

APPENDIX C

PM_{2.5} Continuous Monitor Comparability Assessment and Request for Waiver

Introduction

The South Coast AQMD monitoring program has historically operated PM_{2.5} continuous monitors primarily to support forecasting and reporting of the Air Quality Index (AQI). These monitors supply hourly data to provide AQI information to the general public through the South Coast AQMD smartphone application and website AQI map as well as national websites such as AirNow (www.airnow.gov). South Coast AQMD has been using these monitors since the early 2000s as the PM_{2.5} monitoring program was implemented. Over the last few years, a number of PM_{2.5} continuous monitors have been approved as FEM. By utilizing an approved FEM, any subsequent data produced from the method may be eligible for comparison to U.S. EPA's health based standard known as the NAAQS. The primary advantage of operating a PM_{2.5} 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 PM_{2.5} 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, pre- and post-sampling laboratory analysis, which results in data not being available for approximately 2-4 weeks after sample collection.

South Coast AQMD has been evaluating PM_{2.5} continuous FEMs over the past several years. Although PM_{2.5} continuous FEMs are automated methods, these methods still require careful attention in their set-up, operation, calibration and validation of data. Once enough data was collected, South Coast AQMD began to evaluate the performance of these methods compared to collocated FRM data per 40 CFR §58.11(e). The evaluation is explained further below and includes our request regarding the use of the data from these methods.

Request for Exclusion of PM_{2.5} Continuous FEM Data from Comparison to the NAAQS

Evaluation 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.

Evaluation of FRM/FEM data per §53 Table C-4 requires a slope of regression to be 1 ± 0.10 and an intercept of regression ± 2.0 to meet bias requirements. Table 1C shows, the slopes of the regression between collocated FRM and FEM measurements lower than 1.1 and meets the test specification indicated in §53 Table C-4 (i.e. slope = 1 ± 0.1). Although the slope criteria was met, the intercept of the regression relationship between FRM and FEM data of ± 2.0 (also indicated in §53 Table C-4) failed for Los Angeles (Main St.) (2.98), Long Beach Route 710 Near Road (2.13), and Mira Loma (Van Buren) (2.24).

Additionally, the correlation of reference value should be ≥ 0.95 for the R(y) vs FRM CCV (x) in order to meet the part 53 correlation criteria used in approving continuous PM_{2.5} FEMs, as per “Technical Note – PM 2.5 Continuous Monitor Comparability Assessment.” According to §58.11 (e)(6), The key statistical metric to include in an assessment is the bias of the PM 2.5 continuous FEM(s) compared to a collocated FRM(s). Correlation is required to be reported in the assessment, but failure to meet the correlation criteria, by itself, is not cause to exclude data from a continuous FEM monitor. Data at or above the dashed line ($r = 0.9$) meet the correlation criteria identified in guidance for reporting the AQI.

Thus, in accordance with the PM NAAQS rule published on January 15, 2013 (78 FR 3086) and specific to the provisions detailed in §58.10 (b)(13) and §58.11 (e), South Coast AQMD is requesting that data from the Los Angeles (Main St.) (POC 9), Mira Loma (Van Buren) and Long Beach Route 710 Near Road FEM PM_{2.5} monitors be set aside for comparison to the NAAQS. While South Coast AQMD 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_{2.5} continuous FEMs operated in our network compared to collocated FRMs is acceptable and should be submitted as 88502 in AQS.

Detailed one-page assessments from which the information was obtained and described in Table 1C below are included at the end of this section.

Request for Inclusion of PM_{2.5} Continuous FEM Data for Comparison to the NAAQS

PM_{2.5} FEM datasets for Anaheim, Ontario Route 60 Near Road, Rubidoux and South Long Beach pass bias and correlation requirements to be included in the NAAQS and should be classified in AQS as 88101.

