

Report of the Infant Cremation Commission

June 2014

'We recognise that the events leading to our appointment were and continue to be deeply distressing to many parents and families. To those affected we offer our sincere condolences on the loss of their babies and our profound sympathy for the additional distress caused by the events that followed.'

All Members of the Infant Cremation Commission

June 2014

CONTENTS

1.	Executive Summary	3
2.	Collated Recommendations	5
3.	Introduction	13
4.	Submissions	19
5.	Cremation in Scotland	23
6.	Technical Aspects of Cremation	27
7.	Ashes	33
8.	Securing the Recovery of Ashes	40
9.	Regulation of Baby and Infant Cremations	53
10.	Registration of Cremation	66
11.	Training and Other Ways of Improving Practice	71
12.	Memorials	82
13.	Implementing the Recommendations	84

Annexes:

A	List of Crematoria in Scotland	87
B	Infant Cremation Commission Full List of Members	89
C	Infant Cremation Commission Local Investigation Guidance	90
D	Joint Opinion of Counsel	92
E	Dr Roberts Anthropology and Supplementary Anthropology Reports	100
F	Dr Chamberlain Report	143
G	Dr Chamberlain Supplementary Note to SEPA and Comments	160
H	DEFRA / SEPA Process Guidance Note 5/2(12)	169
I	Glasgow Audit Report	221
J	Aberdeen Audit Report	229
K	CMO & CNO 2012 Guidance on Disposal of Pregnancy Loss	241
L	Scottish Government Analysis of CMO & CNO Guidance Implementation	255
M	Health Board Documentation Responses Summary	261
N	Health Board Arranged Individual Cremations Responses	269
O	Crematoria Questionnaire Responses Summary	270
P	Residual Heat or 'Overnight' Cremation in Scotland	283
Q	Numbers of Deaths and Cremations By Age of Baby / Infant	286
R	Children's Memorials in Scotland	287
S	Infant Cremation Commission Approved Meeting Minutes	291

Annexes E, F, G, I, J and L reproduced with kind permission from Dr Julie Ann Roberts, Dr Clive Chamberlain, Edinburgh City Council, Glasgow City Council, Aberdeen City Council and the Scottish Government. Enquirers may wish to contact the respective City Council for any updates and details of changes to their cremation processes since the audit reports were issued.

SECTION 1 - EXECUTIVE SUMMARY

1.1 Death always evokes grief. To some it brings release and to their families relief from the distress of observing a loved one in decline and pain. For others the grief and distress of suffering untimely bereavement can seem unbearable. That is particularly so for many who suffer the loss of a longed-for and much-loved baby at or before birth or in the early months of life. To learn later of uncertainty about the existence and disposal of their babies' ashes has compounded the grief, caused further distress to many, and given rise to mixed emotions in others. That highlights the importance of taking steps urgently to ensure that future cremations of babies are handled with sensitivity that has due regard to the duty to lay their remains to rest as and where their families wish.

1.2 The work of the Commission has been confined to the cremation of babies and infants. It may coincidentally have an impact on arrangements for the cremation of older children and adults. However, it must be recognised that there are special features of baby and infant death and cremation of which it is important to be aware in trying to devise systems to avoid repetition of past failures. Perhaps the most significant are the practical result of cremation of a baby and the proper understanding of that by the three separate groups who have roles in arranging and conducting funerals and cremations, namely, healthcare staff, Funeral Directors and crematorium staff. Public concern about the current situation and the need for change was clearly expressed within a submission made by the parent of a baby who died shortly after having been born prematurely:

“I feel that it is essential that national standards are established to inform the work of crematoria and that bereaved parents of the future are not left with any doubt about what has happened to the remains of their deceased children. If there are no remains then time should be taken to explain to parents why this might be the case. Parents also need to understand why apparently remains can be retrieved 100% of the time in some crematoria, but almost never in others. The current situation is not acceptable.”

1.3 The aim of the Commission has been to identify where the problems lie and to devise arrangements for cremation which address these problems in order to ensure that those involved have a clear and consistent understanding of the whole process that will enable them to assist families to make informed decisions, have their babies laid to rest as they wish, and have confidence that their wishes have been implemented. In doing so the Commission have been careful not to lose sight of the many examples of good practice already available to tap into, in all areas, and the widespread ethos of aiming to provide a dedicated public service.

1.4 In the Sections which follow, the circumstances which led to the creation of this Commission are set out along with details of the work undertaken in the course of the investigation and a summary of the 57 submissions received. The extent to which cremation is practised in Scotland and how cremation is carried out are explained. At the core of the Report are Sections addressing the nature of “ashes” and the means available to ensure the recovery of ashes in baby and infant cremations. Sections are then devoted to how baby and infant cremation is

regulated and the attendant formalities, including the forms to be completed and registration of the outcome. Two important legislative changes proposed are that there should be a statutory definition of “ashes” and statutory regulation of the cremation of babies of less than 24 weeks’ gestation. Since the Commission have identified a fairly widespread lack of appreciation of the impact of the cremation process on babies and infants and a failure to appreciate what the public expectation of cremation is, the subsequent Sections deal with training, education and communication.

1.5 Full consideration of all the material gathered by the Commission in the course of their work has led to the following recommendations which have the support of all members of the Commission. These recommendations are set out below along with reference to the parts of the Report where they are particularly addressed.

SECTION 2 - RECOMMENDATIONS

2.1 In legislating, devising policy, drafting information and guidance documents, and making arrangements for and conducting baby cremations, the baby and the interests of the family should be the central focus of attention. Parents and families should be given time and space to reach the correct decision for them. Arrangements should be in place at each hospital for ongoing contact with parents, particularly mothers, where that contact is necessary. **(11.34)**

2.2 The FBCA in the course of their “critical friend” visits to crematoria and the ICCM in their self-assessment questionnaire should address specifically the conduct of baby cremations and recovery of ashes. **(5.6)**

2.3 The “ashes” which the Cremation Authority is obliged to give into the charge of the person who applied for the cremation if he so desires should be defined in legislation as “all that is left in the cremator at the end of the cremation process and following the removal of any metal”. That should not preclude the applicant from consenting in advance to the removal of metals, such as coffin nails and artificial joints, and their separate disposal, including as part of a metal recycling scheme. **(7.21)**

2.4 Cremation Authorities should review their practices immediately to ensure that, in dealing with the “ashes” following cremation, they proceed on the basis that the “ashes” are as defined in the foregoing recommendation. **(7.21)**

2.5 The Scottish Government should inform their counterparts in England and Wales and Northern Ireland about the changes in legislation in Scotland to enable them to consider clarification of the definition of “ashes” in identical terms. **(7.23)**

2.6 All Cremation Authorities at whose crematoria ashes are not always recovered should liaise with a crematorium or crematoria where ashes are recovered more regularly to share their experiences and information about their respective practices in order to identify changes in practice that should be introduced immediately with a view to increasing the prospects of recovering ashes. **(8.13)**

2.7 The Cremation Authorities which have rejected the use of trays for baby cremations on health and safety grounds should urgently consider, in light of the experience of others, the introduction of a local protocol to allow trays to be used in a way that will expose no one to undue risk. **(8.14)**

2.8 As an urgent interim measure, the ICCM and the Federation of Burial and Cremation Authorities (FBCA) should form a joint working group, which should also include two lay persons nominated by the Scottish Government and a representative of Facultatieve Industries Ltd, to consider the various practices and techniques currently employed in baby and infant cremation in full-scale cremators with a view to identifying those practices which best promote the prospect of recovery of ashes inclusive of baby remains and compiling Guidance for cremator operators. The working group should identify aspects of the cremation process which could conceivably be changed or improved and into which research ought to be

commissioned by the Scottish Government. The working group's endeavours may be assisted by the fact that the majority of cremators in use in Scotland are produced by the same manufacturer, Facultatieve Technologies Ltd. **(8.36)**

2.9 Following completion of its work in **8** above, that working group should also consider the operating systems and other features of the cremators in use in Scotland and the practices currently employed with a view to identifying those aspects of the cremation process which could conceivably be changed or improved and into which research ought to be commissioned by the Scottish Government. That should include the practice of cremating babies at the end of the working day and overnight with the cremator operating and monitoring equipment switched off in a way that will cause no material environmental damage and satisfies SEPA that it should be permitted, with a view to increasing the prospects of recovering ashes. **(8.36 and 8.39)**

2.10 That working group should consider and advise whether, in light of experience in England and Ireland, and having regard to their efficiency in recovering ashes and the costs of installation and operation, the Scottish Government should commission research into the design and development of small-scale cremators. **(8.40)**

2.11 Each Cremation Authority should publish a policy statement, which should include a commitment to the sensitive treatment of the baby throughout and to respecting the wishes and needs of parents and families, and also set out the Authority's policy on ashes. To ensure clarity and consistency the ICCM and the FBCA should form a joint working group to develop a model policy statement reflecting best practice and allowing for local variation as appropriate. **(8.44)**

2.12 Funeral Directors and healthcare staff should include appropriate extracts from the Cremation Authority policy in information and guidance material given to families. **(8.45)**

2.13 The cremation of non-viable babies should be the subject of legislative regulation. **(9.4)**

2.14 Appropriate forms of application for cremation should be prescribed for each of three categories of cremation of babies and infants: (a) stillborn baby; (b) shared cremation of non-viable babies; and (c) individual cremation of a non-viable baby. **(9.7, 9.23, 9.40, 9.42 and 9.44)**

2.15 On each form of application for cremation there should be a clear warning, in terms appropriate to that form, that ashes may not be recovered, with provision for the applicant to acknowledge having read that warning. In the case of (b) shared cremations the warning should also state that any ashes recovered will either be scattered or interred, and specify which, at the crematorium. **(9.10, 9.24, 9.40, 9.44)**

2.16 In the context of their introduction of a new death certification process, the Scottish Government should review the currently prescribed content of cremation application Form A to ensure that only essential questions are incorporated into the new prescribed forms for (a) and (c). **(9.16, 9.17, 9.24 and 9.44)**

2.17 All forms of application prescribed should be designed by the Scottish Government with simplicity and clarity in mind, and all Cremation Authorities, Health Boards and other healthcare providers should be required to use the forms so prescribed and designed. **(9.14 and 9.18)**

2.18 The forms prescribed for (a) and (c) should contain a question requiring the applicant to specify how the ashes should be dealt with following the cremation. The options available should include retention for a defined period pending a final decision and also later extending the period of retention. **(9.10, 9.24 and 9.44)**

2.19 There should be provision in forms for (a) and (c), or on a separate form, for the applicant to authorise a representative, such as the Funeral Director, to collect the ashes. Where the Funeral Director is the person authorised, the form should also provide for the consent of the applicant to the Funeral Director returning the ashes to the crematorium in the event that the applicant does not collect them from the Funeral Director or give the Funeral Director instructions as to their disposal within a defined period. **(9.11, 10.16)**

2.20 There should be a specific legislative provision that the cremation should not be authorised to proceed if the application does not contain a clear direction as to how the ashes should be dealt with. **(9.12)**

2.21 Where ashes are left in the care of the crematorium on the basis that they will be collected, or to await further instructions within a defined period, the Cremation Authority may not scatter or inter them unless 14 days' notice of their intention to do has been given to the applicant. **(9.13)**

2.22 The forms prescribed for (a) and (c) should be completed and signed by the applicant personally, and the applicant's signature should be witnessed by a person who is not a member of the applicant's family and has no part in the arrangements for the cremation. **(9.9, 9.10, 9.21 and 9.44)**

2.23 It should be provided in legislation that those entitled to apply for cremation are: (i) in the case of (a) and (c) the nearest relative as defined by section 50 of the Human Tissue (Scotland) Act 2006; and (ii) in the case of (b) a person authorised by the Medical Director of a Health Board or other healthcare provider, and that an application presented by a different person should be accepted only on cause shown, which should be recorded in the register referred to below. **(9.19, 9.20 and 9.42)**

2.24 Senior Cremation Authority staff should be responsible for the scrutiny of all cremation application forms to satisfy themselves that the applicant is entitled to make the application as mother, nearest relative or on cause shown. There should be legislative provision that, if the Cremation Authority is not satisfied of the applicant's entitlement to apply, then authority for the cremation to proceed may be refused. **(9.20)**

2.25 Legislative provisions similar to those in Regulation 20 of the 2008 Regulations (England and Wales) should be introduced requiring appropriate certification of a stillbirth. **(9.23)**

2.26 The duty of Cremation Authorities as to the handling of ashes set out in Regulation 17 of the 1935 Regulations should be extended to apply to stillborn and non-viable babies. **(9.25 and 9.44)**

2.27 The provisions of Regulations 13 and 15A of the 1935 Regulations should be amended to apply to stillborn children. **(9.26)**

2.28 NHS Scotland should review the provision of the facility of hospital-arranged cremation throughout Scotland with a view to making consistent provision in all Health Boards. **(9.32)**

2.29 The Scottish Government should establish a working group comprising representatives of Health Boards, Funeral Directors, Cremation Authorities and miscarriage and child bereavement support organisations to consider evolving practices in the arrangement and conduct of shared cremations and to draw up a code of practice setting down minimum standards for shared cremations. **(9.35)**

2.30 The 2012 CMO and CNO Guidance on sensitive disposal should be reviewed and consideration should be given to revising it to take account of the comments made in Section 9. **(9.36 to 9.39)**

2.31 Annex C to the CMO and CNO Guidance should be revised to: (i) set out specifically the options for disposal explained to the mother above the space for her signature; (ii) state that ashes may not be recovered following cremation, and that any which are recovered will be scattered or buried at the crematorium; and (iii) state specifically that the standard procedure to be followed where the mother declines to discuss disposal is cremation along with others. **(9.40 and 9.41)**

2.32 The form of application for (b) should state that each mother has authorised the hospital to arrange a shared cremation, and that such authorisation is held in hospital records. **(9.40, 10.7 to 10.10)**

2.33 Each application for cremation of a non-viable baby should be accompanied by a medical certificate that the pregnancy loss occurred before 24 weeks and showed no signs of life. **(9.42)**

2.34 Cremation Authorities, Funeral Directors and Health Boards should review the contractual arrangements in place for shared cremations in light of ICCM Guidance contained in Section 6 to satisfy themselves that the respective responsibilities of the parties are so defined as to ensure that such cremations are carried out in a dignified and sensitive manner. **(9.48)**

2.35 Each Cremation Authority should be required by legislation to record the cremation of each deceased baby, stillborn baby and non-viable baby carried out by the Cremation Authority in a register or registers comprising prescribed columns, every one of which must be completed, including in particular, if the ashes were scattered or buried, the date and their location and, if collected, the date and by whom. **(10.4 and 10.5)**

2.36 The Cremation Register should be a public document and the Scottish Government should make legislative provision to that effect, subject to any restrictions necessary in the interest of privacy and to comply with data protection requirements. **(10.6)**

2.37 Each Health Board and other healthcare providers should maintain a register of authorisations in which the crematorium at which the baby was cremated is recorded in a way that will ensure traceability of the link between the baby and the ashes. **(10.8)**

2.38 Since responsibility for preserving important records relating to hospital-arranged cremations lies with the hospital or other healthcare provider, a working group comprising Health Board representatives and a representative from the private healthcare sector, chaired by a Scottish Government official, should be appointed by the Scottish Government to review hospital record-keeping practice in all hospitals and other healthcare providers in relation to documents relevant to baby and infant cremations with a view to identifying best practice to be applied across Scotland. **(10.9)**

2.39 The registers kept by Cremation Authorities, Health Boards and other healthcare providers should be preserved indefinitely. All forms of application, certificates and other official documents relating to a cremation should be preserved for a minimum of 50 years. **(10.10 and 10.11)**

2.40 The Scottish Government should form a working group drawn from Cremation Authorities and providers of software to crematoria to review the available facilities for electronic processing and storage of cremation documents and records, to consider and recommend appropriate improvements to achieve the objects of the recommendations of this Commission, and to consider what additional features and facilities the software manufacturers should be invited to develop, all with a view to ensuring that the systems in use by Cremation Authorities are as efficient and secure as possible. The working group should also consider and advise on the appropriate requirements for back-up systems. Having regard to the importance of keeping records secure, the working group should also consider and advise whether additional security measures are necessary and what back-up storage systems should be provided. **(10.12)**

2.41 In the case of deceased and stillborn babies, on completion of the entry by recording the ashes location or collection and the date thereof, the Cremation Authority Registrar should be required to send a notice to the applicant confirming which occurred and, if scattered or interred, where that was, along with an extract of the full register entry. In the case of the individual cremation of a non-viable baby the Registrar should issue such a notice and extract on request and the form of application should provide for such a request to be made. **(10.13)**

2.42 The ICCM and FBCA should review their respective technical training programmes in accordance with the requirements identified in Section 11. **(11.12 to 11.16)**

2.43 The FBCA should review all published Guidance documents to provide clear and fully informed guidance on the prospects of ashes being recovered based on knowledge of skeletal maturity rather than gestational age alone. **(11.14)**

2.44 The ICCM and FBCA should each introduce into their respective technical training programmes provision requiring the trainee technician and his mentor to attend and undertake, in the course of the training period and at a crematorium identified by the Institute or the Federation as excelling in the conduct of baby and infant cremations, a full day of training in the conduct of baby and infant cremation on two separate occasions. The trainee should be required to satisfy the examiner of his knowledge and understanding of the methods and techniques of the conduct of baby and infant cremations that enhance the prospects of recovering ashes. **(11.16)**

2.45 The ICCM should revise their management training scheme to include an element dealing with baby and infant cremation and to make that a compulsory part of study for the certificate in cremation management. **(11.18)**

2.46 The person with direct management responsibility for the operation of a crematorium should hold either a qualification in crematorium management or the FBCA certificate of competence to operate cremators or the ICCM intermediate certificate for crematorium technical operations. **(11.19)**

2.47 The FBCA should develop and introduce a training programme for continuing professional development. **(11.20)**

2.48 Mothers of non-viable babies and families of stillborn babies and very young deceased babies considering cremation should be advised where there is a possibility that ashes will not be recovered and reminded of the availability of the option of burial. **(11.24 and 11.34)**

2.49 All providers of training programmes for Funeral Directors should review them in the light of any legislative changes affecting the cremation of non-viable and stillborn babies and associated administrative procedures. **(11.26)**

2.50 All providers of training programmes for Funeral Directors should devise modules designed to give Funeral Directors an understanding of the cremation process, the effect it has and the prospects of recovering ashes in baby and infant cremations. **(11.26)**

2.51 Each Health Board, as part of continuously improving the quality of the service, should identify staff who will have responsibility for communicating with families about arrangements for disposal and liaising with Funeral Directors and crematoria and, as part of their continuous professional development, arrange for their further education and training in the necessary skills, including developing their communication skills, improving their understanding of the roles and responsibilities of colleagues, and providing an appreciation of the capabilities of modern cremation equipment and contemporary cremation practice and the effect of cremation on babies and infants. **(11.35)**

2.52 Health Boards should support staff in initiating the formation of local multi-disciplinary working groups comprising all with a role in dealing with the fate of the baby from hospital to crematorium to exchange information, knowledge, understanding, practice and experience, as well as promoting joint training programmes, with the aim of ensuring that all involved are familiar with the facilities available and practices followed locally. (11.36)

2.53 Health Boards, organisations providing advice, support and guidance to grieving families such as SANDS UK and the Miscarriage Association, Funeral Directors, the ICCM and FBCA, and any other body providing advice, support and guidance to grieving parents and families should review all publications dealing with cremation that are likely to be distributed to, or seen by, the public to ensure that they include accurate information that is expressed clearly and consistently, including in particular information about the prospects of recovering ashes, and that they contain a reminder of the availability of the option of burial. (11.37)

2.54 The Scottish Government should establish a working group comprising a representative from each Health Board and chaired by a Scottish Government official to review all Guidance documents and information leaflets in use over all Health Boards and private healthcare providers, including those compiled by, or in conjunction with, bodies such as SANDS and the Miscarriage Association, relating to management of pregnancy loss and infant bereavement and arranging disposal, with a view to ensuring consistency in that Guidance and information, and endeavouring to reduce the proliferation of different documents in use. (11.38)

2.55 Where invited to do so by affected parents, local councils / authorities should facilitate discussion for plans for local memorials. (12.7)

2.56 The Scottish Government should form a working group, to include representatives of affected parents and bereavement support groups to consider whether there should be a national memorial dedicated to the babies whose ashes were mishandled or mismanaged and, if so, the form that it should take. (12.8)

2.57 The Scottish Government should establish a National Committee with responsibility for baby and infant cremations. (13.4)

2.58 The National Committee should be chaired by a senior Scottish Government official. Its membership should be drawn from authorities, organisations, professions and other bodies with a role in baby and infant cremation, and should include representation from groups or organisations representing affected parents and providing bereavement support. (13.5)

2.59 The National Committee should have power to establish working groups of its membership, with co-opted members where appropriate, to consider specific recommendations from this report. Each of the working groups recommended above would be sub-groups of the National Committee. It would be open to the National Committee to assign to one working groups the tasks assigned in more than one recommendation, for example recommendations relating to technical matters and cremation technology could be dealt with by a professional sub-group reporting back to the full Committee. The National Committee should also have the power to

establish working groups to consider other issues identified by the National Committee and to report back to the National Committee. (13.6)

2.60 The National Committee should report to Scottish Ministers annually on progress against the recommendations made by this Commission. That annual report should be published on the Scottish Government website. (13.7)

2.61 The National Committee should, as a priority, develop a national Code of Practice for baby and infant cremation. Such a Code, which should be informed by the recommendations of this Commission, should set down the minimum requirements for organisations to adhere to when supporting bereaved parents and families through the baby and infant cremation process, and seek to identify best practice to be followed by all bodies involved in baby and infant cremation. The Code of Practice should include general principles and guidance as well as specific technical and operational guidance for Cremation Authorities, Health Boards and Funeral Directors, with a view to achieving consistently high standards of practice among all with a role in baby and infant cremation. (13.8)

2.62 The Code of Practice should be a live document that is not only responsive to developments, but also instrumental in promoting improvements, in practice, technology, policy and legislation. The National Committee should therefore continue to monitor developments in all aspects of activity related to baby and infant cremation and review the Code annually to ensure that it reflects contemporary standards and best practice. (13.9)

2.63 Scottish Ministers should appoint an independent Inspector to monitor working practices and standards at crematoria, provide feedback to Cremation Authorities on how they are performing and to report to the Scottish Ministers as required. The independent Inspector should have authority to investigate complaints from the public about working practices and standards at crematoria, to adjudicate upon these complaints and report findings to the Scottish Ministers. The role of the Inspector should be extended to the funeral industry in respect of which there is no current provision for inspection. (13.10 and 13.11)

2.64 The Scottish Ministers should keep the cremation and funeral industries under review and should consider, in light of the reports of the National Committee and the independent Inspector, whether further regulation of either is required. (13.13)

SECTION 3 - INTRODUCTION

Origins of the Commission

3.1 In the latter part of 2012 considerable public concern was expressed over the accuracy of information given to bereaved parents about the existence or non-existence and final resting place of the ashes of their babies who had been cremated. The circumstances which led to this are described in Dame Elish Angiolini's Mortonhall Investigation Report (MIR)¹ into historical practices at the local authority-run Mortonhall Crematorium in Edinburgh. The subsequent media coverage led to over 250 families registering enquiries with that Investigation seeking to establish whether ashes had been recovered from the cremation of their babies. The publicity also led to similar, though less numerous, enquiries being made of other Cremation Authorities, including Glasgow City Council, Aberdeen City Council, Fife Council and Falkirk Council. The core concern was that in a number of cases in which parents had been told that, following the cremation of their babies, there had been or would be no ashes, there were in fact instances in which ashes had been buried or scattered at a part of the crematorium that might or might not be readily identifiable.

3.2 Edinburgh City Council acted swiftly in response to the public concern. On 4 December 2012, Councillor Lesley Hinds, Environment Convener for Edinburgh City Council, issued an apology to families affected by historical practices at Mortonhall Crematorium. On 7 December 2012 Edinburgh City Council announced that a fact-finding investigation into historical practice at Mortonhall Crematorium would be undertaken. The initial report of the investigation was published on 15 January, with its first and key recommendation being to continue investigations via the appointment of a suitable independent person. On 22 January 2013 Edinburgh City Council announced that Dame Elish Angiolini, former Lord Advocate for Scotland, had been commissioned to undertake an independent investigation into the historical practices at Mortonhall Crematorium².

3.3 A number of local and national media stories followed and BBC Scotland issued Freedom of Information requests to all Cremation Authorities in Scotland, asking how many babies had been cremated since 2008 and in how many cases ashes had been returned or scattered with parental consent. As a result of the

¹ Mortonhall Investigation Report, Background Section:

http://www.edinburgh.gov.uk/downloads/file/2673/mortonhall_report_-_0_contents_and_background_p1-14

² http://www.edinburgh.gov.uk/news/article/1125/independent_investigation_into_mortonhall_crematorium. The Mortonhall Investigation commenced worked in early 2013 with the following remit:

- To assess and review the initial findings of the City of Edinburgh Council report prepared by Mike Rosendale, Head of Schools and Community Services dated 11 January 2013 ('CEC report')
- To assess and comment on the arrangements to review current policy and practice recommended in the CEC Report
- To review any Mortonhall Crematorium records (together with the outcome of the PwC data collation exercise) and to carry out further interviews of staff and others relevant to the investigation, in each case as you consider necessary
- To assess and comment on the historic practices of management and staff at Mortonhall crematorium
- To establish the rationale that underpinned practices at Mortonhall, and to confirm where practices may have departed from Council policy
- To assess and comment on the communication process between Mortonhall, NHS Lothian, Funeral Directors and bereaved parents

responses received, BBC Scotland raised concerns about historical practice at Hazlehead Crematorium in Aberdeen (where no ashes had been returned for any of the 24 cremations of babies since 2008) and in Fife (where ashes had been returned or scattered in 45 of the 87 cremations).

3.4 On 3 April 2013 BBC Scotland broadcast a documentary which identified apparent inconsistencies in practice in crematoria across Scotland³. On 4 April, immediately following broadcast of the BBC Scotland Programme, Aberdeen City Council released a statement⁴ indicating that the Council had already ordered a ‘precautionary audit’ on practice at Hazlehead in January, following concerns about practice at Mortonhall. A report on that audit, conducted by PricewaterhouseCoopers, was published on 15 July 2013⁵. The Council viewed the report as confirming that procedures at Hazlehead Crematorium were sound.

3.5 Glasgow City Council did not respond to the request from BBC Scotland because the information sought had not been collated in time. However, following the broadcast of the documentary, some parents from the Glasgow area spoke to the council and the media with their concerns.⁶ Shortly thereafter Glasgow City Council issued a statement explaining that an initial internal review had already been carried out and announcing that a second phase of review would be undertaken.⁷ On 16 May 2013 the Council published the results of its review of all relevant cremations in the previous 15 years, and issued an apology after finding that there had been a small number of cases where ashes had been dispersed without the knowledge, or against the wishes, of parents⁸.

3.6 The Commission are not aware of any other Cremation Authority carrying out any review but are aware of perhaps 50 to 75 cases in Scotland, and expect that there are more where concerns have been raised, in addition to those at Mortonhall. In some instances these concerns relate to the accuracy or otherwise of information provided by healthcare staff or Funeral Directors.

Establishing the Commission

3.7 The state of distressing uncertainty in which many people were left as a result of these developments led to calls upon Scottish Ministers to set up a public inquiry. Following debate in Parliament and within the Government, Scottish Ministers established this Commission on 16 April 2013. Once its general membership of experts with experience in matters relevant to the work of the Commission had been identified by Ministers, Lord Bonomy was asked to chair the Commission. His appointment was announced on 2 May 2013.⁹

³ BBC news: <http://www.bbc.co.uk/news/uk-scotland-22003573>

⁴ Aberdeen City Council website: http://www.aberdeencity.gov.uk/CouncilNews/ci_cns/pr_hazlehead_040413.asp

⁵ Aberdeen City Council website: http://www.aberdeencity.gov.uk/CouncilNews/ci_cns/pr_pwcaudit_150713.asp and <http://www.aberdeencity.gov.uk/nmsruntime/saveasdialog.asp?IID=51442&sID=666>

⁶ BBC news: <http://www.bbc.co.uk/news/uk-scotland-22114517>

⁷ Glasgow City Council website: <http://www.glasgow.gov.uk/index.aspx?articleid=9859>

⁸ BBC news: <http://www.bbc.co.uk/news/uk-scotland-glasgow-west-22556955> and Herald Newspaper: <http://www.heraldscotland.com/news/home-news/glasgow-city-council-apologises-for-disposing-of-baby-ashes-against-parents-wishes.1368718352>

⁹ Scottish Government website: <http://www.scotland.gov.uk/News/Releases/2013/05/lordbonomy02052013>

3.8 At the first meeting of the Commission on 21 May 2013 the proposed remit formulated by the Minister for Public Health, Michael Matheson, was tabled and, following discussion which resulted in minor revision thereof, was agreed. The revisions made were accepted and endorsed by Scottish Ministers. The agreed remit was as follows:

- To review the current policies, guidance and practice in Scotland in relation to the handling of all recoverable remains (ashes) of babies and infants, and to make recommendations for improvement to ensure that: parents and other bereaved relatives receive clear and consistent advice and information about the disposal of such remains and have their wishes adhered to; and that any such remains are treated sensitively and compassionately.
- To consider existing legislation, with particular reference to the Cremation Act 1902 and the Cremation (Scotland) Regulations 1935, in order to identify gaps, inconsistencies and weaknesses and to make recommendations on what issues should be addressed in future legislation.
- To consider existing practice and guidance in related fields such as the NHS and funeral services in order to identify gaps, inconsistencies and weaknesses that should be addressed; and to make recommendations on the format and content of future guidance.

and:

- To give guidance on the conduct of any investigations of historical practice undertaken by Local Authority or independent crematoria operators.

3.9 The Commission met for the second time on 28 May 2013 when the enquiries that should be made and the general range and nature of the information, evidence and other material the Commission would seek to gather and collate were discussed and agreed. Recognising the possibility that Cremation Authorities with which parents had raised issues might wish to have these concerns enquired into, the Commission took this early opportunity to issue interim Guidance in accordance with the last sentence of the remit above, on the conduct of investigations of historical practice by Cremation Authorities. That Guidance, which remains available to any Cremation Authority, should be considered the definitive view of the Commission. It can be found at Annex C.

3.10 In 2005 the Government established the Burial and Cremation Review Group to look at 2 main subjects, namely (i) the death certification process and (ii) the law generally relating to burial, cremation and cemeteries, the former in response to the scandal of Harold Shipman in England and the latter because the time was right to review, in light of social change, legislation that had been in place a long time. The Review Group recommended that all the various pieces of legislation relating to burials, cemeteries and crematoria management should be swept away and replaced by one Act of Parliament into which the main provisions appropriate to the modern era should be consolidated in a way that would allow for them to be amended fairly easily as required by subordinate legislation.

3.11 The Review Group's report also made many detailed recommendations about burial and cemeteries, and a few about cremation. Some of their recommendations

apply to both. Four have a direct bearing on the work of this Commission: recommendation 12 that the right to instruct the disposal of bodies after death should be vested in the nearest relative as defined in section 50 of the Human Tissue (Scotland) Act 2006; recommendation 13 that all records and forms relating to the disposal of bodies should wherever possible be maintained in electronic form; recommendation 23 that there should be legislation to make clear that home cremation is illegal; and recommendation 31 that sufficient guidance exists as to the disposal of fetal remains and the Scottish Government should issue an update of the 1992 NHS circular on the disposal of such remains. Others, such as the series relating to death certification and recommendation 28 and 29 relating to responsibility for authorising the cremation of people who die abroad, are relevant to how some changes that this Commission recommend should be implemented.

3.12 It can thus be seen that, although the trigger for the creation of this Commission was the concern that first emerged at Mortonhall Crematorium, the Commission should also be seen as presenting an opportunity to contribute further to the task, already initiated, of developing a scheme for burial and cremation and for baby cremation in particular that is appropriate for the twenty-first century. That scheme should aim to ensure that throughout the arrangements and the conduct of cremation, the baby and the interests of the baby's family are the paramount consideration for the various professionals who are involved with that family.

The Work of the Commission

3.13 The Commission met on 8 occasions. The dates of these meetings, and the approved minutes produced from each one, are available at Annex S.

3.14 The Commission received a total of 57 submissions in response to its call following the first meeting. These are discussed later in this Report.

3.15 The majority of work, which informed the discussion at each formal meeting, was however conducted outwith these meetings. Written and oral requests for information and copies of current and historical documentation were issued to crematoria, cremator manufacturers and Health Boards. Expert opinions were obtained in conjunction with the Mortonhall Investigation. The Commission Secretariat were engaged throughout in communications to obtain further information and clarification of information already received on a variety of topics.

3.16 Each member of the Commission wishes to express gratitude to, and admiration of, the Commission Secretariat, comprising Alison Kerr and Sarah Dillon, for their dedicated support of the work of the Commission.

3.17 Although it was not within the scope of the Commission to investigate the detail of individual cases, particularly where there may be disputed factual matters to resolve, steps were nevertheless taken to obtain documentation in relation to those cases where parents had made submissions to the Commission in order to learn more about the causes of parents' concerns. The Commission understand that, as a result of this, in certain cases documentation not previously seen by parents was subsequently made available to them.

3.18 Lord Bonomy held meetings with several groups and individuals in order to discuss information that had been submitted in writing or which reflected issues brought to his attention during the course of other meetings. He held three meetings with parents: in July 2013, in December 2013 and in May 2014, this last being to gain their input on a draft of this Report. The Commission Secretariat also met separately with parents in July 2013, in response to early concerns about making submissions to the Commission. That last meeting resulted in an extension and re-advertising of the date by which submissions could be made.

3.19 In recognition that further practical investigative support was required, Norman Dowie, a retired Deputy Principal Clerk of Justiciary in the High Court in Edinburgh, was appointed to assist in undertaking enquiries into the operation of crematoria. Visits were paid to South Lanarkshire, Livingston, Aberdeen, Mortonhall, Seafield and South West Middlesex Crematoria. Numerous tele-conferences were held with staff at many more. Meetings were held with the Chief Executives and other staff of both Glasgow City Council and Aberdeen City Council; with representatives of the National Association of Funeral Directors (NAFD) and with crematoria managers from across Scotland at a joint regional meeting of members of the Institute of Cemetery and Crematorium Management (ICCM) and the Federation of Burial and Cremation Authorities (FBCA). A meeting with health professionals was also held to discuss submissions received from this sector and health board responses to the request for their current policy and practice documentation. Numerous telephone interviews were conducted with staff of crematoria, Funeral Directors and hospitals. Following publication of the MIR, discussions were held with the Scottish Environment Protection Agency (SEPA) to consider aspects of MIR.

3.20 At the outset of the Commission's work Lord Bonomy met with each Commission member individually to discuss areas of the Commission's work on which they had knowledge and experience. These meetings, and other on-going communications between Lord Bonomy and members, led in turn to individual Commission members willingly undertaking additional tasks of great assistance to the Commission as a whole.

3.21 Lord Bonomy and the Commission Secretariat liaised with Dame Elish and the Mortonhall Investigation team regularly. The Commission wish to record their appreciation of the assistance they provided. As the work of the Commission progressed it became clear, as had initially been thought, that it would not be appropriate to report without knowing the findings of the Mortonhall Investigation. Since its work was not completed until 14 April 2014, the original target date for the Commission's Report of December 2013 could not be met. The Mortonhall Investigation Report (MIR) was made available to the Commission on its publication date of 30 April 2014. Once the initial draft of the Commission's Report, taking account of the terms of the MIR, was completed, the opportunity to read and then offer feedback on it at a face-to-face meeting was made available to all of the directly affected parents who had made submissions to, or engaged in discussion with, the Commission.

3.22 These discussions with parents on the draft Report took place over two days, Monday 26th May and Wednesday 28th May. At the meeting on 26th May, attended by 14 parents, a copy of the draft was given to each, some of its contents were

outlined, and there was a short discussion of some suggestions made by those present. It was agreed by all that the draft should be treated with the utmost confidentiality, not only because it remained in draft form and was subject to change, but most importantly because of the distress that could be caused to parents in general if the contents of the draft were exposed to public debate before the report was finalised. The subsequent meeting, held on 28th May, was attended by 11 parents, with email or written feedback received from a further 5, including 2 who had been unable to attend either meeting.

3.23 The topics discussed, which resulted in several revisions and amendments to the Report's narrative and recommendations, included regulation of crematoria and Funeral Directors; bereavement training for healthcare staff and Funeral Directors; greater transparency and access to information if a parent wanted this; an independent crematorium inspectorate; more time to decide on cremation, notification whether ashes were or were not recovered; how the application forms for cremation could be improved; the definition of ashes and what should be made available to bereaved parents; the extent to which 'overnight' cremation and shared cremation were ethically acceptable and also their views on local and national memorials.

3.24 There was general agreement on most of the topics during the meeting. However it was acknowledged that not everyone held identical viewpoints and that other parents affected, who had not made submissions to the Commission or who had not been able to attend, could hold different views. At their meeting later on 28th May the Commission took full account of the feedback before agreeing a final draft in which a number of the suggestions made in these two meetings are reflected. Ultimately it was the responsibility of the Commission to make the decision as to which of the many suggestions made at these meetings, and indeed the suggestions made by many others throughout the course of the Commission's work, to incorporate into this Report.

3.25 The above sets out the key activities of the Commission, which helped inform the content of this Report. The Commission recognise that affected parents had an enormous amount to contribute to its work and wishes to acknowledge and thank them for sharing their personal experiences and memories within their submissions, and the valuable views and insights they provided throughout the course of the Commission's work and at the meetings in May. All members of the Commission recognise and appreciate that, for many, that involved the distress of recalling unhappy times. The Commission would also like to thank all others who made submissions and all who assisted the work of the Commission in the many other ways outlined above.

3.26 This is an appropriate point to pay tribute to the work of Councillor George Ryan, of Glasgow City Council, in supporting affected parents in the area until his sudden and untimely death on 5 October 2013. The Commission also wish to recognise the value of the work undertaken by the many bereavement support organisations and their staff, including the hundreds of volunteers, who help, where they can, to ease the pain and grief of those who experience the loss of a baby, and who assist parents and families in finding a way through the difficult arrangements in the aftermath of such a loss.

SECTION 4 - SUBMISSIONS

Context and Background

4.1 One of the first acts of the Commission was to issue a public call for written submissions on 22 May 2013, following its first meeting the day before.

4.2 As well as seeking input from professional groups and individuals, the Commission's view was that, if it was to make recommendations for the future, it had to understand what may have gone either right or wrong for parents and families, under previous or current policies, practices and legislation. This was a difficult but necessary request to make of those most affected. Initially, there was understandable reluctance on the part of some to engage with the Commission.

4.3 The original request was for written submissions by 19 July 2013. However, a meeting between parents and Lord Bonomy and a subsequent meeting between parents and the Commission Secretariat established that, given more time and wider circulation, for example via bereavement support and other charity networks, more parents would be likely to respond. The date for responses was therefore extended to 2 August 2013.

4.4 As has already been noted, the Commission ultimately received a total of 57 written submissions which fell into four fairly well-defined categories.

- By far the largest category, of 27, was those individuals who had themselves lost a child, many of whom had subsequently experienced further distress as a result of the information they had received and/or some aspect of the funeral arrangements.
- A further 13 submissions were received from organisations such as the NHS, local authorities, Cremation Authorities, charities and parents' groups.
- Each of the organisations represented on the Commission also made a submission.
- Seven additional individual submissions were received from persons whose work brought them into contact with cremation, but who were presenting their own views rather than those of their employer organisations.

Key Points from Submissions

4.5 Whilst the topics raised and the views expressed varied across these different groups, the point on which there was striking consensus was that parents should receive as "ashes" whatever remains in the cremator after the cremation process, regardless of its composition, if they so wish.

4.6 Expressed in different ways across many submissions was the clear consensus that, whatever changes may be required or would be recommended, these should be framed in a person-centred way that has the necessary flexibility to allow for the individual choices, situations and feelings of those involved.

4.7 Another main area highlighted across all the categories was the need for better communication among Funeral Directors, healthcare staff and crematoria staff and also between each of their organisations and those who have been bereaved.

4.8 Underpinning this second point on communication was the desire for more consistent national guidance, policies and - in particular - practices across the country, delivered through effective training and designed to ensure that those who had been bereaved receive accurate information delivered in a sensitive and supportive manner.

Submissions from Parents

4.9 The submissions received from parents were deeply personal and often highly emotive. Many had been profoundly affected by the triple distress of suffering the death of their child, followed by difficulties with the funeral arrangements, then exacerbated by new, conflicting or contradictory information as to what happened to their child's ashes.

4.10 The clearest and most frequently recurring point made in these submissions was that parents should be able to receive any and all ashes remaining after cremation if that was what they wished. Parents were very clear that it did not matter if the ash was, for example, predominantly coffin ash; they wanted any and all remains to be offered to them or any other parent in a similar situation.

4.11 From the experiences recounted, it was also clear that there was variation in the information about the availability or otherwise of ashes that was given to bereaved parents across the country, and the manner in which this was conveyed (or not) to them. Approximately half of these submissions directly attributed responsibility for their distress to one or more of the three main staff groups involved: health care staff; funeral director staff and crematoria staff. Whilst it was not possible to ascertain whether this attribution was always correct, ie any one staff group may simply have passed on information to a parent gained from one of the other two staff groups, this in itself suggested that there were flaws in the chain of communication between these groups and what they each then communicated to parents.

4.12 A further matter of note was the time-frame encompassed by the submissions from parents. Dates were mentioned in 25 of the 27 submissions from parents, ranging from the mid-1970s to 2012. The first point to note is that the majority dated from the 1980s and 1990s, with only three cases dating from within the last five years, and one of those expressing a neutral rather than a negative view of their experience. The second point to note is that, while these submissions suggested practice had varied by date as well as by area, they did not indicate whether practice had improved with the passage of time. So whilst the span of time involved across all these submissions may explain some variations in the nature of the support and information provided to parents, and the availability of ashes, it does not explain all of these.

4.13 In suggesting improvements for the future, these submissions tended to focus on the need for compassionate, person-centred approaches when professionals are working with individuals who have suffered the loss of a child.

4.14 Some additionally expressed the view that, whilst parents should be actively involved in decision-making, this had to be conducted in a way that recognised how difficult it can be to make considered decisions based on information given at a time of extreme distress. A suggestion was that it may be beneficial for arrangements to be discussed on more than one occasion with parents, in order to better ensure that they fully understand the choices available to them. Signposting to support services should also be considered an essential part of any discussions with bereaved parents.

4.15 Other suggestions included standardised industry guidance, more detailed and thorough inspections of crematoria and tighter enforcement of standards.

Submissions from Organisations

4.16 Thirteen submissions were received from across a range of organisations involved in the process of infant cremation including the NHS, local authorities, crematoria, crematoria and cemetery professional bodies, charities, bereavement support services, Funeral Directors and groups representing affected parents.

4.17 Several of these submissions strongly recommended there should be a clear definition of ashes, because of the current different interpretations of 'ashes' and 'cremated remains' in eg the Guidance issued by the ICCM and FBCA respectively.

4.18 A recurring suggestion was that national guidance, or a single code of practice, should be developed which would define clearly a consistent process for cremating infants, regardless of the circumstances of their death.

4.19 This could, for example, include the cremation or burial advice and support that would be offered to those who had suffered the loss of a child through cot death, which has to be investigated via the Crown Office Procurator Fiscal Service.

4.20 Such national guidance should address complying with environmental and public health obligations whilst at the same time maximising the prospect of recovering ashes.

4.21 This national guidance or code of practice might principally involve funeral director and crematoria representative bodies, but could additionally encompass NHS bereavement support services.

4.22 Staff training within and across the different sectors, communication between organisations and with parents and standardised forms and documentation within or across the different sectors were also identified as areas for improvement. These measures, it was suggested, would also better ensure that clear and consistent advice, support and information could be given to parents in the future.

Submissions from Commission Members

4.23 Each Commission Member made a submission, either on behalf of their organisation or in respect of their role within that organisation. The content of these submissions reflected their understanding of the current system and the areas that they believed required improvement. They also demonstrated a general willingness to effect any necessary changes in the light of Commission findings, which accorded with views expressed at Commission meetings.

4.24 Submissions identified key areas for improvement as: communication (both amongst agencies and with the bereaved); training of all staff involved across the NHS, funeral industry, bereavement support services and Cremation Authorities; and clear and consistent terminology, messages and guidance.

4.25 Submissions made clear that the collaboration of all partners was critical to the improvement of the system and to the implementation of any recommendations. Achieving continuity in training a large volume of staff across a number of different sectors, however, was highlighted as a challenge.

4.26 A proposal made was for a national framework to be agreed that might ensure any new policy would be implemented consistently across Scotland, including clearly defined roles for the different professionals involved in the process.

Submissions from Other Individuals

4.27 Submissions in this category came from individuals who were, or had been, linked in a professional capacity to infant bereavement. This encompassed the NHS, funeral industry, bereavement support services and professional bodies representing Cremation Authorities.

4.28 The points and recommendations set out in these submissions did not tend to overlap, although they did clearly suggest a general lack of consistency as the biggest issue within the current system. This included lack of consistency in practice across the years; in terminology; in the verbal information given to parents and in the paperwork that was required to be completed by the various parties involved.

4.29 One recurring suggestion was to ensure that parents were talking through options face to face with a recognised expert in bereavement, who might be either a member of healthcare staff or Funeral Director staff.

Role of Submissions

4.30 The views and suggestions raised by all those who made these submissions have played a central role in the Commission's determination of issues to be explored, the ensuing deliberations on these issues, and in the formulation of the recommendations that have emerged, all of which is set out in the following Sections of the Report.

SECTION 5 - CREMATION IN SCOTLAND

5.1 The Commission's remit relates to "babies and infants". That terminology was used to enable the Commission to address all cases where it could be suggested that there might be no ashes following cremation, and has been interpreted by the Commission as covering any pregnancy loss prior to the 24th week of gestation, stillborn children and infants up to about 2 years of age. Pregnancy losses will generally be referred to within this Report as "non-viable babies".

5.2 Cremation of deceased persons has been undertaken in Scotland since the late 19th century¹⁰. The Cremation Acts 1902 and 1952, and the Cremation (Scotland) Regulations 1935 (the 1935 Regulations), amended by later Regulations, most recently by the Cremation (Scotland) Amendment Regulations 2003, apply to this day¹¹. The long title of the Cremation Act 1902 is "An Act for the regulation of the burning of Human Remains, and to enable Burial Authorities to establish Crematoria". In section 2 of that Act "crematorium" is defined as "any building fitted with appliances for the purpose of burning human remains, and shall include everything incidental or ancillary thereto"¹².

5.3 Specific provision for cremation of stillborn children was made by Regulation 16 of the 1935 Regulations, subsequently amended by the Cremation (Scotland) Amendment Regulations 1967¹³. A stillborn child is defined by the Registration of Births, Stillbirths, Deaths and Marriages (Prescription of Forms) (Scotland) Regulations 1997, Regulation 2(1), as "a child which has issued forth from its mother after the twenty-fourth week of pregnancy and which did not at any time after being completely expelled from its mother breathe or show any other signs of life"¹⁴.

5.4 There is no legislative provision relating to the cremation of a non-viable baby. Nevertheless, non-viable babies have been cremated throughout the United Kingdom for in excess of 30 years. That cremation may be individual or collective, that is shared with other non-viable babies. The Commission generally refer to the latter as "shared cremations" or "cremations along with others".

5.5 There are 27 crematoria in Scotland. The operator of a crematorium is the "Cremation Authority", defined in the introduction to the 1935 Regulations as "any burial authority or company or person by whom a crematorium has been established". In the case of 14 crematoria the Cremation Authority is the local council; in the case of the other 13 the Cremation Authority is a private company. All cremate adults, infants and stillborn babies. There is also provision for individual cremation of a non-viable baby at all 27 crematoria. At 9 of those 27 a non-viable

¹⁰ See 'The Laws of Scotland: Stair Memorial Encyclopaedia', Edinburgh: Butterworths, 1987

¹¹ Cremation Act 1902 <http://www.legislation.gov.uk/ukpga/Edw7/2/8/contents>; Cremation Act 1952

<http://www.legislation.gov.uk/ukpga/Geo6and1Eliz2/15-16/31/contents>; Cremation (Scotland) Amendment Regulations 2003 Amendments <http://www.legislation.gov.uk/ssi/2003/301/contents/made>

¹² Cremation Act 1902, Section 2: <http://www.legislation.gov.uk/ukpga/Edw7/2/8/section/2>

¹³ Cremation (Scotland) Amendment Regulations 1967:

<http://www.legislation.gov.uk/uksi/1967/398/contents/made>

¹⁴ The Registration of Births, Still-births, Deaths and Marriages (Prescription of Forms) (Scotland) Regulations 1997: <http://www.legislation.gov.uk/uksi/1997/2348/contents/made>

baby may additionally be cremated along with others in a shared cremation arranged by the hospital (see Annex O). All Cremation Authorities but one are members of the UK-wide Federation of Burial and Cremation Authorities (FBCA). Thirteen are full corporate members of the Institute of Cemetery and Crematorium Management (ICCM). So some are members of both and one is a member of neither. There are also full individual professional members of the ICCM at 17 crematoria. Both organisations provide Guidance for crematoria and their staff, as well as Funeral Directors and the wider public.

5.6 Whilst there are two other cremation organisations in the UK and Scotland which can claim to play some part in representing those involved in cremation, namely the Cremation Society of Great Britain and the Association of Private Crematoria and Cemeteries (APCC), the FBCA and the ICCM are the principal representative bodies, given the extent of their collective policy and practice reach in Scottish crematoria. Both the FBCA and ICCM play a role in maintaining standards at crematoria throughout the United Kingdom. The FBCA arranges what are described as “critical friend” audit visits to a number of crematoria in the UK each year. These visits are made by 2 Technical Officers and the President of the FBCA, and may be attended by Scottish Government officials acting as independent observers. Crematoria which have adopted the ICCM Charter for the Bereaved¹⁵ complete an annual self-assessment questionnaire that is submitted to the Institute. A gold, silver or bronze award is made to the crematorium by the Institute depending upon the score achieved. Each year, 5% of the self-assessment questionnaires returned are verified by ICCM staff in the course of a full day visit to the crematorium which includes, where appropriate, the development of an improvement plan. The self-assessment questionnaire is reviewed regularly and additional or revised questions added as appropriate. Neither the FBCA nor the ICCM scheme currently addresses specifically the conduct of baby cremations. The Commission think that they should.

5.7 Of the circa 55,000 deaths in Scotland each year, approximately two-thirds of funerals involve cremation. This proportion is, however, much lower in the case of stillbirth and infant death up to 2 years of age. For example, in the years 2010, 2011 and 2012 there were 291, 299 and 274 stillbirths recorded¹⁶ of whom approximately one-third were cremated whilst the others were buried. In the same years 218, 238 and 217 infants died between birth and their first birthday, and 13, 21 and 17 died between their first and second birthdays¹⁷. Of these, approximately one quarter were cremated whilst the others were buried. The preference for burial cannot be explained by cost. Most funeral undertakers and Cremation Authorities do not charge for their services in the burial and cremation of children, in many instances up to the age of 18. It is likely that it is simply the result of social attitudes and practices. If anything, burial is more expensive since a lair in which to lay the baby to rest may have to be purchased¹⁸.

¹⁵ ICCM Charter for the Bereaved: <http://www.iccm-uk.com/iccm/library/Reference%20Charter%20Review%202012.doc>

¹⁶ National Records of Scotland ‘Vital Events Reference Tables’ Stillbirths 2002-2012 Table 4.4: <http://www.nrscotland.gov.uk/statistics/theme/vital-events/general/ref-tables/2012/section-4-stillbirths-and-infant-deaths.html>

¹⁷ Figures provided by National Records of Scotland Senior Statistician in response to a Commission request on 30 October 2013. See also Annex Q

¹⁸ All Burial and Cremation Authorities (most usually the 32 Scottish Local Authorities) include relevant charges on their respective websites.

5.8 The position in regard to non-viable babies is much less clear. Such figures as are available do not enable the ratio of cremations to pregnancy loss through termination and miscarriage to be calculated with any degree of accuracy. The figures also largely pre-date new Guidance issued by the Chief Medical Officer and the Chief Nursing Officer for Scotland (CMO and CNO Guidance) in 2012¹⁹, which gave Health Boards twelve months to implement a new minimum standard of shared cremation for all non-viable babies. That Guidance was issued too late to have any impact on the statistics for the three years for which information was gathered by the Commission.

5.9 In the years 2010, 2011 and 2012 there were in Scotland 12,939, 12,554 and 12,447 terminations of pregnancy²⁰. Whilst the total number of miscarriages cannot be accurately recorded, it is currently estimated that about one in 5 pregnancies end in miscarriage across the UK as a whole²¹, which would suggest that there may be approximately 13,500 miscarriages in Scotland each year, not dissimilar to the number of terminations each year. NHS Scotland records show that between 5000 and 6000 miscarriages per annum are dealt with in hospitals.

5.10 The available statistics indicate a recent rise in the number of cremations of babies. In those figures from 2010, 2011 and 2012 there were 887, 714 and 748 individual cremations of non-viable babies and 116, 118 and 149 shared cremations of non-viable babies²². The number of shared cremations refers to the cremation itself, rather than the number of non-viable babies cremated together. The FBCA compiles an annual statistical review which indicates that in 2012 there were 4000 cremations of non-viable babies. However there is some uncertainty as to the reliability of this number, as crematoria may have interpreted the question differently, some returning the number of cremations and others the numbers of babies. The FBCA figure of 6824 cremated non-viable babies in 2013 is considered more accurate. Of note is the fact that Craigton Crematorium in Glasgow appears to conduct the largest percentage of cremations of non-viable babies: 3088 in 2012 and 3542 in 2013. This overall rise in numbers, particularly from 2012 to 2013, may reflect an increase in shared cremations in general from about the end of 2012 following phasing in of the new CMO and CNO Guidance.

5.11 At the start of their work the Commission invited every Cremation Authority to provide information in response to a series of questions. All responded. Questions 15,16,17 and 17a related to the numbers of cremations of babies and infants and the recovery and collection of ashes. The responses²³ show a wide variation in practice from recovery of ashes in every case at some crematoria handling fairly small numbers of baby cremations, to zero recovery in Mortonhall (Edinburgh), Hazlehead

¹⁹ Disposal of Pregnancy Loss Up to and Including 23 Weeks and 6 Days Gestation:

[http://www.sehd.scot.nhs.uk/cmo/CMO\(2012\)07.pdf](http://www.sehd.scot.nhs.uk/cmo/CMO(2012)07.pdf)

²⁰ NHS National Services Scotland, Information Services Division: Abortion Statistics Report 2012, Page 4:

<http://www.isdscotland.org/Health-Topics/Sexual-Health/Publications/2013-05-28/2013-05-28-Abortions-Report.pdf>

²¹ NHS National Institute for Health and Clinical Excellence 'Ectopic Pregnancy and Miscarriage: NICE Clinical Guideline 154' Published December 2012: <http://www.nice.org.uk/nicemedia/live/14000/61854/61854.pdf>

²² See Annex O, crematoria questionnaire summary, questions 15,16 and 17

²³ See Annex O for summary information, and full breakdown of data is available on the Commission webpages at: <http://www.scotland.gov.uk/Topics/Health/Policy/BurialsCremation/CremationCommission>

(Aberdeen) and Fife (Dunfermline and Kirkcaldy) and, in between, some where ashes were recovered on occasions in individual cremations but not at all in shared cremations.

SECTION 6 - TECHNICAL ASPECTS OF CREMATION

The Process of Cremation

6.1 Cremation is carried out in a purpose-built furnace known as a “cremator”. There are 10 different makes/models of cremator in use in Scotland. Although there is no correlation between the design and structure of a crematorium and the type of cremator used, the size of the population served by any crematorium is reflected in the number of cremators installed there. In all there are 34 cremators in use, 32 gas-powered and 2 electric-powered (see Annex O).

6.2 Cremators are generally controlled/operated by the software installed, which in all 32 gas-powered cremators currently in use includes an “infant” setting. A small number of small-scale cremators, specifically designed for the cremation of non-viable babies and possibly stillborn babies and the smallest of neonatal infants, have been installed in the past in England, of which only two are now in use²⁴. In Scotland there are none apart from the very recent installation at Mortonhall Crematorium, as noted by Dame Elish²⁵ in her Report.

6.3 The modern cremators in use in Scotland are designed, built and operated to cremate bodies of many ages and sizes, but principally weighing between 60kg and 300kg (including the coffin). The cremator has 2 chambers, the main or primary chamber where the coffin is placed and cremated, and the secondary chamber or combustion zone where noxious gases and other pollutants are eliminated so far as possible prior to the discharge of exhaust through the flue. Additional pollution prevention equipment, referred to as “abatement plant”, had to be installed by December 2012 “such that at least 50% of UK cremations are carried out in plants fitted with an abatement” (see Annex H). The purpose of abatement plant is to deal with pollutants which cannot be adequately eliminated by combustion, principally mercury.

6.4 In his expert report to the Mortonhall Investigation, combustion engineer Dr Clive Chamberlain, described the cremation process. The coffin is placed adjacent to the cremator on a bier, from which it is pushed (“charged” is the technical term) into the primary chamber either manually or by mechanical means fitted to the charger. The interior of the cremation chamber at the start of most cremations is in the range of 650°C to 850°C. Air for combustion is admitted to the chamber along its length in order to establish burning along the whole of the coffin and thereafter the ignition of the body. Body fat continues to fuel the process, at times raising the chamber temperature to around 1000°C. Full details of the cremation process are set out in Section 2 of the MIR²⁶ and in the report of Dr Clive Chamberlain (see Annex F).

²⁴ See Report paragraph 8.21

²⁵ Mortonhall Investigation Report, Section 2, Page 32:

http://www.edinburgh.gov.uk/downloads/file/2676/mortonhall_report_-_2_p21-77

²⁶ Mortonhall Investigation Report, Section 2, Page 21 onwards:

http://www.edinburgh.gov.uk/downloads/file/2676/mortonhall_report_-_2_p21-77

6.5 When the flame has ceased and the cremation is complete and the remains have been removed from the chamber and allowed to cool, non-combustible items such as coffin screws and handles, artificial joints and other metals, are generally extracted by the use of magnets or other means. The residue remaining comprises inorganic components of both the body, principally cremated bone, and the coffin and any other item in the coffin. These are ground down to a sand-like consistency in a machine known as a "cremulator". The resulting contents of the cremulator are consigned to a container and referred to as the "ashes". In baby and infant cremations this may be done by hand.

6.6 In order that a cremation can be completed within a reasonable time, the combustion conditions within the primary cremation chamber are quite aggressive, comprising jets of air introduced along the cremator together with support burners to create the conditions necessary for active burning to take place. As a result, turbulence is created within the chamber. As Dr Chamberlain has explained in his report:

"This turbulence will entrain the lightest solid particles and carry them out of the cremation chamber into the secondary combustion system."

The bones in an adult cremation retain enough shape and weight to remain in the primary chamber to be raked out but those of a baby may not. Any cremation residue that passes to the secondary chamber is lost and cannot be recovered. When a baby is cremated in the routine way that is applied in adult cremations, the risk that significant cremation residue will be lost in this way is ever-present.

6.7 As is plain from the MIR, until it became apparent at the end of 2012 that there were circumstances at Mortonhall Crematorium which required investigation, there was a fairly widespread understanding among those with a role to play in arranging or carrying out cremation, such as Funeral Directors and hospital gynaecology and maternity staff as well as some cremation technicians, that ashes were unlikely to be recovered when a baby was cremated, and that there might be no ashes recovered following the cremation of a stillborn baby or a very young infant.

Regulation of Crematoria and the Funeral and Cremation Industries

6.8 As in the case of any significant development involving the installation and use of potentially hazardous equipment, crematoria are subject to planning regulation, building control and health and safety requirements. Beyond that the only additional legislative controls that apply specifically to the practice of cremation are:

- i) those relating to environmental protection, which are addressed below in this Section;
- ii) those relating to the arrangements for a cremation to take place, including application, registration and the handling and disposal of the ashes, which are dealt with in Sections 9 and 10 of this Report;

iii) a requirement that every crematorium shall be maintained in good working order, provided with a sufficient number of attendants and kept constantly in a clean and orderly condition²⁷ and

iv) a requirement that any crematorium shall be open to inspection at any time by “the person appointed for that purpose”²⁸.

6.9 In keeping with this approach of light regulation of the practice of cremation and the associated professions, the power to inspect at (iv) above has seldom been used, the opening or closing of a crematorium is for the Cremation Authority to certify and intimate to Scottish Ministers, and not for the Scottish Ministers to decide to authorise²⁹, Funeral Directors are not regulated, and few statutory provisions apply to crematorium technicians. Whilst discussion on general regulation of the funeral and cremation industries arose in the course of the Commission’s work, that is not a matter that could be addressed in the context of a review, like this, of a particular area of their work. However, specific regulation of baby and infant cremation is required, as is greater clarity in the rules which apply. Since this Report contains many recommendations for changes in rules and practice and it will take time to give effect to some, the Commission consider that a standing committee is necessary to oversee implementation and monitor change in order to improve and maintain standards. That committee will no doubt review developments and consider whether further regulation becomes necessary.

Environmental Protection

6.10 The applicable provisions relating to environmental protection are highly technical. Different provisions apply depending upon whether the cremation is in a full-scale cremator or a small-scale cremator designed for cremation of non-viable babies. Some that apply to full-scale cremators have a bearing on how baby cremations are conducted. In particular, they have a bearing on the question whether the practice followed in a number of crematoria, of cremating babies overnight, is compliant with those provisions or is in breach of one or more conditions of the crematorium operating permits. This is discussed further below and in Section 8. It is an important issue in light of evidence that following this course enhances the prospects of recovering ashes including remains of the baby.

6.11 A crematorium is a Part B installation in terms of paragraph (c) of Part B of section 1 of Schedule 1 of the Pollution Prevention and Control (Scotland)

²⁷ The Cremation (Scotland) Regulations 1935, Regulation 1:

‘1. Every crematorium shall be—

(a) maintained in good working order;
(b) provided with a sufficient number of attendants; and
(c) kept constantly in a clean and orderly condition:

Provided that a crematorium may be closed by order of the Cremation Authority if not less than one month's notice be given by advertisement in two papers circulating in the locality and by written notice fixed at the entrance to the crematorium. The Cremation Authority shall give notice in writing to the Secretary of State and to the Department of the opening or closing of any crematorium.’

²⁸ The Cremation (Scotland) regulations 1935, Regulation 2:

‘2. Every crematorium shall be open to inspection at any reasonable time by the person appointed for that purpose by the Secretary of State or by the Department.’

²⁹ The Cremation Act 1952, Section 1: <http://www.legislation.gov.uk/ukpga/Geo6and1Eliz2/15-16/31/section/1>

Regulations 2012 (“the 2012 Regulations”)³⁰. The 2012 Regulations implement the requirements of the Industrial Emissions Directive (IED) as well as consolidating the Pollution Prevention and Control (Scotland) Regulations 2000 (the “2000 Regulations”) as subsequently amended, which applied until January 2014. A permit to operate the crematorium is required. The competent authority responsible for granting permits is the Scottish Environment Protection Agency (SEPA) (see Regulations 10-13). The activities authorised have generally been described as follows:

“The cremation of human remains and size reduction of cremated remains being activities falling within paragraph (c) of Part B of section 5.1 of Schedule 1 of the Regulations.”

The type or types of cremator installed are identified and a condition applied requiring that they are so designed as to ensure that they can be charged only if the secondary chamber is above 800/850°C with a negative chamber pressure. The type of cremulator (for size reduction) installed is also specified.

6.12 There are standard conditions relating to administration, record-keeping, reporting to SEPA, sampling and monitoring facilities, air emissions and the operation of the installation, all designed to minimise pollution of the atmosphere.

6.13 A strong emphasis is placed by the Regulations on the existence of appropriate and effective systems of management for installations to ensure a high level of protection of the environment. Explanatory notes attached to the permit include, as within the elements of a good environmental management system, that operating staff must be properly trained and that management must ensure that appropriate procedures are strictly adhered to.

6.14 In terms of Regulation 22 of the 2012 Regulations it is a condition of a permit for a Part B installation that the best available techniques for preventing or, where that is not practicable, reducing emissions from an installation must be used. Regulation 23 provides that SEPA must include in a permit for a Part B installation the conditions SEPA considers appropriate, when taken with Regulation 22, for the purpose of preventing, or where that is not practicable, reducing emissions into the atmosphere, taking particular account for that purpose of the general principles set out in Regulation 21(2). The general principles set out in Regulation 21(2) are that Part B installations should be operated in such a way that all the appropriate preventative measures are taken against pollution, in particular through application of the best available techniques, and that no significant pollution is caused.

6.15 At page 60 of the MIR a number of potential breaches of the Mortonhall permit conditions are identified as occurring when the cremation of a baby takes place overnight while the cremator is switched off and unattended³¹. The conditions most

³⁰ SEPA: http://www.sepa.org.uk/air/process_industry/regulation/pollution_prevention_control.aspx

³¹ MIR, p60: 1. There may not be a minimum gas residence time of 2 seconds in the secondary chamber at 850 °C or 800 °C, the temperature being below either 800 °C or 850 °C. 2. There may not be a minimum oxygen content of 3% by volume in the secondary chamber since the equipment controlling the air flow is switched off. 3. There may not be negative chamber pressure in the secondary chamber which is partly achieved by the use of

likely to be breached are operating conditions relating to the maintenance of the combustion gases at 800/850 °C within the secondary combustion zone, the triggering of an alarm should the temperature drop below that figure, and the concentration of oxygen at the outlet from the combustion zone at not less than 6% by volume.

6.16 It is arguable, on the basis of the opinion of Dr Chamberlain, discussed at Section 9, that waiving the application of these conditions in the case of baby cremations and thus permitting overnight cremation would have no material adverse impact on the environment.

6.17 In the event that such amendment is considered to be a realistic possibility, an application would be dealt with in accordance with the following rules. Regulation 61 of the 2012 Regulations provides as follows:

“Scottish Ministers: Guidance to SEPA

61. (i) The Scottish Ministers may issue guidance to SEPA with respect to the carrying out any of its functions under these Regulations.

(ii) In carrying out any of its functions under these Regulations...SEPA must have regard to any guidance issued by the Scottish Ministers under this Regulation.”

The currently applicable guidance is contained in Process Guidance Note 5/2(12) (PG Note) at Annex H.

6.18 In carrying out its responsibilities, SEPA, as a “Regulator”, must have regard to the PG Note. The Regulations do not place any responsibility directly on Cremation Authorities to comply with the PG Note. However, paragraph 1.7 provides that the guidance is also for Operators “who are best advised also to have regard to it when making applications and in the subsequent operation of their installation.” Paragraph 1.3 of the PG Note states that the purpose of the Note is to provide “guidance on the Best Available Techniques (BAT)”. Permits issued by SEPA to Cremation Authorities to operate the crematorium are subject to conditions that are designed to ensure that “all the appropriate preventative measures are taken against pollution, in particular through application of the Best Available Techniques” – see Regulation 21(2)(a) and 22(1).

ventilation and temperature in the primary chamber. 4. There may be no spot sampling or continuous monitoring of emissions. While there may be spot sampling of cremations more generally there may be none for the cremation of young babies and the continuous sampling equipment will be switched off at night. 5. The alarm may not operate if the temperature in the secondary chamber falls below the required temperature because the relevant equipment is switched off at night. 6. There is no way of knowing, when the remains are removed in the morning, whether cremation is complete and , if not, how that might be remedied. The only option at present Mortonhall would be to either wait until the next night and use the overnight method or cremate using the full adult process. Normally, with an adult cremation an operator will observe the process and remove the remains only after the last flame has died meaning that there is nothing left to burn but since no observation is possible overnight, there can be no way of knowing if cremation, or “calcination” as it is called in the permit, is complete.

6.19 Another method of trying to maximise ashes recovery in baby cremation is to use a small-scale or “infant” cremator. They are dealt with in the PG Note at paragraph 5.28, which provides that small-scale cremators may be developed in order to cremate stillbirth, neonatal and non-viable baby remains and that not all the standards for full-scale cremators are then appropriate because of the relatively small mass of pollutants emitted. A small-scale cremator is defined as a cremator with a maximum door opening of 300 × 300 mm and with a maximum length of primary chamber of 1000 mm. The few small-scale cremators that have been built in the United Kingdom have conformed to these requirements. All of paragraphs 5.39 - 5.53, relating to air quality and the management of emissions, apply to small-scale cremators.

6.20 Both the ICCM and the FBCA regard the PG Note in paragraph 5.49 as requiring all crematorium technicians to be trained in their duties relating to control of the process and emissions to air. Whether it is an obligatory requirement is not clear. The PG Note also indicates that the ICCM and FBCA training schemes are adequate for that purpose. The ICCM and the FBCA regard completion of training as an essential pre-requisite of conducting a cremation unsupervised. The training schemes of both bodies not only deal with matters of environmental protection but also address other important subjects. Training is discussed in Section 11.

SECTION 7 - ASHES

Various Perceptions

7.1 From an early stage in the work of the Commission it was clear that many members of the public find the widespread acceptance of the possibility, and in some cases the likelihood, that no ashes would remain following the cremation of a baby or infant difficult to understand. Part of the explanation lies in the absence of a uniform understanding as to what is comprised in "ashes". Regulation 17 of the 1935 Regulations provides as follows:

"After the cremation of the remains of a deceased person the ashes shall be given into the charge of the person who applied for the cremation if he so desires. If not they shall be retained by the Cremation Authority and disposed of in accordance with any arrangement made with the said person and in the absence of any such arrangement they shall be decently interred in a burial ground or in land adjoining the crematorium reserved for the burial of ashes or shall be scattered thereon..."

For some crematoria staff, however, the more accurate expression for what should be given into the charge of the applicant is "cremated remains". Both expressions are used in Guidance issued by the two main crematoria representative organisations.

7.2 In their most recent Guidance, formulated with the assistance of the Stillbirth and Neonatal Death charity (SANDS) and published in June 2011, the ICCM gives this advice to bereaved parents when considering cremation as an option for their baby:

"If you choose cremation you should be informed that there might not be any ashes resulting from the cremation (whether this be a shared / collective or private cremation). If you choose a shared cremation then this information should have been relayed to you by ... the hospital or by your Funeral Director if you are arranging a private cremation³²."

Parents are also advised that, where ashes are recovered in a shared cremation, they will be scattered or buried by the crematorium. The same document also provides guidance for hospital authorities and deals with, amongst other matters, the appropriate terms for an agreement between a Cremation Authority and hospital about cremation of non-viable baby remains. Among the terms proposed for inclusion in any such agreement is the following:

"The hospital must inform parent(s) that ashes may not be recovered from cremation."

