Appendix C

Data Completeness and Quarterly Averages of Fine Particulate Material in Michigan

Guideline on Data Handling Conventions for the PM NAAQS, p 4 "If you're doing an intermediate calculation, such as quarterly average PM10 value from the 24-hour values, keep all digits on your calculator."

Updated 2-9-06

2005 Reflects Data through September 30, 2005 Only

*During the initial stages of operation of the network many site operators preferred to operate the co-located monitors on the same sampling frequency as the primary monitors. Muskegon & Holland calculated according to scheduled changes in sampling frequency.

Appendix C

				First Quarter				Second Quarter				Third Quarter				Fourth Quarter					
AIRSID	Site	POC		Sch #	Obs. #	%	Quart. *	Sch #	Obs. #	%	Quart. *	Sch #	Obs. #	%	Quart. *	Sch #	Obs. #	%	Quart. *	Annual	3-Yr Annual
260050003	Holland	1	1999	75	69	92	11.48	91	76	84	13.62	92	91	99	12.52	92	90	98	10.99	12.15	
260050003	Holland	1	2000	91	91	100	13.35	91	86	95	10.54	92	87	95	12.11	92	84	91	10.91	11.73	
260050003	Holland	1	2001	90	89	99	13.85	91	91	100	12.82	92	90	98	14.22	92	91	99	10.04	12.73	12.2
260050003	Holland	1	2002	90	89	99	11.38	91	91	100	12.35	92	91	99	**15.40**	92	90	98	10.63	12.44	12.3
260050003	Holland	1	2003	90	82	91	13.84	91	89	98	12.07	92	89	97	13.21	92	89	97	10.50	12.41	12.5
260050003	Holland	1	2004	90	86	96	13.09	91	84	92	9.69	92	89	97	12.09	92	91	99	9.97	11.21	12.0
260050003	Holland	1	2005	90	87	97	13.70	91	91	100	11.64	92	92	100	13.85	92	91	99	10.35	12.39	12.0
260070005	Alpena	1	2000	3	3	100	5.93	30	23	77	8.77	31	26	84	9.16	30	26	87	6.68	7.64	
260070005	Alpena	1	2001	30	27	90	8.83	31	31	100	11.94	30	30	100	9.92	31	31	100	8.75	9.86	8.7
260070005	Alpena	1	2002	30	28	93	7.97	30	29	97	9.55	31	25	81	10.84	31	25	81	7.86	9.06	8.9
260070005	Alpena	1	2003	Site Closed																	
260170014	Bay City	1	2000	---	---	---	---	---	---	---	---	13	13	100	10.03	30	26	87	10.16	10.10	
260170014	Bay City	1	2001	30	28	93	13.00	31	30	97	11.84	30	30	100	10.83	31	31	100	10.47	11.53	10.8
260170014	Bay City	1	2002	30	26	87	11.51	30	27	90	10.82	31	28	90	11.94	31	24	77	10.71	11.25	11.0
260170014	Bay City	1	2003	30	26	87	12.58	30	27	90	9.07	31	30	97	11.78	30	29	97	10.43	10.97	11.2
260170014	Bay City	1	2004	31	30	97	11.44	30	30	100	9.39	31	30	97	10.57	30	30	100	8.00	9.85	10.7
260170014	Bay City	1	2005	30	30	100	13.79	31	28	90	12.63	30	29	97	13.29	31	30	97	10.05	12.44	11.1
260210014	Coloma	1	1999	30	26	87	12.10	30	30	100	12.61	31	30	97	13.72	30	29	97	10.39	12.20	
260210014	Coloma	1	2000	31	31	100	13.60	30	30	100	11.46	31	31	100	12.17	30	30	100	11.21	12.11	
260210014	Coloma	1	2001	30	29	97	14.14	31	30	97	13.86	30	29	97	12.93	31	27	87	11.70	13.16	12.5
260210014	Coloma	1	2002	30	29	97	11.54	30	29	97	12.83	31	31	100	14.93	31	29	94	10.80	12.53	12.6
260210014	Coloma	1	2003	30	29	97	14.27	30	29	97	12.08	31	31	100	13.10	30	28	93	10.58	12.51	12.7
260210014	Coloma	1	2004	31	30	97	10.84	30	27	90	9.66	31	30	97	11.11	30	29	97	9.33	10.24	11.8
260210014	Coloma	1	2005	30	28	93	12.46	31	30	97	12.60	30	30	100	**16.68**	31	30	97	10.47	13.05	11.9
260330901	Sault Ste. Marie #1	1	2001	20	18	90	7.26	31	31	100	9.70	30	25	83	8.36	31	30	97	7.49	8.20	
260330901	Sault Ste. Marie #1	1	2002	30	29	97	6.26	30	28	93	8.98	31	29	94	8.83	31	30	97	6.19	7.57	7.9
260330901	Sault Ste. Marie #1	1	2003	30	25	83	10.12	30	28	93	8.14	31	29	94	9.43	30	28	93	7.04	8.68	8.1
260330901	Sault Ste. Marie #1	1	2004	31	25	81	8.91	30	28	93	5.55	31	31	100	8.73	30	27	90	4.86	7.01	7.8
260330901	Sault Ste. Marie #1	1	2005	30	28	93	8.13	31	29	94	8.94	30	30	100	9.39	31	31	100	6.20	8.17	8.0
260330901	Sault Ste. Marie #1	2	2001	10	9	90	5.92	16	16	100	9.36	15	14	93	8.16	15	10	**67**	8.22	7.90	
260330901	Sault Ste. Marie #1	2	2002	15	13	87	6.45	15	14	93	8.90	16	15	94	10.80	15	12	80	6.70	8.21	8.1
260330901	Sault Ste. Marie #1	2	2003	15	13	87	10.72	15	11	**73**	7.27	16	12	75	12.40	15	10	**67**	7.40	9.45	8.5
260330901	Sault Ste. Marie #1	2	2004	15	12	80	6.94	15	15	100	5.17	16	14	88	7.29	15	16	107	5.59	6.25	8.0
260330901	Sault Ste. Marie #1	2	2005	15	15	100	8.00	15	14	93	9.64	15	13	87	10.23	16	monitor shut down			9.29	8.3
260330902	Sault Ste. Marie #2	1	2001	20	18	90	6.35	31	31	100	10.00	30	29	97	8.20	31	29	94	7.19	7.94	
260330902	Sault Ste. Marie #2	1	2002	30	30	100	6.03	30	28	93	8.23	31	27	87	11.69	31	27	87	5.20	7.79	7.9
260330902	Sault Ste. Marie #2	1	2003	30	26	87	9.73	30	29	97	7.59	31	29	94	9.21	30	28	93	6.08	8.15	8.0

Table 4: Data Completeness and Quarterly Averages of Fine Particulate Material in Michigan, cont....

