Environmental Procedures

Environmental Procedures

Appendices:

1. Introduction

Huntingdon Crematorium holds an Environmental Permit for the cremation of human remains from the Environmental Health department at Huntingdon District Council (the Regulator).

Environmental permits contain operating conditions that are legal requirements, and should be read and understood by ALL cremator operators and managers.

Environmental Health Officers regulate crematoria, and regular inspections will be undertaken to ensure that we are operating in accordance with our environmental permit.

It's important that the EHO is kept up to date with regular reports and also if there are any issues such as:

- Emission limits exceedences.
- visible smoke or detectable odour
- Secondary combustion chamber temperature excursions.
- Abatement plant bypass.

The EHO has a responsibility to the public, so if we have an incident that will result in smoke leaving the chimney and we have reported this to the EHO, he/she will then be able to explain to the public should they make a complaint.

These operating procedures are designed to be an outline guide to complement ICCM and specific cremator operating training to ensure that we remain compliant with our permit conditions, and maintain a great working relationship with our neighbours and the Regulator.

The Environmental Permit can be found in Appendix 1.

2. Daily checks

The following daily checks help to confirm that we have good combustion during cremation, and the thermocouples and emissions monitors are reading correctly. Servomex O_2 probe, Fe CO monitor and particulate monitor all feed data into the PG5 monthly cremation reports. Daily checks on the data gathering equipment are undertaken to ensure that the data is the best quality possible, and a Cremator weekly records sheet is completed to confirm that checks have been made (Master copy in Appendix 2).

DFW EUROPE

Control list DFW Electric installation

DFW EUROPE

To fill in with cremator off (exception control of E3 and J1)

Version 14-01-2021				Instruction:	A-G Check on daily basis, fill in on weekly basis H-M Check on weekly basis, empty if necessary				
	Week no								
	Name controller								
A	**Temperatures**								
A1	Main Chamber								
A2	Secondary Chamber								
A3	Dust Filter								
B	**Pressures**								
B1	Draught cremator Normal: 0-20Pa								
B2	Difference pressure dust filter								
C	**Heat Exchanger/ Boiler**								
C1	Water temperature Normal: 70-95°C								
C2	Water pressure Normal: 1,5-2,5bar								
D	**Expansion tank**								
D1	Water pressure Normal: 1,5-2,5bar								
D2	Contents/ Filling Normal: 20-80%								
E	**Oxygen monitor**								
E1	Oxygen percentage control monitor								
E2	Oxygen percentage analyser								
E3	Aspirator air pressure Normal: 0,3-0,5bar								
F	CEM System								
M1	O2 % Normal: <1%								
M2	CO ppm Normal: <10 ppm								
M3	Particulate Mg/m3 Normal: <5 Mg/m3								
G	**Air pressure**								
F1	Air pressure control monitor								
F2	Air pressure compressor								
F3	Oil/water separator filling water reservoir								
F4	Visual and Acoustic control								

F5	Control service lamp compressor								
F6	Cleaning air ribs cooler if necessary								
F7	Control oil level compressor								
F8	Control ductwork on leakage								
F9	Working hours (Counter on								
H	**Dust filter**								
G1	Filling dust barrel in percentage								
G2	Condition filling dust barrel Wet or dry								
I	**Spark arrestor**								
H1	Filling dust vessel in percentage								
H2	Condition filling dust vessel Wet or dry								
J	**Flue gas fan**								
I1	power in % on control monitor Normal: 0-80% **(Cremation in proces measurement around 30 minutes after start)**								
K	**Control installation**								
J1	Control visual connections water								
J2	Control visual connections flue gas								
J3	Control visual boiler								
J4	Control visual dust filter + AC box								
J5	Control acoustic (pumps, fans,								
J6	Control room temperature in °C								
L	**Handpump**								
K1	Does the handpump work correct?								
M	**Consumption**								
L1	Counter gas meter (m3)								
L2	Counter electricity meter (kWh)								

3. Abatement plant bypass

The DFW cremator is designed to be fully automatic, fail to safe cremation system. In the event of pressure or temperature significantly above normal operating parameters, the emergency release vent (AKA Bypass) may operate in order to protect both the creator and the abatement plant from damage.