³² 'Baby and Infant Funerals', ICCM, Published June 2011, Page 3:
<http://www.iccm-uk.com/iccm/library/BabyInfantFuneralsPolicyFINAL2011.pdf>

It should be noted that there are also circumstances where the ICCM makes reference to “cremated remains”, for example in the self-assessment questionnaire for crematoria³³. In the MIR the chief executive of the ICCM is quoted as follows:

“Whilst both terms are in common use and users might have a preference, the Institute considers that they are one and the same thing. The definition which the ICCM ascribes to both terms ‘ashes’ and ‘cremated remains’ is ‘anything that is left over after the last flame has ceased’ in the cremator.”

7.3 In Guidance issued by the FBCA, the emphasis is different in that they refer to “cremated remains” or “tangible remains” rather than “ashes”. The Commission note and welcome the clarification received from the FBCA Secretary, a member of this Commission, that “in the context of cremation, ashes are the total recoverable remains following the cremation of a human body and its coffin or container”³⁴. In the FBCA Guide to Cremation and Crematoria, published in 2006, the term “cremated remains” is defined as “the skeletal remains recovered following cremation”. The FBCA’s definition of “ashes” therefore seems to encompass and include what they regard as included within the definition of the term “cremated remains”.

7.4 The FBCA Code of Cremation Practice for their members, published in 2005 states:

“Once a coffin with its contents has been placed in the cremator, it shall not be touched or interfered with until the process of cremation is completed. On completion the whole of the cremated remains shall be collected and shall be disposed of in accordance with the instruction received.”

It is not clear whether “the whole of the cremated remains” equates to “ashes”.

7.5 A further expression is introduced by the FBCA’s Instructions for Funeral Directors, revised in 2013, which includes this guidance:

“In cases where bereaved parents desire the cremation of an infant or of fetal remains, they should be warned that there are occasions when no tangible remains are left after the cremation process has been completed. This is due to the cartilaginous nature of the bone structure. If the warning is not given the parents may have been denied the choice of earth burial and thereby subjected to understandable distress.”

The guidance is repeated in the NAFD Manual of Funeral Directors, 2013 edition. Again, there appears to be some lack of clarity as to whether “tangible remains” equates to “cremated remains” or to “total recoverable remains” ie “ashes”.

7.6 During the course of the Commission’s work, the FBCA additionally advised the Commission that:

³³ Report paragraph 5.6

³⁴ Letter from FBCA to Lord Bonomy, 6 May 2014

“the FBCA would expect its members to treat any recovered remains with respect and dispose of them in accordance with the instructions of the person or entity arranging the cremation³⁵.”

The use of yet another term “any recovered remains” tends to confuse rather than clarify what “ashes” are.

7.7 Aside from these ambiguities of definition, however, the overall wording of these FBCA Guidance extracts displays a commendable emphasis on transparency and openness.

7.8 The Commission consider that one factor giving rise to the variations in the recovery of ashes from crematorium to crematorium, noted earlier³⁶ is a difference in the understanding of what exactly “the ashes” that “shall be given into the charge of the applicant” are, in particular whether they are all that is left in the cremator at the end of the cremation process or whether they are the bone or skeletal remains, if any. Other factors may contribute to the variation in the recovery of ashes, including concern for the safety of cremation technicians who operate the cremators. This concern has led to the refusal by some Cremation Authorities to adopt the technique of placing the baby coffin on a tray to enable ashes to be retained and recovered, by preventing them from being dispersed by turbulence within the cremator caused by the burner and injection of air.

7.9 Submissions made to the Commission and other enquiries made by the Commission indicate that there is a widespread perception among the public that “ashes” are whatever is left in the cremator at the conclusion of the cremation process and that, if that is not the perception among crematoria staff, then it should be. On the other hand, it was clear at meetings and discussions with representatives and staff of Cremation Authorities and with Funeral Directors that the understanding of many is that “ashes” are what remains of the cremated baby, and hence the emphasis on “cremated remains” or “tangible remains”. That, combined with an understanding that the bones are not sufficiently developed to produce remains, led crematoria to convey to Funeral Directors, clergy and healthcare staff that there would not be, or were unlikely to be, ashes following the cremation of a baby. The extent to which that information was accepted without question by healthcare staff, as illustrated in the MIR, is surprising³⁷.

7.10 In the case of adult cremations it is not suggested that cremation technicians try, or should try, to separate what appear to be the remains of the cremated body from other ash such as coffin ash, and from the remains of extraneous material such as clothing or favourite items placed within the coffin. They rake down, cremulate and hand over for dispersal or interment all that remains in the cremator at the end of the cremation process. The submissions of affected families, supported by others, are that the same course of action should be followed where there are no obvious bone remains, since it is impossible to tell to what extent any remaining ash is residue of the baby rather than the coffin and any contents. It is their view that the

³⁵ Letter from FBCA to Lord Bonomy, 6 May 2014

³⁶ Report paragraph 5.11

³⁷ MIR, Section 6, p531

whole material remaining in the cremator should be given into the charge of the applicant or disposed of according to the applicant's instructions whether or not there are any bone remains.

What Remains in the Cremator

7.11 In the first half of 2013 Glasgow City Council carried out an internal audit of their records of cremations undertaken at the Council's crematoria at Linn and Daldowie over the preceding 15 years in relation to each of 3 categories, namely non-viable babies, stillborn babies, and infants up to the age of 24 months. That audit sought to establish, among other things, the outcome of the cremation as recorded on the cremation card (a card that accompanies the coffin from the moment it is received by staff at the crematoria). The findings were that remains were recovered from less than 5% of non-viable babies out of 1839 cases. In the case of stillborn babies remains were recovered in 80.7% of cases and in infants up to 2 years in 72.8% of cases. The full internal audit can be found at Annex I. The report makes the point that the distinction between stillborn babies and infants is blurred because a birth after 24 weeks will be classified as an infant as long as the baby survives for even a short period, whereas a stillborn baby could be delivered after the normal 39 week gestation period has elapsed with a bone structure more developed than that of an infant. It appears that the expression "remains" was interpreted in Glasgow as "skeletal remains" in accordance with FBCA Guidance³⁸. While these findings present a mixed picture, they are also an indication that ashes can be recovered from the cremation of non-viable babies.

7.12 This is borne out by the findings submitted to the Commission by every crematorium in Scotland, available at Annex O. Whilst there was variation depending on the crematorium, the overall national percentage of ashes recovered following the individual cremation of a non-viable baby was 9% in 2010, which rose to 25% in 2012. In shared cremations of non-viable babies (where it is not possible to separate the ashes and therefore not possible for them to be collected by families) the overall national percentage of ashes recovered was 32% in 2010, rising to 36.5% in 2011 and 48% in 2012. The same findings indicate that the percentage of ashes recovery rose with the age of the baby, between 76.5% and 91% for stillbirths and infant deaths up to the age of two years respectively.

7.13 For the purposes of the Mortonhall Investigation, Dame Elish Angiolini instructed an expert forensic anthropology report by Dr Julie Ann Roberts, which is available in full at Annex E. In her expert report, Dr Roberts explains how bone develops in a process called ossification which begins as early as the sixth fetal week of life³⁹, with individual bones recognisable at 12-13 weeks. Dr Roberts compared the results of previous studies of the effect on the very young bones of non-viable babies of exposure to extreme heat with photographic evidence of the cremation residue of babies between 17 and 22 weeks gestation cremated at Seafield and Warriston Crematoria and concluded as follows:

³⁸ See, however, the updated position in Glasgow City Council as set out in Report paragraph 8.5

³⁹ Annex E, Section 6 'Skeletal Development in the Foetus and Infant'

“The above analysis within the context of the Mortonhall investigation provides direct, visual evidence that multiple individual skeletal elements can be recognised following cremation in individuals as young as 17 weeks.”⁴⁰

She makes reference to a further study that illustrates that even at 16 weeks gestational age there will be survival of ashes following cremation.

7.14 In the photographs of the residue remaining following the cremations at Seafield and Warriston, bones were clearly identifiable among the other residue of whatever container was used and any other material that was in the container. This is compelling evidence that there are likely to be elements of the baby in cremation residue of the tiniest babies.

7.15 Dr Roberts also explains in paragraph 8.2.3 of her report that i) the younger the non-viable baby is, the more difficult it is to recognise the components of the skeleton and ii) skeletal elements can be difficult to identify and may be confused with other burnt debris, especially by an inexperienced member of staff. She considers that there is also a risk that crematoria staff might inspect the content of the cremator chamber and wrongly conclude, because the volume of ashes is extremely small, that there are no ashes remaining.

The Law

7.16 In the context of the expert report of Dr Roberts and the different perceptions of what ashes produced by cremation are, the language of Regulation 17, quoted above at paragraph 7.1 leaves considerable room for debate about the definition of the expression “ashes”.

7.17 It is arguable that the word “ashes” refers back to either “the remains of a deceased person” or to “the cremation of the remains of the deceased person”. In other words “ashes” might be the “cremated remains of a deceased person” or alternatively “what is left in the cremator after the cremation process”. That uncertainty mirrors the uncertainty that is discussed above.

7.18 In view of the use of different language in the various Guidance documents referred to above, the Commission thought it best to seek assistance in resolving the uncertainty by obtaining the opinion of counsel (Annex D). The issue of interpretation of Regulation 17 was referred to James Wolffe QC, now Dean of the Faculty of Advocates, and Gordon Balfour, Advocate. In their opinion they recognise the possibility of the two interpretations referred to above, but state clearly their view that the correct interpretation is that “ashes” are all that remains in the cremator at the end of the cremation process.

7.19 In coming to that view counsel had particular regard to Dr Chamberlain’s description of the routine cremation as resulting in a small percentage of the coffin, of whatever material it has been made, which is inorganic in nature, and a small percentage of the body which is also inorganic in nature, mostly the bones, surviving the cremation process. They also had regard to the conclusion of Dr Roberts that

⁴⁰ Annex E, Section 8, The Cremation Process: Survival of Foetal and Infant Remains, page 21 of 24

fetal bones can be identified and recovered from at least 17 weeks gestation and her observation that:

“It seems highly unlikely that even if a fetus was of a very young gestational age there would be no cremated remains left, if the coffin and personal effects were included in that definition.”

7.20 Counsel expressed the view that the legislator, in making the Regulations, may be taken to have understood that human remains may well be cremated in a coffin and that what remains after cremation will ordinarily include residue both of the human body and of the container in which it was cremated in a way that it would be impossible to separate them. In their view a contrary interpretation, which implied that a distinction fell to be drawn between the two forms of residue would be divorced from reality. They noted that the Oxford English Dictionary, Second Edition, definition of “ashes” is “that which remains of a human body after cremation...”, but conclude that:

“the word “ashes”, as it is used in Regulation 17, should be interpreted as referring to the residue (other than things, such as metal coffin fixtures, which on no sensible view would fall to be regarded as “ashes”) left after the cremation of the remains of a deceased person, without seeking to distinguish between residue which derives from the remains of the deceased and residue which derives from the container or other things cremated with the body.”

They considered that the alternative narrow construction would be practically unworkable. The Commission see no reason for a different approach to the cremation of stillborn and non-viable babies.

7.21 Although counsel’s opinion is clear, it is the view of the Commission that the obligation of a Cremation Authority as set out in Regulation 17 should be clarified by legislation which provides, in so many words, that the “ashes” to be given into the charge of the applicant for cremation are all that is left within the cremator at the conclusion of the cremation process and following the extraction of all metal. Cremation Authorities should review their practices immediately to ensure that they proceed on that basis.

7.22 Metal consisting of coffin fittings, medical implants such as artificial joints and similar items is routinely extracted at the end of the cremation process. The ICCM and the Association of Private Crematoria and Cemeteries (APCC) both have metal recycling schemes⁴¹, in which a significant number of crematoria participate, whereby the various types of metal extracted are gathered together, sold and the proceeds donated to charitable causes. The Commission consider that that practice should be encouraged. Good practice is for the applicant for cremation to consent to any extracted metal being disposed of in accordance with the recycling scheme. In that way any issues that may arise in relation to ownership of the right to dispose of

⁴¹ ICCM Metal recycling scheme: <http://www.iccm-uk.com/iccm/?pagename=recyclingmetal>
and APCC (Association of Private Crematoria and Cemeteries): <http://www.apcandc.co.uk/index.html>

the metal are resolved. The Commission do not propose to address this matter further since it is of limited relevance to baby and infant cremations.

7.23 It was plain at meetings of Cremation Authority representatives and Funeral Directors⁴², attended by Lord Bonomy, that those attending were acutely aware that the decision whether the obligation to give ashes into the charge of the applicant arose in practice in any baby cremation, was influenced by the Cremation Authority's understanding of what ashes are. At neither meeting⁴³ was there any dissent from the proposition that clarity on the point was desirable and should result in uniform practice. There was natural concern that Cremation Authorities in Scotland make up only 10% of the total number of Cremation Authorities in the United Kingdom and that, strictly speaking, the majority would be unaffected by such a legislative change, which would in itself create another area of uncertainty and possibly confusion. The Commission have had regard to that concern and urge Scottish Ministers to inform their counterparts in England and Wales and Northern Ireland about the changes of legislation in Scotland to enable them to consider clarification of the definition of ashes in identical terms.

⁴² FBCA/ICCM Crematoria Managers Conference, Glasgow, 24/10/13;

⁴³ Glasgow City Council 11/11/13 (plus subsequent meeting 29/04/14) and Aberdeen City Council 15/11/13 (plus subsequent meeting 02/05/2014)

SECTION 8 - SECURING THE RECOVERY OF ASHES

Background

8.1 Not every parent wishes to recover ashes from the cremation of their baby. However, those who do are entitled to expect that the cremation has been conducted in a way that maximises the prospects that there will be ashes which could include remains of the baby. How that can be achieved is addressed in this Section.

8.2 Until the Mortonhall Investigation and this Commission were established there was a remarkable degree of inconsistency in the recovery of ashes among the different crematoria and even at the same crematorium. The MIR highlights a difference between practice and results at Mortonhall as contrasted with those at Seafield (Edinburgh) and Warriston (Edinburgh)⁴⁴. It also appears that ashes were recovered and given to families following cremation of stillborn and deceased babies at Mortonhall in the early 1990s⁴⁵. At Hazlehead (Aberdeen) ashes were regularly recovered in the 1980s but in the 6 years or so prior to the establishment of the Commission none were recovered from 40 deceased babies of less than 18 months. Notice was given to families that there would be no ashes in such cases. The Aberdeen City Council audit covered the period 1984 and 1985. All the cases identified involved stillborn babies or babies who died shortly after birth and in some cases a matter of months after birth. That contrasted markedly with the period of over 5 years between 1 April 2007 and 31 December 2012 during which period no ashes were recovered in any of the forty cases of children dying between birth and the age of 2 years. Details of baby and infant cremations throughout Scotland between 2010 and 2012 and the extent to which ashes were recovered can be found at Annex Q.

8.3 The random nature of this inconsistency in the recovery of ashes from crematorium to crematorium was particularly highlighted by one submission to the Commission recounting how the support and guidance of Aberdeen SANDS (Aberdeen Stillbirth and Neonatal Deaths Society) made the family aware of a crematorium where they would get ashes and how the proposed cremation at Hazlehead was moved to that crematorium and ashes were returned from the crematorium by the funeral director to the family.

8.4 Against that background it was reassuring for the Commission to learn in January of this year that, following a visit by Aberdeen staff to Seafield Crematorium (Edinburgh), baby cremations including cremations of non-viable babies are now conducted at Hazlehead in a way that results in the recovery of ashes, including the use of a tray to retain the ashes. Families are advised to present their baby in a wooden casket or coffin. Ashes are now recovered and given to families at Mortonhall in the case of non-viable babies as well as stillborn babies and infants⁴⁶.

⁴⁴ It is perhaps significant to view this difference in practice in the context of the numbers of cremations conducted. Figures provided to the Commission by Edinburgh Crematoria Ltd on 28/04/2014 show that Seafield had conducted 56 individual cremations of non-viable babies, the earliest in 1993 and only 3 prior to 2000. Similarly, Warriston had conducted 49 such cremations, the earliest in 1996 with the next not until 2004.

⁴⁵ MIR, Section 4, p125

⁴⁶ Annex E, Supplementary Anthropology Report, Section 1

It has been encouraging to note these improvements occurring as the work of the Commission has progressed.

8.5 A further development occurred on 27 May 2014, when Glasgow City Council announced that it would, with immediate effect, cease to apply the restricted definition of ashes as “the skeletal remains recovered following cremation” and would instead use the “broad interpretation” of ashes which was proposed by Dame Elish Angiolini in the MIR, and which is discussed and recommended in the preceding Section of this Report. The Council now considers that it is very likely that the broad interpretation will see ashes recovered in the vast majority of cases. The Council has also notified Funeral Directors in the city and NHS Greater Glasgow and Clyde of the change, to ensure that the bereaved parents are given accurate information.

8.6 The recovery of ashes in baby and infant cremations is a challenging process due to the limited quantity and the nature of the human material placed in the cremator. The problems are clearly explained in 8.2.1 of the expert report of Dr Roberts where, relying on the expert report of Dr Chamberlain, she says this:

“The aspects of cremation which are most detrimental to fetal and infant remains appear to be the jets of air introduced into the cremation chamber and direct heat in excess of 1000°C from support burners. Whereas the weight of adult bones ensures that they are not carried out of the cremation chamber into the secondary combustion chamber, fetal bones are much lighter and so they may be carried through...so if fetal remains have been blown into the [secondary] combustion chamber then they will not be retrievable. Clearly a less vigorous method of cremation would be of benefit when dealing with fetal remains. Lower temperatures of around 600/700°C are recommended.”

8.7 There are basically three ways of conducting the cremation of a baby or infant: i) in a full-scale cremator in the course of a normal working day, with the operating conditions modified by use of the infant cremation setting or programme; ii) in a full-scale cremator overnight with the control system switched off; and iii) in a small-scale or “infant” cremator. The Commission address each in turn.

Full-scale Cremator on Infant Setting

8.8 Dr Chamberlain describes the position, so far as operating a modern cremator which is compliant with the 2012 Regulations, as follows:

“Such cremators can be controlled minutely (manually, automatically or a combination of both) to achieve the special conditions needed for infant cremation. The secondary chamber and abatement equipment can operate in conformance. The conditions of operation of the primary combustion (cremation) chamber can be said to deliver cremated remains which can be recovered. Usually, the remains for cremation will be inserted at primary chamber temperatures (but not the secondary chamber) significantly lower than for a full-size cremation.”

The majority of baby and infant cremations are currently conducted in this way.

8.9 In her report, Dr Roberts refers to recommendations that no forced air should be turned on⁴⁷ and that the coffin should be placed on a pre-heated surface in a corrugated metal tray with sides. Dr Roberts continues:

“Recovery of fetal and infant ashes is closely linked to the issue of how the remains are contained during cremation. Clearly there is going to be a better chance of recovering all the small bones if they are kept together in a small metal tray which restricts dispersal during cremation. The other area of concern is how the ashes are removed once the cremation is complete...Usual practice is for the ashes to be raked out of the cremation chamber...A better means of recovery of fetal and infant remains would be to lift them out on a small tray once it has cooled down and then retrieve the bones by hand.”

The Techniques Applied

8.10 These comments by Dr Roberts reflect what happens in practice. A number of techniques are employed in infant cremations to try to maximise the prospects of recovering ashes. What technique or combination of techniques is used varies from crematorium to crematorium. The cremator manufacturer’s operational manual generally includes guidance and instruction on best practice in the use of the infant setting. The infant setting on the cremator control software programme should generally result in less frequent ignition of the cremator burner and injection of air in the main chamber of the cremator, and so control the process as to reduce turbulence and temperature within the chamber, making the process more gentle. The cremator technician monitors the progress of the cremation on a computer screen. The activity within the main chamber can also be viewed through a spy hole. In light of the information obtained from either or both sources the technician may manually override the infant setting as considered appropriate to exert greater control over the cremation process with a view to further increasing the prospect of recovering ashes which include baby remains. Placing the coffin towards the front of the cremator and thus some distance removed from the direct impact of the burner is a further technique employed.

8.11 The technique now widely used of placing the coffin in a metal tray with raised sides and ends is controversial. It is done with a view to containing the resultant ash and preventing its being spread throughout the cremator by turbulence. In addition the upright end of the tray nearest the burner further deflects the impact of the burner from the baby. The very small quantity of ashes left after cremation of the tiniest babies may not be recoverable by raking from the hearth of the cremator⁴⁸; on the other hand, all the ashes contained in a tray can be gently brushed from the tray and carefully preserved.

⁴⁷ MIR Section 4, p121

⁴⁸ Annex E report of Dr Julie Ann Roberts, 8.2.2 “This process...is extremely detrimental to delicate foetal and infant bones... Further fragmentation...could lead to destruction of the bone altogether or loss amongst any accompanying burnt material”

8.12 To date, some Cremation Authorities have ruled out the use of trays on health and safety grounds. The concern is that the temperature of the tray combined with the manual handling involved in removing it from the cremator gives rise to the risk of the cremation technician or anyone passing through the cremator room during that handling process being at risk of sustaining a burn injury through contact with the tray. There is also concern about the risk of sustaining a burn injury while the hot tray is resting on the cremator charger or a shelf to cool. Other Cremation Authorities are satisfied, following risk assessment, that they have adequate safeguards in place to permit a tray to be used safely. Trays have been in use since at least the mid-1980s and their use has been commended in published articles⁴⁹. These articles illustrate different forms of tray designed to achieve the same objective.

8.13 It is beyond the scope of the work of the Commission to address the merits of the decisions made about the use of trays at different crematoria. The Commission acknowledge that, since the hearth of a cremator is generally flat, ashes can be recovered without the use of a tray where the hearth is in excellent condition⁵⁰. However, that experience is far from universal, especially in the case of the smallest babies. What is important is to note that the use of trays is widely regarded as increasing the prospects of the recovery of ashes in baby and infant cremations. In view of the experience of the successful use of trays to ensure the recovery of ashes at many crematoria⁵¹, the Commission envisage that those crematoria which have decided against the use of trays wholly or mainly on health and safety grounds will wish to revisit the question of whether an adequately safe system for use of trays can be devised. Both Hazlehead and Mortonhall, where the use of trays was previously rejected on health and safety grounds, now use them in accordance with clearly documented safe working practices and recover ashes where previously they did not.

8.14 The Commission recommend that Cremation Authorities where trays are not currently used and ashes are not routinely recovered in baby and infant cremations should urgently consider whether trays can be introduced in a way which will ensure that no-one is exposed to undue risk. Good practice requires that a detailed risk assessment is an essential preparation before any working procedure is implemented. The MIR records the view of the Health and Safety Executive that crematoria are “low risk undertakings”. It is content for local authorities to look after the health and safety aspects of their operation⁵². The equipment available to

⁴⁹ JM Dunlop, ‘Cremation of Body Parts and Fetuses’, Journal of Obstetrics and Gynaecology Vol 24 No 4, June 2004 and C Howlett, ‘The Cremation of Fetal Remains: Procedure and Practice’, IBCA (now the ICCM) Conference Paper, 16 February 1997

⁵⁰ The hearth construction is an assembly of blocks laid in place with mortar, but with use, the hearth blocks wear and become uneven, with ‘valleys’ between blocks into which (especially fine) ash accumulates and cannot be raked out. Typically, hearth blocks must be replaced every 2000 to 3000 cremations.

⁵¹ In June 2013, 16 crematoria advised they were using baby trays, including eg Craigton, Falkirk, Clydebank, Inverness, Masonhill, Roucan Loch, Seafield and Cardross.

⁵² MIR, Annex G ‘Cremation of Babies Safe Working Procedure and Protocol’, The City of Edinburgh council December 2013:

http://www.google.co.uk/url?sa=t&rct=j&q=&esrc=s&frm=1&source=web&cd=1&ved=0CCYQFjAA&url=http%3A%2F%2Fwww.edinburgh.gov.uk%2Fdownload%2Fdownloads%2Fid%2F2689%2Fmortonhall_report_annex_g -safe_working_procedure_and_protocol&ei=176RUOxlsSM7AbBw4GADQ&usg=AFQjCNFAnPL8PgEBU02rGqGUHZ0CJ_qTGw

reduce the risk includes gloves which give full protection to hands and forearms, a fitment on the long handled cremator rake to enable the tray to be pushed into the cremator, a similar fitment for pulling it partially from the cremator to avoid exposure of the technician to the heat of the cremator, and automatic chargers. Arrangements within the cremator room can also be devised to delineate no-go areas adjacent to the cooling tray. The tray may also be cooled in an adjacent unused cremator.

Overnight Cremation

8.15 At some crematoria the practice is followed of placing the infant coffin in the cremator after it has been turned off⁵³ at the end of the day, when the residual heat within the chamber is sufficient for an infant cremation. The cremation process proceeds unattended overnight, and is concluded as usual when the flame goes out. The passage of time until the following morning cools the tray to some extent, thus reducing the health and safety risk. However, even then the tray remains extremely hot and capable of causing injury until further cooled following removal. As matters stand, as explained in paragraph 6.15 it is likely that following this procedure breaches conditions of the crematorium operating permit.

8.16 When the MIR was published the Commission decided to explore further with Dr Chamberlain his proposals for research and development. That led to discussions between Dr Chamberlain and SEPA, principally about the design and operation of small-scale cremators and the circumstances in which it might be possible for overnight cremation to be permitted. Since in the opinion of Dr Chamberlain that practice has no material adverse impact on the environment, the question arises whether SEPA should be invited to amend crematorium operating permits.

8.17 The most common reason for Cremation Authorities resorting to the practice of overnight cremation is to maximise the prospects of recovering ashes. Dr Chamberlain states the position as follows:

“The most common reason for full size cremators not achieving compliance with the current requirements for infant and fetal remains is an inability to regulate the cremation conditions in the primary chamber such that cremated remains are not transported out of the primary chamber into the secondary zones and abatement.

As a result, the simplest solution is to cremate these subjects ‘overnight’ after the cremator has been turned off.

The Cremation Industry has used overnight cremation for many years to try to deal with the need to have recoverable remains from infant cremation. This practice entails shutting down the burners and air supplies to the cremator at the end of the normal working day and, after allowing the cremation chamber to cool to say 700°C, to insert the infant cremation thus enabling it to proceed slowly in quiescent conditions. Whilst this method often enables cremated remains to be recovered, it does not comply with Clause 5.29 of PG 5/2(12).

⁵³ ‘Turned off’ can be described as when the computer controlling the cremator has been switched off, which means that the gas supply, burners, airflow, extraction fan and monitor.

The recent and heightened concerns to do with infant cremation, and especially in Scotland, entail a demand for recoverable remains from cremation which must be met. After several discussions, it is appropriate to include the position of SEPA on derogation to do with single ‘overnight’ cremations:

‘The UK BAT Guidance as outlined and developed collaboratively with the sector group which is made up of regulators, operators, manufacturers and their representatives have not considered this option as it is currently outwith the regulatory options for the sector – as we don’t know the combustion conditions within the cremator we can’t comment on the likely emissions or their likely impacts however from discussions it appears that charging occurs during cooling with consequent lowered temperatures which would lead to limited thermal destruction of pollutants coupled to low efflux velocities.

Derogation is from the Industrial Emissions Directive, when transposed into MS relevant regulations it allows particular emission limit values to be broached by an agreed amount for a set period of time – as we don’t know of the combustion conditions we would not be able to set relevant ELV⁵⁴’s in this manner. The PPC regs don’t allow for “derogation” per se so SEPA would need to take a universal decision on regulation for the sector which would not be based on BAT and which could be challenged by “interested parties”’. ”⁵⁵

8.18 Dr Chamberlain also believes that it should be possible to prove that the practice is not harmful to the environment or alternatively devise a suitable set of procedures and BAT guidelines upon which reliance can be placed, by carrying out research. The key consideration, which is referred to below in connection with small-scale cremators, is that the amount / mass / weight of cremation material is so small that there is no significant environmental impact, especially if a maximum charge weight were to be specified.

8.19 However, that question only arises if the practice of overnight cremation of babies and infants meets with public approval. The Commission considered whether there is any reason to doubt that overnight cremation is an appropriate procedure. The coffin is charged in the usual way and ignites on the strength of the residual heat within the primary chamber at the end of the working day. Closing down the operating systems of the cremator does not affect the progress of the cremation. In the opinion of Dr Chamberlain the process is altogether more gentle than the usual daytime cremation in a full-scale cremator because the cremator chamber temperature is lower and there is no prospect of turbulence from either the burners of the air-jets, with the result that the prospect of the recovery of ashes which include residual elements of the baby are enhanced. The baby is cremated in exactly the same place and by effectively the same procedure as during the working day. The ashes are then dealt with as in any other baby cremation. The Commission consider that the overnight procedure just outlined is an appropriate way to conduct a baby cremation which increases the likelihood of recovering ashes and hence aims to

⁵⁴ ELVs are ‘emission limit values’ which are set for processes regulated under the Pollution Prevention and Control (Scotland) Regulations 2012 – the PPC Regulations.

⁵⁵ Annex G, Letter from Dr Chamberlain to SEPA, 13 May

achieve the result that parents' wish, subject to the important requirement that it should be done in the knowledge, and with the approval, of the applicant / parents.

Small-Scale Cremators

8.20 Another method of maximising the prospects of recovering ashes is to use a small-scale cremator, or "infant" or "fetal remains" cremator, as it is also known. In the PG Note a small-scale cremator is defined as a cremator with a maximum door opening of 300 mm × 300 mm and a maximum length of primary chamber of 1000 mm. Not all the standards required and set for full-scale cremators are appropriate for small-scale cremators because of the relatively small mass of pollutants emitted.

8.21 Small-scale cremators were introduced into England in the 1990s. Despite there being three manufacturers in England, only a small number were built and supplied. The research of the Commission has identified only eight crematoria, out of a total of around 245 in England and Wales, where small-scale cremators have ever been in use, and only two where they are currently in use. There is also one currently in use in Jersey and one recently installed in Dublin.

8.22 The small-scale cremators that have been installed in England have varied in size. Facultatieve Technologies Ltd state in their data sheet for the FT small-scale cremator, (i) that it was developed to provide a low cost solution for the problems associated with the cremation of retained organs, glass microscope slides and fetal remains at crematoria and (ii) that it satisfies the requirement of a small-scale cremator as set down in PG Note 5/2(04), now 5/2(12)⁵⁶. Three sizes are specified, with the largest having a chamber 400 mm deep, 235 mm high, and 196 mm wide. The heat source is electricity. Each of the three requires to be connected to the secondary combustion zone of a full sized cremator to satisfy the requirements of the PG Note.

8.23 The small size of these cremators means that they are used only infrequently for pregnancy losses which are presented in a container small enough to fit the small chamber. Jersey have had theirs since 2004. It is used less than once a month. The one installed at Sittingbourne was purchased in 2003 along with a full size cremator. The small-scale cremator was never used since cremations there have always involved caskets which are too big for the cremator. A third FT small-scale cremator was installed at Derby (Markeaton) from 2001 to 2013. It was used only occasionally for a cremation of body parts remaining after a post-mortem. It was too small for non-viable baby or infant remains. It was removed in 2013 when abatement plant was being installed.

8.24 Furnace Construction Ltd is the manufacturer and supplier of the reconditioned small-scale cremator which has recently been installed at Mortonhall Crematorium. It is known as a "Cherub" cremator, and is designed for non-viable baby remains or a small coffin containing a stillborn child. It was previously installed at Chester Crematorium from which it was removed when they installed new full-scale cremators with infant computer software settings. It has the maximum door opening of 300 mm x 300 mm, and a maximum chamber length of

⁵⁶ See Annex H, PG Note page 32, paragraph 5.28 onwards

1000 mm, and operates on both gas and electricity. It has a small secondary combustion chamber. A small-scale cremator built by Furnace Construction was also installed at Birkenhead, but did not work satisfactorily and was removed about 2 years ago. That is the only example of unreliability that arose in the course of the Commission's enquiries.

8.25 In contrast to the foregoing, the only other Furnace Construction small-scale cremator located by the Commission at Manchester (Chorlton-cum-Hardy) is a success story. It remains in regular use, usually on two successive days per month, and is perceived as efficient and cost-effective. Manchester Crematorium has contracts with local hospitals to cremate pregnancy losses once per month. Each is cremated individually. The container is placed upon a specially devised tray which is cooled after cremation and from which the whole remains from the cremation are collected. The cremation chamber is 656 mm deep and the entrance to the chamber is 300 mm high and 295 mm wide. Each month, on the day before the cremation is undertaken, a communal cremation service is held for all to be cremated in the course of the following two days.

8.26 These arrangements are fairly similar to those at South West Middlesex where the small-scale cremator was made and installed by J G Shelton & Co Ltd. South West Middlesex also has contractual arrangements with local hospitals and holds a monthly cremation service for those about to be cremated. The small-scale cremator is, as in the case of the FT models, connected to the secondary combustion zone of a full-scale cremator. The small-scale cremator can take a container up to 534mm in length, 280mm in width and height. Larger containers are cremated in a full-scale cremator on the hearth near the opening to the primary chamber, ie in a fashion similar to that discussed above.

8.27 A J G Shelton small-scale cremator was also installed at Brighton but has since been decommissioned. The Commission's understanding is that it was used for the cremation of both non-viable babies and stillborn babies. A third Shelton small-scale cremator has recently been installed in Dublin.

8.28 The final small-scale cremator in England located by the Commission was at Gateshead and was a TABO cremator. DM TABO Ltd was taken over by Evans Universal, which is now part of the Facultatieve Technologies Group. It was removed in the course of 2013.

8.29 Discussions with representatives of the various Cremation Authorities, which had small-scale cremators but discontinued their use, indicated that the reasons for doing so were generally lack of financial viability because of their limited capabilities, the need to achieve financial efficiencies to help fund the installation of abatement plant, and the need to find additional space for the installation of that plant.

8.30 Small-scale cremators are of two designs. They are either provided with a connection to the secondary combustion zone of a full-scale cremator or they are built and installed as stand-alone small-scale cremators. It is plain from discussions between Dr Chamberlain and SEPA that further research is required into the potential for development of both types of installation. Dr Chamberlain is satisfied that the former type is viable in the sense that it is compliant with the requirements of

PG Note 5/2(12). However, he has no experience of the stand-alone design of the small-scale cremator now being installed at Mortonhall, which has been described by the manufacturer as designed “to be very much a scaled down model of the full-scale cremator, albeit with limited emission monitoring and external process control.” Again there is, in the opinion of Dr Chamberlain, considerable scope for research into, and development of, a stand-alone type of small-scale cremator.

8.31 The principal advantage of an infant cremator is that turbulence within the cremating chamber is reduced to a minimum. On the other hand, because the dimensions of the entry to the small-scale cremator must not exceed 300 mm × 300 mm and the length of the chamber must not exceed 1000 mm, their use is largely restricted to non-viable babies. Despite these limitations, those crematoria where infant cremators are currently employed have been generally satisfied with their operation and with the apparently high level of recovery of ashes. On balance the information gathered by the Commission indicates that, in the case of non-viable baby cremations, the prospects of recovering ashes following cremation in a small-scale cremator are good. However that qualified conclusion is based on limited information; much greater research would be required before a conclusive recommendation could be made. It may be that weight rather than size should be the criterion determining what might be cremated in a small-scale cremator.

8.32 In recognition of the possibility that there may be no ashes recovered, at some crematoria, such as South West Middlesex, a ceramic disc or other item which will survive the cremation is placed on the coffin or other container and is available either with ashes, or in the event of there being none, as a memento or memorial of the baby cremated⁵⁷.

Expert Proposals in Mortonhall Investigation Report

8.33 In his initial report Dr Chamberlain stated that there has been “little development attention paid to how full-size cremators operate with infant cremations and that, if there are to be successful infant cremations (ie with recoverable remains), changes are necessary”. He noted that there are cremation practitioners who assert that there cannot be retrievable remains from infant cremations. That view must of course be read subject to the opinion of Dr Roberts to the effect that remains or ashes can be recovered from baby cremations. Her opinion is supported by the evidence she refers to and by the evidence from the returns made to the Commission’s crematoria questionnaire showing the recovery of ashes in an increasing number of cases of cremations of non-viable babies in 2010 (80), 2011 (140) and 2012 (191).

8.34 Dr Chamberlain made two suggestions which should be followed up. The first is to devise procedures using the existing stock of cremators to deliver slow gentle cremation of infant remains. He points to practices at Seafield (Edinburgh) as an example but adds that, for such procedures to become accepted throughout the industry, they must be established in a number of cremator types and at a number of Cremation Authorities and be acceptable to Cremation Authorities. He makes the particular point that, positioning the remains to be cremated away from the support

⁵⁷ MIR, Section 4, page 152

burner and keeping the primary cremation chamber temperatures low (typically 600°-700°C), would create the best conditions for quiescence. Dr Chamberlain's second suggestion is to design alternative cremators specifically for infant cremation.

8.35 The Commission are satisfied that there is now general awareness among Cremation Authorities in Scotland of techniques that may be employed to create conditions within a full-scale cremator that enhance the prospects of recovering ashes, which include remains of the baby, from the earliest possible stage in a baby's development. Dr Chamberlain further suggests that, for such techniques to become accepted in the cremation industry, they must be established on a number of cremator types and be acceptable to Cremation Authorities. In light of the information conveyed to them by Lord Bonomy following visits to various crematoria and his attendance at a meeting of Scottish members of the FBCA and ICCM at which this particular issue was discussed, the Commission are confident that efforts are already being made at many crematoria in Scotland to maximise the ashes recovered. The steps being taken are illustrated at paragraph 8.4 above. Such developments are welcomed by the Commission. They are indicative of a willingness among cremation authorities to compare practices and experience. However, more must be done.

8.36 Following upon Dr Chamberlain's first suggestion, the Commission recommend that the FBCA and ICCM should form a joint working group, which should also include two laypersons nominated by the Scottish Government and a representative from a cremator manufacturer, to consider the various practices and techniques currently employed in baby and infant cremation in full-scale cremators with a view to identifying those practices which best promote the prospect of recovery of ashes inclusive of baby remains and compiling guidance for cremator operators. The working group should identify aspects of the cremation process which could conceivably be changed or improved and into which research ought to be commissioned by the Scottish Government.

8.37 The first suggestion has now been supplemented by Dr Chamberlain, following his discussions with SEPA referred to above, to include research to establish whether overnight cremation can be conducted in a way that is compliant with the regulatory framework or in a way that merits granting a permit in which the application of certain conditions is waived.

8.38 In matters of environmental protection for which SEPA is responsible and which are the subject of a PG Note and the application of Best Available Techniques (BAT), it is for the "obliged sector" – in this instance the cremation industry – to provide access to and information on installations which the sector consider would constitute BAT for the particular activity to which the PG Note applies. SEPA advises that that has not so far been done in the case of overnight cremation or small-scale cremators⁵⁸. They also advise that discussions are ongoing with Mortonhall about the terms of their crematorium operating permit.

⁵⁸ On 22 May 2014, at 11:07, [REDACTED] wrote:

'Dear Lord Bonomy,

8.39 In light of the foregoing the Commission recommend that the remit of the working group should include specific reference to overnight cremation and the question whether it can be carried out with the operating and monitoring equipment switched off in a way that will cause no material environmental damage and satisfy SEPA, through their participation in this work, that it should be permitted. The Commission hope that this will be dealt with as a matter of urgency and that existing practices can continue meanwhile.

8.40 That same working group should also address the second suggestion made by Dr Chamberlain, that alternative infant cremator types should be designed. That suggestion is indicative of the rather mixed reviews that existing small-scale cremators have so far enjoyed in England. Nevertheless at both Manchester and South West Middlesex they remain an integral part of the crematorium's operations and will continue to do so for the foreseeable future. In Dr Chamberlain's opinion, attentive observance of the requirements of the PG Note 5/2(12) would, in the case of a free-standing small-scale cremator, result in a rather complex installation as regards the chimney and flue system or require a secondary combustion chamber as in the one now installed at Mortonhall. As an alternative he suggests building what is effectively a small primary chamber from which the gases from combustion are fed through the secondary chamber of a full-scale cremator. That appears to be the configuration of both the Facultatieve and Shelton small-scale cremators currently available. A broad review of experience to date in England and Ireland in the operation of small-scale cremators would be appropriate to assess the costs of installation and operation, to evaluate the benefits and disadvantages of using small-scale cremators as presently defined and designed, and to consider whether research into the potential for further development of small-scale cremators, including with a larger main chamber, should be encouraged.

Cremation Authority Policy on Ashes

8.41 Since the general public expectation is that a cremation will produce ashes, it is incumbent on any Cremation Authority, where ashes may not be recovered in particular types of case, to make it clear to any person contemplating or arranging a cremation there that it is possible that ashes may not be recovered in those cases, that the position may be different at other crematoria, and that the alternative of burial is available. That information should be included in forms of application for cremation which are dealt with later in this Report. However, in addition to providing

When considering the development of any Process Guidance Note it is common for the obligated sector to provide access to and information on sites which the sector consider would constitute BAT for the particular activity which the Process Guidance Note applies to. From discussions with my colleague who developed Process Guidance Note 5/2 (12) I can confirm that no monitoring or process information was provided for small scale cremators and no small scale cremators were visited as part of the BAT development process. Further I can advise that overnight cremations which occur when the cremator is in cool down with all process and monitoring controls switched off was never identified as an activity for consideration and consequently the polluting impacts and the controls that may be required to mitigate any impacts from this activity was not considered. SEPA are still discussing the regulation of the Mortonhall site and I can offer no further comment on the progress of these discussions at this time.

information in the form, each Cremation Authority should publish a written policy statement including that information and explaining the scattering and interment of ashes and what happens if ashes are not collected by the applicant. That policy should also indicate a commitment to the sensitive treatment of the baby throughout, to respecting the wishes of parents and families and a commitment to the sensitive handling of ashes. Where overnight cremation is practised, that should be clearly stated. The Commission would expect the policy to be published in writing and available on the Authority's website, if any, in a section relating specifically to baby and infant cremations and the recovery of ashes.

8.42 An illustration of how some of these matters may be addressed can be seen in the following extract from such a policy statement:

"It is the Cremation Authority's policy to return all ashes resulting from the cremation of a baby to the applicant for cremation, if that is their wish. If they do not wish the ashes to be returned to them, then we will disperse them in the crematorium grounds, in the same manner as we would do with an adult. We cannot guarantee that we will always get ashes from a baby cremation but in the last 20 years we have never failed to do so. In the majority of our baby cremations, including both fetal and full term, we have visible skeletal remains. On the occasions when we do not have visible skeletal remains, we cannot be sure that the ashes contain any human remains, but we also cannot be sure that they do not."

The Commission consider the last sentence to be a good example of a sensitive way of conveying information which families may not particularly wish to know but which in this day and age should be given in the interests of transparency. The statement also explains that ashes are cremulated by hand and that, if parents wish to collect the ashes, they are placed in a white satin lined box along with a small teddy bear and rose petals.

8.43 In their responses to a questionnaire issued to them by the Commission, 22 crematoria stated that they have a local policy on the cremation of infants, 17 of which are in writing. The written policies are set out in a number of different ways. There are those which refer to Guidance from the FBCA or the ICCM as the basis for their local policy; others note the terms of the operational manuals for their cremators, as providing that basis; and some have general statements which are made available to the public in leaflets or on Council or other websites. Mostly there is no clear uniform policy in existence. Where policies are unwritten, emphasis appears to be placed by Cremation Authorities on a shared understanding of the cremation process. While there may be a shared understanding among cremation staff, it is far from clear that that extends to other closely involved personnel, including Funeral Directors and healthcare staff.

8.44 It follows that the actual policy developed and published in relation to baby and infant cremation processes may differ from crematorium to crematorium. In that situation we recommend that Cremation Authorities should exchange information about practice and experience in reviewing existing or devising new policies on baby and infant cremation in light of this Commission's report. However, bearing in mind that there is a substantial number of Cremation Authorities, this recommendation

would best be addressed by the ICCM and the FBCA forming a joint working group to develop a common policy statement reflecting best practice, and allowing for variation as appropriate at individual crematoria.

8.45 Consistency in the communication of information and guidance to bereaved parents and families would be promoted if Funeral Directors and healthcare staff ensured that the crematorium policy or appropriate extracts were included within the information and guidance material given to parents. Never again should families be misled about the recovery of ashes and their disposal.

SECTION 9 - REGULATION OF BABY AND INFANT CREMATION

General

9.1 The Commission have to consider the position of three distinct groups falling within the reference in their remit to "babies and infants". These are:

- (a) A child born alive who dies before the age of two;
- (b) a stillborn child defined in section 56 of the Registration of Births, Deaths and Marriages (Scotland) Act 1965 as "a child which has issued forth from its mother after the twenty-fourth week of pregnancy and which did not at any time after being completely expelled from its mother breathe or show any other signs of life"; and
- (c) A non-viable baby as the result of miscarriage or termination, at less than 24 weeks' gestation.

Any baby born alive, regardless of age or length of gestation, falls into group (a).

9.2 Groups (a) and (b) are currently the subject of statutory regulation in which relevant formalities and forms are specified, albeit no separate application form is prescribed for stillborn babies. That deficiency should be rectified by prescribing an appropriate application form. There is currently no statutory provision at all relating to the cremation any pregnancy loss of less than 24 weeks' gestation delivered showing no signs of life, either individually or in a cremation shared with a number of non-viable babies.

9.3 In 1988 the Cemeteries and Crematoria Manager of the City of Glasgow, who was also Cremation Authority Registrar, drew the attention of the Scottish Office to the difficulty that the existing statutory cremation forms could not be regarded as applying to the cremation of a non-viable baby and that the only course open to hospital authorities was disposal at the hospital. He devised appropriate forms and sent copies with his letter. He referred to one family who had "suffered torment unduly because their chosen Crematorium refused cremation on the grounds that they could not (understandably) obtain a Certificate of Registration from the Registrar of Births". He suggested that the Scottish Office should permit Burial and Cremation Authorities to dispose of non-viable babies using these forms with the proviso that the words "THIS IS NOT A STATUTORY DOCUMENT" were added. He also proposed a non-statutory register for such cremations. A reply was not received until April 1989, 11 months after the original letter. Although the reply indicated that the legal office of the Scottish Home and Health Department would research the matter and keep the Registrar fully informed, sadly nothing further came of it.

9.4 In the view of the Commission it is appropriate that there should be formal regulation of the cremation of all pregnancy losses of less than 24 weeks' gestation delivered showing no signs of life. In making that recommendation the Commission recognise that it is impracticable to regulate the treatment of all miscarried babies because many miscarriages are not reported or recorded. On the other hand there is a clear public interest in recording the delivery of such a non-viable baby where practicable, as is done when it occurs in hospital, and also recording the final laying to rest of the baby, including by cremation. To do the latter properly requires an

application and registration process in which the anonymity of the mother and baby is protected. The Commission does not consider the fact that many miscarriages may be unreported to be a reason for not properly dealing with and registering those which are managed in hospital, at home and at the crematorium.

9.5 The definition of “crematorium” in section 2 of the Cremation Act 1902 is “any building fitted with appliances for burning human remains, and shall include everything incidental or ancillary thereto”. The Commission appreciate that there is some debate around the interpretation of the expression “human remains” which is reflected in the cautious use of the expression “sensitive disposal in a crematorium” in the CMO and CNO Guidance of 2012, setting the minimum standard of shared cremation for non-viable babies. However, the Commission consider that pregnancy losses of less than 24 weeks’ gestation delivered showing no signs of life fall within that definition. Should there be continuing concern that that may not be so, the doubt should be resolved by amending the definition of “crematorium” to add after “human remains” the words “which for this purpose are regarded as including any pregnancy loss of less than 24 weeks’ gestation delivered showing no signs of life”.

9.6 At present many Cremation Authorities adapt the statutory cremation application Form A as best they can and have non-statutory registers of non-viable baby cremations. That is unsatisfactory. The Commission recommend that there should be an application form for the cremation of babies of less than 24 weeks’ gestation. The appropriate form will differ depending upon whether the cremation is individual or a shared cremation. The Commission also consider that there should be a statutory register of cremations of non-viable babies, i.e. of each baby cremated whether individually or along with others; that is addressed in Section 10.

9.7 It follows that it is the view of the Commission that there should be separate forms of application for cremation for each of four situations: (i) any deceased person (including babies and infants), (ii) stillborn children, (iii) non-viable babies cremated along with others and (iv) non-viable babies individually cremated. Each of these situations is dealt with in turn.

Cremation of a Child Born Alive Who Dies Early in Life

9.8 In the case of a child born alive who dies early in life, the statutory formalities relating to registration of the death, application for cremation and authorisation of cremation are those which apply in the case of the cremation of any deceased person of whatever age⁵⁹. Regulation 7 of the 1935 Regulations provides that application for cremation is to be made on Form A set out in the schedule. The general practice has developed of supplementing Form A by submitting additional details, either on a related form set out on the back of Form A, or on a separate form designed to be completed by the funeral director. The supplementary form contains details of the proposed funeral service and, importantly, what course of action is proposed in relation to the ashes.

⁵⁹ Scottish Government ‘What to Do in the Event of a Death’: <http://www.scotland.gov.uk/Publications/2006/04/12094440/0>

9.9 This situation in which there are in effect two forms to be completed by different people has resulted in confusion as to who is responsible for the completion of Form A⁶⁰. Clarity is also not assisted by the fact that each Cremation Authority is responsible for the final design of its Form A and the supplementary form and that they vary in appearance from Authority to Authority. The routine acceptance by crematorium staff of Form A completed by a funeral director rather than the nearest relative was a significant feature of inappropriate practice at Mortonhall.

9.10 Material presented to the Commission indicates that not infrequently the supplementary form relating to disposal of the ashes was not completed, or was inadequately or only partially completed, so that the wishes of the applicant for cremation were not made clear. The Commission consider that Form A should be revised to include a mandatory section dealing with the course of action proposed in relation to the ashes. That new section should require the applicant to state, by completing the appropriate box / boxes, which course they wish to follow, namely:

- a) to be scattered or interred at/by the crematorium with family in attendance and noting the appointed date and time;
- b) to be scattered or interred at/by the crematorium without the family in attendance and noting the appointed date, up to 7 days after the cremation;
- c) to be collected by the applicant / the applicant's duly authorised representative;
- d) to be held at crematorium for up to 8 weeks to await collection or any instructions from the applicant / the applicant's duly authorised representative

If the applicant selects a) or b) above, the particular course to be followed, ie scattering or interment, should be specified. If either c) or d) is completed then a further acknowledgement would require to be given in the following terms:

- e) I understand that, if after 8 weeks the ashes have not been collected or any instruction given as to their disposal or further retention, the ashes will automatically be scattered or interred at/by the crematorium.

There should be a clear statement on the cremation application form that in the case of very young children there may be no ashes and provision for an acknowledgement that that has been read by the applicant completing an initialling box.

9.11 Regulation 17 should be amended to enable the applicant's representative to deal with the ashes. Where the applicant authorises a representative to deal with the ashes, he should do so in writing either in the application form or on a separate form designed for that purpose.

9.12 There should be a legislative provision that authority should not be granted for the cremation to proceed if the section on ashes is not completed satisfactorily.

⁶⁰ MIR, Section 6, p527

9.13 There should also be a provision that, where ashes are left in the care of the crematorium on the basis that they will be collected or to await further instructions within a defined period, the Cremation Authority may not scatter or inter them unless 14 days' notice of their intention to do so has been given to the applicant.

9.14 The Commission also considers that improving the layout of Form A would help ensure that all parts are completed accurately. The 2008 Regulations prescribe the equivalent form for England and Wales, Form 1, which is in a clearer and more user-friendly format that is worthy of consideration as a style to follow in designing a new Scottish Form A.

9.15 However, if the questions in Form A remain as at present, with the addition of questions about ashes, the form will become very long and appear to be complex. Many people find the prospect of completing any official form daunting. The distress of bereavement will inevitably be increased by the sight of a multi-page form, with a large number of questions requiring answers containing details that in a number of cases have to be obtained from other sources or checked for accuracy. Some will already have been addressed in the process leading to the registration of the death. The registrar will have issued to the applicant the Form 14 certificate of registration of death. The submission of that form to the crematorium along with Form A is a prerequisite for a cremation to proceed. On the other hand, the cremation application form is routinely completed ahead of the issue of Form 14, and it is important that the final decision to apply for cremation is made after careful consideration. Since those questions are prescribed by the 1935 Regulations, any change will require legislation.

9.16 Conscious that any recommendations made about Form A would extend to the cremation of adults which is beyond the Commission's remit, the Commission nevertheless consider it appropriate to recommend review of the questions prescribed by the 1935 Regulations. Among the questions that the Commission have in mind are those relating to the time, date and place of death, those relating to the nature of the death and any other reason why a further examination of the deceased may be desirable, and details of the doctors who have attended the deceased. Those responsible for new forms should ask themselves whether the particular question is necessary. The bereaved whose loss is a baby may experience intense distress that should be alleviated in any way possible. The Commission have noted at Section 7.22 above, the metal recycling schemes which they commend, and suggest the incorporation into the Form, of a consent by the applicant to the extraction and recycling of all metals after the cremation, in accordance with the ICCM scheme. For those who do not wish to participate in the recycling scheme, the form should provide for extraction and burial at the crematorium.

9.17 The Commission note that the Scottish Government is already working with a number of organisations to implement a new death certification system in Scotland by bringing the Certification of Death (Scotland) Act 2011 fully into force by April 2015. That process will inevitably lead to the revision of certain forms currently in use, including the certificate of registration of death (Form 14) which is issued by the registrar and is a necessary prerequisite for a funeral to proceed. As part of that work, the existing Forms B and C and the statutory role of the crematorium medical

referee will be abolished. Since the Commission are not in a position to assess fully the impact that these changes might have on the content of Form A, it is recommended that the Scottish Government take account of the foregoing comments and in the context of their work on death certification consider amending the format and content of Form A.

9.18 A replacement for Form A should be designed by the Scottish Government with simplicity and clarity in mind. All Cremation Authorities should be required to use the prescribed form without amendment other than to include the name of the issuing Cremation Authority. The form or a related form should provide for the applicant to authorise a representative, who could be the funeral director, to uplift the ashes from the crematorium.

9.19 The terms of Form A prescribed by the 1935 Regulations envisage that the applicant should be the nearest relative or the executor of the deceased. Applications by executors are not common since their appointment and involvement in the affairs of the deceased usually post-date the funeral. And, of course, the role of an executor is irrelevant to virtually all of the babies the Commission considered. A number of the questions relate to the possibility that others with an interest in the funeral arrangements, such as near relatives or an executor, may not have been advised of the application or may have objected to the proposed cremation. If the Scottish Government accept the recommendation of the Burial and Cremation Review Group that the person with the right to arrange the funeral of a deceased person should be the nearest relative as defined in existing legislation with appropriate amendments⁶¹, they should legislate to that effect and Form A should make it clear that the applicant for cremation must be the nearest relative or, if not, must satisfy the Cremation Authority that application by that person is appropriate. In general, in cases of infant death, the nearest relative will be a parent.

9.20 It is clear from the MIR that there was little scrutiny of cremation application forms to check the propriety or entitlement of the applicant, and that a large number were completed by the funeral director. On the other hand, the examples of Form A seen by the Commission were generally completed by a close relative while the supplementary form was generally completed by the funeral director. The Commission recommend that crematorium staff considering applications for cremation should scrutinise particulars in the form relating to the applicant to ensure that application by that particular applicant is appropriate, and a senior member of the Cremation Authority staff should be responsible for that scrutiny. Otherwise that cremation should not be authorised to proceed. There should be a legislative provision to that effect. The funeral director should neither sign the form nor witness the signature. In assisting the applicant to complete the form the funeral director has the important task of ensuring that the applicant gives careful consideration to each individual question, including the questions relating to disposal of ashes, and reminding the applicant of the option of burial.

⁶¹ Burial and Cremation Review Group: Report and Recommendations, 04/04/2008. Recommendation 12: '*The right to instruct the disposal of bodies on death should be vested in the nearest relative as defined in section 50 of the Human Tissue (Scotland) Act 2006 (asp 4). (paragraph 12)*'

<http://scotland.gov.uk/Publications/2008/03/25113621/2>

9.21 Since it has been suggested to the Commission that in some cases the signature on Form A was not that of the applicant, and in light of similar findings in the MIR, the Commission consider that the signature of the applicant should, as at present, be witnessed. However, that witness should not be a person involved in the funeral arrangements, such as the funeral director, and should be someone independent of the family.

Cremation of Stillborn Babies

9.22 The legislative provision relating to the cremation of stillborn babies, Regulation 16 of the 1935 Regulations, is in somewhat unsatisfactory terms, largely because it appears to have been included as an afterthought and then later amended without attention being given to appropriate revision of other provisions. However, in the Registration of Birth, Deaths and Marriages (Scotland) Act 1965 section 21(1) provides as follows:

“Except so far as otherwise provided by this section or as may be prescribed, the provisions of this Part of this Act shall, so far as applicable, apply to stillbirths in like manner as they apply to births of children born alive.”

The approach is to treat both in the same way, except so far as it is necessary to distinguish them. The Commission propose that that course should be followed in relation to application for and registration of the cremation of stillborn children.

9.23 So far as the application for, and authorisation of, cremation is concerned, the present position is that the Medical Referee⁶² may authorise the cremation of the remains of a stillborn child where the stillbirth has been registered and certified⁶³. There is no specific reference to a form of application for cremation and the Cremation Authorities generally adapt Form A accordingly. The position has been different in England since 2008. The Commission consider that, in line with the position there, a form of application for cremation of a stillborn child should be prescribed by legislation. The differences in such a case from the circumstances of the death of a person born alive are reflected in the form in use in England and Wales. The applicant should be the nearest relative as in the case of a deceased baby. Provisions similar to those of Regulation 20 of the 2008 Regulations should be introduced requiring appropriate certification of a stillbirth⁶⁴.

⁶² The statutory role of the Crematoria Medical Referee will come to an end when the Certification of Death (Scotland) Act 2011 comes fully into force, projected for April 2015. Further information can be found at: <http://www.scotland.gov.uk/Topics/Health/Policy/BurialsCremation/Death-Certificate>

⁶³ The Cremation (Scotland) Regulations 1935, regulation 16:

‘**16.** Notwithstanding anything in the foregoing Regulations, the Medical Referee may authorise the cremation of the remains of a still-born child if there has been produced—

(a) a certificate of registration under the hand of the Registrar of Births, Deaths and Marriages in the form of Schedule 8 appended to the Registration of Births, Still-births, Deaths and Marriages (Prescription of Forms) (Scotland) Regulations 1965; and

(b) a certificate that the child was still-born given by the registered medical practitioner who attended at the confinement of the mother or by a registered medical practitioner after post-mortem examination of the body; and if the Medical Referee after such inquiries as he may think necessary is satisfied that it was still-born.’

⁶⁴ The Cremation (England and Wales) Regulations 2008:

‘**2.—(1)** In these Regulations—

“the 1953 Act” means the Births and Deaths Registration Act 1953(b); “the 1988 Act” means the Coroners Act 1988(c); “the 2004 Act” means the Human Tissue Act 2004(d); “applicant” means the person making an application for cremation in accordance with regulation 15; “body parts” means material which consists of, or includes, human cells from—

9.24 The form of application should include the same questions and language in relation to ashes as proposed for Form A above. As in the case of the form proposed for application for cremation of a deceased baby or infant, we recommend that the Scottish Government should take account of the earlier comments about the content of Form A in the context of its work on death certification, and produces a form in appropriate terms.

9.25 One of the consequences of the unsatisfactory drafting of Regulation 16 is that it is not clear whether the provisions of Regulation 17 about the delivery of ashes to the applicant apply to stillborn babies, since Regulation 17 refers specifically to deceased persons. The relevant law is discussed in counsel's opinion at Annex D. While more than one view is possible, counsel prefer the construction that applies the provisions of Regulation 17 to the cremation of a stillborn child. In the 2008 Regulations applicable in England and Wales a clear distinction is made between a "deceased person" and a "stillborn child", and the provisions about ashes apply to all cremations, leaving no doubt that ashes of a stillborn baby are to be given to the applicant. Rather than leave the law in the state of uncertainty that counsel's discussion reflects, the Commission agree with the view of counsel that it is "highly desirable that the Regulations should be amended to clarify this eminently debatable point", and so recommends.

9.26 At page 40 of the MIR Dame Elish highlights another gap in current legislation relating to stillborn babies: the Cremation (Scotland) Amendment Regulations 2003 amended the 1935 Regulations to make provision for the cremation of body parts – see Regulation 15A. "Body parts" are defined as "any organs and tissue removed from a deceased person during the course of a post-mortem examination". Since there are occasions when post-mortems on stillborn babies take place, and these occasions would not be covered by that provision, the Commission recommend the amendment of the foregoing definition of "body parts" to include reference to a stillborn baby. In addition, the provisions that apply to the cremation of babies following death outwith Scotland should apply to stillbirths occurring outwith Scotland. The current provisions in Regulation 13 of the 1935 Regulations do not apply to stillborn babies.

Shared Cremation of Non-Viable Babies

9.27 On the introduction in England and Wales of the 2008 Regulations, guidance issued by the Ministry of Justice recognised that remains under 24 weeks' gestation are not subject to the provisions of legislation, but advised that most crematoria would be prepared to cremate such remains at their discretion. This was confirmation of a statement made by the Home Office in 2003⁶⁵. Various crematoria have been cremating non-viable babies for some time before that. On 19 July 2012 the Chief Medical Officer (CMO) for Scotland and the Chief Nursing Officer (CNO) for

(a) a deceased person, whether or not separation from the body occurred before or after death; or
(b) a stillborn child.'

⁶⁵ The Cremation (England and Wales) Regulations 2008 – Guidance to cremation authorities and crematorium managers. Page 3 paragraph 6

<http://www.justice.gov.uk/downloads/burials-and-coroners/cremations/cremation-crematorium-guidance.pdf>

Scotland issued Guidance to all Health Boards in Scotland (CMO and CNO Guidance) on the disposal of pregnancy losses up to and including 23 weeks and 6 days gestation (see Annex K) outlining the minimum standard expected for disposal by Health Boards of all pregnancy losses undertaken by the Board as shared cremation, referred to in the Guidance as “collective disposal in a crematorium”. In circumstances where shared cremation is not available, disposal by collective burial is acceptable. In either situation “collective” is defined as a number of pregnancy losses, in individual sealed containers, collected together into a larger sealed container.

9.28 The Guidance was designed to bring to an end the practice of disposal of early pregnancy loss by way of incineration or clinical waste. A mother has six weeks to decide whether to proceed in this way or opt for an alternative arrangement. This is one of the four matters on which recommendations having a bearing on the work of this Commission were made by the Burial and Cremation Review Group, referred to earlier at 3.10 and 3.11. The Group recommended that the Scottish Government should revise and issue an update of the Guidance circular following consultation with interested bodies such as the Royal College of Nurses (RCN), the Royal College of Midwives, the Royal College of Obstetricians and Gynaecologists (RCOG) and the Institute of Cemetery and Crematorium Management (ICCM). The July 2012 Guidance marked a very major improvement in practice and illustrates just how quickly developments can occur in this particularly sensitive field.

9.29 Whilst this was a change in procedure that was already well underway in Scotland before the Guidance was developed or issued, driven largely by changing cultural and societal expectations, it was by no means complete in all areas or institutions. Full implementation of the Guidance introduces a consistent and improved default service of greater respect and dignity, that might be of some comfort to those distressed at the time, or perhaps later in life. At a minimum, a respectful shared cremation or burial option is instead available to all who experience such a loss, unless they wish to make their own private arrangements.

9.30 The practice of shared cremation of non-viable babies has been followed for a number of decades. In spite of initial reluctance on the part of the general membership of both of the main professional organisations, the FBCA and the ICCM, to embrace the practice, over recent years Cremation Authorities have carried out shared cremations of non-viable babies with increasing frequency. This is usually in terms of an arrangement between a hospital or Health Board and a Cremation Authority. At crematoria where no such arrangement is in place, it is likely that all non-viable babies are cremated individually. An important factor in the minds of those initially resistant to shared cremation is the requirement in the FBCA Code of Cremation Practice that each coffin given into the care of the Cremation Authority shall be cremated separately, which in practice means that every stillborn baby or deceased baby cremated is cremated individually.

9.31 The ICCM Guidance is that shared cremation is an appropriate course to follow in respect of non-viable babies, but that parents should always have the choice of individual cremation. The FBCA recommend that individual cremation should be available but accept that shared cremation is an appropriate course for

Cremation Authorities to follow where the numbers of non-viable babies are so high as to make individual cremation unattainable in every instance and the parents choose shared cremation.

9.32 The Commission consider it important that the choice of individual cremation should always be available, as is in fact the case in practice, since all crematoria in Scotland carry out individual cremation of non-viable babies. However that choice is illusory where the Health Board arranges a shared cremation but not an individual one. All Health Boards provide initial advice about arranging a private cremation regardless of the gestational age of the baby. All Health Boards with access to a crematorium also currently arrange, at no expense to parents, a private individual cremation for non-viable babies and still-born babies. This is commendable. However, the minimum gestational age at which this is available can differ, and practice about offering the service, or leaving the mother to ask, varies. These differences in provision are difficult to explain in a universal service. NHS Scotland should review the provision of the facility of hospital arranged cremation throughout Scotland with a view to making consistent provision in all Health Boards.

9.33 Since there is a choice for all and no-one is compelled to accept a shared cremation, since that course is willingly followed by many, and since in our discussions with health professionals and those involved in the process of cremation no-one expressed any objection to the practice, the Commission consider shared cremation to be an acceptable way to lay non-viable babies to rest.

9.34 Statistical information gathered by the FBCA records a significant rise in the number of non-viable babies cremated, individually or along with others, between 2012 and 2013, the first full year in which the CMO and CNO Guidance has applied, although the exact increase is not clear as explained at paragraph 5.10. The latter figure⁶⁶ is as good an indication as any of the minimum number likely in future. Quite apart from there being a doubt about whether the existing resources could cope if all non-viable babies had to be cremated individually, the cost benefits of shared cremations are obvious. For all who wish individual cremation, that facility is available at all crematoria. It may be that individual cremation for all non-viable babies should be seen as the long-term aim and indeed may already be achievable at crematoria dealing with only a few cases per annum. However, at crematoria where hundreds, and even thousands, are dealt with each year, that may not be possible.

9.35 Although the Commission consider shared cremation is appropriate for non-viable babies, the recent substantial increase in numbers presented for shared cremation has highlighted in the minds of members of the Commission the need to be vigilant that standards are not compromised. Large numbers of non-viable babies, up to 150 in separate, small, sealed containers, may be presented in one large sealed container or coffin. Some may have been held at the hospital mortuary for a period of months. These features of shared cremation may be seen by some as sacrificing a degree of respect, dignity and sensitivity for the sake of expediency. The Commission recommend that a working group should be established, comprising representatives of Health Boards, Funeral Directors, Cremation Authorities, and child

⁶⁶ The FBCA statistical return for 2013 indicated 6824 such cremations, as per Report paragraph 5.10

bereavement support organisations, to consider the developing practices in the arrangement and conduct of shared cremations and to draw up a code of practice setting minimum standards for shared cremations.

Suggested Revisals to CMO and CNO Guidance Letter

9.36 The 2012 CMO and CNO Guidance letter contains a suggested form of application for shared cremation of non-viable babies. The Commission have reviewed the terms of the form and has had access to the returns made by Health Boards in responding to an audit questionnaire issued by the Scottish Government in August 2013, a year after the Guidance was issued (available as Annex L). Inevitably, reviewing the Guidance and its implementation against the background of the particular issues that gave rise to the formation of this Commission has led to the identification of a number of minor improvements that could be made to the Guidance.

9.37 The expression “collective” cremation featured in the Guidance is not universally approved. A more generally accepted description already widely used is “shared” cremation.

9.38 The Scottish Government has already acknowledged that one aspect of the Guidance will require to be revised in the light of the queries and investigations that Dame Elish and the Commission have conducted. This aspect is contained within Annex B, page 4, of the Guidance, in a section providing advice to Health Boards on patient leaflet questions and answers. In response to the patient query ‘Will there be any ashes?’, the current suggested response is that ‘There are no cremated remains (ashes) from this process’. The ‘Note’ accompanying this reads ‘It is important to state that ashes will not be available. [This is because of the absence of formed bone].’ This suggested response and note are now both acknowledged to be incorrect in the light of more recent findings, and require to be updated. A more accurate response could be ‘There will be no individual ashes available for collection from this process.’ and the ‘Note’ could instead read ‘Where any shared / collective ashes remain after the cremation, they will be respectfully scattered or buried within the crematorium’s designated area / Garden of Remembrance’.

9.39 Slight confusion has been caused by a clinical footnote to the Annex A flow chart, page 3 of the Guidance. This footnote currently reads ‘All tissue from a pregnancy loss including miscarriage, termination of pregnancy and ectopic pregnancy. Placentae where the fetus is separately identified and greater than 12 weeks gestation are not included.’ It has been suggested that it would be of benefit to the medical profession if this note was more clearly worded. An alternative could be ‘All tissue from a pregnancy loss including miscarriage, termination of pregnancy and ectopic pregnancy. Where the fetus is separately identifiable from the placenta, the placenta is not included.’

Shared Cremation Application Form

9.40 There are also certain aspects of the forms of application for shared cremation, suggested in the Guidance, that merit further consideration. Although the form that a mother signs to authorise the hospital to arrange for sensitive disposal “in

accordance with the procedures outlined” contains reference to other choices open to the patient, these options are set out after the point in the form where the mother has given or declined authorisation to the hospital. In addition the “procedures outlined” are not specified. These could be a shared cremation or burial or individual cremation or burial. The form should be revised to set out the procedures and options before the space for the mother’s signature. That form should also state clearly that there may be no ashes following cremation and that any recovered will be scattered or buried at the crematorium.

9.41 For mothers who decline to discuss disposal at all, there is provision for them to state that that is their position and to state further that they “recognise that the hospital will proceed according to their standard procedure”. Again that “standard procedure” is not specified. Bearing in mind the stresses and strains faced by mothers experiencing pregnancy loss, and the potential for confusion in their minds at the time when they are being asked to make these decisions, which is reflected in the uncertainty about what happened at the time now displayed by a number who have made submissions to the Commission, the procedure that will be followed should be specified in writing for the avoidance of doubt and with a view to ensuring that a fully informed decision is made.

9.42 The application is made by the duly authorised member of the hospital staff and includes a declaration that the applicant, ie the hospital staff member, holds certification in respect of each that the pregnancy loss occurred before 24 weeks and showed no signs of life. However, there is no reference to the mother having authorised the hospital to follow this procedure. The Commission consider that there should be a clear statement to that effect in the form of application for cremation to assure the Cremation Authority that that is so.

9.43 The CMO, CNO and Health Boards are invited to have regard to these observations when drafting any further guidance on this subject.

