfunction, breakdown or failure of plant or techniques which has caused, is causing or has the potential to cause significant pollution.
66. The Operator shall give written notification as soon as practicable prior to any of the following:-
- permanent cessation of the operation of part or all of the Permitted Installation;
  - cessation of operation of part or all of the Permitted Installation for a period likely to exceed 1 year; and
  - resumption of the operation of part or all of the Permitted Installation after a cessation as stated above.
67. The Operator shall notify the following matters to the Environmental Protection Team at Suffolk Coastal District Council in writing within 14 days of their occurrence:-
- any changes to the operation capable of altering the substances from the operation;
  - any change in the Operator's trading name, registered name or registered office address;
  - any change to particulars of the Operator's ultimate holding company (including details of an ultimate holding company where an Operator has become a subsidiary);
  - any steps taken with a view to the Operator going into administration, entering into a company voluntary arrangement, or being wound up.
68. Prior to the first operation of the cremator, a testing protocol shall be submitted to the Environmental Protection Team at Suffolk Coastal District Council, detailing the proposed testing methods to demonstrate the cremator is in compliance with the Emission Limits and Parameters indicated in Condition 5 and Table 1 & 2 above. Only an approved protocol shall be undertaken. The results of the protocol tests shall then be forwarded to the Environmental Protection Team at Suffolk Coastal District Council and cremations shall not commence until approval has been obtained from this Council.
69. The Operator shall notify the Environmental Protection Team at Suffolk Coastal District Council if it proposes to make a change in the operation of the installation. The notification must contain a description of the proposed change in operation and it must be submitted at least 14 days before making the change.

## Interpretation

70. In this Permit, the following expressions shall have the following meanings:-

**“BAT”** means best available techniques means the most effective and advanced stage of development of activities and their methods of operation which indicates the practical suitability of impact on the environment as a whole. For these purposes: “available techniques” means “those techniques which have been developed on a scale which have been developed on a scale which allows implementation in the relevant industrial sector, under economically and technically viable conditions, taking into consideration the cost and advantages, whether or not the techniques are used or produced inside the United Kingdom, as long as they are reasonably accessible to the operator”; “best” means “in relation to a whole” and “techniques” “includes both the technology used and the way in which the installations is designed, built, maintained, operated and decommissioned.”

**“Fugitive emission”** means an emission to air or water (including sewer) from the Permitted Installation which is not controlled by an emission or background concentration limit under Conditions 5 of this Permit.

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

**“Monitoring”** includes the taking and analysis of samples, instrumental measurements (periodic and continual), calibrations, examinations, test’s and surveys.

**“Environmental Permitting Regulations”** means the Environmental Permitting Regulations (England & Wales) Regulations 2010 No. 675 and words and expressions defined in the Environmental Permitting Regulations shall have the same meanings when used in this Permit save to the extent they are specifically defined in this Permit.

**“Quarterly” and “Quarter”** means a three-month period ending 31<sup>st</sup> March, 30<sup>th</sup> June, 30<sup>th</sup> September, or 31<sup>st</sup> December in any year.

**“Staff”** includes employees, directors or other officers of the Operator, and any other person under the Operator’s direct or indirect control, including contractors.

**“Year”** means calendar year ending 31<sup>st</sup> December.

**“Calcination”** Advice on when calcination is completed is given in the Federation of British Cremation Authorities’ Code of Cremation Practice.

**“Change in operation”** means a change in the nature or functioning, or an extension of the installation, which may have consequences for the environment.

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

72. Where any condition of this Permit refers to the whole or parts of different documents, in the event of any conflict between the wording of such documents, the wording of the document(s) with the most recent date shall prevail to the extent of such conflict.