Table 1C – Request for Exclusion of PM_{2.5} Continuous FEM Data

Site Name	City	Site ID	Cont. POC	Cont. Method Description	PM _{2.5} Cont. Begin Date	PM _{2.5} Cont. End Date	Continuous/FRM Sampler Pairs Per Season	Slope (m)	Intercept (y)	Meets Bias Requirement	Correlation (r)
<i>Sites with PM_{2.5} continuous FEMs that are collocated with FRMs</i>											
Los Angeles (Main St.)	Los Angeles	06-037-1103	9	Met-One BAM 1020 w/VSCC *as 88502	01/01/2017	12/31/2019	Winter = 251 Spring = 272 Summer = 262 Fall = 264 Total = 1049	1.00	2.98	No	0.93
Long Beach Route 710 Near Road	Long Beach	06-037-4008	3	Thermo BAM 5014i w/ VSCC *as 88101	01/01/2017	12/31/2019	Winter = 231 Spring = 266 Summer = 257 Fall = 206 Total = 960	1.00	2.13	No	0.93
Mira Loma (Van Buren)	Riverside	06-065-8005	3	Met-One BAM 1020 w/VSCC *as 88502	01/01/2017	12/31/2019	Winter = 251 Spring = 258 Summer = 264 Fall = 265 Total = 1038	0.91	2.24	No	0.94

Table 2C – Request for Inclusion of PM_{2.5} Continuous FEM Data

Site Name	City	Site ID	Cont. POC	Cont. Method Description	PM _{2.5} Cont. Begin Date	PM _{2.5} Cont. End Date	Continuous/FRM Sampler Pairs Per Season	Slope (m)	Intercept (y)	Meets Bias Requirement	Correlation (r)
<i>Sites with PM_{2.5} continuous FEMs that are collocated with FRMs</i>											
Anaheim	Anaheim	06-059-0007	3	Met-One BAM 1020 w/VSCC <i>*as 88502</i>	01/01/2017	12/31/2019	Winter = 233 Spring = 276 Summer = 267 Fall = 222 Total = 998	1.04	0.33	Yes	0.96
Ontario Route 60 Near Road	Ontario	06-071-0027	3	Thermo BAM 5014i w/ VSCC <i>*as 88101</i>	08/01/2017	12/31/2019	Winter = 256 Spring = 255 Summer = 229 Fall = 231 Total = 971	1.08	1.84	Yes	0.95
Riverside/ Rubidoux	Rubidoux	06-065-8001	9	Met-One BAM 1020 w/VSCC <i>*as 88502</i>	01/01/2017	12/31/2019	Winter = 256 Spring = 258 Summer = 256 Fall = 262 Total = 1032	1.00	0.84	Yes	0.93
South Long Beach	Long Beach	06-037-4004	3	Met-One BAM 1020 w/VSCC <i>*as 88502</i>	01/03/2017	12/31/2019	Winter = 242 Spring = 254 Summer = 263 Fall = 256 Total = 1015	1.05	1.75	Yes	0.97

Period of Exclusion of Data from the PM_{2.5} Continuous FEMs

The above Table 1C details the period of available data by monitor on which the request to exclude PM_{2.5} continuous FEM data is based. Per U.S. EPA Regional Office approval, this data will be entered into U.S. EPA's AQS database in a manner where the data is only used for the appropriate monitoring objective(s) (i.e., use data for just the AQI). Additionally, South Coast AQMD will continue to load any new data generated for the next 18 months (intended to represent the period until December 31, 2021) in the same manner or until such time we request and receive approval from the U.S. EPA Regional Office to change the status of these monitors.

Period of Inclusion of Data from the PM_{2.5} Continuous FEMs

The above Table 2C details the period of available data by monitor on which the request to include PM_{2.5} continuous FEM data is based. This data will be entered into U.S. EPA's AQS database in a manner where the data is used for the appropriate monitoring objective(s) (i.e., use data for NAAQS and the AQI). Additionally, South Coast AQMD will continue to load any new data generated for the next 18 months (intended to represent the period until December 31, 2021) in the same manner.

