

## APPENDIX C

# **PM2.5 Continuous Monitor Comparability Assessment and Request for Waiver**

### **Introduction**

The SCAQMD monitoring program has historically operated PM2.5 continuous monitors primarily to support forecasting and reporting of the Air Quality Index (AQI). These monitors supply data every hour to update the AQI on our web site as well as national web sites such as AirNow ([www.airnow.gov](http://www.airnow.gov)). SCAQMD has been using these monitors since the early part of the last decade as the PM2.5 monitoring program was implemented. Over the last few years, a number of PM2.5 continuous monitors have been approved as Federal Equivalent Methods (FEMs). By utilizing an approved FEM, any subsequent data produced from the method may be eligible for comparison to EPA's health based standard known as the NAAQS. The primary advantage of operating a PM2.5 continuous FEM is that it can support the AQI, while also supplying data that are eligible for comparison to the NAAQS. Thus, a network utilizing PM2.5 continuous FEMs can potentially lower the number of filter-based FRMs operated in the network, which are primarily used for comparison to the NAAQS. These filter-based FRMs are resource intensive in that they require field operations as well as pre- and post-sampling laboratory analysis which results in data not being available for approximately 2-4 weeks after sample collection.

The SCAQMD monitoring program has been evaluating PM2.5 continuous FEMs over the past several years. Although the PM2.5 continuous FEMs are automated methods, these methods still require careful attention in their set-up, operation, and validation of data. Once enough data was collected, we began to evaluate the performance of these methods compared to collocated FRMs. That evaluation is explained further below and includes our request regarding the use of the data from these methods.

### **Request for Exclusion of PM2.5 Continuous FEM data from Comparison to the NAAQS**

The network technical requirements for requesting exclusion of data from comparison to the NAAQS are identified in 40 CFR §58.11(e). These requirements refer to the performance criteria

described in Table C-4 to subpart C of part 53. To accommodate the differences in how routine monitoring agencies operate their networks, several additional provisions are described in §58.11(e). When a topic is not addressed in §58.11(e), then the test specifications from table C-4 applies.

As shown in the Table below, the slopes of the regression between collocated FRM and FEM measurements at the Anaheim, Central Los Angeles, North Long Beach, South Long Beach, and Rubidoux (POC 3) stations are higher than 1.1, which is outside the test specification indicated in §53 Table C-4 (i.e. slope =  $1 \pm 0.1$ ). Although the slope criteria was met, the intercept of the regression relationship between FRM and FEM data at the Burbank, Rubidoux (POC 9) and Mira Loma monitoring sites does not meet the test specifications of between  $15.05 - (17.32 \times \text{slope})$ , but not less than -2.0; and  $15.05 - (13.20 \times \text{slope})$ , but not more than +2.0 (also indicated in §53 Table C-4).

Thus, in accordance with the PM NAAQS rule published on January 15<sup>th</sup>, 2013 (78 FR 3086) and specific to the provisions detailed in §58.10 (b)(13) and §58.11 (e), SCAQMD is requesting that data from the all of the SCAQMD FEM PM<sub>2.5</sub> monitors be set aside for comparison to the NAAQS. While SCAQMD is working to optimize the monitoring instrumentation to meet all of our monitoring objectives, the performance is not yet at a point where the comparability of the PM<sub>2.5</sub> continuous FEMs operated in our network compared to collocated FRMs is acceptable. After assessing the comparability of the PM<sub>2.5</sub> FEMs to the collocated FRMs for our network, the sites listed below do not meet the comparability requirements. Detailed one-page assessments from which the information described below was obtained are included at the end of this section.

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**Table – Request for Exclusion of PM<sub>2.5</sub> Continuous FEM Data**

Site Name	City	Site ID	Cont POC	Cont Method Description	PM <sub>2.5</sub> Cont Begin Date	PM <sub>2.5</sub> Cont End Date	Continuous/ FRM Sampler Pairs Per Season	Slope (m)	Intercept (y)	Meets Bias Requirement	Correlation (r)
<i>Sites with PM<sub>2.5</sub> continuous FEMs that are collocated with FRMs</i>											
Anaheim	Anaheim	06-059-0007	3	Met-One BAM 1020 w/VSCC	01/01/2012	12/31/2014	Winter = 246 Spring = 251 Summer = 229 Fall = 259 Total = 979	0.99	4.66	No	0.87
Burbank	Burbank	06-037-1002	3	Met-One BAM 1020 w/VSCC	01/01/2012	06/30/2013	Winter = 250 Spring = 236 Summer = 187 Fall = 172 Total = 845	1.05	5.24	No	0.88
Central Los Angeles	Los Angeles	06-037-1103	3	Met-One BAM 1020 w/VSCC	01/01/2010	09/29/2011	Winter = 138 Spring = 75 Summer = 95 Fall = 90 Total = 398	1.27	1.35	No	0.90
			9	Met-One BAM 1020 w/VSCC	10/01/2012	12/31/2014	Winter = 247 Spring = 244 Summer = 237 Fall = 236 Total = 964	1.16	5.12	No	0.84
North Long Beach	Long Beach	06-037-4002	3	Met-One BAM 1020 w/VSCC	01/01/2011	09/30/2013	Winter = 214 Spring = 228 Summer = 255 Fall = 175 Total = 872	1.16	2.23	No	0.94
South Long Beach	Long Beach	06-037-4004	3	Met-One BAM 1020 w/VSCC	01/01/2012	12/31/2014	Winter = 195 Spring = 251 Summer = 223 Fall = 189 Total = 858	1.25	0.50	No	0.93