AIRSID	Site	POC		First Quarter				Second Quarter				Third Quarter				Fourth Quarter				Annual	3-Yr Annual
				Sch # Rdgs	Obs # Rdgs	% Complet	Quart * Avg	Sch # Rdgs	Obs # Rdgs	% omple	Quart * Avg	Sch # Rdgs	Obs # Rdgs	% Complet	Quart * Avg	Sch # Rdgs	Obs # Rdgs	% omple	Quart * Avg	Avg	Avg
260330902	Sault Ste. Marie #2	1	2004	31	30	97	8.37	30	28	93	6.16	31	29	94	8.38	30	27	90	4.04	6.74	7.6
260330902	Sault Ste. Marie #2	1	2005	30	27	90	8.44	31	31	100	8.67	30	30	100	9.34	31	31	100	5.32	7.94	7.3
260330903	Bay Mills	1	2005	---	---	---	---	---	---	---	---	---	---	---	---	15	15	100	4.31		
260490021	Flint	1	1999	30	20	**67**	10.68	30	24	80	11.87	31	31	100	13.22	30	25	83	11.96	11.93	
260490021	Flint	1	2000	31	29	94	**15.29**	30	23	77	13.62	31	29	94	11.03	30	30	100	11.85	12.95	
260490021	Flint	1	2001	30	26	87	12.55	31	30	97	14.30	30	27	90	14.94	31	28	90	10.70	13.10	12.7
260490021	Flint	1	2002	30	24	80	11.76	30	26	87	12.34	31	31	100	14.31	31	30	97	11.76	12.54	12.9
260490021	Flint	1	2003	30	28	93	13.30	30	30	100	12.02	31	30	97	12.30	30	30	100	10.64	12.07	12.6
260490021	Flint	1	2004	31	28	90	11.77	30	24	80	9.37	31	31	100	11.55	30	30	100	9.27	10.49	11.7
260490021	Flint	1	2005	30	29	97	13.72	31	30	97	12.70	30	30	100	14.80	31	30	97	10.32	12.89	11.8
260550003	Traverse City	1	1999	---	---	---	---	---	---	---	---	---	---	---	---	6	6	100	6.72	6.72	
260550003	Traverse City	1	2000	31	24	77	10.18	30	26	87	8.26	31	24	77	10.22	30	9	***30***	5.99	8.66	
260550003	Traverse City	1	2001	30	25	83	8.55	31	29	94	10.12	30	30	100	9.77	31	31	100	8.76	9.30	9.0
260550003	Traverse City	1	2002	30	26	87	7.06	30	27	90	9.56	31	18	***58***	10.09	31	15	**48**	5.25	8.00	8.7
260550003	Traverse City	1	2003	Site Closed																	
260650012	Lansing	1	1999	30	24	80	10.82	30	19	***63***	13.73	31	28	90	13.83	30	30	100	11.78	12.54	
260650012	Lansing	1	2000	31	29	94	**15.32**	30	25	83	12.43	31	26	84	12.45	30	25	83	12.08	13.07	
260650012	Lansing	1	2001	30	28	93	**15.46**	31	29	94	14.68	30	29	97	13.93	31	31	100	12.09	14.04	13.2
260650012	Lansing	1	2002	30	30	100	12.38	30	28	93	14.40	31	28	90	14.86	31	26	84	12.45	13.52	13.5
260650012	Lansing	1	2003	30	26	87	**15.04**	30	27	90	12.55	31	29	94	13.51	30	30	100	11.12	13.06	13.5
260650012	Lansing	1	2004	31	28	90	13.15	30	28	93	10.13	31	31	100	10.94	30	29	97	10.02	11.06	12.5
260650012	Lansing	1	2005	30	30	100	14.17	31	30	97	13.97	30	30	100	14.77	31	30	97	11.22	13.53	12.5
260650012	Lansing	2	1999	15	44	293	11.72	15	24	160	13.33	15	26	173	14.22	15	29	193	12.10	12.84	
260650012	Lansing	2	2000	16	30	188	**15.26**	15	24	160	12.00	15	29	193	12.07	15	19	127	14.96	13.57	
260650012	Lansing	2	2001	15	15	100	**15.01**	16	16	100	12.62	15	15	100	13.06	15	15	100	12.55	13.31	13.2
260650012	Lansing	2	2002	15	15	100	11.81	15	14	93	13.45	16	15	94	13.14	15	14	93	11.35	12.44	13.1
260650012	Lansing	2	2003	15	13	87	**16.18**	15	14	93	11.50	16	11	**69**	**16.42**	15	15	100	12.23	14.08	13.3
260650012	Lansing	2	2004	Monitor Shut Down- reduced co-location requirements																	
260770008	Kalamazoo	1	1999	30	22	**73**	**15.68**	30	21	***70***	14.54	31	20	***65***	14.66	30	29	97	14.33	14.80	
260770008	Kalamazoo	1	2000	31	25	81	**19.33**	30	28	93	12.93	31	30	97	13.48	30	28	93	14.66	**15.10**	
260770008	Kalamazoo	1	2001	30	27	90	**18.60**	31	30	97	**15.63**	30	27	90	14.03	31	29	94	14.25	**15.63**	**15.2**
260770008	Kalamazoo	1	2002	30	29	97	14.34	30	30	100	14.81	31	25	81	**16.36**	31	28	90	13.63	14.79	**15.2**
260770008	Kalamazoo	1	2003	30	29	97	**16.57**	30	28	93	11.81	31	29	94	14.32	30	26	87	12.97	13.92	14.8
260770008	Kalamazoo	1	2004	31	29	94	11.77	30	28	93	10.90	31	31	100	12.34	30	26	87	10.30	11.33	13.3
260770008	Kalamazoo	1	2005	30	26	87	12.64	31	31	100	12.98	30	30	100	**17.07**	31	29	94	12.62	13.83	13.0
260770008	Kalamazoo	2	1999	15	15	100	14.95	15	26	173	14.11	15	27	180	**15.10**	15	29	193	13.98	14.53	
260770008	Kalamazoo	2	2000	16	28	175	**17.49**	15	28	187	12.49	15	30	200	13.49	15	29	193	**15.19**	14.66	
260770008	Kalamazoo	2	2001	15	16	107	**17.16**	16	15	94	12.99	15	13	87	13.08	15	13	87	**15.26**	14.60	14.6
260770008	Kalamazoo	2	2002	15	15	100	**15.54**	15	14	93	14.94	16	11	***69***	**18.03**	15	15	100	12.61	**15.00**	14.8
260770008	Kalamazoo	2	2003	15	15	100	**16.41**	15	14	93	13.37	16	15	94	**16.07**	15	15	100	11.25	14.28	14.6
260770008	Kalamazoo	2	2004	15	12	80	11.08	15	14	93	9.47	16	16	100	12.86	15	14	93	10.94	11.09	13.5
260770008	Kalamazoo	2	2005	15	14	93	12.66	15	13	87	12.36	15	14	93	**19.95**	16	10	***63***	13.61	14.65	13.3

Table 4: Data Completeness and Quarterly Averages of Fine Particulate Material in Michigan, cont....

