

**Appendix H**

**Relative Accuracy Assessment**

February 2007

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## Appendix H

### Relative Accuracy Assessment

To assess the performance of the composite emissions factor uncertainty ratios, the calculated emissions factor target statistics were compared to the hypothetical population values for the target statistic for each emissions factor evaluated during the study. The following equation was used to calculate relative accuracy:

$$RA = (EF_{\text{target statistic}} - HP_{\text{target statistic}}) / HP_{\text{target statistic}} \times 100$$

where:

RA	=	Relative accuracy
$EF_{\text{target statistic}}$	=	Target population value of the emissions distribution, hereafter referred to as the target statistic (e.g., 95th percentile), in units of the AP-42 emissions factor
EF	=	Emissions factor, as presented in AP-42, in units of the AP-42 emissions factor
$HP_{\text{target statistic}}$	=	Actual value of the hypothetical population for the target statistic of interest for the emissions factor (e.g., 95 <sup>th</sup> percentile of the hypothetical population distribution)

and:

$$EF_{\text{target statistic}} = EF * EF_{\text{uncertainty ratio}}$$

where:

$EF_{\text{uncertainty ratio}}$	=	Composite uncertainty ratio for pollutant and target statistic of interest
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An example calculation for the HAP, HCl–Refuse Combustion, Mass Burn, follows.

Given:

- Published AP-42 emissions factor = 0.198 lb/ton
- Number of tests published emissions factor is based upon,  $n = 14$
- 95<sup>th</sup> percentile of the hypothetical population,  $HP_{95\text{th}} = 0.67$  lb/ton
- Composite default emissions factor uncertainty ratio for HAPS, where the target statistic is the 95<sup>th</sup> percentile and  $10 \leq n < 25$ , = 4.3

Then:

$$\begin{aligned} EF_{\text{target statistic}} &= EF * EF_{\text{uncertainty ratio}} \\ EF_{95\text{th percentile}} &= 0.198 \text{ lb/ton} * 4.3 \\ &= 0.85 \text{ lb/ton} \end{aligned}$$

and:

$$\begin{aligned} RA &= (EF_{\text{target statistic}} - HP_{\text{target statistic}}) / HP_{\text{target statistic}} * 100 \\ &= (0.85 - 0.67) / 0.67 * 100 \\ &= 27 \% \end{aligned}$$

Similarly for the target statistic of the 90<sup>th</sup> percentile for the same pollutant:

Given:

- a) Published AP-42 emissions factor = 0.198 lb/ton
- b) Number of tests published emissions factor is based upon,  $n = 14$
- c) 90<sup>th</sup> percentile of the hypothetical population,  $HP_{90th} = 0.49$  lb/ton
- d) Composite default emissions factor uncertainty ratio for HAPS, where the target statistic is the 90<sup>th</sup> percentile and  $10 \leq n < 25$ , = 2.7

Then:

$$\begin{aligned} EF_{\text{target statistic}} &= EF * EF_{\text{uncertainty ratio}} \\ EF_{90\text{th percentile}} &= 0.198 \text{ lb/ton} * 2.7 \\ &= 0.53 \text{ lb/ton} \end{aligned}$$

and:

$$\begin{aligned} RA &= (EF_{\text{target statistic}} - HP_{\text{target statistic}}) / HP_{\text{target statistic}} * 100 \\ &= (0.53 - 0.49) / 0.49 * 100 \\ &= 10 \% \end{aligned}$$

In these two examples, the emissions factor target statistic calculated using the composite emissions factor uncertainty ratio overestimates the 90<sup>th</sup> and 95<sup>th</sup> percentiles by 10 and 27 percent, respectively.

Table H-1 presents the relative accuracy calculations for each emissions factor evaluated during this study for the 10<sup>th</sup>, 25<sup>th</sup>, median, 75<sup>th</sup>, 90<sup>th</sup>, and 95<sup>th</sup> target statistics. The average, median, minimum, and maximum relative accuracy values are presented for each pollutant type for which composite uncertainty ratios were developed, i.e., HAPS; PM-condensable; PM-filterable, controlled; PM-filterable, uncontrolled; and gaseous criteria pollutants.