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Riverside/ Rubidoux	Rubidoux	06-065- 8001	3	Met-One BAM 1020 w/PM2.5 SCC	01/01/ 2012	01/31/ 2014	Winter = 256 Spring = 248 Summer = 260 Fall = 257 Total = 812	1.12	2.86	No	0.62
			9	Met-One BAM 1020 w/VSCC	01/02/ 2012	12/31/ 2014	Winter = 233 Spring = 237 Summer = 260 Fall = 253 Total = 983	1.03	3.43	No	0.86
Mira Loma	Mira Loma	06-065- 8005	3	Met-One BAM 1020 w/VSCC	01/01/ 2012	12/31/ 2014	Winter = 262 Spring = 253 Summer = 252 Fall = 248 Total = 1015	1.02	4.59	No	0.90

### **Period of Exclusion of Data from the PM2.5 Continuous FEMs**

The above table details the period of available data by monitor on which the request to exclude PM2.5 continuous FEM data is based. Per EPA Regional Office approval, these data will be entered into EPA's AQS database in a manner where the data are only used for the appropriate monitoring objective(s) (i.e., use data for just the AQI). Additionally, SCAQMD will continue to load any new data generated for the next 18 months (intended to represent the period until December 31 of 2016) in the same manner or until such time we request and receive approval from the EPA Regional Office to change the status of these monitors.

### **PM2.5 Continuous FEM data for Reporting the AQI**

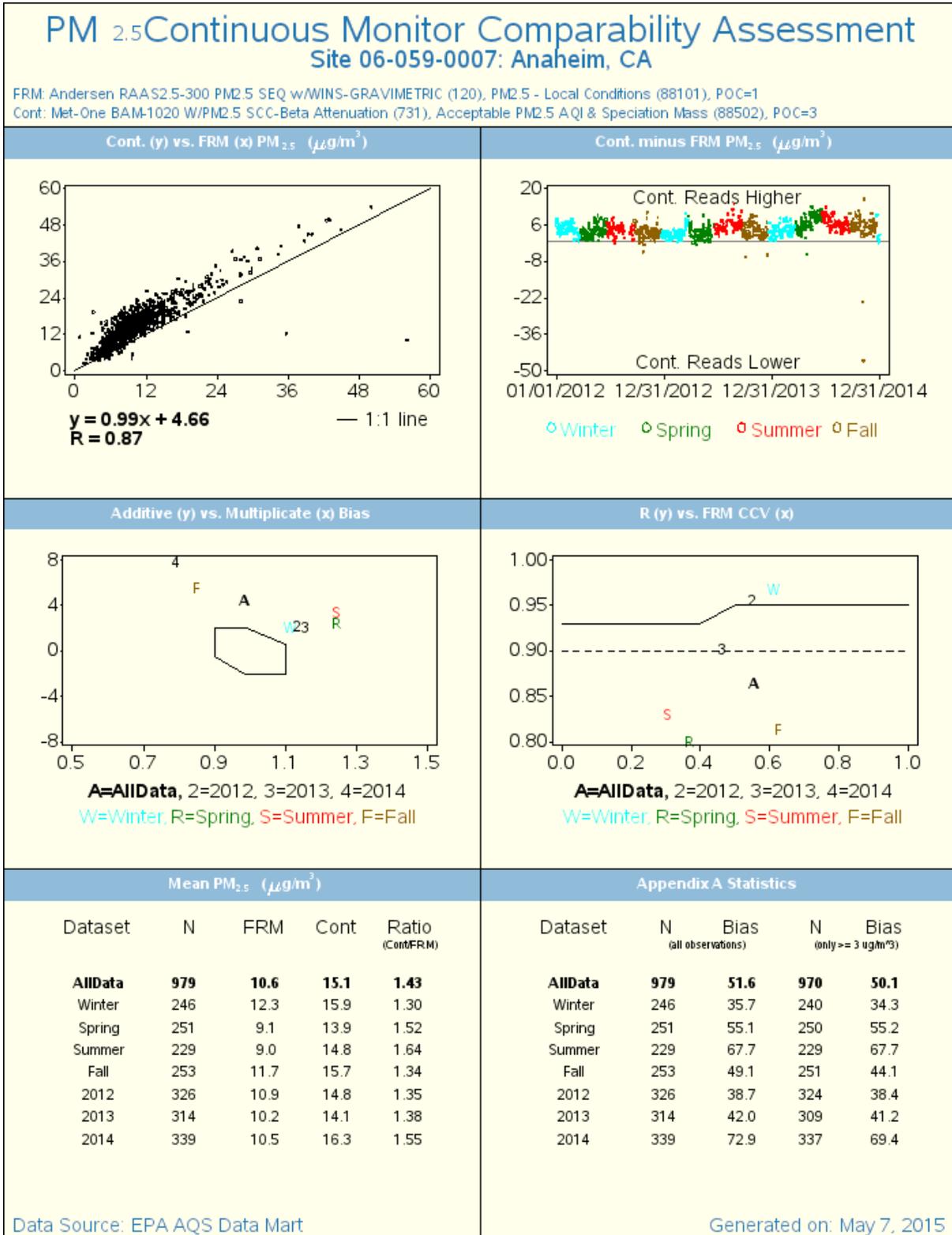
While the analysis supports the request for the monitors above not be used for comparison to the NAAQS, the data are of sufficient comparability to collocated FRMs that they be used for public AQI reporting. Therefore, with EPA Regional Office approval we will report these data on our web site and to AIRNow ([www.airnow.gov](http://www.airnow.gov)). As such, data submitted to EPA's AQS database will be under "acceptable AQI" reporting (i.e., parameter code 88101) so that data users will know that these data are appropriate for use in AQI calculations, but not NAAQS comparison.

