35PP

OPPT-2003-0071-0069

**Rich Leukroth**
02/03/04 02:15 PM

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cc: blouin.john@epa.gov, fritz.greg@epa.gov
Subject: 1 of 3 RE: 2-4-04 Incineration ECA conf call

NOTE TO READER - The attachments for this e-mail are included in a series of three (3) e-mails, because my home-based e-mail system only permits sending 2 attachments per e-mail.

Dear Incineration Drafting Committee(s):

As indicated in David Menotti's recent e-mail, the next PFOA conference call for developing the incineration ECAs (Fluorotelomer and Fluoropolymer) is Wednesday, February 4th. Attached are materials that will be referred to during the call. Please print them out and be familiar with them for our discussions. In addition, you may also want to refer to the draft ECA documents, appendices and attachments that were sent out to the IP's in a series of e-mails on 1/23/04 for discussions at the January 27-29 meetings.

Info for the Conference Call:

Date: Wednesday, February 4th
Time: 7:30 a.m. - 9:30 a.m.

Toll Free Call-in Phone number: [redacted]
International call-in number: [redacted]

Access code: [redacted]

Tentative Agenda

I. Introductions and Introductory Remarks

II. Telomer Incineration ECA and Discussion Points Common to Both ECAs:

a) Appendix A.4 Telomers
b) Appendix D.4 Telomers
c) January 6 letter to Companies requesting information for Signature pages, etc.
d) CBI access by other Federal Agencies
e) Table 1 Telomers
f) Part IX of the Draft ECA document. RE: GLP
g) Part X of the Draft ECA document. RE: QAAP

III. Fluoropolymer Incineration ECA Discussion Points:
a) Appendix A.2 - A.4 Fluoropolymers
b) Table 1 Fluoropolymers
c) Composition of the PTFE Composite

List of attachments for the 2/4/04 Incineration ECA Teleconference:
1) Excerpts from the Draft ECA Document.
file = 2-4-04_IncinConfCall.pdf
2) Telomer Table 1 from Robert Giraud.
file = Incin Testing Table1 -Telomers draft 1-20-04.pdf

3) QAAP outline from Robert Giraud.
file = App G QAPP Outline draft 1-20-04.pdf
4) EPA comments on the draft QAAP outline
file = EPA comments on 1-20-04QAAP.pdf
5) Telomer Appendix A.4 from Robert Giraud.
file = App A.4 telomers incin draft 1-23-04
6) Telomer Appendix D.4 from Robert Giraud.
file = App D.4 WasteIncin Op Conditions DRAFT 1-20-04

NOTE: For use during the February 4, 2004 incineration ECA development conference call.

Dear Incineration ECA Drafting Committees:

This is a working document containing excerpts of those sections of the Draft ECA document ("cover document") for which the Drafting Committee is continuing discussions to finalize text. Included are:

1) Excerpt of Part IX (from the 1/21/04 draft)

2) Excerpt of Part X (from the 1/21/04 draft)

3) Excerpt of Part XV (from the 1/21/04 draft)

4) Table I FluoroTelomer (from the 1/22/04 EPA re-write)
Note: You will also need to refer to Robert Giraud's 1/20/04 file "Incin Testing Table1 -Telomers draft 1-20-04.pdf

5) Excerpt of Table I Fluoropolymer (from the 1/23/04 document sent to the IP's for use during the January 27-29 meetings.

6) Example of Company Signature page.

## IX. STANDARDS FOR CONDUCTING TESTING

A. Testing for the laboratory-scale incineration of the fluoropolymer test substance composites described in Part II of this ECA which contain the fluoropolymers listed in Appendix A.1 of this ECA must be conducted in accordance with the Test Standards listed in Table 1 and described in Appendices B.1 and C.1 - C.2 as annotated in Appendices D.1- D.3 to this ECA. Certain provisions of these Test Standards are considered to be mandatory and are referred to as "requirements." These requirements are identified by the use of the word "shall" in the text of the Test Standard. For the purpose of this ECA, the words "will" and "must," if they appear in the Test Standards, are considered equivalent to the word "shall" and therefore delineate a test requirement to be followed or met.

Provisions that are not mandatory, and are therefore only recommended, are identified by the use of "should" statements. In the event such "should" provisions are not followed, the Companies will not be deemed by EPA to be in violation of this ECA and will not be subject to penalties or other enforcement actions, as described in Part XII. of this ECA. However, in such cases, EPA will use its professional judgement to determine the scientific adequacy of the test results and any repeat testing that is determined by EPA to be necessary will be required either under a separate ECA or pursuant to a rule promulgated under section 4(a) of TSCA, 15 U.S.C. 2603(a).

B. The Companies and EPA will consult in a good faith effort to consider the need for Test Standard modifications if either EPA or the Companies desire such modifications. Modifications to this ECA will be governed by 40 CFR 790.68 (see Part XI. of this ECA).

***** FOLLOW-ON DISCUSSION POINT:**
**[SUMMARY: FMG maintains that the University of Dayton laboratory can not comply with GLPS requirements for testing under this ECA. In addition, FMG expresses concern about duplication between QAPjP and study plan requirements. EPA maintains that: 1) study plan(s) are required, 2) all studies must be conducted in accordance with GLPS and 3) separate QAPjP(s) must be submitted. EPA noted that cut and paste from ECA protocols etc. can be used to complete QAPjP and study plan submission requirements. On 12/6 and 12/10/03 FMG agreed to prepare a table listing GLPS requirements, whether laboratory compliance was impossible / possible at additional cost / possible at no additional cost, and whether the item is covered by the QAPjP / in conflict with QAPjP requirements / or not addressed by QAPjP requirements (Note: The table was not available for 1/13/04 Draft Committee discussions). On 1/21/04 EPA reiterated that adequate quality assurance for testing aimed at sorting out the environmental sources of PFOA and routes to human exposures is sufficient to compel the need for full compliance with these requirements.]**

**{original text}**
C. All testing required by this ECA must be conducted in accordance with the EPA Good Laboratory Practice Standards (GLPS) found at 40 CFR part 792.