PM_{2.5} Continuous FEM data for Reporting the AQI

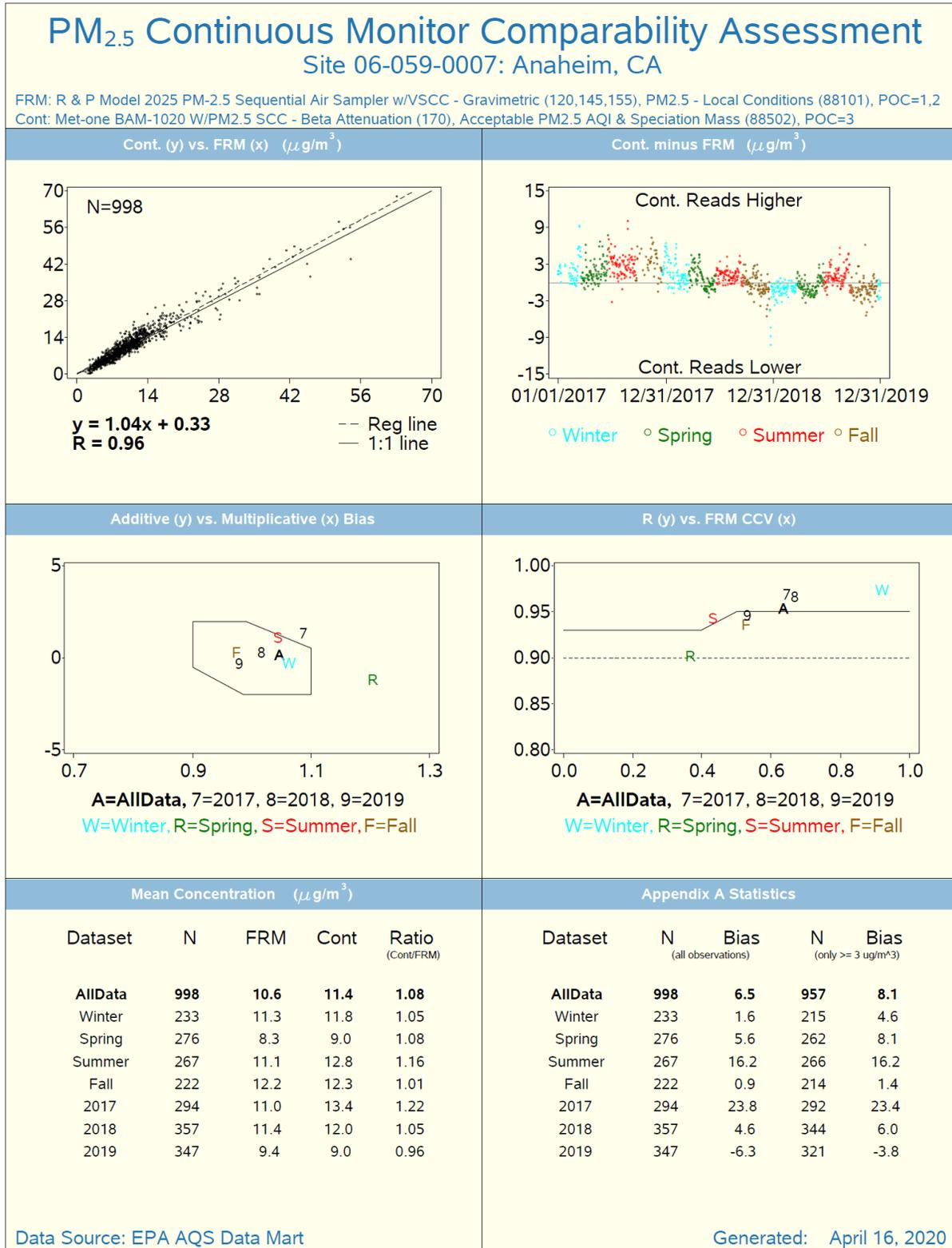
Where the analysis supports the request for exclusion from comparison to the NAAQS, the data is of sufficient comparability to collocated FRMs that they be used for public AQI reporting. Therefore, with U.S. EPA Regional Office approval we will report this data on our website and to AirNow (www.airnow.gov). As such, data submitted to U.S. EPA's AQS database will be under "acceptable AQI" reporting (i.e., parameter code 88502) so that data users will know that this data is appropriate for use in AQI calculations, but not for NAAQS comparison.