Bypass will automatically operate in the event of power supply interruption

The Regulator MUST be notified without delay of all bypass incidents or use of the dummy filter:

Environmental Protection Team
Huntingdonshire District Council
Pathfinder House
St. Mary's Street
Huntingdon
PE29 3TN

Tel: 01480 388 388
Email: envhealth@huntingdonshire.gov.uk

If the bypass was the result of a specific cremation incident, follow-up with the Funeral Director, particularly if any unexpected objects are found with the remains (for example glass / metal items). Use the notes section as much as possible and include any occurrence of smoke and/or odour.

A record must be kept of all abatement plant bypass, including the following details:

- Date of the bypass
- Time of the bypass
- Cremation number (no personal details)
- Reason for the bypass (if known)
- An assessment of any smoke/odour emitted
- Date of EHO notification*
- Time of EHO notification*
- Comments (any other useful information or actions taken)

* it is assumed that bypass notifications to the Regulator will be by email. Retain a copy of the email with the bypass log.

Emergency release vent use / dummy filter log

Bypass event details					EHO Notification		Comments:
Date:	Time:	Cremation No.:	Reason for bypass:	Smoke/odour?	Date:	Time:	
25/04/2021	15:32	12345	Power supply interruption triggered ERV	Slight smoke	25/06/2020	16:00	Emailed EHO. No further action

The abatement plant bypass log can be found in Appendix 3.

4. Abatement plant maintenance

The appointed service agent will oversee all maintenance of the abatement plant, including the following:

- Topping up the mercury abatement filter media
- Replacing the mercury abatement filter media
- Replacing the dust filter elements

Whilst the service record sheets will contain full details of all maintenance undertake, it is extremely helpful to keep a separate record of abatement plant maintenance

Abatement plant maintenance

Machine number:	Mercury filter media top-up date:	Mercury filter media replacement date:	Dust filter cartridge replacement date:	Cremation number:	Additional notes / comments:
1	*25/06/2021*	*N/A*	*NA*	*1500*	*Service undertaken. Mercury filter media will need replacing in around 500 cremations time.*

An example recording sheet is shown above, and can be found in Appendix 4.

5. Emissions notifications

Certain emissions must be reported to the Regulator.

A notifiable emissions exceedance is one that is in excess of twice the specified emission limit therefore:

- 40mg/m^3 for particulate matter
- 200mg/m^3 for carbon monoxide
- Smoke or odour likely to affect the local community

The Regulator MUST be notified without delay of all reportable emissions:

Environmental Protection Team
Huntingdonshire District Council
Pathfinder House
St. Mary's Street
Huntingdon
PE29 3TN

Tel: 01480 388 388
Email: envhealth@huntingdonshire.gov.uk

A record must be kept of all reportable emissions, including the following details:

- Date of the emission
- Time of the emission
- Cremation number (no personal details)
- Reason for the emission (if known)
- An assessment of any smoke/odour emitted
- Date of EHO notification*
- Time of EHO notification*
- Comments (any other useful information or actions taken)

* it is assumed that emissions notifications to the Regulator will be by email. Retain a copy of the email with the emissions notification.