**{12/22/03 Revised EPA placeholder text with supplemental text in red}**

**C. All testing required by this ECA must be conducted in accordance with the EPA Good Laboratory Practice Standards (GLPS) found at 40 CFR part 792, except ~~as provided in Appendix F~~ as follows........(list to be developed from FMG table).**

**{11/24/03 FMG proposed revisions}**

C. All testing required by this ECA must be conducted in accordance with ~~the EPA Good Laboratory Practice Standards (GLPS) found at 40 CFR part 792.~~ **a Quality Assurance Project Plan prepared in accordance with Appendix YYY.**

## X. STUDY PLAN(S) AND QUALITY ASSURANCE PROJECT PLAN(S) (QAPP)

The Companies will submit a study plan to EPA for each test conducted pursuant to this ECA prior to the initiation of testing in accordance with 40 CFR 790.62. (For this ECA, EPA will not require the plan(s) under this Part of the ECA to be submitted "no later than 45 days prior to the initiation of testing," as specified at 40 CFR 790.62(a)). The content of the study plan(s) submitted to EPA will comply with 40 CFR 790.62(b). This ECA and/or its appendices satisfy the applicable requirements of 40 CFR 790.62(b)(2), (8), (9), and (10). A study plan may cross reference the applicable provisions of the ECA and/or its appendices to satisfy these requirements. Also ~~pursuant to Part IX. (C) of~~ for this ECA, the Companies must submit Quality Assurance Project Plan(s) (QAPP) prepared in accordance with EPA guidance.[1] Modifications to the study plan(s) under this part of the ECA will be governed by the procedures of 40 CFR 790.62(c) except that the 15 day time periods in 40 CFR 790.62(c) (2) and (3) will be 45 day time periods. All study plan(s) will become part of the official record (Docket Control Number [OPPT-2003-0071).

[1] Guidance for developing Quality Assurance Project Plans can be found in the EPA document EPA QA/R-5: *EPA Requirements for Quality Assurance Project Plans*, prepared by: Office of Environmental Information, EPA, March 2001. This is also available from the EPA website at http://epa.GOV/Quality/qs-docs.

## XV. <u>PUBLICATION AND DISCLOSURE OF TEST RESULTS</u>

***** FOLLOW-ON DISCUSSION POINT**
**[Summary - FMG proposed 11/24/03 additional text to clarify conditions under which EPA can share a CBI Document with another government agency. EPA struck this addition on 12/22/03 citing laws governing such distribution adequately addressed FMG concerns. During further discussion, it became clear that additional clarification could be provided to meet FMG's needs. On 1/6/04 EPA excerpt text from the OPPTS CBI manual to FMG and alternative language is suggested in red. On 1/13/04 discussions concluded that the EPA CBI manual adequately covered in-house sharing but questions remained about external sharing. EPA provided additional CBI manual excerpts to further clarify. FMG will consider this and discuss at the 1/21/04 meeting.]**

All results of testing conducted pursuant to this ECA will be announced to the public by EPA in accordance with the procedures specified in section 4(d) of TSCA, 15 U.S.C. 2603(d). Disclosure by EPA of data generated by such testing to the public or other government agencies will be governed by section 14(b) of TSCA, 15 U.S.C. 2613(b), and 40 CFR part 2. The CBI version of a document will only be provided to another U.S. government organization in compliance with the procedures described in the OPPTS TSCA CBI Procedure Manual.

**{FMG 11/24/03 proposed additional text / struck by EPA 12/22/03}**
~~The CBI version of a document will not be provided to another government agency unless that agency has certified that it affords equivalent protection.~~

**[NOTE: This is the 1/21/04 proposed re-write that was not discussed during the Telomer conference call on 1/22/04.]**

Table 1 REQUIRED TESTING, TEST STANDARDS, REPORTING AND OTHER REQUIREMENTS FOR THE LABORATORY-SCALE INCINERATION TESTING OF FLUOROTELOMER BASED POLYMERS

| **Phase I PFOA Transport Testing** | **Test Standard** | **Deadline for Final Report (Months)[1]** |
|---|---|---|
| Phase I Study Plan(s) | 40 CFR 790.62 (b) as annotated by Part X of the ECA | 2[3] |
| Phase I QAPP | See Appendix G of the ECA | 3[3] |
| Quantitative PFOA transport analysis [2] | See Appendix C.1 of the ECA | 8 [4] [5] |

[1] Interim progress reports must be submitted by the Companies to EPA every 6 months beginning six months from the effective date of this ECA until the end of the ECA testing program (see Part XIV and Appendix E.1 of the ECA).

[2] At the conclusion of Phase I PFOA transport efficiency testing, and prior to initiation of Phase II, the Companies, will provide a letter/report to EPA summarizing the results of Phase I testing (see Part VII. A. of the ECA). In the event that the transport efficiency of PFOA or of total fluorine (as determined by the formulas in Appendix C.1) is greater than or equal to 70% then testing will proceed to Phase II Incineration Testing. In the event that the transport efficiency of PFOA or of total fluorine (as determined by the formulas in Appendix C.1) is less then 70% then the Companies will initiate a Technical Consultation with EPA to determine under what conditions Phase II testing can proceed. The outcomes of the Technical Consultation are described in Part VIII of this ECA.

[3] Number of months after the effective date of the Order that incorporates this ECA when submission is due.

[4] Number of months after EPA approval of the Study Plan(s) and QAPP for Phase I testing when a letter report describing transport efficience test result(s) is due to EPA (see Part VII. A. and Appendix C.1.3 of the ECA) ~~provided that the Study Plan and QAPP are approved by EPA within 2 months of submission of the QAPP~~. If the Study Plan(s) and QAPP(s) are not approved within 2 months of submission of the Phase I QAPP, then this deadline is extended by 6 months to accommodate re-scheduling with the ATRS laboratory.

[5] The final report for Phase I testing will be submitted to EPA within 60 days of the completion of the Technical Consultation if the consultation does not result in an agreement to conduct further (?? does "further" mean Phase II ?? ) testing. If the Technical Consultation results in an agreement to conduct further testing, the final report for Phase I testing will be included in the final ~~test~~ report for such further testing, unless agreed otherwise in the Technical Consultation (see Part VIII of the ECA regarding Phase I Technical Consultation).

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~~5~~
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| Phase II FLUOROTELOMER Incineration Testing | Test Standard | Deadline for Final Report (Months)[1] |
|---|---|---|
| Phase II Study Plan(s) | 40 CFR 790.62 (b) as annotated by Part X of the ECA | 2 [3] |
| Phase II QAPP | See Appendix G of the ECA | 6 [3] |
| Receipt of components by formulating laboratory(ies) | See Part XXIV and Appendix A.3 of the ECA | 2[7] |
| Elemental Analysis[6] | See Appendix C.2.1 of the ECA | 24 [8] |
| Combustion Stoichiometry[6] | See Appendix C.2.2 of the ECA | 24 [8] |
| Thermogravimetric Analysis[6] | ASTM E1868, as modified in Appendix B.1 of the ECA | 24 [8] |
| Laboratory-scale combustion Testing[6] | See Appendices C.2.4 and C.2.5, as annotated / supplemented by Appendices D.1, D.2, D.3, D.4 ~~and E.2~~ of the ECA | 24 [8] |
| Release assessment report[6] | See Appendix E.2 of the ECA | 24 [8] [9] |

6 The results of this testing will be provided in the final report for Phase II testing (see Appendix C.2.5 of the ECA).

7 Number of months from the submission of a Phase I letter report signifying that Phase II testing can proceed; or, number of months following the completion of a Technical Consultation agreement to proceed with Phase II testing that the Companies must meet their individual obligations to provide the formulating laboratory(ies) with the components for each composite to be tested under this ECA (see Part III. B. of the ECA).