## End of Conditions



# **Schedule 1**

## **Continuous Emissions Monitoring**

1. The following equipment shall be used for continuous emissions monitoring:-
  - 1.1 Particulates -  
Type of operation – Electro-dynamic with digital signal processing and data recording
  - 1.2 Carbon Monoxide & Oxygen -  
Type of operation – Spectroscopic, with alarm system and automatic calibration function using ambient air. A check with calibration gases is necessary once a year.
  - 1.3 Smoke –  
An Oxygen Control System provides alarm and recording functions if conditions are likely to create visible emissions, the system suspends burner operation in the primary chamber temporarily, allowing the secondary chamber to complete combustion of excess gases and eliminate any visible emissions.
  - 1.4 Temperature -  
Type of operation – Thermocouples  
Locations: - primary chamber; inlet and outlet to secondary combustion chamber;
2. Routine Maintenance
  - 2.1 The operator shall undertake maintenance of the particulates monitor, oxygen, and carbon monoxide analysers according to Manufacturer's Instructions". Continuous emissions monitors shall be self calibrating when not in use but periodically be calibrated independently, as approved in advance by the Environmental Protection Team at Suffolk Coastal District Council.
  - 2.2 The operator shall carry out a weekly check of the sampling system to ensure that it is functioning in a correct manner.
  - 2.4 During operation, data from continuous monitors shall be inspected periodically. Particular attention shall be paid to any readings which remain constant, read over the scale maximum or below the zero level. If these events are observed, the instrument shall be recalibrated immediately.
  - 2.5 The particulate matter monitor shall be checked at regular intervals to ensure it is functioning correctly and reading zero when the cremator is not in use.
  - 2.6 Water vapour condensing systems, drying devices and particle filters in sampling systems shall be replaced immediately they are found to be malfunctioning.
  - 2.7 Continuous emissions monitors shall have a down time of less than 5% in any 3 month period. During any period when the instrument is shut down, condensation traps shall be drained and all lines purged with nitrogen before resuming operations.

## **Schedule 2**

### **Reporting results of Continuous Emissions Monitoring**

#### **1. General**

- 1.1 Electronic reports covering each day of operation shall be made available to the Environmental Protection Team at Suffolk Coastal District Council and summarised in a 6 monthly report submitted not later than 28 days following the end of each 6 monthly period, see Section 10 of PG 5/2 (12).

#### **2. Content of Report**

- 2.1 The report shall incorporate the following information as a minimum:-

##### ***(a) Introduction***

- Name and address of crematorium.
- Contact name and telephone number.
- 6 Monthly period covered by the report.
- Cremator (make/model reference) monitored.
- Any changes to operations (e.g. process or monitoring equipment).
- Pollutants measured/equipment used for continuous monitoring.

##### ***(b) Results***

###### **Carbon monoxide and Particulate Matter Emissions:**

- 60-minute mean emissions values that exceed emission limits stated in Condition 5 Table 1 of the Permit.
- A list of 95 percentile of 60-minute mean emissions exceeding emission limits in Condition 5 Table 1 of the Permit for each week covered by the report
- A list of the highest 60 minute mean emission value for each period
- The 95<sup>th</sup> percentile value for each period.

###### **Temperature, oxygen, and residence time:**

- Secondary chamber entrance temperature, 4 weekly/monthly maximum, minimum and average values (as 5 minute averages)
- Secondary chamber exit temperature, 4 weekly/monthly maximum, minimum and average values (as 5 minute averages)
- Oxygen concentration, 4 weekly/monthly maximum, minimum and average values (as 5 minute averages)
- Residence time, daily minimum

##### ***(c) Explanation/Action***

- Where exceedence of emission limits is observed, explanation of occurrence and remedial action taken, if any.
- The operator shall include raw data records and calculations used to determine the results, including graphs of cremator performance where exceedences of emission limits have been observed.



## Schedule 3

### Annual Extractive Testing Protocols (Sampling)

#### Extract from Process Guidance Note 5/02 (04)

## 9 Sampling

- 9.1 Every effort has been taken to ensure that this section is correct at the date of publication, but readers should note that the Regulations are likely to be subject to periodic amendment, and this section should not therefore be relied upon as representing the up-to-date position after the publication date.
- 9.2 The table below specifies the preferred test methods to be used in monitoring emissions from crematoria for each particular pollutant in PG5/2(04).

Table 6: Suggested test methods for monitoring of different substances

Substance	Suggested test method
Particulate	BS EN 13284 part 1 for particulate below 50 mg/m <sup>3</sup> BS ISO 9096:2003 for particulate above 20 mg/m <sup>3</sup>
Hydrogen Chloride	BS EN 1911 parts 1 to 3
Organic matter excluding particulate matter	BS EN 12619 up to 20mg/m <sup>3</sup> BS EN 13256 over 20mg/m <sup>3</sup>
Oxygen	BS ISO 12039
Carbon Monoxide	BS ISO 12039
Polychlorinated dibenzo-p-dioxins and furans	BS EN 1948 parts 1 to 3
Mercury	BS EN 13211

### Protocol

#### Preferred sampling location

- 9.3 In most crematoria in the UK, the cremators have been designed to fit into an existing building. Thus, even those built to be compliant with the Environmental Protection Act tend to have very few locations where a sampling point can actually physically be placed, and fewer still have sampling points which are the correct number of flue diameters away from bends and other obstructions. Given the choice, sampling points located in the "hot-log" of the flue - that is, prior to the introduction of dilution air - are to be preferred, since the oxygen concentration at such points will be lower, and thus the correction to 11% oxygen will be better defined given a constant error on an oxygen determination. However, when sampling for polychlorinated dibenzo dioxins and furans, the sampling point should if possible be located such that the temperature of the flue gases is below 200°C-that is, outside the temperature range where reformation or de novo synthesis takes place-and remains so until discharge to atmosphere. Where this is not possible, the operator should notify the authority of the minimum temperature at which the measurement can practically be made, and the reason why this cannot be below the maximum temperature, before sampling takes place.