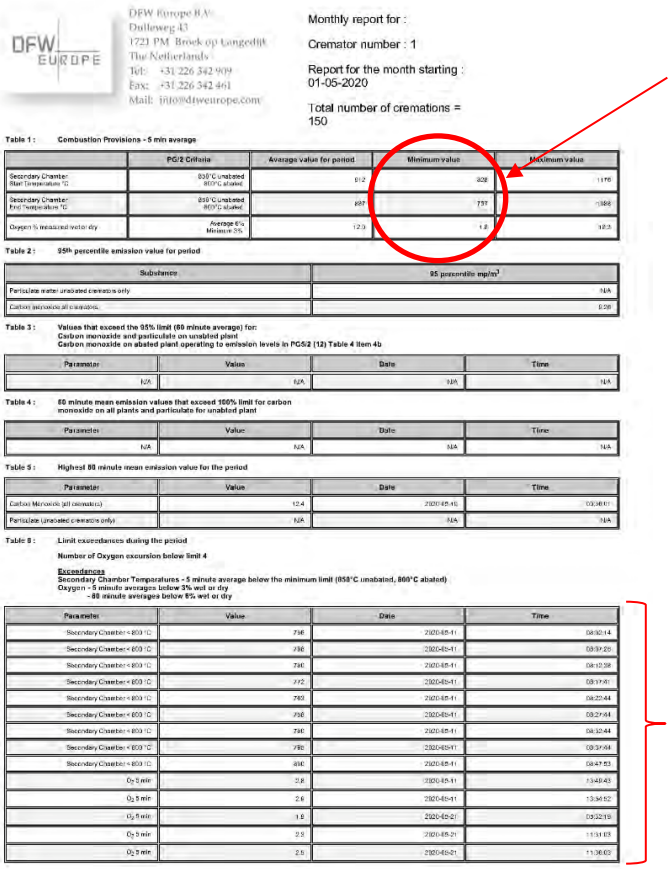
Emissions log

Emissions event details					EHO Notification		Comments:
Date:	Time:	Cremation No.:	Details of emission:	Smoke/odour?	Date:	Time:	
25/06/2021	15:32	12345	CO emissions twice permitted limit	None	25/06/2021	16:00	Emailed EHO. Large cremation.

The emissions log can be found in Appendix 5.

6. PG5 Monthly Reporting

The PG5 report is a monthly report that is generated by the DFW software, this report will tell you what issues/ exceedances have been breached during the previous month's cremations. You must read through the report carefully to make sure there are no excursions/exceedances.



DFW Europe B.V.
Duilleweg 43
1721 PM Broek op Langedijk
The Netherlands
Tel: +31 226 342 909
Fax: +31 226 342 461
Mail: info@dfweurope.com

Monthly report for :

Cremator number : 1

Report for the month starting :
01-05-2020

Total number of cremations =
150

Table 1 : Combustion Provisions - 5 min average

	PG5/2 Criteria	Average value for period	Minimum value	Maximum value
Secondary Chamber: Real Temperature °C	850°C Unabated 800°C abated	912	828	1176
Secondary Chamber: Real Temperature °C	850°C Unabated 800°C abated	897	757	1368
Oxygen % measured wet or dry	Average 6% Minimum 3%	12.9	1.8	18.5

Table 2 : 95th percentile emission value for period

Substance	95 percentile mg/m³
Particulate matter unabated cremators only	NA
Carbon monoxide all cremators	0.09

Table 3 : Values that exceed the 95% limit (60 minute average) for:
Carbon monoxide and particulate on unabated plant
Carbon monoxide on abated plant operating to emission levels in PG5/2 (12) Table 4 Item 4b

Parameter	Value	Date	Time
NA	NA	NA	NA

Table 4 : 60 minute mean emission values that exceed 100% limit for carbon monoxide on all plants and particulate for unabted plant

Parameter	Value	Date	Time
NA	NA	NA	NA

Table 5 : Highest 60 minute mean emission value for the period

Parameter	Value	Date	Time
Carbon Monoxide (all cremators)	12.4	2020-05-15	03:36:01
Particulate (Unabated cremators only)	NA	NA	NA

Table 6 : Limit exceedances during the period

Number of Oxygen excursion below limit 4

Exceedances
Secondary Chamber Temperatures - 5 minute average below the minimum limit (850°C unabated, 800°C abated)
Oxygen - 5 minute averages below 3% wet or dry
- 60 minute averages below 6% wet or dry

Parameter	Value	Date	Time
Secondary Chamber < 800 °C	796	2020-05-11	08:30:14
Secondary Chamber < 800 °C	798	2020-05-11	08:37:29
Secondary Chamber < 800 °C	796	2020-05-11	08:12:58
Secondary Chamber < 800 °C	772	2020-05-11	08:17:01
Secondary Chamber < 800 °C	793	2020-05-11	08:22:44
Secondary Chamber < 800 °C	796	2020-05-11	08:27:44
Secondary Chamber < 800 °C	796	2020-05-11	08:32:44
Secondary Chamber < 800 °C	799	2020-05-11	08:37:58
Secondary Chamber < 800 °C	800	2020-05-11	08:47:53
O_2 5 min	2.8	2020-05-11	13:49:43
O_2 5 min	2.6	2020-05-11	13:54:52
O_2 5 min	1.8	2020-05-21	09:32:19
O_2 5 min	2.5	2020-05-21	11:31:03
O_2 5 min	2.5	2020-05-21	11:36:03

Any secondary combustion chamber temperature or % Oxygen less than the prescribed minimum value will be reported here.