				First Quarter				Second Quarter				Third Quarter				Fourth Quarter					3-Yr
AIRSID	Site	POC		Sch # Rdgs	Obs. # Rdgs	% Complet	Quart. * Avg.	Sch # Rdgs	Obs. # Rdgs	% omple	Quart. * Avg.	Sch # Rdgs	Obs. # Rdgs	% Complet	Quart. * Avg.	Sch # Rdgs	Obs. # Rdgs	% omple	Quart. * Avg.	Annual Avg	Annual Avg
260810020	Grand Rapids	1	1999	90	82	91	14.23	91	87	96	13.64	92	86	93	14.00	92	87	95	13.47	13.83	
260810020	Grand Rapids	1	2000	91	88	97	**16.35**	91	88	97	11.48	92	89	97	12.99	92	88	96	14.41	13.81	
260810020	Grand Rapids	1	2001	90	88	98	**17.28**	91	84	92	13.22	92	91	99	14.79	92	90	98	12.12	14.35	14.0
260810020	Grand Rapids	1	2002	90	88	98	13.85	91	90	99	12.83	92	85	92	13.95	92	89	97	12.82	13.36	13.8
260810020	Grand Rapids	1	2003	90	86	96	**15.82**	91	90	99	12.33	92	90	98	13.65	92	90	98	12.32	13.53	13.7
260810020	Grand Rapids	1	2004	91	86	95	14.78	91	85	93	9.76	92	88	96	12.37	92	85	92	11.10	12.00	13.0
260810020	Grand Rapids	1	2005	90	87	97	**17.41**	91	86	95	11.44	92	91	99	14.34	92	92	100	11.68	13.72	13.1
260810020	Grand Rapids	2	1999	15	25	167	**16.54**	15	10	***67***	8.80	15	15	100	**16.45**	15	15	100	13.83	13.91	
260810020	Grand Rapids	2	2000	16	16	100	**17.48**	15	15	100	11.00	15	13	87	11.98	15	13	87	14.73	13.80	
260810020	Grand Rapids	2	2001	15	14	93	**15.61**	16	15	94	13.34	15	14	93	11.76	16	16	100	**16.02**	14.18	14.0
260810020	Grand Rapids	2	2002	15	14	93	13.99	15	15	100	13.66	16	16	100	13.08	16	15	94	11.97	13.18	13.7
260810020	Grand Rapids	2	2003	15	15	100	**18.01**	15	15	100	10.90	16	15	94	14.69	15	14	93	12.39	14.00	13.8
260810020	Grand Rapids	2	2004	15	14	93	12.19	15	14	93	9.15	16	16	100	11.89	15	15	100	11.82	11.26	12.8
260810020	Grand Rapids	2	2005	15	15	100	**17.63**	15	15	100	13.78	15	15	100	**18.43**	16	15	94	11.63	**15.37**	13.5
260990009	New Haven	1	1999	30	24	80	11.66	30	22	***73***	13.55	31	31	100	13.95	5	27	540	11.45	12.66	
260990009	New Haven	1	2000	31	29	94	**16.26**	30	29	97	12.76	31	30	97	12.43	30	25	83	12.22	13.42	
260990009	New Haven	1	2001	30	28	93	14.75	31	28	90	14.68	30	29	97	13.18	31	30	97	11.78	13.60	13.2
260990009	New Haven	1	2002	30	28	93	11.86	30	28	93	13.37	31	30	97	**15.19**	31	31	100	12.98	13.35	13.5
260990009	New Haven	1	2003	30	29	97	14.47	30	26	87	12.92	31	31	100	13.08	30	28	93	10.92	12.85	13.3
260990009	New Haven	1	2004	31	31	100	11.82	30	30	100	11.49	31	30	97	14.23	30	30	100	10.29	11.96	12.7
260990009	New Haven	1	2005	30	30	100	**15.21**	31	31	100	14.21	30	29	97	**16.14**	31	30	97	11.94	14.38	13.1
261130001	Houghton Lake	1	2003	13	12	92	8.18	30	26	87	7.29	31	30	97	9.93	30	25	83	6.43	7.96	
261130001	Houghton Lake	1	2004	31	30	97	7.16	30	29	97	7.59	31	25	81	9.24	30	27	90	5.16	7.29	11.4
261130001	Houghton Lake	1	2005	30	28	93	8.64	31	28	90	10.50	30	27	90	11.93	31	27	87	6.45	9.38	9.9
261150005	Luna Pier	1	1999	---	---	---	---	---	---	---	---	---	---	---	---	5	5	100	12.56	12.56	
261150005	Luna Pier	1	2000	31	30	97	**16.92**	30	29	97	14.54	31	29	94	14.33	30	29	97	14.96	**15.19**	
261150005	Luna Pier	1	2001	30	27	90	**16.24**	31	25	81	**16.58**	30	29	97	**15.68**	31	30	97	12.69	**15.30**	**15.2**
261150005	Luna Pier	1	2002	30	30	100	14.99	30	27	90	**17.77**	31	28	90	**15.96**	31	25	81	**16.30**	**16.26**	**15.8**
261150005	Luna Pier	1	2003	30	28	93	**15.93**	30	27	90	12.84	31	31	100	14.36	30	30	100	12.01	13.79	**15.1**
261150005	Luna Pier	1	2004	31	26	84	13.02	30	30	100	**12.61**	31	31	100	14.83	30	29	90	11.47	12.98	14.3
261150005	Luna Pier	1	2005	30	28	93	**16.50**	31	27	87	13.40	30	27	90	**19.78**	31	30	97	13.10	**15.70**	14.2
261210040	Muskegon	1	1999	80	66	83	11.20	30	29	97	13.06	31	20	***65***	13.14	30	24	80	11.41	12.20	
261210040	Muskegon	1	2000	31	30	97	14.45	30	28	93	10.64	31	29	94	12.41	30	30	100	9.91	11.85	
261210040	Muskegon	1	2001	30	30	100	12.39	31	30	97	13.09	30	30	100	12.72	31	31	100	12.09	12.57	12.2
261210040	Muskegon	1	2002	30	28	93	11.21	30	27	90	12.73	31	31	100	14.55	31	30	97	10.95	12.36	12.3
261210040	Muskegon	1	2003	30	29	97	13.70	30	30	100	10.50	31	29	94	12.83	30	30	100	10.57	11.90	12.3
261210040	Muskegon	1	2004	31	30	97	10.14	30	29	97	9.19	31	30	97	11.52	30	30	100	9.81	10.17	11.5
261210040	Muskegon	1	2005	30	30	100	14.81	31	30	97	12.64	30	26	87	**15.13**	31	30	97	9.70	13.07	11.7
261210040	Muskegon	2	1999	15	16	107	11.15	15	13	87	**15.24**	15	10	***67***	**19.05**	15	14	93	11.89	14.33	
261210040	Muskegon	2	2000	16	16	100	13.33	15	14	93	9.64	15	15	100	11.17	15	14	93	10.03	11.04	
261210040	Muskegon	2	2001	Co-located Monitor moved to Ypsilanti																	12.7

Table 4: Data Completeness and Quarterly Averages of Fine Particulate Material in Michigan, cont....

