

Independent Peer Review (3rd Party Sarah Foster, CPF Associates, Inc.)

- Peer review letter dated April 1, 2016 from Sarah Foster
- Table summarizing her peer review comments and TRC responses
- Those responses highlighted in “green” were incorporated into the draft report
- Those responses highlighted in “red” were not incorporated into the draft report. TRC’s reasoning can be found in the table also.



Scientific Research and Consulting

April 1, 2015

Ms. Karen Vetrano, Ph.D.
Manager, Risk Assessment and Toxicology
TRC Environmental Corporation
142 Ralyn Rd
Cotuit, MA 02635

Dear Karen,

I have had the opportunity to review the February 2016 revised final draft of the Fourth Operational Phase Ambient Air Monitoring Program, Winter 2013-2014 and 2014-2015 report prepared by TRC Associates regarding the Montgomery County Resource Recovery Facility.

In this peer review, I evaluated the revised final draft in light of the comments submitted from my earlier review of the June 2015 draft. TRC did a thorough job of addressing my prior comments. A comparison of the revised and prior drafts section by section indicated that TRC had adequately addressed my comments and edited the report text to help make it more understandable to a less technical audience. The air media monitoring program was conducted in accordance with standard sampling and analytical methods that are currently used for these types of environmental monitoring studies. The sampling, analysis and validation methods are well summarized in the report and documentation related to data validation and the detailed laboratory results are provided in appendices to the report. TRC's assessment also included informative evaluations of the most recent air measurements relative to concentrations reported in previous investigations and predicted by air dispersion modeling.

This peer review accepted as accurate the data values, maps and figures presented in the report, with the understanding that TRC independently quality assured and validated this information as part of its quality assurance methods for this project.

Overall, the methodologies followed were consistent with current scientific norms for this type of study, and the conclusions were consistent with findings in other environmental monitoring studies of similar waste-to-energy facilities. The air media monitoring program relied on well-accepted and appropriate methodologies to evaluate potential air impacts associated with emissions from the waste-to-energy facility. The study shows no measurable impacts on air concentrations of the evaluated compounds (dioxins and furans and selected trace metals) that can be attributed to the facility.

Please feel free to contact me if you have any questions.

Sincerely,

A handwritten signature in cursive script that reads "Sarah Foster".

Sarah Foster, Principal
CPF Associates, Inc.

**July 24, 2015 MCRRF Air Media Sampling Program Fourth Operational Phase
Winter 2013-2014 and 2014- 2015
Draft Final Report - Response to Sarah Foster (Peer Review Comments)**

