

December 17, 2013

Hon. Pat Graham, Chair
Barrow County Board of Commissioners
233 East Broad Street
Winder, GA 30680

RE: Attainment of PM 2.5 Air Quality Standard

Dear Chair Graham:

I am pleased to inform you that the Georgia Environmental Protection Division (EPD) has recommended to the US Environmental Protection Agency (USEPA) Region 4 Administrator that Barrow County be re-designated from "nonattainment" to "unclassifiable/attainment" for the national PM 2.5 air quality standard. A copy of the December 13, 2013 letter from EPD Director Jud Turner to USEPA Region 4 Acting Administrator Stanley Meiburg is enclosed.

We at Joe Tanner & Associates (JTA) were confident that our analysis of the OM 2.5 status for Barrow County, and your letter of November 18, 2013 to Director Turner, would convince EPD that Barrow County is already attaining the 2012 PM 2.5 standard. We are somewhat surprised that EPD recommended all 159 Georgia counties to be designated "unclassifiable/attainment" by USEPA. If USEPA accepts this recommendation completely, it will be good for all of Georgia. However, it is too early to say whether USEPA will do so. The Federal Clean Air Act gives USEPA up to one year to make their final determination.

In accordance with Barrow County's and JTA's Agreement for Services, JTA will next work with the staff and leadership at USEPA to help convince them that EPD's recommendation for Barrow County should be approved. We look forward to the successful completion of this Agreement, and we will keep you posted on our progress.

Please contact me if you have any questions. We appreciate this opportunity to work with Barrow County.

Sincerely,



Harold Reheis

CC: Mr. Guy Herring, Economic & Community Development Director

Georgia Department of Natural Resources
Environmental Protection Division

2 Martin Luther King Jr. Drive, Suite 1456, Atlanta, Georgia 30334
Judson H. Turner, Director
(404) 656-4713

December 13, 2013

Stanley Meiberg
Acting Regional Administrator
U.S. EPA, Region 4
61 Forsyth Street, S.W.
Atlanta, Georgia 30303-3104

Re: Recommended Designations for 2012 PM_{2.5} National Ambient Air Quality Standard

Dear Mr. Meiberg:

On December 14, 2012, the EPA promulgated a revised primary annual PM_{2.5} National Ambient Air Quality Standard (NAAQS). Section 107(d)(1)(A) of the Clean Air Act requires each state to submit to the EPA its recommended designation of each area of the state as nonattainment, attainment¹, or unclassifiable for the revised NAAQS. The Georgia Environmental Protection Division has been developing recommended designations in accordance with EPA's memorandum dated April 16, 2013, "Initial Area Designations for the 2012 Revised Primary Annual Fine Particle National Ambient Air Quality Standard".


The attached table provides the Georgia EPD's initial recommendations for the designation status of each county in Georgia. It is recommended that all counties in Georgia be designated as "unclassifiable/attainment".

Once the 2013 PM_{2.5} ambient monitoring data becomes available and is certified, EPD will review the data and make revisions to this recommendation as appropriate. Ambient PM_{2.5} levels have been trending down in recent years and, EPD believes that many, if not all, of the currently violating monitors will attain the revised NAAQS in 2013. This additional information will allow EPD to determine which, if any, counties or partial counties we should recommend be designated nonattainment.

We will submit any revised recommendations in a timely manner to ensure that EPA has sufficient time to review, discuss with us, and take final action on the designations for the 2012 PM_{2.5} NAAQS.

Please contact Keith Bentley at (404) 363-7016 should you have any questions regarding this matter.

Sincerely,



Judson H. Turner
Director

JHT:JPJ:klc
Attachments

c: Keith Bentley, Air Protection Branch Chief
Jimmy Johnston, Planning & Support Program Manager

¹ EPA's April 16, 2013, guidance memorandum indicates the EPA expects to use "unclassifiable/attainment" for areas that are monitoring attainment and for areas without monitors but are believed to be attaining the standard and are not contributing to violations of nearby monitors. Georgia EPD will, therefore, use "unclassifiable/attainment" for its recommendations for these categories of areas.