With the exception of PM-condensable, in general the composite uncertainty ratios overestimate the target statistics. In particular, the composite uncertainty ratios overestimate the percentiles below the median; i.e., the 10<sup>th</sup> and 25<sup>th</sup> percentiles.

Table H-1. Relative Accuracy Calculations.

Pollutant		Control	Industry/Source	Hypothetical Population Distribution						
				10th Percentile	25th Percentile	Median	75th Percentile	90th Percentile	95th Percentile	Mean
HAP	HCl	SD FF	Refuse Combustion, Mass Burn	0.011885098	0.03978901	0.115795614	0.264800565	0.485218415	0.67235391	0.198089285
HAP	Cadmium	SD ESP	Refuse Combustion, Mass Burn	2.18286E-05	3.66793E-05	6.45057E-05	0.00011237	0.000184209	0.000249283	9.05453E-05
HAP	Lead	SD ESP	Refuse Combustion, Mass Burn	0.000284063	0.00047427	0.000806597	0.001405261	0.002263855	0.003073062	0.001129321
HAP	Benzene	FFa	Asphalt, Drum Mix	0.00013659	0.000197548	0.000292906	0.000437145	0.000621512	0.000765038	0.000348619
HAP	Benzene	UNC	Wood Combustion	2.43087E-05	8.19475E-05	0.000349132	0.001395153	0.004905253	0.010391559	0.002881624
HAP	Mercury	UNC	Wood Combustion	2.23431E-09	3.35885E-08	3.66974E-07	2.37829E-06	1.01366E-05	2.07194E-05	4.25558E-06
HAP	Acetaldehyde	UNC	Wood Combustion	1.20321E-05	3.63479E-05	0.000127104	0.000421056	0.001282009	0.002481721	0.000648592
HAP	Formaldehyde	FFa	Asphalt, Drum Mix	0.000513453	0.000949212	0.001869112	0.003619453	0.006843647	0.010028655	0.003087912
HAP	Nickel	UNC	Wood Combustion	1.29969E-07	1.09579E-06	7.55541E-06	3.36704E-05	9.78716E-05	0.000174665	3.83377E-05
HAP	Arsenic	UNC	Wood Combustion	1.13988E-08	1.76122E-07	1.88765E-06	1.24797E-05	4.75788E-05	9.17912E-05	2.02928E-05
HAP	Cadmium	UNC	Wood Combustion	7.60437E-08	4.1036E-07	1.67881E-06	5.30483E-06	1.19819E-05	1.86383E-05	4.56902E-06
HAP	Lead	UNC	Wood Combustion	2.49445E-07	1.95669E-06	1.27618E-05	4.9498E-05	0.000137456	0.000245213	5.2533E-05
HAP	Chromium	UNC	Wood Combustion	1.562E-07	1.06176E-06	6.06116E-06	2.28496E-05	6.09357E-05	9.89494E-05	2.25884E-05
HAP	Arsenic	SD FF	Refuse Combustion, Mass Burn	1.57818E-06	2.13442E-06	2.98272E-06	4.23418E-06	5.68516E-06	6.91063E-06	3.39292E-06
HAP	Nickel	SD FF	Refuse Combustion, Mass Burn	5.80219E-06	1.04773E-05	2.03325E-05	3.95268E-05	7.22146E-05	0.000104236	3.33698E-05
HAP	HCl	UNC	Refuse Combustion	1.928421315	3.339276873	5.507249301	8.086702416	10.83857274	12.51331011	5.99924844
HAP	Formaldehyde	UNC	Wood Combustion	8.01831E-05	0.000240686	0.000853008	0.003024367	0.009165366	0.018510663	0.004737101
HAP	Mercury	SD FF	Refuse Combustion, Mass Burn	0.000240962	0.000457508	0.00095589	0.001985863	0.003848035	0.005704307	0.001719133
<b>HAP</b>										
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PM-con	PM-condensable organic	FF	Asphalt, Batch Mixer	0.000349771	0.001009151	0.002676421	0.005657647	0.009868894	0.013237759	0.004117503
PM-con	PM-condensable inorganic	WS/FF	Asphalt, Drum Mixer	0.002261186	0.003411893	0.00530844	0.008251648	0.012171302	0.01563607	0.006579479
PM-con	PM-condensable inorganic	FF	Asphalt, Batch Mixer	0.000628058	0.001687662	0.005224151	0.01543172	0.041851576	0.075063425	0.019372887
PM-con	PM-condensable organic	WS/FF	Asphalt, Drum Mixer	0.000448444	0.001396949	0.005210696	0.018763991	0.058489076	0.114407996	0.029107958
PM-con	PM-condensable	UNC	Wood Combustion	0.002154993	0.004406478	0.009476191	0.020844672	0.043094461	0.06394368	0.018611948
<b>PM-condensable</b>										
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<b>PM-condensable</b>										
PM-Fil		ESP	Refuse Combustion, RDF	0.035081924	0.107969771	0.367715528	1.23678186	3.674759651	6.880128102	1.777001564
PM-Fil		DSI FF	Refuse Combustion, Mass Burn	0.029844272	0.073524218	0.161671903	0.301311029	0.474770889	0.59596034	0.215135604
PM-Fil		SD ESP	Refuse Combustion, Mass Burn	0.045787031	0.053915507	0.064525724	0.077774598	0.091836712	0.101258925	0.067046112