8 Number of months from the submission of a Phase I letter report signifying that Phase II testing can proceed; or, number of months following the completion of a Technical Consultation agreement to proceed with Phase II testing that the final report for this testing is due to EPA. If the study plan(s) and QAPP are not approved within 2 months of submission the Phase II QAPP, then this deadline is extended by 6 months to accommodate re-scheduling with the ATRS laboratory.

9 In the event that Phase II laboratory-scale incineration testing identifies measurable levels of PFOA (where measurable PFOA is defined to be at or above the limit of quantitation (LOQ) as defined in Appendix D.2) resulting from the incineration testing for any or all of the fluorotelomer based polymer composites tested under this ECA, the

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Companies will prepare a release assessment report to place in perspective the relevance of such measurable levels in the laboratory-scale incineration testing results with respect to full-scale municipal and/or medical waste incinerator operations in the United States.

**[NOTE: This is the version that was included in the package for discussions with the IP's during the January 27-29 meetings.]**

Table 1 REQUIRED TESTING, TEST STANDARDS, REPORTING AND OTHER REQUIREMENTS FOR THE LABORATORY-SCALE INCINERATION TESTING OF FLUOROPOLYMERS

| Phase I PFOA Transport Testing | Test Standard or ECA Requirement | Deadline for Finalort (Months) [1] |
|---|---|---|

[1] Interim progress reports must be submitted by the Companies to EPA every 6 months beginning six months from the effective date of the Order that incorporates this ECA until the end of the ECA testing program (see Part XIV and Appendix E.1 of the ECA).

| | | |
|---|---|---|
| Phase I Study Plan(s) | 40 CFR 790.62 (b) as annotated by Part X of the ECA | ? TBD ? [3] |
| Phase I QAPP submission | see Appendix ?? G ?? to the ECA | ? TBD ? [3] |
| Quantitative PFOA transport analysis [2] | See appendix C.1 as annotated in appendix D.?) | ? TBD ? [4] [5] |
| **Phase II Fluoropolymer Incineration Testing** | **Test Standard or ECA Requirement** | **Deadline for Final Report (Months)[1]** |

[2] At the conclusion of Phase I PFOA transport efficiency testing, and prior to initiation of Phase II, the Companies, will provide a letter/report to EPA summarizing the results of Phase I testing (see Part VII. A. of the ECA). In the event that the transport efficiency of PFOA or of total fluorine (as determined by the formulas in Appendix C.1) is greater than or equal to 70% then testing will proceed to Phase II Incineration Testing. In the event that the transport efficiency of PFOA or of total fluorine (as determined by the formulas in Appendix C.1) is less then 70% then the Companies will initiate a Technical Consultation with EPA to determine under what conditions Phase II testing can proceed. The outcomes of the Technical Consultation are described in Part VIII of this ECA.

[3] Number of months after the effective date of the Order that incorporates this ECA when submission is due.

[4] **[NOTE: Drafting Committee discussions are continuing to finalize this section]**

[5] **[NOTE: Drafting Committee discussions are continuing to finalize this section]**

| | | |
|---|---|---|
| Phase II Study Plan(s) | 40 CFR 790.62 (b) as annotated by Part X of the ECA | ? TBD ?[3] |
| Phase II QAPP submission | See Appendix ?? G ?? of the ECA | ? TBD ?[3] |
| Receipt of component chemicals by formulating laboratory(ies) / 3rd Party (?) | See Part XXIV and Appendix A.3 of the ECA | ? TBD ?[7] |
| Elemental analysis [6] | See Appendix C.2.1 of the ECA | ? TBD ?[8] |
| Combustion stoichiometry [6] | See Appendix C.2.2 of the ECA | ? TBD ?[8] |
| Thermogravimetric analysis [6] | ASTM E 1868-02 (as modified by Appendix B.1 of the ECA) | ? TBD ?[8] |
| Laboratory-scale combustion testing [6] | See Appendix C.2.4 of the ECA (as annotated by Appendix D.1, D.2, D.3, and D.4 of the ECA) | ? TBD ?[8] |
| Release assessment report [6] | See Appendix E.2 of the ECA | ? TBD ?[8,9] |

[6] The results of this testing will be provided in the final report for Phase II testing (see Appendix C.2.5 of the ECA).

[7] **[NOTE: Drafting Committee discussions are continuing to finalize this section]**

[8] **[NOTE: Drafting Committee discussions are continuing to finalize this section]**

[9] **[NOTE: Drafting Committee discussions are continuing to finalize this section]**

**XXIV. SIGNATURE**

**TEST SPONSOR**
**COMPANY, Inc.[1]**

| ECA Subject Chemicals for COMPANY USA, Inc. | | |
|---|---|---|
| **CAS No.** | **Chemical Name** | **Composite(s)** |
| | | |
| | | |
| | | |
| | | |
| | | |

Company technical contact person for handling correspondence marked as "Confidential"

Name: ______________________
Title: ______________________
Address: ______________________
Phone Number: ______________________

Date:______________

______________________________
**[? NAME ?]**
**[? TITLE ? e.g.,** Senior Vice President**]**
COMPANY, Inc.
**[? ADDRESS ?]**

[1] Data in the table lists the chemical(s) and composite contributions for which Asahi Glass Fluoropolymers USA, Inc. is responsible. The Company developed these data in response to EPA's letter of January 6, 2004. There may be both a Public and CBI version of this page in those instances where the Company has asserted that data in this table are considered by them to be entitled to treatment as TSCA confidential business information (CBI) (see Part XIV.D. of this ECA regarding confidentiality of information) .

**Table 1. REQUIRED TESTING, TEST STANDARDS, AND REPORTING FOR LABORATORY-SCALE INCINERATION TESTING OF FLUOROTELOMER-BASED POLYMERS**

| Phase I PFOA Transport Testing | Requirement or Test Standard | Deadline for Submission (Months) |
|---|---|---|
| Study Plan(s) | 40 CFR 790.62(b) as annotated by Part X. of ECA | 2[1] |
| QAPP | Appendix G. | 3[1] |
| Quantitative PFOA transport testing | Appendix C.1 | 8[2,3,4,5] |

1 Number of months after the effective date of the ECA when this submission is due to EPA.

2 Number of months after EPA approval of Study Plan(s) and QAPP for Phase I testing when a letter report with transport efficiency result(s) and indication of what contingent testing, if any, was performed is due to EPA, provided that the Study Plan(s) and QAPP are approved by EPA within 2 months of submission. If this Study Plan(s) and this QAPP are not approved within 2 months of submission, then this deadline is extended by 6 months.