Assessments

The following one-page assessments are of locations where South Coast AQMD has collocated PM_{2.5} FRM and continuous FEM monitors. Each of these assessments is represented in the "Table 1C – Request for Exclusion of PM_{2.5} Continuous FEM Data" and "Table 2C – Request for Inclusion of PM_{2.5} Continuous FEM Data" above.

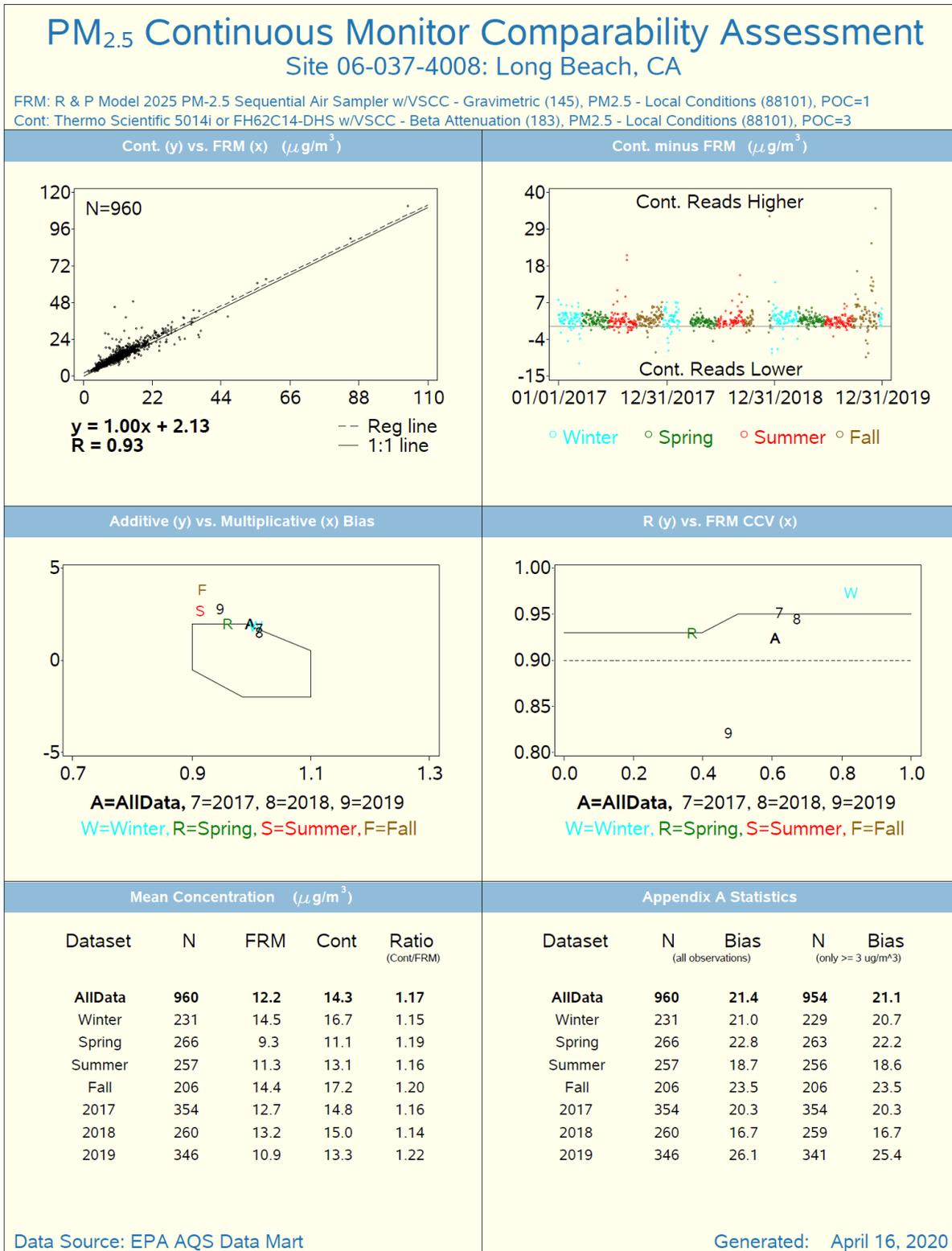
Anaheim

