Ohio 2016 PM2.5 Continuous Network Summary

Site Name/Address	County	City	AQS#	Current FEM Sampler	FEM/non-FEM? Current FEM Method Start Date	Method Code/ POC	Comparability Monitoring Criteria Met	FRM Collocated	Submit Waiver	Include in Analysis	Why Not Included
West Union/210 N. Wilson Dr.	Adams	West Union	390010001	Thermo-Sharp 5030i VSCC	FEM* 10/27/12	753/3	NA/No	No	NA	NA	Operated as Non-FEM
Lima/ 2850 Bible Rd.	Allen	Lima	390030009	TEOM Gravimetric SCC	Non-FEM 1 /1/10	701/3	NA/No	Yes	NA	NA	Non-FEM
Springfield Firehouse 23-0005350 N.Fountain Ave.	Clark	Springfield	30230005	Thermo-Sharp 5030 VSCC	FEM* 1/1/10	750/3	NA/No	Yes	NA	NA	Operated as Non-FEM
Batavia/2400 Clermont Cntr Dr.	Clermont	Batavia	390250022	FDMS Gravimetric VSCC	Non-FEM 2//20/14	761/3	NA/No	No	NA	NA	Non-FEM
GTCraig/E. 14th & Orange	Cuyahoga	Cleveland	390350060	Met One BAM 1020 VSCC	NCore FEM* 4/1/15	170/3	NA/No	Yes	AQS NAAQS	Exclusion Approved	Operated as Non-FEM
New Albany/7600 Fodor Rd.	Franklin	New Albany	390490029	Met One BAM 1020 VSCC	FEM* 6/24/10	170/3	NA/No	No	AQS NAAQS	Exclusion Approved	Operated as Non-FEM
Fairgrounds/Korbel Ave	Franklin	Columbus	390490034	TEOM Gravimetric SCC	Non-FEM 1/1/10	701/3	NA/No	No	NA	NA	Non-FEM
Yellow Springs/100 Dayton St.	Greene	Yellow Springs	390570005	Thermo-Sharp 5030 VSCC	FEM* 1/1/10	750/3	NA/No	Yes	NA	NA	Operated as Non-FEM
Sycamore/11590 Grooms Rd.	Hamilton	Cincinnati	390610006	Thermo Scientific 5030i Sharp w/VSCC	FEM 1/9/2015	184/3	Yes	Yes	Comparability	1/8/2015	
Colerain/6950 Ripple Rd.	Hamilton	Cleves	390610010	Met One BAM 1020 VSCC	FEM 1/1/2014	733/3	NA/No	Yes	NA	NA	Operated as Non-FEM
Taft/250 W. Howard Taft Ave	Hamilton	Cincinnati	390610040	Thermo Scientific 5030i Sharp w/VSCC	NCore FEM 3/13/15	184/3	Will be based on results of Sycamore site	Yes	Sycamore Comparability study started	1/8/2015 Yes	
Steubenville/618 Logan St.	Jefferson	Steubenville	390810017	Met One BAM 1020 VSCC	FEM* 7/13/11	170/3	NA/No	Yes	AQS NAAQS	Exclusion Approved	Operated as Non-FEM
JFS/177 Main St.	Lake	Painsville	390850007	R&P FDMS Gravimetric	Non-FEM 1/1/09	760/3	NA/No	Yes	NA	NA	Non-FEM
ODOT/460 Commerce Dr.	Lawrence	Ironton	390870012	Thermo-Sharp 5030i VSCC	FEM* 1/1/14	753/3	NA/No	Yes	NA	NA	Operated as Non-FEM
Barr School/2180 Lake Breeze	Lorain	Sheffield	390933002	TEOM Gravimetric SCC	Non-FEM 9/1/11	701/3	NA/No	Yes	NA	NA	Non-FEM
Erie/348 S. Erie St.	Lucas	Toledo	390950024	TEOM Gravimetric SCC	Non-FEM 2/11/10	701/3	NA/No	Yes	NA	NA	Non-FEM
Oakhill/345 Oakhill Ave.	Mahoning	Youngstown	390990014	TEOM Gravimetric SCC	Non-FEM 1/1/10	701/3	NA/No	Yes	NA	NA	Non-FEM
Chippewa/Ballash Rd.	Medina	Rural	391030004	Met One BAM 1020 VSCC	FEM* 1/1/15	170/3	NA/No	Yes	AQS NAAQS	Exclusion Approved	Operated as Non-FEM
Sinclair Bldg 17/444 W.Third St.	Montgomery	Dayton	391130038	Thermo-Sharp 5030 VSCC	Non-FEM* 1/1/14	750/3	NA/No	Yes	?	?	?
Preble Co./6940 Oxford Gettysburg	Preble	New Paris	391351001	Thermo-Sharp 5030i VSCC	NCore FEM* 1/1/10	750/3	NA/No	Yes	NA	NA	Operated as Non-FEM

Site Name/Address	County	City	AQS#	Current FEM Sampler	FEM/non-FEM? Current FEM Method Start Date	Method Code/ POC	Comparability Monitoring Criteria Met	FRM Collocated	Submit Waiver	Include in Analysis	Why Not Included
Sears Bldg./420 Market St.	Stark	Canton	391510020	Thermo Scientific 5030i Sharp w/VSCC	Non-FEM* 5/1/16	184/3		Yes			monitor is broke
East HS/80 Brittain Rd.	Summit	Akron	391530017	Met One BAM 1020 VSCC	FEM* 1/1/15	170/3	No	Yes	No	Yes	Operated as Non-FEM
Laird/540 Laird Ave., S.E.	Trumbull	Warren	391550014	TEOM Gravimetric SCC	Non-FEM 1/1/10	701/3	NA/No	Yes	NA	NA	Non-FEM
Lebanon/430 Southeast St.	Warren	Lebanon	361650007	Met One BAM 1020 SCC	FEM 1/9/16	731/3	NA/No	No	NA	NA	Operated as Non-FEM

* A FEM instrument if operated as such.

The following graphics are the PM2.5 Continuous Monitor Comparability Assessments for each monitoring sites where FEM hourly instruments are collocated with a filter base FRM PM2.5. All except two sites, Sycamore and Taft in Cincinnati are currently operating as non-FEMs. They are currently nearing the end of a 2 year monitoring period as a special purpose monitor for purposes of this comparability assessment..

Here is a listing then of these sites:

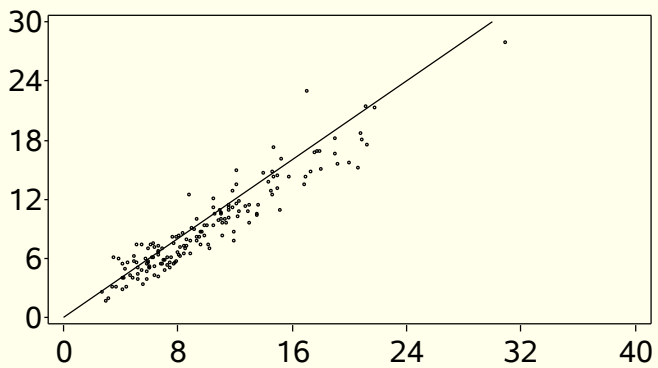
39-017-0019 Armanda Elem. Sch., Middletown
39-061-0006 Sycamore, Cincinnati
39-023-0005 Springfield Fire House, Springfield
39-035-0060, GT Craig, Cleveland
39-057-0005 Yellow Springs Adm. Bldg. Yellow Springs.
39-061-0010 Colerain, Cleves, Hamilton County
39-061-0040 Taft, Cincinnati
39-081-0017 Steubenville
39-087-0012 ODOT, Ironton
39-103-0004 Chippewa, Medina County
39-135-1001 New Paris, Preble County
39-153-0017 East HS, Akron

PM 2.5 Continuous Monitor Comparability Assessment

Site 39-017-0019: Middletown, OH

FRM: BGI Models PQ200-VSCC or PQ200A-VSCC - Gravimetric (142), PM2.5 - Local Conditions (88101), POC=1
Cont: Andersen BAM w/PM2.5 VSCC - Beta Attenuation (753), PM2.5 Raw Data (88501), POC=3

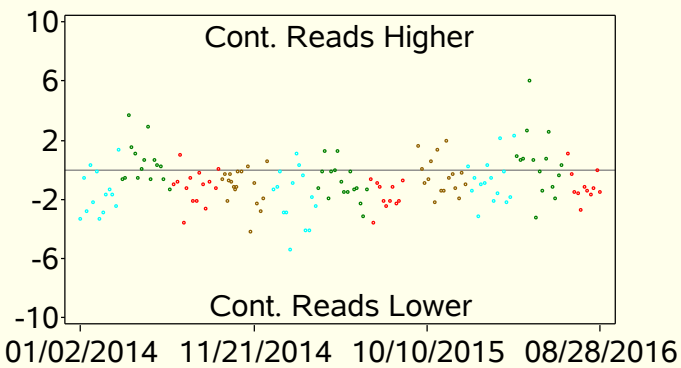
Cont. (y) vs. FRM (x) PM 2.5 ($\mu g/m^3$)



y = 0.89x + 0.32
R = 0.95

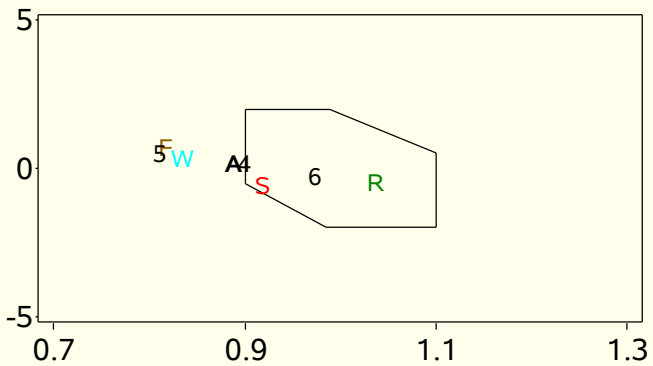
— 1:1 line

Cont. minus FRM PM 2.5 ($\mu g/m^3$)