3 In the event that the transport efficiency of PFOA or of total fluorine (as determined by the formulas in Appendix C.1) is greater than or equal to 70%, then the Companies will proceed to Phase II Incineration Testing. In the event that the transport efficiency of both PFOA and total fluorine (as determined by the formulas in Appendix C.1) is less then 70%, then the Companies will initiate a Technical Consultation with EPA to reach agreement on a path forward. The outcomes of the Technical Consultation are described in Part VIII of this ECA.

4 The final report for Phase I testing will be submitted to EPA within 60 days of the completion of the Technical Consultation if this consultation does not result in an agreement to conduct further testing. If the technical consultation results in an agreement to conduct further testing, the final report for Phase I testing will be included in the final test report for such testing, unless agreed otherwise in the Technical Consultation.

5 Interim progress reports, following the outline in Appendix E.1, must be submitted by the Companies to EPA every 6 months beginning six months from the effective date of the this ECA until the end of this ECA testing program.

| Phase II Incineration Testing for Test Substance Composites | Requirement or Test Standard | Deadline for Submission (Months) |
|---|---|---|
| Study Plan(s) | 40 CFR 790.62(b) as annotated by Part X. of ECA | 2[1] |
| QAPP | Appendix G. | 6[1] |
| Each component from each company sent to each applicable facility designated by the Companies | Company-specific signature page and Appendix A | 2[7] |
| Elemental Analysis[6] | Appendix C.2.1 | 24[7,8] |
| Combustion Stoichiometry[6] | Appendix C.2.2 | 24[7,8] |
| Thermogravimetric Analysis[6] | ASTM E1868 as modified in Appendix B.1 | 24[7,8] |
| Laboratory-scale Combustion Testing[6] | Appendices C.2.4 and C.2.5 as supplemented by Appendices D.1, D.2, and D.3, and Appendix E.2 (if indicated) | 24[7,8] |

6 The results of this testing will be provided in the final report for Phase II.

7 Number of months from submission of the Phase I testing letter report, if Phase II testing is required by the results of Phase I testing (see footnote 3), that the final report for this testing is due to EPA. If the Study Plan(s) and QAPP for Phase II testing are not approved within 2 months of submission of the QAPP to EPA, then this deadline is extended by 6 months. If Phase II testing is required by Technical Consultation agreement (see footnote 3), the deadline for submission shall be as agreed in the technical consultation. Where the same type of testing (e.g., PFOA analysis) is performed in Phase II as in Phase I, Phase II QAPP provisions relevant to such testing will be deemed to be approved by EPA upon EPA approval of the relevant provisions of the Phase I QAPP.

8 Interim progress reports, following the outline in Appendix E.1, must be submitted by the Companies to EPA every 6 months beginning six months from the effective date of this ECA until the end of this ECA testing program.

# APPENDIX A.4
# PREPARATION OF FLUOROTELOMER-BASED POLYMER COMPOSITES

## 4.1 Assembly of Components

For each fluorotelomer based polymer (FBTP) listed in Appendix A.1, the corresponding telomer-based polymeric product (TBPP) component for each test substance composite will be submitted to the compositing laboratory. Each company will collect a minimum of 100 mL of first, quality production of a representative grade of TBPP, and send a minimum of 25 mL of each such TBPP component to a facility designated by the Telomer Research Program (TRP). Each company will store the remainder of each such TBPP component under conditions at or below ambient temperature for a period of 5 years. Both parts will be contained in new, unused packaging customarily used for product sample packaging or in new, unused polyethylene, polypropylene, or glass container(s).

Transmission of TBPP components for test substance composite preparation in this program will include formal Chain of Custody procedures. For each TBPP component for each test substance composite, each company will assign a unique non-CBI identifying name (e.g., unique generic chemical name) and identify which composite the component is to go into. This name and the identity of the composite it is to go into will be used as the "sample description" on the Chain of Custody form used when conveying TBPP component(s) to the compositing laboratory. The Chain of Custody form used when conveying TBPP component(s) to the compositing laboratory will also distinguish among the TRP member companies to verify that each company contributes to each applicable composite. A single copy of each Chain of Custody form used by each company when conveying TBPP component(s) to the TRP-designated facility, identifying the company name and the unique generic chemical name, will be submitted concurrently to the EPA at the following address:

Document Control Office (7407M)
Office of Pollution Prevention and Toxics (OPPT)
Environmental Protection Agency
1200 Pennsylvania Ave., NW, Washington, DC 20460-0001

The submission to such copies to EPA will be identified with Docket ID Number OPPT-_____ and the name of this ECA

(Laboratory-Scale Incineration Testing of Fluorotelomer Based Polymers).

The TRP-designated facility assembling the components may be the compositing laboratory or may be a single common alternate facility. If such an alternate facility is used, then new Chain of Custody form(s) will be prepared, as needed to remove CBI while assuring component distinction, to accompany the TBPP component to the compositing laboratory.

The deadline for each company to submit its TBPP components to the TRP-designated facility is shown in Table 1 of the ECA.

### 4.2 Preparation

The TBPPs are aqueous dispersions with nominally 20% solids, which contain the FTBPs listed in Appendix A.1. Each test substance will be an FTBP solids composite following dewatering and will be prepared as described in Section 4.2.1 or as described in Section 4.2.2 below.

Composite preparation will be conducted under laboratory conditions designed to prevent cross-contamination and designed to assure solids temperatures less than 60 °C.

The telomer product solids composites will be substantially free of inorganic constituents.

Following preparation of each composite, each composite will be placed in a polyethylene, polypropylene, or glass container and will be accompanied by a new Chain of Custody (for the composite(s)) until each composite reaches the incineration testing facility.

#### 4.2.1 Mixing Followed by Dewatering

The composite preparation sequence via mixing followed by dewatering is follows:

1. For each composite, the relevant TBPP components will be gathered.

2. A portion of each of these TBPP liquids will be analyzed to determine the amount of FTBP solids via measurement of Total Fluorine as described in

Appendix D.3. The moisture content of a portion of each TBPP liquid will be determined as described in Appendix C.2.1.4.

3. The amount of each component TBPP liquid to go into a given composite will be established based on the Total Fluorine result from step 2 to assure that the FTBP solids of each component into a given composite will be present in equal proportions (on a Total Fluorine basis).

4. For each composite, the component TBPP liquids will be mixed according to the amounts from step 3 to form the composite as a liquid.

5. For each composite as a liquid, the liquid will be spread into sufficiently large aluminum pan(s). The material in the pan(s) will be dewatered via evaporation at ambient conditions (thereby assuring solids temperature less than 60 °C) in a laboratory hood (away from other potential sources of PFOA) for two days until the material is visibly free of excess water (i.e., visibly drip free). (A small amount of residual moisture is expected to be remaining in the dewatered material.)