Comment #	Pg #	Comment	Report Section Topic	TRC Response as Requested (y/n)	TRC Comments
1	iv	It would be helpful to add a list of acronyms to the report	Table of Contents	Good suggestion ! Yes one will be prepared	TRC will prepare a glossary defining all acronyms
2	ES-1	Spell out first use. Choose nomenclature for facility name to use throughout (e.g., MCRRF)	Executive Summary	Yes	First use only and glossary will define each acronym
3	ES-1	Do you want to mention the previous air monitoring programs? Previous programs were conducted in 1994-1995 (pre-operational), 1996-1997 (first operational phase), 2002-2003 (second operational phase) and 2008 (third operational phase).	Executive Summary	Yes	These prior programs will be listed in text
4	ES-1	Why not also compare to other older air monitoring phases?	Executive Summary	No comparison will not be made	2008 AECOM report presented a comparison of the 2008 data to prior results. Older data are populated by a great deal of ND values (often > current ND values) and not useful for comparison and trend analyses.
5	ES-1	Unless standard TRC practice, or recommended by the County, I do not think you need to present written numbers in parens, throughout the report.	Executive Summary	Yes	Written numbers in parentheses will be removed throughout report
6	ES-1	Recheck terminology throughout report. Do not need to spell out full facility name repeatedly.	Executive Summary	Yes	Acronym will be defined in glossary and spelled out when first used
7	ES-1	It looks like the isopleths are of air concentrations, not deposition rates.	Executive Summary	Yes	That is correct. Isopleths represent concentrations. Text has been changed.
8	ES-2	It would be helpful to show the # of samples for each sampling event row in this table. A lot of samples were collected for this program; providing the # of samples here would be informative for the reader.	Executive Summary	No	Listing number of actual samples will confuse reader. Footnote in table states which samples were collected in duplicate.
9	ES-2	I do not recommend using "impact" every time you mention the Beallsville site. Recommend removing the term in this table. Beallsville was not always in a predominant downwind direction during this sampling program.	Executive Summary	Yes	Terms "impact" and "background" will only be used in Section 2 describing the two sampling locations.
10	ES-2	Were these same sets of samples analyzed for the target metals as well as XRF?	Executive Summary	Yes	Text adequately explains this. Currently TRC accepts revised peer reviewer text.
11	ES-2	Table ES-1 says 31 days	Executive Summary	Yes	31 days is correct.
12	ES-2	A composite sample is generally created by combining several distinct increments. Consider rechecking usage of the term composite when referring to air samples in the report.	Executive Summary	Yes	The term composite will not be used to describe sampling events throughout report.
13	ES-2	Spell out first use	Executive Summary	Yes	See comment #2 response.
14	ES-3	Which one – reagent or field blank?	Executive Summary	Yes	Term blank only will be used.
15	ES-3	Identical may be an overly definitive term to use when talking about ambient air data. When considered across all analyzed metals, the sampling data do not really seem "near identical".	Executive Summary	Yes	Term similar will be used in place of "near identical".
16	ES-3	Figure 8-2 shows some detectable values for Cr and Hg in 2008. Recheck/revise as needed.	Executive Summary	Yes	text will be revised accordingly.
17	ES-3	I do not recommend using "impact" every time you mention the Beallsville site. Even though it was originally selected as an "impact" site years ago, it was not always in a predominant downwind direction during this sampling program.	Executive Summary	Yes	See comment/response #9.
18	ES-4	Recommend some caution in comparing modeled concentrations for an averaging time that is not the same as the sampling times (e.g., were the modeled concentrations annual averages? The metals concentrations were from 24-hour samples, and the PCDD/PCDF concentrations were from 30-day samples).		No	Averaging times used for modeling of emissions were the same as duration of sampling event (24 hrs for metals and 31 days for PCDDs/PCDFs).
19	ES-4	Please refer to comments on Table 8-1		Yes	Tables ES-2 and 8-1 will be revised as noted.
20	1	Spell out first use. Choose nomenclature for facility name to use throughout (e.g., MCRRF)	1.1 Background	Yes	See comment #2 response.
21	1	Do you want to mention the previous air monitoring programs? Previous programs were conducted in 1994-1995 (pre-operational), 1996-1997 (first operational phase), 2002-2003 (second operational phase) and 2008 (third operational phase).	1.1 Background	Yes	See Comment #3 response.
22	1	Why not also compare to other older air monitoring phases?	1.2 Purpose and Objective	No	See comment #4 response. Prior monitoring program results were affected by detection limits and comparison of current data to 2008 results made the most sense to avoid this.

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23	2	Recommend using one term for dioxins/furans, or PCDDs/PCDFs, throughout. The first time this mixture is mentioned in the main text, it would be helpful to insert a footnote providing some information about this set of compounds. Additionally, the first time the term homologue is introduced, a footnote explaining what this refers to would be helpful. For example, the following text is included in the non-air media monitoring report: "Dioxins and furans consist of a class of 210 chlorinated organic compounds (i.e., PCDDs and PCDFs). Of these, 17 specific PCDD/PCDF compounds, called congeners, are considered to be toxic and have been assigned relative toxicity factors known as Toxic Equivalency Factors (TEFs). A TEF reflects the relative toxicity of an individual PCDD or PCDF compound compared to 2,3,7,8-TCDD, the most toxic and well-studied congener among the PCDDs/ PCDFs. The overall concentration of a sample is calculated by multiplying the concentration values for each of the 17 PCDDs/PCDFs by its TEF. The sum of the products of the TEFs and associated congener concentrations then becomes the 2,3,7,8-TCDD toxic equivalent (TEQ), a value which can be used to evaluate a sample containing a mixture of PCDDs/PCDFs. Many of the dioxin/furan results discussed in this report are expressed as TEQ values.	1.3 Historical Review	Yes	These terms will be defined as requested in the glossary of acronyms.
24	2	Unless standard TRC practice, or recommended by the County or DAFIG, it does not seem necessary to present numbers in parens throughout report.	2.1 Introduction	Yes	See comment #5 response.
25	2	It looks like Figure 2-1 shows 5-yr average air concentrations, not deposition rates. Suggest rechecking and editing this sentence to ensure it is accurate.	2.1 Introduction	Yes	Concentrations are shown in Figure 2-1. Text will be revised accordingly.
26	4	Spell out first use of acronyms	2.2.2 Location of Samplers	Yes	See comment #2 and response.
27	4	Spell out first use. See earlier comment re: dioxins/furans and PCDDs/PCDFs.	2.2.2 Location of Samplers	Yes	See comments #2 and #23 and responses.
28	5	East-southeast?	2.3.1 Description of Location	Yes	Direction will be revised as noted.
29	7	Can you mention blanks and quality assurance samples as applicable in each of these sections?	3.0 Sample Collection Procedures	No	Blanks and other quality assurance samples are more appropriately mentioned in the section of the report dedicated to quality control (Section 7) and the report appendices specific to each analysis method.
30	7	As mentioned earlier, it is recommend that "impact" not be used every time you mention the Beallsville site.	3.1 Metals	Yes	See comment #9 and response.
31	7	I added additional information in this section because the approaches used to analyze the TSP filters were difficult to follow. The added explanatory text is intended to make it easier for a lay reader to understand. Please edit/correct as you see fit, particularly if any of the new text is not accurate.	3.1 Metals	Yes	Text offered by peer reviewer is acceptable and will remain in revised report.
32	7	You may want to consider spelling out numbers under 10, and showing them as numbers only if 10 or higher. It does not seem necessary to present numbers in parens throughout report.	3.1 Metals	Yes	Authors will adopt this suggestion. Only numbers greater than twenty will be shown as actual numbers.
33	7	Alpha laboratory or Alpha Analytical?	3.1 Metals	Yes	Correct term "Alpha Analytical".
34	8	Spell out first use	3.3 PCDDs/PCDFs	Yes	See comments #2 and #23 and responses.
35	8	Mention the company that conducted the stack sampling and collected the samples?	3.4 Stack Samples - Particulate EPA M5/M29	Yes	Text will be revised as requested.
36	8	Were these total particulate samples?	3.4 Stack Samples - Particulate EPA M5/M29	Yes	Text will be revised as requested.