Table H-1. Relative Accuracy Calculations.

Pollutant	Control	Industry/Source	Emissions Factor	n	Composite Uncertainty Ratios						
					10th Percentile	25th Percentile	Median	75th Percentile	90th Percentile	95th Percentile	
HAP	HCl	SD FF	Refuse Combustion, Mass Burn	0.198	14	0.12	0.23	0.51	1.2	2.68	4.47
HAP	Cadmium	SD ESP	Refuse Combustion, Mass Burn	0.0000932	18	0.12	0.23	0.51	1.2	2.68	4.47
HAP	Lead	SD ESP	Refuse Combustion, Mass Burn	0.00117	18	0.12	0.23	0.51	1.2	2.68	4.47
HAP	Benzene	FFa	Asphalt, Drum Mix	0.00039	19	0.12	0.23	0.51	1.2	2.68	4.47
HAP	Benzene	UNC	Wood Combustion	0.0042	19	0.12	0.23	0.51	1.2	2.68	4.47
HAP	Mercury	UNC	Wood Combustion	0.0000035	19	0.12	0.23	0.51	1.2	2.68	4.47
HAP	Acetaldehyde	UNC	Wood Combustion	0.00083	21	0.12	0.23	0.51	1.2	2.68	4.47
HAP	Formaldehyde	FFa	Asphalt, Drum Mix	0.0031	21	0.12	0.23	0.51	1.2	2.68	4.47
HAP	Nickel	UNC	Wood Combustion	0.000033	22	0.12	0.23	0.51	1.2	2.68	4.47
HAP	Arsenic	UNC	Wood Combustion	0.000022	23	0.12	0.23	0.51	1.2	2.68	4.47
HAP	Cadmium	UNC	Wood Combustion	0.0000041	24	0.12	0.23	0.51	1.2	2.68	4.47
HAP	Lead	UNC	Wood Combustion	0.000048	26	0.12	0.22	0.48	1.12	2.45	4
HAP	Chromium	UNC	Wood Combustion	0.000021	27	0.12	0.22	0.48	1.12	2.45	4
HAP	Arsenic	SD FF	Refuse Combustion, Mass Burn	0.00000382	35	0.12	0.22	0.48	1.12	2.45	4
HAP	Nickel	SD FF	Refuse Combustion, Mass Burn	0.000032	37	0.12	0.22	0.48	1.12	2.45	4
HAP	HCl	UNC	Refuse Combustion	6.08	40	0.12	0.22	0.48	1.12	2.45	4
HAP	Formaldehyde	UNC	Wood Combustion	0.0044	48	0.12	0.22	0.48	1.12	2.45	4
HAP	Mercury	SD FF	Refuse Combustion, Mass Burn	0.00159	60	0.12	0.22	0.48	1.12	2.45	4
<b>HAP</b>											
PM-con	PM-condensable organic	FF	Asphalt, Batch Mixer	0.0041	24	0.2	0.3	0.6	1.3	2.5	3.9
PM-con	PM-condensable inorganic	WS/FF	Asphalt, Drum Mixer	0.0074	30	0.1	0.3	0.6	1.2	2.4	3.6
PM-con	PM-condensable inorganic	FF	Asphalt, Batch Mixer	0.013	35	0.1	0.3	0.6	1.2	2.4	3.6
PM-con	PM-condensable organic	WS/FF	Asphalt, Drum Mixer	0.012	41	0.1	0.3	0.6	1.2	2.4	3.6
PM-con	PM-condensable	UNC	Wood Combustion	0.017	89	0.1	0.3	0.6	1.2	2.4	3.6
<b>PM-condensable</b>											
PM-Fil		ESP	Refuse Combustion, RDF	0.812	10	0.3	0.5	0.8	1.3	2.1	2.8
PM-Fil		DSI FF	Refuse Combustion, Mass Burn	0.219	15	0.3	0.5	0.8	1.3	2.1	2.8
PM-Fil		SD ESP	Refuse Combustion, Mass Burn	0.0725	18	0.3	0.5	0.8	1.3	2.1	2.8





