

# Consultation on the review of the Crematoria Guidance PGN(5/12)

To: All APSE main contacts

## 1 Executive Summary

A joint consultation is being undertaken by the UK government, the Scottish Government, the Welsh Government and the Department of Agriculture, Environment and Rural Affairs in Northern Ireland.

The UK Government and devolved administrations have worked with industry and regulators and have developed several measures that will reduce further emissions from crematoria. These measures relate to pollutants emitted during the cremation process.

The consultation seeks views on the proposed new guidance that will replace the existing crematoria guidance PG5/2(12). This briefing provides an overview of the proposals and full details of the consultation and the proposed new guidance can be accessed via the following link: [Consultation Document on the review of the Crematoria Guidance.pdf \(defra.gov.uk\)](#)

The consultation is open for eight weeks and will close on 3 December 2023.

## 2 Introduction

Cremation is a regulated industry so environmental permits require that crematoria must meet the standard for emissions to air determined by best available techniques (BAT), described in the relevant process guidance note, to ensure pollutant emissions and impacts to the environment are minimised. BAT for the sector is set out in the Process Guidance Note PG 5/2 (12)<sup>1</sup>. It was published in September 2012 and the government state that it is a priority to reduce emissions of mercury and other key pollutants. The cremation industry is responsible for emissions of the following pollutants emitted at different stages during the combustion process:

- mercury (Hg)
- other particulate matter (PM)
- nitrogen oxides (NO<sub>x</sub>)
- dioxins and furans
- acidic gas Hydrogen chloride (HCl)

In the 25 Year Environment Plan the UK government committed to reducing land-based emissions of mercury into the air and water in England by 50% between 2016 and 2030. It is commented that there has been significant action in the reduction of mercury emissions through the removal of unabated coal and the decommissioning of the UK's only mercury chlor-alkali facility. Therefore, the emissions from crematoria now represent a larger proportion of remaining total mercury emissions.

There are also environmental targets for particulate matter under the Environment Act 2021.

A review process of the existing crematoria guidance PGN (5/12) has taken place that has led to the agreed standards in the proposed new guidance.

### **3 Questions about key change**

#### **3.1 Implementation of mandatory mercury abatement**

The government report that a key purpose of the new guidance is to extend the mercury abatement technology (flue gas treatment), which currently operates across around 70% of crematoria, to the rest of the sector. Flue gas treatment is the best available technique for the sector to reduce emissions to air of:

- mercury
- particulates
- acid gases
- dioxins and furans

It is proposed that the implementation dates are amended as follows to allow sufficient time to implement:

- 1 year from publication of the new guidance, all new and replacement cremators will be fitted with flue gas treatment that includes mercury abatement.
- 4 years from publication of the new guidance, cremators will be fitted with flue gas treatment that includes mercury abatement. Otherwise, their operation will be limited to 100 hours per calendar year.

The consultation document provides an overview of the proposed exceptions to the requirement to install flue gas treatment. However, there will be a requirement for these crematoria to assess the impact of emissions on local air quality for approval by their regulator.

#### **3.2 Status of standby and temporary cremators**

Standby cremators are included in the existing guidance and are defined as “for use in the event of breakdown of the main cremator or other occasional need for additional cremator capacity” and are permitted subject to compliance with the criteria.

In the proposals, the definition of standby cremators is similar to the one used in the current guidance, although a reference to its permanent nature has been added. It now defines a standby cremator as “one that is permanently retained for use in the event of breakdown of the main cremator or other occasional need – excluding small scale cremators – for additional cremator capacity at the crematoria. The 100-hour limit on standby cremators is carried forward from existing guidance if the standby cremator is not connected to abatement equipment”.

The consultation document sets out a series of conditions that standby cremators will be subject, including the following: -

- the standby cremator must be included in the environmental permit and be clearly identified.