CO emissions measured by our own analysers will be detailed here. The report details the highest 60 minute averages. The limit for CO is 100mg/m^3. Any emissions that were double the emission limit will also be detailed here. Particulates for abated machines do not need to be reported.

The specific cremations resulting in the secondary combustion chamber temperature or % Oxygen less than the prescribed minimum value, or emission limits exceedences will be detailed here.

If for any reason emission limits exceedences or secondary combustion chamber temperature excursions occur, you will need to:

1) find out why this happened
2) what you did to correct this issue
3) what you will do to prevent such issues in the future.

It is very important that these reports are sent to the Regulator. This can be monthly, or it can be every 6 months depending on your permit or local arrangement. You must send your report via email and follow this up with a phone call, this is important not only because you will need to explain the issues if they occur but also because it keeps a good working relationship between you as a crematorium and the Regulator.

7. Extractive emissions monitoring

The Environmental Permit requires extractive emissions monitoring annually. This could be interpreted as once per calendar year or once every 12-months. It is better to work on once every 12-months.

The emissions test is principally checking the performance of the abatement plant.

At least **7-days prior notice <u>MUST</u>** be given to the Local Authority Regulator of the intention to undertake emissions monitoring:

Environmental Protection Team
Huntingdonshire District Council
Pathfinder House
St. Mary's Street
Huntingdon
PE29 3TN

Tel: 01480 388 388
Email: envhealth@huntingdonshire.gov.uk

The emissions monitoring report MUST be forwarded to the Local Authority Regulator within **8-weeks** of the date of the emissions testing, regardless of the result.

In the event of an adverse result, we will be expected to investigate the reason for the emissions failure, take action to rectify any fault or defect found and to re-book confirmation monitoring for the specific pollutant that failed the emissions test.

Important Note:

Exhaust gas flows are lower for electric cremators, therefore sampling time may need to be extended for certain pollutants in order to ensure that a representative sample is obtained.

Obtain a Site Specific Sampling Protocol (SSSP) from the testing organisation in advance of the test, and seek approval from the Regulator for the proposed sampling methods.

Ensure that there are sufficient cremations to ensure representative monitoring is undertaken. This may require that the previous days cremations are held-over. **Pre-planning is essential.**

8. Pandemic plan / mass fatalities

PG5/2 requires that a simple plan should be drawn up for dealing with emergencies which give rise to mass fatalities or Pandemic, which should mainly address the holding of additional spares and consumables and the training of suitable numbers of staff.

In Pandemic, protection of crematorium operating staff from infection will be paramount, and access to the crematory area must be strictly limited to cremation technicians. Guidance of the day will differ for every Pandemic event depending on the nature of the epidemic. For example, ICCM Covid-19 guidance (attached).

The following procedure is a guideline:

Mass Deaths Procedure

1. Upon receiving details, call one of the above to arrange cover, should you need to cremate continuously.
2. Speak to all staff and inform them of the situation.
3. Call all FD's and arrange a meeting to discuss logistics.
4. Call local authorities to gain permission to extend services through the evening. This includes the EHO.
5. Hire or borrow adequate coffin racks. (If the mass deaths are down to a pandemic, you may need to hire a mobile fridge unit. Again, speak with one of the above before this.)
6. Email and call FD's to inform them that you will be extending your working hours to deal with the demand. This will include weekends if needed.
7. Call DFW and inform them that the cremator will be working continuously, and you will need 1 engineer on standby in case of breakdown. This will just be a precaution.
8. Call Flex IT and ask them to extend the call times to stop calls being diverted at 5.
9. Make sure you have enough stock i.e. Remains Boxes, Thermocouples.
10. Finally call another meeting with staff to discuss shifts. This will need recording for payment.