6. The dewatered FTBP solids will be treated with liquid nitrogen as necessary to allow for easy release from the aluminum pan(s). The material will be transferred to a mortar and pestle and ground using liquid nitrogen as necessary to produce visibly consistent solids size.

### 4.2.2 Dewatering Followed by Mixing

The composite preparation sequence via mixing followed by dewatering is follows:

1. For each composite, the relevant TBPP components will be gathered.

2. A portion of each of these TBPP liquids will be analyzed to determine the amount of FTBP solids via measurement of Total Fluorine as described in Appendix D.3. The moisture content of a portion of each TBPP liquid will be determined as described in Appendix C.2.1.4.

3. The amount of FTBP solids for each TBPP component to go into a given composite will be established based on the Total Fluorine result from step 2 to assure that the FTBP solids of each component into a given composite will be present in equal proportions (on a Total Fluorine basis). The result from step 2 for Total Fluorine also establishes the minimum amount of TBPP liquid for each component needed for subsequent preparation steps.

4. For each component in each composite, an amount of the TBPP liquid greater than or equal to the minimum amount of each TBPP liquid from step 3 will be spread into sufficiently large aluminum pan(s). The material in each pan will be dewatered via evaporation at ambient conditions (thereby assuring solids temperature less than 60 °C) in a laboratory hood (away from other potential sources of PFOA) for two days until the material is visibly free of excess water (i.e., visibly drip free). (A small amount of residual moisture is expected to be remaining in the dewatered material.)

5. The dewatered FTBP solids will be treated with liquid nitrogen as necessary to allow for easy release from the aluminum pan(s). The material will be transferred to a mortar and pestle and ground using liquid nitrogen as necessary to produce visibly consistent solids size.

6. The dewatered FTBP solids from step 5 for each relevant component in the amount of FTBP solids based on the Total Fluorine result from step 2 will be mixed together to form each composite.

### 4.3 Verification

To verify adherence to Section 4.2, the laboratory preparing a given composite will generate a report describing how the composite was prepared. This report will be included in the final report for Phase II incineration testing.

The Total Fluorine content (as described in Appendix D.3) and the moisture content (as described in Appendix C.2.1.4) of each composite will be determined as noted in Appendix

C.2.1. The Total Fluorine content of each composite on a dry basis will be computed and included in the report prepared by the compositing lab.

The weighted average Total Fluorine content of the components of each composite will be computed on a dry basis based on the results from step 2 above and included in the report prepared by the compositing lab.

**Appendix D.4**
**Waste Incineration and Operation Conditions**

Polymers of the sort being investigated in this testing program may be present at trace to low concentrations in the feedstreams to municipal waste combustors and/or medical waste incinerators in the U.S.

**D.4.1 Types of Incinerators**

D.4.2.1 Municipal Waste Combustors

According to the Integrated Waste Services Association (IWSA), there are a total of 98 waste-to-energy facilities operating municipal waste combustors (MWCs) in the U.S. as of 2002. (IWSA 2002) Table D.4-1 summarizes the number and annual capacity of these units by type of technology employed.

**Table D.4-1. MWCs in 2002**

| Type | Number of Facilities | Annual Capacity (million Ton/year) | Fraction of Waste |
|---|---|---|---|
| Mass Burn | 68 | 22.5 | 76.5% |
| Refused Derived Fuel (RDF) | 18 | 6.4 | 21.8% |
| Modular | 12 | 0.5 | 1.7% |
| Total | 98 | 29.4 | 100.0% |

D.4.1.2 Hospital/Medical/Infectious Waste Incinerators

Although earlier reports indicated approximately 2400 medical waste incinerators in the U.S. in the 1990s burning approximately 846 thousand tons of hospital and medical/infectious waste (EPA 1997), the current EPA Office of Air Quality, Planning, and Standards (OAQPS) inventory indicates that there are 116 hospital/medical/infectious waste incinerators (HMIWIs) in the U.S. as of July 28, 2003. (EPA 2003)

This represents a greater than 90% reduction in the number of operating HMIWIs in the U.S. Many medical waste incinerators were closed rather than upgraded to meet new emission standards, as hospitals improved their programs to segregate infectious ("red bag") waste burned in HMIWIs from non-infectious ("black bag") waste handled as municipal solid waste after it leaves the hospital. Consequently, the amount of segregated infectious waste burned in HMIWIs is expected to be less than 0.3 million tons per year.

EPA notes that over 97% of medical waste incinerators are controlled air modular units (EPA 2000a). Recent communication with EPA OAQPS indicates that virtually all existing HMIWIs are controlled air modular (two-chamber) units.

### D.4.2 Incinerator Operating Conditions

Many incinerators for municipal solid waste are designed to operate in the combustion zone at 1800 °F (982 °C) to 2000 °F (1093 °C) to ensure good combustion. (EPA 1995) EPA new source performance standards (NSPS) and emission guidelines for both municipal waste combustors (MWCs) and hospital/medical/infectious waste incinerators (HMIWIs) are based on the use of "good combustion practices" (GCP). (EPA 1997, EPA 2000b, EPA 2000c, Van Remmen 1998)

Referring to MWCs, Donnelly notes, "Design of modern efficient combustors is such that there is adequate turbulence in the flue gas to ensure good mixing, a high-temperature zone (greater than 1000 °C) to complete burnout, and long enough residence time at high temperature (1-2 sec) for complete burnout." (Donnelly 2000) The term "flue gas" here refers to the gas above the grate.

With respect to HMIWIs, Van Remmen states "any unit which presently [prior to compliance date] has a [secondary chamber] residence time less than two seconds at 1000 °C does not meet the requirement for good combustion under the new regulations." (Van Remmen 1998)

Similarly, most MWCs operate with a 2 second gas residence time in the high temperature zone in order to assure compliance with emission standards on carbon monoxide (CO) and dioxins.

D.4.2.1 MWC Operating Conditions

D.4.2.1.1 Mass Burn MWC

Review of the IWSA Directory (IWSA 2002) indicates that almost all of these mass burn units are mass burn water wall furnaces. Nearly all mass burn water wall furnaces have reciprocating grates or roller grates to move the waste through the combustion chamber. (EPA 1996a)

Studies on the Millbury, Massachusetts mass burn water wall MWC produced gas temperature versus residence time results. (Scavuzzo, Strempek, and Strach 1990) Calculations based on Figure 6 of this paper indicate a time-averaged temperature of 2238 °F (1226 °C) across 2 seconds. The corresponding gas temeperature at the 2 second level from this figure is 1750 °F (954 °C).