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37	8	What was the tenth sample?	3.4 Stack Samples - Particulate EPA M5/M29	Yes	Tenth sample was a blank.
38	9	Consider mentioning field blanks or other QC samples, as applicable, that were analyzed for TSP metals. Suggest that you mention the lab that analyzed the TSP filters for the targeted list of metals.	4.1 Metals	Yes	Alpha Analytical performed TSP and metals analyses. Regarding blanks see comment #29.
39	9	The TSP filter metals analysis is hard to follow because part is presented here and the rest at the end of Section 4.0. It may be simpler for a lay reader to have both metals analyses sections be provided in sequence in two subsections – 4.1.1 for TSP metals (Method 6020) and 4.1.2 for Metals (XRF). In this case, Section 4.4 would be moved to Section 4.1.2.	4.1.1 TSP Metals (Method 6020)	Yes. Good suggestion !!	Sections will be placed in the order as suggested by peer reviewer.
40	9	Consider mentioning field blanks or other QC samples, as applicable, that were analyzed for Hg. Which lab analyzed the Hg samples?	4.2 Mercury	Yes	Brooks - Rand performed Hg analyses. Regarding blanks see comment #29 and response.
41	9	Spell out first use or add footnote for clarification	4.2 Mercury	Yes	See comment #2 and response.
42	9	The blanks MAY have been evaluated? Or were they evaluated?	4.2 Mercury	Yes	TRC will evaluate and revise as needed.
43	9	Spell out first use or add footnote for clarification	4.2 Mercury	Yes	See comment #2 and response.
44	9	Spell out first use or add footnote for clarification	4.3 PCDDs/PCDFs	Yes	See comment #2 and response.
45	9	Wasn't there also a blank filter sample?	4.3 PCDDs/PCDFs	No	See comment #29 and response.
46	10	Spell out first use	4.3 PCDDs/PCDFs	Yes	See comment #2 and response.
47	10	Spell out first use	4.3 PCDDs/PCDFs	Yes	See comment #2 and response.
48	10	Spell out first use	4.3 PCDDs/PCDFs	Yes	See comment #2 and response.
49	10	Recommend moving this to a new Section 4.1.2 per previous comment.	4.4 Metals (XRF) – Ambient Air Filter Samples	Yes	Sections will be placed in order as requested by peer reviewer.
50	11	What was the tenth sample?	4.5 Metals (XRF) – MCRRF Source Particulate Samples	Yes	Tenth sample was a blank.
51	12	Should this same method also be noted in Section 4.1? It is noted simply as Method 6020 there.	5.1 Metals	Yes	Text will be revised as requested by peer reviewer.
52	12	Edit for consistency with Section 4.2	5.2 Mercury (Total Vapor/Particulate)	Yes	Text will be revised as requested by peer reviewer.
53	12	It seems like this should go in the lab section, not here.	5.3 PCDDs/PCDFs	Yes	Text will be revised such that method title in parentheses is deleted.
54	13	It would be helpful to show the # samples for each sampling event row in this table. A lot of samples were collected for this program; providing the # samples here would be informative for the reader. Also suggest including the # of blanks or other QC samples collected.	Table 5-1: Montgomery County RRF Ambient Sampling Event Summary	No	See comment #8 and response. Regarding blanks and QC samples see comment #29 and response.
55	13	What is ML?	5.4 Stack Samples - Particulate EPA M5/M29	Yes	Term ML will be removed.
56	18	Recommend referring to homologue sums consistently, either Cl4-Cl8, or tetra-hepta, but not both. Add footnote describing homologues the first time they are mentioned in the main text.	6.3 PCDDs/PCDFs	Yes	Homologue sums will be referred to in a consistent manner. See also comment #2 and #23.
57	18	Is there any potential effect on concentrations associated with not correcting the results?	6.3 PCDDs/PCDFs	No	It is customary per the standard methods to report actual concentrations without any blank correction.