Table H-1. Relative Accuracy Calculations.

Pollutant		Control	Industry/Source	Calculated Emissions Factor Target Statistic					
				10th Percentile	25th Percentile	Median	75th Percentile	90th Percentile	95th Percentile
HAP	HCl	SD FF	Refuse Combustion, Mass Burn	0.02376	0.04554	0.10098	0.2376	0.53064	0.88506
HAP	Cadmium	SD ESP	Refuse Combustion, Mass Burn	0.000011184	0.000021436	0.000047532	0.00011184	0.000249776	0.000416604
HAP	Lead	SD ESP	Refuse Combustion, Mass Burn	0.0001404	0.0002691	0.0005967	0.001404	0.0031356	0.0052299
HAP	Benzene	FFa	Asphalt, Drum Mix	0.0000468	0.0000897	0.0001989	0.000468	0.0010452	0.0017433
HAP	Benzene	UNC	Wood Combustion	0.000504	0.000966	0.002142	0.00504	0.011256	0.018774
HAP	Mercury	UNC	Wood Combustion	0.00000042	0.000000805	0.000001785	0.0000042	0.00000938	0.000015645
HAP	Acetaldehyde	UNC	Wood Combustion	0.0000996	0.0001909	0.0004233	0.000996	0.0022244	0.0037101
HAP	Formaldehyde	FFa	Asphalt, Drum Mix	0.000372	0.000713	0.001581	0.00372	0.008308	0.013857
HAP	Nickel	UNC	Wood Combustion	0.00000396	0.00000759	0.00001683	0.0000396	0.00008844	0.00014751
HAP	Arsenic	UNC	Wood Combustion	0.00000264	0.00000506	0.00001122	0.0000264	0.00005896	0.00009834
HAP	Cadmium	UNC	Wood Combustion	0.000000492	0.000000943	0.000002091	0.00000492	0.000010988	0.000018327
HAP	Lead	UNC	Wood Combustion	0.00000576	0.00001056	0.00002304	0.00005376	0.0001176	0.000192
HAP	Chromium	UNC	Wood Combustion	0.00000252	0.00000462	0.00001008	0.00002352	0.00005145	0.000084
HAP	Arsenic	SD FF	Refuse Combustion, Mass Burn	4.584E-07	8.404E-07	1.8336E-06	4.2784E-06	0.000009359	0.00001528
HAP	Nickel	SD FF	Refuse Combustion, Mass Burn	0.00000384	0.00000704	0.00001536	0.00003584	0.0000784	0.000128
HAP	HCl	UNC	Refuse Combustion	0.7296	1.3376	2.9184	6.8096	14.896	24.32
HAP	Formaldehyde	UNC	Wood Combustion	0.000528	0.000968	0.002112	0.004928	0.01078	0.0176
HAP	Mercury	SD FF	Refuse Combustion, Mass Burn	0.0001908	0.0003498	0.0007632	0.0017808	0.0038955	0.00636
<b>HAP</b>									
PM-con	PM-condensable organic	FF	Asphalt, Batch Mixer	0.00082	0.00123	0.00246	0.00533	0.01025	0.01599
PM-con	PM-condensable inorganic	WS/FF	Asphalt, Drum Mixer	0.00074	0.00222	0.00444	0.00888	0.01776	0.02664
PM-con	PM-condensable inorganic	FF	Asphalt, Batch Mixer	0.0013	0.0039	0.0078	0.0156	0.0312	0.0468
PM-con	PM-condensable organic	WS/FF	Asphalt, Drum Mixer	0.0012	0.0036	0.0072	0.0144	0.0288	0.0432
PM-con	PM-condensable	UNC	Wood Combustion	0.0017	0.0051	0.0102	0.0204	0.0408	0.0612
<b>PM-condensable</b>									
PM-Fil		ESP	Refuse Combustion, RDF	0.2436	0.406	0.6496	1.0556	1.7052	2.2736
PM-Fil		DSI FF	Refuse Combustion, Mass Burn	0.0657	0.1095	0.1752	0.2847	0.4599	0.6132
PM-Fil		SD ESP	Refuse Combustion, Mass Burn	0.02175	0.03625	0.058	0.09425	0.15225	0.203