### **Assessments**

The following one-page assessments are locations where our agency has collocated PM2.5 FRM and continuous FEM monitors. Each of these assessments is represented in the "**Table – Request for Exclusion of PM2.5 Continuous FEM Data**" above.

# Anaheim

(FRM POC: 1; FEM POC: 3)

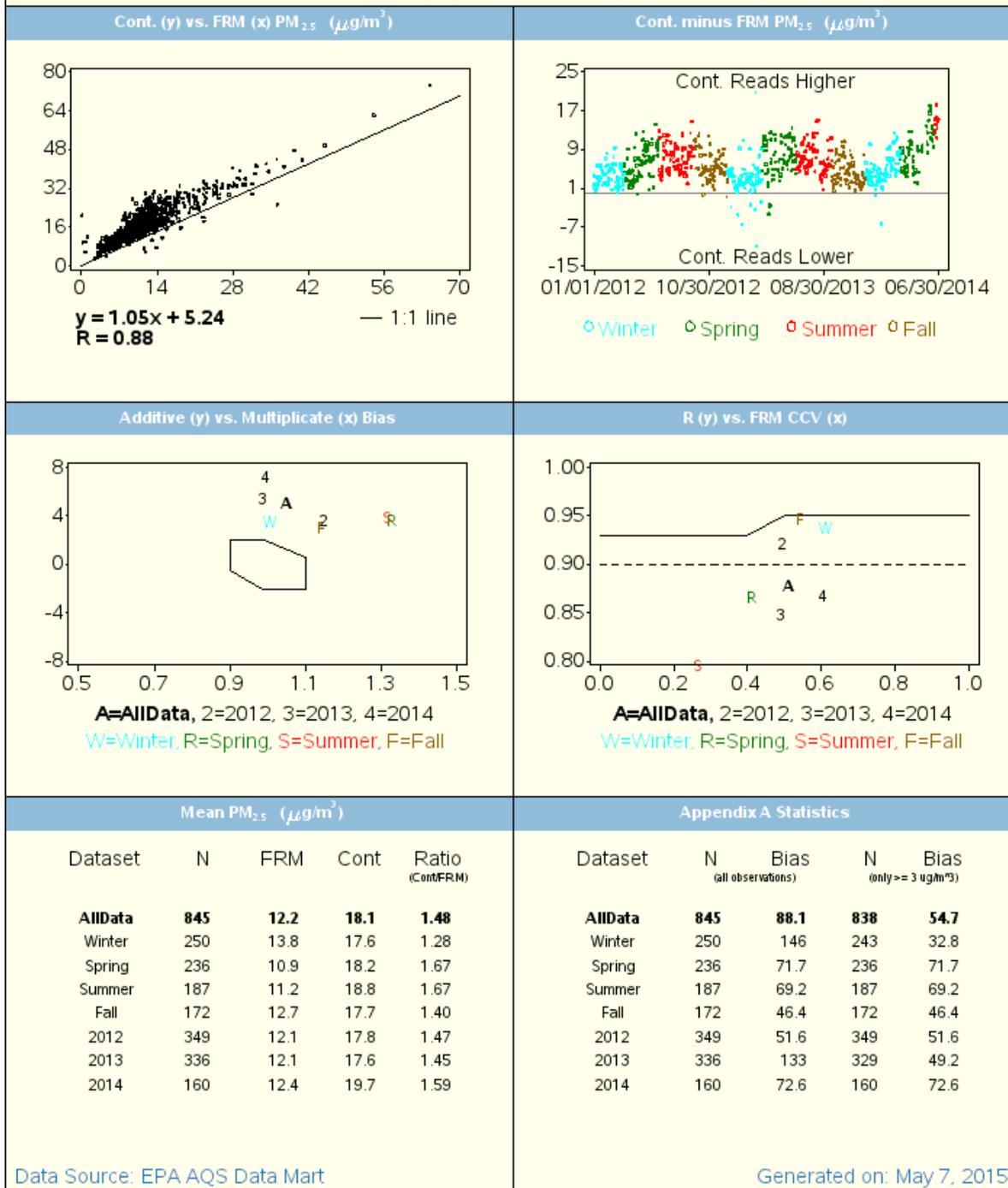


# Burbank

(FRM POC: 1; FEM POC: 3)