- the relevant regulator must be notified, in advance where practicable, of the operation of the standby cremator.
- the standby cremator shall not be brought into operation unless there is a clear operational need. All periods of operation and the reason for standby cremator operation must be recorded in the log standby cremators, which are not fitted with or connected to flue gas treatment.
- equipment, shall operate for no more than 100 hours in any calendar year.
- the number of hours operating standby cremators shall be reported to the regulator.

The proposed new guidance also covers temporary cremators for the first time.

The government report that a temporary cremator is defined as “a cremator installed on a temporary basis usually as a replacement for one that has been taken out of service for replacement or major refurbishment”.

An unabated temporary cremator can replace an abated cremator and still operate for more than 100 hours in a calendar year. If this is the case, an assessment of the impact of the local ambient air quality must be made as part of the permit variation application.

### **3.3 Operational controls on cremators**

Operational controls on cremators in relation to the combustion temperature and residence time of the combustion gases in the secondary combustion chamber are also addressed in the proposed new guidance. The operational control values are summarised and detailed in the full consultation document.

The proposed new guidance, residence time in the secondary combustion chamber will be demonstrated by calculation and verified at commissioning stage. Temperature must equal or exceed the values set above. For cremators fitted with flue gas treatment, different conditions for the temperature, residence time and oxygen content at the exit of the secondary combustion chamber may be authorised by the regulator provided all the other requirements of this guidance are met, including all emission limit values. The regulator will then specify those conditions in the permit.

It is also proposed that the frequency of dioxin monitoring will be increased to annual in such circumstances and the limit for carbon monoxide has been made an operational control limit as opposed to an emission limit value.

### **3.4 Operation of abated cremators in bypass mode**

The existing guidance sets out certain conditions where failure of the abatement systems entails the operation of abated cremators in bypass mode.

Emergency relief vents (ERV) or bypass systems should not normally be used when cremation is underway, or during maintenance. The existing guidance only allows the use of emergency relief vents (ERV) or bypass systems in two circumstances. The new guidance adds a third situation that covers short-term power interruptions.

The new guidance also proposes the removal of the need to notify regulators with immediate effect if an ERV or bypass is used during cremation. The operator will still be expected to report the number

of hours of operation in bypass to the regulator.

In addition, it offers some flexibility to operators to use bypass mode, in case an equipment malfunction occurs, provided that:

- it can meet all the operational standards for an unabated cremator.
- the period of such operation does not exceed 100 hours in any calendar year, without the prior agreement of the regulator.

Otherwise, the cremator should not be used until the failed system is repaired. Reporting to regulators will be limited to the total number of hours. In the unusual and unexpected circumstances where the use of an ERV exceeds the 100-hour annual limit, an assessment of the impact on local ambient air quality will be required.

### **3.5 Proposals for nitrogen oxides**

Nitrogen oxides (NO<sub>x</sub>) arise during combustion (thermal NO<sub>x</sub>) and from the nitrogen that may form part of the materials being burned in the cremator. The proposed new guidance identifies two techniques for the controlling and reduction of this key pollutant, the control of materials and selective non catalytic reduction (SNCR).

Materials contained in body-bag and coffin construction materials may be a high source of NO<sub>x</sub> emissions. The consultation document states the operating principle under the new guidance is prevention at source, as these do not come fully under the control of the operator. This refers to the reduction of the thermal load and the avoidance of materials containing high amounts of nitrogen, or at least minimising the amount to reduce the quantity of NO<sub>x</sub> produced.

SNCR is an established technique in many industrial sectors as a NO<sub>x</sub> abatement technique in combustion processes and can achieve reductions in emissions of between 60% and 80%.

In the SNCR process, ammonia or urea is injected into the furnace to reduce NO<sub>x</sub> emissions. However, the SNCR process is considered an emerging technique under the new guidance, as its application to cremation is not yet optimised and available from all manufacturers (5.7).

The proposed new guidance brings NO<sub>x</sub> into the scope of key pollutants for the sector for the first time. A limit has been set for NO<sub>x</sub> at 200 mg/Nm<sup>3</sup>.