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58	22	Composites are generally created by combining several distinct increments.	6.5 Metals - XRF - EPA Method 5/29 MCRRF Stack Samples	Yes	The term composite will be deleted.
59	22	What is the tenth sample?	6.5 Metals - XRF - EPA Method 5/29 MCRRF Stack Samples	Yes	Tenth sample was a field blank.
60	23	Convert to numerical reference like rest of report?	7.1 Data Review and Validation	Yes	Citation will be placed in section 10.
61	23	Convert to numerical reference like rest of report?	7.1 Data Review and Validation	Yes	Citation will be placed in section 10.
62	23	Even though this statement is in the appendix, it doesn't really seem necessary in the main text given that this study isn't addressing a standard regulatory requirement.	7.1 Data Review and Validation	Yes	Text as requested by peer reviewer will be deleted.
63	24	The %RPD was not met for a couple samples, particularly Cd from sampling event 1 (0.19 mg/m3 vs 1.68 ng/m3). Some discussion of the significance or meaning of this finding seems warranted, at least in one of the appendices. Given the difference in concentrations reported for Cd at Beallsville from sampling event 1, it would not be surprising for someone to ask about this. You may want to proactively address this possible question in the report or, at minimum, be prepared with an answer should it come up.	7.3 Collocated Sampler Precision Data (% RPD)	Yes Good Point.	TRC will reference text regarding this topic found in Appendix G - TRC data validation memorandums. Text addressing the % RPD difference for Cd will be placed in the body of the report.
64	25	It might be helpful to put an ND indicator somewhere above Be, Cr and Hg, and some of the Cd results, in Figure 8-1, to make it clear that the compounds were not detected.	8.1.1 Site/Event Specific	Yes Good Suggestion	Figure 8-1 will be revised as noted by peer reviewer.
65	25	Figure 8-2 shows some detectable values for Cr and Hg in 2008. Recheck/revise as needed.	8.1.2 Comparison to 2008 Data (AECOM)	Yes	See comment #16 (ES) and response.
66	25	It might be helpful to put an ND indicator somewhere above Be, 2014 Cr and 2014 and the one 2008 Hg result in Figure 8-2, to make it clear that these compounds were not detected.	8.1.2 Comparison to 2008 Data (AECOM)	Yes Good Suggestion	See comment #64 and response.
67	28	You may want to consider showing the letter-form degree directions associated with these degree ranges (e.g., NNW, etc) to facilitate reading of the wind roses. Alternatively, you might indicate these degree direction "wedges" on the wind rose figures.	8.1.3.1 Meteorology	Yes Good Suggestion	Letter form wind directions only will be used. These will be defined in the glossary of acronyms.
68	28	Revisit all percentages for wind direction, and the organization of the text, in this section. Perhaps you do not need to have a subheading for each sampling date range, but can put it all in one paragraph as suggested above.	8.1.3.1 Meteorology	No	Each sampling event should be addressed separately. Combining all events would require that meteorology and results for each event be combined as well. The significance of results and report findings are more readily apparent when events are addressed separately.
69	29	This concentration is not on Table 6-1. Is it an average of the Beallsville samples? Need to clarify in the text.	8.1.3.1 Meteorology	Yes	The value reported is an average of collocated sample results. Text will be inserted as appropriate.
70	34	Was a statistical test conducted to determine statistical significance? If not, use a different word, such as substantial.	8.2.1 Site/Event Specific Comparisons	Yes	Statistical tests were not performed. The term substantial will be used in place of significantly.
71	41	The text flow might be more understandable if Sections 8.3 and 8.4 are switched, i.e., move PCDDs/PCDFs to sect.8.3 and the model comparison to Section 8.4	8.3 Model Predicted Ambient Concentrations	Yes Good Suggestion	The sections noted will be placed in order as requested by the peer reviewer.
72	42	Some numbers are shown with too many sig figs. Limit to no more than 3. (e.g., 305.5E-08)	Table 8-1	Yes	All values will be reported with 3 significant figures.
73	42	Indicate averaging time of modeled results	Table 8-1	Yes	
74	43	The text flow might be more understandable if Sections 8.3 and 8.4 are switched, i.e., move PCDDs/PCDFs to sect.8.3 and the model comparison to Section 8.4	8.4 PCDDs/PCDFs	Yes Good Suggestion	See comment #85 and response.