## PM<sub>2.5</sub> Continuous Monitor Comparability Assessment Site 06-037-1002: Burbank, CA

FRM: Andersen RAAS2.5-300 PM<sub>2.5</sub> SEQ w/WINS-GRAVIMETRIC (120), PM<sub>2.5</sub> - Local Conditions (88101), POC=1  
Cont: Met-One BAM-1020 W/PM<sub>2.5</sub> SCC-Beta Attenuation (731), Acceptable PM<sub>2.5</sub> AQI & Speciation Mass (88502), POC=3



Data Source: EPA AQS Data Mart

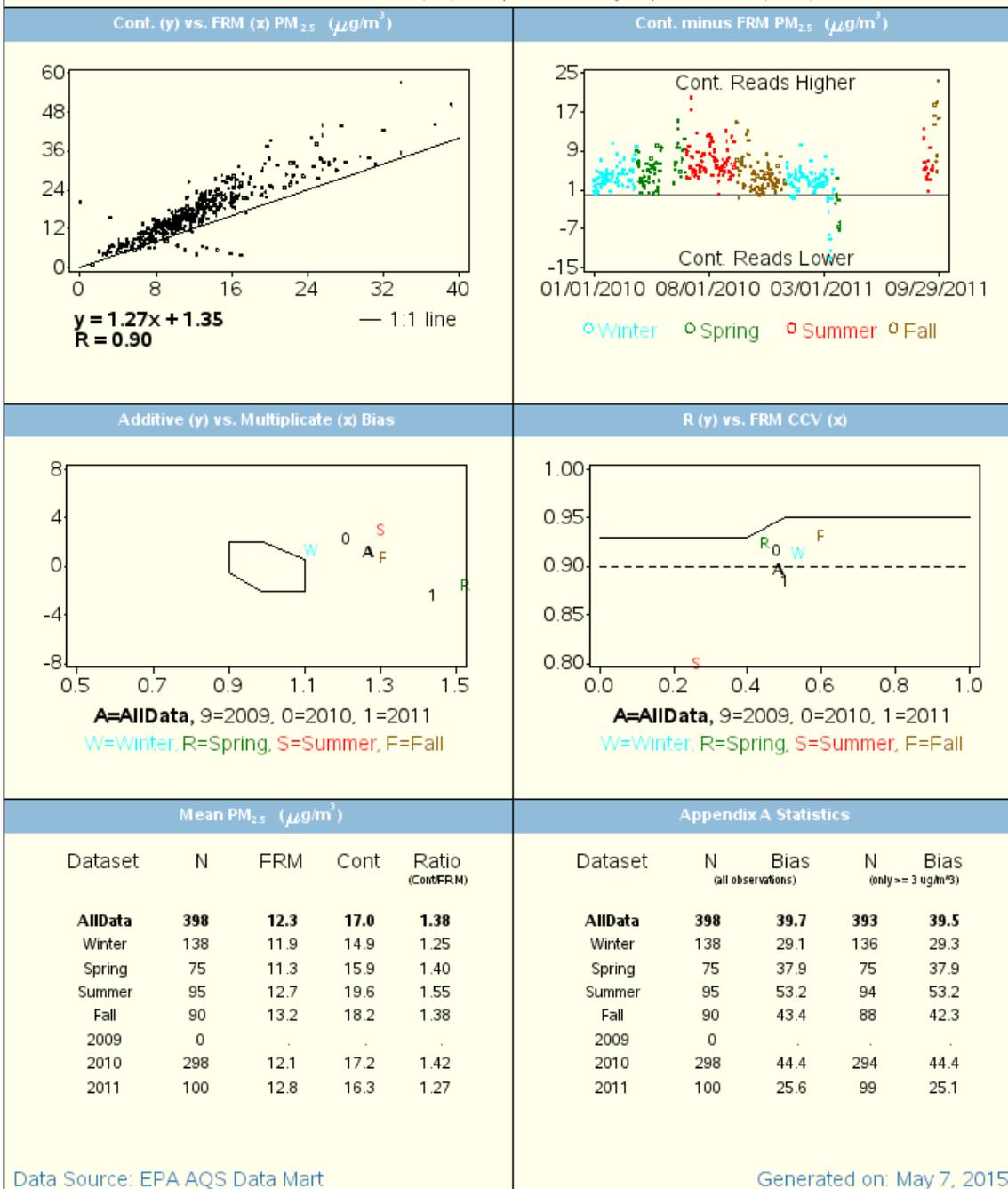
Generated on: May 7, 2015

# Central Los Angeles

(FRM POC: 1; FEM POC: 3)

## PM<sub>2.5</sub> Continuous Monitor Comparability Assessment Site 06-037-1103: Los Angeles, CA

FRM: Andersen RAAS2.5-300 PM<sub>2.5</sub> SEQ w/WINS-GRAVIMETRIC (120), PM<sub>2.5</sub> - Local Conditions (88101), POC=1  
Cont: Met-One BAM-1020 W/PM<sub>2.5</sub> SCC-Beta Attenuation (731), Acceptable PM<sub>2.5</sub> AQI & Speciation Mass (88502), POC=3