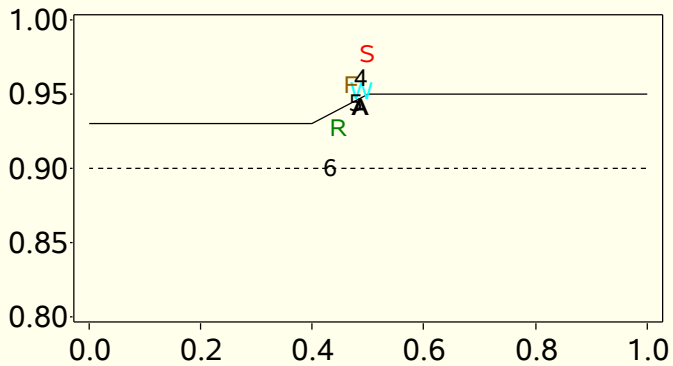
○ Winter ○ Spring ○ Summer ○ Fall

Additive (y) vs. Multiplicate (x) Bias



A=AllData, 4=2014, 5=2015, 6=2016
W=Winter, R=Spring, S=Summer, F=Fall

R (y) vs. FRM CCV (x)



A=AllData, 4=2014, 5=2015, 6=2016
W=Winter, R=Spring, S=Summer, F=Fall

Mean PM 2.5 ($\mu g/m^3$)

Dataset	N	FRM	Cont	Ratio (Cont/FRM)
AllData	**158**	**10.0**	**9.2**	**0.92**
Winter	42	11.1	9.8	0.88
Spring	46	9.4	9.4	1.00
Summer	36	10.6	9.3	0.88
Fall	34	8.8	8.1	0.91
2014	61	11.3	10.5	0.93
2015	57	9.3	8.2	0.88
2016	40	9.0	8.6	0.96

Appendix A Statistics

Dataset	N (all observations)	Bias (all observations)	N (only >= 3 ug/m^3)	Bias (only >= 3 ug/m^3)
AllData	**158**	**-7.1**	**154**	**-6.6**
Winter	42	-9.7	42	-9.7
Spring	46	0.4	45	0.5
Summer	36	-13	34	-12
Fall	34	-7.2	33	-6.4
2014	61	-7.2	59	-6.2
2015	57	-10	56	-11
2016	40	-2.1	39	-1.4

Data Source: EPA AQS Data Mart

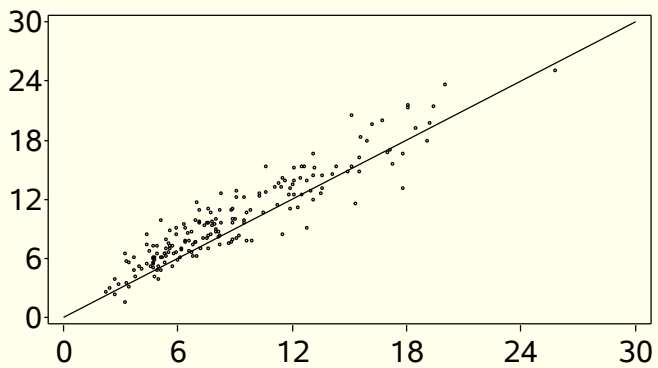
Generated on: October 24, 2016

PM 2.5 Continuous Monitor Comparability Assessment

Site 39-061-0006: Blue Ash, OH

FRM: BGI Models PQ200-VSCC or PQ200A-VSCC - Gravimetric (142,120), PM2.5 - Local Conditions (88101), POC=1
Cont: Thermo Scientific Model 5030 SHARP w/VSCC - Beta Attenuation (184), PM2.5 - Local Conditions (88101), POC=3

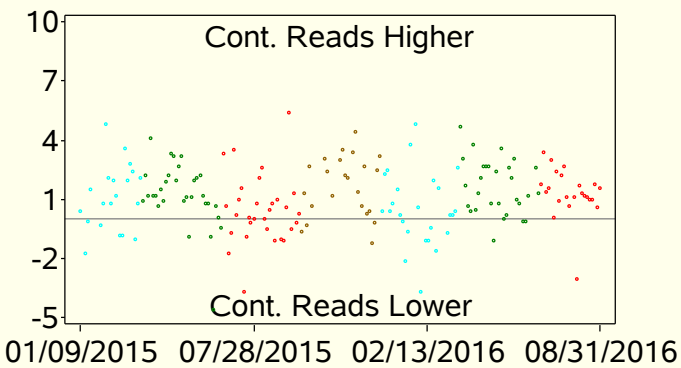
Cont. (y) vs. FRM (x) PM 2.5 ($\mu g/m^3$)



y = 0.96x + 1.53
R = 0.93

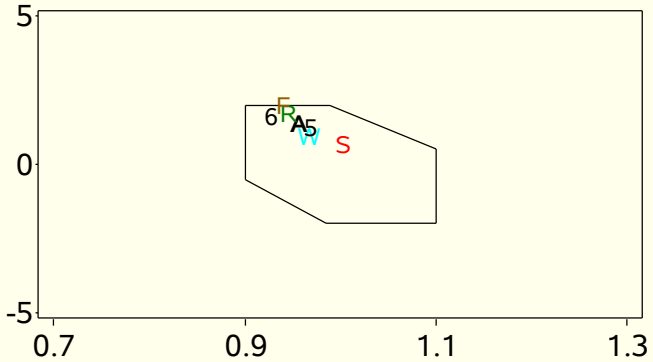
— 1:1 line

Cont. minus FRM PM 2.5 ($\mu g/m^3$)



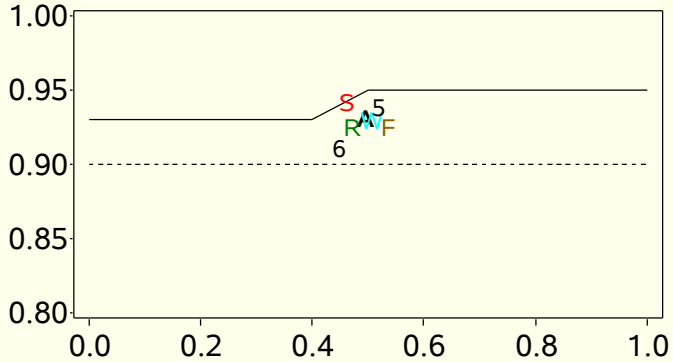
○ Winter ○ Spring ○ Summer ○ Fall

Additive (y) vs. Multiplicate (x) Bias



A=AllData, 4=2014, 5=2015, 6=2016
W=Winter, R=Spring, S=Summer, F=Fall

R (y) vs. FRM CCV (x)



A=AllData, 4=2014, 5=2015, 6=2016
W=Winter, R=Spring, S=Summer, F=Fall

Mean PM 2.5 ($\mu g/m^3$)

Dataset	N	FRM	Cont	Ratio (Cont/FRM)
AllData	**181**	**8.9**	**10.0**	**1.13**
Winter	45	9.4	10.2	1.08
Spring	60	8.2	9.7	1.17
Summer	53	9.9	10.8	1.09
Fall	23	7.3	9.0	1.23
2014	0	.	.	.
2015	107	9.2	10.3	1.12
2016	74	8.5	9.7	1.14

Appendix A Statistics

Dataset	N (all observations)	Bias (all observations)	N (only >= 3 ug/m^3)	Bias (only >= 3 ug/m^3)
AllData	**181**	**16.8**	**175**	**17.1**
Winter	45	11.7	43	13.0
Spring	60	21.9	58	21.6
Summer	53	10.7	53	10.7
Fall	23	27.9	21	29.7
2014	0	.	.	.
2015	107	16.7	103	16.5
2016	74	17.1	72	18.0