(FRM POC: 1 - FEM POC: 3) *as 88502



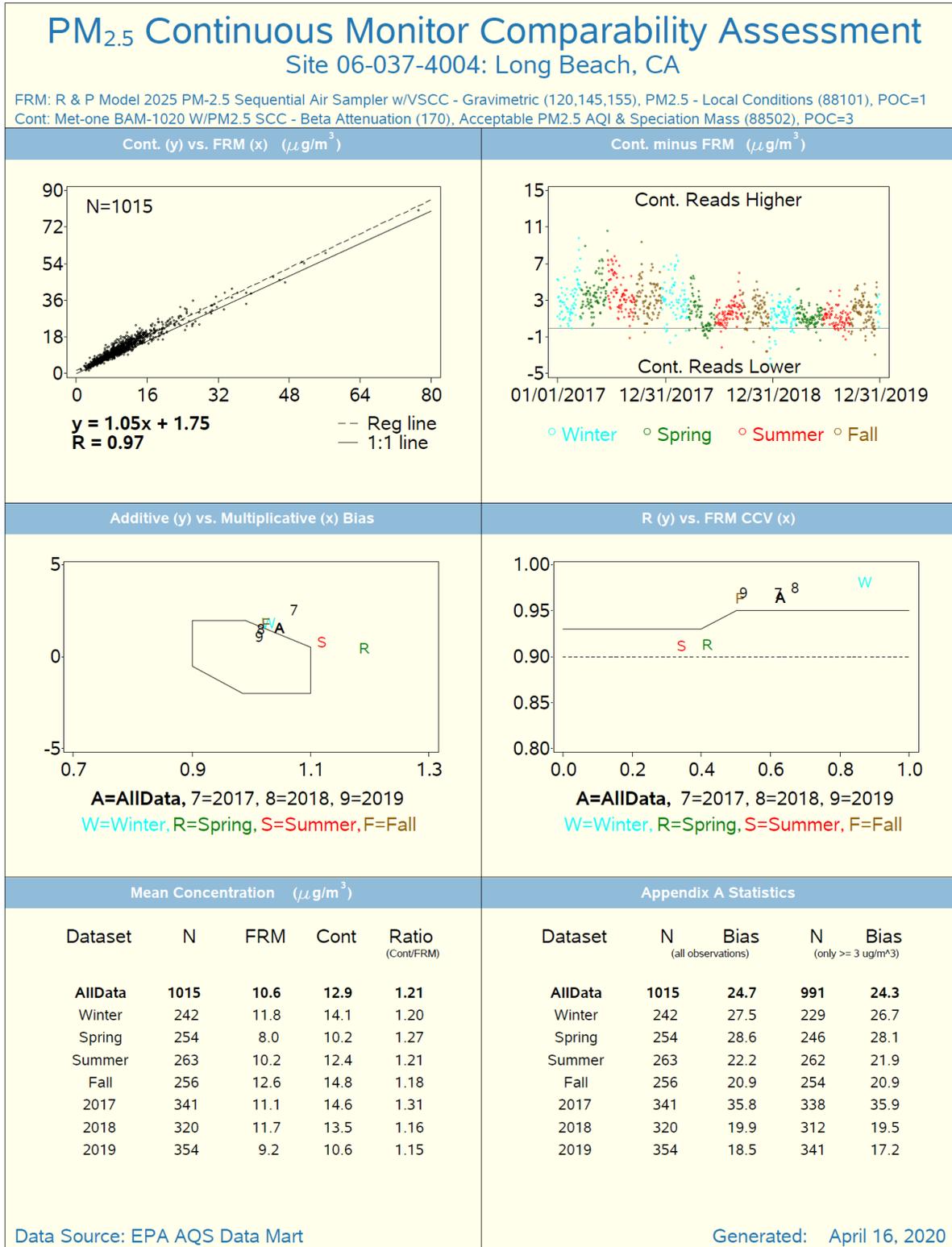
Long Beach Route 710 Near Road

(FRM POC: 1 - FEM POC: 3) *as 88101

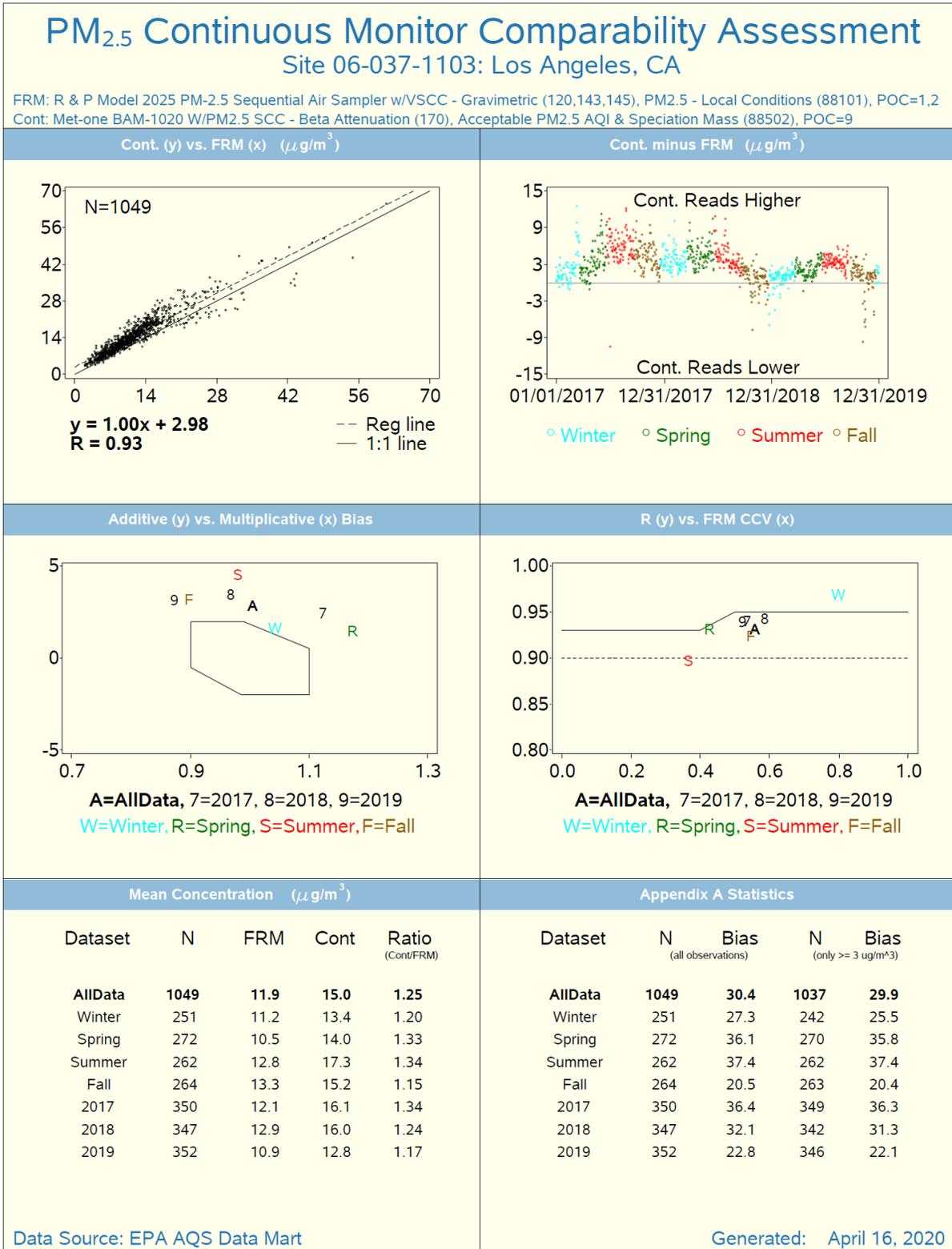


Long Beach (South)