There will be at least one Senior manager on site to oversee the situation. You are responsible for updating them on arrival. Please make sure you order refreshments i.e. water/sandwiches so that staff do not need to leave site. All staff must have adequate breaks if working long hours.

Pandemic Plan

This plan is issued as a precautionary measure in the event of a national emergency giving rise to mass fatalities. Defra and the Welsh Government intend to alert regulators at the time when an emergency situation exists which triggers this plan. There will be a similar alert when the situation is at an end after which the plan will no longer apply.

The following guidelines guideline set out by Huntingdon Crematorium, and depending on circumstances which led to mass deaths/pandemic we may need to work outside of these guidelines:

Personnel & training

1. **At least two trained cremator technicians to be employed by Huntingdon Crematorium. A rota to be employed to ensure personnel has adequate rest.**
2. **Ash cooling area (spare ash containers may be required). Manage cremations to ensure that remains tracking is preserved.**

Storage:

1. **Assess the need for increased coffin storage capacity.**
2. **Hire or borrow adequate coffin racks for internal storage.**
3. **If external storage is required, for example in a hired temporary structure, security will also be required.**
4. **Ensure safe and decent access to the cremator area from any temporary coffin storage area.**
5. **Consider the need to hire a mobile refrigeration unit, particularly in warm/hot weather.**

Spares and consumables:

1. **Thermocouples (all types).**
2. **Abatement plant reagent (use of dummy filter if needs be).**
3. **Door seals.**
4. **Poly-urns / other suitable containers for cremated remains**

If the mercury abatement filter fails, notify the Regulator that the dummy filter will be used. Acquire spare thermocouples from other crematoria (if possible) or from Combustion Solutions. If the need is significant, continue to cremate manually. Again, notify the Regulator or other Command and follow their instructions to continue to cremate or to cease cremating.

Pandemic Plan

Huntingdon District Council:

Environmental Protection Team
Huntingdonshire District Council
Pathfinder House
St. Mary's Street
Huntingdon
PE29 3TN

Tel: 01480 388 388
Email: envhealth@huntingdonshire.gov.uk

DFW Europe:

Dulleweg 43
1721 PM
Broek op Langedijk
Noord Holland
The Netherlands

Phone: 0031 226 34 29 09
Fax: 0031 226 34 24 61
E-mail: info@dfweurope.com

PJ Combustion solutions:

Unit N, Churchill Industrial Estate
Churchill Road
Leckhampton
Cheltenham
GL53 7FD

Tel: 01242 216949
Fax: 01242 256731

Coronavirus (COVID-19)

Guidance on the cremation and burial of those dying with Coronavirus

We have been informed by the Cabinet Office that the infection risk from a deceased person who died with the Coronavirus is no greater than the risk presented by somebody who died of flu. There is more risk of catching the virus from somebody who is living, therefore attention should be paid to minimising the risk from living people by following the Government's guidance on social distancing and good hand hygiene. Funeral services in cemeteries and crematoria are still permitted by the Government, but should be attended by immediate family only, and only where it is safe for them to do so.

Handling coffins

Current guidance is to treat the coffin the same as you would for any other coffin at this time.

For cremation:

- suitable PPE based on a risk assessment
- minimise manual handling
- charge into the cremator as soon after receipt as possible
- disinfect any surfaces the coffin has come into contact with
- dispose of PPE following handling - double bag waste before placing in your normal waste disposal system
- wash hands thoroughly with soap and hot water straight away (everyone involved in handling the coffin), or use a suitable hand sanitiser if soap and water are not available
- If the coffin leaks you will need to do what you would normally do with a body fluid spill

For burial:

- suitable PPE based on a risk assessment
- minimise manual handling
- consider having the coffin taken straight from the hearse or vehicle and lowering into the grave without resting on putlogs, boards etc
- consider using lengths of ropes that can be left in the handles and buried in the grave rather than webbing. The rope must be able to bear the weight of the coffin. The bearers should wear appropriate gloves to prevent rope burns when lowering
- disinfect any surfaces the coffin has come into contact with
- dispose of PPE following handling – double bag waste before placing in your normal waste disposal system
- wash hands thoroughly with soap and hot water straight away (everyone involved in handling the coffin), or use a suitable hand sanitiser if soap and water is not available
- If the coffin leaks you will need to do what you would normally do with a body fluid spill

Please be assured that the risk of catching the Coronavirus from a deceased person is very low. There is more risk from a living person with the virus touching the coffin, therefore this should be restricted to as few people as possible, and, if necessary, the coffin should be disinfected before further handling.