Data Source: EPA AQS Data Mart

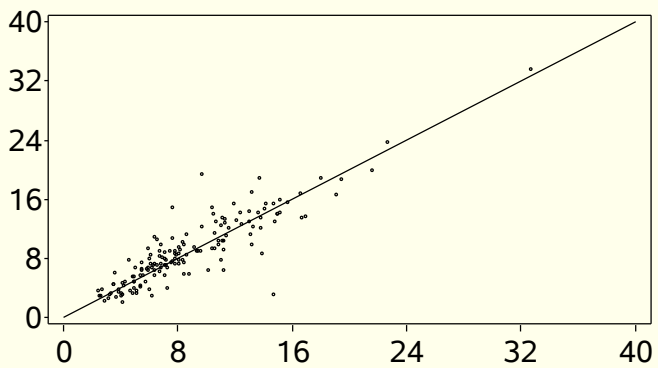
Generated on: October 27, 2016

PM 2.5 Continuous Monitor Comparability Assessment

Site 39-023-0005: Springfield, OH

FRM: BGI Models PQ200-VSCC or PQ200A-VSCC - Gravimetric (142,120), PM2.5 - Local Conditions (88101), POC=1
Cont: Andersen BAM w/PM2.5 SCC - Beta Attenuation (750), Acceptable PM2.5 AQI & Speciation Mass (88502), POC=3

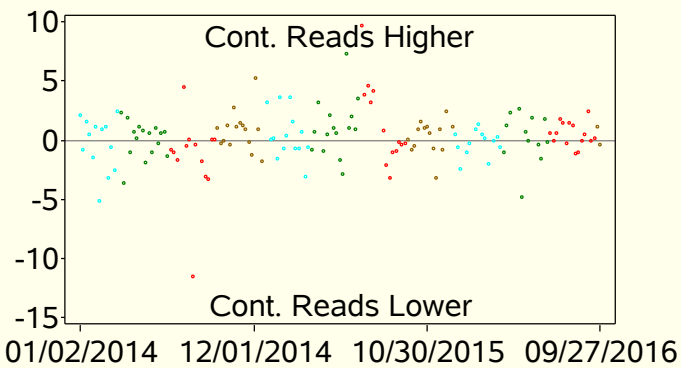
Cont. (y) vs. FRM (x) PM 2.5 ($\mu g/m^3$)



y = 0.93x + 0.90
R = 0.89

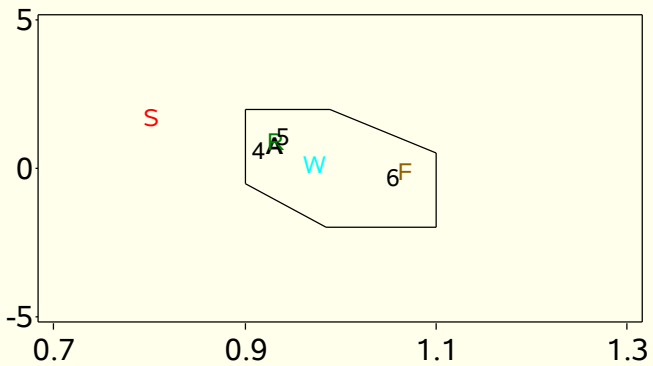
— 1:1 line

Cont. minus FRM PM 2.5 ($\mu g/m^3$)



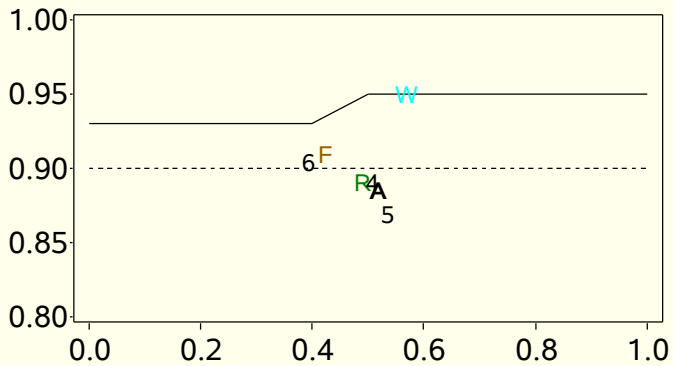
○ Winter ○ Spring ○ Summer ○ Fall

Additive (y) vs. Multiplicate (x) Bias



A=AllData, 4=2014, 5=2015, 6=2016
W=Winter, R=Spring, S=Summer, F=Fall

R (y) vs. FRM CCV (x)



A=AllData, 4=2014, 5=2015, 6=2016
W=Winter, R=Spring, S=Summer, F=Fall

Mean PM 2.5 ($\mu g/m^3$)

Dataset	N	FRM	Cont	Ratio (Cont/FRM)
AllData	**155**	**8.8**	**9.1**	**1.03**
Winter	40	10.4	10.4	1.00
Spring	43	8.7	9.2	1.05
Summer	41	8.6	8.8	1.02
Fall	31	7.4	7.9	1.07
2014	58	10.2	10.1	0.99
2015	57	8.4	9.1	1.09
2016	40	7.4	7.7	1.03

Appendix A Statistics

Dataset	N (all observations)	Bias (all observations)	N (only >= 3 ug/m^3)	Bias (only >= 3 ug/m^3)
AllData	**155**	**5.4**	**147**	**5.4**
Winter	40	0.4	37	1.8
Spring	43	8.0	41	8.5
Summer	41	4.7	40	5.1
Fall	31	9.0	29	6.2
2014	58	2.2	57	1.3
2015	57	11.0	51	11.8
2016	40	1.8	39	3.1

Data Source: EPA AQS Data Mart

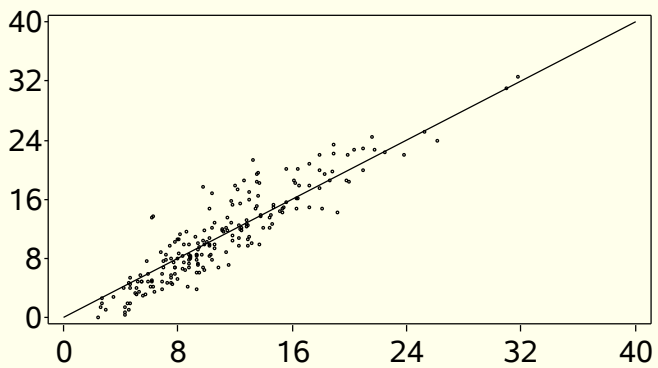
Generated on: October 24, 2016

PM 2.5 Continuous Monitor Comparability Assessment

Site 39-035-0060: Cleveland, OH

FRM: Thermo Scientific Dichot. Partisol-Plus Model 2025-D Seq - Gravimetric (179,145,), PM2.5 - Local Conditions (88101), POC=1
Cont: Met One BAM-1020 Mass Monitor w/VSCC - Beta Attenuation (170), PM2.5 - Local Conditions (88101), POC=3

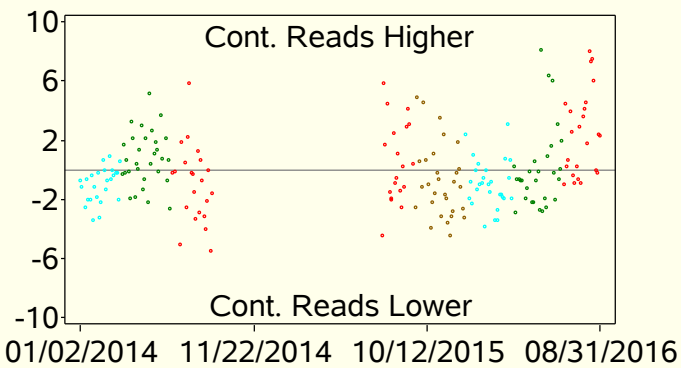
Cont. (y) vs. FRM (x) PM 2.5 ($\mu g/m^3$)



y = 1.09x + -1.02
R = 0.92

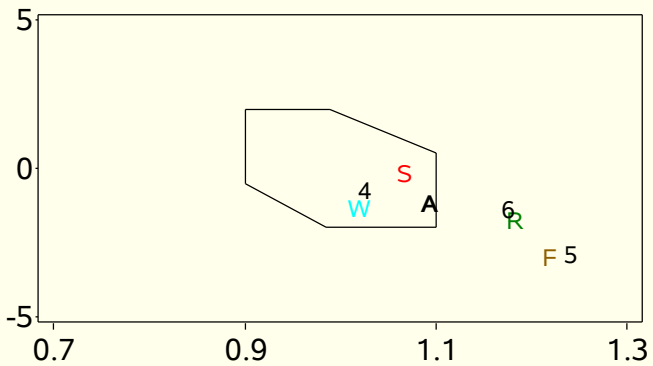
— 1:1 line

Cont. minus FRM PM 2.5 ($\mu g/m^3$)



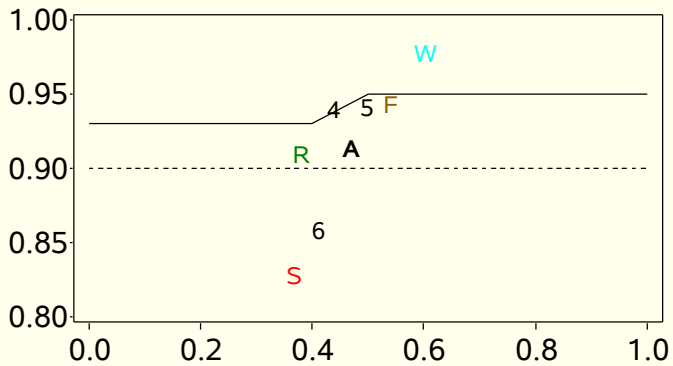
○ Winter ○ Spring ○ Summer ○ Fall

Additive (y) vs. Multiplicate (x) Bias



A=AllData, 4=2014, 5=2015, 6=2016
W=Winter, R=Spring, S=Summer, F=Fall

R (y) vs. FRM CCV (x)