A report on the Warren County, New Jersey mass burn water wall MWC indicates that the design gas temperature between the grate and secondary air inject was greater than 2000 °F (1093 °C) over a gas residence time of an additional 2.2 seconds. (Scheuetzenduebel and Nobles 1990) This report also shows that this MWC was designed for 2 seconds residence time above 1800 °F (982 °C) between the introduction of secondary air and the exit of the furnace section. (Scheuetzenduebel and Nobles 1990) The temperature profile (Figure 21) in the temperature correlation test report (Scheutzenduebel 1989) for this MWC shows the full load gas temperature at the secondary air injection point is 2650 °F, and the gas temperature at the 2-second point is 1850 °F. Therefore, testing indicates an average temperature of 2250 °F (1232 °C) over this 2 second gas residence time for the Warren County unit. A related report for the Warren County MWC by the design firm indicates that the exhaust gas oxygen concentration is nominally 10%. (Blount Energy Corporation 1989)

Information from these 2 MWCs demonstrates that the average gas temperature across a 2 second residence time for mass burn MWCs is conservatively expected to be greater than 1100 °C.

Test report data from a typical mass burn MWC (Fairfax, Virginia) indicates typical average furnace exit gas concentrations are 10.8% oxygen (dry basis) and 18.4% moisture (water). (Clean Air Engineering, 1997)

As indicated in Table D.4.1, mass burn units account for over 76% of the municipal solid waste incinerated in the U.S.

D.4.2.1.2 RDF MWC

Furnace temperatures as well as flue gas oxygen and moisture ($H_2O$) levels for Mid-Connecticut RDF combustor performance tests operating under good combustion conditions across a range of steam loads (Finklestein and Klicius 1994) are summarized in Table D.4-2.

**Table D.4-2. RDF MWC – Mid-Connecticut**

| Steam load | Low | low | inter-mediate | inter-mediate | normal | normal | normal | high |
|---|---|---|---|---|---|---|---|---|
| test number | PT-13 | PT-14 | PT-10 | PT-02 | PT-09 | PT-08 | PT-11 | PT-12 |
| Furnace temperature (°C) | 965 | 1004 | 1012 | 1022 | 1033 | 1015 | 1026 | 1049 |
| flue gas $O_2$ (%) | 10.1 | 9.6 | 9.2 | 9.1 | 7.6 | 7.5 | 7.9 | 6.4 |
| flue gas moisture | 12.4 | 11.1 | 12.3 | 15.4 | 15.1 | 16.3 | 14.1 | 16.2 |

The average operating conditions for this RDF unit across the range of steam loads are 1016 °C, 8.4% $O_2$, and 14.1% moisture.

Examination of the report and MWC temperature monitoring practices indicates that these temperatures are effectively combustion zone exit temperatures. Therefore, in order to determine the average MWC combustion zone temperature across a 2 second gas residence time, it is necessary to understand the time-temperature profile of the MWC.

Since waste combustion in this and most other RDF units in the U.S. involves burning on the grate (EPA 1996a) similar to the operation of mass burn MWCs, the time-temperature profile in an RDF unit is expected to be similar to that described in Section D.4.2.1.1 above. Based on this similarity and the temperatures in Table D.4-2, the average gas temperature across a 2 second residence time for RDF units is conservatively expected to be greater than 1100 °C.

As indicated in Table D.4.1, RDF units account for approximately 22% of the municipal solid waste incinerated in the U.S.

D.4.2.1.1 Modular MWC

Modular MWCs are generally small dual-chamber units, accounting for less than a total of 2% of the municipal solid waste incinerated in the U.S. in 2002. Modular MWCs are generally equipped with auxiliary fuel burners in the secondary chamber. (EPA 1996a) EPA notes that the secondary chamber exit temperature of modular MWCs is maintained at typically 980 to 1200 °C. (EPA 1996a)

A typical modular MWC in Polk County, Minnesota is operated with secondary chamber gas residence time of 2 seconds, secondary chamber exit temperature in the range of 1800 °F (982 °C) to 2000 °F (1093 °C), flue gas oxygen concentrations in the range of 10% to 13%, and flue gas moisture in the range of 10% to 15% (Pace Analytical 2003).

Based on first principles, the secondary chamber exit temperature is expected to be the minimum gas-phase temperature for the chamber. Therefore, secondary chamber average gas temperatures for modular MWCs are expected to be 1000 °C or greater.

As indicated in section D.4.1, such modular units are generally small MWCs and account for less than a total of 2% of the municipal solid waste incinerated in the U.S.

D.4.2.1.4 MWC Summary

Considering the relative quantities of municipal waste burned annually in each type of MWC and the data in this section, typical operating conditions for the high temperature zone of most MWCs are >1000 °C average temperature across 2 second residence time with exit gas concentrations of 10% $O_2$ and >15% moisture.

D.4.2.2 HMIWI Operating Conditions

The range of temperatures for the secondary chamber of controlled air medical waste incinerators has been reported as 980 to 1200 °C. (Theodore 1990) EPA notes that auxiliary fuel (e.g., natural gas) is burned in the secondary chamber of medical waste incinerators to sustain temperatures in the range of 985 to 1095 °C and that combustion air at 100 to 300 % in excess of the stoichiometric requirement is usually added to the secondary chamber. (EPA 2000a)

In its model plant description background document, EPA notes that the average moisture content in HMIWI flue gas was about 10 % based on available data, and EPA states "limited data show that older [HMIWI] units typically have residence times that range from essentially 0 seconds up to about 1 second." (EPA 1994b) However, as noted above, a more recent report indicates that HMIWIs still in operation have secondary chamber temperatures greater than or equal to 1000 °C with a gas residence of 2 seconds. (Van Remmen 1998) For example, EPA studied the incinerator at Weeks Hospital in New Hampshire as a typical HMIWI with a design residence time of 2 seconds in the secondary chamber. (EPA 1996b) During this testing, the average exit secondary chamber exit temperature was 1024 °C, and the flue gas oxygen concentration was 13.5%. (EPA 1996b)

Review of test reports for all HMIWIs in the EPA docket for the HMIWI NSPS and EG rulemakings that are listed in EPA's current HMIWI inventory (EPA 2003) does not refute Van Remmen's statement above on residence time and temperature and indicates HMIWI flue gas oxygen concentrations for these units in the range of 10 to 15% and stack moisture concentrations as high as 30% (after wet scrubbing). (Environmental Laboratories Inc. 1993, EPA 1996, HDR Engineering 1994a, HDR Engineering 1994b, METCO Environmental 1992, Technical Services, Inc. 1993, Technical Services, Inc. 1994a, Technical Services, Inc. 1994b) Apparently, the older HMIWIs referred to in EPA's model plant description background document either have been shut down or upgraded to operate with secondary chamber exit temperatures higher than 1000 °C with gas residence time of 2 seconds.

Secondary chamber temperature of HMIWIs is monitored near the secondary chamber outlet. (EPA 1994) Hence, when the auxiliary burner (located on the end opposite from the outlet) is in use, the average gas temperature in an HMIWI secondary chamber is greater than the outlet temperatures noted above. Therefore, secondary chamber average gas temperatures for HMIWIs are expected to be 1000 °C or greater with a gas residence time of 2 seconds.