**RECOMMENDED DESIGNATION STATUS FOR GEORGIA COUNTIES
2012 PM_{2.5} NAAQS**

County Name	Designation
Appling	Unclassifiable/Attainment
Atkinson	Unclassifiable/Attainment
Bacon	Unclassifiable/Attainment
Baker	Unclassifiable/Attainment
Baldwin	Unclassifiable/Attainment
Banks	Unclassifiable/Attainment
Barrow	Unclassifiable/Attainment
Bartow	Unclassifiable/Attainment
Ben Hill	Unclassifiable/Attainment
Berrien	Unclassifiable/Attainment
Bibb	Unclassifiable/Attainment
Bleckley	Unclassifiable/Attainment
Brantley	Unclassifiable/Attainment
Brooks	Unclassifiable/Attainment
Bryan	Unclassifiable/Attainment
Bulloch	Unclassifiable/Attainment
Burke	Unclassifiable/Attainment
Butts	Unclassifiable/Attainment
Calhoun	Unclassifiable/Attainment
Camden	Unclassifiable/Attainment
Candler	Unclassifiable/Attainment
Carroll	Unclassifiable/Attainment
Catoosa	Unclassifiable/Attainment
Charlton	Unclassifiable/Attainment
Chatham	Unclassifiable/Attainment
Chattahoochee	Unclassifiable/Attainment
Chattooga	Unclassifiable/Attainment
Cherokee	Unclassifiable/Attainment
Clarke	Unclassifiable/Attainment
Clay	Unclassifiable/Attainment
Clayton	Unclassifiable/Attainment
Clinch	Unclassifiable/Attainment
Cobb	Unclassifiable/Attainment
Coffee	Unclassifiable/Attainment
Colquitt	Unclassifiable/Attainment
Columbia	Unclassifiable/Attainment
Cook	Unclassifiable/Attainment
Coweta	Unclassifiable/Attainment
Crawford	Unclassifiable/Attainment
Crisp	Unclassifiable/Attainment
Dade	Unclassifiable/Attainment
Dawson	Unclassifiable/Attainment

**RECOMMENDED DESIGNATION STATUS FOR GEORGIA COUNTIES
2012 PM_{2.5} NAAQS**

County Name	Designation
Decatur	Unclassifiable/Attainment
DeKalb	Unclassifiable/Attainment
Dodge	Unclassifiable/Attainment
Dooly	Unclassifiable/Attainment
Dougherty	Unclassifiable/Attainment
Douglas	Unclassifiable/Attainment
Early	Unclassifiable/Attainment
Echols	Unclassifiable/Attainment
Effingham	Unclassifiable/Attainment
Elbert	Unclassifiable/Attainment
Emanuel	Unclassifiable/Attainment
Evans	Unclassifiable/Attainment
Fannin	Unclassifiable/Attainment
Fayette	Unclassifiable/Attainment
Floyd	Unclassifiable/Attainment
Forsyth	Unclassifiable/Attainment
Franklin	Unclassifiable/Attainment
Fulton	Unclassifiable/Attainment
Gilmer	Unclassifiable/Attainment
Glascock	Unclassifiable/Attainment
Glynn	Unclassifiable/Attainment
Gordon	Unclassifiable/Attainment
Grady	Unclassifiable/Attainment
Greene	Unclassifiable/Attainment
Gwinnett	Unclassifiable/Attainment
Habersham	Unclassifiable/Attainment
Hall	Unclassifiable/Attainment
Hancock	Unclassifiable/Attainment
Haralson	Unclassifiable/Attainment
Harris	Unclassifiable/Attainment
Hart	Unclassifiable/Attainment
Heard	Unclassifiable/Attainment
Henry	Unclassifiable/Attainment
Houston	Unclassifiable/Attainment
Irwin	Unclassifiable/Attainment
Jackson	Unclassifiable/Attainment
Jasper	Unclassifiable/Attainment
Jeff Davis	Unclassifiable/Attainment
Jefferson	Unclassifiable/Attainment
Jenkins	Unclassifiable/Attainment
Johnson	Unclassifiable/Attainment
Jones	Unclassifiable/Attainment