Individual Cremation of Non-Viable Babies

9.44 For an individual cremation of a non-viable baby a different form is required, not least because ashes may be recovered and given to the applicant. The applicant should be the mother. The applicant should select, as in cremations of deceased and stillborn, the course of action to be followed in respect of the ashes and as in the case of stillborn babies, dealt with at 9.25, the legislative provision relating to the delivery of ashes should be applied specifically to non-viable babies. This is an essential safeguard of the integrity of the scheme for regulation. However, it has to be recognised that, in cases where the pregnancy loss ultimately occurs outwith a hospital or other healthcare facility, certification may present problems, particularly where the pregnancy has not been the subject of prior medical record.

Crematoria Arrangements with Health Boards

9.45 Of the 27 crematoria in Scotland, 14 were, by the time of the August 2013 audit, already working with Health Boards to provide either NHS or privately arranged individual cremations. Of these at least 9 provide, or have agreed to provide when asked, the new shared cremation service. These are Masonhill

(Ayrshire), Mortonhall (Edinburgh), Kirkcaldy, Falkirk, Hazlehead (Aberdeen) , Craigton (Glasgow), Perth, South Lanarkshire and Roucan Loch (Dumfries).

9.46 To date the arrangements made between crematoria and hospitals governing the provision of cremation services have been largely oral and fairly loose. The one written agreement seen by the Commission is simply a quotation which provides that, for the period of one year, with the option to extend for 2 × one year periods, a total of 3 years, up to two sealed boxes (700 mm × 400 mm) will be uplifted from the Mortuary Department of the hospital for transfer to the crematorium for collective cremation, that the boxes will contain approximately 40 pregnancy losses / non-viable babies individually sealed in non-chlorinated plastic containers, that a second uplift may on occasions be required and that there will be no charge made. Beyond that, some matters which might be covered in a document of terms and conditions were addressed in an exchange of emails which consisted largely of assurances that matters arising would be discussed and agreed, that the parties would act reasonably and timeously in certain circumstances and that the parties would not interfere with each other's business.

9.47 In their published document "The Sensitive Disposal of Fetal Remains", which contains policy and guidance for burial and Cremation Authorities and Companies, the ICCM state that it is important that the burial and/or Cremation Authority or company agree a workable arrangement with the hospital and that both parties acknowledge and abide by their responsibilities. That seems to happen at present but without the detailed terms and conditions of the arrangement being incorporated into a formal agreement. The ICCM provide a sample agreement which contains even less detail than the one referred to above but does include at the end the statement – "terms and conditions can be included on the reverse of the agreement". The Guidance then proceeds to give examples of such terms and conditions, the most important of which relate to the information hospitals should give to bereaved parents about cremation and whether ashes will be recovered, how the fact that that information has been conveyed will be recorded, the obligation of the hospital to confirm that it has obtained consent to cremation, the maintenance of a register, the retention of documentation and the form in which application for cremation will be made. It is also suggested that the hospital should provide certification by the doctor, nurse or midwife who delivered the baby that it was of a gestation less than 24 weeks and showed no signs of life. Other conditions would relate to the wrappings used for each non-viable baby and the container in which they were presented to the crematorium. The agreement can of course be drawn to include arrangements for individual cremation and for burial.

9.49 It was noted that Funeral Directors are regularly involved in conveying babies from a hospital to a crematorium, and that their arrangements with Health Boards are also fairly loose.

9.50 Now is an opportune time for Cremation Authorities, Funeral Directors and Health Boards to review the contractual arrangements in place for shared cremations in light of the ICCM Guidance above, to satisfy themselves that the respective responsibilities of the parties to the contract are so defined as to ensure that such cremations are carried out in a dignified and sensitive manner. They should also

further review the contractual arrangements in light of any Code of Practice drafted in accordance with recommendation at paragraph 9.35 above.

SECTION 10 - REGISTRATION OF CREMATIONS

10.1 It is acknowledged that not every person who suffers the loss of a baby pre-24 weeks wants to acknowledge that loss as a baby. This does not mean that later on the parent may not regret having missed taking part in the arrangements for laying that baby to rest. The arrangements made should be sensitive and respectful as well as being traceable in case the parents do later wish to know the details of what happened. Where parents have chosen not to get involved in laying their baby to rest, that choice must be respected. However, it is important that the resting place of the remains or ashes is recorded.

10.2 Regulation 18 of the 1935 Regulations provides as follows:

“Every Cremation Authority shall appoint a Registrar who shall keep a register of all cremations carried out by the Cremation Authority in Form G or Form GG as the case may be in the schedule hereto. He shall make the entries relating to each cremation immediately after the cremation has taken place, except, in the case of Form G, the entry in the last column, which he shall make as soon as the ashes of the deceased have been handed to the relatives or otherwise disposed of.”

Form G prescribes the lay out of the register in which the cremation of all deceased infants and adults is recorded. The last column is headed “How Cremated Remains were disposed of”. Form GG relates to the cremation of body parts.

10.3 The current practice is for the details of the cremation of stillborn babies to be recorded in that register. That practice may have developed because of the reference in Regulation 18 above to the keeping of “a register of *all* cremations carried out by the Cremation Authority”. The later reference in the Regulation to the ashes of the “deceased” may be seen as inconsistent with that. However, as noted earlier in Section 7, counsel have expressed the view that, for the purposes of Regulation 18 at least, a stillborn child falls to be characterised as a “deceased”. Counsel have also concluded that the obligation in Regulation 17 to give the ashes to the applicant for cremation applies also in the case of a stillborn child, even in the face of doubt about whether a formal application for the cremation of the stillborn child by a specified applicant is currently required. These are further examples of the problems caused by the drafting inelegancy of Regulation 16 and the apparent failure of the draftsman to address the need for consequential revisals or provisions.

10.4 In keeping with the Commission’s recommendations in the preceding Section that an application form for the cremation of stillborn babies should be prescribed and that Regulation 17 should be amended to make it clear that the obligation to hand over the ashes to the applicant applies in the case of stillbirths also, the Commission now recommend the amendment of Regulation 18 to make clear the requirement to keep a record in the cremation register of all cremations of stillborn babies.

10.5 Although Regulation 18 requires the keeping of a register of “all cremations carried out by the “Cremation Authority”, that provision has never been regarded as applying to the cremation of non-viable babies. However, it is the practice of all

crematoria to keep what they generally describe as a “non-statutory register” of non-viable baby cremations. In keeping with the view expressed at paragraph 10.4 above, the Commission consider that there should be a specific requirement imposed on Cremation Authorities to keep a register of cremations of all non-viable baby cremations, that is of each individual cremated, whether cremated individually or along with others, in a form of register to be prescribed by Regulation⁶⁷.

10.6 It is the practice of Cremation Authorities to treat cremation registers as private and to permit only the applicant for cremation to inspect the relevant entry or receive an extract. That has resulted in the mother of the baby being refused access to the register where her husband or partner, as acknowledged father of the baby, made the application. In these circumstances the mother might see the entry in the company of the father, but strains in the relationship between mother and father may create circumstances where that cannot be arranged. It is the opinion of the Commission that it is not appropriate that a Cremation Authority should be entitled to refuse access to the mother in these circumstances. Indeed, it is not immediately obvious to the Commission why the cremation register should not be a public document, subject to redaction of relevant material to ensure compliance with data protection legislation. The 2008 Regulations applicable in England and Wales provide in Regulation 35 that the Cremation Authority “may issue to any person a copy of, or an extract from, the register or a document”. The Commission recommend that the Scottish Government make an equivalent provision for cremation registers in Scotland, subject to any qualification necessary in the interests of the protection of privacy and to reflect data protection requirements.

10.7 The Commission recognise that, particularly in the case of shared cremations following termination of pregnancy, considerations of confidentiality and the protection of privacy will require the anonymisation of the identity of the mother as already provided for in the CMO and CNO Guidance of 19 July 2012. The Commission are satisfied that the appropriate place for retention of the record of the identity of the mother is the Health Board or the hospital where the termination or miscarriage occurred. Other healthcare providers should, of course, make equivalent arrangements. That applies in general to the recommendations of the Commission which relate to the work of Health Boards.

10.8 Health Boards and other healthcare providers should accordingly record information about applications for cremation in a way that ensures traceability of the identity of the baby by a person with a legitimate interest. To that end, each Health Board and healthcare provider should be required to maintain a register of authorisations in which the crematorium at which the baby was cremated is recorded.

10.9 It is the understanding of the Commission that procedures for recording the details of an application for cremation are not identical throughout NHS Scotland. Exactly how the application is recorded is a matter for each Health Board to determine. The mother may have been attended in either a maternity ward or a

⁶⁷ The Commission considered that possible categories of information were: Reference Number; Crematorium Name & Cremation Authority Name; Cremation Date & Time; Applicant Name; Name of Non-Viable Baby or individual NHS ID; Location of Supporting Documentation (eg relevant Health Board); Applicant's Ashes Instructions; Ashes Outcome; Ashes Location; Confirmation of Outcome / Location Issued to Applicant.

gynaecology ward. The most prevalent practice may be for the hospital mortuary to take responsibility for record-keeping⁶⁸. If the Commission recommendation that non-viable baby cremations should be registered is accepted, then it would be appropriate for a working party, comprising hospital board representatives and a representative from the private healthcare sector, chaired by a Scottish Government official, to be appointed to review hospital record-keeping practices, including those of private healthcare providers, in relation to baby and infant cremations with a view to identifying best practice to be applied throughout hospitals and other facilities in Scotland.

10.10 Many of the cases which have been the subject of the Mortonhall Investigation, and most of the submissions made by affected parents to this Commission, relate to events which occurred many years ago – in some instances over 30 years ago. Regulation 19 of the 1935 Regulations requires that all applications, certificates and other documents relating to any cremation, shall be carefully preserved by the Cremation Authority but also permits the Authority to destroy those documents (except the register of cremations or any part of such register) after the expiration of 15 years from the date of the cremation to which they relate, and after only 2 years if a photocopy is made and retained until the expiration of the said period of 15 years. The CMO and CNO Guidance of 19 July 2012 requires each Health Board to retain a record of the disposal (whether by cremation or burial) for a minimum of 30 years, with suggested good practice being retention for 50 years. Having regard to the vintage of the cases which have arisen, the Commission consider that all applications and other documents relating to the cremation of any baby should be preserved for a minimum of 50 years. The cremation register should of course be retained indefinitely, as should the Health Board register proposed in paragraph 10.8.

10.11 Requiring the retention of all documents in hard copy would impose unreasonable demands on Cremation Authorities and Health Boards. The modern equivalent of the photocopy permitted by Regulation 19 is computerised electronic recording of the document. The Commission see no reason in principle why it would not be sufficient for all documents, including the two registers mentioned above, to be kept and preserved in electronic format from the outset, subject to the outcome of the further work referred to in the next paragraph.

10.12 Cremation Authorities in general already use computer software record-keeping systems. There are proprietary brand systems available for purchase. They can be customised to meet the requirements of the particular Authority. Those most commonly used by Cremation Authorities in Scotland are Epilog Sequel and Epilog Classic from Gower Software and BACAS by Clearsky Software. Others available include CAS (Crematorium / cemetery Administration System) by LAM Consulting Service and Epitaph (Edge IT Systems Ltd). At least one Cremation Authority has designed its own bespoke system. Applications and other forms continue to be handled in hard copy. Cremation Authorities appear to be generally satisfied with the record-keeping systems they have in place. Some comments have been made to the Commission expressing disappointment that the proprietary brand systems available have not been

⁶⁸ See Annex K: CMO & CNO Guidance, Annex D

developed in a way that keeps pace with the modern requirements of Cremation Authorities for better management information. Before any change is made to the current requirement for hard copy or photocopy documents to be retained for at least 15 years, the Commission consider that it would be appropriate for the Scottish Government to form a working group drawn from Cremation Authorities and providers of software to crematoria to review the available facilities for electronic processing and storage of cremation documents and records, to consider and recommend appropriate improvements to achieve the objectives of the recommendations of the Commission, and to consider what additional features and facilities the software manufacturers should be invited to develop, all with a view to ensuring that the systems in use by Cremation Authorities are as efficient and secure as possible. The working group should also consider and advise on the appropriate requirements for back-up storage systems.

10.13 As noted at paragraph 10.2 above, the existing cremation registers have a final column to record how ashes were disposed of. The Commission consider that that section should be in more specific terms and should be expanded to require a record to be made of whether they were collected, when and by whom, and if not, where they were scattered or interred and when. It is already common for the date of collection to be recorded, but the date of dispersal or interment at or by the crematorium is noted less frequently. Following collection, dispersal or interment, notice should be sent to the applicant by the Cremation Authority registrar confirming which occurred and, if dispersal or interment, where that was, along with an extract of the complete register entry. These requirements relating to notice and an extract should not apply to shared cremations. In the case of individual cremations of non-viable babies the cremation application form should provide for the applicant to request the notice and extract which would not otherwise be issued.

10.14 Some crematoria hold unclaimed and undisposed ashes years after the cremation. Others follow a policy of notifying the undecided applicant of the expiry of the period for which the ashes must be retained and the intention to scatter them if not claimed within a certain time, and as a result hold no historic ashes. This is dealt with at Section 9.13. Ashes should not be scattered or interred without appropriate notice of the intention to do so being given. The Commission consider it desirable that ashes should not be retained at the crematorium beyond 8 weeks unless the applicant so requests and the crematorium agrees. Where the applicant takes no action on receiving the notice, the Commission consider that the Cremation Authority should proceed to scatter or inter the ashes in accordance with the published policy intimated to the applicant in the cremation application form, which is a much more dignified and sensitive course than storage on a crematorium shelf.

10.15 A related problem is the accumulation in Funeral Directors' premises of unclaimed ashes that Funeral Directors have, at the request of the applicant client, uplifted from the crematorium. Some Funeral Directors hold unclaimed ashes going back many years, which tends to indicate a failure in the past to take clear instructions from their clients or to follow up instructions from previously indecisive clients. Of course there will be cases where the applicant has moved away without giving final instructions. This is not a problem that particularly relates to baby and infant cremations, but applies across the board. There is currently no provision

whereby the Funeral Director can return the unclaimed ashes to the crematorium to be scattered or interred.

10.16 In order to give effect to the Commission's recommendation that the applicant for cremation should be able to authorise another such as the Funeral Director to collect the ashes, it will be necessary to either include such authorisation in the application form or devise a separate form. In either case, where the authorised representative is the Funeral Director, that form should include authorisation to the representative to return the ashes to the crematorium to be scattered or interred after an appropriate period, say two years, rather than store them indefinitely on a shelf as at present. The Funeral Director should give notice of the intention to return the ashes to the crematorium to be scattered or interred if no instructions are received within 14 days. In the absence of any response to the notice, the ashes would be returned to the original crematorium and an appropriate record entered in the register.

10.17 The idea that ashes should be scattered or buried after a certain period was broadly supported by responses to the Scottish Government Consultation in 2010 on the Burial and Review Group Report of 2007. That Consultation proposed a period of five years. This Commission consider that two years should be sufficient for appropriate action to be decided upon by the applicant. The Commission would expect the Cremation Authority to charge an appropriate fee.

SECTION 11 – TRAINING AND OTHER WAYS OF IMPROVING PRACTICE

Introduction

11.1 The importance of training all involved in the aftermath of baby and infant death and in all aspects of the cremation process was mentioned in various submissions to the Commission.

Training of Crematorium Staff

11.2 Both the FBCA and the ICCM have training schemes which lead to certification of successful candidates as technicians. That training is referred to in PG Note 5/2(12)⁶⁹. In terms of paragraph 5.48 Cremation Authorities are encouraged to set up an environmental management system (EMS) for the general operation of their crematoria. Para 5.49 provides specifically as follows:

“Staff at all levels need the necessary training and instruction in their duties relating to control of the process and emissions to air. In order to minimise risk of emissions, particular emphasis should be given to control procedures during start-up, shut down and abnormal conditions.

Training may often sensibly be addressed in the EMS referred to above. The Cremation Technicians Training Scheme operated by the Institute of Cemetery and Cremation Management should be adequate for this purpose, as should the Training and Examination Scheme for Cremation Technicians which is run by the Federation of Burial and Cremation Authorities.”

11.3 The FBCA Training and Examination Scheme for Crematorium Technicians⁷⁰ (TEST) specifies its purpose as being to supplement the technician's training in procedures appropriate for the competent operation of cremators, compliance with the appropriate Regulations and Codes of Practice and to prepare the technician for practical examination in cremator operation. Examination success results in the issue of a certificate of proficiency in cremator operation. The TEST training is normally undertaken in-house, with the tuition being given by a trained and experienced operator who acts as mentor to the candidate. The candidate has to complete a minimum of 50 cremations, under supervision, and log details of every fifth cremation on a prescribed form before being examined.

11.4 In addition to undertaking practical training and recording details of these cremations, the candidate must also study course notes and, at the candidate's own pace, answer questions at the end of each section of the course. An FBCA examiner conducts a practical examination at the workplace crematorium. That examination is designed to ensure that the candidate understands the principle of combustion, works to the FBCA Code of Cremation Practice and understands the health and safety factors of the technician's role. The examiner has access to the candidate's

⁶⁹ Annex H

⁷⁰ FBCA 'Test And Examination Scheme For Crematorium Technicians'
<http://www.fbc.org.uk/support-1.asp>

responses to the course note questions and should tailor the examination process to ensure that relevant factors are dealt with and any areas of apparent weakness are examined closely to ensure that the candidate is able to operate the equipment in a safe and ethical manner. Any candidate failing to reach the required level of competence will fail the examination and will be required to undergo further training prior to retaking the practical examination. Recently that has occurred on two occasions.

11.5 The ICCM⁷¹ Crematorium Technicians Training Scheme (CTTS) leads to the award of the BTEC (Business and Technology Education Council) Intermediate Certificate for ICCM Crematorium Technical Operations, which is a nationally recognised level two qualification. To achieve the qualification candidates must pass all of the three sections that make up the unit entitled Crematorium Operations:

- 1) the functioning of a modern cremator;
- 2) starting up and closing down procedures;
- 3) the process for dealing with cremated remains.

As in the case of the FBCA, the candidate's training is supervised by a mentor who will usually be the candidate's line manager at the workplace crematorium who is already suitably qualified and experienced.

11.6 As the candidate works through the course instruction notes (study pack) 6 assignments must be completed, including maintaining a log of cremations that the candidate has carried out. When all 6 have been completed, the mentor arranges for a short multiple choice test of 20 questions and a cremation observed by an ICCM assessor at the workplace crematorium. The work book in which the assignments have been completed, the test paper, and the assessor's notes of the observed cremation are then passed to the ICCM National Office to be assessed and verified. The successful candidate is awarded the BTEC certificate.

11.7 The ICCM scheme also provides for the technician to advance to a higher level and obtain an advanced certificate at BTEC level 3. Under the scheme old qualifications can be updated and converted to a BTEC level 3 qualification. The ICCM training scheme is administered from a training centre, the performance of which is audited annually by Edexcel. The Edexcel appointed auditor inspects systems and procedures and examines a random sample of candidates' work and examiners' report forms. Should a lowering of standards or quality be identified, then that can result in Edexcel⁷² accreditation of the training centre being withdrawn.

11.8 The significance of risk management in crematoria has been recognised by the recent introduction of a qualification accredited by City and Guilds to level 3 which is awarded following successful completion of an ICCM training programme entitled "Controlling Risk in Crematoria". This qualification, together with other ICCM

⁷¹ ICCM website:
<http://www.iccm-uk.com/iccm/index.php?pagename=training>

⁷² Edexcel website:
<http://www.edexcel.com/Pages/Home.aspx>

City and Guilds accredited qualifications for cemetery operators, is audited annually by City and Guilds along the same principles as those outlined above for Edexcel.

11.9 All ICCM staff are qualified trainers and assessors through City and Guilds and undergo technical verification annually. That involves a City and Guilds representative observing ICCM staff undertake an assessment at a live course. Once again, should any lowering of standards or quality be identified, the assessor's qualification is withdrawn pending further training and subsequent verification.

11.10 While both the Institute and the Federation have invested considerable effort and resources in the development of training and testing schemes for trainee technicians, little guidance is provided on baby and infant cremation. The FBCA training and testing notes give minimal guidance on the procedures and techniques for baby cremations, mentioning only the use of trays and the practice of overnight cremation⁷³ while the ICCM training notes do not mention the subject at all.

11.11 With that in mind a set of course notes specifically relating to baby and infant cremations has been drafted to be added to course material, additional paragraphs have been prepared for inclusion in the Assessor Guidance Note used by assessors observing the conduct of cremations, and also a new element relating to the conduct of baby and infant cremations has been drafted to supplement the list of competences that the assessor should be looking for in the course of observed cremation. The ICCM intends to review these proposed additions to their scheme in the light of the report of this Commission with a view to introducing a revised training scheme taking specific account of the variations in practice that are appropriate in conducting baby and infant cremations. The FBCA has also indicated that they will review their training and testing scheme in light of this report.

11.12 The Commission note the steps already taken by the ICCM to prepare revisions of its technician training scheme and the intention of both the ICCM and the FBCA to revise their training schemes in light of this Report. The Commission consider that the time is ripe for both the Institute and the Federation to review their respective current technician training programmes with a view to providing adequate guidance on best practice for the recovery of ashes in baby and infant cremations, and so recommend.

11.13 A major problem running through the dealings that Funeral Directors, cremation staff and healthcare staff have with bereaved families is their inability to provide informed advice about the ashes that will be recovered. As an example, the current training scheme for crematorium technicians does not include any guidance that would provide the technician with a better understanding about the nature of the contents of the cremator tray at the end of a cremation. While there will plainly be occasions when it will not be possible to identify bony fragments or other remains of the baby, guidance and training on the physiological results of the cremation process would better equip the technician to provide information, and therefore greater comfort, to families who seek that reassurance. The ICCM has advised the Commission that it recognises that training and educational courses should include, as a fundamental element, training and guidance for their members on helping

⁷³ ie in the FBCA courses set out in Report paragraphs 11.3 and 11.4

bereaved families who want more than simply routine information about the cremation process. The Commission recommend that the ICCM and the FBCA should engage an expert, such as Dr Roberts, to advise on the compilation of a suitable training module for inclusion in their respective crematorium technician training schemes, and should include, in their training programmes, guidance on dealing sensitively and transparently with families in providing them with information.

11.14 It is also important that any published Guidance documents accurately reflect the knowledge and information now available about the recovery of ashes in baby cremations. Dr Roberts suggested that the FBCA should review all Guidance documents to provide clear and fully informed guidance on the prospects of ashes being recovered based on information about skeletal maturity rather than gestational age *per se*. We endorse that suggestion and recommend that the FBCA carry out such a review, taking particular note of the terms of the reports by Dr Roberts at Annex E.

11.15 It is appropriate to mention one particular matter that caused the Commission concern. Under both schemes the technician's training is largely provided and supervised by an experienced operator or technician within that establishment. When the problems of baby and infant cremations first came to light in December 2012, there were significant variations in practice in baby and infant cremations at different crematoria over the country, reflected in the responses to the Commission's crematoria questionnaire. These variations are fewer now than they were at the start of the Commission's work. However some remain. They reflect differences in local practice which exist for reasons which may or may not be justified. That highlights the danger of the perpetuation of unsatisfactory practice within local establishments when training is largely the responsibility of those who follow that local practice. In addition, during the training period the trainee technician may have few opportunities to carry out a baby or infant cremation.

11.16 Against that background the Commission recommend that both the Institute and the Federation should introduce an external monitoring scheme for newly-qualified technicians, whereby they would not be certified competent to conduct baby and infant cremation unsupervised unless they had in the period of two years following certification carried out two under supervision to the satisfaction of an ICCM or FBCA examiner, to ensure that in these most sensitive of cases best practice is being followed by the newly-qualified technician.

11.17 The ICCM also offer members a Diploma in Cemetery and Crematorium Management that is accredited to HNC standard. It consists of eight discrete units of study as follows:

- 1) Cemetery Management
- 2) Crematorium Management
- 3) Cemetery and Crematorium Law
- 4) Managing Financial Resources and Decisions
- 5) Organisations and Behaviour
- 6) Managing Activities to Achieve Results
- 7) Human Resource Management
- 8) Administrative Services

At the initial stage there are three different certificates available depending on the career aspirations of the member, ie (1) certificate in cemetery management, (2) certificate in crematorium management, and (3) certificate in office management. The ICCM recommend that certificate level qualifications should be obtained by all service managers in the industry. Thereafter staff can proceed to obtain the ICCM diploma, usually over a period of 5 years. It is also possible for a member to continue their studies to HND and degree level with other qualification providers. The Unit points accrued from completing the ICCM Diploma count towards qualifications.

11.18 At present no part of the ICCM management training scheme deals with the subject of baby and infant cremation. Some issues relating to baby and infant cremation are inevitably dealt with in the course of studying the units relating to crematorium management and crematorium law. However, the whole circumstances which gave rise to the Mortonhall Investigation and this Commission demonstrate the need in any management training scheme for crematorium staff to address the particularly sensitive subject of baby and infant cremation, which involves cremation staff (i) dealing with personnel they may not routinely deal with in other cremations, such as maternity and gynaecology staff, (ii) meeting and assisting the families who are endeavouring to cope with a loss made all the more distressing because it is all that has come of events from which so much joy was anticipated, and (iii) undertaking technical cremation practices specially tailored to provide a gentler cremation. The Commission therefore recommend that the ICCM should revise their management training scheme to include an element dealing with baby and infant cremation which would be an essential part of study for the certificate in crematorium management.

11.19 It is not uncommon for persons with direct management responsibility for the operation of a crematorium to have no qualification in crematorium management. To ensure that full effect is given to the foregoing recommendation, the Commission also recommend that those with that direct management responsibility should hold either a qualification in crematorium management or the FBCA certificate of proficiency in cremator operation or the ICCM intermediate certificate for crematorium technical operations.

11.20 The ICCM also has a continuing professional development (CPD) scheme for members to enable them to keep up to date on new developments in the industry. Since one of the lessons of this review is that the state of knowledge improves with the passage of time, the Commission consider the provision of a training programme for continuing professional development of staff to be necessary to ensure that their work is always carried out in accordance with current best practice. The Commission therefore recommend that the FBCA should devise and introduce a CPD training programme. This Report and the MIR demonstrate that there is already much knowledge and guidance on good practice available to be disseminated

Training of Funeral Directors

11.21 Funeral Directors largely rely on Cremation Authorities and their staff for their understanding of the various aspects of cremation practice and in particular the likelihood of recovery of ashes. Training of Funeral Directors does not address these

issues. As a result the funeral director has often been the one who conveyed misleading information about ashes to parents. The professional organisation for individual Funeral Directors is the British Institute of Funeral Directors (BIFD)⁷⁴. To obtain full membership requires the applicant to have obtained the Diploma in Funeral Directing (DipFD). That is a qualification awarded by the National Association of Funeral Directors (NAFD), the trade body of which the majority of funeral director businesses are members. For the past 30 years the DipFD course was taught by BIFD tutors but the candidates were tested by examiners from the NAFD which was responsible for awarding the diploma. There has recently been a review of this arrangement and both bodies are in the process of establishing their own individual training programmes, examinations and qualifications, in each case in association with a university.

11.22 There are other training facilities. The National Society of Allied and Independent Funeral Directors (SAIF) provides vocational training through the medium of the Independent Funeral Directors College. In addition one of the largest funeral director businesses, Co-operative Funeral Care, provides National Vocational Qualification (NVQ) training at the Co-operative College.

11.23 Funeral director training addresses subjects such as dealing with the bereaved, handling the necessary paperwork, and arranging a funeral, as well as technical details about the construction of coffins and what may or may not be placed in a coffin. The action taken in relation to the ashes actually recovered is also dealt with, including interring, scattering and retention. However, funeral director training does not address the process of cremation and its impact on the body.

11.24 So far as the likelihood of recovery of ashes is concerned, Funeral Directors rely on and take their lead from the ICCM and the FBCA and quote their advice and the information they have obtained from the local crematorium when discussing with bereaved families the options for laying their babies to rest. The Commission understand that, in the absence of information to the contrary, a funeral director would normally advise that ashes may not be recovered following the cremation of a baby and would mention the alternative of burial. Among the submissions received by the Commission are cases where Funeral Directors made more definite statements to the effect that ashes are not recovered in baby cremations, including some where it has now come to light that there were ashes, as occurred in the Mortonhall cases.

11.25 As in the case of those involved in cremation, a lack of consistency in the use of language by Funeral Directors reflects not only uncertainty, but also differences of opinion, about what the applicant for cremation ought to receive at the end of the cremation. Yet again the need for clarification of Regulation 17 of the 1935 Regulations, as dealt with earlier in this Report, is demonstrated.

11.26 The importance of the part played by Funeral Directors in ensuring that bereaved clients experiencing the most distressing of bereavements understand clearly the options available to them and the implications of cremation cannot be

⁷⁴ British Institute of Funeral Directors:
<http://www.bifd.org.uk/>

overstated. It is, therefore, vital that their professional associations, trade organisations, and those involved in the funeral directing business in general, particularly those running large undertaking businesses, should pay close attention to the terms of both reports, the expert evidence referred to therein and any changes in practice and guidance that may be determined by the ICCM and FBCA following the work of this Commission and the Mortonhall Investigation. Those bodies which provide training programmes should review them in the light of any legislative changes affecting the cremation of non-viable babies and stillborn babies, as well as the various changes to the forms in use and the registration process. They should also, as part of that review, devise a training module designed to give Funeral Directors an understanding of the cremation process, its effect on the body, and prospects of the recovery of ashes in baby and infant cremations.

Ensuring Best Practice in the Funeral and Cremation Industry

11.27 As Dame Elish pointed out in the MIR at page 539, it is one thing to recommend action, but quite another to ensure that the recommendation is implemented. Ideally the implementation of recommendations for changes in practice should be overseen by the governing body of the trade or profession affected. In the case of the cremation industry, all but one Cremation Authority in Scotland are members of either the ICCM, or the FBCA, or both, each of which works to a professional charter or code. Both organisations require technicians to be trained. It is gratifying to note that both are committed to ensuring implementation of the recommendations of the Commission. The position is somewhat different in the case of Funeral Directors. About 80% of funeral director businesses are members of the NAFD, about 10% of the National Society of Associated Independent Funeral Directors (SAIF)⁷⁵, both of which have codes of practice. However, about 10% are affiliated to no trade or professional organisation. While the organisations referred to have codes of practice, there are no requirements or enforceable conditions that apply to all Cremation Authorities or Funeral Directors in relation to the arranging or conducting of a funeral involving cremation. While there is no reason to anticipate resistance to implementation of the Commission's recommendations, there is equally no mechanism for overseeing their implementation.

11.28 Against that background it is the view of the Commission that it is appropriate for the Scottish Government to consider establishing a National Committee to oversee implementation of the Commission's recommendations, including those applicable to Funeral Directors and Cremation Authorities and their representative bodies. Such a National Committee could be charged with overseeing the implementation of all the recommendations of this Report, as well as being endowed with wider powers. The Commission will address the terms of the remit of such a Committee later in Section 13 of this Report, after identifying all the areas about which the Commission have specific recommendations.

⁷⁵ National Society of Associated Independent Funeral Directors:
<http://www.saif.org.uk/>

Training of Healthcare Staff

11.29 In the submissions received, and in the course of the Commission's investigations, training of healthcare staff was referred to in relation to a number of different areas, including ensuring an understanding of the pain and despair of pregnancy loss and infant death, recognising and managing the confused expectations of parents and family, and communicating accurately, sensitively, clearly and consistently with them in guiding them through the process of laying their baby to rest at the same time as they struggle to cope with the associated grief. The Commission see applying these qualities in the communication of information and guidance as a vital element in avoiding the failings and misunderstandings of the past.

11.30 That can only be achieved if those responsible for communicating information, guidance and advice are themselves fully conversant with all aspects of what is involved from the hospital to the crematorium. The acquisition of that understanding and the development of good communication skills to convey that understanding are vital elements in the professional development of all who deal with families affected by baby and infant death. While the MIR deals exclusively with the role of healthcare staff at NHS hospitals and the investigations made by the Commission have been largely confined to NHS Health Board and hospital practices, the recommendations of the Commission apply equally to any other healthcare provider in Scotland to which the work of the Commission is relevant.

11.31 It is clear from the MIR that there was considerable misunderstanding among hospital staff about what could be done at the various crematoria in Edinburgh and even about the cost of privately arranged baby cremations. On the other hand, it was encouraging to note the finding in the MIR that there has undoubtedly been a huge improvement in how the experience of pregnancy loss, stillbirth and neonatal death is managed in hospital. At the same time, in the passage where that progress is reflected, it is also noted that the area of communication is a persistent issue. Much work remains to be done.

11.32 It is widely accepted that some of the most difficult and delicate situations in hospital arise in the context of miscarriage and termination of pregnancy. It is in those situations that the July 2012 Guidance from the CMO and CNO applies. Communications and discussions with Health Boards revealed that some have found it much easier than others to adapt to that Guidance⁷⁶. Systems previously followed in maternity, gynaecology, and mortuary departments have had to be revised. The implementation of the Guidance has been effected in different ways in different boards. NHS Orkney, with no local crematorium of its own, has reached agreements with the Burial Authority and a mainland Cremation Authority; NHS Grampian used the new Guidance to additionally facilitate the updating of all its existing documentation and procedures; NHS Tayside (amongst others) used the Guidance to enhance a pre-existing level of service that already met or exceeded the minimum standards.

⁷⁶ See also the analysis of implementation at Annex L

11.33 One area in which the experiences of different Boards have varied significantly has been in dealing with parental consent for disposal from a mother who does not wish to discuss the matter or have any regard to the Guidance leaflet offered. Each Health Board has had to make its own arrangements for ensuring that staff are properly instructed in any new procedures introduced. In some Health Boards staff have found difficulty in discussing the disposal options available with mothers who are resistant to engagement in that discussion. One of the larger boards which appears to have succeeded in applying the Guidance in its entirety fairly quickly, including ensuring that the options available for disposal are clearly explained and the appropriate paperwork completed, is NHS Ayrshire and Arran. They may have been assisted by the involvement of Consultant Obstetrician, Dr Marjory MacLean, in the 2010-11 working group which devised the Guidance. The Commission consider that the circumstances surrounding the introduction of that Guidance provide good illustration of the sort of situation where one hospital or Health Board can learn and benefit from the experience of another or others.

11.34 The Commission recognise that it is impossible to prescribe a procedure that will inevitably apply to all communications with a mother at, during and after she undergoes a distressing hospital procedure. Every individual case is likely to present its own particular challenge. The guidance given to staff should recognise that parents should be given the time and space necessary for them to make the right decision about laying their baby to rest. They should not be expected to make such an important decision at a time of physical pain, grief, exhaustion and sedation, combined with emotional turmoil and distress. There are also findings that, in spite of the fact that guidance made provision for decisions to be made days and up to 4 weeks after discharge from hospital, staff failed to follow that guidance⁷⁷. Two points to be particularly borne in mind in the drafting of hospital Guidance are these: (1) the parent should always be clearly advised of the availability of the option of burial; and (2) not every parent will be up to dealing with the issues of cremation, the recovery of ashes and their disposal while still in hospital. Arrangements should be in place at each hospital for ongoing contact with parents where necessary.

11.35 The Commission consider that there should be formal training for healthcare staff, including chaplains, whose duties involve liaising with patients in the context of advising them about, and guiding them through, the possible arrangements that may be made to deal with their pregnancy loss. Each Health Board, as part of continuously improving the quality of the service, should identify staff who will have responsibility for communicating with families about arrangements for disposal and liaising with Funeral Directors and crematoria, and arrange for their education and training as part of their continuing professional development, including in communication skills and understanding the roles and responsibilities of colleagues. The Scottish Government should facilitate the development of appropriate modules to be completed by relevant staff, to include current evidence as to the prospects of recovering ashes in baby and infant cremations such as that contained in the reports of Drs Roberts and Chamberlain and how to communicate information.

⁷⁷ MIR, Section 3, p105

Sharing Information, Experience and Knowledge

11.36 A proper understanding of the local situation is of primary importance. Of course it has to be recognised that that would be of little value in a situation where the practice followed was inappropriate, as in Mortonhall. However, in the current climate of increasing awareness of what can be achieved, what is appropriate and where parents have been failed in the past, a full and relevant understanding of the whole position locally from hospital to crematorium should provide positive benefits. That is why the Commission encourage the formation of multi-disciplinary working groups to exchange information, knowledge, understanding, practice and experience for the benefit of all involved. An example of multi-disciplinary meetings can be found in Ayrshire and Arran where as many as 40 people may participate. In a submission made to the Commission the group was described as including “all involved in the journey, including local authority personnel, mortuary technicians, midwives, doctors etc”. The reference to “local authority” includes the authority as Cremation Authority. These groups or meetings should involve not only those representing and working at local crematoria, but also Funeral Directors who are not usually involved as often. In Ayrshire and Arran the introduction of these meetings has been seen as a positive development. The Commission would encourage the introduction of similar arrangements in other areas, with the local Health Board supporting relevant staff in taking the initiative with a view to understanding, developing and refining local practice and producing information leaflets relevant to the local context. This sort of co-operation can also promote greater understanding in simple ways, for example by hospital staff visiting the crematorium to observe the cremation process and meeting the cremation technicians, as suggested in the MIR⁷⁸.

11.37 At the outset of the Commission’s work a quantity of NHS Guidance documents, information leaflets, and forms used in the management of pregnancy loss from 7 different Health Boards in Scotland were made available to the Commission. In October 2013 the Commission requested all 14 of Scotland’s Health Boards to submit copies of all the documentary information and guidance material in use in relation to pregnancy loss and infant death. Examination of the material submitted disclosed significant variations in the way in which important information is conveyed to patients in different Health Board areas but also between different hospitals within the same Health Board. Some documentation had not been updated in light of the July 2012 CMO/CNO Guidance. Some Health Boards rely heavily on pamphlets produced by bereavement support organisations which provide support to mothers and relatives⁷⁹, while others place much less reliance on that material. It was not always clear that full information about the support available on leaving hospital is provided. Since the precise manner and terms in which information is conveyed and the Guidance is provided are for each individual Health Board and other healthcare provider to determine, the Commission also consider that every Health Board and healthcare provider should review all documentary material

⁷⁸ MIR, Section 3, page 93

⁷⁹ The main providers of pamphlets are SANDS UK and the Miscarriage Association, but it should be noted that there are many other charities and organisations working in this field. Some of these, but by no means all, are SIMBA (Simpson’s Memory Box Appeal), Child Bereavement UK, The Scottish Cot Death Trust, Cruse Bereavement Care, Bliss, Sands Lothians, Forget-Me-Not Care and Counselling, TAMBA (Twins and Multiple Births Association) and Tommy’s.

currently used to convey information and guidance relating to baby and infant loss in light of the terms of this report and the MIR to ensure that all relevant information and guidance is accurate and is communicated clearly and consistently, including in particular information about the prospects of recovering ashes and a reminder of the availability of the option of burial.

11.38 It is likely that some will have been more successful than others in developing clear and consistent documentation. As in the case of the implementation of the July 2012 Guidance, the Commission consider that the way towards ensuring that best practice is identified and applied as widely as possible is for boards to share their practices and experience. One board in its submission to the Commission suggested that leaflets and information books should be produced nationally and the costs shared proportionately among boards. Since consistency in the application of best practice in the country is important the Commission also consider that the Scottish Government should establish a working group comprising a representative from each Health Board and chaired by a Scottish Government official, to review all Guidance documents and information leaflets in use across all Health Boards and other healthcare providers, including those compiled by or in conjunction with bodies such as SANDS UK and the Miscarriage Association, relating to the management of pregnancy loss, infant bereavement and arranging disposal. That should ensure consistency in this guidance and information, and reduce the proliferation of different documents in use.

11.39 In the many medical, scientific, engineering and technical aspects that are a feature of pregnancy loss and infant death, there is constantly potential for development and change. It is incumbent upon those involved in this area of work to ensure that they are aware of developments in equipment, material and practice to ensure that the loss of babies and those enduring the consequential trauma are sensitively dealt with in accordance with the best available practice and given clear and consistent guidance to enable properly informed decisions to be made.

SECTION 12

Memorials

12.1 Throughout the period of activity, the Commission were acutely aware of the pain suffered by those either left in a state of uncertainty, or who had been misled regarding the fate of their child's ashes. Not only were their hopes and expectation for the future with their babies dashed by their loss, but their distress and despair were also compounded by the mishandling of their remains.

12.2 Their experiences, relayed in the form of written submissions or in conversations with Lord Bonomy, highlighted that for some a further cause of distress was the lack of a place, with more peaceful and positive associations, to which they could go to remember their child.

12.3 This was discussed at more than one Commission meeting, with members eventually accepting that the very personal nature of this meant that it would be difficult to prescribe any particular type of memorial or stipulate where it should be located. There are also constraints as to where permanent memorials can be located, often with associated costs and permission requirements, that were beyond the scope of the Commission's work.

12.4 Regardless of this, the Commission were keen to explore what was already available in Scotland and, from this, what further options could be discussed or recommended.

12.5 Of the 27 crematoria in Scotland, 15 confirmed to the Commission that they already had an area within or alongside their statutory Gardens of Remembrance, dedicated specifically to the memory of babies and infants. Another 2 crematoria advised that they would have such an area from 2015. This is commendable, but given the events leading up to these enquiries, it is likely that dedicated areas within, or associated with, particular crematoria would not always be appropriate, from the perspective of the families affected by these events.

12.6 The Commission therefore requested broader information on memorial services, and markers dedicated to children, which already existed in Scotland. The information obtained is available at Annex R. This encompasses annual and other memorial services, books of remembrance, sculptures, plaques and other such permanent markers, as well as the previously mentioned areas set aside by the crematoria.

12.7 On reviewing and discussing this information, the Commission agreed that, whilst additional local memorials may be appropriate, it would be for the relevant local authorities / councils to consider this in partnership with other interested parties, including parents who may wish to be involved. It is therefore the Commission's recommendation that, where affected parents wish, local authorities should facilitate discussion of plans for local memorials.

12.8 Additionally, the Commission agreed that consideration should be given to a simple, tasteful, national memorial dedicated to the memory of the babies whose

ashes were mishandled or mismanaged, which would serve as a place of remembrance for the families affected. The Commission recommend that the Scottish Government forms a short life working group, to include representatives of affected parents and bereavement support groups, to consider the possible type and location of a discrete national memorial.

12.9 The Commission also noted that the national group Good Life, Good Death, Good Grief, which campaigns for a more open attitude to matters relating to death and dying in Scotland, was promoting a time of remembering across Scotland when individuals, families and groups were being encouraged to remember their loved ones who have died. The Commission consider that it might be appropriate for the Scottish Government to include within that commemoration an element recognising the loss of those babies who have been the subject of the Commission's work.

SECTION 13 – IMPLEMENTING THE RECOMMENDATIONS

13.1 The encouragement of communication among, and co-ordination of the work of, the various bodies with a role in infant cremation is one of the themes of this Report. Achieving clarity and consistency in communicating with families is another. It is a striking feature of cremation that so much activity is duplicated because there are two major and very active bodies which represent Cremation Authorities and staff, and that the information and Guidance they publish is not entirely consistent. Obviously the members of both bodies have the right to form and belong to whatever association they choose. However there is clearly scope for greater co-operation between the ICCM and the FBCA. The Commission have recommended that they co-operate in certain specific areas. Perhaps that may lead to more co-operation in others.

13.2 The Commission have identified a number of areas where practices and policies in relation to baby and infant cremation can differ from crematorium to crematorium. Similar variations can be found in practices and policies at NHS Health Boards and among Funeral Directors. The Commission have made a number of recommendations to achieve consistency in policy and practice with the aim of achieving high standards across all aspects of baby cremation and ensuring that the interests of the bereaved are central to this work. These recommendations include the creation of a number of working groups of varying but overlapping composition. Since the improvements that are necessary will only be realised if the Commission's recommendations are delivered, it is important that there should be a focused mechanism for implementation and ongoing oversight.

13.3 It is also important to take steps now to provide a mechanism for identifying relevant medical, scientific, engineering and technical developments, with a view to ensuring that the best available practices continue to be followed throughout the country.

13.4 For these purposes, the Commission recommend that the Scottish Government should establish a National Committee with responsibility for baby and infant cremations. In keeping with the Commission's view that the central focus of attention of work in this field must be the baby and the family, that National Committee should include representation of parents, including those who have campaigned so effectively to discover the facts and ensure that in future babies and families are treated with dignity, respect and sensitivity.

13.5 The National Committee should be chaired by a senior Scottish Government official. In addition to parents its membership should be drawn from authorities, organisations, professions and other bodies with a role in baby and infant cremation and providing bereavement support.

13.6 The National Committee should have power to establish working groups of its membership, with co-opted members where appropriate, to consider specific recommendations from this report. For example recommendations relating to technical matters and cremation technology could be dealt with by a 'technical working group' reporting back to the full Committee. Other recommendations which could be dealt with in a similar way include, for example, a 'guidance and policy

working group' which would deal with those matters relating to the review and creation of publications such as guidance and policy statements with a view to ensuring accuracy, consistency and clarity. Those bodies specifically assigned actions within this Report should not feel constrained from undertaking such actions in the interim period before the National Committee is formed, as they and their early work can contribute not only to the early implementation of the recommendations of this Report but also to the development and work of the National Committee.

13.7 The National Committee should report to Scottish Ministers annually on progress against the recommendations made by this Commission. That annual report should be published on the Scottish Government website.

13.8 The National Committee should, as a priority, develop a national Code of Practice for baby and infant cremation. Such a Code, which should be informed by the recommendations of this Commission, should set down the minimum requirements for organisations to adhere to when supporting bereaved parents and families through the baby and infant cremation process, and seek to identify best practice to be followed by all bodies involved in baby and infant cremation. The Code of Practice should include general principles and guidance as well as specific technical and operational guidance for Cremation Authorities, NHS Health Boards and Funeral Directors, with a view to achieving consistently high standards of practice among all with a role in baby and infant cremation.

13.9 The Code of Practice should be a live document that is not only responsive to developments, but also instrumental in promoting improvements, in practice, technology, policy and legislation. The National Committee should therefore continue to monitor developments in all aspects of activity related to baby and infant cremation and review the Code annually to ensure that it reflects contemporary standards and best practice.

13.10 The Commission noted at Section 6.8 the provision of Regulation 2 of the 1935 Regulations for the appointment of an Inspector⁸⁰. That power is seldom used in practice and only on an ad hoc basis. Alongside the National Committee's role in developing and enhancing best working practices and standards in the field of baby and infant cremations, as set out above, it is the Commission's view that it would also be appropriate to create the permanent post of an independent Inspector who would separately monitor these same working practices and standards at crematoria, providing feedback to Cremation Authorities on how they are performing and reporting on this to Scottish Ministers.

13.11 A similar Inspector model exists in the role of the Inspector of Anatomy for Scotland, as set out in the Anatomy Act 1984, and as revised by the Human Tissue (Scotland) Act 2006. The independent Inspector should have authority to investigate complaints from the public about working practices and standards at crematoria, to adjudicate upon these complaints and report findings to the Scottish Ministers. The role of the Inspector should be extended to the funeral industry in respect of which there is no current provision for inspection. In view of the breadth of responsibility

⁸⁰ The Cremation (Scotland) Regulations 1935, Regulation 2:

'2. Every crematorium shall be open to inspection at any reasonable time by the person appointed for that purpose by the Secretary of State or by the Department.'

envisaged, further legislation would be required, but in the interim an appointment could be made in terms of Regulation 2 noted above, at least in as far as crematoria are concerned. That is the Commission's recommendation.

13.12 The Commission consider that such aligned oversight by both the National Committee and the Inspector would have an important part to play in maintaining public confidence in the working practices of Cremation Authorities and Funeral Directors across the country, including in particular securing the recovery of ashes in baby and infant cremations.

13.13 Some parents and members of the public have expressed concerns about the lack of general regulation of both crematoria and Funeral Directors. However the Commission considered that its remit, being confined to the particular issue of baby and infant cremations, did not extend to recommending general regulation of these industries. They have therefore confined their recommendations to the creation of this scheme for continuous monitoring of the working practices and standards of crematoria and Funeral Directors in respect of baby and infant cremations. However, the Commission recommend that Scottish Ministers should keep the cremation and funeral industries under review and should consider, in light of the reports of the National Committee and the independent Inspector, whether further regulation of either is required.

13.14 The Commission have endeavoured to identify improvements to a wide range of practices associated with cremation of babies and infants, with the aim of providing a sensitive and reliable system that will meet the particular needs of all, and restore public confidence in the arrangements for baby and infant cremation in Scotland. However, the Commission recognise that the system is only part of the solution. Much also depends on the qualities of the personnel engaged in its various branches. The system will only achieve that objective if those who work in it display the will to make a success of it.

INFANT CREMATION COMMISSION REPORT ANNEX A

List of Crematoria In Scotland 27 Scottish Crematoria by Local Authority Area

Local Authority	Local Authority Crematorium Name and Town	Private Crematorium Name, Town and Company
Aberdeen City	Hazlehead Crematorium, Hazlehead	
Aberdeenshire		
Angus		Parkgrove Crematorium, Friockheim, Parkgrove Crematorium Ltd
Argyll and Bute	Cardross Crematorium, Cardross	
Clackmannanshire		
Borders		Borders Crematorium, Melrose, Westerleigh Group
Dumfries and Galloway		Roucan Loch Crematorium, Dumfries, Roucan Loch Crematorium Company
Dundee		Dundee Crematorium, Dundee, Dignity Crematoria
East Ayrshire		
East Dunbartonshire		
East Lothian		
East Renfrewshire		
Edinburgh	Mortonhall Crematorium, Edinburgh	
Edinburgh		Seafield Crematorium, Edinburgh , Edinburgh Crematoria Ltd
Edinburgh		Warriston Crematorium, Edinburgh , Edinburgh Crematoria Ltd
Falkirk	Falkirk Crematorium (located within Camelon Cemetery), Camelon	
Fife	Dunfermline Crematorium, Dunfermline	
Fife	Kirkcaldy Crematorium, Kirkcaldy	
Glasgow		Craigton Crematorium, Glasgow, Glenhaven Funeral Services Ltd
Glasgow	Daldowie Crematorium, Uddingston	
Glasgow	The Linn Crematorium, Glasgow	
Glasgow		Maryhill Crematorium, Maryhill, Scottish Cremation Society Ltd
Highland	Inverness Crematorium, Inverness	
Inverclyde	Greenock Crematorium, Greenock	
Midlothian		

INFANT CREMATION COMMISSION REPORT ANNEX A

Moray		Moray Crematorium, Dignity Crematoria
North Ayrshire		Holmsford Bridge Crematorium, Irvine, Dignity Crematoria
North Lanarkshire	Holytown Crematorium, Motherwell	Holytown Crematorium, Motherwell, Dignity Crematoria
Orkney		
Perth and Kinross	Perth Crematorium, Perth	
Renfrewshire		Paisley Crematorium (Woodside Cemetery), Paisley, Paisley Cemetery Company Ltd
Shetland		
South Ayrshire	Masonhill Crematorium, Ayr	
South Lanarkshire	South Lanarkshire Crematorium, Blantyre	
Stirling		
West Dunbartonshire	Clydebank Crematorium, Clydebank	
West Lothian		West Lothian Crematorium, Livingston, Westerleigh Group
Western Isles		

Summary

- 21 Local Authorities have at least one crematoria
- 10 have Local Authority owned crematoria only
- 8 have privately owned crematoria only
- 2 have both private and Local Authority owned
- 1 (Holtown in North Lanarkshire) is jointly operated by the council and private company Dignity.
- 11 have no crematoria in their area

INFANT CREMATION COMMISSION REPORT ANNEX B

INFANT CREMATION COMMISSION – FULL LIST OF MEMBERS

Chair: Rt. Hon Lord Bonomy

Secretariat: Alison Kerr
Sarah Dillon
Norman Dowie (Investigative Role)

Membership

Name	Role/Organisation
John Birrell	NHS Bereavement Coordinators and Scottish Grief and Bereavement Hub
James Blackburn	Head of Funerals at Scotmid Co-operative Funeral Directors. Representative for the National Association of Funeral Directors (NAFD)
Gareth Brown (Observer)	Head of Blood, Organ Donation and Sexual Health, Scottish Government
Ian Kearns	Team Leader, Burial Grounds/Registrars, Inverclyde Council.
Helena MacLaren	Miscarriage Association
Ann McMurray	SANDS UK
Dr Mini Mishra (Observer)	Senior Medical Officer, Scottish Government
Tim Morris	Chief Executive of Institute of Cemetery and Crematoria Management (ICCM)
Gillian Morton	Head of Midwifery, NHS Forth Valley
Rick Powell	Secretary & Executive Officer of Federation of Burial and Cremation Authorities. (FBCA)
Garrick Smyth	COSLA
Gavin Stevenson	Chief Executive, Dumfries and Galloway Council

INFANT CREMATION COMMISSION

Local Investigations: Guidance and Expectations

Introduction

1. The Infant Cremation Commission has been established by the Scottish Government to review the current policies, guidance and practice in Scotland in relation to the handling of all recoverable remains (ashes) following the cremation of babies and infants, and to make recommendations for improvement.

2. The Commission has no responsibility for the investigation of specific incidents or allegations, but Ministers have asked the Commission to provide guidance to cremation authorities on how such investigations should be conducted. Specifically, the Commission's remit includes:

- To give guidance on the conduct of any investigations of historical practice undertaken by Local Authority or independent crematoria operators

3. The Commission recognises that it is not for it to determine whether any investigation should be conducted, but simply to provide guidance in the event that any investigation is established.

4. This document sets down the key principles which the Commission believes should guide any local investigation undertaken by cremation authorities. In producing this Guidance the Commission has taken account of the approach taken by the City of Edinburgh Council in commissioning the Mortonhall Investigation, led by Dame Elish Angiolini.

5. Under the terms of the Cremation (Scotland) Regulations 1935, 'cremation authorities' (the owners of crematoria) are responsible for the handling of ashes following cremation.

Key Principles

6. Where a cremation authority has decided to conduct an investigation of historical practice, that authority should ensure that the investigation adheres to the following key principles:

- **Independent and objective:** Investigations should be objective and independent of that cremation authority. The authority should seek to appoint an individual to lead any investigation who is not directly employed by that cremation authority and who can be a credible chair for any such investigation. In considering specific incidents or allegations local investigations may also wish to undertake, or separately commission, a full audit of documentary records held by any individual crematorium or cremation authority. Such audits should be conducted by appropriately qualified individuals and the findings of such audits should be shared with the affected individuals and should be detailed in the investigation report.
- **Respectful and Sensitive:** Investigations should at all times be respectful and sensitive to bereaved families and other affected individuals.

- **Clarity of purpose:** Investigations should have a clearly defined remit that is made publicly available for interested parties.
- **Timely:** Investigations should seek to proceed without undue delay to ensure that those affected can be assured that progress is being made and that outcomes will be available in good time. If appropriate the remit for investigations should include timescales for reporting.
- **Inclusive and comprehensive:** Investigations should seek to take account of all relevant evidence, including documentary evidence on local practice and policies, the experience of affected parents and the experience and perspective of staff involved. All organisations and individuals providing evidence to the investigation should have sufficient time to do so, and should receive clear and helpful instructions on how to contribute
- **Transparent:** Investigations should seek to communicate regularly with all affected or bereaved parents to ensure there is transparency about the work of the investigation and its progress
- **Primacy of criminal justice investigations:** Investigations should engage with Police Scotland in circumstances where there is any suggestion of criminal activity. Where any aspect of a local investigation is also the subject of inquiry by Police Scotland or consideration by the Procurator Fiscal, those conducting the local investigation should consider, following consultation with Police Scotland and/or the PF where appropriate, whether to suspend the local investigation until that work is complete or a decision is taken that there is no case to answer or no prosecution will be pursued.
- **Reporting:** Investigation reports should be shared with the commissioning cremation authority, but should also be published and made available to all interested parties.

7. The Commission expects that **all relevant organisations**, including cremation authorities and their staff; NHS Boards and their staff; Funeral Directors and their staff; and members of the public, will engage with local investigations constructively and positively.

INFANT CREMATION COMMISSION REPORT ANNEX D

JOINT OPINION of COUNSEL for the INFANT CREMATION COMMISSION and THE MORTONHALL INVESTIGATION

in relation to

THE INTERPRETATION OF REGULATION 17 OF THE CREMATION (SCOTLAND) REGULATIONS 1935

INTRODUCTION

1. We have been asked to provide an Opinion on the meaning of “ashes” in Regulation 17 of the Cremation (Scotland) Regulations 1935 in the case of the cremation of babies and infants. We have been asked to consider the application of Regulation 17 in relation to three distinct situations:
 - (a) A child born alive who dies early in life (“neonatal infant”).
 - (b) A still-born child (defined in section 56 of the Registration of Births, Deaths and Marriages (Scotland) Act 1965 as “a child which has issued forth from its mother after the twenty-fourth week of pregnancy and which did not at any time after being completely expelled from its mother breathe or show any other signs of life”).
 - (c) A non-viable foetus aborted or miscarried at less than 24 weeks gestation.
2. We have been asked to provide this Opinion against the background that there is controversy about whether, at the end of the process of cremation of non-viable foetuses, still-born children and very young infants, what is recovered from the cremator contains any of the remains of the baby. We note that the Commission has encountered at least three possible scenarios following such a cremation:
 - (a) There is nothing left at all.
 - (b) It is possible to identify skeletal remains.
 - (c) Although a substance remains following the cremation, it is impossible to say for sure whether what is left in the cremator contains any tangible element of the baby. The substance could include elements

INFANT CREMATION COMMISSION REPORT ANNEX D

of the cremated body, ash from the coffin and ash from items such as soft toys which were cremated with the baby, or a combination of these.

NEONATAL INFANTS

3. Cremation of neonatal infants in Scotland is governed by the 1935 Regulations. Regulation 17, so far as material for present purposes, provides:

“After the cremation of the remains of a deceased person the ashes shall be given into the charge of the person who applied for the cremation if he so desires...”

The term “ashes” is also used in the section of the Cremation Act 1902 under which the 1935 Regulations were made (section 7). This provides that “The Secretary of State shall make regulations ... directing the disposition or interment of the ashes...”. Section 13 of the 1902 Act also mentions ashes stating that certain provisions in the Cemeteries Clauses Act 1847 “shall apply to the disposition or interment of the ashes of a cremated body, as if it were the burial of a body.”

4. The term “ashes” is not defined in the Act or the Regulations; nor have we been able to find any case in which the definition of the term in these Regulations has been considered. In our view there are two possible interpretations. The first (“the narrow interpretation”) is that it concerns the remains of the body itself and does not extend to the remains of any associated item such as the coffin or any item cremated with the body. The second (“the broad interpretation”) is that it encompasses all that is raked from the cremator following the cremation of human remains (other than items which could not, on any view, be regarded as “ashes” such as the remains of the coffin’s metal fixtures) regardless of whether that substance is comprised of the remains of the body itself. In our view, the broad interpretation should be preferred.
5. The aim of statutory interpretation is to ascertain and give effect to the true meaning of what the legislator has said in the provision to be construed. The modern understanding of this exercise is to give effect to the legislator’s purpose: *R. (on the application of Quintavalle) v Human Fertilisation and Embryology Authority* [2003] 2 AC 687 per Lord Bingham of Cornhill and Lord Steyn. The statutory purpose and the general scheme by which it is to be put into effect are of central importance: *Bloomsbury International Ltd v Sea Fish Industry Authority* [2011] 1 WLR 1546, para. 10 per Lord Mance JSC. While an appropriate starting point is

INFANT CREMATION COMMISSION REPORT ANNEX D

that language is to be taken to bear its ordinary meaning in the general context of the statute (*R v Secretary of State for the Environment, Transport and the Regions, ex parte Spath Holme Ltd* [2001] 2 AC 349 per Lord Nicholls of Birkenhead), the words used fall to be read in the context of the statutory scheme and its overall purpose: *Bloomsbury International Ltd, loc. Cit.* Generally speaking, a practical and workable construction, which avoids absurdity is to be preferred: cp *Shannon Realties Ltd v Ville de St Michel* [1924] AC 185 per Lord Shaw; *Hatzl v XL Insurance Co Ltd* [2009] EWCA Civ 223.

6. The general purpose of the Regulations is to provide a practical scheme for the regulation of crematoria. The particular purpose of Regulation 17, in that context, is to direct the disposition or interment of the “ashes” which follow “the burning of any human remains”: Cremation Act 1902, section 7. Specifically, Regulation 17 directs that “[a]fter the cremation of the remains of a deceased person” the ashes shall be disposed of in one of the ways described in the Regulation. The legislator may be taken to have understood that, in our culture, human remains may well be cremated in a container – typically a coffin. The legislator may accordingly be taken to have understood that what remains after cremation may include residue both of the human body and of the container in which it was cremated. We imagine that it would be impossible both as a matter of practicality - and, perhaps indeed in theory - to separate out those parts of the residue which are derived from the body of the deceased and those which derive from the container. An interpretation which, even as a matter of principle, implied that a distinction fell to be drawn between these two substances would, it seems to us, be divorced from reality. If that is correct, then it equally, in our view, must be correct that the residue which remains after the cremation of the human remains in question should be characterised as “ashes” for the purposes of Regulation 17 even if, in the particular circumstances, it is possible that no part of the residue has been, as a matter of fact, derived from the body. The practical point is that the Cremation Authority could not know whether or not that was, in fact, the case. Against that background, it seems to us that the word “ashes”, as it is used in Regulation 17, should be interpreted as referring to the residue (other than things, such as metal coffin fixtures, which on no sensible view would fall to be regarded as “ashes”) left after the cremation of the remains a deceased person without seeking to distinguish between residue which derives from the remains of the deceased and residue which derives from the container or other things cremated with the body.
7. We recognise that the relevant dictionary definition of “ashes” is “that which remains of a human body after cremation...” (Oxford English Dictionary, second edition). This definition might be taken to support the narrow interpretation. We also acknowledge that section 13 of the 1902

INFANT CREMATION COMMISSION REPORT ANNEX D

Act speaks of the “ashes of a cremated body”, a phrase which might be taken to imply that the “ashes” are what remains of a “cremated body”. But it goes without saying that the “ashes” to which Regulation 17 refers are residue left after the cremation of human remains. Unless a deceased person has been cremated there will be no “ashes” for the purposes of Regulation 17. It does not, in our view, follow – in a case where the deceased person’s body has been cremated in a container such as a coffin – that the term “ashes” should not or could not be construed to cover, compendiously, such residue as is left after that cremation, or, likewise, that the term “ashes of the deceased”, which is used in Regulation 18, does not cover the ashes which remain after the cremation of the deceased. We recognise also that breach of Regulation 17 would constitute a criminal offence (Cremation Act 1902, section 8), and that this consideration might be taken to support a narrow construction of the Regulation: see Craies on Legislation, tenth edition at para 19.1.14. But in our view, the over-riding point in the context of this case is that the narrow construction would be practically unworkable. Indeed, it might deprive the criminal sanction of any practical effect if it were to be necessary for the prosecutor to prove that the residue left after the cremation of a human body in a coffin included residue from the body and not (or not only) residue from the coffin – and that would, itself, be a consideration in favour of the interpretation which we have preferred.

STILL-BORN CHILDREN

8. Regulation 16 of the 1935 Regulations makes specific provision for the cremation of the remains of a still-born child. There is, in our view, serious doubt as to whether or not Regulation 17 applies to ashes which may be left after the cremation of the remains of a still-born child. The question is whether or not a “still-born child” is a “deceased person” for the purposes of Regulation 17; and the answer to this question is far from clear. It seems to us, on balance, that a “still-born child” does fall to be regarded as a “deceased person” for the purposes of Regulation 17. It would, though, be highly desirable that the Regulations should be amended to clarify this eminently debatable point.

9. At common law a still-born child is not a person: Bankton i.2.8. For this reason, such a child which has shown no sign of life after being expelled from its mother would not ordinarily fall, in law, to be regarded as having “deceased” (although it will be obvious that morally and theologically a different view might be held). Consistently with this analysis, the system of registration of births, still-births, deaths and marriages in Scotland makes specific provision for the registration of still-births (Registration of Births, Deaths and Marriages (Scotland) Act 1965, section 21): these are not registered as deaths.

INFANT CREMATION COMMISSION REPORT ANNEX D

10. Against that background, the 1935 Regulations could be regarded as containing separate provisions in respect of the cremation of the remains of “deceased persons” and (in Regulation 16) for the cremation of a “still-born child”. Regulation 6 cannot apply to a still-born child (because the certificate required is a certificate of death). Many of the other Regulations relate to a “deceased” or to a person who “has died”, terms which would not, on this view, refer to a still-born child. Consistently with this analysis, Regulation 2 of The Cremation (England and Wales) Regulations 2008, SI 2008, No. 2841 (which are made under the 1902 Act and replace Regulations made in 1930) expressly distinguishes between a “deceased person” and a “still-born child” in the definition of “body parts” (and, since these are Regulations made under the same primary statute as the 1935 Regulations, this understanding of the terms could be of some relevance to the interpretation of the latter: see *Bloomsbury International Ltd, loc. cit.*).
11. The key provision which points in the other direction, in our view, is Regulation 18 of the 1935 Regulations. Regulation 18 requires every Cremation Authority to keep a register of all cremations in the specified form. The last column in Form G is headed “How ashes were disposed of”. Regulation 18 requires this column to be completed “as soon as the ashes of the deceased have been handed to the relatives or otherwise disposed of.” It seems to us that Regulation 18 requires the inclusion in the register of “all” cremations – including cremation of the remains of a still-born child. We take this view even though certain of the columns would require adaptation for still-births. It follows:-
- (a) that for the purposes of Regulation 18 at least, a still-born child falls to be characterized as a “deceased”;
 - (b) that the Cremation Authority is obliged to record how it disposed of the ashes of the still-born child; and
 - (c) that it is obliged to do so as soon as the ashes have been handed to the relatives or otherwise disposed of.
12. We recognise immediately that it does not necessarily follow from this analysis of Regulation 18 that Regulation 17 applies to still-born children. It could quite plausibly be argued that Regulation 18 simply imposes a record-keeping requirement and that the Regulations contain no statutory requirements as regards the disposal of the ashes of still-born children. But it does seem to us that the better construction – if the ashes of a still-born child can be the “ashes of the deceased” for the purposes of

INFANT CREMATION COMMISSION REPORT ANNEX D

Regulation 18 – is to read Regulation 17 as covering all those cremations which fall to be recorded in Form G.

13. There are features of Regulation 17 which would not or might not apply in the case of still-born children:

- (a) The provision in Regulation 17 for intimation to the “executor of the deceased” would, for example, plainly not apply in the case of a still-born child.
- (b) Regulation 16 does not – by contrast with the Regulations applicable in other cases – contain any provision for applications to be made to cremate the remains of a still-born child – and so, in the case of a still-born child, there may be no-one who has applied for the cremation (and so no one to whom the ashes would require to be given under Regulation 17). On the other hand, Form F – which does, by reference to the footnote, fall to be completed by the Medical Referee in the case of a still-born child as in other cases – proceeds on the basis that an application will have been made.

14. Even if no-one has applied for the cremation of the still-born child (and so there is no one to whom the ashes would require to be given under Regulation 17), Regulation 17 would still have practical content in the case of a still-born child. In the absence of any arrangement of the sort described in Regulation 17, the Cremation Authority would be required by that Regulation decently to inter the ashes in a burial ground or in land adjoining the crematorium reserved for the burial of ashes (or to scatter the ashes thereon).

NON-VIABLE FOETUSES

15. There is no specific provision in the legislation for foetal remains. If the pregnancy has not progressed to 24 weeks gestation, the provisions in the 1935 Regulations, including Regulation 17, have no application.

INFANT CREMATION COMMISSION REPORT ANNEX D

THE JOINT OPINION OF

W.JAMES WOLFFE QC

GORDON S. BALFOUR

**29 November 2013
Advocates Library
Parliament House
Edinburgh**

INFANT CREMATION COMMISSION REPORT ANNEX D

JOINT OPINION OF COUNSEL

for

**THE INFANT CREMATION
COMMISSION and THE MORTONHALL
INVESTIGATION**

in relation to

**THE INTERPRETATION OF
REGULATION 17 OF THE CREMATION
(SCOTLAND) REGULATIONS 1935**

2013

INFANT CREMATION COMMISSION REPORT ANNEX E

Anthropology Report

Report of Julie Ann ROBERTS BA (Hons), MSc, PhD

Occupation Forensic Anthropologist and Archaeologist
at
Cellmark Forensic Services
Unit B1, Buckshaw Link, Ordnance Rd, Chorley, Lancashire, PR7 7EL

Dated the 7th day of January 2014

Signature.....

Laboratory Reference Number: CFS/917413/13

Customer Reference: Mortonhall Crematorium Investigation

Contents of Report	Page
1. Qualifications and Experience	2
2. Background and Introduction	3
3. Request	4
4. Scope and Purpose	5
5. Technical Note	5
6. Skeletal Development in the Foetus and Infant	6
7. The Cremation of Human Remains	13
8. The Cremation Process: Survival of Foetal and Infant Remains	15
9. Conclusions	24

INFANT CREMATION COMMISSION REPORT ANNEX E

Report of Julie Ann Roberts

Cellmark Forensic Services

Lab Ref: CFS/917413/13 / Mortonhall Crematorium Investigation

Page 2 of 34

1. Qualifications and Experience

I have been employed as Scientific Lead and Team Leader for the Anthropology, Archaeology and Ecology Department at Cellmark Forensic Services since September 2010. I hold a Doctoral degree (PhD) in the subject of Forensic Anthropology from the University of Glasgow, a Master of Science degree (MSc) in Osteology, Palaeopathology and Funerary Archaeology from the University of Sheffield, and a Bachelor of Arts degree (BA Hons) in Archaeology and Ancient History from the University of Manchester.

I have worked as a Biological Anthropologist and Archaeologist for approximately 19 years and I have approximately 15 years forensic casework experience, specialising in the excavation and examination of decomposed, burnt, fragmented and commingled human remains from scenes of crime. I specialise in the analysis of fragmented, burnt and commingled bone and I have undertaken research on the taphonomy of burnt human bone, and the colour changes and fracture patterns which occur as bone is burnt. I researched and examined Bronze-Age cremation burials at Glasgow University for approximately eight years and have published extensively on this subject in archaeological journals. I have undertaken a wide range of forensic casework relating to burnt human remains which includes the recovery, examination and reconstruction of burnt, fragmented and commingled remains from fatal fires in houses, cars, aircrafts and military vehicles. I have also recovered, examined and reconstructed burnt fragmented bone from victims of war crimes, terrorist incidents, individual and multiple homicides in the UK where bodies have been burnt in attempts to dispose of evidence. I have examined burnt adult and juvenile bone from archaeological and forensic contexts and have also been required to distinguish between burnt human and non human bone from fatal fires and large bonfires. I have produced numerous witness statements relating to burnt and fragmented remains and given evidence in court and at inquest on my anthropological examinations of burnt remains.