A=AllData, 4=2014, 5=2015, 6=2016
W=Winter, R=Spring, S=Summer, F=Fall

Mean PM 2.5 ($\mu g/m^3$)

Dataset	N	FRM	Cont	Ratio (Cont/FRM)
AllData	**206**	**11.1**	**11.1**	**1.00**
Winter	53	11.5	10.5	0.92
Spring	59	10.9	11.4	1.04
Summer	65	11.6	12.3	1.06
Fall	29	9.6	8.8	0.92
2014	77	13.0	12.7	0.98
2015	50	10.5	10.3	0.98
2016	79	9.6	10.0	1.05

Appendix A Statistics

Dataset	N (all observations)	Bias (all observations)	N (only >= 3 ug/m^3)	Bias (only >= 3 ug/m^3)
AllData	**206**	**-4.0**	**193**	**-0.1**
Winter	53	-15	46	-7.4
Spring	59	0.9	57	2.5
Summer	65	6.5	65	6.5
Fall	29	-17	25	-9.3
2014	77	-3.2	76	-2.9
2015	50	-11	45	-4.4
2016	79	-0.5	72	5.7

Data Source: EPA AQS Data Mart

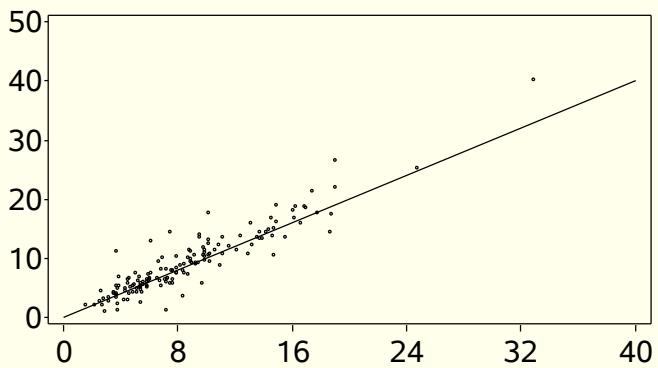
Generated on: October 24, 2016

PM 2.5 Continuous Monitor Comparability Assessment

Site 39-057-0005: Yellow Springs, OH

FRM: BGI Models PQ200-VSCC or PQ200A-VSCC - Gravimetric (142,120), PM2.5 - Local Conditions (88101), POC=1
Cont: Andersen BAM w/PM2.5 SCC - Beta Attenuation (750), Acceptable PM2.5 AQI & Speciation Mass (88502), POC=3

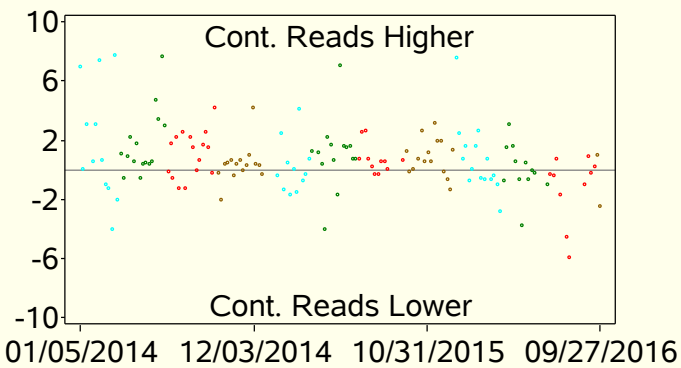
Cont. (y) vs. FRM (x) PM 2.5 ($\mu g/m^3$)



y = 1.08x + 0.05
R = 0.93

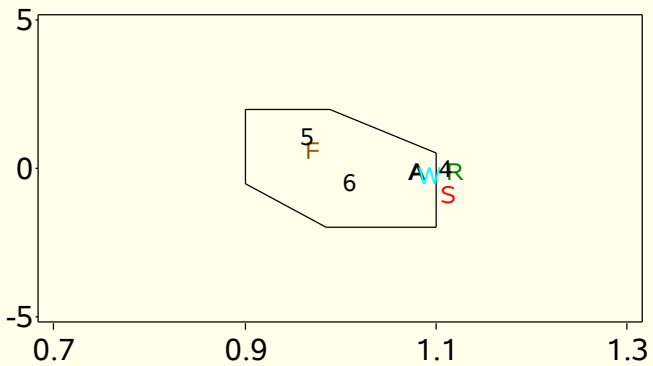
— 1:1 line

Cont. minus FRM PM 2.5 ($\mu g/m^3$)



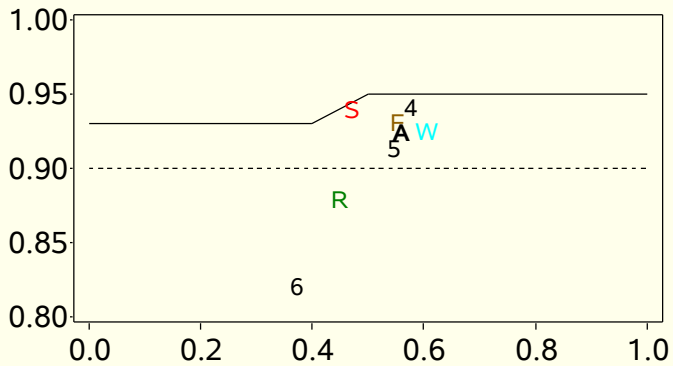
○ Winter ○ Spring ○ Summer ○ Fall

Additive (y) vs. Multiplicate (x) Bias



A=AllData, 4=2014, 5=2015, 6=2016
W=Winter, R=Spring, S=Summer, F=Fall

R (y) vs. FRM CCV (x)



A=AllData, 4=2014, 5=2015, 6=2016
W=Winter, R=Spring, S=Summer, F=Fall

Mean PM 2.5 ($\mu g/m^3$)

Dataset	N	FRM	Cont	Ratio (Cont/FRM)
AllData	**148**	**8.7**	**9.5**	**1.08**
Winter	38	10.4	11.3	1.09
Spring	41	8.0	9.0	1.13
Summer	37	9.7	10.1	1.04
Fall	32	6.5	7.1	1.09
2014	58	10.1	11.4	1.12
2015	52	8.3	9.2	1.11
2016	38	7.1	6.9	0.97

Appendix A Statistics

Dataset	N (all observations)	Bias (all observations)	N (only >= 3 ug/m^3)	Bias (only >= 3 ug/m^3)
AllData	**148**	**9.8**	**137**	**11.6**
Winter	38	10.7	36	13.6
Spring	41	13.2	40	14.9
Summer	37	2.7	35	5.6
Fall	32	12.8	26	11.9
2014	58	13.5	55	12.8
2015	52	15.5	48	17.0
2016	38	-3.6	34	2.2

Data Source: EPA AQS Data Mart

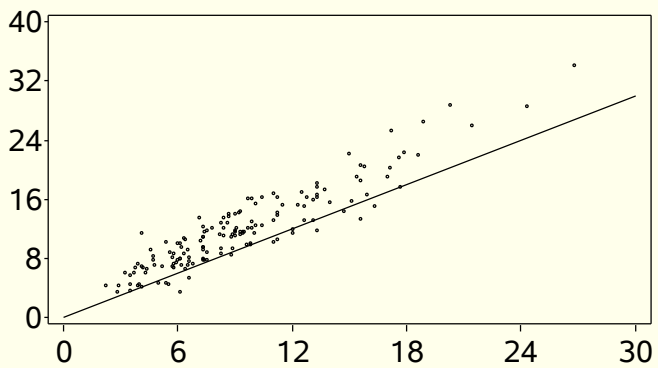
Generated on: October 24, 2016

PM 2.5 Continuous Monitor Comparability Assessment

Site 39-061-0010: Cleves, OH

FRM: BGI Models PQ200-VSCC or PQ200A-VSCC - Gravimetric (142,120), PM2.5 - Local Conditions (88101), POC=1
Cont: Met-One BAM W/PM2.5 VSCC - Beta Attenuation (733), Acceptable PM2.5 AQI & Speciation Mass (88502), POC=3