AIRSID	Site	POC		First Quarter				Second Quarter				Third Quarter				Fourth Quarter				Annual	3-Yr Annual
				Sch # Rdgs	Obs # Rdgs	% omplet	Quart * Avg	Sch # Rdgs	Obs # Rdgs	% omple	Quart * Avg	Sch # Rdgs	Obs # Rdgs	% omplet	Quart * Avg	Sch # Rdgs	Obs # Rdgs	% omple	Quart. * Avg.	Avg	Avg
261250001	Oak Park	1	1999	30	25	83	13.83	30	18	***60***	14.84	31	25	81	14.64	30	26	87	13.32	14.16	
261250001	Oak Park	1	2000	31	24	77	**18.57**	30	28	93	14.79	31	18	***58***	11.88	30	20	***67***	**16.31**	**15.39**	
261250001	Oak Park	1	2001	30	28	93	**15.58**	31	26	84	**17.30**	30	26	87	14.81	31	16	**52**	12.23	14.70	14.7
261250001	Oak Park	1	2002	30	15	***50***	12.73	30	21	***70***	**17.29**	31	27	87	**16.07**	31	27	87	13.90	**15.00**	15.0
261250001	Oak Park	1	2003	30	28	93	**18.39**	30	27	90	13.79	31	30	97	13.66	30	30	100	12.48	14.58	14.8
261250001	Oak Park	1	2004	31	30	97	13.73	30	30	100	11.26	31	30	97	14.78	30	27	90	11.26	12.76	14.1
261250001	Oak Park	1	2005	30	27	90	**17.49**	31	31	100	13.77	30	30	100	**17.61**	31	30	97	12.99	**15.47**	14.3
261390005	Jenison	1	1999	30	27	90	13.95	30	30	100	12.40	31	29	94	13.54	30	29	97	11.70	12.90	
261390005	Jenison	1	2000	31	30	97	**16.98**	30	28	93	11.22	31	31	100	12.26	30	30	100	12.37	13.21	
261390005	Jenison	1	2001	30	30	100	**15.93**	31	28	90	14.06	30	29	97	12.72	31	29	94	12.65	13.84	13.3
261390005	Jenison	1	2002	30	28	93	12.93	30	29	97	14.09	31	30	97	14.97	31	28	90	12.32	13.58	13.5
261390005	Jenison	1	2003	30	28	93	**16.01**	30	30	100	11.34	31	31	100	12.58	30	30	100	11.04	12.74	13.4
261390005	Jenison	1	2004	31	30	97	12.90	30	30	100	10.18	31	29	94	11.81	30	28	93	10.42	11.33	12.5
261390005	Jenison	1	2005	30	29	97	**16.21**	31	31	100	12.71	30	27	90	14.89	31	30	97	12.16	13.99	12.7
261450018	Saginaw	1	1999	10	8	80	7.38	30	20	***67***	10.90	31	27	87	11.44	30	18	***60***	8.83	9.64	
261450018	Saginaw	1	2000	31	22	***71***	13.40	30	22	***73***	9.60	31	29	94	9.71	30	22	***73***	9.35	10.51	
261450018	Saginaw	1	2001	30	29	97	12.28	31	30	97	13.15	30	28	93	10.48	31	31	100	10.08	11.50	10.5
261450018	Saginaw	1	2002	30	26	87	9.76	30	28	93	11.42	31	27	87	11.91	31	25	81	10.03	10.78	10.9
261450018	Saginaw	1	2003	30	24	80	12.15	30	28	93	9.56	31	31	100	**11.44**	30	29	97	9.60	10.69	11.0
261450018	Saginaw	1	2004	31	31	100	11.26	30	29	97	8.64	31	30	97	10.93	30	28	100	7.23	9.52	10.3
261450018	Saginaw	1	2005	30	30	100	12.77	31	23	***74***	11.56	30	30	100	13.06	31	31	100	9.50	11.72	10.6
261470005	Saginaw *	2	1999	15	12	80	8.92	15	22	147	10.87	15	21	140	12.29	15	15	100	9.66	10.43	
261470005	Saginaw*	2	2000	16	11	***69***	9.54	15	21	140	9.11	15	30	200	10.07	15	14	93	10.44	9.79	
261470005	Saginaw	2	2001	Co-located Monitor moved to Port Huron																	10.1
261470005	Port Huron	1	1999	16	23	144	12.13	30	25	83	13.46	31	28	90	**15.12**	30	27	90	11.94	13.16	
261470005	Port Huron	1	2000	31	21	***68***	**17.04**	30	26	87	14.65	31	29	94	12.83	30	26	87	12.87	14.35	
261470005	Port Huron	1	2001	30	28	93	13.65	31	30	97	**16.26**	30	27	90	14.12	31	27	87	11.81	13.96	13.8
261470005	Port Huron	1	2002	30	29	97	12.13	30	26	87	14.03	31	29	94	**16.28**	31	29	**94**	12.91	13.84	14.0
261470005	Port Huron	1	2003	30	24	80	**18.73**	30	30	100	13.11	31	29	94	13.05	30	27	90	12.11	14.25	14.0
261470005	Port Huron	1	2004	31	28	90	11.44	30	28	93	12.81	31	27	87	13.18	30	29	97	10.99	12.11	13.4
261470005	Port Huron	1	2005	30	30	100	**16.76**	31	28	90	14.73	30	24	80	**16.47**	31	29	**94**	12.41	**15.09**	13.8
261470005	Port Huron	2	2001	15	12	80	14.36	16	15	94	**15.57**	15	14	93	11.79	15	13	**87**	11.16	13.22	
261470005	Port Huron	2	2002	15	14	93	12.19	15	14	93	14.36	15	14	93	12.38	15	14	93	12.91	12.96	13.1
261470005	Port Huron**	2	2003	15	14	93	**18.46**	15	16	107	**16.02**	16	15	94	14.49	15	11	**73**	13.70	**15.67**	13.9
261470005	Port Huron	2	2004	Monitor Shut Down- reduced co-location requirements																	
261610005	Ann Arbor	1	1999	---	---	---	---	2	2	100	10.50	31	29	94	14.92	30	27	90	12.96	12.79	
261610005	Ann Arbor	1	2000	31	26	84	**16.93**	30	15	***50***	11.98	31	26	84	11.85	30	29	97	12.05	13.20	
261610005	Ann Arbor	1	2001	30	30	100	14.78	31	29	94	14.76	30	23	77	13.46	31	31	100	11.04	13.50	13.2
261610005	Ann Arbor	1	2002	30	30	100	12.62	30	30	100	13.46	31	28	90	**16.01**	31	30	97	12.20	13.57	13.4
261610005	Ann Arbor	1	2003	30	27	90	14.79	30	29	97	13.01	31	26	84	12.95	30	22	**73**	11.72	13.12	13.4
261610005	Ann Arbor	1	2004	31	29	94	10.23	30	27	90	10.51	31	28	90	12.10	30	30	100	9.85	10.67	12.5
261610005	Ann Arbor	1	2005	30	27	90	13.06	31	30	97	12.47	30	27	90	**16.01**	31	26	84	11.25	13.20	12.3

Table 4: Data Completeness and Quarterly Averages of Fine Particulate Material in Michigan, cont....