I am registered with the College of Policing and National Crime Academy as an Expert Advisor in Forensic Anthropology and Archaeology and I am a member of the Home Office Forensic Provision Expert Panel advising UK DVI on Forensic Anthropology. I am a member of the Forensic Science Society, the British Association of Biological Anthropologists and Osteoarchaeologists, the British Association for Forensic Anthropology and the British Association of Human Identification. I am a lecturer and board examiner for the Diploma in

INFANT CREMATION COMMISSION REPORT ANNEX E

Report of Julie Ann Roberts

Cellmark Forensic Services

Lab Ref: CFS/917413/13 / Mortonhall Crematorium Investigation

Page 3 of 34

Forensic Human Identification, run by the Faculty of Forensic Law and Medicine, Royal College of Physicians.

2. Background and Introduction

This report relates to findings from the Rosendale Investigation initiated on 10th of December 2012 by Mike Rosendale, Head of Schools and Community Services, on behalf of City of Edinburgh Council. It was set up in response to questions raised by SANDS Lothians, a local stillbirth and neonatal death charity (Bruce, 2013, 2). The concerns related to the cremation of babies (foetuses, neonates and infants) at Mortonhall Crematorium and practices surrounding the recovery of their ashes. These concerns were prompted by the response to an enquiry made to the Bereavement Services Manager at Mortonhall about the cremation of a child 26 years ago. The parent had been informed at that time that no ashes had been recovered, but examination of the records kept at Mortonhall indicated that ashes had been interred in the Crematorium's Garden of Remembrance. The subsequent media coverage led to a large number of enquiries from bereaved parents seeking to establish whether ashes had been recovered from the cremation of their babies. The findings of the investigation can be found in a document dated 15th January 2013 (Bruce, 2013).

Fundamental to this anthropology report are apparent discrepancies in the information given to bereaved parents which relate to the survivability of foetal and neonatal remains following cremation. The Mortonhall Investigation found current national guidelines issued by The Institute of Cemetery and Crematorium Management (ICCM) indicated that parents “..should be informed that there might not be any ashes resulting from the cremation” (Bruce, 2013, Appendix 1: 2). They also identified that the Federation of Burial and Crematorium Authorities (FBCA) guidelines were in agreement with this, emphasising parents must be informed that “when a baby is cremated there are sometimes no ashes recovered. This depends on the length of the gestation period, with the likelihood of recovery of ashes increasing with the length of gestation” (*ibid*).

INFANT CREMATION COMMISSION REPORT ANNEX E

Report of Julie Ann Roberts

Cellmark Forensic Services

Lab Ref: CFS/917413/13 / Mortonhall Crematorium Investigation

Page 4 of 34

Both of the above statements make it clear that parents should be informed of the potential for no ashes to be recovered (or that there might not be any ashes¹), but it is also implicit in the same guidelines that the reverse could be true, i.e. there could be survival of ashes depending on the gestation period of the baby. With this in mind, the following observation is particularly significant: “Information provided to bereaved parents by NHS Lothian in May 2012 indicated that *“there will be no retrievable cremated remains of your baby following cremation at Mortonhall Crematorium”* (*ibid*: 3). This statement is very definite regarding the survival and recovery of ashes from this particular Crematorium and it includes no caveat relating to the age of the foetus as provided by the FBCA. There is further conflicting information relating to the crematorium:

“At Mortonhall, prior to May 2011, parents and carers were advised that the recovery of ashes could not be guaranteed. However, the paper based records in use before 2001 generally indicate that recovered ashes were interred in the Garden of Remembrance. Computer based records introduced in 2001 and still in use indicated that there were generally no ashes” (*ibid*).

It is not at all clear from the above information whether foetal and infant remains did survive cremation and / or the recovery process at Mortonhall and if they did, where the remains were interred and what information the parents were given. Clarification of all these issues is not within the scope of this report which addresses only certain aspects of the investigation. The key findings from the preliminary investigation which are of direct relevance to the expert anthropology report relate to the survival of foetal and infant remains during and after the cremation process, working practices surrounding the type of cremator used and recovery of ashes from the cremators.

¹ The term “ashes” used in this context requires clarification as does the difference between there being no ashes and no ashes being recovered. See Sections 7.1 and 8.1

INFANT CREMATION COMMISSION REPORT ANNEX E

Report of Julie Ann Roberts

Cellmark Forensic Services

Lab Ref: CFS/917413/13 / Mortonhall Crematorium Investigation

Page 5 of 34

3. Request

In January 2013, I was approached by Dr Marjorie Turner, Consultant Forensic Pathologist at the University of Glasgow, on behalf of the Right Hon Dame Elish Angiolini, DBE QC, in relation my expertise in the analysis of cremated remains. Dr Turner asked if I would be able to provide assistance to Dame Elish who is leading an independent inquiry into the cremation of babies at Mortonhall Crematorium. I agreed that I would be able to assist and there followed a series of telephone conversations between myself, Dame Elish and Claire Soper, a member of the Mortonhall Investigation Team.

On the 17th October 2013, together with David Hartshorne, Commercial Director at Cellmark Forensic Services, I met with Dame Elish and Claire Soper at the Principal's House, St Hughes College, Oxford. During the meeting it was identified that the expert opinion of an anthropologist could assist the investigation by providing accurate information on the following:

- The development and ossification of the human foetal and neonatal skeleton
- How the human body (bones and soft tissue) are modified by the cremation process
- The gestation period at which the foetal skeleton is able to survive the heat it is exposed to during cremation
- Factors which affect the survival of the skeleton post-cremation
- How the type of cremator used and the methods of recovery of remains from it would affect the survivability of the bones

4. Scope and Purpose of Report

In order to address the areas outlined above it was agreed that the anthropology expert report would contain an assessment and review of the following.

1. Skeletal development in the foetus and infant
2. The cremation process, how it affects the body and the skeleton
3. The survivability of foetal and infant remains during and after cremation
4. The relationship between the survival and recovery of remains and the methods used to cremate them and retrieve them from the cremator
5. The accuracy of current advice provided by funeral directors and / or crematoria staff

INFANT CREMATION COMMISSION REPORT ANNEX E

Report of Julie Ann Roberts

Cellmark Forensic Services

Lab Ref: CFS/917413/13 / Mortonhall Crematorium Investigation

Page 6 of 34

Point 4 would take into consideration information provided by the combustion expert Dr Clive Chamberlain and a review of photographic images of cremated foetal remains from the private crematoria at Warriston and Seafield in Edinburgh.

5. Technical Note

5.1 Appendices and archive

A diagram of a neonatal skeleton is provided for reference purposes in Appendix One, a glossary of terminology used in the report is provided in Appendix Two, a list of sources of metric data for foetal and infant remains is provided in Appendix Three, and a bibliography of texts referred to in this report can be found in Appendix Four. A full record of the work undertaken within the laboratory in relation to this work has been retained in the archive at Cellmark Forensic Services, Chorley, and this can be made available on request providing sufficient notice is given.

5.2 Terminology relating to foetal age

It should be noted that there is a difference between gestational and conceptional or fetal age. Gestational age refers to the length of pregnancy after the first day of the last menstrual period (LMP) and is usually expressed in weeks and days. Conceptional age is the true fetal age and refers to the length of pregnancy from the time of conception (Mongelli, 2012). Fertilisation can not occur till ovulation has occurred approximately 14 days after the first day of the menstrual period. As such conceptional age is always approximately two weeks behind gestational age (*ibid*). Gestational age is more frequently used because the actual day of conception is often unknown, whereas the LMP can usually be determined. For further terminology relating to foetal and infant age see Appendix Two.

5.3 Comparative Data and Related Research

A great deal of the literature relating to cremated bone is based on experimental research using archaeological human remains or modern animal remains. This information covers a range of topics and is easily accessible. However, primarily for ethical reasons, there is has been little research involving modern cremated human adult remains and even less focusing on foetal and infant remains. Because of this there is hardly any scientific data available for reference purposes when it comes to providing an evidence based opinion on the survival of foetal remains during and after cremation. When considering the survivability of foetal remains during

INFANT CREMATION COMMISSION REPORT ANNEX E

Report of Julie Ann Roberts

Cellmark Forensic Services

Lab Ref: CFS/917413/13 / Mortonhall Crematorium Investigation

Page 7 of 34

and after the cremation, the limited reference data must therefore be supplemented by knowledge of skeletal development, how cremation affects the body, visual examination of relevant images from modern crematoria and familiarity with findings from research on non-human and ancient human remains.

6. Skeletal Development in the Foetus and Infant

6.1 Development and ossification of the foetal and infant skeleton

Bone develops from the primitive mesenchymal tissue of the embryo in a process called ossification. There are two types of ossification; intramembranous and endochondral (Scheuer and Black, 2000: 21-24). The essential difference between the two is the presence or absence of a cartilaginous phase.

In intramembranous ossification there is direct mineralisation of a highly vascular connective tissue membrane. Some of the mesenchymal cells differentiate into osteoblasts at primary ossification centres and they secrete new bone matrix which calcifies. This occurs in some of the flat bones of the skull, the facial bones, the mandible and the clavicle (Scheuer and Black, 2000: 21-22; Gray, 1977: 1168).

In endochondral ossification a cartilage template composed mainly of collagen is first formed out of the tissue membrane. Osteoblasts sitting just beneath the outer membrane of the cartilage deposit bone around the outside of the cartilage shaft, this membrane develops into the periosteum and produces compact bone. At the centre of the cartilage model, the cartilage is removed by chondrocytes, there is infiltration of blood vessels and mineralisation occurs forming the cancellous bone. Osteoclasts which are active on the inner surface of the bone work in apposition to the osteoblasts, removing and remodelling bone so that it can increase in diameter (Scheuer and Black, 2000: 24; White and Folkens, 2005: 46). Bones formed by endochondral ossification include the limb bones, the vertebrae, the ribs and the basi-cranium (*ibid*, Sanders, 2009).

Two types of bone are formed during intramembranous and endochondral ossification; compact and cancellous (also known as cortical and trabecular respectively). Compact bone is composed of parallel columns along the long axis of the bone and it forms the shaft or cortex (outer surface) of the bone. Cancellous bone is arranged in a lattice structure orientated along

INFANT CREMATION COMMISSION REPORT ANNEX E

Report of Julie Ann Roberts

Cellmark Forensic Services

Lab Ref: CFS/917413/13 / Mortonhall Crematorium Investigation

Page 8 of 34

the lines of stress and it provides structural strength within the bone. Cancellous bone is laid along fibres of the mesenchyme and compact bone is laid beneath the periosteum (Biswas and Iqbal, 1998: 57).

The bone has to grow lengthways as well as in diameter and in the long bone this is achieved by means of a growth plate at the end of the shaft of the bone. New bone is deposited between the growth plate, also known as the epiphyseal plate, and the end of the diaphysis (the shaft) which is termed the metaphysis. (White and Folkens, 2005: 46). Once the baby is born, secondary sites of ossification develop within the cartilaginous epiphyses which are separated from the metaphysis by the growth plate. Controlled by hormones and genes and influenced by other factors such as health and nutritional status, bone growth continues at the metaphysis until such a time that it has reached its predetermined size. Cells at the growth plate then stop dividing and the primary and secondary sites of ossification (the main part of the bone and the epiphysis) fuse together in a process called epiphyseal fusion or closure (Biswas and Iqbal, 1998: 59; White and Folkens, 2005: 47). Epiphyses will ossify and fuse at different ages in different bones from early infancy through to the age of up to 25 – 29 years when the medial end of the clavicle finishes development (Scheuer and Black, 2000).

On a molecular level, bone tissue is a composite of organic and inorganic material, protein and mineral. The protein is collagen which constitutes about 90% of the bones organic content. The mineral component is hydroxyapatite, a form of calcium phosphate. Crystals of this mineral impregnate the collagen matrix to form a weave of protein and minerals. The mineral component gives the bone its hardness and rigidity, whilst the protein component is rubber-like and flexible (White and Folkens, 1991: 19). The composition of bone is highly relevant when considering the effects of cremation on bone and expectations regarding its survival of the process.

Scheuer and Black cite the clavicle as being probably the first bone in the human body to show evidence of bone development in the sixth week of foetal life (2000: 23). In a study of ossification of the limb bones in 728 foetuses ranging in age from 8 to 26 weeks, Bagnall *et al.* found that primary ossification centres showed at approximately 9 weeks of conceptional age (Bagnall *et al.*, 1982). They also observed that there was a predictable order to this ossification whereby the centre of the humerus appeared first followed by the femur, radius and ulna which appeared simultaneously, the tibia and then lastly the fibula (*ibid*).

INFANT CREMATION COMMISSION REPORT ANNEX E

Report of Julie Ann Roberts

Cellmark Forensic Services

Lab Ref: CFS/917413/13 / Mortonhall Crematorium Investigation

Page 9 of 34

The rate of growth differs between the upper and lower limb bones. In early development the upper limb bones are longer than the lower limb bones due to their earlier ossification and faster growth rates (Sanders, 2009: 6). From 19 weeks gestation until birth, however the lower limb bones grow faster than the upper limb bones and the reverse becomes true (*ibid*). Studies have shown that there are also differences between the growth rates of bones on the right and left sides of the body *in utero*, with growth of the humerus, tibia and fibula being favoured on the left side and growth of the femur being favoured on the right (Bagnall *et al.*, 1982). In terms of recognition of skeletal elements, Scheuer and Black (2000) note that by 12-13 weeks gestation bones such as the femur are distinct enough for identification (Sanders, 2009). This is also illustrated by the data in Table One.

In terms of weight of the skeleton, this increases with age during the foetal period and continues to increase after birth at approximately the same rate until the early teens (Trotter and Hixon, 1974). The greatest proportionate contribution to total skeleton in the foetus is the skull (*ibid*).

Table One summarises the maximum lengths of some of the bones which are easily identifiable in the foetus and infant. References for individual sources are given in Appendix Three. The majority of the data is derived from a collection used by Fazekas and Kosa (1978) which comprised 138 spontaneously aborted white European foetuses. The measurements were taken from dry bone as opposed to ultrasound scans, and age is given in weeks. This age was taken from maternal history and it is not specified whether this means weeks in conceptional age or weeks in gestational age. A commentary by Schutkowski (1987) on the collection (which he used for his research into sex determination of foetal skeletons) refers to their age in lunar months which equates to gestational age (Black, 2000:6).

INFANT CREMATION COMMISSION REPORT ANNEX E

Report of Julie Ann Roberts

Cellmark Forensic Services

Lab Ref: CFS/917413/13 / Mortonhall Crematorium Investigation

Page 10 of 34

Table One: Measurements of unburnt foetal and infant bones

Age	Maximum Length (mm)								
	<i>Occipital*</i>	<i>Mandible (body lgth)</i>	<i>Clavicle</i>	<i>Scapula</i>	<i>6th Rib*</i>	<i>Humerus</i>	<i>Pelvis (Ilium)</i>	<i>Femur</i>	<i>Tibia</i>
Weeks									
12	2.7	8.0	8.2	4.5	11.0	8.8	4.8	8.5	6.0
14	4.0	9.6	11.1	7.1	14.0	12.4	5.7	12.4	10.2
16	5.9	13.0	16.3	11.6	22.5	19.5	9.7	20.7	17.4
18	7.7	14.2	19.4	15.0	27.2	25.8	12.0	26.4	23.4
20	9.5	17.6	22.7	17.2	33.4	31.8	15.6	32.6	28.5
22	10.6	19.2	24.5	18.8	35.1	34.5	16.5	35.7	32.6
24	11.8	21.5	26.9	20.9	38.5	37.6	18.3	40.3	35.8
26	13.1	22.6	28.3	22.3	40.7	39.9	19.6	41.9	38.0
28	14.1	24.2	30.3	23.1	43.9	44.2	21.3	47.1	42.0
30	14.7	26.0	31.3	24.5	46.7	45.8	22.1	48.7	43.9
32	17.0	27.7	35.6	26.6	52.5	50.4	25.1	55.5	48.6
34	19.3	30.0	37.1	28.1	54.2	53.1	26.8	59.8	52.7
36	20.8	31.7	37.7	29.3	57.3	55.5	28.7	62.5	54.7
38	23.4	34.7	42.6	33.1	60.4	61.3	32.1	69.0	60.1
40	26.5	36.5	44.1	35.5	61.6	64.9	34.5	74.4	65.2
Perinatal									
						65.2		75.4	66.8
Months									
1						-		-	72.14
1.5						72.4		86	-
3						80.6		100.7	84.83
6			(0-6m) 44.4	(0-6m) 39.3		88.4		112.2	99.26
9						-		-	110.06
12			(7-12m) 54.1	(6-12m) 49.2		105.5		136.6	119.57

*Cranial bone, *pars lateralis*

**6th Rib chosen as a typical rib

INFANT CREMATION COMMISSION REPORT ANNEX E

Report of Julie Ann Roberts

Cellmark Forensic Services

Lab Ref: CFS/917413/13 / Mortonhall Crematorium Investigation

Page 11 of 34

6.2 Factors affecting development and maturation of the skeleton

Rates of increase in the size and maturity of bones differ between the sexes and this is evident before birth. There is also a difference in the timing of ossification of bones and mineralisation of teeth (Scheuer and Black, 2000:4). In their research Bagnall *et al.* (1982) observed that the female foetus is in advance of the male in terms of skeletal maturation after 21 weeks. After birth skeletal maturity continues to be more advanced in girls than boys but bone mineral density is significantly less in girls than boys, the latter having a higher mineral density and larger long bones (Scheuer and Black, 2000: 4)

Sanders (2009) summarised a number of studies which focused on femoral lengths of neonates and foetuses of different ancestries. In one study ($n=450$), it was found that the femur length of Indian neonates was significantly longer than that of Malaysian and Chinese neonates (Lim *et al.*, 2000 in Sanders, 2009: 18). In another study which took femoral measurements by ultrasound from 39 Asian, 31 black, and 100 white foetuses of 15 to 20 weeks gestation, it was found that the femur lengths of the Asians were shorter than expected and those of black fetuses were longer than expected. (Ship, 2001 in Sanders, 2009: 18).

In a research project which examined the weight, density and percentage ash weight of bones from foetuses through to elderly adults (see Section 8.1), Trotter and Hixon (1974) found that the unburnt bones of Negroid foetuses were on average heavier than those of the Caucasoid foetuses and the bones of the males were generally heavier than those of the females. These differences were not statistically significant, but there were significant differences between the lengths of the Negroid and Caucasoid long bones, the former being longer than the latter in four types of long bone tested. (*ibid*).

Factors such as maternal health and nutrition, disease and environmental pollution can all affect the growth and development of the skeleton *in utero* and in infancy (Scheuer and Black, 2000: 5). Indeed, Lobo and Zhaurova (2008:) stated that "It is difficult to overemphasize the importance of prenatal environment to a developing fetus ". They were speaking with reference to birth defects in particular but they did include skeletal malformations in these, for example, the increased risk of cleft lip and/or palate, stillbirths and low birth weights associated with smoking during pregnancy. It is worth bearing in mind when looking at unburnt and burnt foetal skeletal remains that the pregnancy may have ended in spontaneous abortion or stillbirth

INFANT CREMATION COMMISSION REPORT ANNEX E

Report of Julie Ann Roberts

Cellmark Forensic Services

Lab Ref: CFS/917413/13 / Mortonhall Crematorium Investigation

Page 12 of 34

because the baby was not developing normally. As such the bones may be smaller and perhaps not as well developed as they would be in a healthy foetus of the same gestation.

6.3 Dental development

Although teeth are not part of the skeleton it is important to mention their development in this context as they are capable of surviving the temperatures attained during the cremation process, particularly when they are unerupted and protected by the jaw.

The onset of tooth formation starts with the first deciduous incisor between 14 and 16 weeks after fertilization (15 and 17 weeks gestation). This is followed 2 weeks later by the second incisor and then a week after that the canine starts to form. Deciduous first molars are initiated around 15 weeks after fertilisation and second molars 3-4 weeks after that when the foetus is in its 18th -19th week of life (Hillson, 2002: 121).

In the anterior teeth (the incisors and canine), dentine and enamel is deposited from one central point in the middle of the incisal edge. In the molars, each cusp will develop as a separate cone initially but ridges then spread out from their sides and they eventually join up to form a complete crown. The mineralised occlusal cap of the deciduous first molar is usually complete at birth, but it can be very thin and susceptible to damage. The occlusal cap of the second deciduous molar is not usually complete at 36-38 weeks although the cusps are joined by ridges (*ibid*: 122).

The first permanent molar also starts forming *in utero* around 28-32 weeks after fertilization with the lower molars starting to develop slightly earlier than the upper. The other permanent teeth do not start to develop until after birth. The permanent incisors (with the exception of the upper 2nd incisors) are initiated at around 3-4 months followed by the canine approximately one month later. The upper 2nd incisors appear around the end of the first year and the premolars and 2nd molars start to develop in the 2nd and 3rd years (*ibid*: 125)

Numerous charts and tables providing detailed information relating to crown and root development in the deciduous and permanent teeth have been compiled (Schour and Massler, 1940; Moorrees et al., 1963, in Ubelaker, 1989; Lunt and Law, 1974 in Hillson, 2002; Moorrees et. al. (1963) modified by Smith, 1991, in Scheuer and Black, 2000)

INFANT CREMATION COMMISSION REPORT ANNEX E

Report of Julie Ann Roberts

Cellmark Forensic Services

Lab Ref: CFS/917413/13 / Mortonhall Crematorium Investigation

Page 13 of 34

As with skeletal development, girls are in advance of boys, with various studies finding a difference of as much as a year (Hillson, 2002: 125). The difference between the sexes is greater in black girls and boys (double that seen in whites) and black children achieved each stage of dental development on average 5% earlier than white children (*ibid*).

7. The Cremation of Human Remains

The discussion below focuses solely on the changes which the human body undergoes when it is cremated. It is outwith my sphere of expertise to comment on the technical aspects of the cremation process, for example how the cremator works and various legislation surrounding the cremation process. Expert opinion on this can be found in the specialist statement of Dr Clive T Chamberlain, produced for this investigation and made available to me for reference.

7.1 “Ashes” versus “Cremated Remains”

Before entering into a discussion of the cremation process and its effects on the human body it is useful to consider the terms “ashes” and “cremated remains”. The two often appear to be interchangeable in the literature although it could be debated that there are subtle differences between them. It could be assumed that the cremated remains of an individual comprise only the calcined bones which remain following complete combustion (see Section 7.2). However, unless these are all carefully separated out from any extraneous material it is possible that the remains might include other burnt artefacts such as clothing, personal items and a percentage of the coffin (see also report of Dr Clive T Chamberlain).

The term “ash” is defined by The Oxford Compact English Dictionary (OCED) as “the powdery residue left after the burning of any substance” (1996: 52) and the plural “ashes” is defined as “the remains of a human body after it has been cremated” (*ibid*). If that definition is accepted, then “ashes” are just the surviving calcined bones of the individual who was cremated and they do not include any other material that was burnt at the same time.

The above discussion has implications for the information given to the parents of babies who were cremated at Mortonhall. For example, it seems highly unlikely that even if a foetus was of a very young gestational age there would be no cremated remains left, if the coffin and personal effects were included in that definition. Skeletal development has already been summarised in Section 6 where it was identified that the process of ossification begins as early as the 6th foetal week of life and individual bones are recognisable at 12 to 13 weeks. The

INFANT CREMATION COMMISSION REPORT ANNEX E

Report of Julie Ann Roberts

Cellmark Forensic Services

Lab Ref: CFS/917413/13 / Mortonhall Crematorium Investigation

Page 14 of 34

section that follows will include an examination of the stage at which foetal remains are capable of surviving the cremation process and becoming “ashes” which could potentially be returned to grieving parents.

7.2 What happens to the body when it is cremated?

When the body is subjected to extreme heat it will undergo a number of predictable changes; the skin will harden and split, the subcutaneous fat and muscle will burn, there will be dehydration and oxidation of the organic component of the body (including the organic component of bone) and eventually, at temperatures in excess of around 1000 C°, there will be re-crystallisation of the mineral component of the bone (Holden *et al.*, 1995; DeHaan and Nurbakhsh, 2001; McKinley, 1994; Shipman *et al.*, 1984).

As bone is heated, proteins will undergo a process of denaturation. The water that is found in the organic component of bone is removed at between 300 and 500 C° (Harsanyi, 1993 in Fairgrieve, 2010: 138). At temperatures above 700 C° the water contained within the mineral component of bone is also lost and Calcium Oxide (CaO) is formed. It has been suggested that the formation of CaO is linked to skeletal maturity (*ibid*).

It is important to note that once complete combustion of the organic component of the bone has occurred, the amount of DNA present is much reduced if not lost completely. Standard DNA analysis techniques (eg. STR analysis of nuclear DNA or mitochondrial DNA analysis) used to obtain DNA profiles from unburnt or charred remains have had very limited success when applied to calcined bone, therefore positive identification of the deceased following complete cremation is generally not possible (McDonald, *pers. comm.*)

Exposure to extreme heat will cause visible changes to bone and, at sufficiently high temperatures, alteration of its microstructure. In laboratory conditions it has been proven that the colour of bone changes progressively and predictably as it is heated. These colour changes range from pale yellow, through to red /brown, black, blue, grey and finally white, when all the organic matter has combusted and the bone is calcined (Shipman *et al.*, 1984; Holck, 1986; Holden *et al.*, 1995).

Studies at both macroscopic and microscopic levels generally agree that under conditions of extreme heat bone shrinks, splits and cracks. There is a wide variation in the degree of

INFANT CREMATION COMMISSION REPORT ANNEX E

Report of Julie Ann Roberts

Cellmark Forensic Services

Lab Ref: CFS/917413/13 / Mortonhall Crematorium Investigation

Page 15 of 34

shrinkage reported in different studies, with figures ranging from 2 to 25% reduction from the original fresh bone (Nelson, 1992). In the experimentally controlled cases reviewed by Nelson the amount of shrinkage was found to be at the lower end of that range averaging between 3 and 5% (*ibid*). A study which closely mimicked conditions in a modern crematorium involved the cremation of one half of each of five cadavers in a gas oven with a temperature range of 600 to 1000 °C. From measurements taken on the preserved unburned half compared to the cremated half in the same individual the researcher established shrinkage rates of between 5 to 12% (Dokladal, 1971 in Correia, 1997: 227). With regard to the cremation of juveniles, research has shown that the bones of neonates and infants contract by an average of 10% (Uytterschaut, 1993). In one study it was found that the decrease in bone volume which occurs during cremation was greater in neonates and infants than adults where the percentage reduction never exceeded 13% (Herrmann, 1977 in Uytterschaut, 1993).

Numerous studies have been undertaken examining the fractures which occur as a result of thermal damage to bone (Goncalves *et al.*, 2011; Schmidt and Symes, 2008; Bontrager and Nawrocki, 2008; Buikstra and Swegle, 1989). The majority of experimental studies have shown that burning fleshed bone, as in a modern cremation, typically produces characteristic curved, transverse, thumbnail, and step fractures, deep longitudinal fractures and warping of the bone (Ubelaker, 1989; Bontrager and Nawrocki, 2008; Buikstra and Swegle, 1989). These fractures are easily distinguishable from the fractures caused by mechanical damage following cremation, although they can actually pre-dispose the bone to this type of damage. Some examples of heat induced fractures can be seen on the foetal bones in Images 3, 4 and 6 Section 8.1.

In terms of bone and tooth survival, cancellous bone will shrink but generally retain its shape, whereas compact bone will shatter into small pieces, un-erupted teeth and roots survive while the exposed crowns break apart (Mayne Corriea, 1997:278). The survival of bones and teeth is well documented in archaeological cremation burials of up to c. 4000 years old, even where the remains are calcined, completely mineralised and brittle (Hillson, 2009; McKinley, 1994, 1996; Downes and McGregor, 1995; Roberts, 1995, 1998, 2001; McSweeney, 1995). It has also been proven through archaeological and modern crematoria studies that certain bones are more likely to survive than others and in summary, the denser bones and those well embedded in muscle tissue are found to be most resilient (Mayne Corriea, 1997:278).

INFANT CREMATION COMMISSION REPORT ANNEX E

Report of Julie Ann Roberts

Cellmark Forensic Services

Lab Ref: CFS/917413/13 / Mortonhall Crematorium Investigation

Page 16 of 34

8. The Cremation Process: Survival of Foetal and Infant Remains

8.1 The survival of foetal and infant bones during and after cremation

Where ossification has not begun or is in its very early stages, the cartilage or connective tissue prototype for the bone can be lost entirely in the cremation process as all the organic matter in the body is combusted. Once the bone has started to ossify, however, it will undergo broadly the same changes as adult bone during the cremation processes. That said, there are some differences to take into consideration which relate to the development and maturity of the bone. It has already been noted that neonatal and infant bone loses more volume than adult bone when burnt and some studies found there was a greater degree of shrinkage in foetal bone. Fairgrieve (2010: 138) stated that neonatal bones will burn “more completely” than adult bones and less mineral residue will be left following cremation. This is due to a lack of Calcium Oxide (CaO) in the bones of young individuals as the intermolecular cross-links between the collagen chains have not yet developed (*ibid*):

It is true for adults that bone mineral density and the weight of cremated bone is affected by age, sex, stature, diet, activity and even geographical location (Van Deest *et al.*, 2011). It follows that some of these criteria would also apply to foetal, neonatal and infant skeletons with more emphasis on the maternal environment (see Section 6.2). Some foetuses and neonates may be smaller than usual or have delayed development for their gestational age and therefore their bones may be more susceptible to damage from the heat and post-cremation mechanical damage.

In terms of gross anatomy, foetal and infant bones are thinner, smaller, less robust and lighter than adult bones therefore they will combust more quickly and at lower temperatures. It has been noted that for an adult the whole cremation process takes on average 90 minutes at a temperature of 1000 C° or more, whilst cremation of an infant or foetus can be completed in 40 to 60 minutes at temperatures of 700 C° (Dunlop, 2004). In the same paper, Dunlop noted that foetal skeletal remains (he does not state gestation period) could be “discerned quite clearly” following cremation at Hull Crematorium (*ibid*). This is discussed further in Section 8.2.

Direct evidence that foetal remains can survive the cremation process and that skeletal elements are recognisable from as early as 17 weeks gestation (15 conceptual weeks), was obtained from two private crematoria, Seafield and Warriston, currently operating in Edinburgh.

INFANT CREMATION COMMISSION REPORT ANNEX E

Report of Julie Ann Roberts

Cellmark Forensic Services

Lab Ref: CFS/917413/13 / Mortonhall Crematorium Investigation

Page 17 of 34

There follows an analysis of photographic images from the crematoria (Images 1 to 6 below) provided by Claire Soper from the Mortonhall Inquiry team. They comprise three photographs from Seafield showing the cremated bones of foetuses aged 17 weeks gestation, 20 weeks gestation and full term, and three photographs from Warriston showing the cremated bones of foetuses aged 19 weeks gestation, 22 weeks gestation and full term. Following each image there is a list of the bones which are identifiable in that picture.

INFANT CREMATION COMMISSION REPORT ANNEX E

Report of Julie Ann Roberts

Cellmark Forensic Services

Lab Ref: CFS/917413/13 / Mortonhall Crematorium Investigation

Page 18 of 34

Image 18/1: Seafield, 17 Weeks Gestation (15 foetal weeks)

This image has been removed from the Report due to its sensitive nature. It is available to view in Production 18 in the folder of photographs held by City of Edinburgh Council. This is Production 18/1.

Bones identifiable on the image include the femur, humerus, mandible, ilium (pelvic bone), the *pars lateralis* and possibly *basilaris* of the occipital bone (skull), radius, ulna, clavicle and a minimum number of 12 ribs. It is likely that the fibula is also present but it is difficult to distinguish clearly.

Image 18/2: Seafield, 20 Weeks Gestation (18 foetal weeks)

This image has been removed from the Report due to its sensitive nature. It is available to view in Production 18 in the folder of photographs held by City of Edinburgh Council. This is Production 18/2.

Bones identifiable on the image include the right and left mandible closely associated with the developing crown of an anterior tooth, the humerus, femur, tibia, fibula, radius, ulna, ilium, scapula, clavicle and a minimum number of 15 ribs.

INFANT CREMATION COMMISSION REPORT ANNEX E

Report of Julie Ann Roberts

Cellmark Forensic Services

Lab Ref: CFS/917413/13 / Mortonhall Crematorium Investigation

Page 19 of 34

Image 3: Seafield, Full Term Stillborn

This image has been removed from the Report due to its sensitive nature. It is available to view in Production 18 in the folder of photographs held by City of Edinburgh Council. This is Production 18/3.

The image above was slightly over-exposed and the remains were partially obscured by a finger making the individual elements slightly harder to recognise despite their larger size. It was possible however to identify the femur, humerus, ilium, scapula, tibia, possibly an ulna, multiple vertebrae (body and neural arch), a minimum number of 12 ribs and multiple phalanges (fingers and toes).

Image 4: Warriston, 19 Weeks Gestation (17 foetal weeks)

This image has been removed from the Report due to its sensitive nature. It is available to view in Production 18 in the folder of photographs held by City of Edinburgh Council. This is Production 18/4.

There is less separation of the bones from associated debris than seen in the images from Seafield but it is still possible to identify the humerus, femur, clavicle, a minimum number of 14 ribs, possibly a scapula and two long bones that could not be assigned to skeletal element.

INFANT CREMATION COMMISSION REPORT ANNEX E

Report of Julie Ann Roberts

Cellmark Forensic Services

Lab Ref: CFS/917413/13 / Mortonhall Crematorium Investigation

Page 20 of 34

Image 5: Warriston, 22 Weeks Gestation (20 foetal weeks)

This image has been removed from the Report due to its sensitive nature. It is available to view in Production 18 in the folder of photographs held by City of Edinburgh Council. This is Production 18/5.

Bones identifiable on the image include the femur, tibia, fibula, ilium, possible humerus, possible mandible and tooth crowns, unidentified long bones and a minimum of 10 ribs.

Image 6: Warriston, Full Term Stillbirth

This image has been removed from the Report due to its sensitive nature. It is available to view in Production 18 in the folder of photographs held by City of Edinburgh Council. This is Production 18/6.

Bones identifiable in the image above include the femur, tibia, ilum, vertebrae (body and neural arch), metatarsal / metacarpals, phalanges (fingers or toes) and a minimum number of 5 ribs.

Table Two, presents the metric data taken from Images 1 to 6 and compares it to the measurements of unburnt foetal bones of around the same age shown in Table One. An assumption has been made that the ages shown in Table One are gestational age (see previous discussion Section 6.1). The original photographs shown above were taken at

INFANT CREMATION COMMISSION REPORT ANNEX E

Report of Julie Ann Roberts

Cellmark Forensic Services

Lab Ref: CFS/917413/13 / Mortonhall Crematorium Investigation

Page 21 of 34

different scales and so it was not possible to take comparable measurements from them. In order that the bones could be measured more accurately they were reproduced at the same scale using the ruler in Image 5 and the distance between the grooves in the metal trays which appear in all images. This rescaling is dependent on the distance between the grooves being approximately the same. It should also be emphasised, that in some instances the position of the bones, for e.g. if they were placed at an angle or not lying flat, may have slightly reduced the accuracy of the measurement. Where obvious distortion could be seen, caused either by the cremation process (warping and cracking) or the angle of the photograph or bone, not recordable (nr) was written in the corresponding data field.

Table Two: Comparative measurements of foetal bones from Fazekas and Kosa (1978) reference data, Warriston and Seafield Crematoria. Measurements taken from Images 1 to 6 reproduced at same scale

Age (weeks)	Maximum Length (mm)														
	Clavicle			Humerus			Ilium (pelvis)			Femur			Tibia		
	FK	WA	SE	FK	WA	SE	FK	WA	SE	FK	WA	SE	FK	WA	SE
16	16.3	-	-	19.5	-	-	9.7	-	-	20.7	-	-	17.4	-	-
17	-	-	nr	-	-	11.5	-	-	-	-	-	10	-	-	-
18	19.4	-	-	25.8	-	-	12	-	-	26.4	-	-	23.4	-	-
19	-	-	-	-	26	-	-	-	-	-	24.5	-	-	24	-
20	22.7	-	20	31.8	-	32	15.6	-	15	32.6	-	31	28.5	-	27
22	24.5	-	-	34.5	35	-	16.5	17	-	35.7	33.5	-	32.6	32	-
24	26.9	-	-	37.6	-	-	18.3	-	-	40.3	-	-	35.8	-	-
26	28.3	-	-	39.9	-	-	19.6	-	-	41.9	-	-	38	-	-
28	30.3	-	-	44.2	-	-	21.3	-	-	47.1	-	-	42	-	-
30	31.3	-	-	45.8	-	-	22.1	-	-	48.7	-	-	43.9	-	-
32	35.6	-	-	50.4	-	-	25.1	-	-	55.5	-	-	48.6	-	-
34	37.1	-	-	53.1	-	-	26.8	-	-	59.8	-	-	52.7	-	-
36	37.7	-	-	55.5	-	-	28.7	-	-	62.5	-	-	54.7	-	-
38	42.6	-	-	61.3	-	-	32.1	-	-	69	-	-	60.1	-	-
40	44.1	-	-	64.9	nr	53.5	34.5	35	28.5	74.4	71	59	65.2	-	-

INFANT CREMATION COMMISSION REPORT ANNEX E

Report of Julie Ann Roberts

Cellmark Forensic Services

Lab Ref: CFS/917413/13 / Mortonhall Crematorium Investigation

Page 22 of 34

FK = Fazekas and Kosa, WA = Warriston, SE = Seafield

nr = not recordable due to damage and distortion by cremation or angle of bone/photograph

- = image or bone not present

It can be seen from the table above that the measurements of the unburnt bones in the reference collection and those from Warriston were similar at 18 and 19 weeks. At 20 weeks the reference data and that derived from Seafield were almost exactly the same and that was also the case for Warriston at 22 weeks. A major difference can be seen in the earlier gestational period where the burnt bones from Seafield at 17 weeks were considerably shorter than the unburnt bones at 16 weeks. At Full Term, the reference data and that from Warriston were also broadly comparable, but at Seafield whilst the pelvic measurement was similar to the reference data (although slightly smaller), the humerus and femur were much shorter.

These results have not been statistically analysed and the sample size is small, so on the basis of these findings alone it cannot be determined whether there is a trend for the bones to be shorter than normal at Seafield in the youngest and oldest age categories, or whether the results are anomalous. They could be a true reflection of the pre-cremation smaller size of the foetuses or they could indicate that a greater degree of shrinkage is taking place during cremation. If the latter is true, it has not had a detrimental effect on the preservation of the bones in question, as they appear from the images to be in a very good state of preservation with minimal fracturing caused by thermal or mechanical damage. If the former is true, it could be an indication that the foetus was small for its gestational age. It may even have died *in utero* some time before the spontaneous abortion or stillbirth occurred.

The above analysis within the context of the Mortonhall Investigation provides direct, visual evidence that multiple individual skeletal elements can be recognised following cremation in individuals as young as 17 weeks. By comparing the metric data to a documented reference collection it can also be seen that in the majority of instances, if cremation is conducted carefully, there is little alteration to the size and shape of the foetal bones (see also Section 8.2).

Experimental research has been undertaken to quantify the percentage of bone (bone ash or calcined bone) remaining in human skeletons following cremation. Trotter and Hixon (1974) studied skeletons from an early foetal period through to old age. This included 124 male and

INFANT CREMATION COMMISSION REPORT ANNEX E

Report of Julie Ann Roberts

Cellmark Forensic Services

Lab Ref: CFS/917413/13 / Mortonhall Crematorium Investigation

Page 23 of 34

female foetuses of American Caucasoid and Negroid ancestry, which ranged in age from 16 to 44 weeks gestational age. It was possible to record the ash in even the youngest and lightest skeletons, the lightest being a white male of 16 weeks gestation which weighed 3.4 g pre-cremation. Individual percentage ash weights ranged from 58%, a white female, to 72.3% a white male (Trotter and Hixon, 1974: 13). The mean percentage ash weights showed a slight, but significant increase with age, but no statistically significant differences were found with regard to sex and ancestry (*ibid*). Although Trotter and Hixon removed any soft tissue from their subjects before cremation, their results for adults were comparable to the findings in research by Bass and Jantz (2004)² conducted on fresh cadavers in modern crematoria. The study by Trotter and Hixon is important because it illustrates that even at 16 weeks gestational age (14 weeks true foetal age) there will be survival of calcined bones or "ashes" following cremation.

8.2. The relationship between methods of cremation survivability of remains and recovery of ashes

It has been demonstrated in Section 8.1 that foetal remains of 16 weeks gestation and older can and do survive complete combustion. It is also apparent from the literature and examination of the images from Seafield and Warriston Crematoria that individual bones are identifiable to skeletal element from this age. If that is the case then other explanations must be sought for the apparent absence of ashes in individuals aged > 16 weeks. It seems that there are only three possible explanations:

1. The ashes have not survived the cremation process due to the way in which they were cremated
2. The ashes have survived cremation but they have been destroyed during the recovery process
3. The ashes have survived the cremation and recovery processes but they have not been recognised as human foetal or infant remains

8.2.1 The ashes have not survived the cremation process due to the way in which they were cremated

Details relating to this can be found in the expert report of Dr Clive T Chamberlain. The aspects of cremation which are most detrimental to foetal and infant remains appear to be the jets of air

² Bass and Jantz looked only at individuals older aged older than 17 years

INFANT CREMATION COMMISSION REPORT ANNEX E

Report of Julie Ann Roberts

Cellmark Forensic Services

Lab Ref: CFS/917413/13 / Mortonhall Crematorium Investigation

Page 24 of 34

introduced into the cremation chamber and direct heat in excess of 1000 C° (Dunlop, 2004) from support burners. Whereas the weight of adult bones ensures that they are not carried out of the cremation chamber into the secondary combustion chamber, foetal bones are much lighter and so they may be carried through. Ashes are removed from the cremation chamber so if foetal remains have been blown into the combustion chamber then they will not be retrievable.

Clearly a less vigorous method of cremation would be of benefit when dealing with foetal remains. Lower temperatures of around 600 to 700 C° are recommended by both Dr Chamberlain and Dr Dunlop, a Medical referee at Hull Crematorium. Dunlop also recommends that “no forced air is turned on” (2004: 341) and that the coffin containing the foetus / young infant is placed in a preheated furnace in a corrugated metal tray with sides³. Dr Chamberlain refers to modified practices at Seafield Crematoria and trays such as those described by Dunlop can be seen on Images 1 to 6, this report.

8.2.2 The ashes have survived cremation but they have been destroyed during the recovery process

Recovery of foetal and infant ashes is closely linked to the issue of how the remains are contained during cremation. Clearly there is going to be a better chance of recovering all the small bones if they are kept together in a small metal tray which restricts dispersal during cremation. The other area of concern is how the ashes are removed once the cremation is complete. As previously discussed bones become more brittle and fragile once the organic component has been combusted and therefore they are more susceptible to mechanical damage. Usual practice is for the ashes to be raked out of the cremation chamber once they have cooled down (Bass, 2004; Chamberlain, 2013). This process however, is extremely detrimental to delicate foetal and infant bones which may already be fractured due to thermal damage. Further fragmentation in combination with their already small size, could lead to destruction of the bone altogether or loss amongst any accompanying burnt material. A better means of recovery of foetal and infant remains would be to lift them out on a small tray once it has cooled down and then retrieve the bones by hand.

³ This is standard practice at Hull Crematorium

INFANT CREMATION COMMISSION REPORT ANNEX E

Report of Julie Ann Roberts

Cellmark Forensic Services

Lab Ref: CFS/917413/13 / Mortonhall Crematorium Investigation

Page 25 of 34

8.2.3 The ashes have survived the cremation and recovery process but they have not been recognised as human foetal or infant remains

The bony parts of the foetal and neonatal skeleton might not necessarily be recognisable as skeletal remains to the untrained eye or inexperienced member of staff. At eleven weeks before birth there are usually about 800 ossification centres, the bony “pieces” of the skeleton and at birth there are approximately 450 centres (White and Folkens, 2005: 47). Whilst some skeletal elements such as the long bones, cranium and ribs are relatively easy to recognise, others such as the incomplete vertebrae, the tarsal bones and any newly developed epiphyses could be confused with other burnt debris. The younger the foetus is, the more difficult it is to recognise the components of the skeleton. There is therefore, a potential risk that crematoria staff might inspect the contents of the cremation chamber and wrongly conclude that there are no ashes surviving. Clearly the issue here is one of training and awareness.

9. Conclusions

Greater clarity and more detail are required in relation to the guidelines currently issued by the Federation of Burial and Cremation Authorities (FBCA) and many individual Crematoria. Currently when discussing the survival of foetal remains and advice to parents, the focus seems to be on gestational age alone. There are clearly more factors than this involved, the key ones being methods of cremation and recovery of remains.

Another important factor to consider is skeletal maturity. It has been demonstrated that foetal bones do survive the cremation process and they can be identified and recovered from at least 17 weeks gestation. Perhaps then the FBCA and crematoria staff should be working towards an anatomical model, focusing on skeletal maturity in relation to gestational age, rather than gestational age *per se* and viability or non viability of the foetus, when providing advice to bereaved parents.

Key recommendations include:

- Improved training and awareness in foetal development for crematoria staff.
- The use of specially designed cremators for foetal and infant remains and / or the adaptation of methods used in adult cremators.
- Improved techniques for the recovery of foetal remains.

INFANT CREMATION COMMISSION REPORT ANNEX E

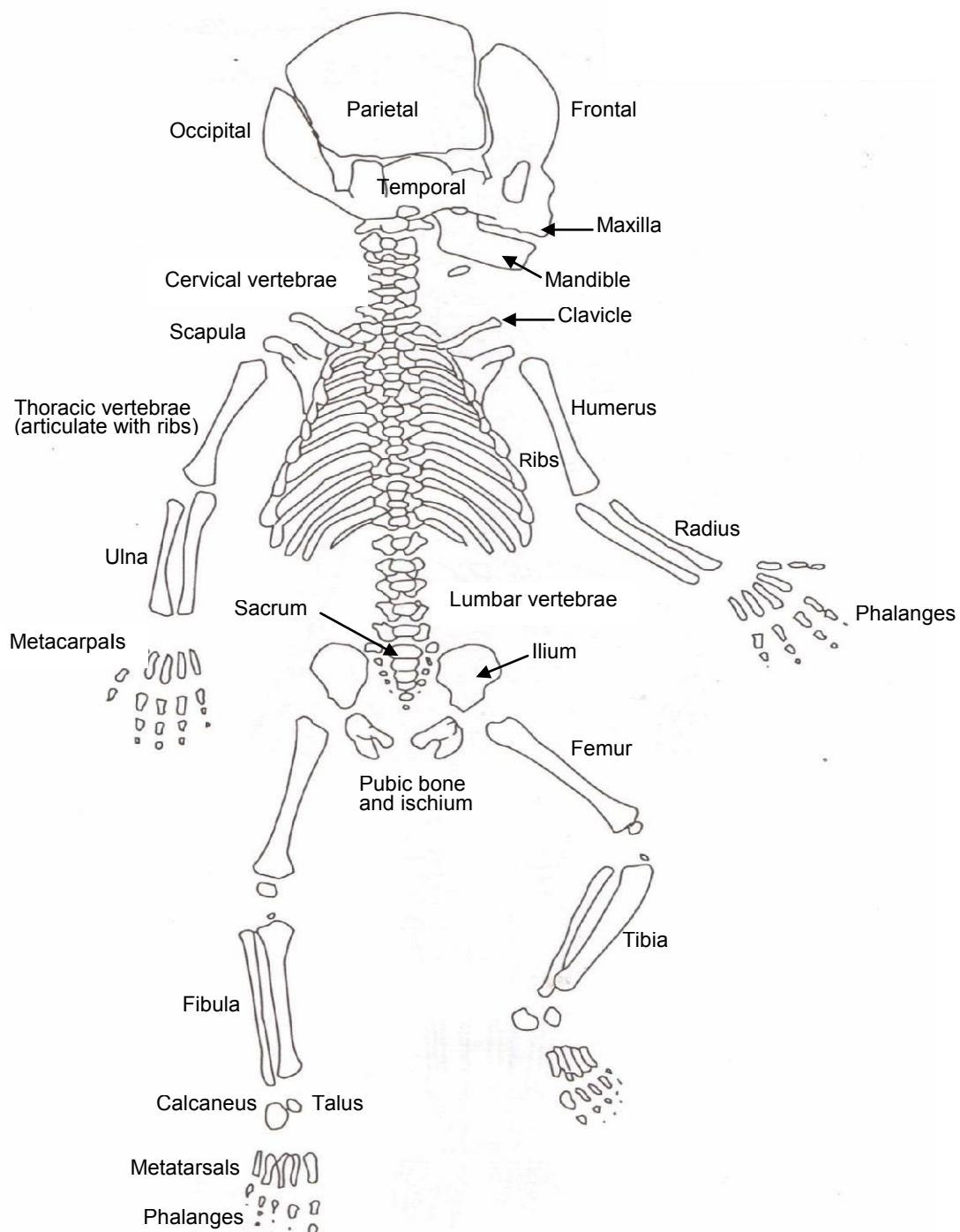
Report of Julie Ann Roberts

Cellmark Forensic Services

Lab Ref: CFS/917413/13 / Mortonhall Crematorium Investigation

Page 26 of 34

Appendix One: Diagram of the Neonatal Skeleton



INFANT CREMATION COMMISSION REPORT ANNEX E

Report of Julie Ann Roberts

Cellmark Forensic Services

Lab Ref: CFS/917413/13 / Mortonhall Crematorium Investigation

Page 27 of 34

Appendix Two: Glossary of Terminology

i) Terminology Relating to Age of Baby

(Scheuer and Black, 2000, Appendix 1)

Embryo: The first 8 weeks of intra-uterine life

Foetus: From week 9 to birth

Perinatal: Around the time of birth, from 24 weeks gestation to 7 post-natal days

Neonatal: From birth to 28 days

Infant: From birth to 1 year

Pre-term: from < 37 weeks (258 days) gestation

Full-term: from 37-42 weeks (259-293 days) gestation

Post-term: > 42 weeks (294 days) gestation

Stillbirth: Infant born after gestational period of 24 weeks who shows no signs of life

Gestational age: The number of days or weeks that have passed since the first day of mothers last menstrual period

Conceptional age: The number of days or weeks that have passed since conception i.e. fertilization of the egg.

ii) General Terminology

Articulate(s) Adjacent to and joins with, eg. The bottom end of the femur articulates with the top end of the tibia to form the knee joint or the base of the skull articulates with the 1st cervical vertebra of the neck.

Basi-cranium The bones of the base of the skull

Body (of vertebra) The main part of the vertebra that constitutes the weight-bearing portion of a vertebra

Cancellous bone

/Trabecular bone Spongy, porous, lightweight bone with a honeycomb structure, found under compact bone e.g. within vertebra, in the ends of long bones,

INFANT CREMATION COMMISSION REPORT ANNEX E

Report of Julie Ann Roberts

Cellmark Forensic Services

Lab Ref: CFS/917413/13 / Mortonhall Crematorium Investigation

Page 28 of 34

filling short bones and sandwiched within flat bones. The spaces in cancellous bone are filled with marrow.

Chondrocytes	The only cells within cartilage, they produce and maintain the cartilage matrix
Collagen chains	Chains of the specific amino acids which form collagen
Collagen	The major protein of the white fibers of connective tissue, cartilage, and bone
Compact bone/ Cortical bone	Solid, dense bone found in the walls of bone shafts and on external bone surfaces including joint surfaces
Cranium	Bones of the skull excluding the mandible (lower jaw)
Deciduous (dentition)	the first set of teeth, (milk teeth)
Dentine	The calcified tissue beneath the enamel in a tooth
Diaphysis	Shaft of a long bone
Enamel	The calcified tissue covering the outer layer of the crown of the tooth (smooth outer layer of the tooth)
Endochondral	The formation of bone within a cartilage model
Epiphyseal plate	The area of growing tissue at the end of the metaphysis
Epiphysis	Ends of long bones
Foramen magnum	Large hole at the base of the skull through which the brainstem passes and turns into the spinal cord

INFANT CREMATION COMMISSION REPORT ANNEX E

Report of Julie Ann Roberts

Cellmark Forensic Services

Lab Ref: CFS/917413/13 / Mortonhall Crematorium Investigation

Page 29 of 34

Hydroxyapatite	The calcium containing constituent of bone and teeth
Ilium	Thin bladelike section of one of the two pelvic bones, the part just above the hip socket
Incisal edge	the cutting edge of an incisor or canine tooth
Intermolecular cross-links	The bonds between molecules
Intramembranous	The formation of bone within a membrane in the absence of a cartilage model
LMP	Last Menstrual Period
Mesenchymal	Referring to the mesenchyme or mesenchymal tissue
Mesenchyme	The meshwork of embryonic connective tissue in the mesoderm (the middle of the three cell layers of the developing embryo) from which are formed the connective tissues of the body (including cartilage and bone) as well as blood and the lymphatic vessels
Metacarpals	Long bones of the hand, between the wrist and the fingers
Metaphysis	The expanded, flared ends of long bones, adjacent to the cartilage growth plate and epiphysis
Metatarsals	Long bones of the mid-foot
Neural arch (of vertebra)	The part of the vertebra which forms the arch behind the body enclosing the spinal cord in life

INFANT CREMATION COMMISSION REPORT ANNEX E

Report of Julie Ann Roberts

Cellmark Forensic Services

Lab Ref: CFS/917413/13 / Mortonhall Crematorium Investigation

Page 30 of 34

Occlusal cap	The structure of enamel and dentine when the crown is complete prior to the formation of the root of the tooth
Ossification centre	The site where bone begins to form in a specific bone or part of bone as a result of the accumulation of osteoblasts in the connective tissue.
- Primary	the first site where bone begins to form in the shaft of a long bone or in the body of an irregular bone
- Secondary	centre of bone formation appearing later than a primary centre, usually in an epiphysis
Ossification	The process of bone formation
Osteoblast	A cell from which bone develops; a bone-forming cell
Osteoclasts	A type of bone cell which resorbs bone during bone remodelling and shaping
Pars basilaris	The base part of a bone, in the occipital bone it is the thick, square projection in front of the foramen magnum
Pars lateralis	The lateral part of a bone, in the occipital bone, the parts which lie either side of the foramen magnum and articulate with the temporal bones
Phalanges	Fingers or toes (see appendix one)
Tarsals	Seven irregular shaped bones which articulate together between the lower leg bones and the metatarsals to form the ankle and posterior foot (calcaneus and talus are shown in appendix one)

INFANT CREMATION COMMISSION REPORT ANNEX E

Report of Julie Ann Roberts

Cellmark Forensic Services

Lab Ref: CFS/917413/13 / Mortonhall Crematorium Investigation

Page 31 of 34

Appendix Three: Reference sources, measurements of foetal and infant bones

Foetal measurements

6th Rib: Adapted from Fazekas and Kosa (1978) in Scheuer and Black (2000:243).

Humerus: Adapted from Fazekas and Kosa (1978) in Scheuer and Black (2000:288).

Pelvis: Adapted from Fazekas and Kosa (1978) in Scheuer and Black (2000:373).

Tibia: Adapted from Fazekas and Kosa (1978) in Scheuer and Black (2000:414).

Femur: Adapted from Fazekas and Kosa (1978) in Scheuer and Black (2000:393).

Clavicle: Derived from Fazekas and Kosa (1978) in Scheuer and Black (2000: 250)

Scapula: Adapted from Fazekas and Kosa (1978) in Scheuer and Black (2000:270).

Mandible: Adapted from Fazekas and Kosa (1978) in Scheuer and Black (2000:147).

Occipital, *pars lateralis*: Adapted from Fazekas and Kosa (1978) in Scheuer and Black (2000:61).

Perinatal measurements

Humerus, white male: Adapted from Trotter and Peterson 1969 in Scheuer and Black (2000: 288)

Femur, white male: Adapted from Trotter and Peterson 1969 in Scheuer and Black (2000: 394)

Tibia, white male: Adapted from Trotter and Peterson 1969 in Scheuer and Black (2000: 415)

1-12 months measurements

Tibia diaphyseal length, male mean: Adapted from Ginhart, 1973 in Scheuer and Black (2000:415).

Femur diaphyseal length, male mean: Adapted from Maresh, 1970 in Scheuer and Black (2000:394).

Humerus: Adapted from Maresh (1970) in Scheuer and Black (2000:289).

Clavicle: Adapted from Scheuer and Black (1996) in Scheuer and Black (2000: 252)

Scapula: Adapted from Saunders *et al* (1993) in Scheuer and Black (2000: 271)

INFANT CREMATION COMMISSION REPORT ANNEX E

Report of Julie Ann Roberts

Cellmark Forensic Services

Lab Ref: CFS/917413/13 / Mortonhall Crematorium Investigation

Page 32 of 34

Appendix Four: References

Bagnall, K.M., Harris, P.F. and Jones, P.R.M., 1982, A Radiographic Study of the Longitudinal Growth of Primary Ossification Centres in Limb and Long Bones of the Human Fetus. *The Anatomical Record* 203, pp. 293-299

Bass, W. M. and Jantz, R. L., 2004. Cremation Weights in East Tennessee. *Journal of Forensic Science*, 49 (5), pp. 1-4

Biswas and Iqbal, 1998. *Mosby's Crash Course: Musculo-Skeletal System*. Mosby

Bontrager, A.B, and Nawrocki, S.P., 2008. A Taphonomic Analysis of Human Cremains from the Fox Hollow Farm Serial Homicide Site, in: C.W. Schmidt and S.A. Symes, eds. *The Analysis of Burned Human Remains*. Elsevier Ltd, pp. 211-226

Buikstra, J.E. and Swegle, M. 1989. Bone Modification Due to Burning in *Bone Modification*, 1st Volume

Buikstra, J.E. and Ubelaker, D.H., 1994. *Standards for Data Collection from Human Skeletal Remains*. Arkansas Archaeological Survey Research Series No.44.

Chamberlain, C. T., 2013 *The Cremation of Foetuses, Neonatal and Infant Remains*. Specialist report produced for Mortanhall Investigation

DeHaan, J.D. and Nurbakhsh, S., 2001. Sustained Combustion of an Animal Carcass and its Implications for the Consumption of Human Bodies in Fires *Journal of Forensic Science*, 46 (5), pp. 1076-1081

Downes, J and McGregor, G. 1995. *Linga Fiold, Sandwick, Orkney*. Glasgow University Archaeological Research Division

Dunlop, J. M., 2004 Cremation of Body Parts and Foetuses

INFANT CREMATION COMMISSION REPORT ANNEX E

Report of Julie Ann Roberts

Cellmark Forensic Services

Lab Ref: CFS/917413/13 / Mortonhall Crematorium Investigation

Page 33 of 34

Gonçalves, D., Thompson, T.J.U. and Cunha, E., 2011 Implications of heat-induced changes in bone on the interpretation of funerary behaviour and practice in *Journal of Archaeological Science* 38 (2011), pp 1308-1313

Holden, J.L., Phakey, P.P. and Clement, J.G., 1995. Scanning Electron Microscope Observations of Heat-Treated Human Bone. *Forensic Science International*, 74, pp. 29-45

Hillson, S., 2002. *Dental Anthropology*. Cambridge University Press

Hillson, S. 2009. The World's Largest Infant Cemetery and its Potential for Studying Growth and Development. *Hesperia Supplements*, 43, New Directions in the Skeletal Biology of Greece, pp. 137-154

Holck, P., 1986. *Cremated bone: A medical and anthropological study of an archaeological material on cremation burials*, PhD Thesis, Anatomical Institute, University of Oslo, 1986

Kennedy, K. A. R., 1996. The Wrong Urn: Commingling of Cremains in Mortuary Practices. *Journal of Forensic Sciences*, 41 (4), pp. 689-692

Lobo, I. and Zhaurova, K., 2008. Birth defects: causes and statistics. *Nature Education* 1(1):18

Mayne Correia, P. M., 1997. Fire Modification of Bone: A Review of the Literature. In: W.D. Haglund and M.B.Sorg, (eds). *Forensic Taphonomy: The Post-mortem Fate of Human Remains*. CRC Press, Boca Raton, F.L. pp. 275-293

McKinley, J.I., 1994. Pyre and grave-goods in British cremation burials, have we missed something? *Antiquity* (68) pp 132-4

McKinley, J. I., 1996. *Linga Fiold, Sandwick, Orkney; Human Bone Report with Discussion of Pyre Technology and Ritual*. Unpublished report on behalf of GUARD, Glasgow

McSweeney, K., 1995. The Excavation of Neolithic, Bronze Age and Early Historic Features near Ratho, Edinburgh. *Proceedings of the Society of Antiquaries of Scotland*, 125, pp. 69-138

INFANT CREMATION COMMISSION REPORT ANNEX E

Report of Julie Ann Roberts

Cellmark Forensic Services

Lab Ref: CFS/917413/13 / Mortonhall Crematorium Investigation

Page 34 of 34

Mongelli, M., 2012. *Evaluation of Gestation MEDSCAPE*

<http://emedicine.medscape.com/article/259269-overview>

Nelson, R., 1992. A Microscopic Comparison of Fresh and Burned Bone. *Journal of Forensic Sciences*, 37 (4), pp. 1055-1060

Roberts, J. A., 1995. The taphonomy of cremated human remains: an experimental study of the fragmentation of bone from the bronze age cremation cemetery at Linga Fold, Orkney. Unpublished MSc dissertation, University of Sheffield

Roberts, J. A., 1998. Cremated Human Remains. In, McGregor G, The excavation of a cordoned urn at Benderloch, Argyll. *Proceedings of the Society of Antiquaries of Scotland* (128) pp 143-159

Roberts, J. A., 2001. *Human Remains Report, Crantit Chambered Cairn, Orkney*. Canmore Ref: HY40NW 17, <http://canmore.rcahms.gov.uk/en/site/141720/details/crantit/>

Sanders, J., 2009. Age Estimation of Fetal Skeletal Remains from the Forensic Context. MA Dissertation, University of Montana, Missoula.

Scheuer, L. and Black, S., 2000. *Developmental Juvenile Osteology*. Academic Press, London

Schmidt, C.W. and Symes, S.A, 2008. *The Analysis of Burned Human Remains* Elsevier Ltd

Schutkowski, H., 1987. Sex determination of fetal and neonate skeletons by means of discriminant analysis. *International Journal of Anthropology*, 2 (4), pp. 347-352

Shipman, P., Foster, G. and Scheoninger, M., 1984. Burnt Bones and Teeth: an Experimental Study of Color, Morphology, Crystal Structure and Shrinkage. *Journal of Archaeological Science*, 11, pp. 307-325

Sawasdee, K., Tiensuwan, M., Siripinyanond, A., Chirachariyavej, T. and Smith, S.M., 2012. Elemental analysis of burnt human bone for classifying sex and age at death by logistic regression. *Analytical Methods*, 2012 (4) pp 1769-1775

INFANT CREMATION COMMISSION REPORT ANNEX E

Report of Julie Ann Roberts

Cellmark Forensic Services

Lab Ref: CFS/917413/13 / Mortonhall Crematorium Investigation

Page 35 of 34

The Oxford Compact English Dictionary, 1996. Edited by D. Thompson. Oxford University Press

Trotter, M. and Hixon, B. B., 1974. Sequential Changes in Weight, Density and Percentage Ash Weight of Human Skeletons from an Early Fetal Period through Old Age. *The Anatomical Record*, 179 (1) pp. 1-18

Ubelaker, D.H., 1989. *Human Skeletal Remains: Excavation, Analysis, Interpretation*. Taraxacum Press, Washington

Uytterschaut, H., 1993. Human Bone Remodelling and Aging in: G Grupe and A. N. Garland (eds) *Histology of Ancient Human Bone: Methods and Diagnosis*. Springer-Verlag, Berlin.

Van Deest, T.L., Murad, T.A., Bartelink, E.J., 2011. A Re-examination of Cremains Weight: Sex and Age Variation in a Northern Californian Sample. *Journal of Forensic Sciences*, 56 (2), pp. 344349

INFANT CREMATION COMMISSION REPORT ANNEX E

Supplementary Anthropology Report

Report of Julie Ann ROBERTS BA (Hons), MSc, PhD

Occupation Forensic Anthropologist and Archaeologist
at
Cellmark Forensic Services
Unit B1, Buckshaw Link, Ordnance Rd, Chorley, Lancashire, PR7 7EL

Dated the 10th day of March 2014

Signature.....

Laboratory Reference Number: CFS/917413/13

Customer Reference: Mortonhall Crematorium Investigation

1. Background and Requests

Further to the observations outlined in my previous report dated 17th December 2013, I was asked to produce an amended report with an extended glossary of terminology, and a supplementary report commenting on images of the remains of a 17 weeks old foetus cremated at Mortonhall (Images 18/7 to 18/12, to be found in Production Folder 18, held by Edinburgh City Council).

The images were provided to me on 23rd December 2013 by Claire Soper, following a meeting with her and Dame Eilish Angiolini in Oxford on the 19th December 2013. The comments below should be read in conjunction with my original report dated 17th December 2013 and my supplementary report dated 7th January 2014.

In addition to this, on the 22nd January 2014, I received an email from Claire Soper informing me that three members of staff from Aberdeen Crematorium visited Seafield Crematorium, Edinburgh on the 21st November. There they witnessed the cremation of an 18 week gestation male foetus and saw the surviving skeletal remains. It was also noted that the team had taken many photographs of foetal remains at the crematorium, the youngest being aged 13 weeks and 1 day.

INFANT CREMATION COMMISSION REPORT ANNEX E

Report of Julie Ann Roberts

Cellmark Forensic Services

Lab Ref: CFS/917413/13 / Mortonhall Crematorium Investigation

Page 37 of 34

With regard to the six images supplied to me on the 23rd December 2013 (Images 18/7 to 18/12) I was asked to comment on the following:

- Whether it was possible to identify any individual bones or bone fragments in the tray shown in the images
- Whether it was possible to identify bone residue in the tray shown in the images
- Whether the presence of residue in the tray could be excluded

2. Technical note

A diagram of a neonatal skeleton is provided for reference purposes in Appendix One. Due to the sensitive nature of the subject matter, the images referred to in the text below have not been included in the report and they can be found in Production 18, held by the City of Edinburgh Council. A glossary of the technical terminology used in this report can be found in my amended report dated 7th January 2014.

3. Review of the Images

The cremated remains shown in Images 18/7 to 18/12 are those of a foetus aged 17 weeks (it is assumed, gestational not conceptional age). All the images are of the same set of cremated remains, photographed at different distances and angles. The cremation was undertaken overnight with the machine switched off, as this is standard practice at Mortonhall (Soper *pers comm.*).

During the examination each image was enlarged and reviewed individually. The amount that the images could be enlarged was limited by the quality of the original photographs and it was not possible to adjust the clarity of the images to gain a better view of the individual fragments within the tray. There was no scale in the majority of the images therefore an accurate estimate of the size of any possible fragments could not be made. This did not, however, preclude the identification of individual bones where they were visible. There follows a summary of my observations in relation to each individual image.

INFANT CREMATION COMMISSION REPORT ANNEX E

Report of Julie Ann Roberts

Cellmark Forensic Services

Lab Ref: CFS/917413/13 / Mortonhall Crematorium Investigation

Page 38 of 34

Image 18/7

This image has been removed from the Report due to its sensitive nature. It is available to view in Production 18 in the folder of photographs held by City of Edinburgh Council. This is Production 18/7.

Image 18/7 shows an overview of the cremated remains. The majority of the remains, which range in colour from black, through to grey, to white, appear to be in the bottom right hand corner of the tray. A collection of what appears to be more finely powdered remains which are predominantly white in colour, is located along the left edge of the tray, concentrated at the top end. From this image;

- I cannot identify any individual bones in the tray
- The small white fragments, particularly those located along the left edge of the tray, resemble bone residue
- I cannot exclude the presence of bone residue in the tray

Image 18/8

This image has been removed from the Report due to its sensitive nature. It is available to view in Production 18 in the folder of photographs held by City of Edinburgh Council. This is Production 18/8.

INFANT CREMATION COMMISSION REPORT ANNEX E

Report of Julie Ann Roberts

Cellmark Forensic Services

Lab Ref: CFS/917413/13 / Mortonhall Crematorium Investigation

Page 39 of 34

Image 18/8 is a slightly more close up view of the tray. The discrete areas of remains described above are also visible in this image. From this image;

- I cannot name any individual bones in the tray, but there are some fragments which resemble small pieces of bone
- I can identify material that resembles bone residue in the tray
- I cannot exclude the presence of bone residue in the tray

Image 18/9

This image has been removed from the Report due to its sensitive nature. It is available to view in Production 18 in the folder of photographs held by City of Edinburgh Council. This is Production 18/9.

Image 18/8 focuses on the largest collection of remains in the bottom right hand corner of the tray. The remains comprise multiple fragments of different sizes and colours including black, different shades of grey and white. There also appears to be a substance with a greenish / grey tinge beneath the bulk of the remains. Some of the fragments appear to have a paper-like texture whilst others appear to be denser and more solid. There is a shadow / red discolouration in the bottom left hand corner of the image which is an artefact on the photograph. From this image;

- I can identify possible fragments of pelvic bone, long bone and ribs in the tray
- I can identify material that resembles bone residue in the tray
- I cannot exclude the presence of bone residue in the tray

INFANT CREMATION COMMISSION REPORT ANNEX E

Report of Julie Ann Roberts

Cellmark Forensic Services

Lab Ref: CFS/917413/13 / Mortonhall Crematorium Investigation

Page 40 of 34

Image 18/10

This image has been removed from the Report due to its sensitive nature. It is available to view in Production 18 in the folder of photographs held by City of Edinburgh Council. This is Production 18/10.

Image 18/10 is a close-up view of the collection of small fragments and powdered remains located along the left edge of the tray. They are predominantly white in colour, although it can be seen in this view that some of the fragments are also light grey in colour. From this image;

- I cannot identify any individual bones in the tray
- I can identify material that resembles bone residue in the tray
- I cannot exclude the presence of bone residue in the tray

Image 18/11

This image has been removed from the Report due to its sensitive nature. It is available to view in Production 18 in the folder of photographs held by City of Edinburgh Council. This is Production 18/11.

Image 8/11 shows the largest collection of remains in the bottom right hand corner of the tray and the smaller fragments, which are predominantly white in colour, located adjacent to the left edge of the tray. A hand and forearm are also placed in the image for scale. The substance with the greenish / grey tinge observed on Image 3 is again visible and it also appears to be

INFANT CREMATION COMMISSION REPORT ANNEX E

Report of Julie Ann Roberts

Cellmark Forensic Services

Lab Ref: CFS/917413/13 / Mortonhall Crematorium Investigation

Page 41 of 34

present in isolation in thick “plaques” to the right of the largest collection of remains, as well as beneath it. From this image;

- I cannot name any individual bones in the tray with confidence, but there are some fragments which resemble small pieces of bone including rib
- I can identify material that resembles bone residue in the tray
- I cannot exclude the presence of bone residue in the tray

Image 18/12

This image has been removed from the Report due to its sensitive nature. It is available to view in Production 18 in the folder of photographs held by City of Edinburgh Council. This is Production 18/12.