Table H-1. Relative Accuracy Calculations.

Pollutant		Control	Industry/Source	Calculated Emissions Factor Target Statistic					
				10th Percentile	25th Percentile	Median	75th Percentile	90th Percentile	95th Percentile
PM-Fil		MC	Wood Combustion, Dry Wood	0.09	0.15	0.24	0.36	0.6	0.81
PM-Fil		WS	Wood Combustion	0.0198	0.033	0.0528	0.0792	0.132	0.1782
PM-Fil		ESP	Refuse Combustion, Mass Burn	0.0591	0.0985	0.1576	0.2364	0.394	0.5319
PM-Fil		MC	Wood Combustion, Wet Wood	0.066	0.11	0.176	0.264	0.44	0.594
PM-Fil		SD FF	Refuse Combustion, Mass Burn	0.01884	0.0314	0.05024	0.07536	0.1256	0.16956
PM-Fil		FF	Asphalt, Batch Mixer	0.0075	0.0125	0.02	0.03	0.05	0.0675
PM-Fil		FF	Asphalt, Drum Mixer	0.0042	0.007	0.0112	0.0168	0.028	0.0378
<b>PM-Filterable- Controlled</b>									
PM-Fil		UNC	Refuse Combustion, RDF	25.16	37.74	56.61	81.77	113.22	138.38
PM-Fil		UNC	Wood Combustion, Dry Wood	0.16	0.24	0.36	0.52	0.72	0.88
PM-Fil		UNC	Wood Combustion, Wet Wood	0.132	0.198	0.297	0.429	0.594	0.726
PM-Fil		UNC	Refuse Combustion, Mass Burn	10	15	22.5	32.5	45	55
PM-Fil		UNC	OSB, Hot Press	0.086	0.129	0.1935	0.258	0.387	0.473
<b>PM-Filterable Uncontrolled</b>									
Gaseous Criteria	Sulfur dioxide	UNC	Wood Combustion	0.0075	0.0125	0.02	0.03	0.05	0.07
Gaseous Criteria	Nitrogen Oxides	UNC	Refuse Combustion, Mass Burn Waterwall	1.086	1.81	2.896	4.344	7.24	10.136
Gaseous Criteria	Carbon Monoxide	UNC	Refuse Combustion, Mass Burn	0.1221	0.2035	0.3256	0.4884	0.814	1.1396
Gaseous Criteria	Sulfur dioxide	UNC	Refuse Combustion	1.032	1.72	2.752	4.128	6.88	9.632
Gaseous Criteria	Nitrogen Oxides	UNC	Wood Combustion	0.066	0.11	0.176	0.264	0.44	0.616
Gaseous Criteria	Carbon Monoxide	UNC	Wood Combustion	0.18	0.3	0.48	0.72	1.2	1.68
<b>Gaseous Criteria</b>									

Table H-1. Relative Accuracy Calculations.