AIRSID	Site	POC		First Quarter				Second Quarter				Third Quarter				Fourth Quarter				Annual	3-Yr Annual
				Sch # Rdgs	Obs. # Rdgs	% omplet	Quart. * Avg	Sch # Rdgs	Obs. # Rdgs	% omple	Quart. * Avg	Sch # Rdgs	Obs. # Rdgs	% omplet	Quart. * Avg.	Sch # Rdgs	Obs. # Rdgs	% omple	Quart. * Avg.	Avg	Avg
261610008	Ypsilanti	1	1999	---	---	---	---	---	---	---	---	20	18	90	14.72	30	28	93	13.66	14.19	
261610008	Ypsilanti	1	2000	31	13	*42*	**16.82**	30	28	93	12.85	31	31	100	13.21	30	30	100	14.16	14.26	
261610008	Ypsilanti	1	2001	30	28	93	**15.92**	31	30	97	**15.46**	30	29	97	14.15	31	30	97	12.44	14.49	14.3
261610008	Ypsilanti	1	2002	30	29	97	14.71	30	30	100	14.57	31	26	84	**16.43**	31	29	94	13.72	14.86	14.5
261610008	Ypsilanti	1	2003	30	25	83	**16.70**	30	28	93	**15.05**	31	30	97	14.39	30	29	97	12.78	14.73	14.7
261610008	Ypsilanti	1	2004	31	30	97	13.74	30	28	93	11.76	31	31	100	14.17	30	29	97	11.79	12.87	14.2
261610008	Ypsilanti	1	2005	30	29	97	**17.49**	31	27	87	14.27	30	29	97	**17.69**	31	29	94	13.00	**15.61**	14.4
261610008	Ypsilanti	2	2001	15	14	93	**16.19**	16	16	100	13.99	15	12	80	12.18	15	14	93	12.86	13.80	
261610008	Ypsilanti	2	2002	15	13	87	12.35	15	11	*73*	13.34	15	11	**73**	13.17	15	14	93	13.14	13.00	13.4
261610008	Ypsilanti	2	2003	15	14	93	**16.80**	15	14	93	13.59	16	16	100	**17.41**	15	14	93	12.69	**15.12**	14.0
261610008	Ypsilanti	2	2004	15	14	93	10.29	15	14	93	9.83	16	16	100	13.21	15	15	100	11.01	11.09	13.1
261610008	Ypsilanti	2	2005	15	15	100	**18.79**	15	15	100	**15.01**	15	13	87	**21.35**	16	16	100	11.65	**16.70**	14.3
261630001	Allen Park *	1	1999	---	---	---	---	17	48	282	**18.99**	92	78	85	**16.63**	92	83	90	14.37	**16.66**	
261630001	Allen Park	1	2000	91	81	89	**16.99**	91	86	95	13.69	92	87	95	14.46	92	85	92	**17.08**	**15.56**	
261630001	Allen Park	1	2001	90	76	84	**20.05**	91	80	88	**16.68**	92	86	93	**17.46**	92	55	*60*	14.79	**17.25**	**16.5**
261630001	Allen Park	1	2002	90	78	87	**15.32**	91	72	79	**16.15**	92	66	**72**	**17.33**	92	87	95	**15.02**	**15.96**	**16.3**
261630001	Allen Park	1	2003	90	79	88	17.37	91	86	95	**15.25**	92	80	*87*	**15.11**	90	80	89	13.17	**15.23**	**16.1**
261630001	Allen Park	1	2004	91	74	81	**15.41**	91	85	93	12.22	92	89	97	**16.18**	92	83	90	13.14	14.24	**15.1**
261630001	Allen Park	1	2005	90	88	98	**18.45**	91	86	95	13.77	92	89	97	**17.15**	92	86	93	14.38	**15.94**	**15.1**
261630001	Allen Park	2	1999	---	---	---	---	9	6	*67*	**26.08**	15	13	87	**18.22**	15	12	80	14.54	**19.62**	
261630001	Allen Park	2	2000	16	13	81	**16.82**	15	12	80	13.32	15	14	93	**15.29**	15	15	100	**18.57**	**16.00**	
261630001	Allen Park	2	2001	15	14	93	**18.62**	16	15	94	**15.82**	15	15	100	**16.22**	15	13	87	14.22	**16.22**	**17.3**
261630001	Allen Park	2	2002	15	6	*40*	13.10	15	9	*60*	11.80	15	7	*47*	**16.19**	15	15	100	14.63	13.93	**15.4**
261630001	Allen Park	2	2003	15	10	67	**21.21**	15	15	100	**16.63**	16	15	94	**18.77**	15	15	100	13.45	**17.52**	**15.9**
261630001	Allen Park	2	2004	15	15	100	12.03	15	14	93	10.63	16	15	94	13.68	15	14	93	12.96	12.33	14.6
261630001	Allen Park	2	2005	15	14	93	**19.61**	15	15	100	**16.22**	15	15	100	**22.47**	16	15	94	12.35	**17.66**	**15.8**
261630015	SW HS	1	1999	12	8	*67*	**18.69**	30	27	90	**16.54**	31	25	81	18.54	30	25	83	**16.53**	**17.57**	
261630015	SW HS	1	2000	31	30	97	**20.34**	30	28	93	**17.04**	31	31	100	16.29	30	30	100	**18.71**	**18.10**	
261630015	SW HS	1	2001	30	29	97	**19.33**	31	28	90	**20.05**	30	30	100	17.67	31	27	87	**16.07**	**18.28**	**18.0**
261630015	SW HS	1	2002	30	27	90	**16.80**	30	27	90	**17.42**	31	25	81	18.27	31	29	94	**17.20**	**17.42**	**17.9**
261630015	SW HS	1	2003	30	26	87	**17.41**	30	27	90	**15.39**	31	30	97	16.68	30	27	90	**17.26**	**16.69**	**17.5**
261630015	SW HS	1	2004	31	31	100	14.95	30	27	90	**15.01**	31	29	94	17.69	30	28	93	13.90	**15.39**	**16.5**
261630015	SW HS	1	2005	30	27	90	**20.20**	31	27	87	14.73	30	30	100	18.73	31	30	97	**15.18**	**17.21**	**16.4**
261630016	Linwood *	1	1999	---	---	---	---	17	28	165	**19.30**	92	79	86	15.76	92	82	89	**16.17**	**17.08**	
261630016	Linwood	1	2000	91	83	91	**17.67**	91	74	81	13.82	92	78	85	13.52	92	90	98	**16.94**	**15.49**	
261630016	Linwood	1	2001	90	81	90	**17.19**	91	84	92	**15.66**	92	83	90	16.57	92	79	86	13.47	**15.72**	**16.1**
261630016	Linwood	1	2002	90	73	81	**15.04**	91	82	90	**15.61**	92	75	82	16.78	92	88	96	14.95	**15.60**	**15.6**
261630016	Linwood	1	2003	90	84	93	**18.36**	91	85	93	**15.33**	92	86	93	14.94	92	71	77	14.78	**15.85**	**15.7**
261630016	Linwood	1	2004	91	76	84	14.87	91	80	88	12.10	92	82	89	14.78	92	86	93	13.00	13.69	**15.0**
261630016	Linwood	1	2005	90	87	97	**18.92**	91	79	87	14.78	92	84	91	16.62	92	88	96	13.70	**16.01**	**15.2**

Table 4: Data Completeness and Quarterly Averages of Fine Particulate Material in Michigan, cont....