Image 18/12 is a close-up view of the largest collection of remains in the bottom right hand corner of the tray. From this image;

- I can identify possible fragments of pelvic bone, long bone and ribs in the tray
- I can identify material that resembles bone residue in the tray
- I cannot exclude the presence of bone residue in the tray

4. Conclusions

- 4.1. It was possible to name individual bones (or fragments of) in Images 18/9 and 18/12.
- 4.2. It was possible to identify individual fragments of bone, but not to name them, in Images 18/8 and 18/11.
- 4.3. There was material present which resembled bone residue in all of the images
- 4.4. I could not exclude the presence of bone residue in any of the images

INFANT CREMATION COMMISSION REPORT ANNEX E

Report of Julie Ann Roberts

Cellmark Forensic Services

Lab Ref: CFS/917413/13 / Mortonhall Crematorium Investigation

Page 42 of 34

It should also be stated that the above findings were not immediately obvious. Expertise in foetal skeletal anatomy and interpretation of burnt remains was required to identify the individual bones and bone residue. It is true to say that examination of the physical remains rather than photographic images would make the identification of bones easier but even so, untrained or inexperienced staff might find this difficult, particularly in the case of a young foetus.

INFANT CREMATION COMMISSION REPORT ANNEX E

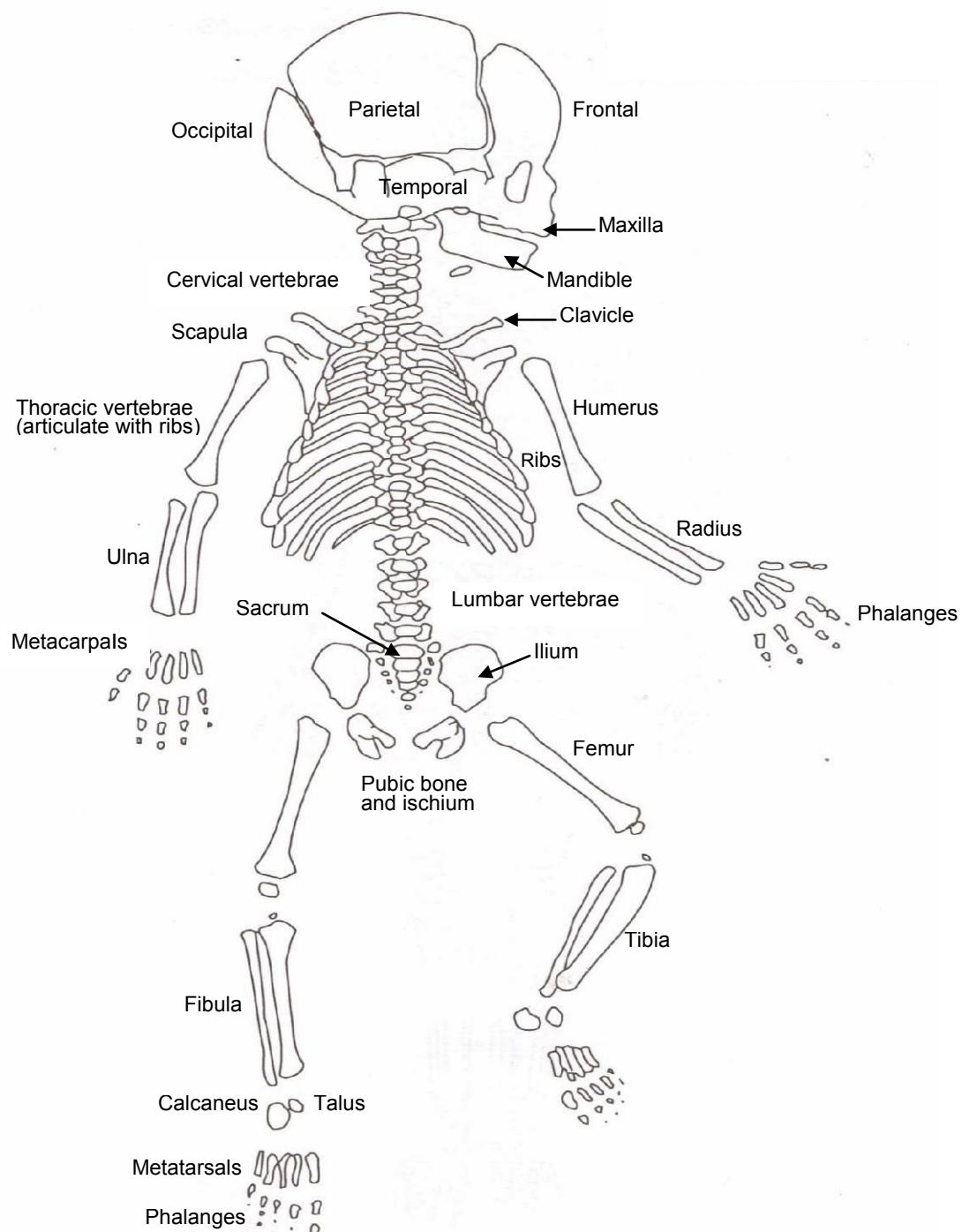
Report of Julie Ann Roberts

Cellmark Forensic Services

Lab Ref: CFS/917413/13 / Mortonhall Crematorium Investigation

Page 43 of 34

Appendix One: Diagram of the Neonatal Skeleton



INFANT CREMATION COMMISSION ANNEX F

27 March 2014

THE CREMATION OF FOETUSES, NEO-NATAL AND INFANT REMAINS by

Dr Clive T Chamberlain

I graduated from the University of Leeds in 1964 with a first class honours degree (B.Sc.) in Fuel and Combustion Science. I was awarded a Ph.D. by the University of Leeds in 1967 and the title of my thesis was The Combustion of Coal in Oxygen.

I am a Chartered Engineer, a Fellow of the Energy Institute and a Fellow of the Institution of Gas Engineering and Management. I am a member of the Council of the Combustion Engineering Association.

I was a Lecturer in Fuel and Combustion Engineering at the University of Leeds between 1967 and 1972. I was Managing Director of Evans Universal from 1972 to 1998. The company manufactured specialist incinerators and human animal and cremation equipment on a world-wide basis. Its successor, of which I was Vice-President from 1998 to 2000, was Facultatieve Technologies BV, den Haag, Nederland.

I have been the Proprietor of Combustion Technology Consultancy Ltd since 2000. The company specialises in cremation, incineration and the disposal of animal remains.

Although I do not have experience of giving evidence in court, I am qualified to help with the remit of the investigation because I have over 40 years experience in the design and development of working cremators installed throughout the world. My particular areas of expertise are in combustion processes and process control; cremation of human and animal remains; environmental regulation and permits; high temperature combustion and process monitoring and reporting systems.

I have contributed to most of the cremation conferences in the UK and overseas over the last 25 years, and to the development of guidance legislation for crematoria and incinerators.

The development of legislation for Crematoria from 1967

Along with other processes which have an impact on the environment by reason of their emissions to atmosphere, and especially combustion, the control of emissions has progressed and improved over the last 50 years. The first legislation in modern times was the 1956 Clean Air Act which dealt with emissions of smoke. This was superseded by a Second Act in 1968, which is the starting point for this review.

The legislation of all industrial processes at this time was a ‘domestic’ affair within the UK. It was also very difficult, seen through the lens of history, to achieve successful control because the legislation did not incorporate the means of measuring and enforcing compliance.

In effect, it had no teeth.

Pollution matters were not nearly as well understood as they are today, neither was there the same sense of urgency to control pollution of the environment. Crematoria were no different to other combustion processes, and the emission of copious volumes of dark smoke from crematoria chimneys was almost a trademark.

Several developments in legislation took place over the succeeding 40 years which brought about fundamental changes:

The heightened awareness of the impact of environmental pollution on human health

Membership of the European Community, which brought in its train Directives to be observed throughout the Community, which were made into legislation by competent local legislatures (normally Governments).

The establishment of regulatory organisations with the knowledge and resources to guide, and where necessary, enforce legislation.

Increasing accessibility of methods of measurement and control of emissions suitable for use in combustion processes such as are used in Crematoria.

The concept of Best Available Techniques (BAT) became the cardinal principle, and how this is applied to regulated processes has itself undergone development.

Permits were established to enable the operation of a process, and these permits set out the way in which it had to be done, with whatever enforcement would be prescribed for a particular process. These permits could be varied by Regulators and, on successful application, by operators of processes.

The details of the successive pieces of legislation and their implementation in ‘Regulations’ is a long catalogue and, whilst they are not recited here, the development of the improvements in Crematoria which the legislation sought to achieve are discussed.

Processes which give rise to pollution are dealt with in over-arching legislation and individual processes are then dealt with on a more specific basis in a variety of ways. In the case of Crematoria in the UK, these take the form of Process Guidance Notes. The earlier notes, issued in 1994 and revised several times, did not have **statutory** guidance status – relying on a willingness to achieve compliance.

Footnote 1 on page 1 of the pg 5/2 (12) document recites that this Note is **statutory** in England, Wales and Northern Ireland and **guidance** in Scotland

Initially, attention was focussed on the combustion processes going on within the cremator and significant progress was achieved by the use of computer systems and instrumentation.

Notwithstanding, there remained important pollutants which could not be removed or controlled by combustion alone and abatement equipment had to be installed to achieve the levels of emission quality which by this time were being demanded throughout Europe. Coinciding with this stage, the Guidance Notes acquired statutory status under the enabling legislation, and enforcement became possible – based on the ‘teeth’ then embodied in the Guidance.

Little by little, the onus for compliance was placed on the operator rather than as a result of inspection by regulators. Ever-stricter reporting obligations were placed in the PPC Permits. This amounted to ever more intrusive surveillance of processes and this resulted in significant costs of compliance, to the *chagrin* of operators.

In concept, the requirements were almost the same throughout the UK, but there were divergences in how regulation was achieved in different parts of the UK.

Not mentioned thus far as a separate regulatory body, Scotland applies the same or similar principles to the rest of the UK, but implement their regulation via SEPA (Scottish Environment Protection Agency) who implement the Pollution Prevention and Control (Scotland) Regulations. The relevant Regulations date from 2000, but from the start of 2013, the 2012 Regulations will be in force. These also implement the Industrial Emissions Directive and afford yet more powers to SEPA. To implement these new regulations, PPC Permits will be varied by SEPA.

The past forty years has seen legislation which has brought common guidance across the European Community, improved emission control, and gradually moved the main onus of compliance from appointed inspectors to operators. These three ‘planks’ of legislation have resulted in regulation with ‘teeth’ and although collaboration between operator and regulator is the norm, enforcement is there ready to use when needed.

Current Statutory Guidance

The current guidance is the Process Guidance Note 5/2 (12) (last issued in September 2012) ‘Statutory Guidance for Crematoria’ and this applies throughout the UK – **although it is**

INFANT CREMATION COMMISSION ANNEX F

guidance in Scotland , and so application in Scotland is achieved via conditions in the PPC permit for individual crematoria.

This is a document of some 55 pages, which is not summarised here. As the guidance notes for crematoria have developed over the years, it is very noticeable that more and more attention is being paid to matters to do with safety and training and these are reviewed because of the interface between the operation of cremators in a safe manner and by persons competent to deliver both the **ethical** part of cremation and in conformity with the prescriptions of the **technical part** as required in the PPC permit.

Safety

Note: PG5/2 specifically states that PPC permits must not contain conditions whose only purpose is to secure the health and safety of persons at work. This is the job of health and safety enforcing authorities. For this reason, the employer's requirements are paramount.

Cremation Authorities make their own arrangements as employers to secure the protection of operating personnel and in the writer's experience, little specific attention by the Health and Safety Executive (HSE) has been necessary

Safe operation of cremators and the safety of operating personnel have attracted attention in recent years, as the application of the Health and Safety at Work Act (HASAWA) has been made by cremation authorities.

There are a number of aspects of cremator operations which potentially are hazardous, because the cremator is a furnace operating at high temperatures. The actual construction of the cremator is not, nowadays, a risk area but the task of loading a cremator and removal of cremated remains along with eventual ash processing certainly is.

The loading of a cremator involves the main furnace door being open for a number of seconds. Until recently, insertion of a coffin into the primary chamber of the cremator was done manually by the operators. So long as suitable personal protective equipment (PPE) was used, this practice has been shown over the years rarely to cause injury, although the development of understanding of risk management throughout industry has resulted in automatic insertion machines being developed and used increasingly.

The removal of cremated remains from the primary chamber is an activity which is **still** carried out manually using a long rake. During this manoeuvre an operator is exposed to the open furnace for perhaps 2 to 3 minutes each time. Here it is essential for hand, arm and face protection to be used.

[comment: at least one type of cremator (in Denmark) has been built with automatic ash removal, which does not expose operators to the open door of the furnace]

INFANT CREMATION COMMISSION ANNEX F

I was shown a photograph (labelled number 45) which demonstrates an operator raking remains from the hearth of the primary chamber with NO PPE in use as described above. This is contrary to normal safe practice, and management involvement is indicated strongly in connection with this practice.

Safety with Infant cremation

This matter is highlighted because the small physical size of infant, neo-natal and non viable foetus cremations requires different practices. Normally, a metal tray is used to support the remains for insertion into the cremator and the 'charging bier' can be used along with final positioning of the charge on the hearth of the cremator by means of a rake.

The whole tray must be removed at the end of the cremation in order to retain undisturbed any cremated remains. If this has to be done with the cremator at working temperature (because there are other cremations still to be performed), this is more difficult and more risky than the usual raking operation into the 'ashing chamber' of the cremator. If the infant cremation is done as the last cremation of a working day, the tray can be left in the primary chamber and removed safely the next day before starting up the cremator. It is suggested that attention to safe working with infant cremations should receive development attention within the industry.

Training

As with matters of Safety, the training of cremator operators has received increasing attention in order to secure competence in operation. It is a recognised mark of a well-trained operational staff that they have been trained in the operation of cremators and have passed an examination by one of the appropriate professional bodies. Testing covers:

- i) correct and dignified care of the disposal of human remains
- ii) that the requirements of the PPC permit are observed at all times during operations

Usually, accredited cremator operators display in the crematory and with some pride their certificates of competence!

HOW A CREMATOR WORKS

[Note: the terms infant, neonatal and nvf (non-viable foetus) are used interchangeably in the text to describe remains presented for cremation having from 0.5 to 5 kg body weight]

The development of urban communities comprising large numbers of people has influenced very strongly the way cremations are carried out and, in most cultures, the simple open cremations of early history have had to be replaced with individual cremations in closed equipment.

As a result, what we know as cremation in the Western world during the last 150 years has evolved to enable a high throughput of cremations, whilst preserving the dignity of disposal of human remains.

These are the so-called ‘fast’ cremators and they are in virtually universal use in developed societies - although other practices are described in outline later. In the UK, the size and number of cremators at a crematorium are selected to enable the ‘duty’ to be accomplished within a normal working day and so the cremator is used for about 8 hours per day and then shut down until the next day. This is not an energy-efficient way of working, and cultural practices have been allowed to dominate at the expense of efficiency. However, some countries in Europe and elsewhere have extended periods of daily operation – even 24 hour operations.

[As will be made clear in a later section, the use of ‘fast’ cremators has a lot to do with whether there are remains from the cremation of foetuses and infants]

The minimisation of the environmental impact of crematoria has become important, and what is described here reflects the position today.

It is important to recognise **two** parts of the cremation process:

The ‘**ethical**’ part in which the human remains are inserted and burned and after which remains are recovered. This takes place in the Primary Cremation Chamber.

The ‘**technical**’ part in which pollutants are destroyed at high temperature or otherwise treated to prevent pollution. This takes place in the Secondary combustion chamber.

The Ethical part of cremation

For most cremations, but not all, the body is contained within a coffin, and cremation takes place one body at a time. Both the coffin and the body burn in a chamber shaped so as to be a little larger than the coffin itself. The process involves a number of steps, which repeat for each cremation in a batch process.

This results in a set of cremated remains, or ashes***, which can be recovered individually and, after cooling, presented to the family or other final destination according to local custom or wish.

*** What to call the remains?

The use of the words ‘cremated remains’ and ‘ashes’ to describe the remains after cremation are the subject of debate, which will not be explored here.

The residue remaining after the completion of a cremation comprises components of both the body and the coffin.

There is a small percentage of the coffin (of whatever material it has been made) which is inorganic in nature, and thus survives the cremation process.

There is a small percentage of the body which is also inorganic in nature (mostly the bones) and this too survives the cremation process. It is these components which are recovered and returned to families afterwards.

The individual steps in a cremation form a sequence beginning with the ignition of the external surface of the coffin. The interior of the cremation chamber at the start of most cremations is in the range 650 to 850 °C, and air for combustion is admitted to the chamber along its length so as to establish burning along the whole of the coffin. The human body comprises up to 75 % of water, and much of this must be dried out before burning proper can take place. This drying needs a characteristic time period which dominates the cremation process, and most cremations in modern cremators need from 60 to 90 minutes for completion from insertion of the coffin.

The sequence of the ‘ethical’ part of the cremation is:

Ignition and burning of coffin and outer layers of the body

Drying of the ‘wet’ parts of the body followed by burning of the contents of the thoracic, cranial and abdominal cavities.

Completion of burning of combustible parts

Calcination of bones

Cooling of cremated remains, and processing to produce a final quantity of small particles (usually 0.5 to 1.5 kg).

Thus, the process is arranged to deliver well-calcined remains in an acceptable time and with a minimum environmental impact. From an engineering point of view this is achieved only by close control of the temperatures, air admission, and other parameters. The starting and finishing stages are supported by the provision of external energy in the form of small support fuel burners using any ‘clean’ fuel.

Some specialist cremators use only electrical heating in the cremator rather than fuel-fired burners.

The Technical part of cremation

All cremators have a secondary combustion zone in which the gases from the cremation are burned to completion to eliminate smoke, smell and combustible pollutants. The zone is maintained at a temperature of at least 850 °C and this too is heated by support fuel burners. The temperature and the oxygen concentration in this chamber are maintained under close control.

Until very recently, this constituted the end of the process and the exhaust gases were discharged to atmosphere through a chimney. The pollutants of carbon monoxide and dioxins could be dealt with in this part of the process.

It was realised that the gases from the chimney contain pollutants which could not be removed by combustion alone. These are:

Hydrogen chloride – typically from PVC. (hydrogen chloride is one of the ‘acid gases’ so important in promoting the formation of ‘acid rain’). These were dealt with simply by removing the chlorine-containing materials used in coffins and coffin ‘furniture’

Dust – a major contributor to respiratory disease in humans

Mercury (mainly from dental treatment)

As the perception of the damage to health caused by such pollutants grew, the kind of gas cleaning processes previously required only for potential polluters with large throughputs (for example power stations) were applied to crematoria.

The result of these recent developments is that the technical part of a cremation process has become far more complex and expensive.

INFANT CREMATION COMMISSION ANNEX F

Comment:

This account of how a cremator works has dealt with the processes going on when full-size coffins are charged to the cremator. If the same cremator is charged with infant or foetal remains the outcome can be very different depending on how the cremation is carried out. This aspect of cremation is dealt with in more detail below.

The likelihood of ashes retrieval from the cremation of infants and foetuses.

Why is this a question at all?

In the majority of cremations of infant and foetal remains, cremation authorities explain that it is unlikely that there will be any recoverable remains after a cremation is ended. It is necessary to understand why this happens, in order to search for a better outcome, since there certainly are plenty of remains from adult cremations.

All modern cremators are designed, built and operated with the intention of cremating whole bodies of many ages and sizes – with a total weight lying between 60 and 300 kg (body plus coffin). In order that a cremation can be completed in a reasonable time, the combustion conditions within the primary cremation chamber are quite aggressive - comprising of jets of air introduced along the cremator together with support burners to create the conditions necessary for active burning to take place.

From a combustion viewpoint, there is turbulence created within the chamber in order to have combustion air flowing over the remains being burned. This turbulence will entrain the lightest solid particles and carry them out of the cremation chamber into the secondary combustion system. Nonetheless, the bones in an adult cremation retain enough shape and weight to remain in the cremation chamber to be raked out when the last traces of combustible material have been destroyed but those of an infant cremation may not.

The definition of when a cremation is complete has been considered by a number of national and international cremation organisations and, whilst different words are used by different organisations, there is common agreement that the residues must not be disturbed on the crematory hearth until there is no ‘flicker’ of flame visible on the remains.

At this point, the human tissue has been burned fully, but the char residue from the coffin (if there was one) has not yet burned fully to ash, neither have the bone residues been fully ‘calcined’ (*the components of bone have not been fully converted into inert oxides*).

To make the matter clear, that material which remains at the end of a cremation has survived the fire, and so is composed of constituents which are stable enough to survive the fire. They end up as oxides of an element and there is not a great deal of difference where the original

INFANT CREMATION COMMISSION ANNEX F

material came from, - (usually mixed oxides of Calcium, Magnesium, Silicon and Aluminium with traces of other elements)

The remains on the crematory hearth are raked into a small chamber provided with a gentle supply of air. Here final cooling of the remains and burning of any wood char takes place.

Considering an infant or foetal cremation, the tissues and bones have not yet formed into their mature character and, if subjected to the normal conditions in a cremator, frequently the outcome is that although there will be remains, it may not be possible to recover them..

Further analysis is appropriate here:

- i) The organic components of an infant cremation will decompose at the working temperature of the cremator and will burn in the cremation chamber.
- ii) Inorganic components will not be destroyed in the cremator and potentially could be recovered. But by visual observation of the cremation process, particles can be seen 'swirling' about within the chamber even though the cremation is conducted as gently as practicable. Also, remains often can be seen but when touched by ash removal tools, crumble almost to 'powders'. .
- iii) It is impossible to eliminate the movement of gases within the cremation chamber and so the small 'ash' particles referred to above can be entrained in the gases and carried out with them from the cremation chamber. This mechanism is thought to be responsible for a large proportion of the loss of remains from the cremation chamber.

The process operates also with adult cremations but it has less relative effect upon the cremated remains.

Whether there can be remains recovered from infant cremations depends upon whether conditions in a cremator can be brought about which enable such an outcome.

What would be the ideal way of cremating infant and foetal remains?

Ideally, the cremation process should destroy combustible organic components of the body and retain inorganic parts. The usual conditions for cremation of adults are not suitable for infant cremations, and it is a matter of establishing whether there can be suitable conditions created, having regard to all the factors which affect the outcome. The essential characteristic of infant cremation must be a gentle process.

There are a number of aspects which merit assessment:

INFANT CREMATION COMMISSION ANNEX F

Effect of current legislation to do with cremators

Conditions within the cremator during operation

Commercial and operational conditions

Legislation

Cremation in the UK is prescribed currently in the ‘Statutory Guidance Notes’ 2012 (identified as Process Guidance Note PG5/2(12))

It is often overlooked that, stringent though it is, the Guidance **does not** specify how cremation processes in the Primary Cremation chamber must be carried out, and so long as the remainder of the process is compliant, the cremation proper can be carried out as seen fit by cremation authorities. .

However, the Statutory Guidance is quite specific in relation to the use of full scale cremators for infant cremations (clause 5.29), and it states that:

When stillbirth, neonatal or foetal remains are cremated in full-scale cremators, the guidance for those cremators should apply

Therefore, it is not possible to achieve compliance with the legislation unless the cremator is operating under the prescribed conditions to do with the secondary chamber and abatement

It is necessary in this context to deal with ‘overnight cremation’ which was practised at many crematoria prior to the present legislation being introduced.

Practising cremator operators found by experience that if an infant cremation (or for that matter very small adult cremations) was placed in the cremator at the end of the working day and allowed to burn away after the cremator burners and fans had been switched off, there would usually be a small quantity of remains which could be removed the next morning. The ease (and uniqueness) of cremated remains retrieval was enhanced if the remains for cremation were placed on a metal tray.

INFANT CREMATION COMMISSION ANNEX F

Under the present Guidance, it would be non-compliant to practice ‘overnight’ and gentle cremation (that is with a warm cremator which has been stopped at the end of the working day) – unless of course the legislation was changed to allow nvf (non-viable foetuses), neo-natal and infant cremations to be carried out in this way.

In the interests of family needs associated with bereavement, perhaps a case could be made for this on the grounds that the remains being cremated are so small in weight that the products of combustion would be negligibly small and thus of vanishingly small potential for atmospheric pollution. There would be **no** issue to do with mercury from the cremation of these remains.

Conditions within the cremator

Most cremators operate using pre-set values for the air and burner settings which change throughout the cremation, so that the cremator can accept the wide range of cremations that come along. Usually there are at least three sets of ‘parameters’ for adult cremations and the control systems are programmed to select the most appropriate set. There are often a set of parameters for infant cremations.

There has been little development attention paid to how full-size cremators operate with infant cremations and, if there are to be successful infant cremations, (i.e. with recoverable remains), changes are necessary.

It can be said that infant cremations carried out in full-size cremators are still a ‘sledgehammer’ treatment.

There are those cremation practitioners who assert that there cannot be retrievable remains from infant cremations, and it is suggested that this is very likely to remain the case unless a way is found to deliver a more successful procedure.

It is appropriate at this point to note that foetuses of less than approximately 15 to 18 weeks gestation would be unlikely to have formed bone structures – albeit soft at this stage

Two possibilities are suggested

- i) Devise procedures using the existing stock of cremators but deliver slow, gentle cremation of infant remains (but note

Some work has been done at Seafield Crematorium in Edinburgh which indicates that it is practicable to modify cremation conditions

INFANT CREMATION COMMISSION ANNEX F

sufficiently to achieve retrievable remains. For such procedures to become accepted throughout the industry, they must be established on a number of cremator types and cremation authorities and be acceptable to cremation authorities.

If the remains to be cremated are positioned away from the support burner and if primary cremation chamber temperatures are kept low (typically 600 to 700 °C), these are the best conditions for quiescence.

I was shown a photograph (number 28) which show cremated remains on a metal tray. Some of the remains are of white-coloured calcined material (bone?) and other parts have a dark colour (possibly wrapping material?) which suggests that very gentle cremation conditions have been used. It is usual for cremated remains to be a whitish colour – except for possible prostheses or pins (but these will not apply to infant cremations).

- ii) Design alternative cremator types specifically for infant cremations – that is **small-scale cremators**.

Small-scale cremators are included in PG5/2 and the Guidance states that:

Not all the standards for full-scale cremators are appropriate for such small-scale cremators because of the relatively small mass of pollutants emitted.

'Small-scale' is defined by reference to a maximum door opening size and a maximum length of the primary chamber.

The Guidance then goes on to specify which clauses of the full-scale cremator must be implemented.

In the writer's opinion, attentive observance of the clauses specified would result in a small-scale installation rather complex as regards chimney and flue system and, in total, rather expensive. There is little incentive for manufacturers and operators to follow this route.

An alternative, which is available from at least one manufacturer, is to build what is effectively a small primary chamber to receive the remains for infant cremation. Gases from the combustion in this chamber are then to be fed to a full-scale cremator (which must be in full, normal operation in compliance with its PPC permit) for destruction in the secondary chamber and eventual emission abatement system.

INFANT CREMATION COMMISSION ANNEX F

With this configuration, it is simple to have combustion conditions in the small-scale cremator chamber which afford the best opportunity for there to be cremated remains.

The small cremator must be interlocked suitably with the full-scale cremator.

It is envisaged that the cremator could be table-top mounted for convenient operation

Very few such small-scale cremators have been installed over the last 5 years and it is suggested that the industry could look again at the use of such cremators.

Summary:

Providing care is taken with the cremation conditions and providing operational pressures allow for a slow cremation at a lower temperature in the primary chamber than with adult cremations, a full-scale cremator can reasonably be expected to provide some remains from an infant cremation, but not always. If a small-scale cremator is installed alongside a full-scale cremator, and integrated with its operation, the chances of obtaining cremated remains are much better.

Meaning of technical terms used in this document

Calcination: A process by which compounds of calcium – which make up most of the bone structure of animals – react with oxygen at high temperatures (typically more than 800 °C) to form calcium oxide, which is a white colour.

Entrain: When small particles in a chamber or a pipe are picked up in a stream of gas or air and transported along in the gaseous stream. This usually happens in a cremator if the speed of gases or flames is high enough to pick up solid particles and carry them out of the cremation zones into the chimney or flue system

Volatilise: Occurs when a liquid (or a solid) is changed to vapour by the application of heat.

INFANT CREMATION COMMISSION ANNEX F

Muffle:	A name given to a furnace in which heat is applied to a furnace chamber from the outside of that chamber.
Inert oxide	A compound which will not normally react further in air. for example calcium oxide

Commercial and operational issues

Within the context of a working crematorium, the operability of a cremator under special conditions and the costs of operation come into daily management issues. These issues too must fit smoothly into the questions surrounding infant cremations.

At this time, the costs of such cremations are met in a number of ways, including by bereaved parents, and for changes to the present arrangements to be successful there must be appropriate solutions.

The influence of organisational, financial and capacity issues on the design and functioning of crematoria is outside the writer's area of expertise and it is recommended that industry representatives with expertise in what impact changes in cremation practice might have be invited to contribute.

Cremation in other parts of the world

Europe

The cremation culture and equipment used in the UK is not the only way to dispose of human remains, although cremation in the rest of Europe is similar – driven as it is by a commonality of environmental regulation. The cremators used, and the legislation which controls their use are mostly (but not all) the same, but funeral practices do differ.

The most common cremator type in Germany has a different construction. It is called the '*Étage*' or '*Durchfall*' oven, and the chambers of the cremator are stacked vertically. The coffin is charged into the top chamber. When partly burned, the remains fall into the next lower chamber, and then finally into the third or 'ashing' chamber from which the completed cremated remains are retrieved. This type of cremator tends to be more energy-efficient (after coming up to normal working conditions), and is very suitable for continuous operation.

INFANT CREMATION COMMISSION ANNEX F

The difference in practices centre on the relationship of **when** the cremation takes place as opposed to when the farewell ceremonies take place, and this influences a number of details of practice.

Some countries (for example Scandinavia and German-speaking countries) have farewell ceremonies soon after death but the coffin is stored for cremation at a later date – sometimes several weeks after the farewell ceremony. Consequently, the cremation is almost a ‘production line’ operation, carried out separately from family participation. This enables the actual cremation process to be planned in an orderly manner and it also enables extended periods of operation to be used (even 24 hour operation), with more efficient use of energy and facilities.

It is not uncommon for a single cremator to carry out as many as 5,000 cremations in a year (for example in Moscow) compared to an average a few hundred per cremator per year in the UK – in the same make of cremator! There are tantalising savings of energy and greatly reduced wear of the cremator construction - there being no repeated start-up and shutdown of the unit each day.

The crematorium is still operated in a most dignified and tasteful way and cremated remains are returned to families.

The remainder of Europe tends to carry out cremations as in the UK, and the family is present at the farewell ceremony at the crematorium, with cremation immediately thereafter or within the same day. There is one noticeable difference in that is common for the whole process to include family meals or refreshments in elegant and purpose-designed facilities, (whilst the cremation is taking place in the crematorium building), finishing with the presentation of the cremated remains to the family to be taken away.

A solemn, dignified and effective way, which is held to assist and promote closure for the family.

Asia

There are a wider range of practices used throughout Asia with big differences according to the ethnicity of the populations. Environmental protection is an ever-growing need in Asia and modern crematoria are moving towards close regulation, with advanced cremators and emission abatement systems.

The practice in Japan is quite different, and there are more than 1,200 crematoria throughout the country. The cremator is constructed differently, and the base is removable, so it can be moved in and out of the cremator on wheels. Coffins are inserted into the cremator on ‘chariots’ on which they burn. After the completion of cremation the remains, still on the vehicle, are removed, allowed to cool and then placed in a room set aside for families who then select pieces of bone of the deceased for retention.

INFANT CREMATION COMMISSION ANNEX F

In China, there are exceptionally wide differences in practices, from country communities employing simple and inexpensive but polluting cremators to very sophisticated arrangements.

Here the coffin and body together can weigh 250/300 kg of which all but 50 to 70 kg or so is wood. The coffins are formed from solid wood, (often sandalwood for those who can afford it) which is hugely expensive, with a shape rather like a hollowed out tree trunk. The cremation time is correspondingly long.

European style coffins are becoming more common, being cheaper, and in major city communities the funeral practices are being adapted to the needs of large modern societies.

Practices differ again on the Indian continent, with the needs of religious practices influencing what happens at cremation. The most obvious difference is the need for there to be smoke visible from the cremation, to signify the passage of the soul of the deceased to another life. This practice is unavoidable with open funeral pyres, but more difficult with modern cremation which is specifically designed to avoid smoke emission!

New World

Practices differ yet again, essentially because there are a very large number of small geographically separate communities. Of course, the major cities are very different, and modern intensive crematoria have to be built.

Small 'country towns' will have few cremations and it is common for the funeral director also to own a single cremator in which that town's cremations are performed. The tempo of operations matches the needs and it is usual for gentle and slow cremation to take place – perhaps over a few hours per cremation.

Australia and New Zealand follow similar practices for much the same reasons, although the major cities have crematoria which are indistinguishable from those in the UK.

A handwritten signature in black ink that reads "Clive T Chamberlain". The signature is fluid and cursive, with "Clive" and "T" being the initials of the first name.

Dr Clive T Chamberlain

Combustion Technology Consultancy Ltd



13 May 2014

SEPA
Clearwater House
Riccarton
Edinburgh
EH14 4AP

For the attention of [REDACTED], Four Agencies Technical Advisor

Dear [REDACTED]

DISCUSSION OF INFANT CREMATION PROCESSES AND COMPLIANCE

CONTENTS

1. Cremation processes which cause no problems of compliance with PPC Permits
2. Small-scale cremators
3. Cremation processes which do not afford compliant operation but which can provide recoverable remains.

Preamble

I have summarised below the essence of our discussions in order to convey as coherent a set of solutions to the requirements as practicable, consistent with compliance with the Permit conditions which SEPA apply to these processes. Our discussions looked especially at small-scale cremators, and I have reflected on this aspect at some length and the clauses in PG5/2(12) which apply to this cremator type.

I have quoted extensively your words on 'derogation' as you will see.

You will see that I have included the SG Infant Cremation Commission as a recipient.

Note: this review is not fully detailed in all respects. The purpose is to identify where more work needs to be done and end up with a sufficient number of compliant processes for practical use.

INFANT CREMATION COMMISSION REPORT ANNEX G

1. Processes where compliance with Permits issued under the PPC (Scotland) Regulations 2012 do not present compliance difficulties.

1.1 Full-size cremators manufactured ‘recently’* and provided with an appropriate management, reporting and maintenance regime.

** recently means a cremator purchased to be compliant with the 2012 Regulations or has been upgraded to achieve compliance*

Such cremators can be controlled minutely (manually, automatically or a combination of both) to achieve the special conditions needed for infant cremation. The secondary chamber and abatement equipment can operate in conformance. The conditions of operation of the primary combustion (cremation) chamber can be set to deliver cremated remains which can be recovered.

Usually, the remains for cremation will be inserted at primary chamber temperatures (but not the secondary chamber) significantly lower than for a full-size cremation.

In many but not all cases, the remains for cremation will be inserted into the cremation chamber on a suitable metal tray (inconel).

The crematorium must devise, train and **implement** a safe working procedure to protect the operational personnel.

In many crematoria, the handling of an infant cremation tray when hot has proved to be a workplace hazard. It is suggested that development needs to be undertaken to achieve safe working – for example by developing the now common coffin loading machines (or similar) to facilitate safe handling.

2 Small scale cremators. There are two types of small-scale cremator and these are outlined below. This part of PG5/2 (12) does not contain a similar amount of detail as does the full size cremator and it is suggested that further work by regulator, operator and manufacturer would be beneficial. Neither type has been applied widely in crematoria thus far.

2.1 Small-scale cremators provided with a connection to the secondary combustion zone of a full-size cremator.

This design does not have secondary combustion facilities of its own

The construction and operation of the cremation chamber proper achieves a progressive heating of the remains for cremation such that there are recoverable remains. All gases and combustion products are ducted to the secondary zone of a full size cremator. There are certain operational requirements to do with sequencing and interlocking of the equipment and these must be provided by the manufacturer. The Emission Limit Values for the full-size cremator are achieved for the small-scale cremator

Cremation capacities and operating procedures will depend on the size, power input (gas or electricity) entailed in the design. The PG 5/2 Guidance identifies a number of dimensions for the small-scale cremator. It is suggested that this part of PG5/2 is reviewed in the light of current practice and knowledge.

A number of designs have been made by the manufacturers, but very few have been installed and even fewer continue in use today. There are a number of reasons for this situation.

- i) many crematoria are capable of obtaining recoverable remains from full size cremators by managing the progress of cremation in the primary chamber.
- ii) purchase and installation cost.
- iii) Widespread use of ‘overnight’ cremation of foetal remains – notwithstanding it being proscribed in PG5/2 (12).

As the role of cremation in the disposal of foetal and infant remains becomes better understood and better managed, it is likely that there will be more installations of this type of cremator.

Author note: Our discussions on this type of cremator made it clear that a robust case needs to be made for this type, although the writer indicated that there are a number of working combustion devices which ‘share’ common plant items without conflict or risk. One way forward would be to make a ‘dummy’ PPC application to explore this technique in more detail.

2.2 Stand-alone small scale cremators

The chances of producing recoverable remains from such cremations are high, but the cremated remains may not be fully calcined and so of a different colour.

The sections of the PG5/2 (12) Guidance notes which deal with this are:

5.28, 5.29 and 5.30

INFANT CREMATION COMMISSION REPORT ANNEX G

5.28 Recites that not all the standards for full-scale cremators are appropriate *but there is no detailing of which standards need not be achieved – except by omission.* It is mentioned that there will be a small mass of pollutants.

5.29 Recites that cremation in a full-scale cremator must be conducted according to the guidance for full-scale cremators.

5.30 Recites:

i) Paragraphs 4.40 and 4.41 of PG5/2 apply.

These require that no smoke and odour shall be emitted from the chimney and visual assessment is necessary for each cremation.

ii) Paragraphs 4.42, 5.3, 5.20, 5.39 to 5.53 apply

4.42 Small-scale cremator must have its own flue

5.3 Requires that chlorine-containing materials must not be part of the charge inserted in to the cremator.

5.20 Cremator design. Emission limits can be achieved by cremator design and operation.

Our discussion identified that Clauses 5.21 and 5.22 do not apply. In effect, clauses not mentioned under ‘small - scale cremators’ are not included for small-scale cremator and no Emission Limit Values are specified.

5.39 to 5.53 Deal with a number of matters:

5.39 to 5.42 Flues and dispersion and stack height.

In crematoria, the chimney height is determined mostly by the height and size (area) of the buildings and so a flue for a small scale cremator would need to be of such a height.

5.43 Will this cremator be a contributor to local air quality management issues?

5.44 Condensation in stacks

5.45 Discharge velocity from stack > 15 m/s

5.46 to 5.53 Normal requirements for training, management, maintenance

INFANT CREMATION COMMISSION REPORT ANNEX G

Having regard to how the conditions above can be met, and especially clauses 5.39 to 5.53, stand-alone small-scale cremators must have a secondary combustion zone.

The secondary zone needs a fuel-fired burner or an electrically-operated hot air source to raise the temperature of the gases from the primary chamber to a sufficient level and to provide the necessary buoyancy of combustion products to carry combustion products through the flue system.

It is understood that there is considerable disparity of opinion about the construction and operation of stand-alone cremators, especially as regards secondary combustion. It is recommended that this issue is addressed by amplification of the existing notes in PG5/2 concerning small-scale cremators.

3.0 Non-compliant cremation processes

The most common reason for full size cremators not achieving compliance with the current requirements for infant and foetal remains is an inability to regulate the cremation conditions in the primary chamber such that cremated remains are not transported out of the primary chamber into the secondary zones and abatement.

As a result, the simplest solution is to cremate these subjects ‘overnight’ after the cremator has been turned off.

The Cremation Industry has used overnight cremation for many years to try to deal with the need to have recoverable remains from infant cremation. This practice entails shutting down the burners and air supplies to the cremator at the end of the normal working day and, after allowing the cremation chamber to cool to say 700 °C, to insert the infant cremation thus enabling it to proceed slowly in quiescent conditions. Whilst this method often enables cremated remains to be recovered, it does not comply with Clause 5.29 of PG5/2(12)

The recent and heightened concerns to do with infant cremation, and especially in Scotland, entail a demand for recoverable remains from cremation which must be met. After several discussions, it is appropriate to include the position of SEPA on derogation to do with ‘overnight cremation’.

The UK BAT Guidance as outlined and developed collaboratively with the sector group which is made up of regulators, operators, manufacturers and their representatives have not considered this option as it is currently outwith the regulatory options for the sector – as we don’t know the combustion conditions within the cremator we can’t comment on the likely emissions or their likely impacts however from discussions it appears that charging occurs during cooling with consequent lowered temperatures which would lead to limited thermal destruction of pollutants coupled to low efflux velocities.

INFANT CREMATION COMMISSION REPORT ANNEX G

Derogation is from the Industrial Emissions Directive, when transposed into MS relevant regulations it allows particular emission limit values to be broached by an agreed amount for a set period of time – as we don't know of the combustion conditions we would not be able to set relevant ELV's in this manner. The PPC regs don't allow for "derogation" per se so SEPA would need to take a universal decision on regulation for the sector which would not be based on BAT and which could be challenged by "interested parties".

Summary

There are workable solutions but all of them require more work to be done to provide a fully suitable procedure or set of procedures and BAT guidelines upon which reliance can be placed.

In like manner, the procedures and practices need to be unified so as to be unequivocal and, most of all, acceptable to the families who become bereaved.

It would appear that the industry has never fully optioned the operation of either the techniques or equipment to successfully carry out the cremation of "babies" and to advance this issue the professional bodies need to step up by providing proper and full information on the current activities carried out by their members



Dr Clive T Chamberlain

Copy: Lord Iain Bonomy, Infant Cremation Commission

INFANT CREMATION COMMISSION REPORT ANNEX G

Subsequent E-mail Information Received from Dr Chamberlain

On 20 May Lord Bonomy wrote:

Dear Dr Chamberlain,

I have found your letter to SEPA of 13 May very helpful and would like to quote from it in the Commission Report. I hope that you have no objection. I have asked Mr [REDACTED] if there are any developments in connection with the amendment of the Mortonhall permit to reflect the installation of the small-scale cremator and the ongoing practice of overnight cremation and may revert to you if there are any developments.

Sincerely,

On 20 May 2014 Dr Chamberlain wrote:

Dear Lord Bonomy

I am pleased to have been of help and please use whatever you wish in your Report.

As long as SEPA are not eager to permit - albeit temporarily - a non-compliant implementation, it is difficult to see a rapid and palliative way forward which will achieve better outcomes for bereaved families.

I have worked with Mr Donnelly on a number of permitted processes over the years, and often he presents very similar regulatory postures to those I have highlighted in the notes I sent to you.

But, having worked with SEPA since its first days, they rarely like a Direction from Scottish Ministers, but I have encountered a few of these in my work in Scotland and it can get the job done.....!! (*PPC Regulations (Scotland) 2012*)

Actually, I doubt whether any PPC permit has been issued to regulate small-scale cremators and this is why I think a palliative interim measure is called for whilst this is being dealt with on an industry-wide basis as has been done so comprehensively in the PG5/2 (12) Guidance.

A similar issue exists in connection with developing and implementing a safer way of handling trays suitable for infant cremation in full-size cremators.

The trouble with an industry playing 'catch-up' is the need for the admission that it is necessary

Best regards

On 21 May Lord Bonomy wrote:

Dear Dr Chamberlain,

I am very grateful to you for that. Meanwhile I am trying to obtain from Mr [REDACTED] a form of words that I can put in the report to explain the current position in relation to the practice of

INFANT CREMATION COMMISSION REPORT ANNEX G

overnight cremation and the application to amend the permit to include the small-scale cremator. I may have to settle for "discussions are ongoing" and recommend that the Scottish Ministers promote research into both practices.

A couple of minor points on which perhaps you can help me.

Inverness apparently carry out baby and NVF cremations first thing before the build up of intense heat. Is that a technique that is likely to produce more quiescent conditions? Their cremator is electric.

In her report at page 60 Dame Elish listed potential breaches of the permit by cremating overnight and included:

"There is no way of knowing, when the remains are removed in the morning, whether cremation is complete and, if not, how that might be remedied.....Normally, with an adult cremation, the operator will observe the process and remove the remains only after the last flame has died meaning that there is nothing left to burn but since no observation is possible overnight, there can be no way of knowing if cremation, or 'calcination' as it is called in the permit, is complete."

Is that correct?

Regards,

On 21 May Dr Chamberlain wrote:

Hello again

At least 'discussions are on going' will avoid precipitate enforcement and could last for some time.....!

NVF in electric cremators - NOTE: this applies ONLY to this type of cremator

It is ideal to cremate NVFs 'first thing' in electric cremators, when the conditions in the cremation chamber are at their most quiescent and the chamber temperature is being 'topped up' for the days work. Usually, an electric cremator is kept 'warm' overnight anyway on account of the time it would take to heat it up from cold.

This procedure is unique to this type of cremator and you will know also that it is very difficult to achieve the usual prescribed operating conditions of PG5/2 (12) with this type, and it is necessary to satisfy the Dioxin criterion as on Row 5 of Table 3 of PG5/2. It is not accident that there are only two such cremators in the UK and perhaps even in the EU - although there were many installed in Switzerland some years ago..

Overnight Cremation

The paragraph in Dame Elish's report to which you refer describes practices and thoughts peculiar to Mortonhall.

Infant cremations are dealing with tiny amounts of material (often less than 1 kg) and the criteria about flames etc don't have much meaning. At chamber temperatures below about 600 C there is nothing to see in the visible spectrum and only a very dull cherry-red at 700 C

The cremation process with 'overnight' cremations begins at a chamber temperature of say 700 C which decays thereafter over a few hours to say 400C

INFANT CREMATION COMMISSION REPORT ANNEX G

In this context, the remains for cremation oxidise slowly, but over time they certainly do cremate. It is a slow and gentle process and not parallel to full-size cremations.

In this respect, there are similarities with what happens in a small-scale cremator

It is realistic to think that at 850C a cremation takes say 80 minutes and at 600 C it takes perhaps a few hours, but so what?

One point is that at lower temperatures the remains will not have calcined fully and will not be whitish in colour, but I suggest this is not an obstacle to bereaved parents, nor is there any issue of transmission of e.g infection.

The notion of operators being in attendance throughout an infant cremation is a product of the mind of SEPA and others. It is difficult to imagine adverse emissions and environmental impacts from source materials so small. What would operators do in these circumstances if they were present, I wonder?

The quantity of combustion products is vanishingly small and so is the potential for pollution so it seems to me that SEPA are addressing as an issue matters which can't be an issue in practice, but relying on the 'letter' of the regulations nonetheless.

The assurance of combustion having taken place is the temperature profile within the cremation chamber. Combustible materials can't survive these temperatures if left in there long enough.

In practice, (and contrary to the reports about Mortonhall) personnel would never switch on a cremator in the morning without having first removed the (cool) infant cremation tray.

Best regards

Process Guidance Note 5/2 (12)

Statutory Guidance for Crematoria

February 2012



Department of the
Environment
www.doeni.gov.uk



Llywodraeth Cynulliad Cymru
Welsh Assembly Government



The Scottish
Government



Department for Environment
Food and Rural Affairs

Defra would like to acknowledge the work of the Environment Agency's Local Authority Unit in the drafting of this guidance note.



Department for Environment, Food and Rural Affairs
Nobel House
17 Smith Square
London SW1P 3JR

Tel: 020 7238 6000
Website: www.defra.gov.uk

© Crown copyright 2012
Copyright in the typographical arrangement and design rests with the Crown.

This publication (excluding the Royal Arms and departmental logos) may be re-used free of charge in any format or medium for research for non-commercial purposes, private study or for internal circulation within an organisation. This is subject to it being re-used accurately and not used in a misleading context. The material must be acknowledged as Crown copyright and the title of the publication specified.

Information about this publication and copies are available from:

Atmosphere and Local Environment
Defra
Area 5F
Ergon House
Horseferry Road
London
SW1P 2AL

Email: Control.Pollution@defra.gsi.gov.uk

This document is available on the Defra website:

Published by the Department for Environment, Food and Rural Affairs

Process Guidance Note 5/2(12)

Statutory Guidance for Crematoria

Revision of the Guidance

The electronic version of this publication is updated from time to time with new or amended guidance. The table below is an index to the latest changes (minor amendments are generally not listed).

Date of amendment	Chapter/paragraph where amendment can be found	Nature of amendment - what paragraphs have been inserted, deleted or amended - what subject matter is covered by amendment

Contents

Revision of the Guidance.....	i
Contents	ii
1. Introduction.....	1
Legal basis	1
Who is the guidance for?.....	2
Updating the guidance	2
Consultation	3
Policy and procedures.....	3
2. Timetable for compliance and reviews	4
Existing processes or activities.....	4
Permit Reviews	5
3. Activity description.....	6
Regulations	6
Abatement Plant.....	7
4. Emission limits, monitoring and other provisions.....	8
Continuous Monitoring	14
Varying of monitoring frequency.....	18
Sampling provisions	19
Abate mercury emissions and / or burden share	20
Gas usage, carbon dioxide emissions and carbon footprint	22
Monitoring, investigating and reporting.....	23
Information required by the regulator	23
Visible and Odorous Emissions.....	24
Abnormal Events	25
5. Control techniques	26
Summary of best available techniques.....	26
Techniques to control emissions from contained sources	27
Release of Pollutants – normal and emergency operating conditions	28
Cremation standards in the event of mass fatalities	32
Air Quality.....	33
Management	35
6. Summary of changes	38
7. Further information	40
Health and safety	40
Further advice on responding to incidents.....	41
Appendix 1	42
Compliance	42
Appendix 2.....	45
Supplementary guidance on burden sharing.....	45
Table 1 - Compliance timetable	4
Table 2 - Regulations listing activities	6
Table 3 - Unabated cremators - emission limits, monitoring and other provisions	9
Table 4 - Abated cremators - emission limits, monitoring and other provisions	11
Table 5 - Options for continuous monitoring of particulate.....	16
Table 6 - Summary of control techniques	26
Table 7 - Summary of changes.....	38

1. Introduction

Legal basis

- 1.1 This note applies to the whole of the UK. It is issued by the Secretary of State, the Welsh Assembly Government, the Scottish Government and the Department of the Environment in Northern Ireland (DoE NI), to give guidance on the conditions appropriate for the control of emissions into the air from the cremation of human remains. It is published only in electronic form and can be found on the [Defra](#) website. It supersedes PG5/2(04) and NIPG5/2 (September 2005) Version 2.
- 1.2 This guidance document is compliant with the [Code of Practice on Guidance on Regulation](#) page 6 of which contain the "golden rules of good guidance". If you feel this guidance breaches the code or you notice any inaccuracies within the guidance, please [contact us](#).
- 1.3 This is one of a series of statutory notes¹ giving guidance on the Best Available Techniques (BAT)². The notes are all aimed at providing a strong framework for consistent and transparent regulation of installations regulated under the statutory Local Air Pollution Prevention and Control (LAPPC) regime in [England and Wales](#), [Scotland](#) and [Northern Ireland](#). The note will be treated as one of the material considerations when determining any appeals against a decision made under this legislation.
- 1.4 In general terms, what is BAT for one installation in a sector is likely to be BAT for a comparable installation. Consistency is important where circumstances are the same. However, in each case it is, in practice, for regulators (subject to appeal) to decide what is BAT for each individual installation, taking into account variable factors such as the configuration, size and other individual characteristics of the installation, as well as the locality (e.g. proximity to particularly sensitive receptors).
- 1.5 The note also, where appropriate, gives details of any mandatory requirements affecting air emissions which are in force at the time of publication, such as those contained in Regulations or in Directions from the Government. In the case of this note, at the time of publication this includes:
 - Environmental Protection (England) (Crematoria Mercury Emissions Burden Sharing Certificate) Direction 2010 which came into force on 18 March 2010;
 - Environmental Protection (Crematoria Mercury Emissions) (Wales) Direction 2010 which came into force on 19 April 2010.

¹ this and other notes in the series are issued as statutory guidance in England and Wales under regulation 64(2) of the Environmental Permitting Regulations. The notes are also issued as guidance in Scotland and statutory guidance in Northern Ireland

² further guidance on the meaning of BAT can be found for [England and Wales](#), [Scotland](#), and [Northern Ireland](#).

1.6 In **Section 4** and **Section 5**, arrows are used to indicate the matters which should be considered for inclusion as permit conditions. It is important to note, however, that this should not be taken as a short cut for regulators to a proper determination of BAT or to disregard the explanatory material which accompanies the arrows. In individual cases it may be justified to:

- include additional conditions
- include different conditions
- not include conditions relating to some of the matters indicated.

In addition, conditions will need to be derived from other parts of the note, in particular to specify emission limits, compliance deadlines and mandatory requirements arising from directions or other legislation.

Who is the guidance for?

1.7 This guidance is for:

Regulators

- local authorities in England and Wales, who must have regard to the guidance when determining applications for permits and reviewing extant permits;
- the Scottish Environment Protection Agency (SEPA) in Scotland, and district councils or the Northern Ireland Environment Agency, (NIEA), in Northern Ireland.

Operators who are best advised also to have regard to it when making applications and in the subsequent operation of their installation.

Members of the public who may be interested to know what the Government considers, in accordance with the legislation, amounts to appropriate conditions for controlling air emissions for the generality of installations in this particular industry sector.

Updating the guidance

1.8 The guidance is based on the state of knowledge and understanding, at the time of writing, of what constitutes BAT for this sector. The note may be amended from time to time to keep up with developments in BAT, including improvements in techniques, changes to the economic parameters, and new understanding of environmental impacts and risks. The updated version will replace the previous version on the Defra website and will include an index to the amendments.

- 1.9 Reasonable steps will be taken to keep the guidance up-to-date to ensure that those who need to know about changes to the guidance are informed of any published revisions. However, because there can be rapid changes to matters referred to in the guidance – for example to legislation – it should not be assumed that the most recent version of this note reflects the very latest legal requirements; these requirements apply.

Consultation

- 1.10 This note has been produced in consultation with relevant trade bodies, representatives of regulators including members of the Industrial Pollution Liaison Committee, and other potentially interested organisations.

Policy and procedures

- 1.11 General guidance explaining LAPPCC and setting out the policy and procedures is contained in separate documents for [England and Wales](#), [Scotland](#) and [Northern Ireland](#).

2. Timetable for compliance and reviews

Existing processes or activities

- 2.1 This note contains all the provisions from previous editions which have not been amended or removed. For installations in operation at the date this note is published, the regulator should have already issued or varied the permit having regard to the previous editions. If they have not done so, this should now be done.
- 2.2 Fitting mercury arrestment by end of 2012 is required at 50% of UK cremations and burden sharing is specified for unabated cremations. (Details at **paragraphs 4.28 – 4.33**).
- 2.3 The new provisions of this note and the dates by which compliance with these provisions is expected are listed in the table below, together with the paragraph number where the provision is to be found. Compliance with the new provisions should normally be achieved by the dates shown. Permits should be varied as necessary, having regard to the changes and the timetable.

Table 1 - Compliance timetable

Guidance	Relevant Paragraph in this Note	Compliance Date
Calibration/configuration of particulate continuous emissions monitors (CEMs).	Paragraphs 4.12 – 4.13	<ul style="list-style-type: none"> • for CEMS capable of producing qualitative data: at the next reasonable opportunity and annually thereafter; • for CEMs not capable of producing qualitative data, upgrading of instruments within 18 months of the publication of this note and annual calibration thereafter.
Keeping records of quarterly gas consumption.	Paragraph 4.34	Within 3 months of the publication of this note.
Simple plan to deal with emergencies that give rise to mass fatalities	Paragraph 5.35	Within 12 months of the publication of this note.
All other provisions		Within 12 months of the publication of this note.

- 2.4 Replacement plant should normally be designed to meet the appropriate standards specified for new installations/activities. Where mercury plant requires replacement, it should be open to operators to opt instead for burden sharing, provided the regulator is satisfied that appropriate burden sharing arrangements are in place.

- 2.5 Where provisions in the preceding guidance note have been deleted or relaxed, permits should be varied as necessary as soon as reasonably practicable. **Section 6** provides a summary of all changes.
- 2.6 For new crematoria, the permit should have regard to the full standards of this guidance from the first day of operation.
- 2.7 For substantially changed activities, the permit should normally have regard to the full standards of this guidance with respect to the parts of the activity that have been substantially changed and any part of the activity affected by the change, from the first day of operation.

Permit Reviews

- 2.8 Under LAPPCC the legislation requires permits to be reviewed periodically but does not specify a frequency. It is considered for this sector that a frequency of once every eight years ought normally to be sufficient for the purposes of appropriate Regulations³. Further guidance on permit reviews is contained in the appropriate Guidance Manual for [England and Wales](#), [Scotland](#) and [Northern Ireland](#). Regulators should use any opportunities to determine the variations to permits necessitated by **paragraph 2.2** above in conjunction with these reviews.
- 2.9 Conditions should also be reviewed where complaint is attributable to the operation of the process and is, in the opinion of the regulator, justified.

³ For details see [England and Wales](#) chapter 26, [Scotland, Practical guide](#) section 10, Northern Ireland [Part B Guidance](#) page 9, [Northern Ireland](#) Part C Guidance chapter 17.

3. Activity description

Regulations

- 3.1 This note applies to LAPPc installations for cremation of human remains in:
- gas fired and electric fired cremators in new and existing crematoria, with or without mercury abatement;
 - standby cremators;
 - small-scale cremators.

The activities are listed for regulation as follows.

Table 2 - Regulations listing activities

LAPPc	Activity	England and Wales	Scotland	Northern Ireland
		EPR Schedule 1 reference	PPC Schedule 1 reference	PPC Schedule 1 reference
Part A	n/a	n/a	n/a	n/a
Part B	Cremation of human remains	Section 5.1 Part B	Section 5.1 Part B	n/a
Part C	Cremation of human remains	n/a	n/a	Section 5.1 Part C

The links are to the original version of the Regulations. A consolidated version is **not** available on www.legislation.co.uk.

- 3.2 Cremation is a batch process consisting (excluding pre-heating and shut-down) of:
- a. the brief "flash" caused by volatilisation of the veneer on the outside of the coffin;
 - b. burning of the coffin;
 - c. after the coffin breaks open, burning of the coffin and cremation of the body;
 - d. calcination of the remains; and
 - e. ashing.
- 3.3 Total cremation times vary considerably, ranging from as little as 50 minutes up to in excess of 2 hours, depending upon body size and cause of death. Indicative timescales involved for processes a – e are typically:
- a. 1 minute;
 - b. 20 minutes;
 - c. 40 minutes;
 - d. 30 minutes;
 - e. 2 minutes although times may vary.

Abatement Plant

- 3.4 Fitting mercury arrestment by end of 2012 is required such that at least 50% of UK cremations are carried out in plants fitted with abatement.
- 3.5 Potential pollutants from unabated cremations consist of particulate matter (PM), hydrogen chloride, nitrogen oxides, carbon monoxide, volatile organic compounds (from methane to polycyclic aromatic hydrocarbons (PAH), mercury compounds and polychlorinated dibenz-p-dioxins and furans (PCDD/F) often simply referred to as dioxins.
- 3.6 Flue gases from abated cremations may also include particulate matter from:
- alkali compounds added to the flue gases to control acid gas (e.g. hydrogen chloride) emissions;
 - activated carbon powder used to control dioxin and mercury emissions;
 - incompletely combusted char and soot particles.
- 3.7 The arrestment provisions in this note are based on an abatement system of cool, capture, collect. The hot exhaust gases are cooled using, for example water tube coolers. Injecting dry lime or sodium bicarbonate and activated carbon into the gas stream captures pollutants. A dry filter captures the particulate matter and a reduction of between 90 to 98% in mercury concentrations is expected. Alternatives with equal or better performance may be accepted. However, conditions in a permit stating a percentage reduction are not recommended.

4. Emission limits, monitoring and other provisions

- 4.1 Emissions of the substances listed in **Tables 3 & 4** should be controlled.
- 4.2 The emission limit values and provisions described in this section are achievable using the best available techniques described in **Section 5**. Monitoring of emissions should be carried out according to the method specified in this section or by an equivalent method agreed by the regulator. Where reference is made to a British, European, or International standard (BS, CEN or ISO) in this section, the standards referred to are correct at the date of publication. (Users of this note should bear in mind that the standards are periodically amended, updated or replaced. The latest information regarding the monitoring standards applicable can be found at the [Source Testing Association](#) website. Further information on monitoring can be found in Environment Agency publications [M1](#) and [M2](#).
- 4.3 All activities should comply with the emission limits and provisions with regard to releases in **Tables 3 & 4**.
The reference conditions for limits in **Section 4** are: 273.1K, 101.3kPa, 11% oxygen v/v, dry gas unless otherwise stated.

Table 3 - Unabated cremators - emission limits, monitoring and other provisions

Row	Substance	Mass emission limits per cremator (Note 1 & Note 3)	Concentration limits (Note 3)	Type of monitoring	Monitoring frequency
1	Hydrogen chloride (excluding particulate matter)	300g an hour	200 mg/m ³ averaged over an hour	Periodic monitoring	Annual
2	Total particulate matter from cremator (Note 2)	<ul style="list-style-type: none"> • 120g an hour for 95% of cremations; and • 240g an hour for all cremations 	<ul style="list-style-type: none"> • 80 mg/m³ averaged over an hour for 95% of cremations; and • 160 mg/m³ averaged over an hour for all cremations 	Qualitative monitoring (Note 2) <ul style="list-style-type: none"> • Provide visual alarms and record levels and alarms Plus <ul style="list-style-type: none"> • Instrument health check - i.e. a service according to manufacturer's instructions Plus Periodic monitoring <ul style="list-style-type: none"> • Use results to set reference levels for continuous emissions monitor (CEM) i.e. configure outputs and set reference levels at which alarms will activate 	Continuous Plus Annual Plus Annual
3	Carbon monoxide	<ul style="list-style-type: none"> • 150g in the first hour of cremation for 95% of cremations; and • 300g in the first hour of cremation for all cremations 	<ul style="list-style-type: none"> • 100 mg/m³ averaged over the first hour for 95% of cremations; and • 200 mg/m³ averaged over the first hour for all cremations 	Qualitative monitoring <ul style="list-style-type: none"> • Record data at 15 second intervals or less • Provide visual alarms and record alarm events Plus Instrument health check - i.e. service according to manufacturer's instructions Plus Periodic monitoring <ul style="list-style-type: none"> • Validation of continuous emissions monitor (CEM) output through comparison with periodic test results 	Continuous Plus Annual Plus Annual
4	Organic compounds (excluding particulate matter) expressed as carbon	30g an hour	20 mg/m ³ averaged over an hour of cremation	Periodic monitoring	Annual

If the combustion provisions in Rows 7 - 9 are not met, then the dioxin emission limit and monitoring provision in Row 5 should be applied

5	PCDD/F	4.5 micrograms as ITEQ per 3 cremations (minimum sampling period 6 hours)	1 nanogram/m ³ as ITEQ	Periodic monitoring <ul style="list-style-type: none">Continuous monitoring of any temperature, oxygen and flow parameters that apply during the dioxin tests should be required by the permitInterlock to prevent cremator loading unless those parameters are met	Upon commissioning of new or replacement cremators
Concentration limits from cremated remains reduction plant (cremulators) venting externally are given in Row 6					
6	Particulate matter	n/a	50 mg/m ³ with no correction for oxygen concentration or water vapour	Gross filter failure detection (see paragraph 4.6) <ul style="list-style-type: none">Instrument health check - i.e. service according to manufacturer's instructions	Testing at commissioning Service interval as specified by manufacturer
If the combustion provisions in Rows 7 - 9 are <u>not</u> met, then the dioxin emission limit and monitoring provision in Row 5 should be applied					
Row	Parameter	Combustion Provision		Type of monitoring	Monitoring frequency
7	Temperature	Minimum of 1123K (850°C)		<ul style="list-style-type: none">Measure at the exit of the secondary combustion zone (measuring point should be at the last measuring thermocouple)Automatically record temperaturesVisual alarm when temperature falls below 1123KRecord alarm activationsInterlock to prevent cremator loading to operate when temperature and combustion provisions in Rows 7 – 9 are not met	Continuous
8	Residence time	2 seconds residence time (minimum) in the secondary combustion chamber without correction for temperature, oxygen or water vapour		Measurement and calculation of the volume rate of the flue gases throughout the cremation cycle at the cremator exit.	Upon commissioning of new or replacement cremators
9	Oxygen	At the end of the secondary combustion chamber: a) if measured wet, 6% minimum; or b) if measured dry, 6% average and 3% minimum		<ul style="list-style-type: none">Monitor and record of concentration at outlet of secondary combustion zoneVisual alarm and record activationsDuring discontinuous tests, continuous reference oxygen measurements should be at the same sampling location as the parameters tested	Continuous
<p>Note 1 - the mass of emissions per hour are calculated from the measured values from 2 minutes to 62 minutes after the close of coffin loading.</p> <p>Note 2 - in this table, the term "qualitative" monitoring refers to those particulate continuous emissions monitors (CEM) where the instrument response should be correlated to the results of multiple isokinetic gravimetric samples according to the standard reference method (SRM) which is typically EN-13284-1. See also paragraphs 4.4 – 4.11 and Table 5.</p> <p>Note 3 – for unabated cremators, the operator chooses whether the mass or the concentration limits apply and the Regulator should then specify those limits in the permit. When calculating mass emissions, the cremator should multiply the flow rate at that moment by the concentration at that moment.</p>					

Table 4 - Abated cremators - emission limits, monitoring and other provisions

Row	Substance	Mass emission limits per cremator	Concentration limits	Type of monitoring	Monitoring frequency
1	Mercury	n/a	50 micrograms/m ³	Periodic monitoring (Note 1)	Annual
2	Hydrogen chloride (excluding particulate matter)	n/a	30 mg/m ³ hourly average	Periodic monitoring	Annual
3	Total particulate matter	n/a	20 mg/m ³ hourly average	Filter leak monitor <ul style="list-style-type: none"> • Provide visual alarms and record levels and alarms • Set reference levels on commissioning (i.e. set levels at which alarms will activate) Plus Instrument health check - i.e. service according to manufacturer's instructions Plus Periodic monitoring <ul style="list-style-type: none"> • Set reference levels for continuous emission monitor (CEM) (i.e. set levels at which alarms will activate) 	Continuous Plus Annual Plus Every 3 years

For abated crematoria with a “multiple cremators/single abatement plant” configuration, the provisions of Row 4a apply.

For abated crematoria with a “single cremator/single abatement plant” configuration, the provisions of either Row 4a **OR** Row 4b can apply but should be specified to the regulator at the earliest opportunity.

4a	Carbon monoxide	n/a	100 mg/m ³ reported as 2 x 30-minute averages	Qualitative monitoring <ul style="list-style-type: none"> • Record data at 15 second intervals or less • Provide visual alarms and record alarm events Plus Periodic test: <ul style="list-style-type: none"> • Validation of continuous emissions monitor (CEM) output through comparison with periodic test results 	Continuous Plus Annual
----	-----------------	-----	--	--	-------------------------------------

4b	Carbon monoxide	<ul style="list-style-type: none"> • 150g in the first hour of cremation for 95% of cremations and • 300g in the first hour of cremation for all cremations 	n/a	Qualitative monitoring <ul style="list-style-type: none"> • Record data at 15 second intervals or less • Provide visual alarms and record alarm events Plus Instrument health check – i.e. service according to manufacturer's instructions Plus Periodic monitoring <ul style="list-style-type: none"> • Validation of continuous emissions monitor (CEM) output through comparison with periodic test results 	Continuous Plus Annual Plus Annual
5	Organic compounds (excluding particulate matter) expressed as carbon	n/a	20 mg/m ³ averaged over an hour of cremation.	Periodic monitoring	Annual
If combustion provisions in Rows 8 – 10 are <i>not</i> met, then the dioxin emission limit and monitoring provision in Row 6 should be applied					
6	PCDD/F (on abated processes, for cremators that don't meet the combustion provisions below)	n/a	0.1 nanogram/m ³ as ITEQ	Periodic monitoring <ul style="list-style-type: none"> • Continuous monitoring of any temperature, oxygen and flow parameters that apply during the dioxin tests should be required by the permit • Interlock to prevent cremator loading unless those parameters are met 	Upon commissioning of new or replacement cremators
Concentration limits from cremated remains reduction plant that vents externally are given in Row 7					
7	Particulate matter	n/a	50 mg/m ³ with no correction for oxygen concentration or water vapour	Gross filter failure detection (see paragraph 4.6)	Testing at commissioning

If combustion provisions in Rows 8 – 10 are <u>not</u> met, then the dioxin emission limit and monitoring provision in Row 6 should be applied				
Row	Parameter	Combustion Provision	Type of monitoring	Monitoring frequency
8	Temperature	<ul style="list-style-type: none"> Minimum of 800°C (1073K) in the secondary combustion chamber Minimum of 850°C (1123K) in the secondary combustion chamber when operating under emergency conditions without abatement - measuring point should be at the last measuring thermocouple 	<ul style="list-style-type: none"> Measure at the exit of the secondary combustion zone; measuring point should be at the last measuring thermocouple Automatically record temperatures; Visual alarm when temperature falls below 1073K (800°C); Record alarm activations Interlock to prevent cremator loading below 800°C. 	<ul style="list-style-type: none"> Continuous
9	Residence time	2 seconds residence time (minimum) in the secondary combustion chamber without correction for temperature, oxygen or water vapour	Measurement and calculation of the volume rate of the flue gases throughout the cremation cycle at the cremator exit.	Upon commissioning of new or replacement cremators
10	Oxygen	At the end of the secondary combustion chamber: a) if measured wet, 6% minimum; or b) if measured dry, 6% average and 3% minimum	<ul style="list-style-type: none"> Record of concentration at outlet of secondary combustion zone; Visual alarm and record alarm activations; During discontinuous tests, continuous reference oxygen measurements should be at the same sampling location as the parameters tested. 	Continuous

Note 1 – the Environment Agency monitoring guidance, M2, advises that “the choice of a suitable averaging period is strongly influenced by the expected short-term variability in emission levels and whether peaks are important”. Also “the averaging time for manual techniques is often constrained by the need for a sampling run of appropriate duration ... because manual techniques have an associated analytical end-method stage (e.g. weighing of particulate samples) for which a sufficient mass of pollutant must be sampled to achieve an adequate limit of detection (LOD)... ”. For these reasons, regulators are advised to ensure that those undertaking monitoring liaise with the relevant analytical laboratory to determine the detection limit of the analytical method in order to obtain an estimate of the expected concentration of the monitored substance in the stack gas and calculate the sampling time required to ensure that the LOD of the sampling method is met. In any case it is not expected that the duration of sampling runs will be less than 30 minutes or longer than 8 hours.