Pollutant	Control	Industry/Source	Relative Accuracy						
			10th Percentile	25th Percentile	Median	75th Percentile	90th Percentile	95th Percentile	
HAP	HCl	SD FF	Refuse Combustion, Mass Burn	100%	14%	-13%	-10%	9%	32%
HAP	Cadmium	SD ESP	Refuse Combustion, Mass Burn	-49%	-42%	-26%	0%	36%	67%
HAP	Lead	SD ESP	Refuse Combustion, Mass Burn	-51%	-43%	-26%	0%	39%	70%
HAP	Benzene	FFa	Asphalt, Drum Mix	-66%	-55%	-32%	7%	68%	128%
HAP	Benzene	UNC	Wood Combustion	1973%	1079%	514%	261%	129%	81%
HAP	Mercury	UNC	Wood Combustion	18698%	2297%	386%	77%	-7%	-24%
HAP	Acetaldehyde	UNC	Wood Combustion	728%	425%	233%	137%	74%	49%
HAP	Formaldehyde	FFa	Asphalt, Drum Mix	-28%	-25%	-15%	3%	21%	38%
HAP	Nickel	UNC	Wood Combustion	2947%	593%	123%	18%	-10%	-16%
HAP	Arsenic	UNC	Wood Combustion	23060%	2773%	494%	112%	24%	7%
HAP	Cadmium	UNC	Wood Combustion	547%	130%	25%	-7%	-8%	-2%
HAP	Lead	UNC	Wood Combustion	2209%	440%	81%	9%	-14%	-22%
HAP	Chromium	UNC	Wood Combustion	1513%	335%	66%	3%	-16%	-15%
HAP	Arsenic	SD FF	Refuse Combustion, Mass Burn	-71%	-61%	-39%	1%	65%	121%
HAP	Nickel	SD FF	Refuse Combustion, Mass Burn	-34%	-33%	-24%	-9%	9%	23%
HAP	HCl	UNC	Refuse Combustion	-62%	-60%	-47%	-16%	37%	94%
HAP	Formaldehyde	UNC	Wood Combustion	558%	302%	148%	63%	18%	-5%
HAP	Mercury	SD FF	Refuse Combustion, Mass Burn	-21%	-24%	-20%	-10%	1%	11%
<b>HAP</b>			<b>Average</b>	<b>2886%</b>	<b>447%</b>	<b>101%</b>	<b>35%</b>	<b>26%</b>	<b>35%</b>
			Median	323%	72%	6%	3%	20%	27%
			Min	-71%	-61%	-47%	-16%	-16%	-24%
			Max	23060%	2773%	514%	261%	129%	128%
PM-con	PM-condensable organic	FF	Asphalt, Batch Mixer	134%	22%	-8%	-6%	4%	21%
PM-con	PM-condensable inorganic	WS/FF	Asphalt, Drum Mixer	-67%	-35%	-16%	8%	46%	70%
PM-con	PM-condensable inorganic	FF	Asphalt, Batch Mixer	107%	131%	49%	1%	-25%	-38%
PM-con	PM-condensable organic	WS/FF	Asphalt, Drum Mixer	168%	158%	38%	-23%	-51%	-62%
PM-con	PM-condensable	UNC	Wood Combustion	-21%	16%	8%	-2%	-5%	-4%
<b>PM-condensable</b>			<b>Average</b>	<b>64%</b>	<b>58%</b>	<b>14%</b>	<b>-4%</b>	<b>-6%</b>	<b>-3%</b>
			Median	107%	22%	8%	-2%	-5%	-4%
			Min	-67%	-35%	-16%	-23%	-51%	-62%
			Max	168%	158%	49%	8%	46%	70%
PM-Fil		ESP	Refuse Combustion, RDF	594%	276%	77%	-15%	-54%	-67%
PM-Fil		DSI FF	Refuse Combustion, Mass Burn	120%	49%	8%	-6%	-3%	3%
PM-Fil		SD ESP	Refuse Combustion, Mass Burn	-52%	-33%	-10%	21%	66%	100%

Table H-1. Relative Accuracy Calculations.