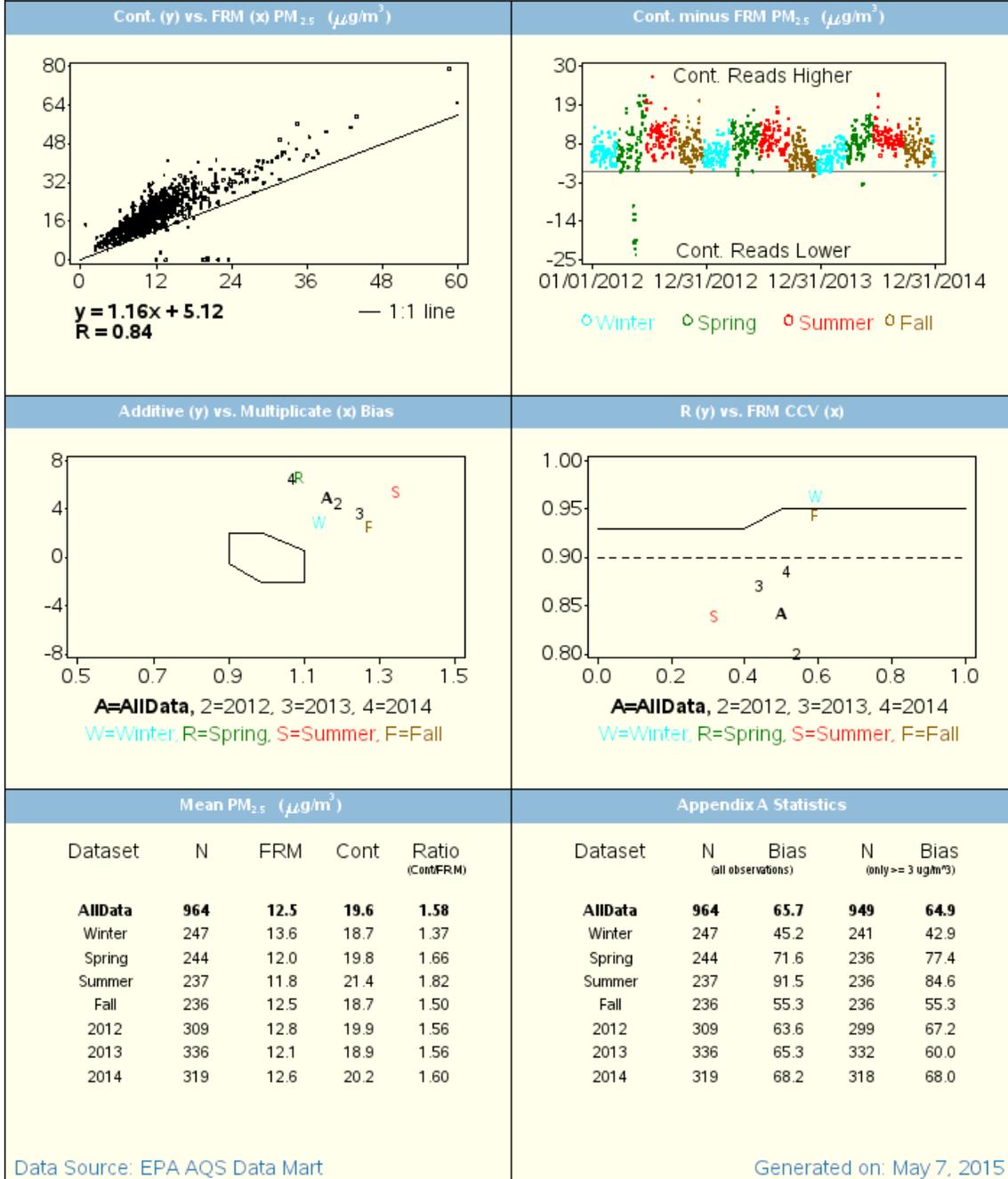


# Central Los Angeles

(FRM POC: 1; FEM POC: 9)

## PM<sub>2.5</sub> Continuous Monitor Comparability Assessment Site 06-037-1103: Los Angeles, CA

FRM: Andersen RAAS2.5-300 PM<sub>2.5</sub> SEQ w/WINS-GRAVIMETRIC (120), PM<sub>2.5</sub> - Local Conditions (88101), POC=1  
Cont: Met-One BAM-1020 W/PM<sub>2.5</sub> SCC-Beta Attenuation (731), Acceptable PM<sub>2.5</sub> AQI & Speciation Mass (88502), POC=9