In summary, typical operating conditions for the secondary chamber of operating HMIWIs in the U.S. are 1000 °C average temperature across 2 second residence time with exit gas concentrations of 13% $O_2$ and 10% moisture.

### D.4.3 Pollution Control Equipment

Over 99% of large MWC capacity operates with a spray dryer absorber/scrubber. (IWSA 2003) Approximately 80% of large MWC capacity operates using carbon injection as part of the pollution control system. (IWSA 2003) Due to requirements in the NSPS (EPA 2000b) and EG (EPA 200c) for small MWCs, small MWCs planning continued operation are generally upgrading or have upgraded their pollution control equipment to add spray dryer absorbers or other acid gas control and carbon injection.

Review of EPA's HMIWI inventory (EPA 2003) indicates that essentially all HMIWIs have some form of wet or dry scrubbing for acid gas control.

### D.4.4 Summary

Approximately 30 million tons per year of municipal solid waste is combusted in the United States annually in waste-to-energy muncipal waste combustors in 2003. Approximately 0.3 million tons per year of segregated medical waste is combusted annually in the United States in hospital/ medical/infectious waste incinerators in 2003. Considering the relative amounts of waste combusted annually, typical operating conditions for waste incineration in the U.S. across these two classes of units are as follows:

| | |
|---|---|
| Average Temperature | >1000 °C |
| Residence Time | 2 sec |
| $O_2$ concentration in exhaust gas | 10% |
| $H_2O$ concentration in exhaust gas | 15% |

EPA emission regulations currently in place or in place by 2005 that operating municipal waste combustors and hospital/medical/infectious waste incinerators typically have or will have air pollution control equipment such as wet or dry scrubbing for acid gas control.

**References**

Blount Energy Corporation. Correlation Procedure for Continuously Monitoring Furnace Temperatures (Warren County Resource Recovery Facility), March 22, 1989.

Clean Air Engineering. Test Report for Covanta of Fairfax, Inc. I-95 Energy/Resource Recovery Facility, 1997.

Donnelly, J.R. Waste Incineration Sources: Municipal Waste Combustion. In: W.T., ed., Air Pollution Engineering Manual, 2nd edition. Air and Waste Management Association. New York, NY: Van Nostrand Reinhold, 2000, pp 257-268.

Environmental Laboratories Inc. Stack Test Report for Emissions Testing of the Bethesda Memorial Hospital Waste Incinerator, Boynton Beach Florida, September 13, 1993.

Environmental Protection Agency (EPA). Municipal Waste Combustion Assessment: Technical Basis for Good Combustion Practice, EPA 600/8-89-063, August 1989.

EPA. Medical Waste Incinerators-Background Information for Proposed Standards and Guidelines: Control Technology Performance Report for New and Existing Facilities, EPA-453/R-94-044a, July 1994.

EPA. Medical Waste Incinerators - Background Information for Proposed Standards and Guidelines: Model Plant Description and Cost Report for New and Existing Facilities, EPA-453/R-94-045a, July 1994.

EPA. Decision Maker's Guide to Solid Waste Management, Volume II, Chapter 8, 1995.

EPA. AP-42, Fifth Edition, Volume I, Chapter 2: Solid Waste Disposal, Section 2.1, Refuse Combustion, Supplement B, October 1996.

EPA. Medical Waste Incineration Emission Test Report: Weeks Memorial Hospital, Lancaster, New Hampshire, EMC Report 96-MWI-11, March 1996.

EPA. Standards of Performance for New Stationary Sources and Emission Guidelines for Existing Sources: Hospital/Medical/Infectious Waste Incinerators, 62 Federal Register 48346, September 15, 1997.

EPA. Exposure and Human Health Reassessment of 2,3,7,8-Tetrachlorodibenzo-*p*-Dioxin (TCDD) and Related Compounds, Part I: Estimating Exposure to Dioxin-Like Compounds Volume 2: Sources of Dioxin-Like Compounds in the United States, Chapter 3, EPA/600/P-00/001Bb, Draft Final Report, September 2000.

EPA. New Source Performance Standards for New Small Municipal Waste Combustion Units, 65 Federal Register 76350, December 6, 2000.

EPA. Emission Guidelines for Existing Small Municipal Waste Combustion Units, 65 Federal Register 76378, December 6, 2000.

EPA. HMIWI Facility and Emissions Inventory, draft, July 28, 2003, www.epa.gov/ttnatw01/129/hmiwi/2003hmiwi_inventory.xls

Finklestein, A. and R. D. Klicius. National Incinerator Testing and Evaluation Program: The Environmental Characterization of Refuse-derived Fuel (RDF) Combustion Technology, Mid-Connecticut Facility, Hartford, Connecticut, EPA-600/R-94-140 (NTIS PB96-153432), December 1994.

HDR Engineering. Performance Test Results Report Submittal: Incinerator Waste Management Facility, Mayo Foundation, Rochester, Minnesota, June 7, 1994.

HDR Engineering. Performance Test Results Report Supplemental Submittal Charts, Data Sheets, Operator Log, CEMS Data: Incinerator Waste Management Facility, Mayo Foundation, Rochester, Minnesota, June 10, 1994.

Integrated Waste Services Association (IWSA). The 2002 IWSA Directory of Waste-to-Energy Plants, 2002, www.wte.org/2002_directory/IWSA_2002_Directory.html

IWSA. Air Pollution Control Devices on Operating Waste-to-Energy Plants: Year 2002, 2003.

METCO Environmental. Source Emissions Survey of University of Texas Medical Branch, Incinerator Number 2 Exhaust Duct, Galveston, Texas, TACB Permit C-18655 for Clever Brooks, July 1992.

Midwest Research Institute. Updated Hospital/Medical/ Infectious Waste Incinerator Inventories Received from Various Regions, States, and Counties, January 27, 1999.

Pace Analytical. Comprehensive Emissions Test Report: MSW Incinerator Unit No. 1 ESP Outlet & MSW Incinerator Unit No. 2 ESP Outlet (Polk County Solid Waste Plant), March 11-14, 2003.

Scavuzzo, S. A., J. R. Strempek, and L. Strach. "The Determination of the Thermal Operating Characteristics in the Furnace of a Refuse-Fired Power Boiler" in Proceedings of the 1990 National Waste Processing Conference, American Society of Mechanical Engineers (ASME), 1990, pp. 397-404.

Schuetzenduebel, W. G. and W. C. Nobles. "New Jersey's First Resource Recovery Facility (The Warren County Energy Recovery Facility)" in Proceedings of the 1990 National Waste Processing Conference, ASME, 1990, pp. 321-343.

Schuetzenduebel, W. G. Blount Energy Corporation Report - Furnace/Boiler Temperature Correlation: Warren County Resource Recovery Facility, Oxford, New Jersey, October 1989.