Continuous Monitoring

4.4

Continuous emissions monitors (CEMs) are normally either extractive stack emission monitoring instruments, where a sample of the gas is drawn from the chimney stack or duct, generally through a sample condition line, into the measuring cell; or cross-stack (*in situ*) emissions monitoring instruments, where measurements of the target species are made directly within the gaseous atmosphere of the stack or duct.

Where a CEM is used for compliance purposes, it must be periodically checked (calibrated) to ensure the readings being reported are correct. This calibration is normally done by carrying out a parallel stand-alone test and comparing the results with those provided by the CEM. Calibration tests can be performed by suitably trained in-house staff, although it is more usual for external contractors to undertake CEMs calibration when periodic testing is being undertaken. It is the responsibility of the operator to ensure calibration tests are performed on a regular basis.

Types of Continuous Monitoring for Particulate Matter

4.5

One of the basic issues in obtaining good results from a particulate CEM is to ensure that the instrument is fit for purpose – it must give a stable, reliable response and be able to operate in the long term without the need for maintenance or cleaning.

4.6

There are four categories of continuous particulate monitoring instruments used to satisfy regulatory requirements:

- **Quantitative instrument** – a particulate CEM which may be used to monitor mg/m³ continuously. Some instruments are capable of being calibrated to a very high standard, such that the uncertainties associated with the data they produce are very small. They also have sophisticated automatic, self-checking data quality-assurance (QA) features built in. These QA checks are typically for contamination and drifts in the signal.

Other quantitative particulate CEMs may allow slightly higher uncertainty in the data and have less sophisticated QA self-check features. Alarm levels can be programmed into the instrument that can detect a given percentage (%) of the emission limit value (ELV).

- **Qualitative instrument** - quantitative CEMs may be used in *qualitative* mode, where data is still generated in a mg/m³ format but there is further uncertainty in the data. Alarm limits may be set that give an approximate % of the ELV.
- **Filter leak detector** – this instrument monitors for changes in the operation of dust arrestment plant (typically a bag filter, measuring trends of plant operation over time). Importantly, the instrument has a QA self-check capability that influences confidence in the data that can be used for simple process control. In terms of alarms, step changes can be seen from analyses for trends over time.

DEFRA/SEPA PROCESS GUIDANCE NOTES ANNEX H

- **Gross filter failure device** – this is a simple instrument that provides an alarm when there is a significant step-change in emissions i.e. rupture of a filter. These instruments tend only to be used on smaller filters since they provide no information to improve plant performance, have no trend output or quality assurance features to provide confidence that they are working correctly. A differential pressure gauge is a gross filter failure device since it detects blinding but not holes in bags.

Instrument Calibration/Configuration for Particulate CEMs

- 4.7 Before any calibration or instrument configuration is carried out it is fundamental to carry out checks that ensure the instrument is working properly so that a calibration/configuration test is meaningful and cost-effective. The tests performed to ensure an instrument is prepared for correlation testing against an isokinetic sampling or configuration are referred to as:
- A functionality test of quantitative/qualitative CEMs; **or**
 - An instrument health check for filter leak monitors and gross filter failure detectors.
- 4.8 The calibration procedure applied then depends on the type of monitoring to be performed by the instrument. For the purposes of this PG note, the response from quantitative and qualitative CEMs should be correlated to the results of multiple isokinetic gravimetric samples according to the standard reference method (SRM) which is typically EN-13284-1.
- The number of samples taken and the quality of the results defines the type of calibration that is applied to the instrument; typically three or five SRM samples are taken.
- 4.9 If the instrument is to be used as a filter leak monitor then the instrument output range and alarm levels are configured once it has been established that the bag filter is working to specification. This is typically done via engineering inspection of the bagfilter to confirm operation, or by checking the output from the leak instrument to ensure there are no abnormal dust peaks on bag cleaning when compared to other bag rows being cleaned.
- The zero of the instrument should also be checked since the calibration line of the filter response curve often uses the zero condition as a calibration point. It is often difficult to create zero dust conditions at the time of calibration so this is often done by reviewing historical data when the plant is known to be off.
- 4.10 Those instruments operating in qualitative mode but that have not been calibrated with an isokinetic test, and filter leak monitors that record trends, are considered to be operating as indicative monitors.
- 4.11 **Table 5** summarises the information relating to particulate monitoring CEMs.

DEFRA/SEPA PROCESS GUIDANCE NOTES ANNEX H

Table 5 - Options for continuous monitoring of particulate

Type of Monitoring	Information recorded by instrument	What the Alarm Levels can detect	Capability of Instrument	Tests required on initial set up of instrument	Annual tests required	3-yearly tests required
Quantitative See Note 1	mg/m ³ over time	%of ELV	Capable of being calibrated for a specific application	Functionality test 3/5 point calibration	Functionalit y test 3/5 point calibration	Functionalit y test 3/5 point calibration
Qualitative See Note 1	mg/m ³ (approx) over time	Approx % of ELV	Capable of being calibrated for a specific application	Set up and 3 point calibration	Instrument health check	3 point calibration Health check
Filter leak device	Trend of plant operation over time	Change in plant operation causing a defined step change	Filter leak monitor with trend output	Set up and reference	Instrument health check	Instrument health check Set reference
Gross filter failure device	Incidence of gross failure	Catastro- phic failure of filter	Instrument designed to detect large increases in emissions	Set up Set alarm	Instrument health check	Health check Set up
Note 1 – instrument response should be correlated to the results of multiple isokinetic gravimetric samples according to the standard reference method (SRM) which is typically EN-13284-1.						

4.12 In relation to particulate monitoring on unabated crematoria, there are cases where monthly data is being reported to the regulator based on mg/m³ but **without** any calibration or configuration taking place when the annual tests are conducted.

4.13 If annual extractive test results are not used to calibrate continuous particulate monitoring instruments:

- a. where the instruments are capable of operating in at least a qualitative⁴ mode calibration should be undertaken at the next reasonable opportunity (e.g. when the annual periodic testing is undertaken or if the instruments are due to be serviced, whichever is soonest) and annually thereafter;
- b. where sub-paragraph a) does not apply, the instruments should be upgraded within 18 months of the publication of this note to enable this to be done with subsequent annual calibration undertaken.

Calibrating particulate instruments should be by use of a 3-point calibration according to the standard reference method (SRM) which is typically EN-13284-1.

⁴ the term “qualitative” monitoring refers to those particulate continuous emissions monitors (CEM) where the instrument response should be correlated to the results of multiple isokinetic gravimetric samples according to the standard reference method (SRM) which is typically EN-13284-1. See also paragraphs 4.4 – 4.11 and Table 5.

Continuous Emissions Monitoring (all substances)

- 4.14 Where trigger alarms are set for qualitative instruments or filter leak monitors, an output level should be set which corresponds to around 75% of the emission limit value (ELV). Thus the alarms are activated in response to this significant increase in pollutant loading above the baseline, so that warning of the changed state is given before an unacceptable emission occurs. The regulator may wish to agree the alarm trigger level.
- 4.15 Where continuous emissions monitoring is required for any substance, it should be carried out as follows:
- All continuous monitoring readings should be on display to appropriately trained operating staff.
 - Instruments should be fitted with a visual alarm to warn the operator of arrestment plant failure. Authorities should decide whether additionally to specify an audible alarm, having regard to, amongst other things, the likelihood of the visual alarm not being noticed, and the intrusiveness of any such alarm for those using the crematorium.
 - The activation of alarms should be automatically recorded.
 - All continuous monitors should be operated, maintained and calibrated (or referenced, in the case of filter leak devices) in accordance with the manufacturers' instructions, which should be made available for inspection by the regulator. The relevant maintenance and calibration (or referencing) should be recorded.
 - Emission concentrations may be reported as zero when the plant is off and there is no flow from the stack. If required a competent person should confirm that zero is more appropriate than the measured stack concentration if there is no flow.
 - Any CEM used should provide reliable data >95% of the operating time, (i.e. availability >95%). A manual or automatic procedure should be in place to detect instrument malfunction and to monitor instrument availability.
- 4.16 Exhaust flow rates should 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 should not be permitted.
- Dilution air may be added for waste gas cooling or improved dispersion where this is shown to be necessary because of the operational requirements of the plant, but this additional air should be discounted when determining the mass concentration of the pollutant in the waste gases.

Varying of monitoring frequency

- 4.17 Where non-continuous quantitative monitoring is required, the frequency may be varied. Where there is consistent compliance with emission limits, regulators may consider reducing the frequency. However, any significant process changes that might have affected the monitored emission should be taken into account in making the decision.
- 4.18 When determining “consistent compliance” the following are cases which might not qualify for a reduction in monitoring:
- variability of results: cases where monitoring results vary widely and include results in the range 30 – 45mg/m³ (when the emission limit is 50mg/m³);
 - the margin between the results and the emission limit: cases where results over a period are 45mg³ or more (when the emission limit is 50mg/m³).
- Consistent compliance should be demonstrated using the results from at least:
- three or more monitoring exercises within two years; **or**
 - two or more monitoring exercises in one year supported by continuous monitoring.
- Where a new or substantially changed process is being commissioned, or where emission levels are near to or approach the emission concentration limits, regulators should consider increasing the frequency of testing.
- 4.19 Where qualitative instruments operating only in an indicative mode, or filter leak devices recording trends are in use, it is not appropriate that reduced monitoring be applied as the monitoring is required to demonstrate either compliance with emission limits on an ongoing basis or to demonstrate correct functioning of arrestment equipment.

Sampling provisions

- 4.20 The operator should ensure that adequate facilities for sampling are provided on vents or ducts. Sampling points on new plant should be designed to comply with the British or equivalent standards.
- Where monitoring is not in accordance with the main procedural requirements of the relevant standard, deviations should be reported as well as an estimation of any error invoked.
- 4.21 Whether sampling on a continuous or non-continuous basis care is needed in the design and location of sampling systems in order to obtain representative samples for all release points.
- Sampling points on new plant should be designed to comply with the British or equivalent standards (**paragraph 4.2**).
 - The operator should ensure that relevant stacks or ducts are fitted with facilities for sampling which allow compliance with the sampling standards.

Unabated crematoria - preferred sampling location

- 4.22 In many unabated crematoria in the UK, the cremators were designed to fit into an existing building. Thus, even those built to be compliant with the Environmental Protection Act and since, tend to have very few locations where a sampling point can actually physically be placed. Fewer still have sampling points which are the correct number of flue diameters away from bends and other obstructions.
- When sampling for polychlorinated dibenzo dioxins and furans, where it is not possible for the sampling point to 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, the operator should notify the regulator of the minimum temperature at which the measurement can practically be made, and the reason why this cannot be below 200°C before sampling takes place.

Modifications due to the batch nature of a process

- 4.23 Unabated cremation is a batch process with the five stages (a-e) described in **paragraph 3.2**. 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 stages b-d.
- Stage 'a' has too short a duration for a complete traverse and so sampling in unabated crematoria 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.

4.24 Sampling for dioxins and furans should cover the time needed to meet the limit of detection specified by the analytical laboratory (refer to [M2](#)). Normally it will need sampling of between 2 and 4 successive cremations to achieve the necessary time period.

Minimum volume of gas sampled

4.25 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 13284 -1 and BS EN1948, state that the sample time is calculated by the limit of detection of the analysis method employed.

Concurrent oxygen readings

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

4.27 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 should be taken, however, that any probe used to extract the sample of gas for oxygen analysis does not cause interference to other sampling equipment in the flue, and vice-versa.

Abate mercury emissions and / or burden share

4.28 Crematoria should fit mercury abatement or join a burden sharing arrangement. The following paragraphs set out the details. The paragraphs are extracts from previously-published 'AQ' notes or details of directions or instructions issued, as indicated in the sub-headings.

New crematoria fit mercury abatement (AQ1(05)/paragraph 6 and table 1)

4.29 All new crematoria (as defined in next paragraph) should be fitted with mercury abatement. However, in recognition that new crematoria commonly begin operation at substantially below full capacity, abatement should not be required to be in operation until the sooner of the following two dates:

- the date when it is likely that, within the subsequent 12 months, more than 750 cremations will take place at the crematorium,
- 31 December 2012.

4.30 For the purposes of **paragraph 4.29**, a new crematorium is a crematorium which was not an existing installation on 1 October 2006.

**Existing crematoria fit mercury abatement or burden share
(AQ1(05) and AQ9(06))**

- 4.31 AQ1(05) specified that a condition should be included in all permits requiring operators to notify the regulator whether they would opt for fitting abatement, or whether they would be sharing the cost of abatement fitted by other crematoria (whether or not owned by the same operator), or whether they would choose a combination of these two approaches. If the operator was to participate in sharing rather than (or in addition to) abating, the notification should include evidence of the sharing arrangements. Where mercury abatement was to be fitted, AQ1(05) specified that a condition should be included in the permit requiring that the abatement was installed and fully operational by no later than 31 December 2012. In addition, for avoidance of doubt, the guidance stated that if it was to be installed sooner than this date, regulators should expect it to be operated from the earlier date.
- 4.32 By 31 Dec 2012 existing crematoria should be fitted with mercury abatement to the extent necessary to ensure that 50% of all cremations carried out are subject to abatement. '50%' is based on the Federation of Burial and Cremation Authorities' 2003 cremation statistics, excluding those for stillbirths, perinatal deaths and deaths of infants under 5 years. The total number of cremations in 2003 according to these statistics was 430,006. The total number of cremations involving stillbirths, perinatal deaths, and deaths of infants under 5 years in 2003 was 12,532. Therefore, the national 50% figure is 208,737.⁵

Directed conditions (2008 and 2012 directions/instructions)

- 4.33 Regulators in England and Wales were directed in 2008 to include a condition in every crematorium permit requiring operators to submit written confirmation of whether it intended to fit abatement equipment or not, and various subsidiary information. Regulators in England and Wales were directed in 2010, and regulators in Scotland instructed, that every crematorium permit must have the following condition inserted:
- The operator shall send the regulator, by no later than 1 June 2010 and 1 April in each year thereafter, a certificate from the Crematoria Abatement of Mercury Emissions Organisation (CAMEO) or appropriate evidence from a comparable audited burden sharing arrangement or scheme which specifies:-
 - a. the total number of cremations in the past 12 months/calender year;
 - b. the number of cremations undertaken in cremators fitted with operational mercury abatement equipment in the previous 12 months; **or**

⁵ At the time of publication of PG5/2(12) the sector had made representations proposing a revision to the method of calculating the baseline. This note will be revised if any changes are made as a result, and all stakeholders will be advised.

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

Gas usage, carbon dioxide emissions and carbon footprint

- 4.34 The use of fuels leads to emissions of carbon dioxide (CO_2) and small quantities of other greenhouse gases. A carbon footprint is the total greenhouse gas (GHG) emissions caused directly and indirectly by an individual, organisation, event or product, and is expressed as a carbon dioxide equivalent (CO_2e).

For crematoria, carbon dioxide emissions from gas usage are the main greenhouse gas component of their carbon footprint.

Crematoria operators may wish to note that the development of an energy reduction strategy will have the benefits of saving money and reducing the operator's carbon footprint. Simple recording of gas consumption (e.g. comparison of quarterly gas bills) is a first step in managing energy use and therefore CO_2 emissions and operators should be expected to do this as a condition of their permit. Additionally, operators are advised to consider for their own purposes fitting gas meters to individual cremators, as a more accurate way of monitoring gas use and identifying areas where gas use can be reduced and cost savings made.

Greenhouse gas conversion factors are used to calculate the amount of greenhouse gas emissions caused by energy use. They are measured in units of "kg carbon dioxide equivalent". In order to convert 'energy consumed in kWh' to 'kg of carbon dioxide equivalent', the energy use should be multiplied by a conversion factor.

[Defra's website](#) contains conversion factors for 2011. The conversion factor for natural gas at the time of publication of this note was 0.1836, but this figure should be checked by the operator using published figures when calculating carbon dioxide equivalent emissions.

- Within 3 months of the publication of this note, operators should begin to keep simple records of quarterly gas consumption for inspection by the regulator. Consumption should be converted into CO_2 equivalent emissions using the following conversion equation:

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

Monitoring, investigating and reporting

4.35 The operator should monitor emissions, make tests and inspections of the activity. The need for and scope of testing, (including the frequency and time of sampling), will depend on local circumstances.

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

Information required by the regulator

4.36 The regulator needs to be informed of monitoring to be carried out and the results. The results should include process conditions at the time of monitoring.

- The operator should notify the regulator at least 7 days before any periodic monitoring exercise to determine compliance with emission limit values. The operator should state the provisional time and date of monitoring, pollutants to be tested and the methods to be used.
- The results of non-continuous emission testing should be forwarded to the regulator within 8 weeks of completion of the sampling.
- Adverse results from **any** monitoring activity (both continuous and non-continuous) should be investigated by the operator as soon as the monitoring data has been obtained. The operator should:
 - identify the cause and take corrective action;
 - clearly record as much detail as possible regarding the cause and extent of the problem, and the remedial action taken;
 - re-test to demonstrate compliance as soon as possible; and inform the regulator of the steps taken and the re-test results.

4.37 The operator should report monitoring data as follows:

- Every 6 months a report should be submitted containing the following continuous monitoring data for carbon monoxide and, in respect of unabated cremators, particulate matter. The data should be submitted covering each period of either four weeks or a calendar month:

DEFRA/SEPA PROCESS GUIDANCE NOTES ANNEX H

- Values that exceed the 95% limit for carbon monoxide (and particulate matter if appropriate) in that period;
 - 60-minute mean emission values that exceed the 100% limit for carbon monoxide (and particulate matter, if appropriate) in that period;
 - A list of the highest 60-minute mean emission value for each period;
 - The 95th-percentile value for each period.
 - For temperature and oxygen, the operator should report the following continuous monitoring values to the regulator every 6 months:
 - secondary chamber entrance temperature, 4-weekly/monthly maximum and minimum (of 5-minute averages);
 - secondary chamber exit temperature, 4-weekly/monthly maximum and minimum (of 5-minute averages);
 - oxygen concentration, 4-weekly/monthly minimum (of 5-minute averages).
 - Where any values have been exceeded in any 4-weekly/monthly or 6-monthly reporting period, records should be kept that identify the number of times that the limit was exceeded during the reporting period, the levels of the exceedance, and the time, date and cremation reference. This data should be kept available.
- 4.38 Where the combustion provisions in **Table 3 or 4**, as appropriate are not met continuously, more detailed reporting may be needed.
- 4.39 The report specified in **paragraph 4.37** should be presented in a format that enables the regulator to check compliance.
- Visible and Odorous Emissions**
- 4.40 The aim should be to prevent any visible airborne and odorous emissions from any part of the process, as perceived by the regulator. This aim includes all sites regardless of location.
- 4.41 Emissions from cremations should in normal operation be free from visible smoke:
 - All other releases to air, other than condensed water vapour, should be free from persistent visible emissions.
 - All emissions to air should be free from droplets.Where there are problems that, in the opinion of the regulator, may be attributable to the installation, such as local complaints of visual emissions or where dust from the installation is being transported off the site, the operator should inspect in order to find out which operation(s) is the cause.

DEFRA/SEPA PROCESS GUIDANCE NOTES ANNEX H

If this inspection does not lead to correction of the problem then the operator should inform the regulator in order to determine whether ambient air monitoring is necessary. Ambient monitoring may be either by a British Standard method or by a method agreed with the regulator.

Whilst problems are ongoing, visual and olfactory boundary checks should also be made once per day when an installation is being operated. The time, location and result of these checks, along with weather conditions such as indicative wind direction and strength, should be recorded. Once the source of the emission is known, corrective action should be taken without delay and where appropriate the regulator may want to vary the permit in order to add a condition requiring the particular measure(s) to be undertaken.

Abnormal Events

4.42 The operator should respond to problems which may have an adverse effect on emissions to air.

- In the case of abnormal emissions, malfunction or breakdown leading to abnormal emissions the operator should:
 - investigate and undertake remedial action immediately
 - adjust the process or activity to minimise those emissions; **and**
 - promptly record the events and actions taken
- The regulator should be informed without delay, whether or not there is related monitoring showing an adverse result:
 - if there is an emission that is likely to have an effect on the local community; **or**
 - in the event of the failure of key arrestment plant, for example, bag filtration plant or scrubber units; **or**
 - in the event of the use of the bypass or emergency relief vent.
- The operator should provide a list of key arrestment plant and should have a written procedure for dealing with its failure, in order to minimise any adverse effects.

5. Control techniques

Summary of best available techniques

- 5.1 The following table provides a summary of the best available techniques that can be used to control the process in order to meet the emission limits and provisions in **Section 4**. Provided that it is demonstrated to the satisfaction of the regulator that an equivalent level of control will be achieved, then other techniques may be used.

Table 6 - Summary of control techniques

Release source	Substance	Control techniques
Flue gas	Nitrogen oxides	No control
	Odour	Good combustion and a secondary combustion zone
	Carbon monoxide	Good combustion and a secondary combustion zone
	Volatile organic compounds	Good combustion and a secondary combustion zone
	PAH	Good combustion and a secondary combustion zone
	Mercury and its compounds	Abatement, or contribute via burden sharing scheme
	Particulate matter	Good combustion, slow gas velocities and a secondary combustion zone. Abatement further minimises emissions*
	Hydrogen chloride	Minimise halogens combusted, avoid excessive temperature in primary chamber. Abatement further minimises emissions*
	PCDD/F	Minimise chlorine combusted and particulate matter emitted, good combustion and a secondary combustion zone, Abatement further minimises emissions*
	Carbon dioxide	Measure gas consumption, good cremator design
Cremated remains size reduction machine	Particulate matter	Filter on machine or external dispersion and filter if needed.
Spent gas-cleaning materials	Particulate matter, mercury	Keep containers tightly lidded
* if fitted for mercury abatement purposes		

Techniques to control emissions from contained sources

Particulate matter (PM)

- 5.2 Particulate matter in unabated cremators is controlled by good combustion and by gas flows that do not carry particles out of the cremator. Mercury abatement further lessens emissions of particulate matter.

Hydrogen chloride

- 5.3 Hydrogen chloride mostly arises from the salt content of bodies. Chlorine should be avoided by careful control of coffin materials, contents, shrouds, clothing and items other than the body itself. Condensation is prevented by dilution and preheating stacks. Mercury abatement further lessens emissions of hydrogen chloride.

Mercury

- 5.4 Mercury is highly volatile and therefore almost exclusively passes into the flue-gas stream. Mercury is only partially removed with particulate matter. The rest remains in the flue gases as volatile compounds.

Where activated carbon is used as part of the abatement technique, operators should be aware of potential health and safety risks arising from spontaneous combustion.

Volatile organic compounds

- 5.5 Volatile organic compounds are controlled by good combustion.

Dioxins

- 5.6 Good combustion and low particulate matter emissions minimise the emission of PCDD/F (polychlorinated dibenzo-p-dioxins and polychlorinated dibenzofurans often referred to as 'dioxins and furans' or even just 'dioxins'). Mercury abatement further lessens emissions of dioxins.

Nitrogen oxides

- 5.7 Nitrogen oxides arising from coffins might be lessened by switching from coffins made using board made from wood and nitrogen-containing resins. However plain wood is considered too expensive to be required as BAT. Cardboard caskets also contain nitrogen in the wet strength additives. Nitrogen is always present in the body. Thermal NOx is minimal due to the secondary chamber temperature and because combustion is staged over primary and secondary chambers.

Carbon monoxide

- 5.8 Carbon monoxide is a pollutant but is also the prime indicator of incomplete combustion that would emit un-burnt hydrocarbons, PAH and PCDD/F, which are much more difficult to monitor. Abatement of carbon monoxide is not BAT but good combustion minimises emissions.

Carbon dioxide

- 5.9 Carbon dioxide emissions are minimised by cremator design and operation. Simple recording of gas consumption and conversion into CO₂ equivalent emissions enables monitoring of emissions. Although not BAT, gas meters allow measurement of gas consumption, and comparison with other sites, including the potential for cost savings. Advances in combustion control, allied with short period carbon monoxide monitoring to monitor good combustion, may allow significant reduction in carbon dioxide emissions for next generation cremator designs.

Odour

- 5.10 Odour is prevented by good combustion

Release of Pollutants – normal and emergency operating conditions

Unabated crematoria

- 5.11 In existing, unabated crematoria, the chimney will have been designed at a sufficient height to achieve adequate dispersal of pollutants during normal operation. The main chimneys also act as emergency vents in the case of plant or power failure.

Existing, abated crematoria

- 5.12 For existing crematoria that are fitted with abatement, the existing chimney (originally designed for dispersion of unabated emissions) should suffice as the emissions release point during normal operation.
- 5.13 In the event of a failure of the abatement equipment, unabated gases follow one of two routes for release to atmosphere depending on the design of the plant:
1. Unabated gases can “bypass” the abatement plant and be ducted to the original, main chimney, therefore being dispersed at the optimum height.
 2. Unabated gases can “bypass” to an alternative emergency release vent (ERV) designed at the optimum height for the dispersal of unabated emissions.

New crematoria

- 5.14 For **new** crematoria (required to fit abatement) the chimney height is calculated at a suitable height for the release of abated gases during normal operation and may be **shorter** than the optimum height for **unabated** gases.
- 5.15 The process will be designed that will allow the emergency release of unabated gases in the event of a breakdown of the abatement equipment.
- It is not considered BAT to require that either the main chimney or any additional emergency release vent, be built at a height calculated to be sufficient for the release of unabated gases.

Failure of Abatement Plant - existing, abated crematoria and new processes

- 5.16 Where there is more than one gas cleaning system and one system fails, that system should not be used until it is repaired.
- 5.17 Where there is only one gas cleaning system then cremations should be allowed to continue for up to 48 hours to provide an opportunity for the necessary repairs to be completed. The regulator should be notified immediately (preferably by fax/email).
- 5.18 Emergency relief vents (ERV) or bypass systems should **not** normally be used when cremation is underway. Occasions when the ERV/bypass is used during a cremation should be notified to the regulator. Use of the ERV/bypass during cremation more than once a year should be investigated and remedial action taken.
- In the event of the use of a ERV/bypass during cremation:
 - the failure, its cause and cure should be entered in the log; **and**
 - the regulator should be notified immediately (preferably by fax or e-mail).
 - ERV/bypass should only be used:
 - when the heat removal plant has failed and the abatement plant would be damaged; **or**
 - during warm-up and shutdown, provided that compliance be demonstrated with the carbon monoxide limit.

Waste Materials

- 5.19 Waste materials collected from inside the abatement plant will need to be disposed of in accordance with waste legislation.
- Dusty materials, dusty wastes and wastes containing mercury should be kept tightly contained.

Coffin materials and cremator design

- 5.20 The emission limits and provisions specified in section 4 above may be achieved by careful use of materials in coffin construction and furnishing and by cremator design and operation (including abatement at new processes). The range of materials used for coffin or casket construction now includes cardboard, wickerwork (made from willow) as well as wood composite board and solid wood. Shrouds are also available and may use natural fibres such as cotton, linen or wool. Materials to be avoided in coffin or casket construction, furnishings and body preparation/embalming include halogenates, metals (except steel screws and staples), wax and more than a thin layer of water based lacquer on wood.
- PVC and melamine should not be used in coffin construction or furnishings;
 - Cardboard coffins should not contain chlorine in the wet-strength agent. (e.g. not using polyamidoamine-epichlorhydrin based resin (PAA-E));

DEFRA/SEPA PROCESS GUIDANCE NOTES ANNEX H

- Packaging for stillbirth, neonatal and foetal remains should not include any chlorinated plastics;
- Coffins containing lead or zinc should not be cremated;
- The cremator should be designed and operated in order to prevent the discharge of smoke or fumes during charging;
- The charging system should be interlocked to prevent the introduction of a coffin to the primary combustion zone unless the secondary combustion zone temperature exceeds that specified for good combustion in the permit;
- The cremator and all ductwork should be made and maintained gas tight if under positive pressure to prevent the escape of gases from the ductwork or cremator to the air.

Good combustion

- 5.21 The secondary combustion zone starts after the last injection of combustion air. Air injected at support burners in the secondary combustion chamber is ignored, as long as there is no more than about 6% excess oxygen for the fuel burnt.
- All cremators should be designed to ensure complete combustion and should be fitted with a secondary combustion zone;
 - The manufacturer should state the volume of the secondary combustion zone;
 - When re-bricking a cremator, the convolutions of the secondary combustion chamber should be maintained and the volume of the chamber recalculated and restated.

It is technically feasible for oxygen levels to be less than 6% but any minimum oxygen levels proposed by operators should be fully justified to the regulator and backed up with monitoring data to show that compliance with emission limit values for **all** pollutants listed in **Tables 3 & 4** is fully met.

- 5.22 Residence time in the secondary combustion zone should be demonstrated at commissioning or by calculation.
- Re-lining or re-bricking of a cremator is likely to improve emission control rather than have a significant negative effect on human beings or the environment, and therefore this activity alone is unlikely to justify classification as a substantial change such that residence time requires demonstrating again.

Cremated remains

- 5.23 For all cremators, the remains in the cremator should only be moved when calcination is completed.
- The removal of ash and non-combustible residues from the cremator should be undertaken carefully so as to prevent dust emissions via the flue;
 - Cremated remains should be moved and stored in a covered container.

DEFRA/SEPA PROCESS GUIDANCE NOTES ANNEX H

- 5.24 Many cremated remains treatment plants have an internal filter and discharge inside the building and for them an emission limit and testing are unlikely to be needed.
- Cremated remains treatment plant venting externally should be abated to meet the particulate matter limit in either **Table 3** or **Table 4**.
- Standby cremators**
- 5.25 Some crematoria may wish to retain a stand-by cremator for use in the event of breakdown of the main cremator or other occasional need for additional cremator capacity.
- 5.26 Such plant should be permitted if it can operate in compliance with all the following criteria:
- without causing a nuisance (as in the Environmental Protection Act 1990 Part III);
 - with the aggregate periods of emission of dark smoke not exceeding 5 minutes during any period of eight hours;
 - with no single emission of dark smoke exceeding two minutes; **and**
 - without any emission of black smoke.
- 5.27 The following conditions and also the management **paragraphs 5.46 - 5.48** should also be complied with:
- The standby cremator should be clearly identified.
 - Standby plant should operate for no more than 100 hours in any 12-month period.
 - All periods of operation and the reason for standby plant operation should be recorded in the log.
 - The local enforcing authority should be notified by telephone, in advance if possible, of the operation of standby plant.
 - Visual and olfactory assessments of emissions should be made at the start and at least once during each cremation cycle in standby plant, the location and result of the assessment should be recorded in the log. (The frequency of assessments can be reduced if a continuous particulate matter monitor is operating.)
 - Remedial action should be taken immediately in the case of abnormal emissions.
 - PVC and melamine should not be used in coffin construction and furnishings
 - Cardboard coffins should not contain chlorine in the wet-strength agent (i.e. not using polyamidoamine-epichlorhydrin based resin (PAA-E)).
 - Packaging for stillbirth, neonatal and foetal remains should not include any chlorinated plastics.
 - Coffins containing lead or zinc should not be cremated.
 - The remains in the cremator should only be moved when calcination is completed.

Small-scale cremators

- 5.28 Small-scale cremators may be developed in order to cremate stillbirth, neonatal and foetal remains. Not all the standards for full-scale cremators are appropriate for such small-scale cremators because of the relatively small mass of pollutants emitted. For these purposes "small--scale cremators" should be taken to mean cremators with a maximum door opening of 300 x 300 mm and with a maximum length of primary chamber of 1,000 mm.
- 5.29 When stillbirth, neonatal or foetal remains are cremated in full-scale cremators, the guidance for those cremators should apply.
- 5.30 The following paragraphs, or parts of paragraphs, should apply to small-scale cremators:
- i. **Paragraphs 4.40 – 4.41** but with visual and odour assessment once during each cremation,
 - ii. **Paragraphs 4.42, 5.3, 5.20, 5.39 – 5.53**
 - iii. The reference to "coffins" in **paragraph 5.3** includes packaging for stillbirth, neonatal and foetal remains.

Cremation standards in the event of mass fatalities

Originally published as AQ19(07).

- 5.31 **Paragraphs 5.31 to 5.38** are 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 the guidance. There will be a similar alert when the situation is at an end after which the guidance will no longer apply.
- 5.32 In the event of mass fatalities, such as could arise from pandemic flu, crematoria may need to operate for sustained periods. This means that there is a greater prospect of breakdown of equipment, including equipment for reducing air emissions. There could also be implications for staffing of crematoria.

Current guidance

- 5.33 This paragraph reminds regulators and operators that it is good practice to ensure that:
- spares and consumables are available at short notice;
 - to have an audited list of essential items;
 - those spares and consumables subject to continual wear should be held on site or should be available at short notice from guaranteed local suppliers so that plant breakdowns can be rectified rapidly;
 - staff at all levels need the necessary training and instruction in their duties relating to the control of the process and emissions to air and refer to the Crematorium Technicians Training Scheme or to the Training and Examination Scheme for Cremation Technicians.

- 5.34 Regulators and crematoria operators should bear in mind that:
- a) larger quantities of spares and consumables may be needed in the event of an emergency causing mass fatalities;
 - b) an emergency causing mass fatalities may have implications for the number of trained staff that can be called upon.
- 5.35 In order to minimise the potential for breakdowns during such an emergency, it is important that all crematoria plan for such an eventuality, taking account of a) and b).
- A simple plan should be drawn up for dealing with emergencies which give rise to mass fatalities, which should mainly address the holding of additional spares and consumables and the training of suitable numbers of staff.
- 5.36 If this is done, there might nonetheless be either a breakdown of equipment affecting air emissions or a shortage of staff trained on the air pollution aspects of operating the crematorium. There might also be a heightened demand which warrants operating any standby cremator for longer than the 100 hours specified in **paragraph 5.27**. In such circumstances, and in the public interest, regulators should take a balanced view to enforcement action in the event of a breach of permit conditions.
- 5.37 If best endeavours have been taken to reduce the likelihood of a breakdown or staff shortage, it may well be appropriate to allow a crematorium to continue to operate while breaching permit conditions without any enforcement action being taken.⁶ One consideration may be whether the area in question is designated a local Air Quality Management Area for any of the pollutants emitted from the crematorium. Steps should be taken to rectify the breaches where practicable and as soon as is feasible. Defra and WAG would not expect these allowances to be continued beyond the duration of the emergency.
- 5.38 This guidance is without prejudice to any restrictions or requirements there may be under health and safety legislation.

Air Quality

Dispersion & Dilution

- 5.39 Pollutants that are emitted via a stack require sufficient dispersion and dilution in the atmosphere to ensure that they ground at concentrations that are deemed harmless. This is the basis upon which stack heights are calculated using HMIP Technical Guidance Note (Dispersion) D1. The stack height so obtained is adjusted to take into account local meteorological data, local topography, nearby emissions and the influence of plant structure.

⁶ As regards the possibility of mass fatalities arising from pandemic flu, the Food Standards Agency and the World Health Organisation take the view that H5N1 virus in uncooked poultry when cooked to 70°C negates the risk.

DEFRA/SEPA PROCESS GUIDANCE NOTES ANNEX H

- 5.40 The calculation procedure of D1 is usually used to calculate the required stack height but alternative dispersion models may be used in agreement with the regulator. An operator may choose to meet tighter emission limits in order to reduce the required stack height.
- 5.41 Where an emission consists purely of air and particulate matter, (i.e. no products of combustion or any other gaseous pollutants are emitted) the above provisions relating to stack height calculation for the purpose of dispersion and dilution should not normally be applied. Revised stack height calculations should not be required as a result of publication of this revision of the PG note, unless it is considered necessary because of a breach or serious risk of breach of an EC Directive limit value or because it is clear from the detailed review and assessment work that the permitted process itself is a significant contributor to the problem.
- 5.42 In order to maintain maximum advantage from thermal buoyancy and momentum, emissions should take place from the minimum practicable number of chimneys. Each cremator should have its own flue in a multi-flue stack. For crematoria with abatement plant, each abatement plant can have one flue plus an emergency release vent (ERV). As the ERV should only be used infrequently, the ERV stack height can be the same as the abated stack height (see **paragraphs 5.12 – 5.15**). An operator may choose to meet tighter emission limits in order to reduce the required main stack height, but the ERV stack height may not be reduced.

Ambient air quality management

- 5.43 In areas where air quality standards or objectives are being breached or are in serious risk of breach and it is clear from the detailed review and assessment work under Local Air Quality Management that the permitted process itself is a significant contributor to the problem, it may be necessary to impose tighter emission limits. If the standard that is in danger of being exceeded is not an EC Directive requirement, then industry is not expected to go beyond BAT to meet it. Decisions should be taken in the context of a local authority's Local Air Quality Management action plan. For example, where a permitted process is only responsible to a very small extent for an air quality problem, the authority should not unduly penalise the operator of the process by requiring disproportionate emissions reductions.

Paragraph 59 of the [Air Quality Strategy 2007 \[Volume 1\]](#) gives the following advice: “...*In drawing up action plans, local authority environmental health/pollution teams are expected to engage local authority officers across different departments, particularly, land-use and transport planners to ensure the actions are supported by all parts of the authority. In addition, engagement with the wider panorama of relevant stakeholders, including the public, is required to ensure action plans are fit-for-purpose in addressing air quality issues. It is vital that all those organisations, groups and individuals that have an impact upon local air quality, buy-in and work towards objectives of an adopted action plan.*”

Stacks, vents and process exhausts

- 5.44 Liquid condensation on internal surfaces of stacks and exhaust ducts might lead to corrosion and ductwork failure or to droplet emission. Adequate insulation will minimise the cooling of waste gases and prevent liquid condensation by keeping the temperature of the exhaust gases above the dewpoint. A leak in a stack/vent and the associated ductwork, or a build up of material on the internal surfaces may effect dispersion:
- Flues and ductwork should be cleaned to prevent accumulation of materials, as part of the routine maintenance programme.
- 5.45 When dispersion of pollutants discharged from the stack (or vent) is necessary, the target exit velocity should be 15m/sec during peak operating conditions to achieve adequate dispersal.
In order to ensure dispersion is not impaired by either low exit velocity at the point of discharge, or deflection of the discharge, a cap, or other restriction, should not be used at the stack exit. However, a cone may sometimes be useful to increase the exit velocity to achieve greater dispersion.

Management

Management techniques

- 5.46 Important elements for effective control of emissions include:
- proper management, supervision and training for process operations;
 - proper use of equipment;
 - effective preventative maintenance on all plant and equipment concerned with the control of emissions to the air; and
 - ensuring that spares and consumables - in particular, those subject to continual wear – are held on site, or available at short notice from guaranteed local suppliers, so that plant breakdowns can be rectified rapidly. This is important with respect to arrestment plant and other necessary environmental controls. It is useful to have an audited list of essential items.

Appropriate management systems

- 5.47 Effective management is central to environmental performance; it is an important component of BAT and of achieving compliance with permit conditions. It requires a commitment to establishing objectives, setting targets, measuring progress and revising the objectives according to results. This includes managing risks under normal operating conditions and in accidents and emergencies. It is therefore desirable that installations put in place some form of structured environmental management approach, whether by adopting published standards (ISO 14001 or the EU Eco Management and Audit Scheme [EMAS]) or by setting up an environmental management system (EMS) tailored to the nature and size of the particular process. Operators may also find that an EMS will help identify business savings.

5.48 Regulators should use their discretion, in consultation with individual operators, in agreeing the appropriate level of environmental management. Simple systems which ensure that LAPPC considerations are taken account of in the day-to-day running of a process may well suffice, especially for small and medium-sized enterprises. Authorities are urged to encourage wider adoption of EMS by operators, but it is outside the legal scope of an LAPPC permit to require an EMS for purposes other than LAPPC compliance. For further information/advice on EMS refer to the appropriate chapter of the appropriate Guidance Manual for [England and Wales](#), [Scotland](#) and [Northern Ireland](#).

Training

5.49 Staff at all levels need the necessary training and instruction in their duties relating to control of the process and emissions to air. In order to minimise risk of emissions, particular emphasis should be given to control procedures during start-up, shut down and abnormal conditions.

Training may often sensibly be addressed in the EMS referred to above. The Crematorium Technicians Training Scheme operated by the Institute of Cemetery and Crematorium Management should be adequate for this purpose, as should the Training and Examination Scheme for Crematorium Technicians which is run by the Federation of Burial and Cremation Authorities.

- All staff whose functions could impact on air emissions from the activity should receive appropriate training on those functions. This should include:
 - awareness of their responsibilities under the permit;
 - steps that are necessary to minimise emissions during start up and shut down;
 - actions to take when there are abnormal conditions, or accidents or spillages that could, if not controlled, result in emissions;
- The operator should maintain a statement of training requirements for each post with the above-mentioned functions and keep a record of the training received by each person. These documents should be made available to the regulator on request.

Maintenance

5.50 Effective preventative maintenance plays a key part in achieving compliance with emission limits and other provisions. All aspects of the process including all plant, buildings and the equipment concerned with the control of emissions to air should be properly maintained. In particular:

- The operator should have the following available for inspection by the regulator:
 - A written maintenance programme for all pollution control equipment; **and**
 - A record of maintenance that has been undertaken.

DEFRA/SEPA PROCESS GUIDANCE NOTES ANNEX H

Cremator maintenance

- 5.51 A well-maintained cremator should have:
- Written maintenance and cleaning programmes available to the regulator with respect to pollution control equipment, including control instrumentation and the cremator secondary chamber, and ducts and flues, and if fitted, abatement plant;
- 5.52 Cleaning of cremator ducts and flueways is considered part of preventative maintenance e.g. raking out twice a year:
- 5.53 Maintenance of an existing crematorium will need to include at least the following: (See also **Appendix 1**).
- inspecting, repairing and replacing brick, flue, control software and hardware, monitoring equipment etc;
 - regular maintenance and inspection by service engineer;
 - operator maintenance - daily, weekly, monthly, by number of cremations.

6. Summary of changes

The main changes to this note, with the reasons for the change, are summarised below in **Table 7**. Minor changes that will not impact on the permit conditions e.g. slight alterations to the Process Description have not been recorded.

Table 7 - Summary of changes

Section / Paragraph / Row	Change	Reason	Comment
1. Introduction			
	Simplification of text	Make note clearer	
	Addition of links	Change to electronic format	Removes need for extensive footnotes/references
2. Timetable for compliance and reviews			
	Simplification of text	Make note clearer	
	Addition of links	Change to electronic format	Removes need for extensive footnotes/references
Paragraph 2.4	Text added to allow for operators to reconsider burden sharing as an option when replacement mercury plant is required.	Gives flexibility to the operator when considering how best to meet compliance for mercury emissions.	
3. Activity Description			
	Additional descriptive text – abatement plant and emergency releases	Make note clearer	
4. Emission limits, monitoring and other provisions			
Table 3 & Table 4	ELVs/provisions for unabated and abated crematoria	Clarify different monitoring provisions for unabated and abated processes	
Table 4 - Note 1	Text to summarise the importance of operators, monitoring organisations and analytical laboratories liaising to agree appropriate methods for mercury monitoring.	Clarification of the need to determine number and duration of sampling times for mercury testing on a site-specific and process-specific basis.	
Paragraphs 4.4 – 4.11 & Table 5	New paragraphs on continuous monitoring instruments for particulate matter and calibration/configuration of CEMs, summarised in Table 5	Clarify types of CEMs and differences between types, plus clarification of terms in Table 5. Also clarifies that calibration must be undertaken for all CEMs.	
Paragraphs 4.12 – 4.13	New paragraphs directing regulators to understand how data is used on site, particularly whether annual tests are used to calibrate/configure CEMs and to upgrade calibration requirements, instruments or both, to be able to provide at least qualitative data.	Gather verifiable, qualitative data for compliance purposes	

DEFRA/SEPA PROCESS GUIDANCE NOTES ANNEX H

Paragraphs 4.20 – 4.27	Sampling provisions for unabated crematoria, previously in Section 9 of PG5/2(04)	Make note clearer	
Paragraphs 4.28 – 4.33	New paragraphs describing abatement/burden sharing arrangements.	Make note clearer	
Paragraph 4.34	Revised text to describe an approach to managing gas usage, carbon dioxide emissions and carbon footprint	Gather data to inform on CO ₂ emissions.	Data allows for management control of gas use which in turn allows management of CO ₂ emissions and increased efficiency.

5. Control techniques

Paragraphs 5.2 – 5.10	Revised text for control techniques of emissions from contained sources	Make note clearer	
Paragraphs 5.11 – 5.18	Revised text and conditions relating to emergency releases of pollutants from abated and unabated crematoria	Make note clearer	
Paragraph 6.10 in PG5/2(04)	Deleted sentence - A body in a shroud may be supported on a stiff baseboard.	Such practice has significant H&S concerns for the industry	
Para 5.21	Additional text to allow operators to run at less than 6% excess oxygen levels provided full justification is provided to the regulator to demonstrate that compliance is not compromised.	Allows for increased efficiency in gas use	
Paragraphs 5.31– 5.38	Guidance on cremation standards in the event of mass fatalities (previously published as AQ19(07)). Additional requirement for operator to draw up a simple plan to deal with emergencies that give rise to mass fatalities.	Consolidate AQ notes into PG note	
Paragraphs 5.39 – 5.45	Clarification of air quality guidance including exhaust velocity requirements	Make note clearer	
Paragraphs 5.50 – 5.53	Additional text for cremator maintenance	Make note clearer	
Appendix 1	Guidance on Well-maintained cremators (previously published as AQ12(05))	Consolidate AQ notes into PG note	
Appendix 2	Supplementary Guidance on burden-sharing, previously published as AQ24(05)	Consolidate AQ notes into PG note	

7. Further information

Sustainable consumption and production (SCP)

Both business and the environment can benefit from adopting sustainable consumption and production practices. Estimates of potential business savings include:

- £6.4 billion a year UK business savings from resource efficiency measures that cost little or nothing
- 2% of annual profit lost through inefficient management of energy, water and waste
- 4% of turnover is spent on waste.

When making arrangement to comply with permit conditions, operators are strongly advised to use the opportunity to look into what other steps they may be able to take, for example, having regard to the efficient use of auxiliary fuels, such as gas and electricity. Regulators may be willing to provide assistance and ideas, although cannot be expected to act as unpaid consultants.

Health and safety

Operators of installations must protect people at work as well as the environment:

- requirements of a permit should not put at risk the health, safety or welfare of people at work or those who may be harmed by the work activity;
- equally, the permit must not contain conditions whose only purpose is to secure the health of people at work. That is the job of the health and safety enforcing authorities.

Where emission limits quoted in this guidance conflict with health and safety limits, the tighter limit should prevail because:

- emission limits under the relevant environmental legislation relate to the concentration of pollutant released into the air from prescribed activities;
- exposure limits under health and safety legislation relate to the concentration of pollutant in the air breathed by workers;
- these limits may differ since they are set according to different criteria. It will normally be quite appropriate to have different standards for the same pollutant, but in some cases they may be in conflict (for example, where air discharged from a process is breathed by workers). In such cases, the tighter limit should be applied to prevent a relaxation of control.

Further advice on responding to incidents

The UK Environment Agencies have published [guidance](#) on producing an incident response plan to deal with environmental incidents. Only those aspects relating to air emissions can be subject to regulation via a Part B (Part C in NI) permit, but regulators may nonetheless wish to informally draw the attention of all appropriate operators to the guidance.

It is not envisaged that regulators will often want to include conditions, in addition to those advised in this PG note, specifying particular incident response arrangements aimed at minimising air emissions. Regulators should decide this on a case-by-case basis. In accordance with BAT, any such conditions should be proportionate to the risk, including the potential for harm from air emissions if an incident were to occur. Account should therefore be taken of matters such as the amount and type of materials held on site which might be affected by an incident, the likelihood of an incident occurring, the sensitivity of the location of the installation, and the cost of producing any plans and taking any additional measures.

Appendix 1

Compliance

Much of this Appendix was originally issued as AQ12(05), which has now been rescinded. It is intended to assist regulators as they inspect cremators and check compliance with permit conditions and guidance in such areas as:

- maintenance for abatement plant and continuous monitors;
- notifications of emergency bypass/emergency relief valves;
- arrangement for storage of dusty wastes.

In some cases it will be appropriate for regulators to consider all of the following when they inspect. In other cases, they will want to prioritise or focus on particular issues.

Maintenance arrangements

Contract

- is there an external contract for maintenance and servicing? Who with: manufacturers, combustion engineers?
- is it structured? Does it cover preventative, and responsive work? Does it set response times?
- if not, what are the arrangements, who carries them out, how qualified (qualifications/experience) are they to deal with the 'usual' problems? unusual problems? how long does it take to fix problems? How does the paperwork support the arrangements?

Paperwork

- are there structured inspections by the service engineer? with paperwork to set expectations? and documented faults and remedies? and advice on operator maintenance standards?

Check to see if a cremator is "well maintained"

Regulators may find the following points useful to raise when they inspect cremators, and where appropriate to inspect themselves. The questions should help to elicit information from the operator, and service engineer if present, about how the cremator operates when it is fully compliant. (Inspections when the engineer is present can be informative.)

DEFRA/SEPA PROCESS GUIDANCE NOTES ANNEX H

Answers will give an indication of whether the cremators have problems and how the operator/ engineer adjust operations as and when problems arise.

- a) Do the operatives note the CO, particulate and oxygen readings on the emissions monitoring system when the cremator is in pre-heat (i.e. just burners running)?
- b) Do the operatives observe the primary burner flame (with the loading door shut) so they can spot if the flame significantly changes?
- c) Where are the analyser manufacturer's instructions and what do they say about calibration and its frequency? When were the analysers calibrated last? are all the analysers working correctly?
- d) How does the control system correct for any excursion in primary chamber behaviour? Eg low oxygen, high CO. Do the primary burners and primary air respond to low oxygen or high CO or both (eg do they turn off?)
- e) How the control system deals with different weights of a cremation?
- f) What is the largest size, weight of cremation accepted, and how are they managed - manual or automatic? Loaded into a colder primary chamber?
- g) Is the sealing and paintwork in general checked regularly for "smoke" marks, which are likely to be a sign of pressurisation? These marks will give clues to cleanliness of combustion.
- h) Similarly, is the area around the loading door checked regularly for scorch or smoke stains?
- i) Are the ductworks checked regularly for any signs of leaks (as far as is accessible)?
- j) The regulator might watch the stack at the loading of a coffin to see if there is any smoke?
- k) The regulator might watch the stack at 10 to 20 minutes into cremation, (coffin collapses) - is there smoke at the stack and check for smell around the grounds and in the cremator room?

Alarms and Notifications

Regulators should, as a matter of course, check all forms of data logger when they visit to see whether there were any emission limit exceedances or uses of the emergency relief vent (ERV) which have not been reported. It can also be useful to check other onsite records to see if there have been any events that are useful as indicators for potentially adverse impacts in the future. For example:

- low level alarm histories for CEMs;
- records of boiler temperatures consistently above the expected levels;
- records relating to the dosing equipment that may indicate malfunction e.g. consistent quantities of reagent loaded or blockages that have occurred

DEFRA/SEPA PROCESS GUIDANCE NOTES ANNEX H

Some data loggers require manual acknowledgement of an alarm, others may de-activate when the fault is rectified. A site may have additional paper systems in place to record deviations as the operator undertakes daily tasks. It is useful to look at the times recorded for alarm events/deviations and when they were acknowledged and corrective actions put in place.

- does the site review alarms/deviations on a regular basis?
- are some corrective actions repeatedly required? What is the mechanism onsite to check that corrective actions are effective in preventing the adverse effect?

Dustiness

How much dust is there in the ducts and flues? How long since they were cleaned out? How are they cleaned out? The text below contains a very simple guide to describing dustiness and its variations, but is only one possible approach.

The following is a simple, rule-of-thumb “dustiness” guide to describing dustiness and its variations. (*Health and safety note: remember to ascertain safety before opening ducts and flues. Gas temperature, pressure, constituents of any outflows or duct contents are important, as are surface temperatures, sharp edges etc. The operator and/or manufacturer/service engineers will probably have already assessed risk for such operations.*)

- colour;
- thickness of deposit might be gauged:
 - dust shows on dry fingertip [dust free latex glove? rub gently]
 - thick enough to write in with a finger [how lit: from room, by torch?]
 - finger drawn through dust makes a furrow
 - thick enough to measure with a ruler
- extent of deposition in square ducts, in corners, patches on the base:
 - less than a beer mat
 - more than a beer mat
 - most of the surface
- in round ducts:
 - continuous
 - long patches
 - short patches.

Appendix 2

Supplementary guidance on burden sharing

This is an update of additional guidance note AQ24(05) on burden sharing options, omitting text about material with deadlines that have passed or which is otherwise out of date.

Background

Burden sharing options

Defra was aware in 2005 that different operators were choosing different burden sharing options to achieve the specified 50% national mercury reduction. The following points were intended to clarify for regulators and operators the considerations likely to be material in deciding whether to fit abatement equipment or contribute to the cost:

- a) it is believed that a small number of local authorities have decided to fit mercury abatement in order to safeguard the local environment and not participate in burden sharing. For the reasons given in two consultation papers issued in [2003](#) and [2004](#) it remains Defra and WAG's view that the environmental impact from mercury emitted from crematoria is through long-range transportation before its deposition, take-up by fish, and consumption as food. Therefore, the focus should not be on local environmental protection. It is for this reason that Defra and WAG have set a national reduction figure, not limits for each individual crematorium.
- b) the 50% reduction figure was determined after extensive consultation to reflect an appropriate balance between costs to crematoria operators (and any consequential increase in cremation fees passed on to the public) and environmental benefits. Neither Defra nor WAG are promoting a reduction in excess of this amount through burden sharing, or because some authorities have decided to fit abatement irrespective of burden sharing.
- c) Defra and WAG (now Welsh Government) are aware that the following burden sharing methods have been adopted:
 - i) a good many operators have concluded that the best way is to join the CAMEO scheme, which is arranging burden sharing at the national level and provides an umbrella organisation for both running the system and reporting to Defra and WAG. CAMEO has issued guidance on the criteria for deciding whether cremation authorities are to fit abatement or contribute towards the cost and will approve and register all burden sharing arrangements, with CAMEO members all being free to choose their burden sharing partners, should they wish (these arrangements will still require registration and approval with CAMEO). CAMEO issued advice on an environmental surcharge for its members to levy in addition to the normal cremation fee

DEFRA/SEPA PROCESS GUIDANCE NOTES ANNEX H

from January 2007, which is considered by the scheme to be the most effective way to collect funding for authorities fitting abatement equipment in line with the phasing programme. For details of the CAMEO approach, contact The Secretary, The Federation of Burial and Cremation Authorities, 41 Salisbury Road, Carshalton, Surrey SM5 3HA, fbcasec@btconnect.com or via the CAMEO website www.cameoonline.org.uk/ where contact details can be found.

- ii) some operators have chosen to fit abatement to a proportion of the cremators at their crematorium/crematoria;
- iii) some operators have made local agreements with nearby operators or other crematoria within the same authority or company to share costs and abatement.

Both ii) and iii) could be undertaken within the CAMEO scheme, with CAMEO verifying the arrangements and monitoring the data.

GLASGOW AUDIT REPORT ANNEX I



Glasgow

CITY COUNCIL

Your Ref:

Our Ref: GB/MKscotgov/cremationcommissom

Chief Executive
George Black CBE
CPFA FCCA

Glasgow City Council
City Chambers
George Square
Glasgow G2 1DU
Telephone: 0141 287 4739
Fax No: 0141 287 3627

28 May 2013

Via email

The Rt Hon Lord Bonomy
Chair, Infant Cremation Commission
c/o 3E St Andrews House
Regent Road
Edinburgh
EH1 3DG
cremationcommission@scotland.gsi.gov.uk

Dear Lord Bonomy

You will be aware that Glasgow City Council operates two crematoria and that we have been the subject of some comment in the press in connection with stories about infant cremations.

Following the media stories about Mortonhall and Glasgow I asked the council's Head of Audit and Inspection to carry out an investigation whose purpose was to provide assurance about the practices followed in our crematoria.

That work has now been completed and I include a copy of the audit report which I hope will be useful to you and members of your commission.

If there is any assistance that I or any member of my staff can give you then please do not hesitate to get in touch.

Yours sincerely

GEORGE BLACK
CHIEF EXECUTIVE

**INTERNAL AUDIT – REVIEW OF CREMATION RECORDS FOR NON VIABLE FOETUSES,
STILL-BORN BABIES AND INFANTS UNDER 24 MONTHS**

1. Introduction

1.1 Following adverse coverage of some practices at named crematoria in Scotland and the Council's inability to respond to a freedom of information request from the BBC the Chief Executive asked Internal Audit to provide assurances on the practices adopted in Glasgow City Council.

2. Initial Review

2.1 Internal Audit undertook an initial review based on a sample of 120 cremations covering a 15 year period, being the retention period the authority is required to keep supporting documentation for. Cremations were analysed over the following categories:

- Non-viable foetuses i.e. babies with a gestation period of up to 23 weeks and 6 days,
- Still-born babies, and
- Infants up to the age of 24 months.

2.2 The distinction between still-born babies and infants is not as clear cut as it might appear because a birth after 24 weeks will be classified as an infant as long as the baby survives for even a short period. Similarly, a still-born baby could be delivered after the normal 39 week gestation period has elapsed. Therefore in some cases the bone structure of a still-born baby will be more developed than that of an infant.

2.3 Although the general public refer to ashes being returned it is the skeletal remains that are recovered following cremation and returned to families. This policy complies with guidelines issued by the Federation of Burial and Cremation Authorities.

2.4 The results of the review indicated there was likely to be a small percentage of cases where:

- the instructions on the documentation were ambiguous,
- not all supporting documentation could be found.

2.5 At the same time as the initial review was being concluded there were calls for an independent review of cremations undertaken at Glasgow City Council crematoria. It was deemed prudent therefore that Internal Audit should review the outcome of all cremations in the 3 categories listed in 2.1 undertaken at Linn and Daldowie Crematoria in the last 15 years.

**INTERNAL AUDIT – REVIEW OF CREMATION RECORDS FOR NON VIABLE FOETUSES,
STILL-BORN BABIES AND INFANTS UNDER 24 MONTHS**

3. Methodology

- 3.1 The review was based on the information held in the database used by the Bereavement Services section of Land and Environmental Services to record cremations at Linn and Daldowie Crematoria. Extracts of the database were generated by the software provider and cross checked to an extract independently created by an analyst in ACCESS on behalf of Internal Audit.
- 3.2 Three teams of two auditors visited Linn Crematorium and the Bereavement Services headquarters at Trongate (Daldowie records are held at Linn Crematorium) to review the cremation files for every cremation on the extract report.
- 3.3 A review of the cremation files sought to establish:
 - the instructions contained in the Application for Cremation of Infants and Still-born Babies or in the Application for Cremation of Non-Viable Foetuses, and
 - the outcome of the cremation as recorded on the Cremation Card (a card that accompanies the coffin from the moment it is received by staff at the crematoria).

The information on the Application for Cremation and the Cremation Cards was then compared with the final outcome recorded in the Cremation Register.

- 3.4 Where there was any doubt as to whether or not remains were recovered after the cremation the outcome recorded on the Cremation Card was generally taken to be the most accurate record as this would have been completed at the time of the cremation by the technician in charge.

4. Analysis of the outcomes

- 4.1 The table overleaf shows the outcome of the review undertaken by Internal Audit.

**INTERNAL AUDIT – REVIEW OF CREMATION RECORDS FOR NON VIABLE FOETUSES,
STILL-BORN BABIES AND INFANTS UNDER 24 MONTHS**

Table 1: Analysis of outcomes

	1		2		3		4		5	
	No remains recovered		Remains recovered and returned as requested		Remains dispersed / interred as per instructions		Outcome uncertain / instructions unclear / or full supporting documentation unavailable			
	No.	%	No.	%	No.	%	No.	%	No.	
Non-Viable Foetus (up 23 wks 6 days)	1,762	95.8%	36	2.0%	30	1.6%	11	0.6%	1,839	
Still-born (24 - 39 wks)	60	19.3%	152	48.9%	84	27.0%	15	4.8%	311	
Infant (0 - 24 months)	64	27.2%	115	48.9%	50	21.3%	6	2.6%	235	
Total	1,886	79.1%	303	12.7%	164	6.9%	32	1.3%	2,385	

- 4.2 The auditors concluded that the outcome of 2,353 (or 98.7%) of all cremations reviewed in the 15 year period can reasonably be determined from the documentation available.
- 4.3 The figures indicate that no remains were recovered from more than 95% of Non-Viable Foetuses. Nevertheless, based on the analysis there is a 1 in 20 chance that remains will be recovered.
- 4.4 As noted in paragraph 2.2 the distinction between still-born and infants is not clear cut but analysing the combined figures for these categories it can be seen that in more than 75% of cremations remains are recovered.
- 4.5 A further analysis of the figures in column 4 of Table 1 above is shown overleaf:

**INTERNAL AUDIT – REVIEW OF CREMATION RECORDS FOR NON VIABLE FOETUSES,
STILL-BORN BABIES AND INFANTS UNDER 24 MONTHS**

Table 2: Analysis of Column 4 above

		Number of cases
1	Supporting documentation not available (see 4.6)	9
2	No instructions recorded on the application (see 4.7)	6
3	The Application form states "I understand there will be no identifiable remains"; the cremation records indicate that remains were dispersed in the Garden of Remembrance (see 4.8)	8
4	Instruction on Application form indicates "retain" or "await instructions" (see 4.9)	8
5	Application asked for remains to be taken away in an urn; cremation records indicate dispersal (see 4.10)	1

- 4.6 Staff in the Bereavement Services section of Land and Environmental Services continue to search for information which will help determine the outcome of these cremations.
- 4.7 Where no instructions regarding any remains were recorded on the Application for Cremation, the cremation records indicate that remains were retained for an average of 69 days before being dispersed in the Garden of Remembrance. Remains are normally retained for one month from the date of cremation. Following an enquiry from the family of one case in this category, staff in Land and Environmental Services issued a letter explaining that the remains had been retained for 55 days but were dispersed thereafter as there had been no instruction from the family or Funeral Director.
- 4.8 The application forms which stated "I understand there will be no identifiable remains" were a mixture of forms issued by Glasgow City Council and the NHS. In all cases the Cremation Cards indicate that the remains were dispersed in the Garden of Remembrance on the day or the day after the cremation except in one instance where the remains were retained for 70 days.
- 4.9 In these 8 cases where the Application Forms indicated that any remains should be retained or await instruction it was not possible to trace an instruction from the family or the Funeral Directors. However, in all cases the Cremation Cards indicate that the remains were dispersed in the Garden of Remembrance after being retained for an average of 80 days.

GLASGOW AUDIT REPORT ANNEX I

INTERNAL AUDIT – REVIEW OF CREMATION RECORDS FOR NON VIABLE FOETUSES, STILL-BORN BABIES AND INFANTS UNDER 24 MONTHS

4.10 There is no paperwork to indicate whether or not the dispersal was carried out at the request of the family or instructed by the Funeral Director. This cremation took place in 2003.

4.11 Of the 32 cases in Table 2:

- 27 refer to cremations which took place prior to 2004, and
- 5 refer to cremations which took place between 2004 and 2008.

No cases refer to cremation which took place after August 2008.

5. Observations

5.1 Nothing in the review suggests there has been any widespread mal-administration or neglect of duty of care to the bereaved families.

5.2 The applications forms need to be clearer as to who is signing them and in what capacity.

5.3 There are instances recorded where the instructions provided to staff at the crematoria have been unclear e.g. either all options for any remains were selected, or, no options for dealing with any remains were selected. Responsibility for ensuring the Application Forms are properly completed rests with the Funeral Directors. Where the instructions were ambiguous this may have impacted upon the wishes of bereaved families.

5.4 One letter has been issued to a family explaining that the remains were dispersed because there were no clear instructions on the Application Form and no other instructions had been received from the family or the Funeral Director. However, the remains were retained for 55 days before dispersal.

5.5 In the case of Non-Viable Foetuses there has been a general presumption conveyed in the wording of the Application for Cremation form completed by registered qualified medical practitioners and the parent(s) that there will be no remains recovered following cremation. This presumption is not supported by the findings of the review which indicates remains are recovered in a small percentage of cases.

5.6 The probability of recovering remains from still-born babies and infants up to 24 months is greater than 75%.

5.7 The information provided above does not directly address the freedom of information request submitted by the BBC. The request sought information for the last 5 years only analysed by pre-term babies, still-

**INTERNAL AUDIT – REVIEW OF CREMATION RECORDS FOR NON VIABLE FOETUSES,
STILL-BORN BABIES AND INFANTS UNDER 24 MONTHS**

born full term babies, babies who died at 6 months or less and babies who died at 6 months or more. The analysis undertaken by Internal Audit was based on the information most readily available.

6. Recommendations

6.1 After the initial review Internal Audit recommended the following actions:

- For the avoidance of doubt it is recommended that the signatory on all Application Forms be required to print their name and relationship to the deceased. It is also recommended that the NHS be asked to amend the forms they use.
- Bereavement Services staff should consider whether the current software used for recording the cremation register is adequate and meets the management information reporting requirements of the service. If the reporting functions cannot be tailored to meet these requirements management should consider whether or not a replacement system is required.
- A meeting should be held with Funeral Directors to consider how to ensure that bereaved parents are made fully aware of the possible outcomes following cremation and are made fully aware of their options regarding any remains, and, how to improve the quality of information provided to crematoria staff to ensure that the wishes of parents are fulfilled.

6.2 A meeting with Funeral Directors has taken place and further meetings will follow.

6.3 Following the completion of the review of all 2,385 records the following recommendation is made:

- The wording on the Application for Cremation of Non-Viable Foetus should be changed immediately to provide a more accurate reflection of position include the questions asked in the Application Form

From

(continued over)

GLASGOW AUDIT REPORT ANNEX I

INTERNAL AUDIT – REVIEW OF CREMATION RECORDS FOR NON VIABLE FOETUSES, STILL-BORN BABIES AND INFANTS UNDER 24 MONTHS

(Continued)

From

"I/we understand there will be no identifiable remains resulting from the cremation"

To

"I/we understand there is a small possibility that identifiable skeletal remains will be recovered following the cremation. If this is the case I wish the remains to be dealt with in the following manner, please choose only one option

- To be taken away in casket/urn by representative,
- Interred/ Dispersed in the Garden of Remembrance at the Crematorium
- Retain to await instruction (period 1 month)
If at the end of 1 month no instruction has been received as to their disposal the remains will automatically be dispersed within the Cremation Grounds."
- Staff should also advise Funeral Directors and NHS staff that Applications for Cremation of Non-Viable Foetuses will only be accepted if they use the revised forms.

www.pwc.com

Aberdeen City Council

Hazlehead Crematorium:
Restricted Scope Internal Audit
[Private and Confidential]

10 July 2013



Aberdeen City Council

Contents

1 Summary of work undertaken	4
Appendix 1 Overview of cremation process (key documentation)	8
Appendix 2 Internal Audit remit	10

This report has been prepared solely for Aberdeen City Council in accordance with the terms and conditions set out in our Internal Audit engagement letter 4th October 2010. We do not accept or assume any liability or duty of care for any other purpose or to any other party. This report should not be disclosed to any third party, quoted or referred to without our prior written consent.

Our work and deliverables are not designed or intended to comply with the International Auditing and Assurance Standards Board (IAASB), International Framework for Assurance Engagements (IFAE) and International Standard on Assurance Engagements (ISAE) 3000.



pwc



9 July 2013

Dear [REDACTED]

Hazlehead Crematorium – Collation of data from retained Council crematorium records for a limited sample of cremations for the period 1984/1985, 1999/2000 and 2007 to 2012

This report is produced in accordance with our agreed internal audit terms of reference approved in March 2013 by yourself and the Chief Executive. Our internal audit scope was limited to certain agreed upon procedures, based on the availability of crematorium data over the period being considered, and was undertaken across 3 phases.

The specific procedures we undertook were:

1. Traced a sample of cremations for the period 1 April 2007 to end of December 2012 to supporting records (crematorium ledger, operating sheets and BACAS electronic data records). Our population was selected from the crematorium ledgers and only included records of still births and infants up to the age of 5.
2. Extended our sample to include 1984 and 1985 as discussed with Officers, as at this point in time the Crematorium had in place different cremators and also the Council had received one request for additional information related to a cremation in 1984. In addition, we considered the period 1 July 1999 to August 2000 as this is the latest date cremation operating sheets are retained by bereavement services, and this was a time period when the cremators were again different to those in operation in 1984/85 and to those in operation today.
3. Reviewed the Council's policy and process in place in respect of the cremation of still borns and infants under the age of 2.

The results of our procedures are set out in the main body of this report.

We would like to take this opportunity to thank the Officers involved in this review for their assistance. Should you wish to discuss any aspect of this review in more detail please do not hesitate to contact me.



PricewaterhouseCoopers LLP, 141 Bothwell Street, Glasgow G2 7EQ

PricewaterhouseCoopers LLP is a limited liability partnership registered in England with registered number OC303525. The registered office of PricewaterhouseCoopers LLP is 1 Embankment Place, London WC2N 6RH. PricewaterhouseCoopers LLP is authorised and regulated by the Financial Services Authority for designated investment business.

1 Summary of work undertaken

Background

The City of Edinburgh Council has decided to commission an independent expert to lead and direct an investigation into procedures and policies surrounding the disposal of ashes from the cremation of young children and babies at the Mortonhall Crematorium. There has been significant media attention in relation to the practices which appear to have been employed at Mortonhall.

Given the investigation at the City of Edinburgh Council, Aberdeen City Council Officers understand from speaking to Hazlehead Crematorium management that the situation at the Council in relation to the disposal of ashes is, that “there are no ashes resulting from the cremation of babies. If there were any remains these would be offered to the parents for them to decide what to do with these ashes”. Officers have been informed that ashes normally only occur when the infant is over 18 months. It is acknowledged by Officers that at present there is a lack of written policies and procedures over certain aspects of the crematorium services.

Given the nature of the potential crematorium procedures, Council Officers have requested that PricewaterhouseCoopers LLP, as the Council's internal auditors undertake a data collation exercise for a sample of crematorium records and review the current procedures in operation to better inform the Council Officers understanding of arrangements and practices.

Policies and procedures in place at Hazlehead Crematorium

Through discussion with Council Officers it was noted that differing cremators were in place over the period:

- 1975 to 1995/96 – Dowson and Mason Twin Reflux Gas cremators;
- 1995/96 to 2010 – Parkgrove Electric cremators; and
- 2010 to date – Faculatatieve Technologies FT11/FT111 Gas cremators.

The “Twin Reflux Gas” cremators were replaced due to age and operational efficiency; and the electric cremators were replaced mainly due to operational difficulties.