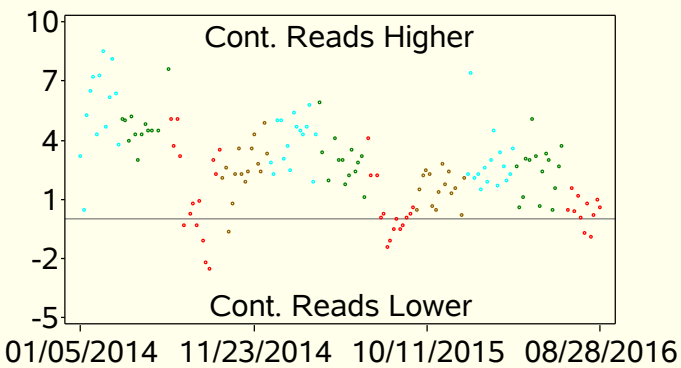
Cont. (y) vs. FRM (x) PM 2.5 ($\mu g/m^3$)



y = 1.12x + 1.48
R = 0.93

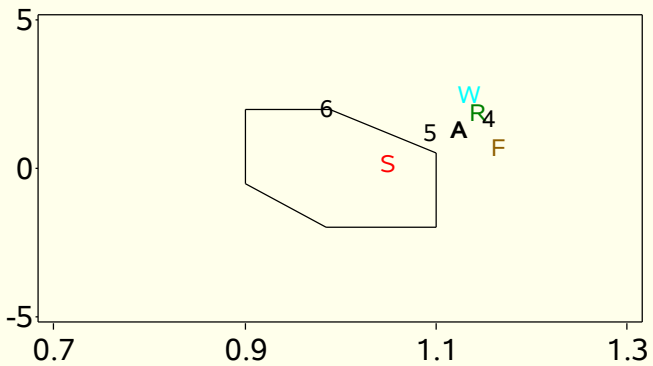
— 1:1 line

Cont. minus FRM PM 2.5 ($\mu g/m^3$)



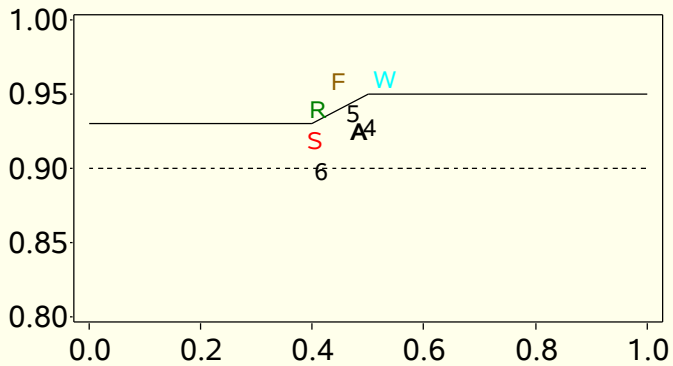
○ Winter ○ Spring ○ Summer ○ Fall

Additive (y) vs. Multiplicate (x) Bias



A=AllData, 4=2014, 5=2015, 6=2016
W=Winter, R=Spring, S=Summer, F=Fall

R (y) vs. FRM CCV (x)



A=AllData, 4=2014, 5=2015, 6=2016
W=Winter, R=Spring, S=Summer, F=Fall

Mean PM 2.5 ($\mu g/m^3$)

Dataset	N	FRM	Cont	Ratio (Cont/FRM)
AllData	**153**	**9.3**	**12.0**	**1.28**
Winter	43	10.7	14.8	1.38
Spring	40	8.6	11.9	1.38
Summer	40	10.2	11.0	1.08
Fall	30	7.2	9.3	1.29
2014	57	10.1	13.5	1.34
2015	56	9.4	11.6	1.24
2016	40	8.2	10.3	1.25

Appendix A Statistics

Dataset	N (all observations)	Bias (all observations)	N (only >= 3 ug/m^3)	Bias (only >= 3 ug/m^3)
AllData	**153**	**32.6**	**150**	**32.0**
Winter	43	46.0	43	46.0
Spring	40	42.6	40	42.6
Summer	40	8.3	40	8.3
Fall	30	32.4	27	29.3
2014	57	38.0	56	38.2
2015	56	28.4	54	26.6
2016	40	30.7	40	30.7

Data Source: EPA AQS Data Mart

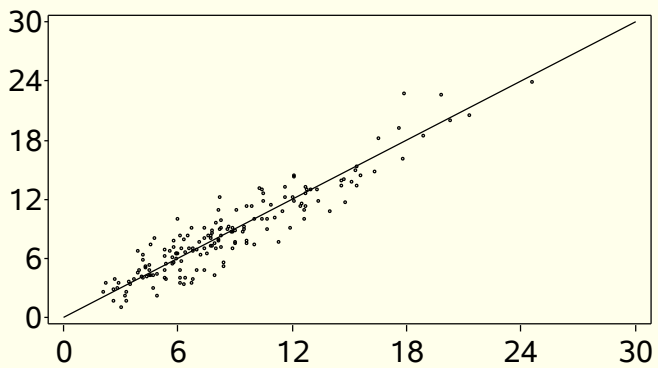
Generated on: October 27, 2016

PM 2.5 Continuous Monitor Comparability Assessment

Site 39-061-0040: Cincinnati, OH

FRM: BGI Models PQ200-VSCC or PQ200A-VSCC - Gravimetric (142,116,), PM2.5 - Local Conditions (88101), POC=1
Cont: Thermo Scientific Model 5030 SHARP w/VSCC - Beta Attenuation (184), PM2.5 - Local Conditions (88101), POC=3

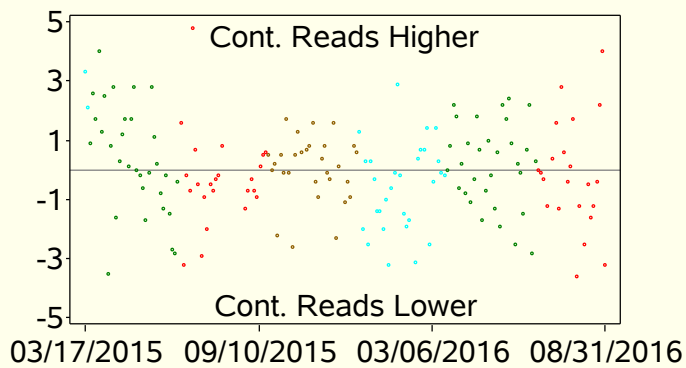
Cont. (y) vs. FRM (x) PM 2.5 ($\mu g/m^3$)



y = 0.96x + 0.33
R = 0.93

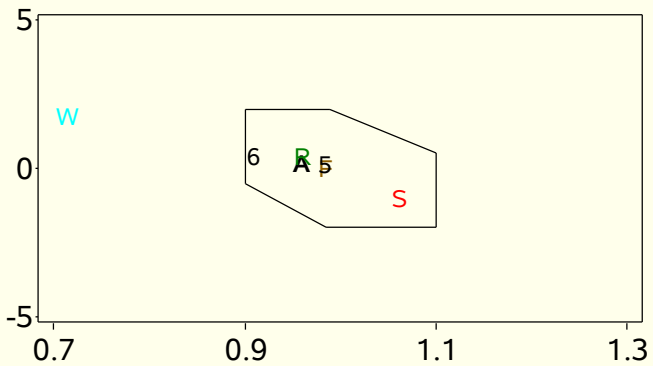
— 1:1 line

Cont. minus FRM PM 2.5 ($\mu g/m^3$)



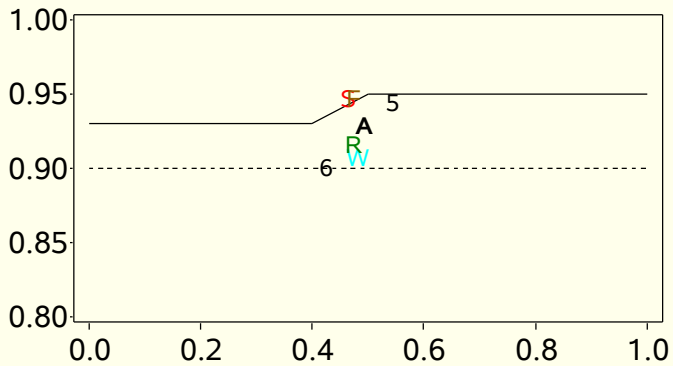
○ Winter ○ Spring ○ Summer ○ Fall

Additive (y) vs. Multiplicate (x) Bias



A=AllData, 4=2014, 5=2015, 6=2016
W=Winter, R=Spring, S=Summer, F=Fall

R (y) vs. FRM CCV (x)



A=AllData, 4=2014, 5=2015, 6=2016
W=Winter, R=Spring, S=Summer, F=Fall

Mean PM 2.5 ($\mu g/m^3$)

Dataset	N	FRM	Cont	Ratio (Cont/FRM)
AllData	**167**	**8.6**	**8.6**	**1.00**
Winter	31	7.9	7.6	0.96
Spring	62	8.3	8.6	1.03
Summer	45	10.4	10.1	0.98
Fall	29	7.2	7.2	1.01
2014	0	.	.	.
2015	88	8.7	8.8	1.01
2016	79	8.5	8.3	0.98

Appendix A Statistics

Dataset	N (all observations)	Bias (all observations)	N (only >= 3 ug/m^3)	Bias (only >= 3 ug/m^3)
AllData	**167**	**1.1**	**155**	**1.6**
Winter	31	2.5	28	-0.6
Spring	62	4.5	57	6.8
Summer	45	-4.4	45	-4.4
Fall	29	1.1	25	3.2
2014	0	.	.	.
2015	88	3.6	81	3.0
2016	79	-1.6	74	0.1

