

## **Appendix G-10**

### **Additional Information on Design Value Calculations**

Estimated 2009 24-hr PM2.5 design values are attached.

Assumptions:

1. Mean quarterly speciation is used. Ideally, quarterly speciation should be determined using measurements on high PM2.5 days only.
2. Essex speciation is used at all sites.
3. CMAQ-calculated relative response factors at each grid box are determined by dividing CMAQ-calculated 2009 PM2.5 by 2002 PM2.5 and taking the mean of the 20 days each quarter with the highest model-calculated 2002 PM2.5.
4. Relative response factors for soil/crustal material are assumed to equal 1 due to inconsistencies in how the Midwest RPO's soil was grown.
5. Relative response factors for particle bound water are given as a range. Lower bound: Mass weighted mean of sulfate, nitrate, and ammonium RRFs. Upper bound: 1. The "mass" weighting uses observed speciation data at Essex.

		Base	2009range	
510130020	Aurora Hills	37.0	30.9	31.1
510590030	Franconia	34.7	28.1	28.4
510591005	Annandale	35.4	26.9	27.6
510595001	McLean	34.8	26.4	27.1
511071005	Ashburn	34.4	25.5	26.1
110010041	River Terrace	43.4	34.7	35.3
110010042	Ohio Drive/Hain	36.5	30.8	31.1
110010043	McMillan	39.0	32.9	33.3
240030014	Davidsonville	33.3	25.7	26.5
240030019	Ft. Meade	35.8	28.7	29.2
240031003	Glen Burnie	39.3	35.1	35.3
240032002	Riviera Beach	38.3	32.1	32.6
240251001	Edgewood	33.2	28.2	28.7
240053001	Essex	38.1	34.3	34.5
240051007	Padonia	34.9	30.4	30.6
245100035	FMC-Fairfield	40.9	36.8	37.1
245100006	Northeast Polic	35.3	31.4	31.6
245100007	Northwest Polic	37.6	31.1	31.5
245100008	Southeast Polic	36.0	32.9	33.2
245100040	Oldtown	41.1	37.5	37.8
245100049	Westport	39.2	36.2	36.4
240430009	Hagerstown	39.9	30.8	31.3
240150003	Fairhill	33.7	28.7	29.2

AIRS ID	State	County	Latitude	Longitude	NAA	98th Percentile -- 2000	98th Percentile -- 2001	98th Percentile -- 2002	98th Percentile -- 2003	98th Percentile -- 2004	2000 - Q1	2000-Q2	2000-Q3	2000-Q4	2001 - Q1
24-043-0009	MD	Washington	39.5656	-77.7219	Hagerstown	39.9	41.6	42.7	34.3	39.2	31.3	36.8	24.9	39.9	29.2

AIRS ID	State	County	2001-Q2	2001-Q3	2001-Q4	2002 - Q1	2002-Q2	2002-Q3	2002-Q4	2003 - Q1	2003-Q2	2003-Q3	2003-Q4	2004 - Q1	2004-Q2	2004-Q3	2004-Q4
24-043-0009	MD	Washington	41.6	31.2	26.4	20.7	35	42.7	36	30	25.2	34.3	25.5	39.2	30.1	33.8	33.3

## Hagerstown-Martinsburg, MD-WV NAA: Maryland PM2.5 Annual Design Values (2002-2004)

AIRS ID	Latitude	Longitude	Site Name	City Name	County Name	MSA	PM2.5	Speciated	Started	Ended	2000 Quarterly PM2.5 FRM (ug/m3)				
							FRM	Data			1st	2nd	3rd	4th	Average
240430009	39.5656	-77.7219	Hagerstown	Hagerstown	Washington	Hagerstown	1	No	Jan. 1, 1999	-	14.06	16.43	15.13	16.60	15.56

**Note:**

1. Maryland's 2002 Data Excludes Fire Days Associated with the Quebec Forest Fires.
2. FRM=2 the Averages Reflect the Combined Data From Collocated Monitors.
3. Grayed out monitors don't have enough data to be used in the SIP analysis.

## Hagerstown-Martinsburg, MD-WV NAA: Maryland PM2.5 Annual Design Values (2002-2004)

AIRS ID	Latitude	Longitude	Site Name	City Name	County Name	MSA	PM2.5	Speciated	Started	Ended	2001 Quarterly PM2.5 FRM (ug/m3)				
							FRM	Data			1st	2nd	3rd	4th	Average
240430009	39.5656	-77.7219	Hagerstown	Hagerstown	Washington	Hagerstown	1	No	Jan. 1, 1999	-	14.46	16.08	15.57	10.57	14.17

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AIRS ID	Latitude	Longitude	Site Name	City Name	County Name	MSA	PM2.5	Speciated	Started	Ended	2002 Quarterly PM2.5 FRM (ug/m3)				
							FRM	Data			1st	2nd	3rd	4th	Average
240430009	39.5656	-77.7219	Hagerstown	Hagerstown	Washington	Hagerstown	1	No	Jan. 1, 1999	-	12.53	14.84	18.59	12.53	14.62

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## Hagerstown-Martinsburg, MD-WV NAA: Maryland PM2.5 Annual Design Values (2002-2004)

AIRS ID	Latitude	Longitude	Site Name	City Name	County Name	MSA	PM2.5	Speciated	Started	Ended	2003 Quarterly PM2.5 FRM (ug/m3)				
							FRM	Data			1st	2nd	3rd	4th	Average
240430009	39.5656	-77.7219	Hagerstown	Hagerstown	Washington	Hagerstown	1	No	Jan. 1, 1999	-	11.80	13.09	16.34	10.77	13.00

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## Hagerstown-Martinsburg, MD-WV NAA: Maryland PM2.5 Annual Design Values (2002-2004)

AIRS ID	Latitude	Longitude	Site Name	City Name	County Name	MSA	PM2.5	Speciated	Started	Ended	2004 Quarterly PM2.5 FRM (ug/m3)				
							FRM	Data			1st	2nd	3rd	4th	Average
240430009	39.5656	-77.7219	Hagerstown	Hagerstown	Washington	Hagerstown	1	No	Jan. 1, 1999	-	13.51	13.87	19.76	11.17	14.58

**Note:**

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