Summarised below is an overview of the policy in place:

1. We understand through discussion with Crematorium Staff that bereaved parents are advised that there will be no cremated remains after the cremation of a baby or infant up to 18 months of age. Crematorium staff explained this had always been the stated practice but there is not a formal documented policy or formal correspondence that is issued to bereaved parents setting this out. In addition, the cremation form is a standard form which does not reference this practice.
2. We understand through discussion that parents are advised at the time a cremation is considered that if the infant is aged 2 or younger no ashes will be present. It is noted this information could be provided by crematorium staff, the funeral director or the Chaplain at Aberdeen Royal Infirmary to allow parents to consider the options of a cremation or a burial. We understand communication in respect of this is verbal.
3. Following each cremation, we were informed the chamber is checked by the crematorium staff. If remains are identified the crematorium staff would advise the funeral directors so they could make arrangements with the bereaved parents for collection or for the remains to be scattered in the Garden of Remembrance if this was the parents' wishes.

This policy and communication process is not formally documented or formally communicated. Therefore, further consideration should be given to formalising the Council's policy in respect of remains for infants 18

Aberdeen City Council

months or less. In particular, the Council may wish to consider introducing a formal written statement which should be provided to all bereaved parents when considering a cremation issued via the crematorium, funeral directors or NHS Grampian, but done in a consistent manner.

Aberdeen City Council response: Following this report the Council will be formalising policy in respect of the remains of infants; stillborns; and foetuses. This will include consideration of a formal statement which should be provided to all bereaved parents when considering a cremation issued via the crematorium, funeral directors or NHS Grampian to ensure consistency of process. The Council will consider any findings arising from the Government's review of crematorium services and amend policy accordingly.

An overview of the crematorium process- key records is set out in Appendix 1 of this report for information.

Sample testing for period 1 April 2007 to 31 December 2012

We reviewed the crematorium ledger records from 1 April 2007 to 31 December 2012 to identify cremations for children aged 5 years or less, including still births (classified as 24 weeks or greater). This period was selected through discussion with Council Officers and agreed depending on the nature of any findings, and the records available, the sample could be extended.

From this review we identified a population of 49 cases over the 5 year period. We subsequently reviewed the following documentation:

- Details per the cremation application form, showing intentions for the remains, submitted by the Funeral Directors to the crematorium. Cremation application forms are retained for a period of 15 years.
- Plans for disposal of remains as recorded in the daily operating sheets prepared by the Bereavement Services Team (taken from the cremation application form). Daily operating sheets are retained for 15 years.
- The BACAS system which recorded if remains were present and what subsequently happened to the remains for example collected by funeral director, scattered in garden of remembrance. This information is extracted from the individual cremation card and once recorded in BACAS the cremation card is destroyed.

Based on our sample of 49 cases we identified:

- 32 instances (infants less than 2 years of age) where section 18 of the cremation application form had been scored out as "not applicable" or "no ashes remain" by the Funeral Director when completing the form. Section 18 is the question on the application form which asks what the family's wishes are in respect of the ashes.
- In the 7 instances where the child was recorded in the crematorium records as being aged 2 or older, ashes are recorded as being in existence within the BACAS system and daily operating sheets and the system states that ashes were collected by the Funeral Director per the instructions on the cremation application form.
- In 8 instances (infants less than 2 years of age) the cremation application form did not have section 18 scored out or marked not applicable. From a review of the operating sheets for these 8 cases, in 7 cases it is noted on the operating sheets that no ashes remained following cremation and this is also the information recorded on the BACAS system.
- In the 1 instance (out of 8 above) the operating sheet stated "remains to be collected by the Funeral Director – if any" and the BACAS system stated "remains to be collected by Funeral Director if any". The daily schedule states that there were no ashes to collect. In this instance the child was 1 week old.

Aberdeen City Council

Sample testing for the period 1984 and 1985

Following discussion with the Director of Housing and Environment it was determined that internal audit would select the cremations of children up to the age of 5 including still births recorded in the crematorium records for 1984 and 1985 and review the supporting documentation available to determine if ashes existed and what is subsequently recorded for those ashes. This period was selected as there was a request for additional information from a member of the public in this period. In addition, it was noted through discussion that the specification of the cremators in place in this period are not the same as the cremators in place now. At this time the “Dowson and Mason Twin Reflux” gas cremators were in use.

In total there were 62 cremations (children aged 5 or younger including stillbirths) recorded in the crematorium ledger:

- In 40 instances the crematorium records state remains were dispersed in the Garden of Remembrance;
- In 17 instances records state remains were taken away by representatives for burial; and
- In 5 instances remains were taken away by representatives for scattering.

In each instances the records show ashes were created.

However, as cremation application forms are only retained for 15 years we were unable to verify whether the ashes dispersed in the Garden of Remembrance was undertaken at the request and with the full support of the bereaved family. We understand through discussion with Council Officers that cremation application forms are only retained for 15 years based on direction from the Institute of Burials and Cremation Authorities of which the Council are a member.

Additional sample testing

Following on from the testing noted above, and discussions with the ██████████ we also considered the period 1 August 1999 to 31 July 2000. This time frame was selected as BACAS was introduced in 1998, and the daily operating sheets could be produced from BACAS. In addition, this time period was when the “Parkgrove electric” cremators were in use.

From the 15 infant cremations (children less than 2 years of age) in this period we noted:

- 1 case (stillborn) the cremation application form stated “remains to be scattered in Garden of Remembrance – relatives did not wish to be present”. This is also reflected in BACAS which states remains were scattered in Garden of Remembrance at Kaimhill.
- In 1 case for an infant aged 8 months the cremation application form and the daily operator sheet state there will be no remains. However, the BACAS system stated that “remains were collected by [x] from the Funeral Directors [x]” [Note 1 below]
- In 3 cases the cremation application form question 18 is either not scored out, or marked as not applicable or states “ashes to be taken away in urn by a representative (if any). In each of the 3 cases the BACAS system states no remains.
- In 8 cases section 18 of the cremation application form is marked as “not applicable” or “no remains” and the daily operating sheet and the BACAS entry state “no remains”
- In 2 cases in June 2000 (18 months and 20 months old respectively) the cremation application form states “remains to be collected by the Funeral Director” and the daily operating sheet and BACAS state “Remains collected by [x] from the funeral director” and “remains collected”

ABERDEEN AUDIT REPORT ANNEX J

Aberdeen City Council

[Note 1: In this case the documented evidence is contradictory and it is unclear whether in this instance remains were present. In addition to the recommendation in respect of policies and procedures the Council should consider the processes in place to ensure data is accurately recorded within BACAS.]

Aberdeen City Council response: *The Council will review how records are documented and look to put in place validation checks to verify the accuracy of the documentation recorded on the Daily Operating Sheets and BACAS.]*

Appendix 1 Overview of cremation process (key documentation)

Statutory documentation that requires completion

Documentation completed for stillborns greater than 24 weeks

A form SC1 is completed by the Midwife at Aberdeen Royal Infirmary. The form is signed and dated by the midwife and sent to the Bereavement Services Office at Marischal College. [note individual cremations are carried out for stillborns greater than 24 weeks]

Documentation completed for full term babies and upwards

Form B and C is completed by either a Doctor or Midwife and then send to Council Headquarters. This is a statutory document setting out the primary and secondary cause of death [if applicable] and medical information.

Application form for a cremation

Form A is the application for cremation and is completed for all cremations [stillborns greater than 24 weeks and onwards]. The form records:

- Name and address of bereaved mother;
- Age of deceased, date and time and reason for death;
- Cremation service particulars
- The means by which cremated remains are to be disposed e.g. scattered in Garden of Remembrance, collected by Funeral Director, collected by representatives.
- Declarations in respect of the coffin, completed by the funeral director

Description of the process followed at the crematorium and the Bereavement Office for handling cremations

Application form	Completed by either NHS Grampian mortuary manager or a funeral director and submitted to bereavement section at Marischal College.
BACAS system	Details per the application for cremation and those per forms SC1, B and C are input into the BACAS system (Burial and Cremation Administration system) by a member of bereavement services.
Crematorium	<p>The Crematorium Superintendent prepares daily schedules to cover planned cremations. A maximum of 18 cremations can be scheduled a day. The schedule is prepared following discussion with the funeral directors. Details on each daily schedule include: name of deceased, funeral director, time of service.</p> <p>The Superintendent allocates a cremation number for each cremation and this is recorded on the daily sheet and faxed to bereavement services</p>
Bereavement services	<p>On receipt of the daily schedule bereavement services agree the cremation number to that allocated by BACAS.</p> <p>Once data is entered into BACAS, cremation cards are prepared and printed by the Bereavement section and delivered by Courier on a daily basis to the crematorium.</p> <p>Cremation cards set out the intended disposal of cremated remains per wishes of bereaved parents.</p> <p>Cremation certificates are produced.</p> <p>An operator sheet is prepared and faxed to the crematorium on a daily basis</p>
Crematorium following cremation	<p>Following disposal of cremated remains, crematorium staff update the cremation cards and finalise the documents by recording:</p> <p>Who collected the remains</p> <p>In the case of infants less than 18 months old where the check of the chamber has identified no remains this is recorded</p> <p>Cremation cards are returned to bereavement services and details input into BACAS.</p> <p>When cremated remains are collected a duplicate receipt form is completed and signed by the individual who has collected the remains. They keep a copy and the crematorium keeps a copy. These are destroyed every 6 weeks once a receipt book is completed as the information is recorded on BACAS.</p>

Aberdeen City Council

Appendix 2 Internal Audit remit

Private and Confidential Internal Audit Terms of reference

– Hazlehead Crematorium: Collation of data from source records for a sample of cremations for the period 1 April 2002 to 31 December 2012 and review of certain key policy and procedural documentation followed by the Crematorium.



Following a request from the Director of Housing and Environment, an additional piece of internal audit work is requested in respect of Hazlehead Crematorium, which is requested for the purposes of Council Officers.

Background

City of Edinburgh Council has decided to commission an independent expert to lead and direct an investigation into procedures and policies surrounding the disposal of ashes from the cremation of young children and babies at the Mortonhall Crematorium. There has been significant media attention in relation to the practices which appear to have been employed at Mortonhall.

Given the investigation at City of Edinburgh, Aberdeen City Council Officers understand from speaking to Hazlehead Crematorium management that the situation at the Council in relation to the disposal of ashes is, that “there are no ashes resulting from the cremation of babies. If there were any remains these would be offered to the parents for them to decide what to do with these ashes”. Officers have been informed that ashes normally only occur when the child is over 18 months. It is acknowledged by Officers that at present there appears to be a lack of written policies and procedures over certain aspects of the crematorium services.

Given the nature of the potential crematorium procedures, Council Officers have requested that PricewaterhouseCoopers LLP, as the Council's internal auditors undertake a data collation exercise for a sample of crematorium records and review the current procedures in operation to better inform the Council Officers understanding of arrangements and practices.

Scope

The Council has requested that PwC consider the following in respect of the Crematorium:

1. For a sample of cremations of babies and children, stillborn to the age of 5 years, tracing back through crematorium ledger records and completed bereavement forms to ascertain what supporting documentation is retained, and whether ashes occurred and there is documented evidence offering the ashes to the parents. This will be done on a sample basis, which will be agreed with Council Officers. The sample will be selected based on the supporting data available, how easy it is to identify the population and specific time periods to be agreed.
 2. Ascertain what formal policies and practices/procedural guides are in place within the Crematorium.
1. Sample of cremation records for babies and children (stillborn/babies and children up to the age of 5 years) for the period 2007 to 2012:
- We will ascertain with the assistance of Council Officers from the population of cremations between 2007 and 2012, the total number of cremations which meet the criteria being considered (stillborn, 0-2 years and 2-5 years)
 - Once a population is determined, a sample will be selected, and agreed with Council Officers

Aberdeen City Council

- For the sample, information recorded in the ledger records held within the Crematorium will be recorded in a spreadsheet, and details traced to the completed forms retained within the Bereavement Services team, recording certain relevant information for each case sampled, including plans for the ashes, whether ashes occurred, and if they did what happened to the ashes, based on the records retained.
- Summarise and collate relevant information in an excel spreadsheet for Council Officers.

2. Consideration of the policies and practices within the Crematorium

- Obtain and document an understanding of the policies and operational procedures in place at the Crematorium through review of the documented policies and operational procedures and interviews with the crematorium staff.

Deliverables

1. We will produce a summary spreadsheet for our sample analysis of crematorium records for Stillborns, babies and children (0-5 years) cremations from 2007 to 31 December 2012 where we have traced the information from the ledger retained at the Crematorium to the completed bereavement services forms, recording for each case in the sample if ashes occurred and if they did what the record states happened to them. This will be for Council Officers information only given the details recorded.
2. We will produce an internal audit report outlining our work in respect of policies and procedures. This will be in line with our normal internal audit reporting arrangement, done under CIPFA Local Authority Internal Audit Standards, and as such does not constitute a non-audit assurance engagement under ISAE3000.

It should be highlighted that PwC cannot be held responsible for recommendations or advice unless confirmed in writing after full and proper consideration.

Your responsibilities

- Confirmation that the definition and scope of the Services detailed herein is sufficient to address your needs, including determination of sample sizes;
- We will require access to relevant people within the Council's bereavement services team and at the Crematorium, and access to the crematorium records (ledgers) and completed bereavement services forms held within bereavement services. Agreement for this access must be secured prior to commencing any work;
- All records and available information will be made available to us in a timely manner;
- We will not seek to perform validation on data and information presented to us as part of this work.
- It is management's responsibility to develop and maintain sound systems of risk management, internal control and governance and for the prevention and detection of irregularities and fraud. Internal audit work should not be seen as a substitute for management's responsibilities for the design and operation of these systems.

Limitations of scope

Our review cannot verify completeness of records as it is assumed that details recorded in the crematorium ledger are complete and accurate and this is where our population sample will be derived. Our review can only consider available data which is retained by the Council and what is recorded in crematorium records, application forms (where retained), daily operating sheets (where retained) and the BACAS system which has only been in place since circa 2000. We cannot verify that ashes, when in existence, that these were actually scattered or returned based on the parents' wishes. If records state no ashes were present we cannot challenge and would not challenge this record.

ABERDEEN AUDIT REPORT ANNEX J

Aberdeen City Council

Internal control, no matter how well designed and operated, can provide only reasonable and not absolute assurance regarding achievement of an organisation's objectives. The likelihood of achievement is affected by limitations inherent in all internal control systems. These include the possibility of poor judgment in decision-making, human error, control processes being deliberately circumvented by employees and others, management overriding controls and the occurrence of unforeseeable circumstances.

Our assessment of the limited cremation records sampled is as at June 2013. Historic evaluation of effectiveness is not relevant to future periods due to the risk that:

- the design of controls may become inadequate because of changes in operating environment, law, regulation or other; or
- the degree of compliance with policies and procedures may deteriorate.

This document has been prepared for the intended recipients only. To the extent permitted by law, PricewaterhouseCoopers LLP does not accept or assume any liability, responsibility or duty of care for any use of or reliance on this document by anyone, other than (i) the intended recipient to the extent agreed in the relevant contract for the matter to which this document relates (if any), or (ii) as expressly agreed by PricewaterhouseCoopers LLP at its sole discretion in writing in advance.

© 2013 PricewaterhouseCoopers LLP. All rights reserved. 'PricewaterhouseCoopers' refers to PricewaterhouseCoopers LLP (a limited liability partnership in the United Kingdom) or, as the context requires, other member firms of PricewaterhouseCoopers International Limited, each of which is a separate and independent legal entity.

INFANT CREMATION COMMISSION REPORT ANNEX K

DIRECTORATE OF CHIEF MEDICAL OFFICER AND PUBLIC HEALTH

T: 0131-244-2504 F: 0131-244-2157
E: alison.kerr@scotland.gsi.gov.uk



Dear Colleague

DISPOSAL OF PREGNANCY LOSSES UP TO AND INCLUDING 23 WEEKS AND 6 DAYS GESTATION

1. The purpose of this letter is to provide revised guidance on the disposal of pregnancy losses up to and including 23 weeks and 6 days gestation, within NHS Scotland.

Summary:

2. The core guidance is attached as Annex A and is supported by a series of appendices which are attached as Annex B.
3. The guidance is based on the work of a multi-disciplinary working group and has been the subject of consultation with health boards and professional groups.
4. This guidance replaces the guidance given in SOHHD/DGM (1992)4. ("Sensitive Disposal of Fetuses and Fetal Tissue following Termination of Pregnancy")

Action:

5. Chief Executives of NHS Boards should ensure that the attached guidance is brought to the attention of all appropriate staff and that the proposed changes to procedures for the disposal of pregnancy losses up to 23 weeks and 6 days are implemented as soon as is practicable.
6. In particular, Chief Executives of NHS Boards should note that disposal of any pregnancy losses by way of incineration or clinical waste is no longer considered acceptable.
7. The Scottish Government will contact Health Boards after 12 months to audit compliance.

Yours sincerely

Harry Burns

HARRY BURNS

Ros Moore

ROS MOORE

**From the Chief Medical Officer
Chief Nursing Officer**
**Sir Harry Burns MPH FRCS(Glas)
FRCP(Ed) FFPH**
**Ros Moore RGN, BSc (Hons)
Nursing, MA**

19 July 2012

SGHD/CMO(2012)7

For Action

Chief Executives, NHS Boards
Directors of Nursing & Midwifery, NHS Boards
Medical Directors, NHS Boards

For Information

Consultant Obstetricians
Consultant Pathologists
Royal College of Nursing
Royal College of Midwives
Heads of Midwifery
Royal College of Obstetricians
Royal College of Pathologists
Institute of Cemetery and Cremation Managers
Federation of Burial and Cremation Management
Scottish Pathology Network
Association of Anatomical Pathology Technology
Chairs, NHS Boards
Directors of Public Health, NHS Boards

Further Enquiries

Policy Issues

Alison Kerr
3EN, St Andrew's House
alison.kerr@scotland.gsi.gov.uk

Medical Issues

Dr Catherine Calderwood
2N, St Andrew's House

catherine.calderwood@scotland.gsi.gov.uk

GUIDANCE ON THE DISPOSAL OF PREGNANCY LOSSES UP TO AND INCLUDING 23 WEEKS AND 6 DAYS GESTATION

1. This document updates the guidance given in SOHHD / DGM (1992) 4. ("Sensitive Disposal of Fetuses and Fetal Tissue following Termination of Pregnancy")
2. This guidance refers to disposal of all pregnancy loss up to and including twenty-three weeks and six days gestation, irrespective of cause or origin, where no signs of life have been detected following the loss, and whether or not fetal tissue can be identified.
3. This guidance does not refer to, or change, current procedures for the disposal of stillbirths occurring from twenty-four weeks and zero days gestation, nor does it change current procedures for the disposal of placentae.
4. In recognition of the sensitivity around early pregnancy loss^{1,2} disposal of any pregnancy loss by way of incineration or clinical waste is no longer considered acceptable.
5. This document outlines the minimum standard expected for the disposal by NHS Boards of all pregnancy losses, where the woman:
 - a) expresses a wish for the NHS Board to dispose of the pregnancy loss, or
 - b) declines to express any wish regarding disposal [see paragraph 7 (d)].

However, it is of course recognised that women have the right to make alternative personal arrangements.

6. Minimum standard for disposal:

The minimum standard is collective disposal in a crematorium. In circumstances where such disposal is not available, disposal by collective burial is acceptable. In either situation, "collective" is defined as a number of pregnancy losses, in individual sealed containers, collected together into a larger sealed container.(See Annex E)

7. Authorisation and opting out:

- a) Information on available options for disposal should be made available to all women who experience pregnancy loss. Notes on drafting an information leaflet, and an example from one Board is at Annex B.
- b) It is recommended that disposal should be authorised by the woman who has experienced the loss. An example of wording, which could be used as part of a consent form for a procedure or could be used as a stand-alone form , is at Annex C.

¹ See RCOG Good Practice Guideline No 5 (2005);

² SANDS Pregnancy Loss and the death of a baby (2007);

c) Women may decline disposal by the NHS Board in favour of making their own arrangements. In this case, the pregnancy loss should be stored and made available for collection by the woman or her agent. Such a decision must be recorded in the patient's notes.

d) Where authorisation for disposal, or declaration by a woman that she wishes to make alternative arrangements has not been received six weeks from the date of pregnancy loss, the NHS Board responsible for the woman's care at the time of the loss should, as a matter of good practice, proceed to make arrangements for disposal. Such an outcome must be recorded in the patient's notes.

8. Religious, ethical and cultural issues:

Where a woman wishes, for reasons of religious, ethical, or cultural preference, or for other reasons, to make alternative arrangements for disposal of the pregnancy loss, it is appropriate for the NHS Board concerned to offer advice and assistance. Costs incurred in any alternative arrangement will normally be the responsibility of the family.

9. Confidentiality:

In any communication with regard to collective disposal, to organisations outwith NHSScotland (such as crematoria), Boards should only identify a pregnancy loss by a unique disposal number, allocated for this purpose. Patient details, including Community Health Index Number, may not be shared outwith NHSScotland without express permission from the patient.

10. Audit:

The responsibility for maintaining a record of the disposal rests with the NHS Board and this record should be retained for **a minimum** of 30 years. NHS Boards should develop clear processes for the management and retention of this record within their own local record management systems and in line with Scottish Government guidelines on record management and with the terms of the Data Protection Act 1988 and the Abortion Act 1967. A recommended data set for the NHS record is outlined in Annex D. A suggested form of application for collective disposal of pregnancy losses, agreed with the Institute of Cemetery and Crematorium Management, is included as Annex F.

11. Timescales:

The disposal of a pregnancy loss should be arranged as soon as practicable, after authorisation is received.

12. Sensitivity:

In all matters relating to the disposal of pregnancy loss it should be remembered that this is a highly sensitive issue. Language used in communicating with women and their families should reflect this. Arrangements should be in place to provide, or signpost to, appropriate support.

13. Supporting documents:

Annexes accompany this guidance for information and advice only.

 Annex A: Outline flowchart for decision making process

 Annex B: Notes to aid development of local leaflets.

 Annex C: Suggested wording for authorisation

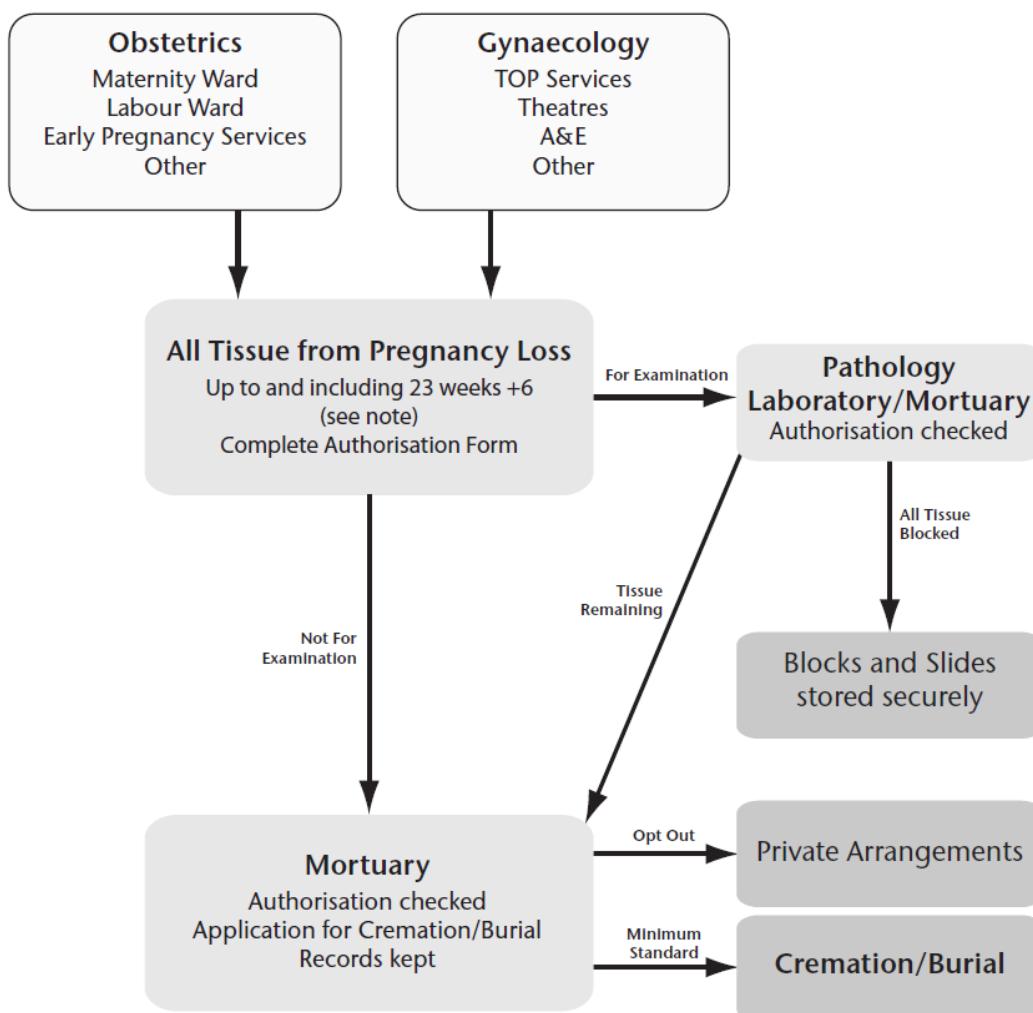
INFANT CREMATION COMMISSION REPORT ANNEX K

Annex D: Recommended minimal data set for future audits

Annex E: Notes on packing and transportation of pregnancy losses

Annex F: Suggested application form for cremation of pregnancy losses

ANNEX A

Guidance on disposal of Pregnancy Loss up to and including 23 weeks and 6 days gestation**Flow Chart****Disposal of Pregnancy Loss****Note**

All tissue from a pregnancy loss including miscarriage, termination of pregnancy and ectopic pregnancy. Placentae where the fetus is separately identified and greater than 12 weeks gestation are not included.

ANNEX B

Guidance on disposal of Pregnancy Loss up to and including 23 weeks and 6 days gestationNotes on drafting NHS Board information leaflet for patients

NOTE: This is for guidance only. Each Board will require to develop its own leaflets. Because of sensitivity of language, Boards are advised to develop two leaflets, one for women having terminations and one for miscarriages. All leaflets should be subject to the Board's own guidance on drafting and style. Examples are available from Boards currently using this system, such as NHS Ayrshire and Arran and NHS Tayside

Heading	Notes	Example
Title	The title should be sensitive	<i>Arrangements following the loss of your pregnancy</i>
Introduction	A clear statement of purpose,	<i>The aim of this leaflet is to provide you with information about what happens to your baby. We use the term Pregnancy Loss to refer to losses at any stage from conception until 23 weeks and six days. After 24 weeks gestation different procedures are required by law.</i>
	The leaflet should probably refer to national guidance	<i>the policy of NHS XXX complies with the national guidelines for the sensitive disposal of pregnancy loss.</i>
What happens?	Some simple basic description of the procedure. Note that some crematoria will not wish you to say where and when this takes place as they may not wish families to attend	<i>The pregnancy loss will be placed in a small individual box. It will be looked after in the mortuary and then be taken to a local crematorium along with other pregnancy losses, each in their own container</i>
	Reassurance about dignity is important	<i>Although a number of containers are transported and cremated together, be assured that each one is handled throughout the process with respect and dignity.</i>
Will there be any ashes?	It is important to state that ashes will not be available. [This is because of the absence of formed bone].	<i>There are no cremated remains (ashes) from this process.</i>
Is there a charge?		<i>No. NHS XXX will pay for this service</i>

INFANT CREMATION COMMISSION REPORT ANNEX K

Can I go to the crematorium?	<p>This will be by local arrangement. Some crematoria will allow and some will not. There is no point in attending unless there is to be some form of committal. .</p> <p>If parents can attend, who will tell them when the committal will be? What if there is a delay for pathology?</p> <p>But there may be a local memorial garden</p>	<p><i>You may wish to be present at the crematorium for the committal. If you would like to attend, please tell your midwife or the nurse who is looking after you within XX hours/days.</i></p> <p><i>Sometimes there is a delay before cremation, for example, if you have agreed to tests or an examination of your baby. A midwife/ a funeral director / our bereavement office will contact you to confirm the date and time of the cremation.</i></p> <p><i>There is not a service at the crematorium, but there is a children's memorial garden which you can visit at any time.</i></p>
Can I make my own arrangements?	<p>The option to opt out is very important and might be actively encouraged for older gestations</p> <p>Remember there is a cost for this – unless the health board is paying</p>	<p>Yes. You may wish to make alternative arrangements. These arrangements would need to be made privately. This private arrangement may be more appropriate to your needs, depending on the stage of your pregnancy.</p> <p>Private arrangements will ensure you have the type of service, cremation or burial that you prefer. To do this, you should contact a funeral director.</p> <p>Please be aware that you would have to pay the costs. The costs vary considerably between funeral directors and will depend on the arrangements and type of service you request</p>
What if I cannot make a decision, or do not wish to make a decision	<p>The guidance has a default clause that where there is no decision the Board should dispose of the loss after 6 weeks</p>	<p>You will understand that we cannot keep pregnancy loss in the mortuary indefinitely. If you have not indicated your choice to us after six weeks the NHS guidance allows us to make the decision and to arrange for your pregnancy loss to be taken to the crematorium</p>

INFANT CREMATION COMMISSION REPORT ANNEX K

ANNEX C

Guidance on disposal of Pregnancy Loss up to and including 23 weeks and 6 days gestation

Authorisation for sensitive disposal following pregnancy loss

Addressograph label

Disposal of pregnancy loss

Complete either Section A or Section B. Delete whichever is not applicable

Section A:

The options for disposal have been explained to me Yes / No

I give authorisation for my pregnancy loss to be disposed of by the hospital in accordance with procedures outlined

If no, please indicate if:

- 1) I have not yet decided, or
 - 2) I will make my own arrangements through a funeral director, or
 - 3) I wish to take my pregnancy loss out of the hospital
(release of tissue form to be signed)

I understand that if I change my mind I must phone the hospital
within [time to be agreed locally], Yes / No

Section B:

I have declined to discuss this matter and recognise that the hospital will proceed according to their standard procedure

Signature of the woman.....

Date Signed

Witness Signature.....

Witness name (Block Capitals)

Designation

INFANT CREMATION COMMISSION REPORT ANNEX K

RELEASE OF PREGNANCY LOSS TO THE WOMAN **(IF MAKING OWN ARRANGEMENTS)**

I would like to take my pregnancy loss home following my discharge from the unit.
[Note: further paperwork may be required, for example to acknowledge health and safety issues.]

Ward.....

Name.....

Hospital number.....

Address.....

Signature of the woman.....

Name of the Consultant.....

Name of Nurse/Midwife completing form.....

Signature of the Nurse/Midwife.....

Date.....

Copy of form for case notes

Copy for woman to take away

Copy for pathology / mortuary

INFANT CREMATION COMMISSION REPORT ANNEX K

ANNEX D

Guidance on disposal of Pregnancy Loss up to and including 23 weeks and 6 days gestation

Recommended Dataset

These data items are for use within NHSScotland only.

A unique disposal number, generated in the Hospital Mortuary or elsewhere, should be used to identify the pregnancy loss to any external bodies, such as funeral directors and crematoria in order to protect sensitive data and preserve anonymity. No other data should be shared.

Traceability for parents in any subsequent enquiry would be through NHS records. To support this, the data should be held for a minimum of 30 years, with good practice being retention for 50 years.

Scottish Government guidance on collective disposal states that each pregnancy loss should be placed in a separate container, and these small containers may then be placed together in a large container for collective disposal.

Patient Information: Woman's name:

CHI of woman

Gestational age of pregnancy loss

Date of procedure/delivery

Consultant: / Midwife:

Authorisation Name of person taking authorisation

Date of authorisation

Nature of authorisation:

- Collective disposal
- Own arrangements
- Declined to specify

INFANT CREMATION COMMISSION REPORT ANNEX K

Disposal Information:	Date received into mortuary Type of Disposal: <ul style="list-style-type: none">▪ Collective disposal at crematorium▪ Collective burial▪ Individual disposal at crematorium▪ Individual burial▪ Removed by woman Name of applicant for cremation / burial Date of application for cremation / burial Date left mortuary Collected by: <ul style="list-style-type: none">▪ Funeral Director (Name and Company)▪ Designated member of staff (Name and Designation)▪ Woman or agent
Identifiers:	Unique disposal number (to be clearly marked on the small container and used in application for disposal) Large container number (to be clearly marked on large container and used in application for disposal)

ANNEX E

Guidance on disposal of Pregnancy Loss up to and including 23 weeks and 6 days gestation

Packing and Transport

Arrangements for packaging and transport of pregnancy losses to the mortuary or pathology laboratories should follow local guidance, which should ensure that the pregnancy loss is at all times handled with dignity and respect.

Following surgical termination, where the pregnancy loss is contained within an evacuation vessel such a vessel must be of a material which is acceptable to the crematorium. For transport and disposal, the evacuation vessel should be placed within a suitable opaque container. There is no requirement to separate tissue from other fluids.

Following all other losses, the pregnancy loss should be wrapped and sealed according to local policy, and placed in an opaque container, ensuring that any material used is acceptable to the crematorium.

Each pregnancy loss should be labelled according to local policy with the name, address and CHI number of the woman.

When disposal has been agreed, individual containers should then be allocated a unique disposal number for disposal, and be placed within a larger container for collective disposal.

The large container should be securely sealed and labelled with an identifying code. **No identifiable information should be visible.** Again all material used must meet the requirements of the crematorium.

Transport to the crematorium should be carried out in a discreet, and dignified fashion, either by a funeral director or by hospital transport.

All pregnancy losses should be handled with dignity, care and respect.

INFANT CREMATION COMMISSION REPORT ANNEX K

ANNEX F

Guidance on disposal of Pregnancy Loss up to and including 23 weeks and 6 days gestation

Example of Application for Disposal of Pregnancy Loss at Crematorium³

This application must be signed by the person authorised by the Medical Director of the NHS Board to make an application for cremation. The pregnancy loss must only be identified by the hospital/clinic disposal number*.

This form must be completed fully. Please note that incomplete information may cause a delay in disposal.

I (name of applicant).....

(position)..... NHS Board.....

as the authorised and designated person, declare that I hold paperwork relating to each of the pregnancy losses listed below, signed by the medical practitioner/registered nurse/registered midwife whose name is shown, and that the paperwork includes a declaration that the pregnancy loss was of a gestation up to and including 23 weeks and 6 days and that the pregnancy loss showed no signs of life.

I hereby apply to **Anywhere ** crematorium to dispose of the following pregnancy losses:

* Note this is NOT the woman's CHI number or NHS number but a number generated by the NHS Board which identifies the appropriate records held by the NHS.

³ Developed in consultation between the Institute of Cemetery and Crematorium Management and the Scottish Government Public Health Directorate.

INFANT CREMATION COMMISSION REPORT ANNEX K

I DECLARE that all the information given in this application is correct, that no material particular has been omitted and that authorisation for the disposal has been obtained as in Scottish Government Guidance dated 2012.

Signature of Applicant..... Date.....

Designation of Signatory.....

NHS Board:

Address:

..... Post Code:

INFANT CREMATION COMMISSION REPORT ANNEX L

IMPLEMENTATION OF CHIEF MEDICAL OFFICER GUIDANCE ON THE DISPOSAL OF PREGNANCY LOSSES UP TO AND INCLUDING 23 WEEKS AND 6 DAYS GESTATION

Scottish Government Analysis of CMO & CNO Guidance Implementation Responses Received - 23 October 2013

Summary

- Ten of the fourteen territorial Health Boards in Scotland report that they are now meeting the minimum standards set out in the July 2012 CMO Guidance.
- Of the remaining four, two expect to be meeting the standards by the first quarter of 2014 and Scottish Government officials will follow up with all four in the next few weeks in order to ascertain progress, any on-going issues and any assistance that they might find useful.
- Boards identified key benefits of consistency and standardisation leading to improved record keeping for audit trail purposes. They also highlighted improved transparency, through improved communication and information for patients, which accorded with the underpinning principle of respect and dignity for all concerned, within the Guidance.
- Key challenges reported included implementation costs; storage and transportation issues; the change-over to new documentation and staff training.
- As far as can be ascertained from the responses received, seven crematoria are already providing the new collective cremation service to Health Boards, and more may follow. Health Boards are free to make arrangements with crematoria outside their geographic area, or can use burial as an alternative arrangement. Several are utilising both of these options.
- There are two private hospitals in Scotland offering services relevant to the Guidance. Both replied to confirm they were also meeting the new minimum standards.

Background

Guidance Development

1. The need for new guidance was identified by the 2005-2008 Burial and Cremations Review Group, led by Sheriff Brodie. Following Scottish Government's acceptance of the Review Group's main recommendations in 2010, the new guidance was developed during 2010-12 via a Scottish Government established short life working group comprised of key stakeholders and experts in this area.
2. This included representation from the Royal Colleges of Nursing, Midwifery, Obstetricians and Pathologists; the Institute of Cemetery and Crematorium Management; the Miscarriage Association, the Stillbirth and Neonatal Death Society; the Association of Early Pregnancy Units; and the Association of Anatomical Pathology Technology. Also included was a Director of Women and Child Health; a consultant paediatric pathologist; a consultant obstetrician and staff members from both the SG Chief Medical Officer Directorate and the SG Chief Nursing Officer Directorate.

Guidance Key Points

3. The new guidance makes clear that the disposal of any pregnancy losses by way of incineration or clinical waste (which was technically possible under the earlier 1992 guidance) is no longer acceptable. Instead, a new minimum standard is introduced of collective disposal in a crematorium. In circumstances where such disposal is not available, disposal by collective burial is acceptable. In either situation, "collective" is defined as a number of pregnancy losses, in individual sealed containers, collected together into a larger sealed container. Women may opt out if they wish to make their own arrangements.
4. Fundamental to the Guidance is the requirement that all involved are treated with dignity and respect.

Guidance Issued

5. The Guidance on *The Disposal of Pregnancy Losses up to and including 23 weeks and 6 days gestation* was issued from the Scottish Government's Chief Medical Officer on 19 July 2012. It was sent to all Chief Executives, Medical Directors and Directors of Nursing and Midwifery of the NHS Boards in Scotland. It was also issued, for information and awareness, to the two private hospitals in Scotland where the Guidance might prove relevant. It was also made available via the SHOW website: [http://www.sehd.scot.nhs.uk/cmo/CMO\(2012\)07.pdf](http://www.sehd.scot.nhs.uk/cmo/CMO(2012)07.pdf)
6. At the time of issuing, the Chief Medical Officer signalled that compliance with the new guidance would be audited by Scottish Government after a period of twelve months.

Situation at time of Issuing

7. When the guidance was issued, it was unknown how many health boards were already offering services that met or exceeded the new minimum standard. Anecdotally, Scottish Government was aware that good practice existed, but it was unclear whether this was universally available across the entirety of any health board area, or was limited to particular institutions.

Checking / Auditing Compliance

Request for Updates

8. Scottish Government lettered all Health Boards on 7 August 2013 seeking an update on their implementation of the Guidance, by 28 August 2013. A separate letter requesting similar information was also issued to the two private hospitals. The letters additionally provided a template for responses, based around six questions.

Summary of Responses Received

1 a) Can you confirm that all applicable NHS services in your NHS board area are currently delivering a service that meets or exceeds the minimum standards as set out in the Guidance?

1 b) Can you confirm that all applicable NHS services in your NHS board area are not disposing of pregnancy losses by way of incineration or clinical waste?

9. Ten of the 14 territorial health boards confirmed they were meeting the minimum standards, and additionally confirmed they were not utilising incineration or clinical waste routes. These were: Ayrshire and Arran; Borders; Fife; Forth Valley; Grampian; Greater Glasgow and Clyde; Highland; Shetland; Tayside and Western Isles.

10. Of the remaining four health boards, Orkney advised that although they were not yet meeting the minimum standards, they were *not* utilising incineration or clinical waste routes for disposal. Lothian reported it was meeting the minimum standards everywhere except for first trimester pregnancy loss. Dumfries and Galloway provided no additional information at this stage in the questions. Lanarkshire advised the reason implementation was delayed was due to a difficulty in procuring the services of a crematorium.

11. Both private hospitals, Spire Murrayfield in Edinburgh and BMI Ross Hall in Glasgow, confirmed they were meeting the minimum standards and were not utilising incineration or clinical waste routes for disposal of pregnancy loss.

2 a) If your answer to 1a) or b) was no, when will you be able to meet the revised minimum standards ?

2 b) If your answer to 1a) or b) was no, what steps are being taken to meet the revised minimum standards by the date identified in 2a)?

12. These two questions were only applicable to the four health boards identified in question 1b.

13. **Dumfries and Galloway** indicated January 2014 as the date by which they would be meeting the standards, and that they had established a group which was taking forward the work, including drafting local pathways and developing a business case.

14. **Orkney** indicated April 2014 as the date by which they would be meeting the standards in order to negotiate local burial arrangements or mainland cremation via Aberdeen or Inverness. No additional information or breakdown was provided as to how the April 2014 date had been determined.

15. **Lothian** response indicated end of September 2013 as the date they would be meeting the minimum standards, once arrangements were in place for the collective cremation of first trimester (< 12 weeks gestation) pregnancy losses. Their additional text on steps being taken, however, seemed to indicate that this date might not be achievable, for reasons which could usefully be explored further by and with officials if they are continuing to delay implementation. They note a particular issue as being staff concerns over the ethics of discussing end of care arrangements with women who may understandably not wish to enter into such a discussion. Although discussion must be attempted, the Guidance does not in any way suggest it should be continued if the patient is clearly unwilling to participate, and measures are suggested within the Guidance to deal with this circumstance. Lothian also appears to suggest in its response that moving to the new minimum standards will cost more than the higher standards they are already delivering, which requires some clarification.

16. **Lanarkshire** provided no definite date, as this was dependent on a successful second tender exercise to identify a crematorium that they could work with. We understand anecdotally that this situation has now been resolved, but are awaiting an official update from the health board on this question.

3. If all applicable NHS services in your NHS board area are currently meeting or exceeding the minimum standards, what benefits have already been seen or are expected to be seen over time?

17. Although it is still early days in terms of implementation for most areas, several health boards cited the benefit of having standardised and consistent arrangements, which linked with a closely associated benefit of improved record keeping and audit trails.

18. Other key benefits cited were improved transparency for patients, through the provision of improved and clearer information and advice. This was also seen to accord with the underpinning principles of respect and dignity for those involved, as set out in the Guidance.

19. One health board explicitly referenced strengthened working relationships with the funeral industry and bereavement charities as a result of undertaking the implementation activity.

4. What challenges, if any, require/d to be overcome in order for your NHS Board to meet or exceed the minimum standards?

20. The reported challenges varied significantly in nature, quantity and in level of provided detail, depending on the Board, but tended to be most apparent in areas where the most work was required to meet the standards and/or the Board was serving a significantly higher population. Forth Valley and Grampian in particular appear, from their responses, to have conducted a great deal of challenging but successful work in order to successfully implement the Guidance within a year.

21. The main recurring challenges noted in responses were implementation costs; the practical co-ordination of a change-over to new leaflets and documentation; some storage and transport issues and staff training.

22. There was no substantive difference in the challenges reported by rural versus urban board areas. Western Isles and Orkney have arrangements with mainland crematoria, if required, and Shetland utilises the alternative burial option set out in the Guidance where a crematorium is not available.

5. Has your NHS Board identified any areas of the revised guidance that might need to be re-considered in the light of any planning, implementation or other issues that may have arisen? Which areas and why?

23. Whilst some points were raised in this section, most were tangential to the Guidance wording ie they related to the processes being put in place to meet the Guidance requirements rather than signalling changes to the Guidance itself. None were raised with any degree of urgency or identified as being of particular significance.

24. Forth Valley mentioned a need for clarity over the question of whether there would or would not be any ashes following cremation, and we are already aware that a very minor amendment to a Guidance annex might be required in this respect. We will, however, await the findings of Dame Angiolini's Mortonhall Investigation and the report of the Infant Cremation Commission, both due by the end of this year / early next year, in case more substantive changes are recommended by them and require to be considered.

6. Which crematorium / crematoria does your NHS board work with in respect of the collective cremation of pregnancy losses (or for any alternative pregnancy loss / infant cremation arrangements)?

25. Of the 27 crematoria in Scotland, 14 are already working with the health boards either to provide the new collective cremation service or for NHS arranged private or individual cremations.

26. Seven crematoria appear to be specifically providing (or have agreed to provide when or if required) the new collective cremation service. These are: Masonhill Crematorium (Ayrshire), Mortonhall Crematorium (Edinburgh), Kirkcaldy Crematorium, Falkirk Crematorium, Hazlehead Crematorium (Aberdeen), Craigton Crematorium (Glasgow) and Perth Crematorium.

Health Board Documentation Responses Summary - December 2013

Overall Notes

1. The variation in the volume of submitted material (a total of 237 separate documents) was the most immediately apparent aspect, with no correlation between the volume of documents and health board geographic size, number of institutions or population density. The request was for documents related to disposal, but this was interpreted differently by each health board. This means that identifying 'gaps' should be undertaken with caution: gaps will only relate to what was submitted, not necessarily to what health boards actually have available to them or are using.
2. Every health board's approach and documents used were also very different in format, length and in local procedures, therefore comparisons are tricky. But in terms of readability to a layperson, Ayrshire and Arran and Forth Valley documentation looked good both in terms of their internal and their public facing documents. Western Isles internal checklists were also very clearly and usefully set out.
3. There is clearly a plethora of charity organisation leaflets available, most predominantly from SANDS. Nearly all of these charity leaflets appear to have taken a 'there may or may not be ashes' approach to the question of what is available after cremation.
4. Health Board information, whether in their own leaflets and brochures to parents, or in internal policy documents for staff, is a little more confused. The changeover to collective cremation for pre-24 week pregnancy losses (whether miscarriage or termination) has obviously had an impact on document wording but the vast majority of health boards have elected not to reference why ashes are not available after this (because the ashes are collective, not individual). The error in the Annex of the 2012 CMO and CNO Guidance on the Disposal of Pregnancy Loss, where it suggests there will be no ashes 'due to the absence of formed bone' may be exacerbating this issue.
5. However, additional confusion is caused when health board documents make no distinction, or unclear distinction, between the above pre-24 week collective cremation arrangements and eg a parent-requested individual cremation of a pre-24 week pregnancy loss, or a cremation of a stillbirth or neo-natal death.
6. In these instances, it would be more correct to say that there 'may not' be ashes, but several, if not most health boards, retain the 'there will be no ashes' wording. Some health boards do not say anything at all about ashes, even in documents where it would seem logical that they should or could, although this is very much a subjective and layperson judgement. In general, health boards either did not say anything in documents about availability of ashes, or they said they would not be available.

Notes By Health Board

Ayrshire and Arran

Documentation submitted has a logical flow to it. Notable that nearly all documents include space for patient signature, making most of it 'public facing'. Some forms are prefaced with a neat checklist for staff. Documents tend to include statement eg 'cremation options have been explained to me' or similar, with the more detailed information on what this contained within their own NHS info leaflet.

Borders

Information was not particularly standardised in appearance, but notable how much of the relevant material required a patient / parent signature. Miscarriage Association leaflet notes hospital use of clinical waste / incineration, which is no longer the case in Scotland but may be in rest of UK.

Dumfries and Galloway

Most of the paperwork submitted was internal medical management forms that did not address disposal issues. Although these forms were all very similar, one of them did include burial / cremation info on the back. It was not apparent why only one would have this info, although it could be a more recently updated form.

Fife

One of the seven documents submitted was a one page flowchart for procedures in the event of pre-24 week pregnancy loss. Perhaps of interest is that it seems to suggest that general support and information about disposal is not provided in the event of a termination. Possibly an out of date document.

Forth Valley

Included in the public facing docs were several title pages only of different charity leaflets, hence text could not be checked for relevance to disposal issues. Forth Valley forms and checklists are clearly titled, numbered and aligned with each other. They also have useful 'bereavement checklist' internal documents for differing situations, which are circa 9 pages in length and look as if they would be very useful to staff.

Grampian

Submitted by far the most documentation (57), much of which looked as if it had been taken from a core guidance document. These documents appear to have included all their clinical protocols as well, which do not relate to disposal and which took some time to sift out from the others. Sifting out these documents was not always easy and it was also occasionally unclear whether documents submitted were all currently in use or not. For example, one or two of the most recent, related to pre-24 week 2012 guidance were marked as 'draft'. Whether new documents like this would eventually replace or lead to revisions to earlier documents is unclear. Seven of the ten documents were related to new pre-24 week arrangements, with 2 for post-mortem arrangements and one specific to termination.

Greater Glasgow & Clyde

Glasgow submitted 1 charity brochure (Miscarriage Association) and an NHS leaflet on termination re attending the assessment clinic. Neither included any information

INFANT CREMATION COMMISSION REPORT ANNEX M

on funeral arrangements. Along with this were 7 sets of obstetric guidelines specific to clinical procedures. They also submitted an 'NHS GG&C Policy on the Handling and Disposal of Fetal Tissue (up to 24 weeks gestation) which sets out eg authorisation forms that should be used for sensitive collective cremation (although none of these were submitted). It is brief, official and makes no mention of discussion with parents / patients.

Highland

Information submitted was all from NHS Highland's pathology dept(s). Additional text stated that they also use charity brochures, mainly from SANDS, although they did not include these with paperwork submitted. Same wording re consent for cremation is applied to all forms with signature of parent required. A flow chart suggests that the same forms and wording are used for elective terminations, in which case use of the term 'parent' when signing forms may not always be ideal. No information on availability of ashes is included in documents' wording, but this is possibly correct in the context of the type of forms.

Lanarkshire

Lanarkshire information was concise and clear, but although requested in October 2013 it had evidently not been fully updated in the light of CMO guidance in 2012, as it still referred to incineration of early fetuses. Also, as with Glasgow, there is mention of forms to be filled in for cremation but these were not submitted.

Lothian

The information submitted by Lothian was extensive, but little of it was relevant to disposal / ashes issues. The documentation submitted in October was identical to that submitted in May, even though since then the health board has revised its procedures to accommodate the CMO 2012 guidance on cremation of pre-24 week fetuses. The public facing stillbirth booklet continues to state that there will be no ashes from a cremation at Mortonhall, and the pre-24 week booklet continues to make no reference at all to availability or otherwise of ashes. On the surface, NHS Lothian documentation appears to be robust, comprehensive and aligned, but its focus is very definitely (and arguably quite correctly) on internal and clinical protocols and procedures. The information on funeral options etc came across - to this layperson anyway - as a little confusing / confused. It is possible, however, that the health board is awaiting outcomes from the Mortonhall Investigation and/or the Commission before making substantive changes.

Orkney

Orkney utilises NHS Grampian/Highland services

Shetland

Shetland utilises NHS Grampian/Highland services.

Tayside

Only two documents submitted. It is possible Tayside has only sent through disposal related info for pre-24 week. Their internal procedural document is very clinical and official eg no signposting to support services or similar. Possibly dealt with via other procedures but as nothing else submitted it's difficult to say. We know from other

INFANT CREMATION COMMISSION REPORT ANNEX M

routes that Tayside delivers a good standard of service in this regard, so it may be advisable to double check this.

Western Isles

Submitted scanned title pages only of 11 different charity leaflets, mainly SANDS leaflets, so not possible to check wording of these. Their checklist document for pre-24 week and for stillbirth/neonatal death was admirably concise and clear, from a layperson perspective and - unlike other areas - used appendices to include most of the forms they require to have filled in as well.

INFANT CREMATION COMMISSION REPORT ANNEX M

Quotes relating to Ashes in Health Board documentation

Ayrshire & Arran	NHS Info Leaflet	"It is important that you know that there will no ashes to scatter" This quote is in relation to hospital arranged cremation. There is no mention of ashes in the sections on privately arranged cremation.
Borders	Anon (poss health board) - extract Note on Cremated Remains	"...NVF baby, there is a strong possibility that there may be no cremated remains available after the cremation has taken place. This is because the cartilaginous (bone) is not fully formed and may be entirely cremated during the process" This leaflet also contains a statement for patient signature that a) the patient is aware of this or b) the staff member has informed the patient of this.
	Borders General Hospital authorisation forms	"It is not possible to attend the crematorium for the cremation itself and there are no cremated remains (ashes) afterwards."
	Miscarriage Association 'management of miscarriage: your options'	"...many hospitals have sensitive disposal policies and your baby may be buried or cremated, perhaps along with the remains of other miscarried babies. Other hospitals treat the remains of an early loss as clinical waste, which is sent for incineration." Note: this statement is now incorrect in Scotland.
Dumfries and Galloway	NHS leaflet re termination 'unplanned pregnancy'	"Unless you wish to make your own arrangements, we will arrange cremation at the local crematorium Roucan Loch.... You would not be able to attend the cremation and there are no cremated remains (ashes) from this process that can be made available to you"
	NHS leaflet re miscarriage 'what is a miscarriage?'	same wording as in termination leaflet.
Fife	NHS Fife Leaflet 'Arrangements following the loss of your pregnancy'	"Unfortunately due to the nature of cremation there are no individual ashes which can be returned to families"
Forth Valley	NHS Internal doc Checklist for funeral arrangement for cremation of a stillborn baby	"Explain to parents the crematorium staff will endeavour to get a small amount of cremated remains but cannot guarantee this. Please ensure that the Funeral Directors know of the request BEFORE the Cremation" This note is printed on the front cover page of the checklist. There is similar type of message on the NVF cremation checklist which advises that "parents should be informed that there will be no ashes"

INFANT CREMATION COMMISSION REPORT ANNEX M

	NHS Forth Valley 'Creating Memories' (internal)	"For some parents, it may be important for religious reasons that the body of their baby is not cremated. This applies to incineration as well as cremation." Use of the term 'incineration' is presumably just an oversight in their paperwork.
	SANDS (Forth Valley) 'Organising Your Baby's Funeral'	"Sadly, ashes are not always guaranteed following a baby's cremation. However, if you do receive ashes, they can be etc etc..."
	NHS FV 'Sensitive Disposal Following Miscarriage'	Explains the collective process in brief then advises 'There will be no cremated remains (ashes) from this process".
	NHS FV 'Sensitive Disposal Following Termination of Pregnancy'	Explains briefly that tissue will be cremated unless woman wants to make her own arrangements. No mention of ashes. This is the only document seen that adds 'Occasionally, if the pregnancy has been very early, there are no further remains for cremation".
	NHS Forth Valley 'The Loss of Your Baby'	"Whilst the crematorium staff will endeavour to collect a small amount of ashes, sadly this cannot be guaranteed"
Grampian	ARC (charity) brochure 'A handbook to be given to parents...'	"you may want to ask the funeral director if there will be individual ashes for you to have"
	NHS Gynaecology Services info leaflet for patients	no mention of ashes
	Miscarriage Association 'Late Miscarriage'	"some hospitals offer collective burial or cremation where a number of babies are buried or cremated together" no mention of ashes
	Miscarriage Association 'Your feelings after miscarriage'	"...most hospitals offer a simple funeral, with burial or cremation" no mention of ashes
	Sands 'Mainly for fathers'	no mention of ashes
Greater Glasgow & Clyde	n/a	
Highland	n/a	
Lanarkshire	Wishaw General Hospital Womens Services Directorate: Med Termination of Pregnancy for women over 9	"Women should be informed that the fetus will be cremated by the hospital, and asked to sign a consent form and an application for cremation form to allow this to happen. Women can be given more information if they request this."

INFANT CREMATION COMMISSION REPORT ANNEX M

	weeks - 20 weeks gestation	
	As above but: Medical termination of pregnancy for women up to 63 days gestation	"Fetus and Placental tissue/POC is placed in a Placenta disposal bin, sealed and labelled and sent for incineration using an Internal Waste Transfer note. Respect should be given to any specific requests by the woman with regard to the disposal of their fetal remains."
	NHS Lanarkshire Wishaw General Hospital 'Support on the Loss of Your Baby over 24 weeks / under 24 weeks'	Both documents contain the same wording "You might like to place your baby in the hands of your own undertaker who will arrange a private cremation or burial. If you wish, Wishaw General Hospital can arrange for your baby to have a cremation or burial and, as with the private arrangements, you can be totally involved. No mention of ashes retrieval."
Lothian	NHS Lothian stillbirth booklet 2012	"There will be no retrievable cremated remains of your baby available following cremation at Mortonhall Crematorium. Should you wish to obtain cremated remains of your baby you are advised to make private funeral arrangements." This is under Option B, which is for cremation with ceremony (Option A is cremation without ceremony). As a stillbirth, this <u>must</u> be for individual cremation, not collective, and the document is specifically dated 2012 after Mortonhall changed its practice, so information may not have been updated properly?"
	NHS Lothian pre-24 week loss booklet 2012	no mention of ashes
Orkney	n/a	
Shetland	n/a	
Tayside	NHS Tayside 'Arrangements following the loss of your pregnancy'	Your pregnancy loss/baby will be placed in a small individual container and will then be taken to Perth Crematorium. Although your pregnancy loss is in its own container, a number of losses are transported and cremated together. Please be assured that each loss is handled with respect and dignity through the whole process" + "Although there are no ashes available to scatter, there is a Children's Garden of Remembrance..."
	NHS Tayside 'Clinical Disposal of Fetal remains of'	No mention of availability or otherwise of ashes at all. Very clinical / procedural document.

INFANT CREMATION COMMISSION REPORT ANNEX M

	Less Than 24 Weeks	
Western Isles	NHS Western Isles 'Checklist for Stillbirth or Neonatal death' Appendix 5b	Parent is asked to sign against the following statement: " I/WE UNDERSTAND THAT THERE MAY BE NO IDENTIFIABLE REMAINS RESULTING FROM THE CREMATION. HOWEVER, IF THERE ARE REMAINS, THEY WILL BE DISPATCHED BY POST TO THE APPLICANT/FUNERAL DIRECTOR"
	NHS Western Isles 'Checklist for Pregnancy Loss First Trimester < 14 weeks'	same wording as above
	NHS Western Isles 'Checklist for Pregnancy Loss 14 - 24 weeks'	same wording as above

INFANT CREMATION COMMISSION REPORT ANNEX N

Health Board Arranged Individual Cremations Responses May 2014

Does Your Health Board offer:

	Initial advice to the family about arranging a private cremation of :			A hospital arranged individual cremation (with service of choice) for:					A hospital arranged individual cremation (no service) of :				
	a) fetus (y/n)	b) stillbirth (y/n)	c) neonatal death (y/n)	a) fetus (y/n)	b) stillbirth (y/n)	c) neonatal death (y/n)	d) is there any charge to the family re any of these? (y/n)	e) is there any charge to the NHS from crematoria or funeral directors re any of these? (y/n)	a) fetus (y/n)	b) stillbirth (y/n)	c) neonatal death (y/n)	d) is there any charge to the family re any of these? (y/n)	e) is there any charge to the NHS from crematoria or funeral directors re any of these? (y/n)
Ayrshire & Arran	Y	Y	Y	Y	Y	Y	N	N	Y	Y	Y	Y	Y
Borders	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	N	Y
D&G	Y	Y	Y	Y(>12)	Y	Y	N	Y	Y(>12)	Y	Y	N	Y
Fife	Y	Y	Y	Y	Y	Y	N	Y - funeral director	Y	Y	Y	N	Y - funeral director
Forth Valley	Y	Y	Y	Y	Y	Y	N (conditions apply)	Y	Y	Y	Y	N (conditions apply)	Y
GG&C	Y	Y	Y	Y	Y	Y	N	Y transport and cremation fee	Y	Y	Y	N	Y transport and cremation fee
Grampian	Y	Y	Y	Y	Y	Y	N	Y - funeral directors £50	Y	Y	Y	N	Y - funeral directors £50.
Highland	Y	Y	Y	Y	Y	N*	N*	Y*	Y	Y	N*	N*	Y*
Lanarkshire	Y	Y	Y	Y	Y	Y	N	Y £90 - £150 funeral directors	Y	Y	Y	N	Y £90 - £150 funeral directors cost only
Lothian	Y	Y	Y	Y	Y	N	N	Y - funeral dir	Y	Y	N	N	Y - fds. all options apply from 2 nd trimester
Orkney	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Shetland	Y	Y	Y	N	Y	Y	N	Y	Y	Y	Y	N	Y
Tayside	Y	Y	Y	Y	Y	N	N	Y	Y	Y	N	N	Y
Western Isles	Y	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	N	Y

INFANT CREMATION COMMISSION REPORT ANNEX O

Infant Cremation Commission Crematoria Questionnaire – Responses Summary

Responses received August 2013

All 27 crematoria responded to the questionnaire. Most did so relatively promptly and all responded willingly.

There was some variation in the quality of the responses, and a suggestion at points that at least two of the questions had been largely or partially misunderstood by most respondents.

The full data obtained is available at:

<http://www.scotland.gov.uk/Topics/Health/Policy/BurialsCremation/CremationCommission>

1 Does the crematorium accept the cremations of fetuses:

		Yes	No
a)	Individual Only	20	7
b)	Both Individual and Communal	11	16
c)	Neither Individual Nor Communal	0	27

Analysis: There is no apparent contrast between private, joint or local authority run crematoria in respect of whether these types of cremations are conducted, although more are providing individual than collective cremations.

The lower number of crematoria providing shared cremations of fetuses is almost certainly the result of two particular factors:

- that it would be extremely rare for the communal cremation of siblings (one instance of this is cited) and also
- that guidance issued by the Chief Medical Officer setting out collective cremation as the new minimum standard for pregnancy loss is not yet fully implemented across the country. SG are currently checking the exact status of this latter aspect and expect to have a detailed picture by end August / start September.

2 Does the cremation procedure in the crematorium vary depending on the gestational age of the fetus or baby? If so, provide details.

Yes	No
4	23

INFANT CREMATION COMMISSION REPORT ANNEX O

Analysis: Of the four who replied yes, 2 were private and 2 were local authority. The vast majority replied that there was no difference, although an obvious point was raised that collective and individual cremations would necessarily involve procedural differences.

Even where procedural differences were cited, the additional comments or information provided across the board were all very similar. This suggests that the question may have been read differently in different areas.

3 Please advise the Commission of the make and model of cremators in use at the crematorium.

Make / Model	No of Crematoria Using
Facultatieve FTIII	10
Facultatieve FTII	10
Evans (Universal) 300/2	5
Facultatieve 300/2	2
Furnace Construction Joule	2
Facultatieve 3000	1
Parkgrove 2000 Electric	1
Parkgrove Electric	1
Tabo Inex Double End	1
Newton Cremator	1

Analysis: there is no correlation between type of crematorium and type of cremator, although the population served by any crematorium is reflected in the number of cremators it uses. There was some variation in the names provided by respondents, therefore these responses may require additional checking.

4 Does the control system on the cremators have a setting for baby/infant cremations?

Yes	No
19	8

Analysis: Correlates almost directly to the make and model set out in question three, although we note that South Lanarkshire Crematorium and Kirkcaldy answered 'no' although they have the same type of FTIII that others noted as a 'yes'. This may be due to whether or not the cremator has received the relevant software upgrade.

INFANT CREMATION COMMISSION REPORT ANNEX O

5 Does your manufacturer's operational manual give guidance/instructions on best practice for cremating babies/infants? If so, please provide details.

Yes	No
23	4

Analysis: whilst there is the odd discrepancy which may just be down to individual error when replying, the information provided again correlates with the makes and models of cremators in use.

This question did not specifically ask whether crematoria implemented the guidance/instructions in the manuals, but a low number additionally advised that whilst such guidance exists, they have either not implemented it for health and safety reasons (Hazlehead's non-use of baby trays) or because they believe they are better meeting the needs of the bereaved through their own procedures (Seafield and Warriston not cremating overnight).

Those using the FTII/III and/or Evans cremators note a recent software upgrade that now allows an infant cremation setting.

6 Does the crematorium have a local policy, custom or practice on the cremation of babies/infants, and is that written down or documented anywhere?

Existing Policy?	Yes	No
	22	5

Is it Written Down?	Yes	No	Unclear
	17	7	3

Analysis: Everyone answered clearly the initial question as to whether there was an existing policy / practice / custom, and it was usually possible, from the details provided, to extrapolate as to whether the policies were written down or not.

'Written policy' appears, however, to be defined differently depending on the area: some refer to FBCA and / or ICCM guidance as being their written policy or forming the written basis for local policy, others reference the operational policy provided by cremator manuals; others point to general statements available via shared leaflets or on council etc websites. Most evidently, there is no single and clear policy in existence.

Where policies are unwritten, reliance appears to be placed on a shared understanding between those most closely involved in this work ie the crematorium

INFANT CREMATION COMMISSION REPORT ANNEX O

staff. It is unclear whether this shared understanding always or generally extends to other involved staff eg funeral directors, hospital staff etc.

The few crematoria which stated there was no such policy, did so on the basis of there being one single policy which applied regardless of age.

The variation in whether policies exist and what those policies say or suggest, appears to be directly affecting the operational practices in crematoria.

7 Has the crematorium developed local practice designed to increase the likelihood of the recovery of remains (ashes) following the cremation of a baby?

And

8 If your answer to 7 is 'yes', briefly describe the technique adopted by the crematorium

Yes	No
24	3

Main methods specifically mentioned by the 24:

Method	Number Using
Baby Tray (usually plus manual monitoring)	16
Infant setting on cremator:	9
Placement in Cremator (behind door)	7
Overnight / residual heat cremation	4

Analysis: There is some blurring of responses from questions 5 to 8 (and indeed 9), most likely due to the lack of clear distinction in both questions and answers between formal cremation authority policy; representative body policy; operational / industry instructions; local crematorium policy and unwritten / informal policy and practice.

The vast majority of crematoria all appear to have some kind of practice in place to increase the likelihood of ashes retrieval, usually a combination of different approaches. The three who do not (under Aberdeen City Council and Glasgow City Council) either say they are awaiting outcomes of Commission / SG or offer no additional comment (which the question allows them to do).

INFANT CREMATION COMMISSION REPORT ANNEX O

9 Has the crematorium adopted national policy and guidance issued by an organisation?

Yes	No
22	5

Organisations specifically mentioned	By number of crematoria
FBCA	17
ICCM	14
ICCM/Sands	1
IPPC	1

Analysis: The five crematoria who answered 'no' are all privately or jointly run, but stated they have their own policies in place in earlier questions.

As might be expected, most are following a combination of FBCA and ICCM guidance.

In responses to this question, and to earlier questions, there is reference to earlier and then subsequent versions of guidance. Whilst nothing explicitly suggests that any crematorium is using out of date guidance, referring to eg '1992 plus subsequent updates' suggests there might be some different versions of guidance retained and/or available and which need to be standardised.

One crematorium's response of 'Yes' and 'IPPC' is unclear, but presumably relates to international pollution control directives. It is possible they misinterpreted the question.

10 Does your crematorium differentiate between 'ashes' and 'cremated remains'?

Yes	No
21	6

Analysis: A notable feature of responses to this question WAs the general lack of supplementary comment alongside the yes or no response, with 17 crematoria offering no additional detail and of the 6 that did, 4 offered only very limited comments mainly to reference the FBCA's guidance on this topic. It is understandable, however, that there may be some caution around this point given the different policies from ICCM and FBCA.

It's possible that the question could have been more explicitly worded, by asking a) whether they differentiated and then also b) how they differentiated. Only Co-Op Funeralcare and Westerleigh Group have gone so far as to provide an answer to this second question, describing a process where an individual assessment is made as to whether it is cremated remains or eg coffin ash that is leftover from the cremation process.

INFANT CREMATION COMMISSION REPORT ANNEX O

Even here, though, it is unclear whether this assessment then directly affects what is offered or not to the bereaved parents by the funeral director (Co-Op response) or by the crematorium (Westerleigh response).

Follow up on this question may be required if further clarification is considered necessary.

11 Who does your crematorium take signed instructions from in relation to the disposal of remains (ashes) in cases of:

- a. Private individual cremation of a stillborn baby or infant
- b. Private individual cremation of a fetus
- c. Hospital arranged cremation of a stillborn baby or infant
- d. Hospital arranged individual or communal cremation of fetuses

Analysis: This question implicitly recognises that the current statutory Form A can currently be signed by anyone (although their relationship to the deceased does require to be set down in the form).

Whilst this question was therefore effectively asking 'whose signature do you accept on Form A?', this was unclear to at least some of the respondents. Several, for example, replied that they accepted instructions from the applicant.

Only Glasgow City Council (Linn and Daldowie crematoria) explicitly stated that they used to accept signed instructions on the form from parties other than the parents but that this is no longer the case.

Follow up on this question may be required if further clarification is considered necessary.

12 Does your crematorium have a system during the application for cremation for recording the intended destination of remains (ashes)? If your answer is yes, does that system differ according to whether a fetus, baby or infant is involved and how long has the system been in place?

System for recording the destination of cremated remains / ashes?

Yes	No	Unclear
26	0	1

Does system differ depending on whether fetus, baby or infant involved?

Yes	No	Unclear
4	18	5

INFANT CREMATION COMMISSION REPORT ANNEX O

Analysis: Whether explicitly stated or implied via additional comments, the system of recording appears mainly to relate to the statutory Form A 'Application for Cremation', which has a section where whoever fills in the form has to state which of 3 options will be used in respect of the ashes.

In summary the options are: collect in 1 month, disperse in garden of remembrance or disperse after 1 month if no other instruction received. This Form, however, only formally applies to neo-natal infant deaths.

Although there is no equivalent Form A for pre-24 week fetuses or an equivalent ashes section on the current Stillbirth form, the 18 crematoria who answered 'No' suggests that the majority of crematoria are applying the same principles regardless, although one or two noted that these principles cannot be applied in the case of collective cremations, as collective ashes/remains cannot be separated and therefore cannot be returned or collected by particular families.

Where the question was answered, the recording of destinations during the application process, regardless of whether fetus, baby or older infant has been in place for years if not decades.

Note: The 1 unclear reply was from a private crematorium, which appears to have misunderstood the question.

13 Does your crematorium have a system for recording the ultimate destination of remains (ashes) after cremation? If your answer is yes, does the system differ according to whether a fetus, baby or infant is involved and how long has the system been in place?

System for recording the ultimate destination of cremated remains / ashes?

Yes	No	Unclear
26	0	1

Does system differ depending on whether fetus, baby or infant involved?

Yes	No	Unclear
9	12	6

Analysis: All crematoria appear to have a system of recording the ultimate destination of ashes, although a few noted that they would clearly not know where the ashes ultimately ended up after they were collected by family.

What they record, however, is unclear from their responses although presumably it is linked to same available options as are contained on the application Form A.

Six crematoria noted specifically that they had separate registers for pre-24 week cremations, other responses did not clearly address this point, or did not address it all. Follow-up on this point may be required.

INFANT CREMATION COMMISSION REPORT ANNEX O

Where crematoria stated how long the system had been in place, the general recording system dated back decades or from opening: separate registers for fetal cremations are, however, more recent.

Note: The unclear response is a continuing misunderstanding from a private crematorium.

14 Does your crematorium have a system for notifying families of the ultimate destination of remains (ashes) after cremation? If your answer is yes, does the system differ according to whether a fetus, baby or infant is involved and how long has the system been in place?

System for recording the ultimate destination of cremated remains / ashes?

Yes	No	Unclear
5	18	4

Does system differ depending on whether fetus, baby or infant involved?