#### Sampling points

- 9.4 For each pollutant to be measured, calculation of the location and number of sampling points should be carried out as specified in the relevant standard. The general requirements for sample point location is given in BS EN13284-1 and BS ISO 9096:2003. The new standards relate the sampling time to the limit of detection of the analysis method. Increasing the number of sampling points on the sample plane does not increase the sample time.

#### Modifications due to the batch nature of a process

- 9.5 Cremation is a batch process consisting (neglecting pre-heating and shut-down) of
- the brief "flash" caused by volatilization of the veneer on the outside of the coffin,
  - burning of the coffin,
  - after the coffin breaks open, burning of the coffin and cremation of the body.
  - calcification of the remains and
  - ashing.

The timescales involved for these processes are typically (i) 1 minute, (ii) 20 minutes, (iii) 40 minutes, (iv) 30 minutes, and (v) 2 minutes, although observation of the process or asking the manufacturers or operators should provide installation-specific times for these. In order to take into account the batch nature of the process, at least one complete traverse across the flue should be made during each of processes (ii) to (iv). Process (i) has too short a duration for a complete traverse and so sampling should not commence until at least two minutes after the coffin is charged. Similarly, sampling should stop before ashing; again, it is not practical to traverse during ashing, and the turbulence caused by the open ash door may bias the results.

**Sampling time**

9.6 Sampling should last for one complete cremation, commencing as soon as stable conditions are achieved inside the machine—at least 2 minutes after the coffin is charged—and ceasing just before the operator rakes down the machine. One must decide the total sampling time before commencing sampling, in accordance with the requirement of the relevant standard that is to be used, refer Environment Agency Technical Guidance note M2. Unfortunately, it is not possible to know beforehand how long a charge will take to cremate, as this depends on the construction of the coffin, the weight of the body and what the deceased died of. A cancerous body will take longer to cremate, for example. In order that the result from different cremations may be meaningfully compared, we suggest the following procedure. Learn either from observation of the cremator in operation, or from the operators, the duration of an average of light, average and heavy charges, and take this as the definition of "cremation". Sample for this amount of time. If a significant amount of remains are left at the end of this period, then continue to sample if possible, or void the test. If the cremation finishes significantly before the completion of testing, then stop if possible or again void the test. In any case, sampling should not be for less than 1 hour. Sampling for dioxins and furans should cover the time needed to meet the limit of detection specified by the analytical laboratory, refer BS EN1948. The requisite number of whole cremations to achieve this sampling time should be sampled and could well be from 2 to 4 cremations.

**Minimum volume of gas sampled**

9.7 The volume of gas sampled will depend on the size of the charge, the standard used for the testing, the type of machine (i.e., electric cremators will have a smaller volumetric flow rate) and whether sampling is performed before or after the introduction of dilution air. European standards, e.g BS EN 1384 -1 and BS EN1948, state that the sample time is calculated by the limit of detection of the analysis method employed.

**Concurrent oxygen readings**

9.8 Oxygen readings will be required, which are concurrent with the monitoring of the other pollutants, in order to make the correction to standard conditions.

**Minimum equipment standards**

**Minimum number of samples**

**Minimum standard of reporting**

9.9 These readings should be made in the same sampling plane in which the other samples are being taken; if not, extra dilution air could be introduced into the flue, changing the oxygen concentration at a point downstream. Care must be taken, however, that any probe used to extract the sample of gas for oxygen analysis should not cause interference to other sampling equipment in the flue, and vice-versa.

9.10 The equipment used in the sampling should meet as a minimum the standards laid out in the relevant standards specified in **Table 6**.