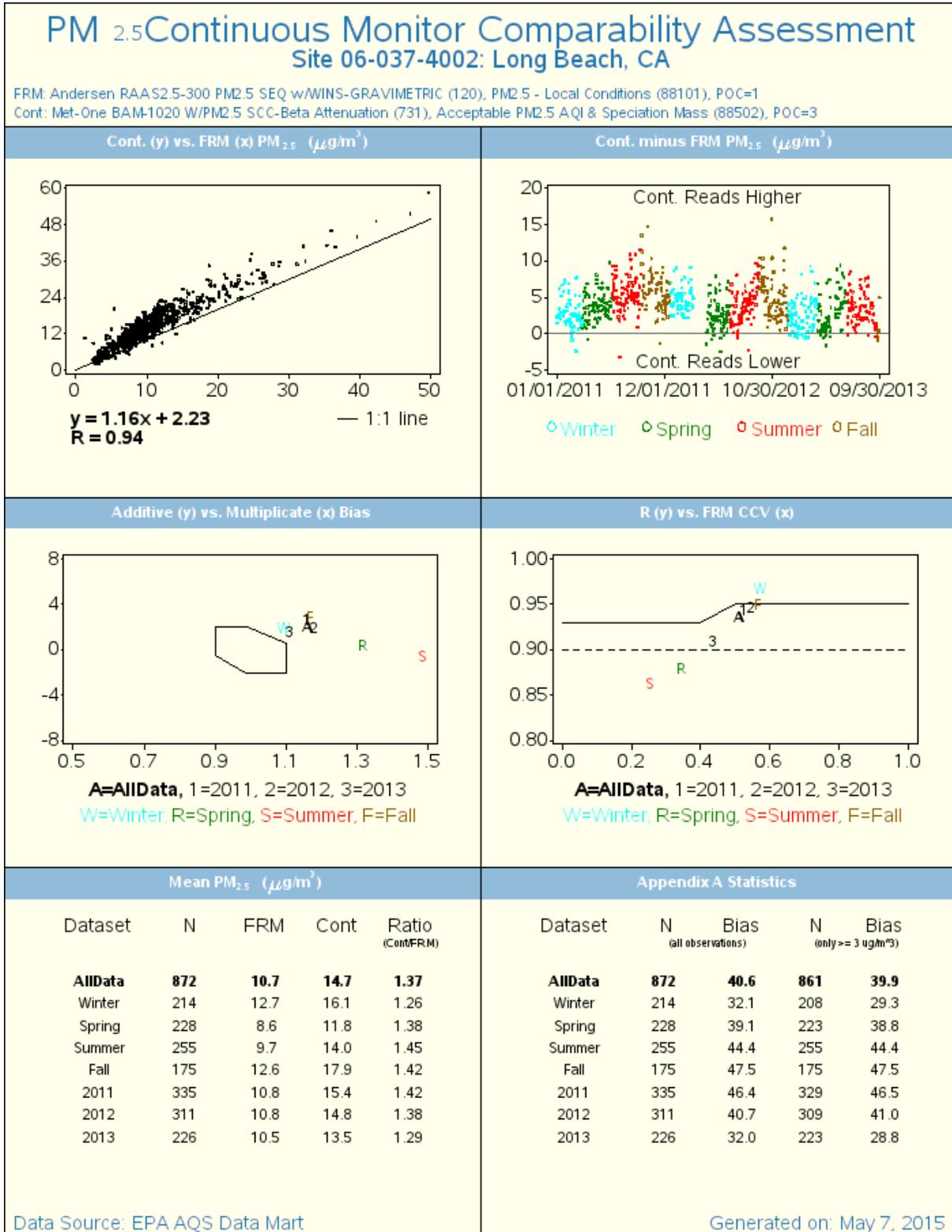


Data Source: EPA AQS Data Mart

Generated on: May 7, 2015

## North Long Beach

(FRM POC: 1; FEM POC: 3)