Data Source: EPA AQS Data Mart

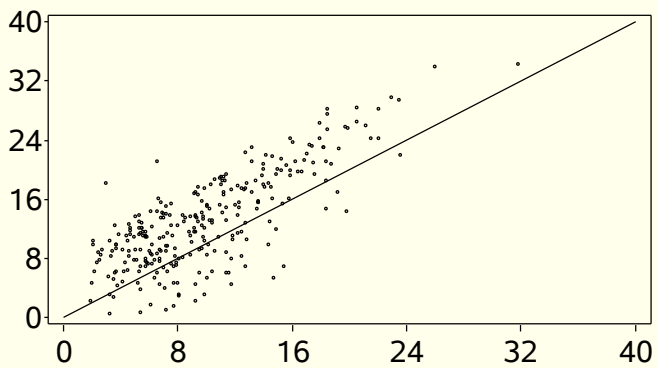
Generated on: October 27, 2016

PM 2.5 Continuous Monitor Comparability Assessment

Site 39-081-0017: Steubenville, OH

FRM: R & P Model 2025 PM-2.5 Sequential Air Sampler w/VSCC - Gravimetric (145,120), PM2.5 - Local Conditions (88101), POC=1
Cont: Met One BAM-1020 Mass Monitor w/VSCC - Beta Attenuation (170), PM2.5 - Local Conditions (88101), POC=3

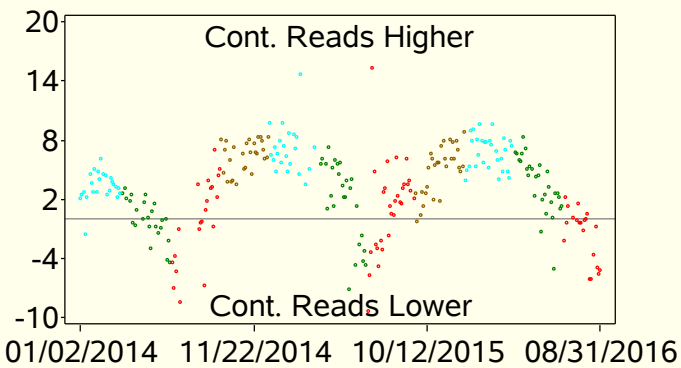
Cont. (y) vs. FRM (x) PM 2.5 ($\mu g/m^3$)



y = 0.97x + 3.55
R = 0.78

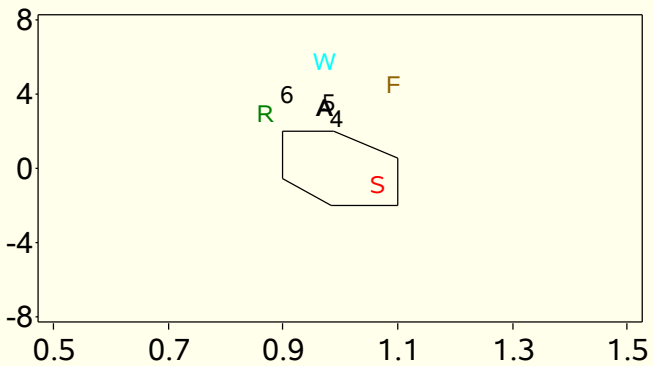
— 1:1 line

Cont. minus FRM PM 2.5 ($\mu g/m^3$)



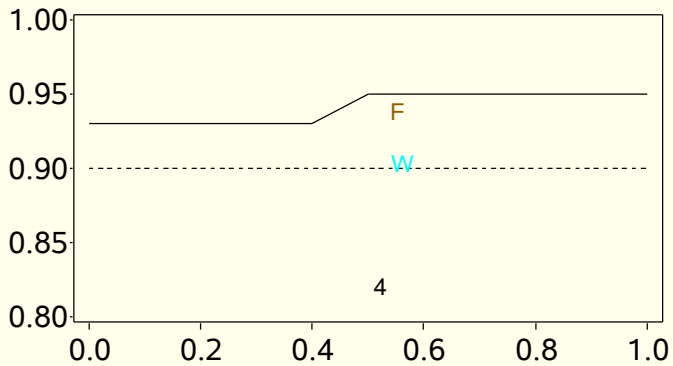
○ Winter ○ Spring ○ Summer ○ Fall

Additive (y) vs. Multiplicate (x) Bias



A=AllData, 4=2014, 5=2015, 6=2016
W=Winter, R=Spring, S=Summer, F=Fall

R (y) vs. FRM CCV (x)



A=AllData, 4=2014, 5=2015, 6=2016
W=Winter, R=Spring, S=Summer, F=Fall

Mean PM 2.5 ($\mu g/m^3$)

Dataset	N	FRM	Cont	Ratio (Cont/FRM)
AllData	**280**	**10.0**	**13.2**	**1.33**
Winter	75	9.8	15.6	1.59
Spring	79	9.5	11.5	1.20
Summer	70	10.7	10.8	1.01
Fall	56	9.9	15.6	1.58
2014	100	10.6	13.4	1.27
2015	105	10.5	14.0	1.34
2016	75	8.5	11.9	1.40

Appendix A Statistics

Dataset	N (all observations)	Bias (all observations)	N (only >= 3 ug/m^3)	Bias (only >= 3 ug/m^3)
AllData	**280**	**49.0**	**263**	**45.2**
Winter	75	84.4	70	72.2
Spring	79	37.0	75	28.3
Summer	70	4.0	64	11.1
Fall	56	74.4	54	74.2
2014	100	37.0	97	36.8
2015	105	50.6	100	51.1
2016	75	62.5	66	48.6

Data Source: EPA AQS Data Mart

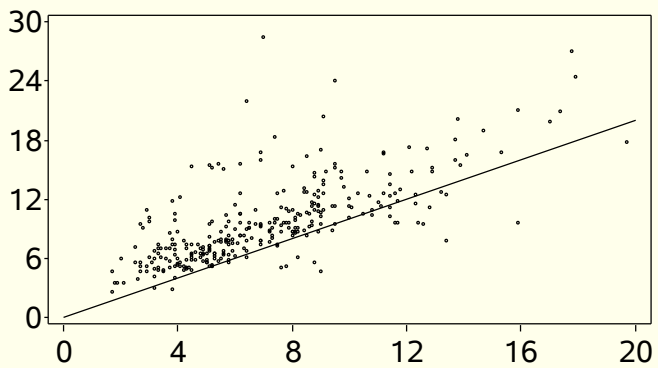
Generated on: October 24, 2016

PM 2.5 Continuous Monitor Comparability Assessment

Site 39-087-0012: Ironton, OH

FRM: R & P Model 2025 PM2.5 Sequential w/WINS - GRAVIMETRIC (118,145,), PM2.5 - Local Conditions (88101), POC=1
Cont: Andersen BAM w/PM2.5 VSCC - Beta Attenuation (753), Acceptable PM2.5 AQI & Speciation Mass (88502), POC=3

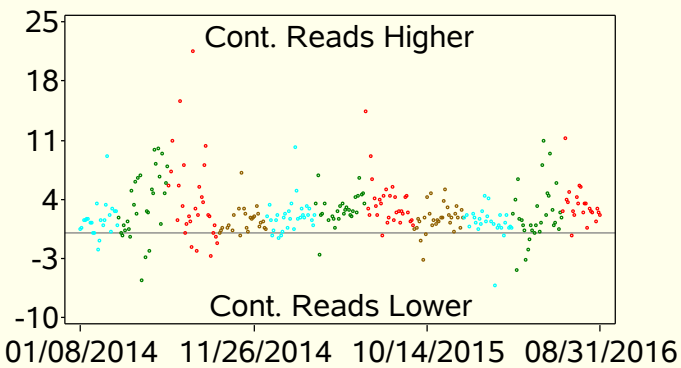
Cont. (y) vs. FRM (x) PM 2.5 ($\mu g/m^3$)



y = 0.90x + 3.25
R = 0.71

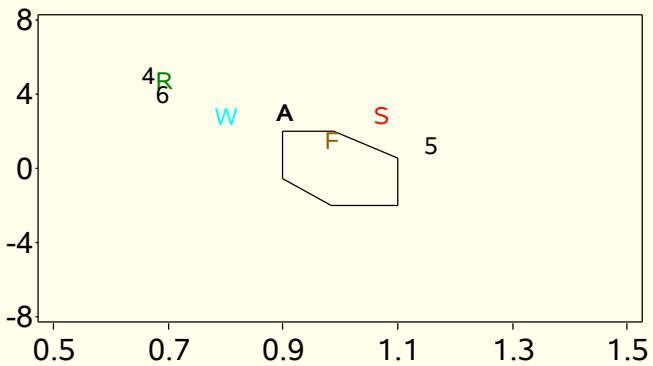
— 1:1 line

Cont. minus FRM PM 2.5 ($\mu g/m^3$)



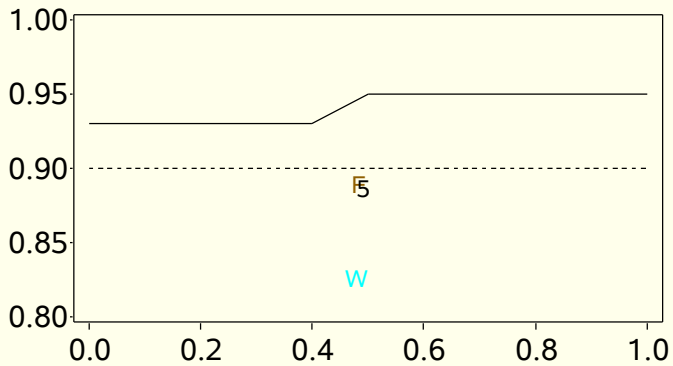
○ Winter ○ Spring ○ Summer ○ Fall

Additive (y) vs. Multiplicate (x) Bias



A=AllData, 4=2014, 5=2015, 6=2016
W=Winter, R=Spring, S=Summer, F=Fall

R (y) vs. FRM CCV (x)