Yes	No	Unclear
2	4	21

Analysis: All figures above should be treated with caution as there is doubt as to whether the question was understood.

In essence, this question was asking 'Do you notify or confirm to the family what you have done with the ashes, if they haven't already collected them?'

Many instead simply responded that their actions would be carried out in accordance with Form A instructions, which suggests this aspect of providing subsequent confirmation does not appear to have been generally understood. Where it was understood, respondents said there was no such notification or confirmation provided.

Very few respondents made any reference to the question of whether procedures differed depending on whether the cremation was for a fetus, stillbirth or neo-natal/older infant.

INFANT CREMATION COMMISSION REPORT ANNEX O

15,16,17a Please provide the numbers of cremations, recovered ashes and collected ashes for individual cremations of fetuses

Year	Total Cremations	Ashes Recovered	Ashes Collected
2010	887	80	50
2011	714	140	58
2012	748	191	89

Where individual cremation of fetuses took place, the percentage of cases where ashes were recovered was:

	% Ashes recovered
2010	9.0%
2011	19.5%
2012	25.5%

Where individual cremation of fetuses took place and ashes were recovered, the percentage of cases where ashes were collected was:

	% Ashes Collected
2010	62.5%
2011	41.5%
2012	46.5%

Analysis: According to these figures, over the three years there were 214 instances of fetal cremations where the remains would have been scattered or interred by Scottish crematoria. As the statutory Form A 'application for cremation' is not a legal requirement for the cremation of pre 24 week pregnancy losses, it would presumably be a matter of local or industry policy as to whether and/or how parents were informed of the likelihood and availability of ashes for collection.

INFANT CREMATION COMMISSION REPORT ANNEX O

15,16,17b Please provide the numbers of cremations and recovered ashes for collective / communal cremations of fetuses

Year	Total Cremations	Ashes Recovered
2010	116	38
2011	118	43
2012	149	72

Where communal / collective cremation of fetuses took place, the percentage of cases where ashes were recovered was:

	% Ashes recovered
2010	32%
2011	36.5%
2012	48%

Note 1: total cremations not total number of fetuses

Note 2: as remains are not individual, collection by families is not possible

INFANT CREMATION COMMISSION REPORT ANNEX O

15,16,17c Please provide the numbers of cremations and recovered ashes for stillbirths

Year	Total Cremations	Ashes Recovered	Ashes Collected
2010	89	68	49
2011	103	88	77
2012	89	81	62

Where the cremation of stillbirths took place, the percentage of cases where ashes were recovered was:

	% Ashes recovered
2010	76.5%
2011	85.5%
2012	91.0%

Where ashes were recovered, the percentage subsequently collected from the crematorium was:

	% Ashes Collected
2010	72.0%
2011	87.5%
2012	76.5%

Analysis: According to these figures, there were 49 instances where ashes were recovered but not collected from Scottish crematoria over the three years. Whilst there is a statutory cremation form for stillbirths, it is basic and does not include any section on options in relation to any ashes retrieved from the cremation process. As with pre 24 week cremations, options would appear to be dependent on local or industry policy and guidance.

INFANT CREMATION COMMISSION REPORT ANNEX O

15,16,17d Please provide the numbers of cremations and recovered ashes for infants up to 2 years of age

Year	Total Cremations	Ashes Recovered	Ashes Collected
2010	61	55	49
2011	58	49	45
2012	59	51	45

Where the cremation of infants up to 2 years took place, the percentage of cases where ashes were recovered was:

	% Ashes recovered
2010	90.0%
2011	84.5%
2012	86.5%

Where ashes were recovered, the percentage subsequently collected from the crematorium was:

	% Ashes Collected
2010	89.0%
2011	92.0%
2012	88.0%

Analysis: According to these figures, there were 16 instances over the three years where ashes were available, but not collected. Statutory Form A would apply in these cases, which asks 'the applicant' (who need not necessarily be a parent or relative) to indicate which of 3 options they wish.

INFANT CREMATION COMMISSION REPORT ANNEX O

18 Does the crematorium charge a fee for:

- a) individual cremations of fetuses**
- b) communal / collective cremations of fetuses**
- c) cremations of stillborn babies**
- d) cremations of infants**

Analysis: responses to this question confirm that most crematoria are generally charging nothing or very little for these cremations. Although most put a zero against the communal / collective cremations of fetuses, this may either be because they are not yet offering this service or chose not to specify the charges they may have negotiated with NHS boards for this service. Follow up on this point with Health Boards may be something for the Commission to consider.

There is some slight tendency to charge more depending on the age of the infant eg no charge up to one or two years, but with an applicable charge after that up to age five or seven. This, however, is only the stated practice in two or three crematoria.

19 Has the crematorium provided a dedicated 'Children's Area/Garden' within the garden of remembrance at the crematorium?

If yes, does the crematorium provide memorial options for bereaved parents within the children's area/garden?

Yes	No
15	12

Analysis: Just over half of the crematoria state they have a dedicated children's area within their garden of remembrance, and some of those who don't state that plans for this are in progress or that other alternatives are available eg a Babies Book of Remembrance or an annual memorial service.

20 Is there significant variation in the nature (i.e. materials used in the construction) and dimensions of the container used for the cremation of fetuses and babies? Please provide details.

Yes	No
20	7

Analysis: Most noted that dimensions varied depending on the age of the infant, and materials include wood, cardboard, waxed cardboard and MDF. Cotton wool and plastics are also mentioned.

Where crematoria said there was no variation, this was usually caveated with additional comments eg no variation for individual cremations, but that arrangements for collective cremations involved variation.

INFANT CREMATION COMMISSION REPORT ANNEX P

Residual Heat or ‘Overnight’ Cremation in Scotland – May 2014

Cremation Authorities - Confirmation on the practice of ‘overnight’ cremation (or cremation using residual heat at set point in the day)		
Q. In regard to figures relating to the numbers of cremations you carried out for Non-Viable Babies, Stillborn Babies and Infants in 2010, 2011 and 2012, provided in June 2013, would these have included any cremations which were conducted overnight on the strength of residual heat in the cremator and with the cremator essentially shut down?		
Cremation Authority	Y/N	Notes
Aberdeen City Council	No	Aberdeen Crematorium has not and does not cremate overnight using residual heat. As such, the figures supplied previously do not include cremations conducted overnight.
Argyll and Bute Council	Yes - Conditional	Our cremation staff have confirmed that Argyll and Bute Council does not carry out overnight cremations of Non-Viable Foetuses, Stillborn Babies and Infants. Our practice is to keep Non-Viable Foetuses, Stillborn Babies and Infants to the last cremation of the day. In the event of using a tray the operator can close down the plant leaving the tray in the chamber to allow it to cool overnight making it safer to remove the tray. The cremation would be completed before the operator closed down the plant.
Co-operative Funeralcare	Yes - But stopped in 2012	The first point I'd like to address is the reference to 'overnight cremations' being taken to be the same as 'residual heat cremations', for clarity 'residual heat cremations' can take place at any point after the cremator is shut down for the day. That said, in answer to your question about whether or not the numbers supplied would include 'residual heat cremations' the answer is yes but would be in single figures. This is a practice we stopped at the end of 2012. In answer to the second part of your question regarding whether or not the practice should be recommended I would point you to the concerns highlighted in the Mortonhall Report on page 60 under the heading 'Potential Breaches of Permit Conditions' and also referred to on page 145, paragraph 3. From this evidence it would appear that SEPA would not be likely to approve of this practice.
Dignity Crematoria	No	None of the submissions from the Dignity crematoria were cremated on residual heat.
Falkirk Council	Yes	All our NVF, stillborn and infant cremations at Falkirk Crematorium are conducted overnight using the residual heat from the cremators after they have been shut down.
Fife Council	Yes	Yes this is a practice that we use for the cremation of Non-viable Foetuses.

INFANT CREMATION COMMISSION REPORT ANNEX P

Glasgow City Council	Yes - Conditional	The practice of using residual heat overnight for infant/baby/NVF cremations is not one that is used at Glasgow City Council crematoria and was not the practice used during the years described. The practice in Glasgow is to carry out these cremations at the end of the day when there is an appropriate level of residual heat to conduct the process with minimal use of the cremation burners and fans. Each cremation is recorded as required and completed prior to the end of the working day. Completion would include the removal of all remains prior to the end of the working day and there would be no remains left overnight.
The Highland Council	No	The figures we provided did not include any cremations conducted overnight on the strength of residual heat in the cremator and with the cremator essentially shut down. Our practice is that supervision of all cremations is provided till the cremation is complete and the control system shuts down the cremator. If this is the end of the day in overtime then the cremator operators will leave the remains in the cremator overnight and remove them in the morning. Whenever possible cremation of babies and infants does not take place at the end of the day and in any case is always supervised to completion. Such cremations are always carried out using a cremation tray.
Paisley Cemetery Co Ltd	Yes - Conditional	These cremations would have been done overnight with residual heat. I should explain that the cremator is still on when the baby coffin is charged. Our operator then takes manual control to bring the main burner on low fire mode with gentle top air, say 5% or so. After about 20 to 30 minutes the cremator is switched off and runs on cooling mode. We then leave the remains in residual heat and rake out in the morning. It's a good idea to bypass the cooling box and drop the remains straight through to the collecting box at the bottom. The cooling box if used would introduce too much air with the possible loss of ash. Also, the infant profile software if used, can bring on too much air and turbulence. Our operator prefers to use manual control, particularly for the very small coffins.
Parkgrove Crematorium	Yes - Conditional	The term you are using 'overnight' is not correct and could be misleading. The process of an infant cremation takes approximately one hour, so if the coffin goes in after the last adult cremation which could be in the morning or early afternoon. [Note: Confirmed that in these cases the electric cremator has a shutter plate which closes to prevent turbulence and the cremator is turned off however it can be set to begin to heat overnight ready for the morning. At Parkgrove the last service is at 3 pm so any infant cremation process would be fully complete]

INFANT CREMATION COMMISSION REPORT ANNEX P

		by 5 pm. All of our infant cremation are carried out this way.
Perth and Kinross Council	No	The below described practise of cremating using residual cremator heat only is not a practise we carry out in Perth. Rather we use an infant programme for the cremation at the end of the day within a tray, which is then left in the cremator overnight to cool down before removal the next day.
Scottish Cremation Society Ltd	No	I can confirm that no cremations were conducted overnight on the strength of residual heat at Glasgow Crematorium, Maryhill.
South Ayrshire Council	Yes	I can confirm that yes, we do carry out infant cremations at the end of the day when the cremator has been shut down. We find this the safest way to be able to retain ashes, although we will be carrying out the next infant cremation with our Facultatieve Technologies FT111's Baby programme. Will let Norman D know how this went. I should also mention that I contact SEPA last week to explain that we are obviously acting outside of our permit in doing these cremations. I have not heard back from them to date.
South Lanarkshire Council	No	I can confirm that South Lanarkshire Council have at no time cremated any non-viable foetuses, stillborn babies or infants overnight on the strength of residual heat in the cremators. All cremations are monitored from start to finish. This practice would be outside our operating permit from SEPA and is not one we would recommend.
Edinburgh Crematorium Ltd	No	None of the cremations that we reported to you, were carried out overnight, using residual heat.
West Dunbartonshire Council	No	West Dunbartonshire Council do not conduct this practice and never have conducted this practice
Westerleigh Group	No	At both our Border's and West Lothian crematoria, we use a specific infant programme developed by the manufacturer.
Roucan Loch Company	No	Roucan Loch's figures would not have included any cremations which were conducted overnight on the strength of residual heat.

INFANT CREMATION COMMISSION REPORT ANNEX Q

Numbers of Deaths and Cremations by Age of Baby / Infant

Numbers of Deaths By Age of Baby / Infant

	Pre-24 weeks		Stillbirths	0-1 year	1-2 year
	Terminations	Miscarriages			
2010	12826	unknown / not recorded	291	218	13
2011	12471	unknown / not recorded	299	238	21
2012	12447	unknown / not recorded	274	217	17

Numbers of Cremations By Age of Baby / Infant

	Pre 24 week Cremations		Stillbirth Cremations	0 to 2 years Cremations
	Individual	Collective / Shared		
2010	887	116	89 (31% of total)	61 (26% of total 231)
2011	714	118	103 (34% of total)	58 (22% of total 259)
2012	748	149	89 (32% of total)	59 (25% of total 234)

1. Terminations data available from:

<http://www.isdscotland.org/Health-Topics/Sexual-Health/Publications/2013-05-28/2013-05-28-Abortions-Report.pdf?25243777037>

2. Limited recording of pre-24 week miscarriages is indirectly confirmed in 'introduction and methods' section of:

<https://ispscotland.scot.nhs.uk/Health-Topics/Maternity-and-Births/Publications/2013-03-26/2013-03-26-SPIMMR2011-report.pdf?58437746764>

3. Stillbirth data available from table 4.4 of:

<http://www.gro-scotland.gov.uk/statistics/theme/vital-events/general/ref-tables/2012/section-4-stillbirths-and-infant-deaths.html>

4. Breakdown 0-1 years and 1-2 years data provided:

direct from National Records of Scotland senior statistician, in response to a Commission request on 30 October 2013

5. All cremation figures provided via Commission questionnaire issued to 27 crematoria on 11 June 2013

Notes:

There are approximately 57,000 live births in Scotland each year.

Some very rare late 20 to 24 week terminations requested in Scotland are carried out in England and are therefore recorded in English data.

**Current Children's Memorials in Scotland
by Health Board Area.**

NHS Dumfries & Galloway

Memorial Services

- Annual baby and children memorial service in collaboration with local SANDS group held in Crichton Church, Dumfries.
- Parents are invited to attend hospital arranged collective burial services.

Permanent Hospital Memorials

- Memorial books in the Cresswell Maternity Wing, parents can have a page with a poem or other inscription dedicated to their baby. This has been available since 1994. There is also a "memorial tree" on which "leaves" with baby names are hung. Both are maintained with support from SANDS.

Cemetery and Crematorium Memorial Gardens

- **St Michaels Cemetery** collective burial area
 - bronze sculpture of a sleeping baby
 - cairn where parents can have an inscription inserted.
- **Kirkcudbright cemetery**
 - commemorative sculpture
- Memorials in cemeteries all donated by SANDS
- **Roucan Loch Crematorium**
 - An area for neo-natal death memorials is being developed

NHS Fife

Memorial Services

- Annual baby and children memorial service, these will now be held in "The Haven" a new 'Sacred Space' within the hospital site.
- Parents are able to attend a service of remembrance prior to cremation
- An annual Christmas memorial service is also arranged by SANDS Fife and is supported by the Health Board.

Permanent Hospital Memorials

- Discussions are underway to create a "memorial tree" in hospital grounds

Cemetery and Crematorium Memorial Gardens

- Each of the main cemeteries in Fife have a dedicated "Baby memorial Garden". Each garden contains a large memorial stone which was provided by, and are maintained by, Fife SANDS and Fife Council.
- Both crematorium have a dedicated "Baby memorial Garden". The main crematorium in Kirkcaldy contains memorial stones which were provided by, and are maintained by, Fife SANDS and Fife Council.

NHS Forth Valley

Memorial Services

- Annual baby and children memorial service organised by the local SANDS group held in the local Church.

NHS Grampian

Memorial Services

- Quarterly memorial services for early pregnancy losses, held in Aberdeen crematorium.
- Annual Candle Service for Children who have died in Royal Aberdeen Children's Hospital /Neo Natal ward of Aberdeen Maternity Service, held in a local church.
- Two Annual Memorial Services, held on the same day , in partnership with Local Sands organisation , for all pregnancy losses. These are held in Aberdeen Royal Infirmary.
- An annual baby loss service is organised by SANDS and held in Hazelhead park.

Permanent Hospital Memorials

- Memorial books are provided and maintained by the Chapel of Maternity and Children's Hospitals.

Cemetery and Crematorium Memorial Gardens

- Both local cemeteries and local crematoria have a designated children's memorial garden

NHS Greater Glasgow and Clyde

Memorial Services

- Annual services for babies held across three hospital locations – Royal Alexandra Hospital, Inverclyde Royal Hospital, Vale of Leven
- Monthly Remembrance Service for babies and children at Royal Hospital for Sick Children Yorkhill
- Annual Remembrance Service for babies and children at Royal Hospital for Sick Children Yorkhill
- Annual service for babies and children Schiehallion Ward (paediatric oncology)
- Bi-annual SANDS service supported by hospital chaplains.

Permanent Hospital Memorials

- Trees planted at Royal Hospital for Sick Children Yorkhill

Cemetery and Crematorium Memorial Gardens

- **Hawkhead Cemetery and Greenock cemetery** both have children's memorial gardens

INFANT CREMATION COMMISSION REPORT ANNEX R

- **St Ketigern's, Glasgow Necropolis and Eastwood cemeteries** have memorials ranging from stone monuments to benched areas.
- **Craigton Cemetery and Crematorium** has a babies Garden of Remembrance
- **Linn Cemetery** has a babies Garden of Remembrance
- **Linn Crematoria** also has a designated SANDS memorial garden

NHS Highland

Memorial Services

- Annual baby and children memorial service
- Local SIMBA group holds regular events

Permanent Memorials

- SIMBA memorial tree

Cemetery and Crematorium Memorial Gardens

- The local crematorium has a baby and children's garden located outside the crematorium

NHS Lanarkshire

Memorial Services

- Annual baby and children memorial service organised with support from the local SANDS group held in the hospital sanctuary.
- NHS Lanarkshire also takes part in the SANDS Greater Glasgow and Clyde bi-annual services.

Permanent Hospital Memorials

- Maternity Memorial Books situated in the maternity quiet room.

Cemetery and Crematorium Memorial Gardens

- **Bothwell Park, Coltness and Lanark Cemeteries** all have baby and children's gardens
- **South Lanarkshire Crematorium** also has a baby and children's garden

NHS Lothian

Memorial Services

- Annual memorial service on last Sunday in November held by the Royal Hospital for Sick Children Edinburgh with support from the Soul Marks Trust.
- Annual Baby Loss Awareness Day service held in the sanctuary at the Royal Infirmary arranged with support from SIMBA.
- SANDS Lothians hold an annual Christmas service.

Permanent Hospital Memorials

- Memorial book in the Royal Hospital for Sick Children Edinburgh. Each family receives written invitation to attend the annual memorial service and make an

INFANT CREMATION COMMISSION REPORT ANNEX R

entry in the memorial book. The book was purchased, and is maintained by, the Sick Kids Friends Foundation.

Cemetery and Crematorium Memorial Gardens

- Designated Baby Areas exist in 1 City of Edinburgh, 2 Mid Lothian and several West Lothian Cemeteries.
- Crematoria have memorial books for babies and children.

NHS Shetland

Memorial Services

- Currently services are held via Aberdeen Maternity Hospital on a quarterly basis, however, the Board is in the process of setting up a local service for pregnancy loss and babies.

Cemetery Memorial Gardens

- There is a designated babies and children area within the cemetery featuring benches and plaques.

NHS Tayside

Memorial Services

- Baby and children memorial service held twice a year in Dundee.
- Annual baby and children memorial service held in Perth.
- Parents are able to attend a short committal service prior to cremation.

Cemetery Memorial Gardens

- Both Perth and Dundee cemeteries have a designated baby and children's area.
- **Perth Crematorium** has a has a baby and children's memorial garden.

NHS Western Isles

Memorial Services

- Baby and children memorial service held every two years at the hospital, through feedback parents are involved in the planning of these services.
- Parents are able to attend a short committal service at the cemetery.

Cemetery Memorial Gardens

- The cemetery has a dedicated bench.

INFANT CREMATION COMMISSION REPORT ANNEX S

Infant Cremation Commission Approved Meeting Minutes

Infant Cremation Commission Minute of Meeting 1– May 21, 2013

Attendees:

The Rt Hon Lord Bonomy (Chair)
John Birrell
James Blackburn
Donald Henderson
Ian Kearns
Helena McLaren
Ann McMurray
Dr Mini Mishra
Tim Morris
Gillian Morton
Rick Powell
Garrick Smyth
Gavin Stevenson

Apologies:

Gareth Brown (represented by Donald Henderson)

1. Welcome and Introductions

1.1 Lord Bonomy welcomed members to the first meeting of the Infant Cremation Commission. Round the table introductions were carried out, after which Lord Bonomy noted the wealth of experience and knowledge represented in the membership and thanked everyone for their willingness to undertake this work.

2. Remit

2.1 A draft of the proposed remit was tabled. Use of the terms ‘recoverable remains’, ‘ashes’, ‘cremated remains’ ‘babies’ and ‘infants’ were discussed at length in order to ensure that the terminology used was clear and relevant to the public eg what might be understood by the term ‘cremated remains’ as opposed to ‘ashes’ and also that it did not exclude any areas which the Commission intended to examine eg bereavements as a result of pregnancy loss. Mr Henderson confirmed that the draft, as revised, was acceptable to the Scottish Government.

2.2 **Decision Point:** The remit was accepted and is attached at Annex A.

2.3 **Action Point:** The accepted remit will be published on the Scottish Government website on Wednesday May 22, 2013.

4. Local Investigations (agenda order changed)

4.1 There was some consensus that it would be appropriate to issue local investigations guidance but that the current wording would benefit from revision and reflection as to whether any key points may have been omitted. Commission

INFANT CREMATION COMMISSION REPORT ANNEX S

members raised some concern that issuing such guidance could be inferred as an expectation that every cremation authority should undertake a formal investigation, which was neither the Commission's role nor its intent.

4.2 Action Point: To consider further the wording and timing of publication as an agenda item at the second meeting on May 28, 2013

4.3 Action Point: Secretariat to make agreed minor amendments to the document, following on from changes to the remit, prior to re-circulating with papers for the next meeting.

3. Plan of Activity

3.1 Lord Bonomy noted that the plan of activity was likely to be shaped by the level of individual knowledge and access to relevant information that each Commission member held. For this reason, he was likely to benefit from one to one meetings with each member and he would consider this in due course.

3.2 It was stressed that members should not publicly discuss or air personal views on the work of the Commission. When discussing any necessary topics or requests with their respective organisations, they should ensure communication does not go extend beyond what is required.

3.3 Members briefly discussed the format and publication of minutes. There was no desire for verbatim or detailed recording of discussions, and some concern that publishing minutes where issues had not yet been resolved could cause unnecessary public concern.

3.4 Decision Point: Concise minutes, focused on action points, will be produced.

3.5 Decision Point: Minutes will be published at the completion of the Committees work

5a&d. Current Landscape and Sources of Evidence

5.1 There was lengthy discussion on current practice, the various documentation available and what might be obtainable. The following actions were agreed.

5.2 Action Point: All members to send a note of their name, role of their organisation, their own role and experience within that organisation and their experience relevant to the remit. Added to this each member should indicate areas or aspects of the current system which they already know or believe should be improved. By close of Monday May 27, 2013.

5.3 Action Point: Rick Powell (FBCA) and Tim Morris (ICCM) to formulate a joint draft list of questions around how to maximise the recovery of ashes/cremated remains. These questions, for all crematoria in Scotland, should cover such aspects as: local technical, policy and guidance documents; local practice and techniques (eg use of baby trays, placement within cremator etc); operational instructions within

INFANT CREMATION COMMISSION REPORT ANNEX S

the manufacturers' cremator manuals; type (ie individual or collective) and number of cremations across the country. Also to set out the usual costs/charges that apply when a child's cremation is involved. **By close of Monday May 27, 2013.**

5.4 Action Point: at the suggestion of Rick Powell and, following agreement on the draft questions above, similar questions are to be put to the member organisations of International Cremation Federation with a view to obtaining a picture of practices adopted in other countries.

5.5 Action Point: Tim Morris to provide draft ICCM guidance on operational techniques. By close of Monday May 27, 2013.

5.6 Action Point: Ian Kearns (Local Authority) to provide local authority fees information from 2012. By close of Monday May 27, 2013.

5.7 Action Point: James Blackburn (NAFD) to set out in writing the types of circumstances in which NAFD members do or do not have contact with family members and what, in practice, members do or should advise parents. Also to set out the costs/charges that are usually applied by funeral directors for a child's funeral. **By close of Monday May 27, 2013.**

5.8 Action Point: Gillian Morton (NHS) to request from all territorial Health Boards the policy manuals for staff and leaflets for parents and relatives that cover these matters. John Birrell (NHS bereavement co-ordinators) may be able to assist. Also to cover the costs/charges that apply in cases of collective or individual cremation organised by NHS institutions. **By close of Monday May 27, 2013.**

5.9 All members should be clear to frame their requests for information on behalf of the Infant Cremation Commission.

5b. Call for Written Submissions

5.10 The deadline for submissions (July 19, 2013) was discussed and a follow up meeting of Tuesday August 20, 2013 was tentatively identified, to allow time for analysis of the responses.

5.11 There was consensus across members that the current system was not satisfactory and that improvements were needed. With that in mind, Lord Bonomy asked members to ensure that their organisations sent in their own formal written submissions in response to the call.

5.12 The wording of the Call for Written Submissions, which will be published on Wednesday May 22, 2013 alongside the accepted remit, was also discussed. A minor amendment to the final paragraph of the draft, replacing 'is comfortable that...' with 'will welcome', was agreed. Ensuring it was clear that the submissions be in writing was also agreed. The opening of the call was also to be amended in the light of earlier revisions to the remit wording.

5.13 Decision Point: the wording of Call for Written Submissions was agreed subject to the above discussed amendments and is attached at Annex B.

INFANT CREMATION COMMISSION REPORT ANNEX S

5.16 Action Point: to publish the agreed Call for Submissions on the SG website on **Wednesday May 22, 2013.**

5.17 Action Point: members to ensure their organisations send their own written submission to the cremationcommission@scotland.gsi.gov.uk mailbox by **July 19, 2013.**

5 Open Meeting

5.18 It was agreed the possibility of holding an open meeting for affected parents and relatives would be considered further at the next meeting.

5.19 Action Point: this will be an agenda item for May 28, 2013 meeting.

6. Any Other Business

6.1 Action Point: The link to the SG news release and dedicated webpage will be issued to all members once available on May 22, 2013.

7. Dates of Future Meetings

7.1 The next meeting will be held on May 28, 2013, 2pm to 5 pm.

7.2 Possible next meeting dates of June 18 or 26 and also August 20, 2013 have been very tentatively identified.

INFANT CREMATION COMMISSION REPORT ANNEX S

Infant Cremation Commission Minute of Meeting 2 – May 28, 2013

Attendees:

The Rt Hon Lord Bonomy (Chair)
John Birrell
James Blackburn
Gareth Brown
Ian Kearns
Helena McLaren
Ann McMurray
Dr Mini Mishra
Tim Morris
Gillian Morton
Rick Powell
Garrick Smyth

Apologies:

Gavin Stevenson

1. Welcome and Introductions

1.1 Lord Bonomy welcomed members to the second meeting of the Infant Cremation Commission. Lord Bonomy noted that the first meeting of the Commission had been fruitful and provided a clear focus for progress.

2. Minutes

2.1 Decision Point: The minute of the first meeting was agreed with no changes and will be published at the completion of the Commission's work.

3. Matters Arising

3.1 The Commission discussed the publication of the remit and call for written submissions and the resulting press attention. The Commission noted that some local groups and charities were unhappy not to be invited as members of the Commission but the Commission is clear that it must maintain a national perspective and, in accordance with its remit, cannot investigate specific incidents. The perspectives of individuals and organisations, in addition to the views provided by Commission members, will be useful and will be secured through the invitation for submissions.

3.2 Decision Point: The views of local groups and charities across the country are welcome but best considered in the form of a written submission.

3.3 Decision Point: Although the remit was amended prior to being accepted at the first meeting on May 21, 2013, the Commission agreed that there will be no change to the formal name of the commission, which will remain 'Infant Cremation Commission'.

4. Open Meeting

4.1 The idea of holding an open meeting with parents was discussed at length. It was generally felt, however, that such a meeting might not meet the needs of all parents as effectively as the existing option to make a submission privately in writing, given the personal and sensitive nature of the issues involved.

4.2 Decision Point: The Commission agreed that there would not be an open meeting at this stage, though it may be considered again at a later stage of the process.

4.3. The views of those most directly affected will be captured via the call for written submissions.

4.4 Decision Point: The Commission agreed that it was entirely appropriate for members to feed into discussion any issues raised personally with them by bereaved families or other members of the public.

5. Local Investigations

5.1 Lord Bonomy reminded members of the concerns from the first meeting that issuing guidance on local investigations may in fact prompt investigations to be launched which otherwise wouldn't be required, but on balance it was agreed that guidance would be beneficial. The Commission discussed and refined the wording of the guidance to ensure its purpose was clear, and to address other issues raised by the Commission members.

5.2 Decision Point: The Commission agreed the wording of the guidance for local investigations subject to revisal in light of para 5.4.

5.4 Action Point: **Gavin Stevenson** to circulate a revised draft of the guidance to local authority Chief Executives for comment prior to publication.

5.5 Action Point: **Commission Secretariat** to circulate a revised draft of the guidance to Commission members for final comments prior to publication. The finalised guidance will then be published on the Scottish Government website as well as circulated to all Cremation Authorities.

6. Questions for Crematoria

6.1 Lord Bonomy offered his thanks to Tim Morris and Rick Powell for compiling the questionnaire for crematoria which was tabled as a paper on the day.

6.2. The Commission discussed and agreed amendments to the questions to ensure terminology, language and definitions were accurate including how crematoria would interpret 'baby' or 'infant' within the questions.

6.3 Action Point: **Commission Secretariat** to amend the questionnaire based on the discussion and circulate to members for any further comment prior to issue.

INFANT CREMATION COMMISSION REPORT ANNEX S

6.4 Action Point: Commission Secretariat to issue the questionnaire to Local Authority Chief Executives and Managing Directors of private crematoria, once signed off by the Commission as per Action Point 6.3, with a request for responses within one month of date of issue.

7. Update on Information Received Following Last Meeting

7.1 Lord Bonomy thanked the Commission members for providing the information requested at the previous meeting and looked forward to receiving the remainder of the requested information as soon as was possible.

7.2 Action Point: Those members still to submit previously requested information to do so as soon as is possible.

8. Any Other Business

8.1 The group discussed a draft of proposed additional guidance for those considering making written submissions, particularly in relation to reassuring the public as to how sensitive and personal information would be handled.

8.2 Decision Point: The Commission agreed that responses to the call for written submissions will not be actively published, although an anonymised analysis of key themes would be published in due course.

8.3 Decision Point: The guidance on written submission will make clear that there is no expectation that any personal or sensitive information will be released in the event of any requests made to Scottish Government under the Freedom of Information (Scotland) Act 2002 or the Data Protection Act 1998.

8.4 Action Point: Commission Secretariat to make the required amendments and issue to the Commission for any further comment prior to publication on the Scottish Government website.

9. Dates of Future Meetings

9.1 The next meeting of the Commission will take place on **August 20, 2013 from 2pm – 5pm**

9.2 Decision Point: Lord Bonomy indicated that a major source of material for the commission's work would be the wealth of experience and knowledge possessed by Commission members and indicated that he wished to meet with each member of the Commission individually over the period of the next month to expand his own understanding of the issues involved and explore their ideas for the improvement of current policies, practice, guidance and legislation.

9.3 Action Point: Commission Secretariat to make the required arrangements for individual meetings on **June 13, 17, 18 and 21, 2013**, and notify each Commission member of the time of their meeting.

INFANT CREMATION COMMISSION REPORT ANNEX S

Infant Cremation Commission Minute of Meeting 3 – August 20, 2013

Attendees:

The Rt Hon Lord Bonomy (Chair)
John Birrell
James Blackburn
Gareth Brown
Ian Kearns
Helena MacLaren
Ann McMurray
Dr Mini Mishra
Tim Morris
Gillian Morton
Rick Powell

Apologies:

Gavin Stevenson
Garrick Smyth

1. Welcome and Introductions

1.1 Lord Bonomy welcomed members to the third meeting of the Infant Cremation Commission. Lord Bonomy noted he was grateful for the effort and dedication of all Commission members.

2. Minutes

2.1 Decision Point: The minute of the second meeting had previously been agreed by members with no changes and had been published on the Commission webpage.

3. Matters Arising

3.1 It was agreed that all matters arising were covered by the agenda.

4. Update Paper (Paper 1)

4.1 The paper updated the Commission on matters of interest and progress made since the last meeting.

4.2 Lord Bonomy highlighted to members the request made by parents to join the membership of the Commission, and his subsequent decision to not change membership. Lord Bonomy confirmed that, following the input from Commission members and the opportunity to further reflect on this issue, he is confident that the right decision has been made. Lord Bonomy reiterated his belief that the Commission members were best placed to provide the expertise required to enable the Commission to deliver on its remit. He also made the Commission members aware of his commitment to share the Commission's draft report with bereaved

INFANT CREMATION COMMISSION REPORT ANNEX S

parents for comment prior to publication. Members indicated they were content with this commitment.

5. Update for Website

5.1 Commission members were provided with a draft update for publication on the Commission's web pages.

5.2 Action Point: Commission members are asked to contact the Commission Secretariat within the week with any comments on the draft update.

6. Submissions Analysis (Paper 2)

6.1 Commission members had received a paper prepared by the Commission Secretary which provided an anonymised summary of the submissions the Commission had received. Lord Bonomy noted that the analysis indicated a fair degree of consensus amongst respondents' views on the areas for improvement. The Commission noted that the majority of submissions agreed that parents should be offered whatever is left following the cremation of their baby if they wish, and that good quality communication with parents was paramount.

6.2 The Commission discussed the guidance provided by the two industry bodies, the Institute of Cemetery and Crematoria Management (ICCM) and the Federation of Burial and Cremation Authorities (FBCA) and the technical processes involved in the cremation of infants in contrast to the cremation of adults.

6.3 Commission members agreed that bereaved parents should be given time to consider their options in relation to cremation or burial of their child, without the pressure to make a decision quickly. There was concern that bereaved parents might be 'falling through the net' as a result of lack of continuity of care, after leaving hospital. However it was recognised that there are often external pressures that cause parents to make decisions as quickly as possible, such as family or social pressure to have a quick funeral.

6.4 Commission members recognised that while not all parents want detailed information about the process of infant cremation all staff, across each partner organisation, should be able to provide full, clear and consistent information to the parents who do. All parents should have the opportunity and the ability to access information if they want it. It was highlighted that all professional partners should be clear on their role in the process.

6.5 Decision Point: The Commission agree that there is a need for standardisation across professional guidance to ensure consistent advice and information is given to staff and parents.

6.6 Action Point: Commission Secretariat to circulate ICCM and FBCA guidance to Commission members for information.

6.7 Commission members considered the differences in legislation and guidance regarding foetuses, still births and infants, including eg the current requirements of

INFANT CREMATION COMMISSION REPORT ANNEX S

Waste Management Regulations. The detail and retention of records was also discussed. These issues will all be relevant to the Commissions conclusions and recommendations.

6.8 Decision Point: Commission members agree that crematoria should keep a record of all cremations. The non-statutory register, where the cremation of pre – 24 week fetuses are recorded, should be standardised and made statutory.

6.9 Commission members discussed the impact of CMO guidance on the sensitive disposal of pregnancy loss up to and including 23 weeks and 6 days, issued in 2012. The Scottish Government is currently conducting an audit on the implementation of this guidance across NHS Boards.

6.10 Commission members considered the contract arrangements in place between hospitals and selected funeral directors. The Commission discussed the impact on, and the benefits for, bereaved parents, as well as problems associated with, these sorts of arrangements by the NHS.

6.11 The Commission discussed the potential value of a national memorial for those affected by this issue. Such a memorial could provide a place for bereaved parents to grieve and remember their child. Members supported this idea but also saw benefits in local memorials which would provide more accessible focal points for parents and relatives.

7. Crematoria Questionnaire Analysis (Paper 3)

7.1 The Commission considered changes in cremator technology and techniques, Scottish Environmental Protection Agency (SEPA) requirements, training schemes and the legal requirements crematoria must meet in order to be able to operate.

7.2 The Commission discussed concerns regarding the accuracy of the information received from crematoria. Lord Bonomy noted his intention to review responses critically and to investigate further any anomalies or concerns. It was agreed that as a first step the FBCA and the ICCM would consider the responses in detail and provide views to Lord Bonomy.

7.3 Action Point: Commission Secretariat to send questionnaire responses to Rick Powell and Tim Morris for consideration. Rick Powell and Tim Morris to return comments to Lord Bonomy by early September

7.4 Lord Bonomy made Commission members aware that he would be meeting with Dame Elish Angiolini of the Mortonhall Investigation immediately following the Commission meeting.

8. Dates of Future Meetings

8.1 The next meeting of the Commission will take place on **29 October 2013 at 10.30 am in Glasgow**. Commission Secretariat will announce the venue as soon as possible.

Infant Cremation Commission
Minute of Meeting 4 – 6 November 2013

Attendees:

The Rt Hon Lord Bonomy (Chair)
John Birrell
James Blackburn
Gareth Brown
Helena MacLaren
Ann McMurray
Dr Mini Mishra
Tim Morris
Gillian Morton
Rick Powell
Gavin Stevenson
Garrick Smyth
Norman Dowie

Apologies:

Ian Kearns

1. Welcome and Introductions

1.1 Lord Bonomy welcomed members to the fourth meeting of the Infant Cremation Commission, and introduced Commission members to Norman Dowie, a retired Deputy Principal Clerk of Justiciary in the High Court in Edinburgh. Lord Bonomy outlined Norman's role as including further investigation of cremators and cremation techniques employed by crematoria; current electronic record keeping and reviewing statements for consistency. He also reported Norman would be attending his meetings with Glasgow and Aberdeen City Councils.

2. Minutes and Matters Arising – Paper 1

2.1 ***Decision / Action Point:*** The minute of the third meeting was agreed with no changes and will be published on the Commission webpages. There were no matters arising.

3. Update on Progress – Paper 2

3.1 Lord Bonomy updated the Commission on a meeting held with ICCM and FBCA members on 24 October 2013. Lord Bonomy noted unanimous support from those in attendance that the Commission finds a clear and workable definition of the word 'ashes'. A similar meeting with members of the NAFD has also been arranged. Lord Bonomy also updated members on his meeting with Dame Elish and reiterated his intention to share a draft of the report with parents.

INFANT CREMATION COMMISSION REPORT ANNEX S

4. Report Chapter 1 Draft – Paper 3

4.1 Lord Bonomy sought opinions from Commission members on the first draft of the introductory chapter one of the report setting out the background. A number of minor amendments and changes to terminology were discussed, as was including and verifying different statistical information and facts.

4.2 Decision Point: Lord Bonomy will take these views into account as drafting of the report proceeds.

4.3 Gavin Stevenson indicated that the willingness and support of Commission members towards this work should be conveyed within the first chapter of the report.

4.4 Lord Bonomy noted that only 4 of the submissions received from affected parents related to cremations within the last 5 years and also that some cremation authorities have made changes to their practice over that period. He indicated that these were factors that should be acknowledged within the report.

4.5 Lord Bonomy confirmed his current intention to refer to the development of the cremation process within the report. John Birrell suggested Edinburgh academic, the Reverend Peter Jupp, as a possible source for this information.

4.6 Action Point: Secretariat to follow up with John Birrell regarding sources of information.

4.7 Lord Bonomy revisited the suggestion of whether the report should include discussion of a possible national memorial. Members agreed that a national memorial would have significance and status. However there were differing views as to its purpose ie would this be a memorial for all who had lost a child, which might be seen as beyond the remit of the Commission.

4.9 Decision Point: Members agreed that that a national memorial could be explored within the report.

4.10 Members discussed how the report might best acknowledge the distress and pain experienced by affected parents and families, without apportioning blame unfairly e.g. where some practices in the past were consistent with attitudes at that time, even if they were now viewed as unacceptable. Lord Bonomy noted that the findings of the Mortonhall Investigation will have a bearing on this, and therefore on the Commission's report.

4.11 Decision Point: Members agreed that recognition and acknowledgement as well as discussion of a national memorial should feature in the report.

4.12 Action Point: Helena MacLaren and Ann McMurray to develop a draft expression of recognition and acknowledgement for possible inclusion in the report.

4.13 Action Point: John Birrell to identify existing memorials and memorial services and advise on examples of best practice.

4.14 Action Point: Secretariat to review submissions to identify whether and how many parents believed they were deliberately misled by the cremation authority, funeral director, NHS or these groups in any combination.

5. Issues for Discussion (Paper 4)

5.1 Lord Bonomy identified a need for a clear set of guiding principles and reflected on the use of legal language to ensure clarity and consistency. He requested views from the group as the sorts of terms that would be useful to include within any such guiding principles.

5.2 Suggestions and points raised included: that the guiding principles should focus on the needs of those left behind and that any core principles should contribute to the way people construct guidance or process in the future and that therefore the inclusion of empathy was important. Other specific terms discussed included respect, dignity, openness, honesty, transparency and responsiveness (to take account of individual needs).

5.3 A concern was raised that guiding principles predicated on parents being in distress about the loss of a child would require to have regard for the wide variety of different situations that parents may be in. Wording would therefore need to accommodate the different choices, situations and sensitivities involved.

5.4 A further concern discussed at length by members was whether such guiding principles should or could be applied consistently across the country and across the various sectors involved. It was noted that there were existing precedents and mechanisms for this which could be utilised later on if required, and that this need not affect any recommendation made by the Commission.

5.5 Lord Bonomy updated the group in the progress being made in obtaining the opinion of Counsel on the interpretation of regulation 17 of the 1935 cremation regulations and advised of his intention to contact the Vice - Dean of the Faculty of Advocates. He stressed the need to define 'ashes' in a way which would meet both public and professional requirements and asked if the group agreed a suggested definition of ashes as being 'what has been left following the conclusion of the cremation process'.

5.6 Whilst no one dissented from this definition, discussion followed immediately as to whether the 'conclusion' of the cremation process also required to be clarified. A suggestion offered was not to use the phrase 'after the last flicker of flame expires' as this may not be applicable. Another point raised was that the definition could be supplemented with 'which may or may not contain human remains'. Lord Bonomy considered that some further advice may be required on these matters and additionally noted that expert reports, commissioned by Dame Elish, were expected in due course regarding the effect of the cremation process on the human body.

5.7 Members discussed how to explain the content of ashes to the public and sought to find a positive message whilst maintaining factual honesty. Lord Bonomy noted that from discussions with crematoria it is clear that in some cases it is

INFANT CREMATION COMMISSION REPORT ANNEX S

possible that nothing at all is left in the cremator. There was consensus that whilst parents clearly want whatever is left following the cremation process, regardless of what that may be, their initial decision on whether to opt for cremation or burial must be an informed one.

5.8 It was noted that although the Scottish Government CMO pregnancy loss guidance contains no reference to the availability or otherwise of ashes, it already accepted that a minor revision to an annex within the guidance was required. This annex includes the statement that individual ashes cannot be provided due to an absence of formed bone, when in fact individual ashes cannot be provided because these are collective cremations. Lord Bonomy noted a preference for the term 'shared' rather than 'collective' cremation; however there was no consensus on this amongst Commission members.

5.9 It was additionally confirmed that SEPA had previously advised it was content with arrangements under the 2012 CMO Guidance on the Disposal of Pregnancy Loss, provided the terminology 'disposal at a crematorium' was officially used, rather than 'cremation'. It was noted that, the Commission could recommend that Scottish Government liaise with SEPA on the use of language if it felt this was appropriate.

5.10 Action Point: Lord Bonomy to request a copy of crematoria permit / license from Ian Kearns.

5.11 The meeting moved on to discuss records and record keeping and whether a statutory register for Non viable fetal (NVF) cremations, as agreed in principle previously by the Commission, would conflict with the current arrangements for collective cremation of NVFs, whereby the main record (the mother's relevant medical record) is retained by the health board and a unique reference number only is retained by the cremation authority, which does not have access to the identity of the parent.

5.12 Mini Mishra and Gillian Morton both highlighted the critical importance of maintaining anonymity and patient confidentiality. It was confirmed that the crematorium record would be kept indefinitely and the health board records are now retained for a minimum of thirty years, with fifty years recommended as best practice.

6. Cremation Forms (Paper 5 + Annex of Forms)

6.1 Lord Bonomy indicated that assistance in improving current forms may be found in the style and content of cremation forms used in England and Wales, and suggested that all forms including the stillbirth form should be revised and supplemented. It was highlighted that some changes to these will be made under the new death certification system, due to be implemented in 2015.

6.2 Members also discussed the issue of recording information electronically, James Blackburn confirmed that this is not currently common practice with funeral directors. Lord Bonomy highlighted the benefits of being able to retain and access records more easily, but also recognised that until appropriate systems for electronic

INFANT CREMATION COMMISSION REPORT ANNEX S

signatures are developed, hard copy application forms must continue in use. Gareth Brown acknowledged the benefits of electronic storage as this would mean that all records, not just the register, could be retained for an indefinite period of time.

7. Note of Meeting 1 October 2013 (Paper 6)

7.1 Members had no comments on the minute of the sub meeting of 1 October 2013, to discuss submissions.

8. Next Steps

8.1 Action Point: Lord Bonomy proposed producing a brief update on timescales, following an update from the Mortonhall Investigations Team, to be shared with the Minister for Public Health.

9. Next Meeting Date

9.1 Lord Bonomy decided that the next meeting date should not be set yet as work will be underway to produce a draft report and exchanges can take place via email in the interim.

INFANT CREMATION COMMISSION REPORT ANNEX S

Infant Cremation Commission Minute of Meeting 5 – 21 March 2014

Attendees:

The Rt Hon Lord Bonomy (Chair)
John Birrell
Paul Cuthell (Deputising for James Blackburn)
Ian Kearns
Helena MacLaren
Ann McMurray
Dr Mini Mishra
Tim Morris
Rick Powell
Gavin Stevenson
Garrick Smyth
Norman Dowie

Apologies:

James Blackburn
Gareth Brown
Gillian Morton

1. Welcome and Introductions

1.1 Lord Bonomy welcomed members to the fifth meeting of the Infant Cremation Commission, particularly Paul Cuthell, who deputised for James Blackburn. Apologies were noted from James Blackburn, Gareth Brown and Gillian Morton.

2. Minutes and Matters Arising – Paper 1

2.1 Decision / Action Point: The minute of the fourth meeting was agreed with no changes and will be published on the Commission webpages. Some sensitivities were noted regarding the timing of publishing the minutes, therefore it was agreed secretariat would reflect and publish at an appropriate time. There were no matters arising.

3. Update

3.1 Lord Bonomy offered his apologies to the group for cancelling the last agreed meeting date and rescheduling Meeting 5 at short notice.

3.2 He made the Commission aware of the delay to the Mortonhall Investigation Report and made clear this was due to information uncovered by the investigation requiring further enquiry. It is clear that the Commission cannot complete its report until it has had the opportunity to consider the findings and conclusions sight of the Mortonhall report.

INFANT CREMATION COMMISSION REPORT ANNEX S

3.3 Lord Bonomy noted that the structure of the Commission's report is now beginning to take shape but highlighted his awareness of the existence of factual errors and terminology issues at this early drafting stage. It was noted that the Commission must be mindful of its remit when drafting the report, however, Commission members were encouraged to share their views about the structure and the content of the report in a frank and open manner.

4. Language and Terminology

4.1 The Commission discussed Lord Bonomy's preference for the term 'shared cremation' rather than 'collective cremation' which was in the 2012 CMO Guidance. John Birrell noted that the term 'collective' is used in the 2012 CMO guidance to describe the process to be carried out by the hospital. It was noted that whilst consistency is critical, the CMO Guidance is for healthcare professionals not parents .

4.2 Decision / Action Point: Lord Bonomy concluded that the report narrative should at least in the interim refer to 'collective or shared cremation'. The report could, if necessary, explain that the majority of the Commission preferred 'shared' but recognised the use of the word 'collective' to describe the NHS process.

Secretariat

4.3 The Commission had a short discussion regarding terminology including 'pregnancy loss', 'Non-Viable Fetus' and 'Pre-Viable Baby', on which there was no clear consensus. It was proposed that there may need to be a glossary within the report in order to ensure language and terminology is fully explained.

4.4 Commission members provided initial feedback on the draft report, which was generally positive. Some concern was, however, expressed at the quantity of complex legal language, particularly in the 'Introduction' section, which could be a barrier for the report's general audience.

4.5 Decision / Action Point: It was agreed that an executive summary should be included at the start of the report. This should be concise and cover all the key points. It was also agreed that there would be a collated list of recommendations included in the report.

4.6 Lord Bonomy noted a number of environmental issues which are being followed up with SEPA relating to abatement legislation and the current practice in crematoria.

4.7 Lord Bonomy noted that, during the work of the group in the last year, practice in some areas has already changed for the better, which should be highlighted in the report.

4.8 There was a short technical discussion with some Commission members regarding the use of infant cremators.

4.9 Lord Bonomy noted Health Boards had very different experiences when implementing the 2012 CMO guidance. He suggested there should be an opportunity

INFANT CREMATION COMMISSION REPORT ANNEX S

for Health Boards to learn from one another. Multi-disciplinary groups involved in education and training were also highlighted a potential good practice.

5. Draft Report Sections 1 – 8

5.1 The group discussed the content and detail of the report.

5.2 There was some discussion around inspections currently carried out by SEPA, the ICCM, FBCA and NAFD. It was noted that Funeral Directors do not have to be members of any association and are able to operate without any form of licence. It was confirmed that in cremation authorities only crematorium technicians require to have a prescribed qualification.

5.3 The group noted that the 2012 CMO guidance was put in place following Sherriff Brodie's review in 2010. Sherriff Brodie's group were very clear that they were not content with the existing arrangements and that guidance should be reviewed.

5.4 Action Point: Sherriff Brodie's Report should be checked to ensure the wording in the report, and subsequent consultation, are accurately represented.

Secretariat

5.5 The Commission had further discussion around the terminology of 'ashes' and 'cremated remains'.

5.6 Decision Point: The Commission agreed that transparency is necessary, and parents should be completely clear on what has happened to their baby. Therefore, Commission members agreed the phrase 'It is not possible to say to what extent these ashes contain the remains of the baby' The Commission did not reach a conclusion as to whether the words 'if any' should be added to this statement.

5.7 Decision Point: It was unanimously agreed by attendees that parents should receive everything that is left in the cremator following cremation.

5.8 It was noted that each cremation authority makes its own decision regarding carrying out collective cremation or not.

5.9 **Action Point:** ICCM and FBCA to set out historical and current position on the collective cremation of NVF in the crematoria in Scotland. This should include a letter sent by the FBCA to members in August 2001. ***Tim Morris and Rick Powell***

5.10 It was noted that if the Commission were to recommend that all Health Boards should offer hospital arranged individual cremations, the Commission should be mindful of the cost implications for Boards.

5.11 Action Point: Collate information on which hospitals currently offer individual cremation and what the cost implications are. ***Secretariat***

INFANT CREMATION COMMISSION REPORT ANNEX S

5.12 The Commission discussed in-house training and technical training in detail. These discussions included the potential for revising or amending the training documents used by the ICCM and the FBCA. It was proposed that training on compassion and communication may also be appropriate for inclusion in training documentation for technical staff, as most staff have interchangeable roles. It was noted that some Cremation Authorities already share good practice, share training opportunities where possible and benchmark against one another.

5.13 It was noted that any statutory register for NVFs should number each NVF separately. This information should be kept separately from the cremation register as this is linked to national statistics. The information required on a NVF register will also be different from that required by the cremation register.

5.14 Action Point: Draft a form to show what should be on a statutory register of cremation for NVF. **Secretariat**

5.15 Action Point: The Commission discussed the applicant for the registration of a birth or death where the mother and/or father is under 16. National Records of Scotland should be contacted for further advice. **Secretariat**

5.16 Decision / Action Point: The Commission agreed that, on draft forms, the statement of truth could be brought forward to ensure parents read the complete form, and are not merely handed the back page to sign, or wording should be changed so the individual is aware they are signing to confirm the accuracy of the preceding 5 pages. Forms to be amended and recirculated ahead of the next meeting. **Secretariat**

5.17 Lord Bonomy noted that in order for a statutory register of NVFs to have credence it would be necessary for some sort of confirmation that in each case the fetus was below 24 weeks and showed no signs of life. It was noted that if doctors were requested to provide formal certification for the purposes of cremation, there could be a cost to parents as this would fall outwith the services provided by the NHS.

5.18 Action Point: The Commission discussed the issue of a memorial. Submissions should be reviewed to ascertain the views of parents, or others, regarding memorials. **Secretariat**

5.19 Action Point: The Commission noted annual International baby loss day on 15 October, and a new initiative called 'To Absent Friends' **John Birrell** to provide further information on 'To Absent Friends'.

6. Next Meeting

6.1 Decision / Action Point: Next meeting to be early to mid-April. Availability to be provided. **Secretariat**

INFANT CREMATION COMMISSION REPORT ANNEX S

Infant Cremation Commission Minute of Meeting 6 – 9 May 2014

Attendees:

The Rt Hon Lord Bonomy (Chair)
John Birrell
James Blackburn
Gareth Brown
Ian Kearns
Helena MacLaren
Ann McMurray
Dr Mini Mishra
Gillian Morton
Tim Morris
Rick Powell
Garrick Smyth
Norman Dowie

Apologies:

Gavin Stevenson

1. Welcome and Introductions

1.1 Lord Bonomy welcomed the Commission members and noted the publication of the Mortonhall Investigation Report (MIR) on 30 April 2014.

2. Minutes and Matters Arising – Paper 1

2.1 Decision / Action Point: The minute of the fifth meeting was agreed with no changes and will be published on the Commission webpages. It was agreed that the minutes would not be published until after the publication of the report to avoid any confusion.

2.2 Lord Bonomy noted again his intention to share the report with parents prior to publication and highlighted that he would be requesting the report be treated confidentially, however, the logistics of this were still to be finalised.

3. Points Arising from Mortonhall Investigation Report (MIR)

3.1 Lord Bonomy noted that the ICCM and FBCA had provided their response to the MIR, this has been circulated to Commission members. He then invited comments from Commission members on the MIR findings and recommendations.

3.2 Some concern was expressed as to how those working in bereavement services would react to some aspects of the MIR, because it is possible to infer from its wording that these staff were providing advice to the bereaved that was based solely on received wisdom and which did not give due regard to the feelings of the

INFANT CREMATION COMMISSION REPORT ANNEX S

bereaved, which was not the case for the vast majority of dedicated people working and volunteering in this area.

3.3 Lord Bonomy noted that Seafield crematorium was highlighted in the MIR as using best practice when carrying out infant cremations. However it should be noted that they carry out low numbers of infant cremations.

3.4 The Commission discussed the MIR recommendation on national research. The Commission considered this to mean commissioning an independent piece of research to ascertain the best way to maximise retrieval of ashes. However it was agreed that this may not add much more to current understanding. The Commission considered that a better approach may be to ensure industry colleagues form a working group to agree best practice guidelines.

3.5 It was suggested that any working group should report in to Scottish Government and should incorporate the view of bereaved parents. The group should also include cremator manufacturers and representatives from SEPA.

3.6 Lord Bonomy noted that he had received positive feedback from SEPA and highlighted that their interest is purely from an environmental perspective.

3.7 Lord Bonomy noted that in regard to shared cremation it was his understanding that some Health Boards retained non-viable babies for extended periods before sending for cremation. The Commission agreed that this was unacceptable. It was noted that some crematoria designate a specific day each week or month to carry out shared cremations.

3.8 Lord Bonomy raised an ethical question regarding overnight cremations and it was recognised that some parents don't like the thought of their baby being left alone in the dark. However it was understood that if this was the way to ensure there would be ashes then parents were likely to accept the process, provided it is carried out with dignity and respect.

3.9 Lord Bonomy noted that the baby cremator is now in place in Mortonhall and that SEPA have been informed. It is understood that Mortonhall will set out exactly how they will proceed which will be shared with Lord Bonomy.

3.10 Action point – Clarify how many hospitals offer individual cremations and who incurs the cost – Secretariat / Gillian Morton

3.11 James Blackburn noted that the NAFD are currently reviewing their professional code of practice and would be looking to improve their guidance on infant cremations. It was also noted that 10% of funeral directors in Scotland do not belong to any professional body at all.

3.12 The Commission considered that an overarching code of practice (to cover healthcare providers, the funeral industry and all Cremation Authorities) could include a flow chart to highlight the points at which the organisations should be talking to one another. The Commission also considered that interactive training for

INFANT CREMATION COMMISSION REPORT ANNEX S

all, possibly developed by NHS Education Scotland, could be made available on a webportal.

3.13 It was acknowledged that parents are already having to discuss difficult questions regarding post mortems and that, for many parents, making the funeral arrangements is part of the process of coming to terms with the death.

3.14 Action point – Draft an outline on the proposed overarching group to identify a code of practice, best practice etc. _ Secretariat

3.15 The Commission discussed whether or not non-viable babies should be classed as the mother's tissue / body part and it was agreed that this required further thought.

3.16 Lord Bonomy discussed the role of SEPA and the potential to allow for overnight cremations. He noted this was a complex area and will require further work.

3.17 The Commission noted the recommendations on page 530 of the MIR and discussed body parts and tissues noting an understanding that tissues on slides could be kept without authorisation.

3.18 Seek view from SG LD on the recommendations contained on page 530 of the MIR relating to body parts – Gareth Brown

3.19 The Commission discussed the registration of the cremation of non-viable babies, noting that this could only practically involve those situations where the mother presented at a hospital (or GP), and where they would therefore be able to obtain medical confirmation that the non-viable baby showed no signs of life. It was discussed whether a doctor or midwife would have to be present at the point of miscarriage in order to provide confirmation, and the possible implications of this for Health Boards.

3.20 Action Point – Draft of the proposed register for the cremation of NVFs to be shared with group – Secretariat

3.21 The Commission discussed the recommendation in the MIR that representative bodies review their policies and practices. Rick Powell noted that the FBCA Executive Committee met the day following the publication of the MIR. The Executive Committee agreed to wait until after the Commission has reported, then the Technical Committee will carry out a review based on the recommendations offered by the Commission. Tim Morris noted that the ICCM have already begun a review of their policies and procedures including a draft Unit for technicians, however, the ICCM intends to wait until the Commission reports before releasing any new or revised documents. Rick Powell also noted that the FBCA have met with Edinburgh City Council in order to move forward with joint working. This is likely to include support from the ICCM, though it is noted the ICCM have not yet been contacted by the council. Rick Powell highlighted that Edinburgh City Council have indicated an intention to review their operational procedures in order to maximise the

INFANT CREMATION COMMISSION REPORT ANNEX S

recovery of ashes. It was noted that to date the FBCA and ICCM have not had any discussions outwith Commission meetings.

3.22 Tim Morris noted that irrespective of membership every crematorium technician is required by law to be appropriately qualified before they work unsupervised. Some operate with just the manufacturer training but the ICCM's training programme is much broader than this.

3.23 After discussion the Commission members agreed that all guidance should flow from one central source to ensure consistency. This could be a single set of guidelines that all partners sign up to. Lord Bonomy noted the possibility of a recommendation that both organisations (ICCM and FBCA) to apply the same guidance.

3.24 The possibility of an Inspector of Crematoria was also discussed and it was noted that the ICCM has recommended this in the past. Any Inspector could broadly be expected to ensure the standards set by the code of practice are met, carry out random inspections across the country and provide a commentary on crematoria meeting standards. Lord Bonomy noted that the service provided by crematoria is in effect a public service that it may be appropriate to regulate. However he considered that the Commission did not have the scope to say whether it should be regulated.

3.25 The Commission discussed the balance to be struck between transparency and sensitivity when discussing the recovery of ashes with parents and if parents should be informed that any ashes recovered may or may not be predominantly coffin ash. Some Commission members felt that as it is not explained following an adult cremation that some of the ash would be coffin ash it was not necessary to clarify the point for infant cremations. However others highlighted that the difference was that in the case of infants it was possible the ash could be comprised purely of coffin ash and therefore it was important to be clear with parents to enable them to make informed decisions.

3.26 Decision point - Consensus was reached that parents should be provided with full information regarding the make-up of ashes, however this should be done using sensitive and appropriate language.

3.27 The Commission also noted the use of a ceramic disc as carried out by some crematoria in England.

3.28 The Commission discussed the recovery of any metals following cremation. Tim Morris noted that the environment agency state metals are classed as ashes until they are removed at which point they should be disposed of or recycled, approximately 20% of crematoria in Scotland recycle. Every family is asked for their consent prior to any recycling taking place. It was noted that future medical advancements could mean that this would be a relevant consideration in the cremation of infants.

3.29 The Commission discussed the fact crematoria currently carry out infant cremations for free. It was suggested that if it were made clear overnight cremations

INFANT CREMATION COMMISSION REPORT ANNEX S

were not permitted to take place then some cremation authorities may need to recover costs.

3.30 The Commission discussed the conversation hospital staff are required to have with parents regarding the potential burial and cremation options and the importance of ensuring that these options are fully discussed and understood.

3.31 It was noted that the draft report suggested a formal contract be in place between Health Boards, funeral directors and crematoria. It was acknowledged that the ICCM already provides some guidance on the terms that should be included in these contracts. The suggestion of a template for these contracts was welcomed, however it was also noted that some cremation authorities may be uncomfortable with this and fear a potential increase in the number of cremations they are asked to carry out.

3.32 Decision point - The qualifications of crematoria management staff was discussed. It was agreed that crematoria managers should hold a technician qualification, this was agreed as best practice but not mandatory. The Manager would be described as the individual with responsibility for the day to day running of the crematoria. It was also recognised that the ICCM offer a manager qualification which highlights the cremation process.

3.33 Decision point – It was agreed that the CMO guidance on the disposal of pregnancy loss up to and including 23 weeks and 6 days should remain as guidance and should not be made statutory. This was agreed as compliance had been achieved without legislation and to more easily allow for any amendments in the future.

3.34 It is noted that there is no current legal requirement for crematoria to be members of a trade body though this could be recommended for the future. It is noted that currently only 1 crematorium in Scotland, Friockheim in Angus, is neither a member of the FBCA nor a member of the ICCM.

3.35 The Commission discussed the recording of information and it was noted that in the case of shared cremation each non-viable baby is recorded individually.

3.36 The issue of unclaimed ashes was raised and discussed. It was noted that currently funeral directors are not able to return ashes to crematoria for dispersal without signature authorisation from the original applicant, this has caused issues where the original applicant cannot be contacted. It was acknowledged that the retention of ashes would be encompassed in the pending broad burial and cremations legislation.

3.37 Further training for crematoria staff to enable them to better explain ashes composition following cremation was proposed with the intention that this further knowledge would encourage a more educated, responsible and caring approach. However it was noted that parents should receive everything regardless of content.

4. Draft Commission Report / Meeting with Parents

INFANT CREMATION COMMISSION REPORT ANNEX S

4.1 Lord Bonomy noted his intention to complete the report by the end of May. He noted that comments would be sought from Commission members on the draft during the week of 12 May 2014 and asked that members devote as much time as possible to this.

5. Next Meeting

5.1 The next meeting was agreed for 22 May 2014 with the final meeting of the Commission on 28 May 2014.

INFANT CREMATION COMMISSION REPORT ANNEX S

Infant Cremation Commission Minute of Meeting 7 – 22 May 2014

Attendees:

The Rt Hon Lord Bonomy (Chair)
John Birrell
James Blackburn
Gareth Brown
Ian Kearns
Helena MacLaren
Ann McMurray
Dr Mini Mishra
Tim Morris (*by telephone*)
Rick Powell (*by telephone*)
Gavin Stevenson (*by telephone*)
Norman Dowie
Sarah Dillon (secretariat)
Alison Kerr (secretariat)

Apologies

Gillian Morton
Garrick Smyth

1. Welcome and Introductions

1.1 Lord Bonomy welcomed everyone to the meeting, and thanked them for finding the time to attend at such notice. He also advised that although originally scheduled as a one hour meeting, there were a number of matters to discuss and it was likely more time would be needed.

2. Issues for Discussion

2.1 The Commission discussed the 23 matters which had been circulated for views and comment. Key points discussed and / or agreed included the following.

2.2 It was agreed that: applications for the cremation of babies up to the age of 6 months would continue to be encompassed within the standard (but revised) Form A; that the definition of ashes should include reference to the fact that this excluded any metal; that parents' views would be sought on 'overnight' / residual heat cremation, given that this is the best means to recover ashes; that recommending individual cremations for all non-viable babies would not be advisable as it may result in Health Boards having to introduce charges for families where currently there were none; that there were no objections to a new Inspector of Crematoria, particularly as powers already existed for this under the 1935 Regulations; that electronic record keeping may be preferable to hard copy records; that although further legal opinion would be required, the wording of the Cremation Act 1902 in respect of a crematorium being a place for the burning of 'human remains' could

INFANT CREMATION COMMISSION REPORT ANNEX S

possibly already encompass non-viable babies; and that the question of some form of memorial should be raised with parents.

2.3 It was discussed: that tighter or statutory regulation of the funeral industry might not be required if the proposed National Committee can achieve the same ends; whether and how to frame the message that ashes may not contain any elements of the child, depending on its stage of development and what other material eg a wooden coffin was included during the cremation; what extra training modules might be useful for crematoria staff; whether there was potential to allow parents extra time to make decisions and complete paperwork given the possible impact this may have on funeral timescales and the role of healthcare providers, other than the NHS, in Scotland.

3. Other Issues

3.1 Lord Bonomy provided some approximate timescales for completion of the Report, but that these may need to be re-considered depending on the views of the parents to whom he would be speaking next week.

3.2 Commission members were asked to continue sending any feedback on the draft Report sections.

4. Next Meeting

4.1 The next meeting date was re-confirmed as 28 May 2014 in Glasgow, circa 1.30pm.

INFANT CREMATION COMMISSION REPORT ANNEX S

Infant Cremation Commission Minute of Meeting 8 - 28 May 2014

Attendees:

The Rt Hon Lord Bonomy (Chair)
John Birrell
James Blackburn
Gareth Brown
Ian Kearns
Helena MacLaren
Ann McMurray
Dr Mini Mishra
Gillian Morton
Tim Morris
Rick Powell
Garrick Smyth
Gavin Stevenson
Norman Dowie
Alison Kerr (secretariat)
Rebekah Carton (secretariat)

Apologies:

Sarah Dillon (secretariat)

1 Welcome and introductions.

- 1.1 Lord Bonomy welcomed the Commission members and noted that this was the last meeting of the Commission. Only significant changes, if there are any, will be circulated by email after today. Lord Bonomy thanked the group for their willing participation in the Commission's work and their speed of responses. He particularly thanked the secretariat, Alison Kerr and Sarah Dillon, for all their assistance.
- 1.2 Lord Bonomy noted that a positive meeting with the parents had preceded this meeting and also that he would be meeting with Minister the following day (29th May) to update him on progress.
- 1.3 Lord Bonomy outlined the timetable following this meeting. He noted that work on finalising the main report text would continue over the next few days, followed by subsequent secretariat work to add in necessary references, endnotes and annexes. His intention was to then review and submit the completed Report to Ministers on or around 13 June, and expected that it would be published by Scottish Government sometime during the week beginning 16th June.

2 Changes to the Report.

- 2.1 The Commission discussed the draft recommendations. Lord Bonomy noted that the order of these will be updated to reflect where they appear in the main Report narrative. A number of amendments were discussed including those noted below.
- 2.2 The group discussed the retention of the cremation register and whether it was more secure in its original form (ie. hard copy) or electronically. It was noted that the burial register is electronic and has been for some time. It was agreed that the working group who are looking at software could add this to their remit.
- 2.3 The group discussed the recommendation regarding an independent examiner visiting each crematoria to assess trainee technicians undertaking infant cremations as concerns were raised by some regarding the logistics of this. It was agreed that an alternative approach could be a training course in a centralised location. The recommendation will be revised to reflect this.
- 2.4 The group discussed whether crematoria should be licenced in general, noting that SEPA regulate the environmental impact but there is no regulation of general or ethical practice. This is the same for cemeteries. It was noted that this was possibly beyond the remit of the Commission, which has to confine itself to matters of baby and infant cremations, but that it could be mentioned within the Report as a possible issue for fuller consideration in due course.
- 2.5 The Commission discussed the need to ensure that bereaved parents are supported in reading through the cremation application forms and other such paperwork. To aid this, it was agreed that consistency of terminology was important. Clear and consistent definitions of terms should be part of the proposed code of practice and included in information for parents.
- 2.6 Some had noted that the figures around shared cremations in 2010, 2011 and 212 were overly complicated. It was agreed to revise these in order to present them more clearly.
- 2.7 The Commission revisited the question of whether each non-viable baby within a shared cremation should be registered separately (under its unique case reference id) in the proposed cremation register for these babies. The Commission agreed that this would have no adverse impact on the anonymity of the mother and was the more respectful and sensitive approach to take.

3 Issues emerging from the meetings with parents

- 3.1 Lord Bonomy set out the points raised by, and the suggestions received from, the parents who had attended the meetings on 26 and 28 May. He noted that the meetings had been helpful and informative for him, and he hoped the parents had found them equally useful.
- 3.2 Topics discussed included regulation of crematoria and funeral directors; bereavement training; greater transparency and access to information; an independent crematorium inspectorate; notification whether ashes were or

INFANT CREMATION COMMISSION REPORT ANNEX S

were not recovered; how the application forms for cremation could be improved; the definition of ashes and what should be made available to bereaved parents; the ethics of ‘overnight’ cremation and shared cremation and also views on any local and/or national memorials.

- 3.3 Members considered and discussed the suggestions which had arisen from these topics, which resulted in several being agreed for inclusion within the Report’s narrative and/or the Report’s recommendations.

4 Other Issues

- 4.1 The Commission discussed and agreed minor edits to the executive summary.
- 4.2 The Commission discussed a section of additional wording tabled at the meeting regarding an Inspector of Crematoria and Funeral Directors. In the light of previous discussions on regulation, and also taking into account the views of parents, it was agreed that an additional recommendation should also be added regarding the appointment of an independent Inspector who could be accountable to Ministers.
- 4.3 Secretariat confirmed they would circulate the draft Minutes from Meeting 6 (9 May), Meeting 7 (22 May) and Meeting 8 (today 28 May) for approval prior to publishing on the Commission’s webpages at the time of the Report’s publication.

5 Close

- 5.1 Lord Bonomy thanked all Commission members again for their willingness over the past year in giving their time, advice and knowledge, as well as putting any professional differences aside, in order to produce a Report that will help ensure changes for the better in infant cremation practice in Scotland.



© Crown copyright 2014

You may re-use this information (excluding logos and images) free of charge in any format or medium, under the terms of the Open Government Licence. To view this licence, visit <http://www.nationalarchives.gov.uk/doc/open-government-licence/> or e-mail: psi@nationalarchives.gsi.gov.uk.

Where we have identified any third party copyright information you will need to obtain permission from the copyright holders concerned.

ISBN: ISBN: 978-1-78412-602-5 (web only)

Published by the Scottish Government, June 2014

The Scottish Government
St Andrew's House
Edinburgh
EH1 3DG

Produced for the Scottish Government by APS Group Scotland, 21 Tennant Street, Edinburgh EH6 5NA
DPPAS29608 (06/14)