(FRM POC: 1 - FEM POC: 3) *as 88502

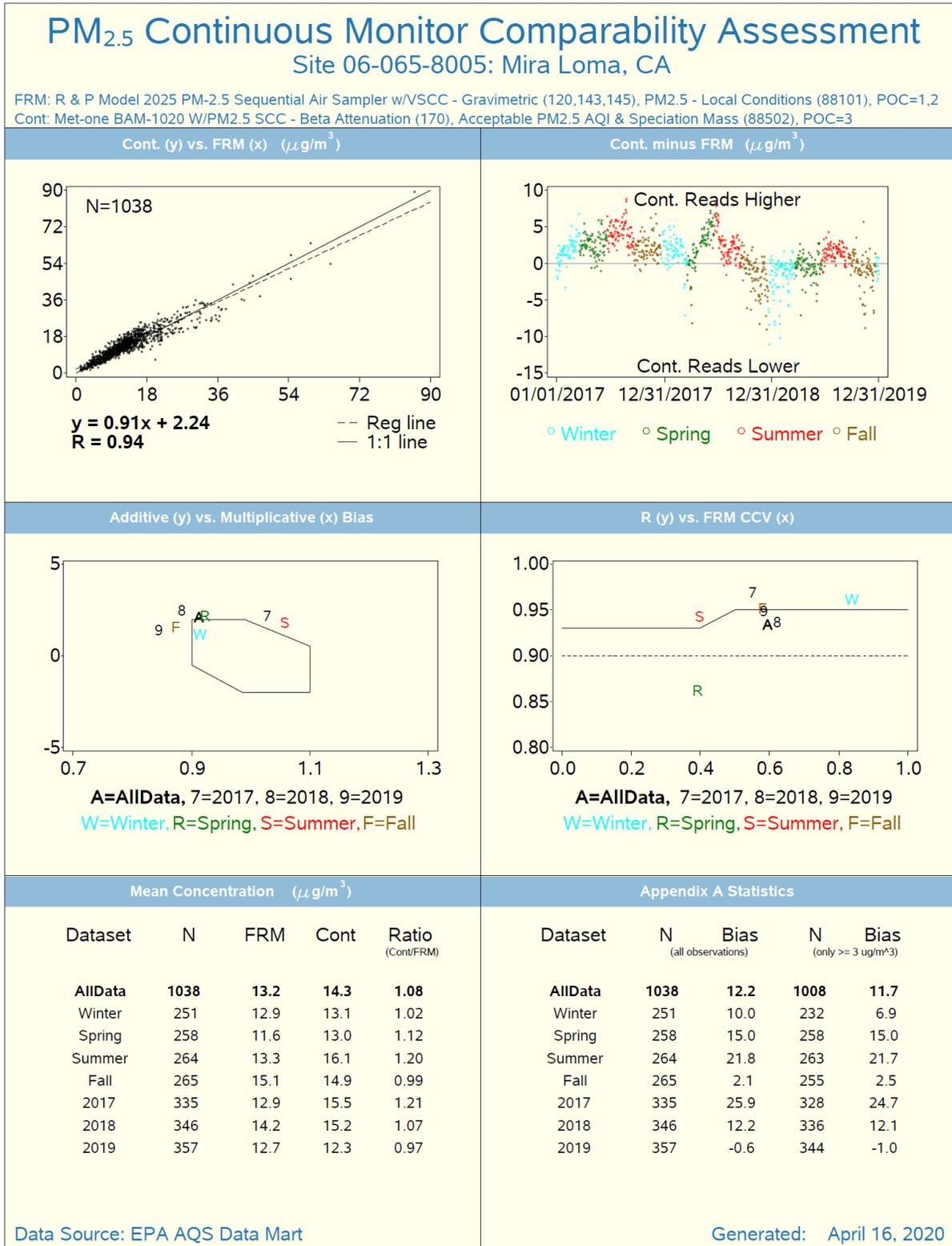


Los Angeles (Main St.)
(FRM POC: 1 - FEM POC: 9)