AIRSID	Site	POC		First Quarter				Second Quarter				Third Quarter				Fourth Quarter				3-Yr	
				Sch # Rdgs	Obs. # Rdgs	% Complet	Quart. * Avg.	Sch # Rdgs	Obs. # Rdgs	% omple	Quart. * Avg	Sch # Rdgs	Obs. # Rdgs	% Complet	Quart. * Avg.	Sch # Rdgs	Obs. # Rdgs	% omple	Quart. * Avg.	Annual Avg	Annual Avg
261630019	E 7 Mile	1	2000	---	---	---	---	21	17	81	13.93	31	24	77	13.74	30	29	97	**15.87**	14.51	
261630019	E 7 Mile	1	2001	30	26	87	14.58	31	29	94	14.88	30	30	100	14.76	31	30	97	13.79	14.50	
261630019	E 7 Mile	1	2002	30	26	87	14.39	30	28	93	**15.83**	31	28	90	**17.86**	31	30	97	14.48	**15.64**	14.9
261630019	E 7 Mile	1	2003	30	26	87	**17.05**	30	30	100	14.80	31	30	97	13.98	30	29	97	13.01	14.71	**15.0**
261630019	E 7 Mile	1	2004	31	31	100	13.23	30	29	97	12.47	31	30	97	**15.44**	30	29	97	11.76	13.23	14.5
261630019	E 7 Mile	1	2005	30	28	93	**19.82**	31	31	100	14.48	30	29	97	**17.43**	31	29	94	14.20	**16.48**	14.8
261630025	Livonia	1	1999	---	---	---	---	---	---	---	---	15	15	100	**15.21**	30	19	***63***	10.93	13.07	
261630025	Livonia	1	2000	31	30	97	**16.53**	30	28	93	14.08	31	30	97	13.28	30	25	83	14.46	14.59	
261630025	Livonia	1	2001	30	27	90	**15.39**	31	30	97	**15.67**	30	29	97	**15.14**	31	29	94	12.18	14.60	14.1
261630025	Livonia	1	2002	30	18	***60***	13.33	30	28	93	14.26	31	29	94	**16.47**	31	28	90	13.43	14.37	14.5
261630025	Livonia	1	2003	30	26	87	**15.96**	30	28	100	**15.36**	31	31	100	13.89	30	27	90	11.59	14.20	14.4
261630025	Livonia	1	2004	31	29	94	12.72	30	25	83	11.98	31	28	90	14.13	30	30	100	11.45	12.57	13.7
261630025	Livonia	1	2005	30	26	87	**17.86**	31	28	90	11.74	30	30	100	**17.45**	31	30	97	12.68	14.93	13.9
261630033	Dearborn	1	1999	19	8	***42***	13.98	30	26	87	**16.75**	31	28	90	**18.31**	30	29	97	**18.24**	**16.82**	
261630033	Dearborn	1	2000	31	29	94	**22.76**	30	23	77	**20.13**	31	27	87	**17.56**	30	29	97	**20.06**	**20.13**	
261630033	Dearborn	1	2001	30	29	97	**20.95**	31	29	94	**18.58**	30	28	93	**18.27**	31	29	94	**20.63**	**19.61**	**18.9**
261630033	Dearborn	1	2002	30	29	97	**20.99**	30	28	93	**18.15**	31	29	94	**20.22**	31	30	97	**20.00**	**19.84**	**19.9**
261630033	Dearborn	1	2003	30	28	93	**22.59**	30	27	90	**19.03**	31	27	87	**17.83**	30	28	93	**17.34**	**19.20**	**19.5**
261630033	Dearborn	1	2004	31	29	94	**17.71**	30	25	83	**16.10**	31	25	81	**17.46**	30	28	93	**16.06**	**16.83**	**18.6**
261630033	Dearborn	1	2005	30	28	93	**21.50**	31	31	100	**16.57**	30	28	93	**18.22**	31	28	90	**17.90**	**18.55**	**18.2**
261630036	Wyandotte	1	1999	14	7	***50***	**17.06**	30	17	***57***	14.55	31	26	84	**18.85**	30	21	***70***	14.67	**16.28**	
261630036	Wyandotte	1	2000	31	16	***52***	**19.30**	30	28	93	**16.52**	31	29	94	**15.64**	30	30	100	**19.07**	**17.63**	
261630036	Wyandotte	1	2001	30	30	100	**21.49**	31	30	97	**17.53**	30	29	97	**18.53**	31	24	77	**15.26**	**18.20**	**17.4**
261630036	Wyandotte	1	2002	30	24	80	**15.40**	30	28	93	**15.98**	31	28	90	**16.51**	31	25	81	**17.24**	**16.28**	**17.4**
261630036	Wyandotte	1	2003	30	24	80	**15.07**	30	24	80	**20.37**	31	28	90.32	**16.37**	30	29	97	13.45	**16.32**	**16.9**
261630036	Wyandotte	1	2004	31	27	87.1	14.48	30	29	96.67	12.74	31	29	93.55	**15.91**	30	28	93.3	11.52	13.66	**15.4**
261630036	Wyandotte	1	2005	30	29	97	**16.96**	31	28	90	14.93	30	29	97	**18.58**	31	27	87	**15.19**	**16.42**	**15.5**
261630038	Newberry	1	2004	---	---	---	---	---	---	---	---	---	---	---	---	2	2	100	**29.70**		
261630038	Newberry	1	2005	30	28	93	16.98	31	25	81	14.60	30	22	***73***	**17.66**			vandalism		**16.41**	
261630039	FIA\Lafayette St	1	2005									---	7	---	**18.20**	31	28	90	14.25		

"On the Books" Controls (2009)

- Current state/local rules to meet 1-hour ozone requirements (e.g., motor vehicle I/M, reformulated gasoline, and NOx SIP Call)
- Heavy-duty diesel (2007) engine standard/Low sulfur fuel
- Federal control programs incorporated into NONROAD model (e.g., nonroad diesel rule), plus the evaporative Large Spark Ignition and Recreational Vehicle standards
- Federal railroad/locomotive standards
- Federal commercial marine vessel engine standards
- Tier II/Low sulfur fuel
- Title IV for EGUs (Phases I and II)
- VOC 2-, 4-, 7-, and 10-year MACT standards
- Combustion turbine MACT
- Industrial boiler/process heater/RICE MACT

2009 CAMx Modeling Results

	MDEQ
Dearborn	18.3 ug/m3
Wyandotte	15.6 ug/m3
Allen Park	14.9 ug/m3
SWHS	16.3 ug/m3

Local “on the books” Controls Severstal

- BOF – capture and baghouse in 2007
- C blast furn. – capture/baghouse in 2007
- Reheat furnaces modifications in 2007
- B blast furn. – control or shutdown in ‘08