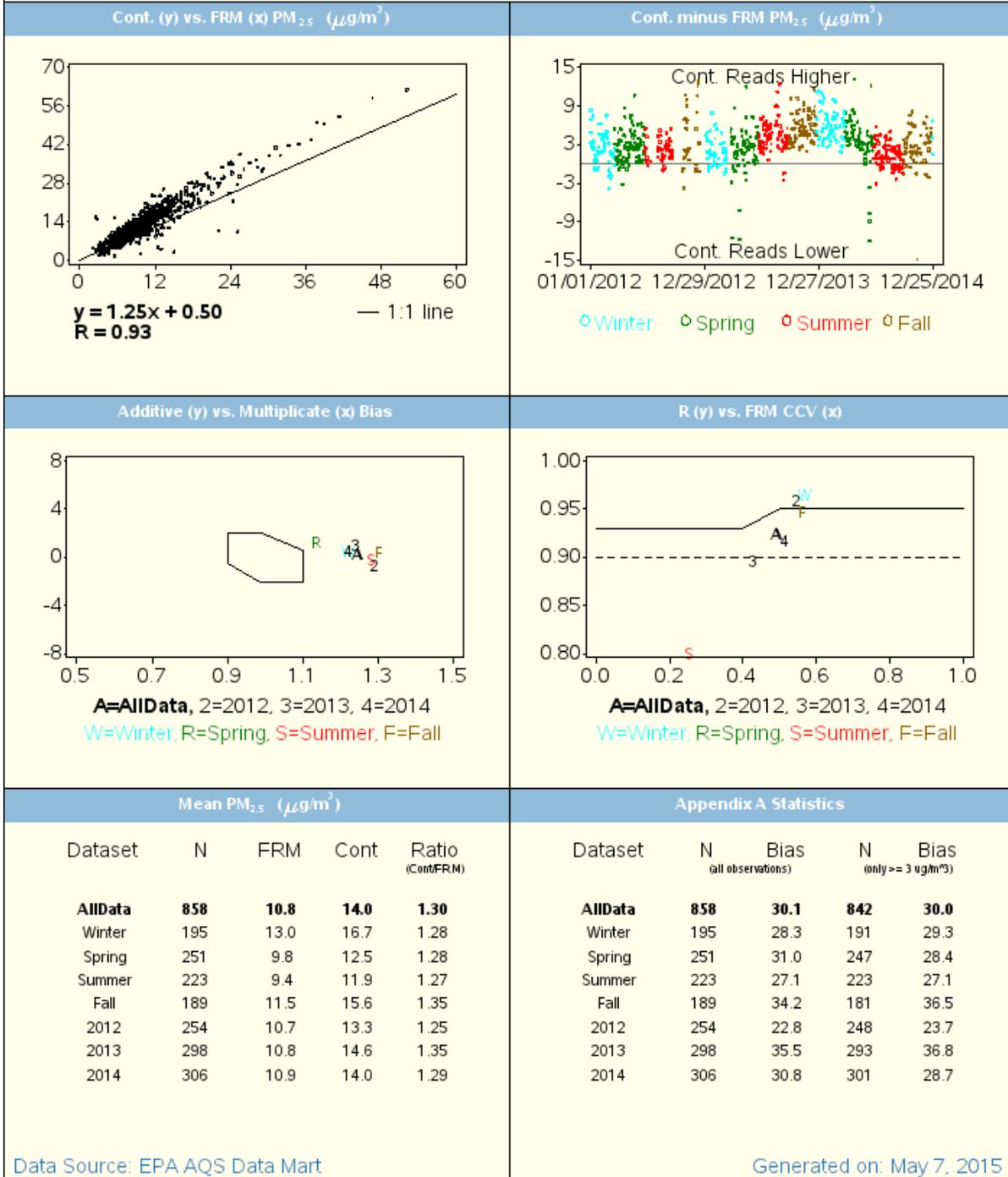


# South Long Beach

(FRM POC: 1; FEM POC: 3)

## PM<sub>2.5</sub> Continuous Monitor Comparability Assessment Site 06-037-4004: Long Beach, CA

FRM: Andersen RAAS2.5-300 PM<sub>2.5</sub> SEQ w/WINS-GRAVIMETRIC (120), PM<sub>2.5</sub> - Local Conditions (88101), POC=1  
Cont: Met-One BAM-1020 W/PM<sub>2.5</sub> SCC-Beta Attenuation (731), Acceptable PM<sub>2.5</sub> AQI & Speciation Mass (88502), POC=3