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Comment #	Pg #	Comment	Report Section Topic	TRC Response as Requested (y/n)	TRC Comments
75	49	The MCRRF HxCDF emissions profile is not presented in Figure 8-13 or discussed in this section. Recommend either removing MCRRF from the heading or including its data in this section and revising the text accordingly. I would recommend including the stack HxCDF congener data if you have it.	8.4.5 Congener Specific Analyses - Ambient Air and MCRRF Emissions	Yes	The title of Section 8.4.5 will be revised such that the text "and MCRRF Emissions" is removed.
76	52	Revise this section as warranted based on changes to executive summary and main report text.	9.0 Summary and Conclusions	Yes	Text will be revised so as to reflect changes made in the body of the report.
77	Table 6-1	Add "EPA Method 6020" somewhere in the table heading for clarity (since XRF was also done)		yes	heading revised
78	Table 6-1	Why calculate mean results if all sample results are listed as ND (e.g., Be, Cr, Hg)? I would recommend not calculating a mean across all ND values. If you want to show a mean, however, then you should also show the individual results rather than using ND. If a numerical value is provided for an ND result, or a mean based on ND results is shown, it is important to have a "<" sign precede every number where the underlying data were NDs.		No	
79	Table 6-1	The value for TSP, Lucketts Sampling event 1, is incorrect. It should be 21.5 (not 0.021).		yes	value corrected
80	Table 6-1	For Hg, sampling event 1, show non-detect results as ND (not N/D)		yes	entry revised to ND
81	Table 6-1	Recommend showing no more than 3 sig figs for any concentration.		yes	ok additional sig figs removed
82	Table 6-1	Given the difference in concentration reported for Cd at Beallsville from sampling event 1 (0.19 mg/m3 vs 1.68 ng/m3), some discussion may be warranted in a footnote to this table, and/or the text, and Appendix D. I did not see discussion of these results in Appendix D, other than an acknowledgment of the difference. Should a reader believe that the higher value is "real" or is it an outlier?		No	Results are flagged with qualifiers in the table based on data validation and variability between field and lab duplicates. This is addressed in the text
83	Table 6-2	For the spike samples, it might be helpful to indicate the spiked level of Hg in the comments column.		No	Spike level is in footnote to the table
84	Table 6-2	Given the difference in concentration reported for Hg at Beallsville from sampling event 1 (22.1 ng vs <1.1 ng), some discussion may be warranted in a footnote to this table, and/or the text, and Appendix E. Should a reader believe that the higher value is "real" or is it an outlier?		yes	Added in J qualifiers for these samples based on data validation
85	Table 6-2	The note mentions volumes are provided in cubic meters. Should this be cubic cm, consistent with the volume column in the table?		No	Volumes are in cubic meters, the cm3 was left in error and has been corrected.
86	Table 6-3	Recommend that all non-detect results (U qualifier) throughout the table should have a "<" before the listed numerical result. A reader may not look at the footnote with the U qualifier explanation.		yes	ok
87	Table 6-3	Some non-detect congener results are shown as 0 with a U qualifier. Many NDs are also shown as 0.001. Should any ND results be shown as 0?		yes	For all nondetected values that showed 0.000 an extra sigfig was added to show the full MDL
88	Table 6-3	Recommend using scientific notation for the TEQ concentrations and limiting numbers to 2 or 3 sig figs. Many TEQ concentrations are shown as 0, which is not correct.		yes	ok, also added definition/example of sci notation in TEQ subtotal footnote
89	Table 6-3	For the homologue groups, do not put in 0 for the TEQ subtotal. The TEFs do not apply to these groupings. Recommend putting in N/A in these sections of the table.		yes	revised per comment
90	Table 6-3	Recommend using no more than 3 sig figs, or 2, for the summed tetra-octa concentrations presented at the bottom of the table. This will also be consistent with values mentioned later in the report (e.g., the summed concentration for Lucketts is stated to be 3.70 pg/m3 later in the report, but shown as 3.696 pg/m3 here.		yes	revised per comment