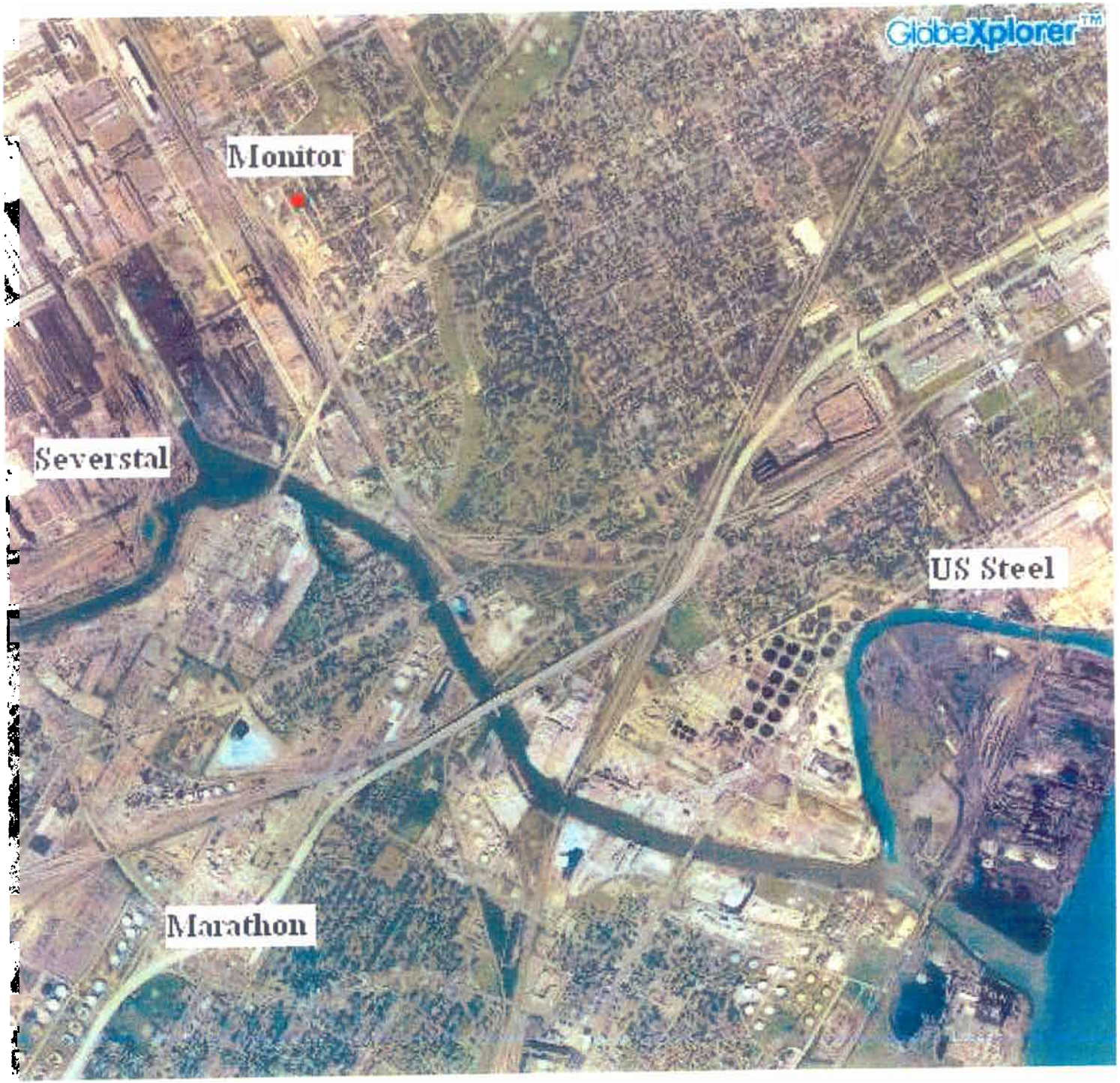
Local “on the books” Controls US Steel

- BOF – upgrade ESP in 2006
- Blast furnace – new baghouse in 2005

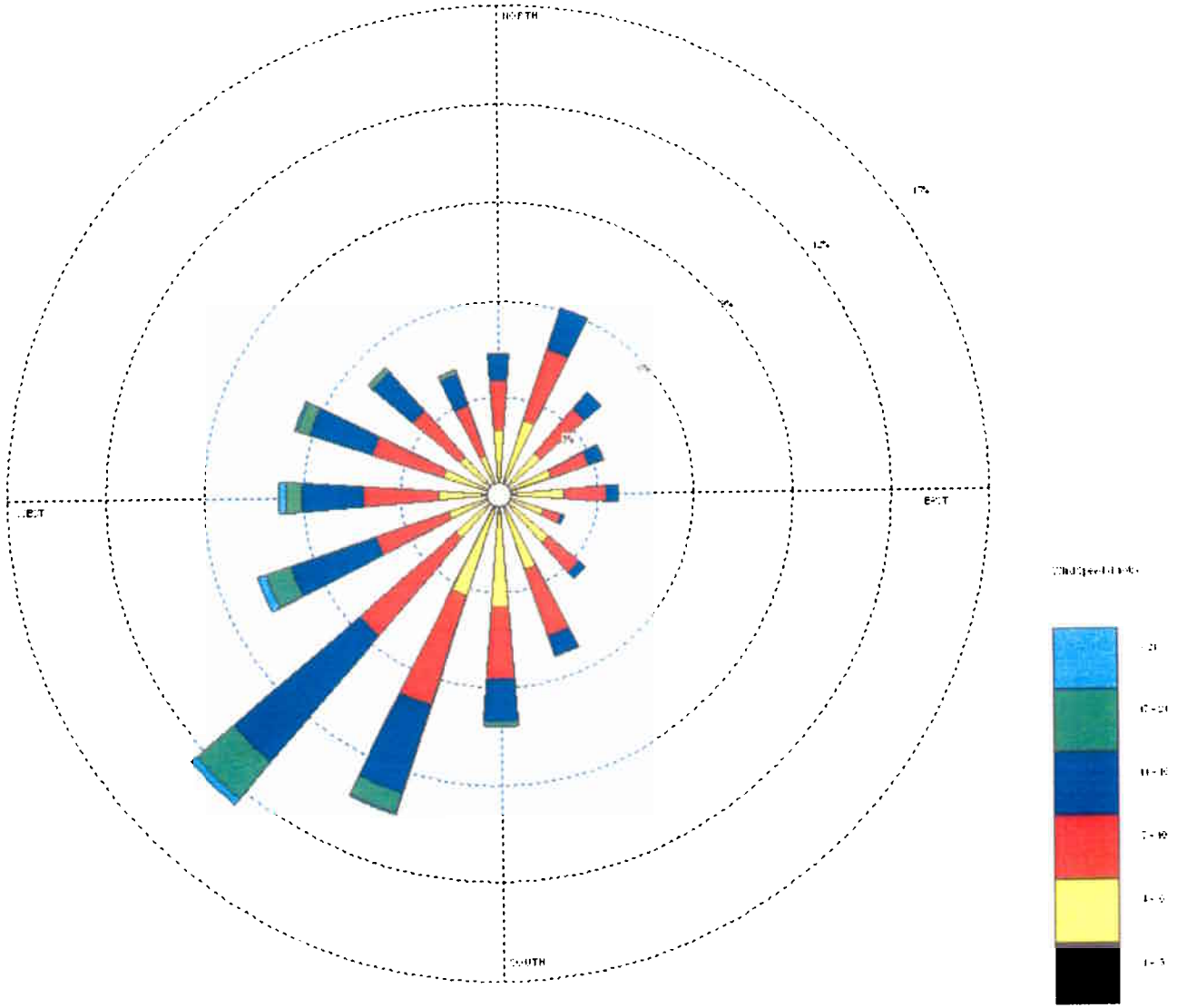
Local “on the books” Controls Marathon Refinery

- FCCU catalyst regenerator – new ESP in 2005

- CO boiler shutdown – in 2003


GlobeXplorer™
Monitor
Severstal
US Steel
Marathon

DETROIT METRO AIRPORT 2002 WINDROSE



MapQuest Explorer™
Monitor

Hot Spot Modeling

- Modeling guidance suggest using AERMOD to determine local PM-2.5 primary impacts not well represented by the regional models (CAMx);

- It is likely that 4 – 5 ug/m3 recorded at Dearborn originate from nearby sources;

- MDEQ modeled *additional* PM-2.5 primary reductions from Severstal, Marathon, and US Steel using refined AERMOD "hot spot" modeling.