Pollutant		Control	Industry/Source	Relative Accuracy						
				10th Percentile	25th Percentile	Median	75th Percentile	90th Percentile	95th Percentile	
PM-Fil		MC	Wood Combustion, Dry Wood	-47%	-31%	-15%	-3%	27%	49%	
PM-Fil		WS	Wood Combustion	-45%	-32%	-16%	2%	46%	83%	
PM-Fil		ESP	Refuse Combustion, Mass Burn	57%	48%	24%	-3%	-8%	-13%	
PM-Fil		MC	Wood Combustion, Wet Wood	409%	150%	38%	-12%	-21%	-21%	
PM-Fil		SD FF	Refuse Combustion, Mass Burn	33%	33%	18%	-2%	-6%	-6%	
PM-Fil		FF	Asphalt, Batch Mixer	133%	94%	45%	0%	-14%	-24%	
PM-Fil		FF	Asphalt, Drum Mixer	31%	36%	26%	12%	13%	13%	
<b>PM-Filterable- Controlled</b>				<b>Average</b>	<b>123%</b>	<b>59%</b>	<b>20%</b>	<b>0%</b>	<b>5%</b>	<b>12%</b>
				Median	45%	42%	21%	-2%	-5%	-2%
				Min	-52%	-33%	-16%	-15%	-54%	-67%
				Max	594%	276%	77%	21%	66%	100%
PM-Fil		UNC	Refuse Combustion, RDF	-49%	-30%	-4%	27%	62%	88%	
PM-Fil		UNC	Wood Combustion, Dry Wood	-27%	-14%	-2%	8%	18%	24%	
PM-Fil		UNC	Wood Combustion, Wet Wood	-4%	3%	6%	5%	4%	3%	
PM-Fil		UNC	Refuse Combustion, Mass Burn	-38%	-21%	0%	23%	48%	64%	
PM-Fil		UNC	OSB, Hot Press	200%	158%	105%	46%	24%	11%	
<b>PM-Filterable Uncontrolled</b>				<b>Average</b>	<b>16%</b>	<b>19%</b>	<b>21%</b>	<b>22%</b>	<b>31%</b>	<b>38%</b>
				Median	-27%	-14%	0%	23%	24%	24%
				Min	-49%	-30%	-4%	5%	4%	3%
				Max	200%	158%	105%	46%	62%	88%
Gaseous Criteria	Sulfur dioxide	UNC	Wood Combustion	672%	370%	151%	26%	-20%	-41%	
Gaseous Criteria	Nitrogen Oxides	UNC	Refuse Combustion, Mass Burn Waterwall	-54%	-39%	-20%	1%	50%	97%	
Gaseous Criteria	Carbon Monoxide	UNC	Refuse Combustion, Mass Burn	-16%	-2%	7%	10%	30%	48%	
Gaseous Criteria	Sulfur dioxide	UNC	Refuse Combustion	-23%	-21%	-17%	-10%	19%	48%	
Gaseous Criteria	Nitrogen Oxides	UNC	Wood Combustion	-31%	-17%	-8%	-3%	17%	38%	
Gaseous Criteria	Carbon Monoxide	UNC	Wood Combustion	72%	29%	1%	-14%	-4%	9%	
<b>Gaseous Criteria</b>				<b>Average</b>	<b>103%</b>	<b>53%</b>	<b>19%</b>	<b>2%</b>	<b>16%</b>	<b>33%</b>
				Median	-20%	-9%	-3%	-1%	18%	43%
				Min	-54%	-39%	-20%	-14%	-20%	-41%
				Max	672%	370%	151%	26%	50%	97%