The government reports that the ELV will not have effect before 2027 to give operators time to prepare. Operators can decide whether to achieve the limit through further abatement, by using SNCR or by tighter controls over coffin materials. The new guidance sets a minimum monitoring frequency for NO<sub>x</sub>.

### **3.6 Stack height and air quality assessments**

Under the existing guidance, the methodology for calculating the stack height is contained in HMIP Technical Guidance Note (Dispersion) D1 'Guidelines on Discharge Stack Heights for Polluting Emissions' 2, dated June 1993.

The new guidance supplements this methodology with a requirement to assess the impact of emissions on local air quality, and for this assessment to show no significant impact on the environment or human health. It is stated that this is especially important given that NO<sub>x</sub> emissions

are not part of the existing guidance and therefore were not considered when the stack heights of many crematoria were designed.

### **3.7 Carbon emissions**

Carbon emissions at crematoria are caused by:

- the use of fuel and electricity use
- the combustion of materials
- actual cremations.

Small quantities of other greenhouse gases and nitrous oxide (N<sub>2</sub>O) may also be emitted from NO<sub>x</sub> abatement. Carbon emissions can be reduced through improvement of fuel consumption and energy efficiency and by minimising the weight of material in coffins.

The government report that the existing requirements for collecting data on fuel consumption and energy efficiency will generate information that will help with achieving the net zero carbon emissions commitment by 2050.

It is proposed that the fuel and electricity consumption will be measured for each cremator (including all abatement equipment). Where there is more than one cremator operating with a shared flue gas treatment system, fuel and electricity consumption shall be measured for the whole system.

After the first year of the publication of the new guidance, all new and replacement cremators will be fitted with appropriate fuel and electricity metering. At the end of the four-year implementation period, all cremators will be fitted with appropriate fuel and electricity metering.

Operators of crematoria will report on an annual basis about their carbon emissions from:

- fuel,
- electricity consumption, and
- coffin materials.

Fuel and electricity consumption can be converted into carbon dioxide emissions using publicly available emissions factors. Carbon intensity data is available for different fuels and electricity use from the national grid.

Funeral directors should pass sufficient information on carbon content of coffin materials to crematoria operators for these to be included in their calculations. The reports will include a justification of the calculation methodology and relevant sources used. It is commented that further work is needed on developing emission factors for nitrous oxide (N<sub>2</sub>O) emissions, so these have been excluded from calculations at the present time. However, the new guidance explores these measures further.

### **3.8 The Crematoria Abatement of Mercury Emissions Organisation (CAMEO) scheme**

Under the current guidance, crematoria have had to fit mercury abatement or join a burden sharing arrangement. The industry currently operates a burden sharing scheme – called CAMEO – which has provided a flexible way of achieving the target of 50% abated cremations that the existing guidance requires. The current performance of the CAMEO scheme is around 70% of cremations carried out in equipment fitted with mercury abatement.

In the proposed new guidance, existing unabated cremators will be required to participate in a burden sharing arrangement until the end of the four-year implementation phase. After that, mercury abatement will be mandatory so the CAMEO or any other burden sharing scheme will no longer be needed. Further supplementary information is included in Appendix A of the consultation document.

## **APSE Comment**

The APSE Local Authority State of the Market 2023 – Cemeteries and Crematoria, highlighted that there was a need to address the environmental impact of bereavement services and that there is a growing importance being given to mitigating the environmental impact.

APSE member councils are encouraged to respond to the consultation and APSE will itself be supporting its member councils through the cemeteries and crematoria advisory group, by sharing best practice including the challenges of meeting new regulatory requirements.

The [APSE Cemeteries and Crematoria online seminar](#) scheduled on **Thursday 16 November 2023**, brings together a range of expert speakers who will share with delegates their knowledge and experience of how they are meeting the demands being placed on the service, including in reduction the environmental impact and will also look at the innovative approaches that are being adopted to achieve the best outcomes for the service and wider community. For further information and to book your place, [please click here](#).

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- Cemeteries and Crematoria
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**James Jefferson**  
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