A=AllData, 4=2014, 5=2015, 6=2016
W=Winter, R=Spring, S=Summer, F=Fall

Mean PM 2.5 ($\mu g/m^3$)

Dataset	N	FRM	Cont	Ratio (Cont/FRM)
AllData	**308**	**7.1**	**9.7**	**1.36**
Winter	81	7.0	8.7	1.24
Spring	89	6.9	9.8	1.41
Summer	82	7.8	11.5	1.47
Fall	56	6.5	8.2	1.26
2014	112	7.5	10.2	1.37
2015	117	7.3	9.8	1.36
2016	79	6.4	8.7	1.35

Appendix A Statistics

Dataset	N (all observations)	Bias (all observations)	N (only >= 3 ug/m^3)	Bias (only >= 3 ug/m^3)
AllData	**308**	**47.1**	**290**	**42.3**
Winter	81	32.9	78	30.8
Spring	89	59.1	83	50.8
Summer	82	55.6	79	52.4
Fall	56	35.9	50	30.4
2014	112	50.6	108	45.5
2015	117	42.9	109	39.5
2016	79	48.2	73	41.9

Data Source: EPA AQS Data Mart

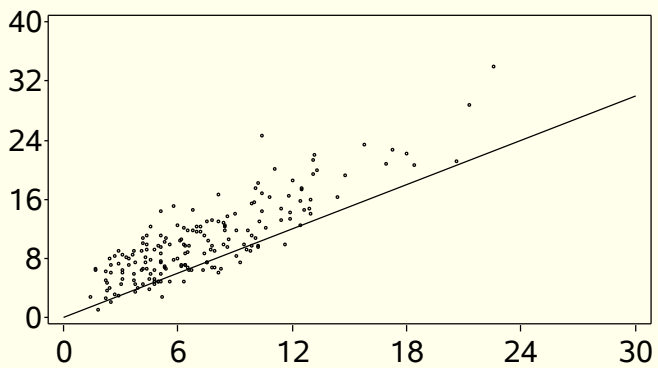
Generated on: October 27, 2016

PM 2.5 Continuous Monitor Comparability Assessment

Site 39-103-0004: Not in a City, OH

FRM: R & P Model 2025 PM-2.5 Sequential Air Sampler w/VSCC - Gravimetric (145,120), PM2.5 - Local Conditions (88101), POC=1
Cont: Met One BAM-1020 Mass Monitor w/VSCC - Beta Attenuation (170), PM2.5 - Local Conditions (88101), POC=3

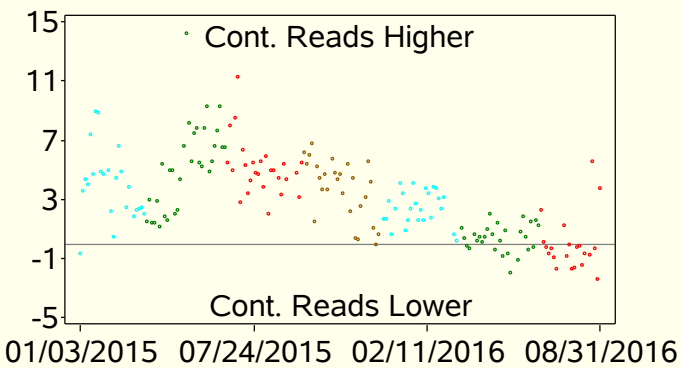
Cont. (y) vs. FRM (x) PM 2.5 ($\mu g/m^3$)



y = 1.12x + 2.19
R = 0.85

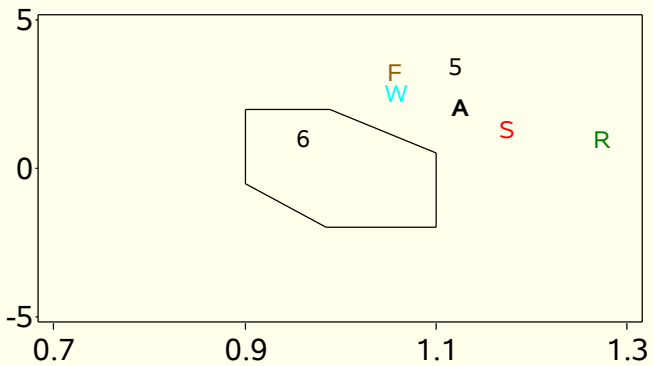
— 1:1 line

Cont. minus FRM PM 2.5 ($\mu g/m^3$)



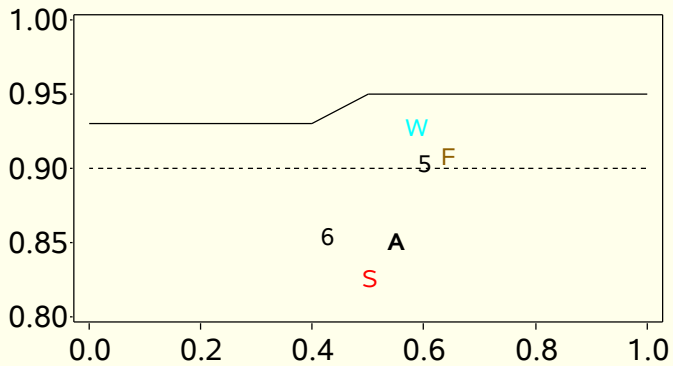
○ Winter ○ Spring ○ Summer ○ Fall

Additive (y) vs. Multiplicate (x) Bias



A=AllData, 4=2014, 5=2015, 6=2016
W=Winter, R=Spring, S=Summer, F=Fall

R (y) vs. FRM CCV (x)



A=AllData, 4=2014, 5=2015, 6=2016
W=Winter, R=Spring, S=Summer, F=Fall

Mean PM 2.5 ($\mu g/m^3$)

Dataset	N	FRM	Cont	Ratio (Cont/FRM)
AllData	**181**	**7.3**	**10.4**	**1.42**
Winter	48	8.1	11.3	1.39
Spring	59	6.7	9.7	1.44
Summer	47	7.8	10.7	1.36
Fall	27	6.4	10.2	1.58
2014	0	.	.	.
2015	110	7.6	12.1	1.59
2016	71	6.9	7.8	1.13

Appendix A Statistics

Dataset	N (all observations)	Bias (all observations)	N (only >= 3 ug/m^3)	Bias (only >= 3 ug/m^3)
AllData	**181**	**55.1**	**161**	**47.5**
Winter	48	53.7	44	44.8
Spring	59	51.5	51	47.7
Summer	47	48.9	44	41.5
Fall	27	75.9	22	64.1
2014	0	.	.	.
2015	110	77.8	98	68.3
2016	71	19.7	63	15.0

Data Source: EPA AQS Data Mart

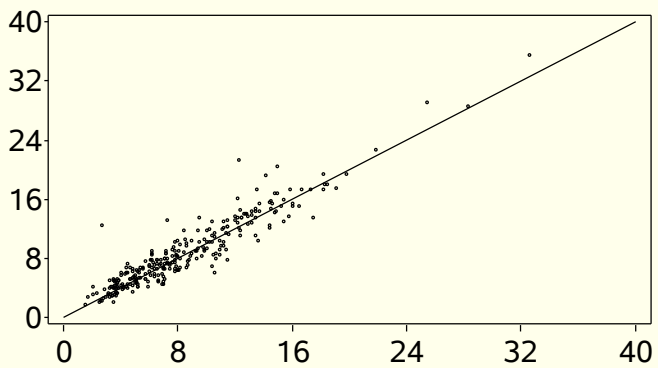
Generated on: October 27, 2016

PM 2.5 Continuous Monitor Comparability Assessment

Site 39-135-1001: New Paris, OH

FRM: R & P Model 2025 PM-2.5 Sequential Air Sampler w/VSCC - Gravimetric (145,120), PM2.5 - Local Conditions (88101), POC=1
Cont: Andersen BAM w/PM2.5 SCC - Beta Attenuation (750), Acceptable PM2.5 AQI & Speciation Mass (88502), POC=3