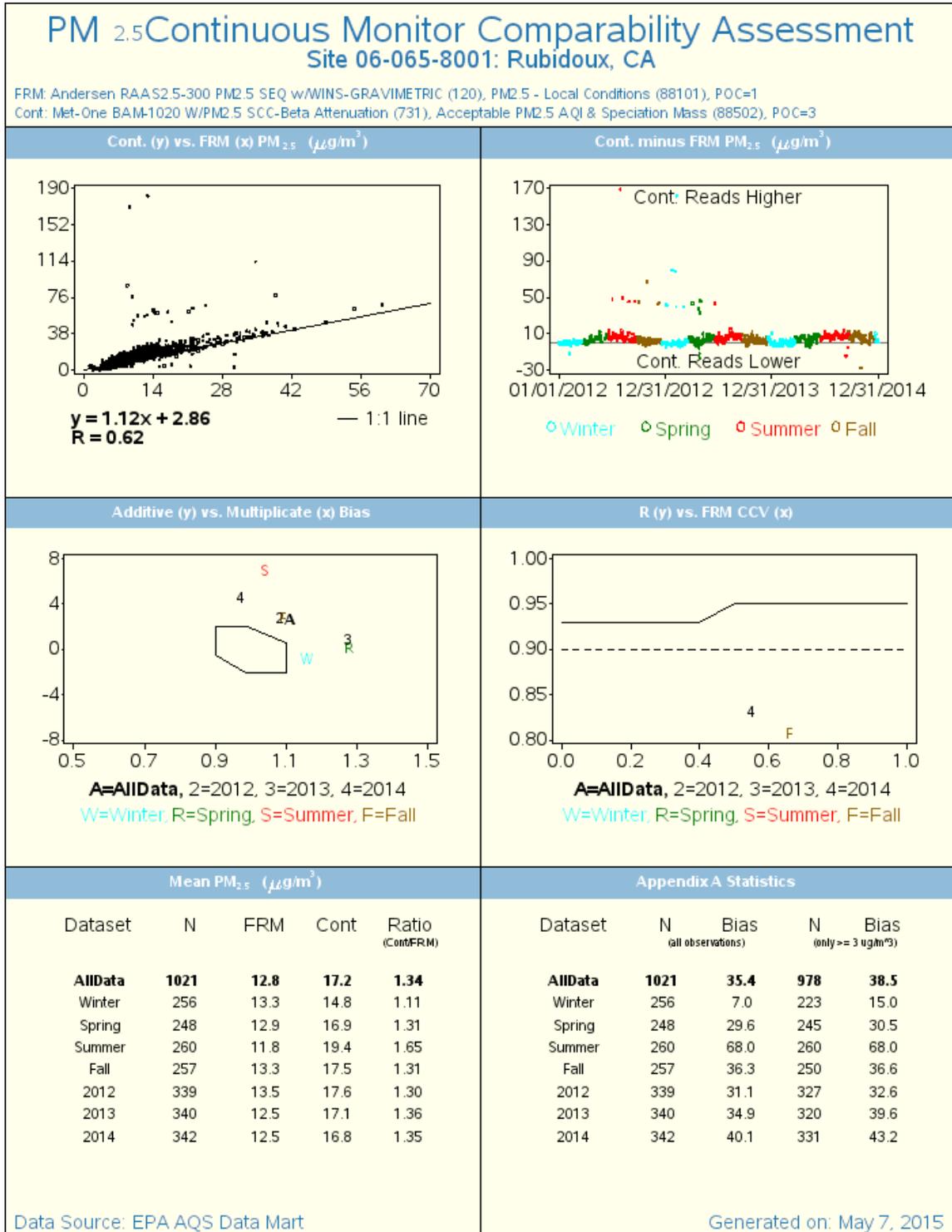


Data Source: EPA AQ5 Data Mart

Generated on: May 7, 2015

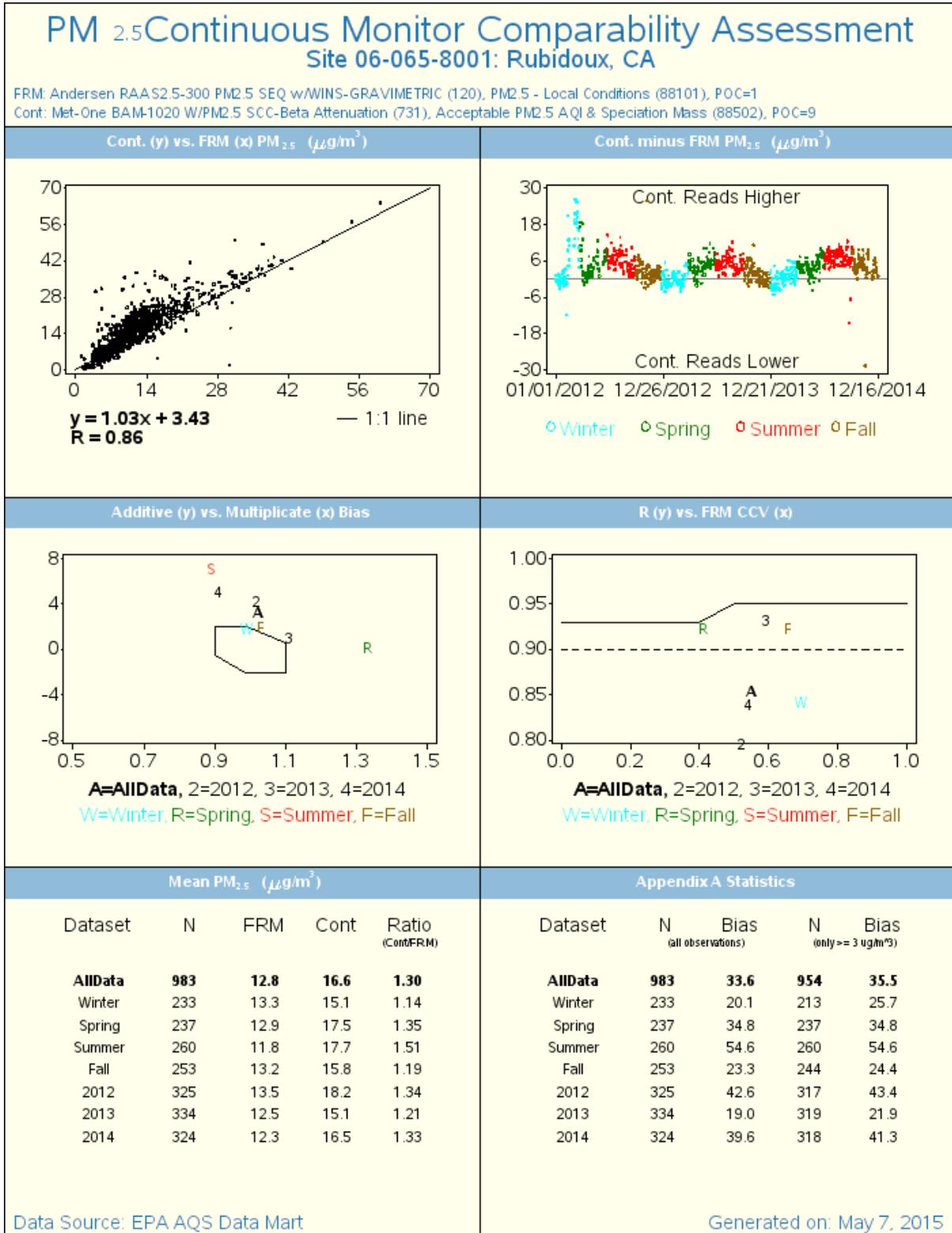
# Rubidoux

(FRM POC: 1; FEM POC: 3)



## Rubidoux

(FRM POC: 1; FEM POC: 9)



## Mira Loma

(FRM POC: 1; FEM POC: 3)