Technical Services, Inc. Source Test Report: Boca Raton Hospital, Boca Raton, Florida, March 31-April 2, 1993.

Technical Services, Inc. Source Test Report: Mercy Hospital South Miami, Florida, July 27-28, 1994.

Technical Services, Inc. Source Test Report: St. Vincent's Medical Center Jacksonville, Florida, August 30, 1994.

Theodore, L. Air Pollution Control and Waste Incineration for Hospitals and Other Medical Facilities, Van Nostrand Reinhold, New York, 1990, pp 313-320.

Van Remmen, T. Evaluation of the available air pollution control technologies for achievement of the MACT requirements in the newly implemented new source performance standards (NSPS) and emission guidelines (EG) for hospital and medical/infectious waste incinerators, Waste Management, 1998, Vol. 18, pp 393-402.

**APPENDIX G**

**INCINERATION TESTING ECA QUALITY ASSURANCE PROJECT PLAN: OUTLINE & PLANNED CONTENT**

| **Section** | **Planned Sections** | **Primary Guidance for Preparing Each QAPP Section (ref: EPA QAMS-005/80)** | **Supplemental Guidance Reference for Preparing Each QAPP Section (ref: EPA QA/R-5 QAPP Guidance elements)** | **Required Content of Incineration Testing ECA** |
|---|---|---|---|---|
| not numbered | Title Page | 1.0 Title Page with Provision for Approval Signatures | A1 Title and Approval Sheet<br>A2 Distribution List | to be included in QAPP |
| not numbered | Table of Contents | 2.0 Table of Contents | A2 Table of Contents | to be included in QAPP |
| 1.0 | Introduction | not applicable | not applicable | to be satisfied by cross-reference to introductory text in ECA and Appendices, as applicable |
| 2.0 | Project Description | 3.0 Project Description | A5 Problem Definition/Background<br>A6 Project/Task Description<br>B1 Sampling Process Design (Experimental Design) | to be satified by cross-reference to ECA (Parts I, IV) and Appendix C.1 or C.2, as applicable |
| 3.0 | Project Organization and Responsibility | 4.0 Project Organization and Responsibility | A4 Project/Task Organization | to be included in QAPP |
| 4.0 | Quality Assurance Objectives | 5.0 Quality Assurance Objectives for Measurement Data | A7 Quality Objectives and Criteria | to be included in QAPP |

| | | | | |
|---|---|---|---|---|
| 5.0 | Sampling Procedures | 6.0 Sampling Procedures | B2 Sampling Methods | to be satisfied by cross-reference to Appendix C.1 or C.2 (as applicable) and to Appendix D.1 |
| 6.0 | Sample Handling and Custody | 7.0 Sample Custody | B3 Sample Handling and Custody | to be included in QAPP |
| 7.0 | Analytical Methods | 9.0 Analytical Methods | B4 Analytical Methods | to be satisfied by cross-reference to Appendices C.2, D.2, and D.3, as applicable |
| 8.0 | Calibration Procedures and Frequency | 8.0 Calibration Procedures and Frequency | B7 Instrument/ Equipment Calibration and Frequency | to be included in QAPP in summary form for chemical analysis equipment |
| 9.0 | Internal Quality Control Checks | 11.0 Internal Quality Control Checks and Frequency | B5 Quality Control | to be included in QAPP consistent with ECA Appendices, as applicable |
| 10.0 | Data Reduction, Validation, and Reporting | 10.0 Data Reduction, Validation, and Reporting | D1 Data Review, Verification, and Validation | to be included in QAPP consistent with Appendices C.1, C.2, and D.2, as applicable |
| 11.0 | Preventive Maintenance | 13.0 Preventive Maintenance | B6 Instrument/ Equipment Testing, Inspection, and Maintenance | to be included in QAPP in summary form for chemical analysis equipment |
| 12.0 | Accuracy, Precision, Completeness | 14.0 Procedures to Assess Data Precision, | not applicable | to be included in QAPP |

| | | | | |
|---|---|---|---|---|
| | | Accuracy, and Completeness | | |
| 13.0 | Performance and System Audits | 12.0 Performance and System Audits | not applicable | to be included in QAPP as applicable; not applicable to laboratory(ies) performing analysis pursuant to 40 CFR 792 |
| 14.0 | Corrective Actions | 15.0 Corrective Actions | C1 Assessments and Response Actions | to be included in QAPP as applicable; not applicable to laboratory(ies) performing analysis pursuant to 40 CFR 792 |
| 15.0 | Quality Assurance Reports to Management | 16.0 Quality Assurance Reports to Management | C2 Reports to Management | to be included in QAPP as applicable; not applicable to laboratory(ies) performing analysis pursuant to 40 CFR 792 |

For use during the February 4, 2004 Incineration Development Conference Call

EPA Comments on the FMG / TRP draft of "Appendix G: Incineration Testing ECA Quality Assurance Project Plan: Outline & Planned Content." EPA notes the following:

1) QAMS-005 / 80 is not current for QAPP submissions to OPPT. Therefore, the second and third columns from the left of the FMG / TRP draft Appendix G should be deleted.

A QAAP must follow the most current Agency guidance. EPA indicates that, for testing under an ECA for OPPT, an acceptable QAPP must follow QA / R5. Guidance for developing Quality Assurance Project Plans can be found in the EPA document EPA QA/R5: *EPA Requirements for Quality Assurance Project Plans,* prepared by: Office of Environmental Information, EPA, March 2001. This is also available from the EPA website at http://epa.GOV/Quality/qs-docs.

2) The FMG/TRP QAAP draft outline does not include headings for each of the four elements listed in QA/R5 Chapter 3.

The FMG / TRP QAAP draft outline must include the four groups of elements described in Chapter 3 of the EPA QA / R5 document (A. Project Management, B. Data Generation and Acquisition, C. Assessment and Oversight, and D. Data Validation and Usability).

3) The FMG/TRP draft outline does not track each sub-element as described in QA/R5 Chapter 3.

For clarity, the FMG / TRP Appendix G draft outline must follow the numerical order of the individual sub-elements for each group of elements as shown in the table of contents of QA / R5 Chapter 3 under 3.2 GROUP A: Project Management, 3.3 GROUP B: Data Generation and Acquisition, 3.4 Group C: Assessment and Oversight, and 3.5 Group D: Data Validation and Usability. The left hand column of the FMG/TRP draft Appendix G outline should track these sub-elements

4) The FMG / TRP QAPP must be a stand alone document. Cutting and pasting text from the ECA document and/or ECA appendices is acceptable.

5) The FMG/TRP needs to provide further clarification regarding the specific meaning of and with relevance to each applicable sub-element in QA/R5 for the following text included in the draft outline:

> "to be included in the QAAP as applicable; not applicable to laboratory(ies) performing analysis pursuant to 40 CFR 792"