AERMOD HOT SPOT MODELING RESULTS

Dearborn Monitor Total Reduction	**-2.274 ug/m3**
Severstal Contribution (-166 tpy)	-2.234 ug/m3
Marathon Contribution (-100 tpy)	-0.035 ug/m3
US Steel Contribution (-66 tpy)	-0.005 ug/m3

AERMOD HOT SPOT MODELING RESULTS

Wyandotte Monitor Total Reduction	**-0.104**	**ug/m3**
Severstal Contribution (-166 tpy)	-0.091	ug/m3
Marathon Contribution (-100 tpy)	-0.008	ug/m3
US Steel Contribution (-66 tpy)	-0.005	ug/m3

AERMOD HOT SPOT MODELING RESULTS

SWHS Monitor Total Reduction	**-0.325 ug/m3**
Severstal Contribution (-166 tpy)	-0.286 ug/m3
Marathon Contribution (-100 tpy)	-0.025 ug/m3
US Steel Contribution (-66 tpy)	-0.014 ug/m3

Hot Spot Modeling

- The 2009 impacts for the worse-case site (Dearborn) would be determined as follows:

18.3 ug/m3 (CAMx) – 2.3 ug/m3 (AERMOD) = 16.0 ug/m3

Hot Spot Modeling Issues

Although "hot-spot" modeling is suggested in the EPA guidance, we appear to be the first state to request its use in an attainment demonstration. We will likely be the guinea pigs for other states such as Ohio and Illinois. EPA is very interested in pursuing this issue with us and developing further guidance.

Hot Spot Modeling Issues

- EPA's initial reaction is that the MDEQ values are too high and that additional "ground-truthing" analysis should be done.
- MDEQ is doing additional screening modeling of other emission points at Severstal to determine the likely impacts on the pm 2.5 monitors in the area.
- MDEQ is also doing screening modeling of other emission points at other emitting facilities in the area.

Hot Spot Modeling Timing

- MDEQ expects to complete additional hot spot modeling in the next several weeks.

- Conversations with EPA Region V, EPA headquarters, and other Region V states will also continue in an effort to come to an agreement on incorporating hot spot modeling in SIP demonstrations.

New Local Controls?

- Locomotive retrofits
- School bus retrofits

Other Possible Local Controls

- Upgrade ESPs at Severstal and US Steel
- Other PM2.5 sources at the steel mills
- Desulfurization of coke oven gas at EES Coke
- Other PM2.5 sources in the area; to be determined

Sources Included per Direction

SRN	North West
A8648	FORD MOTOR CO ROUGE COMPLEX
B5162	KERRY STEEL PICKLING-DIV OF KERRY STEEL, INC.
B2913	DAIMLERCHRYSLER MCGRAW GLASS
B9080	COMPREHENSIVE ENVIRONMENTAL SOLUTIONS, INC.
M4798	FERROUS ENVIRONMENTAL RECYCLING CORP

SRN	North East
B3533	EDW C LEVY CO PLANT 1
M3066	SPARTAN INDUSTRIAL INC
M4775	COCA COLA BOTTLING CO
N1014	MAGNI INDUSTRIES INC
N6262	GONZALEZ MFG

SRN	South West
A8640	SEVERSTAL NORTH AMERICA, INC.
B2926	SUNOCO PARTNERS M & T, L.P. - RIVER ROUGE TERMINAL
B3520	CARMEUSE/DETROIT LIME
N6631	DEARBORN INDUSTRIAL GENERATION
A6902	DARLING INTERNATIONAL INC
A9831	MARATHON ASHLAND PETROLEUM
B3195	CADILLAC ASPHALT PRODUCTS
B4243	EDW C LEVY CO PLANT 6
M4685	DETROIT SALT CO
A8196	REILLY PLATING/ MLOK INC
A9462	FRITO LAY INC
B2956	FORD MOTOR CO NEW MODEL PROGRAM CTR
B7071	VISTEON TECHNICAL CENTER
M4848	FORD MOTOR CO ALLEN PARK LANDFILL

SRN	South East
B2103	DETROIT WASTEWATER TREATMENT PLANT
B3567	ST MARY'S CEMENT
B4752	OWENS CORNING TRUMBULL DIVISION
M4544	GUTTER SUPLIERS INC
A7051	IPMC AQUISITION LLC
A7809	U S STEEL GREAT LAKES WORKS
A8091	CROWN PLATING CO
A9196	FABRICON PRODUCTS INC
B2169	CARMEUSE LIME/ RIVER ROUGE
B2798	DETROIT EDISON/ DELRAY POWER PLANT
B2810	DETROIT EDISON RIVER ROUGE
B2987	BP PRODUCTS N A RIVER ROUGE
B3518	UNITED STATES GYPSUM CO
B5558	HONEYWELL
M4547	FRITZ PRODUCTS

Sources in **Red** went out of business

Sources Included per Circular Distance

SRN	0-1 Mile
A8640	SEVERSTAL NORTH AMERICA, INC.
A8648	FORD MOTOR CO ROUGE COMPLEX
B2926	SUNOCO PARTNERS M & T, L.P. - RIVER ROUGE TERMINAL
B3520	CARMEUSE/DETROIT LIME (2003)
B3533	EDW C LEVY CO PLANT 1
B5162	KERRY STEEL PICKLING-DIV OF KERRY STEEL, INC.
N6631	DEARBORN INDUSTRIAL GENERATION

SRN	1-2 Mile
A6902	DARLING INTERNATIONAL INC
A9831	MARATHON ASHLAND PETROLEUM
B2103	DETROIT WASTEWATER TREATMENT PLANT
B2913	DAIMLERCHRYSLER MCGRAW GLASS (2004)
B3195	CADILLAC ASPHALT PRODUCTS
B3567	ST MARY'S CEMENT
B4243	EDW C LEVY CO PLANT 6
B4752	OWENS CORNING TRUMBULL DIVISION
B9080	COMPREHENSIVE ENVIRONMENTAL SOLUTIONS, INC.
M3066	SPARTAN INDUSTRIAL INC
M4544	GUTTER SUPLIERS INC (2003?)
M4685	DETROIT SALT CO
M4798	FERROUS ENVIRONMENTAL RECYCLING CORP

SRN	2-3 Mile
A7051	IPMC AQUISITION LLC (2003)
A7809	U S STEEL GREAT LAKES WORKS
A8091	CROWN PLATING CO (2004)
A8196	REILLY PLATING/ MLOK INC
A9196	FABRICON PRODUCTS INC
A9462	FRITO LAY INC (2004)
B2169	CARMEUSE LIME/ RIVER ROUGE
B2798	DETROIT EDISON/ DELRAY POWER PLANT
B2810	DETROIT EDISON RIVER ROUGE
B2956	FORD MOTOR CO NEW MODEL PROGRAM CTR
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B3518	UNITED STATES GYPSUM CO
B5558	HONEYWELL
B7071	VISTEON TECHNICAL CENTER
M4547	FRITZ PRODUCTS
M4775	COCA COLA BOTTLING CO (2003)
M4848	FORD MOTOR CO ALLEN PARK LANDFILL
N1014	MAGNI INDUSTRIES INC
N6262	GONZALEZ MFG

Sources in **Red** went out of business

Timeline for PM 2.5 Implementation

Through Fall 2005	Evaluate data to determine key emission sources in s.e. Michigan (SEMOS, LADCO, DEQ)
Oct. 11, 2005	Task Force meeting Information on data studies and source analysis
Fall & Winter 2005/2006	Identification of contributing sources (SEMOS & DEQ)
Dec. 6, 2005	Task Force meeting Additional information on sources, controls
Winter/Spring 2006	Task Force meeting(s) Control strategy options/recommendation
Summer 2006 – Fall 2007	Regulatory development implementing control strategy (DEQ)
April 2008	Submit SIP to EPA (DEQ)