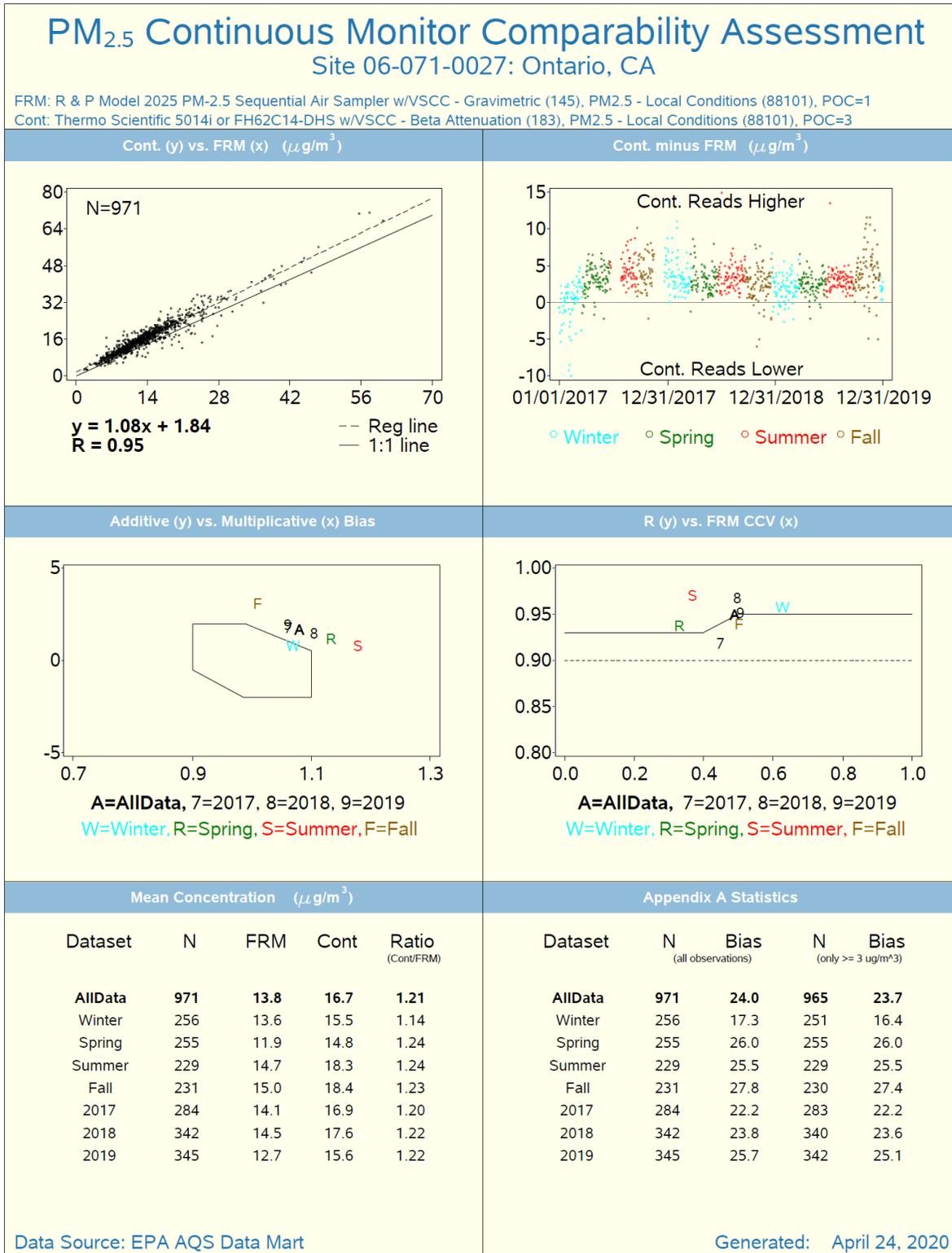
Mira Loma (Van Buren)

(FRM POC: 1 - FEM POC: 3)



Ontario Route 60 Near Road

(FRM POC: 1 - FEM POC: 3) *as 88101



Rubidoux

FRM POC: 1 - FEM POC: *as 88502