Appendix 1: Environmental Permit

Appendix 2: Daily Check Sheet

Control list DFW Electric installation

To fill in with cremator off (exception control of E3 and J1)

Version 14-01-2021				nstruction:	A-G Check on daily basis, fill in on weekly basis				
					H-M Check on weekly basis, empty if necessary				
	Week no								
	Name controller								
A	**Temperatures**								
A1	Main Chamber								
A2	Secondary Chamber								
A3	Dust Filter								
B	**Pressures**								
B1	Draught cremator Normal: 0-20Pa								
B2	Difference pressure dust filter								
C	**Heat Exchanger/ Boiler**								
C1	Water temperature Normal: 70-95°C								
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D	**Expansion tank**								
D1	Water pressure Normal: 1,5-2,5bar								
D2	Contents/ Filling Normal: 20-80%								
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E1	Oxygen percentage control monitor								
E2	Oxygen percentage analyser								
E3	Aspirator air pressure Normal: 0,3-0,5bar								
F	CEM System								
M1	O2 % Normal: <1%								
M2	CO ppm Normal: <10 ppm								
M3	Particulate Mg/m3 Normal: <5 Mg/m3								
G	**Air pressure**								
F1	Air pressure control monitor								
F2	Air pressure compressor								
F3	Oil/water separator filling water reservoir								
F4	Visual and Acoustic control								

F5	Control service lamp compressor								
F6	Cleaning air ribs cooler if necessary								
F7	Control oil level compressor								
F8	Control ductwork on leakage								
F9	Working hours (Counter on								
H	**Dust filter**								
G1	Filling dust barrel in percentage								
G2	Condition filling dust barrel Wet or dry								
I	**Spark arrestor**								
H1	Filling dust vessel in percentage								
H2	Condition filling dust vessel Wet or dry								
J	**Flue gas fan**								
I1	power in % on control monitor Normal: 0-80% **(Cremation in proces measurement around 30 minutes after start)**								
K	**Control installation**								
J1	Control visual connections water								
J2	Control visual connections flue gas								
J3	Control visual boiler								
J4	Control visual dust filter + AC box								
J5	Control acoustic (pumps, fans,								
J6	Control room temperature in °C								
L	**Handpump**								
K1	Does the handpump work correct?								
M	**Consumption**								
L1	Counter gas meter (m3)								
L2	Counter electricity meter (kWh)								

Appendix 3: Bypass log

Emergency release vent use / dummy filter log

Bypass event details					EHO Notification		Comments:
Date:	**Time:**	**Cremation No.:**	**Reason for bypass:**	**Smoke/odour?**	**Date:**	**Time:**	
25/04/2021	*15:32*	*12345*	*Power supply interruption triggered ERV*	*Slight smoke*	*25/06/2020*	*16:00*	*Emailed EHO. No further action*

Appendix 4: Abatement plant maintenance log

Abatement plant maintenance

Machine number:	Mercury filter media top-up date:	Mercury filter media replacement date:	Dust filter cartridge replacement date:	Cremation number:	Additional notes / comments:
1	*25/06/2021*	*N/A*	*NA*	*1500*	*Service undertaken. Mercury filter media will need replacing in around 500 cremations time.*

Appendix 5: Emissions log

Emissions log

Emissions event details					EHO Notification		Comments:
Date:	**Time:**	**Cremation No.:**	**Details of emission:**	**Smoke/odour?**	**Date:**	**Time:**	
25/06/2021	*15:32*	*12345*	*CO emissions twice permitted limit*	*None*	*25/06/2021*	*16:00*	*Emailed EHO. Large cremation.*

Appendix 6: Dust Gas Analyzer Manual

Appendix 7: CO Gas Analyzer Manual