9.11 For a valid statistical treatment of the results to give a 95% confidence result a minimum of three samples is required, and should generally be available in one working day from all but the least used crematoria. The size of the 95% confidence interval should not exceed the following percentage of the emission limit value

- carbon monoxide: 10 %
- particulate matter: 30 %
- total organic carbon: 30 %
- hydrogen chloride: 40 %

9.12 Reports should contain as a minimum the following information:

- the name of the crematorium
- the identification of the units under test with make and model numbers
- the identification of the version of computer software used to control the unit under test
- for each test the report should show the date, the cremation number, the test duration, an estimate of the mass of the deceased (light, average, heavy) and any unusual features of the coffin (for example, heavily varnished or of foreign make) or cremation. Coffins of unusual construction or extreme mass should not be tested
- a brief summary of each test method referencing standard documents where necessary
- a full summary of non-standard test methods with justifications for their use
- the raw data obtained from non-standard test methods
- any deviations from standard test methods with justifications
- results calculated via the formulae given for each test method with estimates of the errors on each parameter- the effects on the errors of deviations from the standard methods should be fully investigated if possible
- a summary of the results and errors in comparison to the PG5/2(2004) values

9.13 In addition, the section of the report dealing with PCDD/F results should also detail as a minimum

- the concentration of each congener detected, in addition to the final toxic equivalent, since two tests producing different relative concentrations of each congener may produce an identical toxic equivalent
- the recovery of pre-sample spikes as an indication of sampling performance and method compliance; these numbers may be summarised as a maximum, minimum and average recovery of the pre-sample spikes
- the toxic equivalent with the equivalence factors used in the calculations
- the details of the processing of laboratory method blanks with the results expressed identically to the sample results. From these the detection limits for each congener should be determined and reported (vital in the cases of non-detection)

9.14 The inclusion of raw data should not be considered mandatory. However, the testing house providing the report should guarantee to keep the raw data for one year longer than the report remains a part of the public record

## Schedule 4

### Best Available Technique (Controls from PG Note 5/2 (12))

Release Source	Substance	Control Techniques
<b>Flue Gas</b>	Odour	Good combustion and a secondary combustion zone
	Particulate Matter	Good combustion, slow gas velocities and a secondary combustion zone
	Hydrogen Chloride	Minimise halogens combusted, avoid excessive temperature in primary chamber. Arrestment plant
	Carbon Monoxide	Good combustion and a secondary combustion zone
	Volatile Organic Compounds	Good combustion and a secondary combustion zone
	Mercury & its compounds	Arrestment plant
	PAH	Good combustion and a secondary combustion zone
	PCDD/F	Minimise chlorine combusted and particulate matter emitted, good combustion and a secondary combustion zone. Plus an arrestment plant for mercury abatement
	Carbon Dioxide	Measure gas consumption, good cremator design
<b>Cremated Remains Size reduction machine</b>	Particulate Matter	Filter on machine and dispersion within cremator building or external dispersion and filter if needed
<b>Spent gas-cleaning materials</b>	Particulate Matter and Mercury	Keep containers tightly lidded

## **Explanatory Notes** *[These notes do not comprise part of the permit.]*

### **Subsistence Charge**

- (a) An application fee has been paid for this permit. An annual subsistence charge, which is subject to variation by Central Government, is payable to this Council to ensure this Permit remains in force. An invoice will be sent for the appropriate subsistence charge each year.

### **General Statutory Requirements**

- (b) This permit does not detract in any way from other statutory requirements applicable to you or the installation such as any need to obtain planning permission or building regulation approval or responsibilities you have under other legislation for health, safety and welfare in the workplace. If there are any situations where different standards are required under these two types of legislation, the more stringent standard will apply.

### **Review of Conditions**

- (c) The “Conditions” contained in this Permit will be reviewed by the local authority at intervals, in accordance with Regulation 34 of “The Environmental Permitting (England and Wales) Regulations 2010 (as amended)”. The next such programme of review is scheduled to take place in 2021. Where a justifiable complaint is attributable to the operation of this process or where new knowledge develops on any harmful effects from any emissions from this type of installation. An immediate review of the process will be undertaken and the local authority will specify any new requirements together with an appropriate time-scale.
- (d) Where a condition of the permit requires a systematic assessment or review, the assessment shall be undertaken in a methodical and arranged manner. Guidance may be obtained from the Environmental Protection Team at Suffolk Coastal District Council.

### **Management arrangements**

- (e) All references to “reasonable times” in this Permit include; all times when the process is operational or when there are employees present at the site or when the site is open for business.
- (f) An Environmental Management System (EMS) is recommended as a key method for controlling emissions and thereby achieving compliance with permit conditions. This can be a simple in-house structured system that ensures Environmental Permitting considerations are taken into account in the day to day running of the process. Such a system should be reviewed annually to ensure a continuous level of environmental improvement. Alternatively the Environmental Management System may be in compliance with a national standard such as ISO 14001 Certification.

### **End of Explanatory Notes**