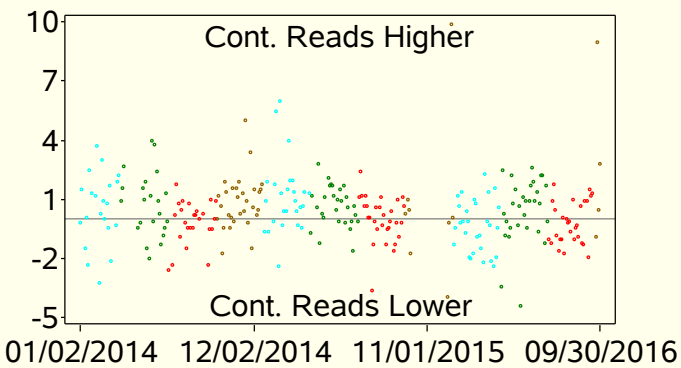
Cont. (y) vs. FRM (x) PM 2.5 ($\mu g/m^3$)



y = 0.99x + 0.52
R = 0.94

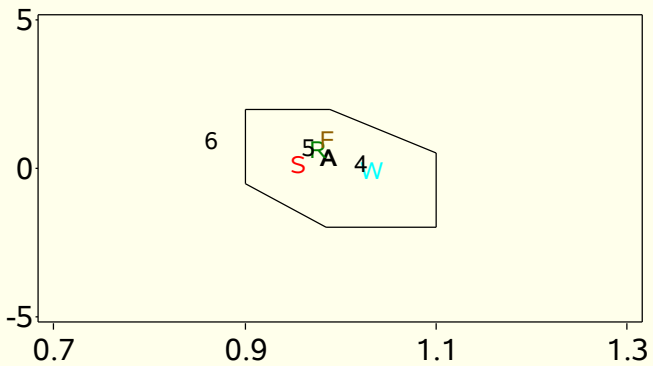
— 1:1 line

Cont. minus FRM PM 2.5 ($\mu g/m^3$)



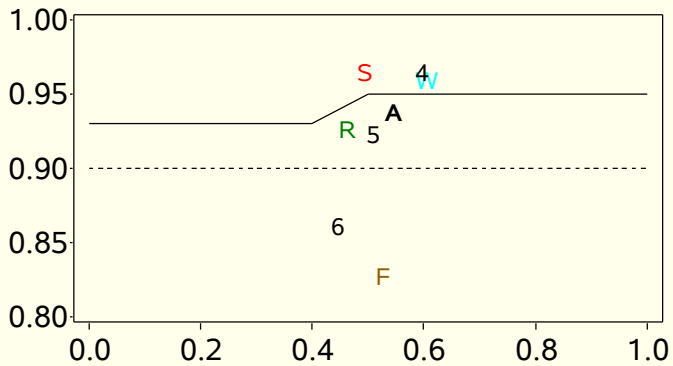
○ Winter ○ Spring ○ Summer ○ Fall

Additive (y) vs. Multiplicate (x) Bias



A=AllData, 4=2014, 5=2015, 6=2016
W=Winter, R=Spring, S=Summer, F=Fall

R (y) vs. FRM CCV (x)



A=AllData, 4=2014, 5=2015, 6=2016
W=Winter, R=Spring, S=Summer, F=Fall

Mean PM 2.5 ($\mu g/m^3$)

Dataset	N	FRM	Cont	Ratio (Cont/FRM)
AllData	**282**	**8.5**	**8.9**	**1.05**
Winter	76	9.7	10.1	1.04
Spring	80	7.8	8.4	1.08
Summer	84	8.7	8.6	0.99
Fall	42	6.8	7.9	1.15
2014	102	9.2	9.7	1.06
2015	91	8.8	9.3	1.07
2016	89	7.3	7.4	1.02

Appendix A Statistics

Dataset	N (all observations)	Bias (all observations)	N (only >= 3 ug/m^3)	Bias (only >= 3 ug/m^3)
AllData	**282**	**8.1**	**268**	**6.3**
Winter	76	5.8	71	6.0
Spring	80	10.8	77	9.6
Summer	84	0.8	82	0.4
Fall	42	21.7	38	12.7
2014	102	7.9	99	6.9
2015	91	10.7	87	6.7
2016	89	5.7	82	5.1

Data Source: EPA AQS Data Mart

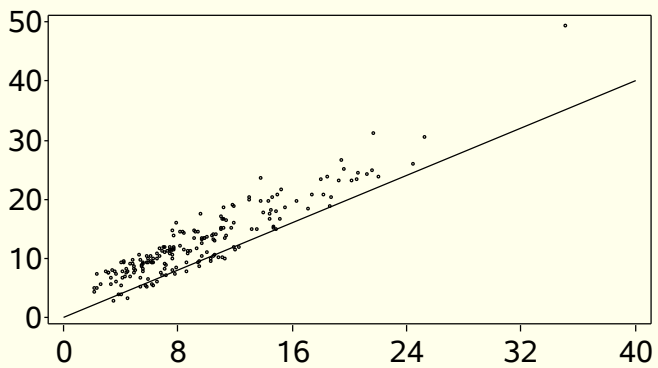
Generated on: October 27, 2016

PM 2.5 Continuous Monitor Comparability Assessment

Site 39-153-0017: Akron, OH

FRM: R & P Model 2025 PM-2.5 Sequential Air Sampler w/VSCC - Gravimetric (145,120), PM2.5 - Local Conditions (88101), POC=1
Cont: Met One BAM-1020 Mass Monitor w/VSCC - Beta Attenuation (170), PM2.5 - Local Conditions (88101), POC=3

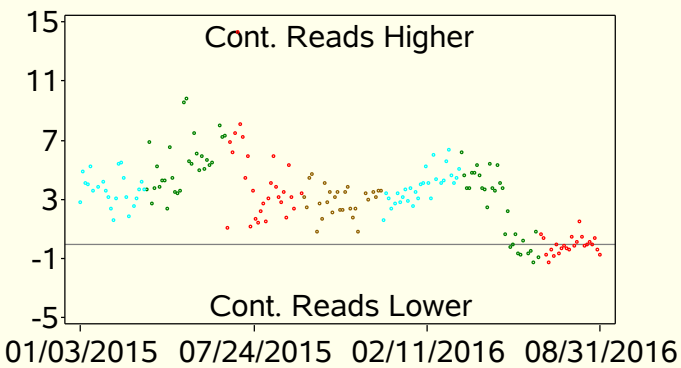
Cont. (y) vs. FRM (x) PM 2.5 ($\mu g/m^3$)



y = 1.10x + 2.36
R = 0.93

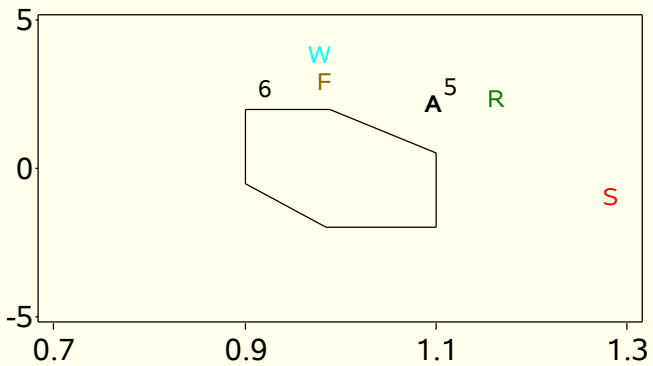
— 1:1 line

Cont. minus FRM PM 2.5 ($\mu g/m^3$)



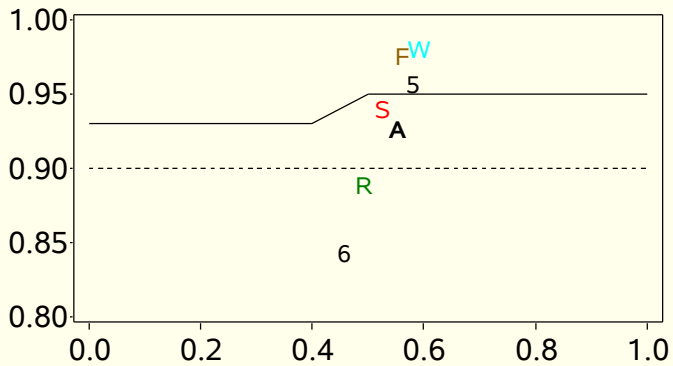
○ Winter ○ Spring ○ Summer ○ Fall

Additive (y) vs. Multiplicate (x) Bias



A=AllData, 4=2014, 5=2015, 6=2016
W=Winter, R=Spring, S=Summer, F=Fall

R (y) vs. FRM CCV (x)



A=AllData, 4=2014, 5=2015, 6=2016
W=Winter, R=Spring, S=Summer, F=Fall

Mean PM 2.5 ($\mu g/m^3$)

Dataset	N	FRM	Cont	Ratio (Cont/FRM)
AllData	**190**	**9.5**	**12.8**	**1.34**
Winter	52	9.9	13.7	1.38
Spring	59	8.6	12.5	1.46
Summer	52	10.8	13.0	1.21
Fall	27	8.3	11.2	1.35
2014	0	.	.	.
2015	110	10.3	14.3	1.40
2016	80	8.5	10.7	1.26

Appendix A Statistics

Dataset	N (all observations)	Bias (all observations)	N (only >= 3 ug/m^3)	Bias (only >= 3 ug/m^3)
AllData	**190**	**44.4**	**184**	**42.2**
Winter	52	54.1	48	46.4
Spring	59	55.8	57	56.3
Summer	52	20.7	52	20.7
Fall	27	46.6	27	46.6
2014	0	.	.	.
2015	110	50.2	109	49.6
2016	80	36.5	75	31.6

Data Source: EPA AQS Data Mart

Generated on: October 24, 2016