**RECOMMENDED DESIGNATION STATUS FOR GEORGIA COUNTIES
2012 PM_{2.5} NAAQS**

County Name	Designation
Lamar	Unclassifiable/Attainment
Lanier	Unclassifiable/Attainment
Laurens	Unclassifiable/Attainment
Lee	Unclassifiable/Attainment
Liberty	Unclassifiable/Attainment
Lincoln	Unclassifiable/Attainment
Long	Unclassifiable/Attainment
Lowndes	Unclassifiable/Attainment
Lumpkin	Unclassifiable/Attainment
McDuffie	Unclassifiable/Attainment
McIntosh	Unclassifiable/Attainment
Macon	Unclassifiable/Attainment
Madison	Unclassifiable/Attainment
Marion	Unclassifiable/Attainment
Meriwether	Unclassifiable/Attainment
Miller	Unclassifiable/Attainment
Mitchell	Unclassifiable/Attainment
Monroe	Unclassifiable/Attainment
Montgomery	Unclassifiable/Attainment
Morgan	Unclassifiable/Attainment
Murray	Unclassifiable/Attainment
Muscogee	Unclassifiable/Attainment
Newton	Unclassifiable/Attainment
Oconee	Unclassifiable/Attainment
Oglethorpe	Unclassifiable/Attainment
Paulding	Unclassifiable/Attainment
Peach	Unclassifiable/Attainment
Pickens	Unclassifiable/Attainment
Pierce	Unclassifiable/Attainment
Pike	Unclassifiable/Attainment
Polk	Unclassifiable/Attainment
Pulaski	Unclassifiable/Attainment
Putnam	Unclassifiable/Attainment
Quitman	Unclassifiable/Attainment
Rabun	Unclassifiable/Attainment
Randolph	Unclassifiable/Attainment
Richmond	Unclassifiable/Attainment
Rockdale	Unclassifiable/Attainment
Schley	Unclassifiable/Attainment
Screven	Unclassifiable/Attainment
Seminole	Unclassifiable/Attainment
Spalding	Unclassifiable/Attainment

**RECOMMENDED DESIGNATION STATUS FOR GEORGIA COUNTIES
2012 PM_{2.5} NAAQS**

County Name	Designation
Stephens	Unclassifiable/Attainment
Stewart	Unclassifiable/Attainment
Sumter	Unclassifiable/Attainment
Talbot	Unclassifiable/Attainment
Taliaferro	Unclassifiable/Attainment
Tattnall	Unclassifiable/Attainment
Taylor	Unclassifiable/Attainment
Telfair	Unclassifiable/Attainment
Terrell	Unclassifiable/Attainment
Thomas	Unclassifiable/Attainment
Tift	Unclassifiable/Attainment
Toombs	Unclassifiable/Attainment
Towns	Unclassifiable/Attainment
Treutlen	Unclassifiable/Attainment
Troup	Unclassifiable/Attainment
Turner	Unclassifiable/Attainment
Twiggs	Unclassifiable/Attainment
Union	Unclassifiable/Attainment
Upton	Unclassifiable/Attainment
Walker	Unclassifiable/Attainment
Walton	Unclassifiable/Attainment
Ware	Unclassifiable/Attainment
Warren	Unclassifiable/Attainment
Washington	Unclassifiable/Attainment
Wayne	Unclassifiable/Attainment
Webster	Unclassifiable/Attainment
Wheeler	Unclassifiable/Attainment
White	Unclassifiable/Attainment
Whitfield	Unclassifiable/Attainment
Wilcox	Unclassifiable/Attainment
Wilkes	Unclassifiable/Attainment
Wilkinson	Unclassifiable/Attainment
Worth	Unclassifiable/Attainment

Technical Analysis for 2012 PM_{2.5} NAAQS Designation Recommendations

Section 107(d) of the Clean Air Act requires states to submit area designation recommendations to the EPA by a date specified by the EPA. In an April 16, 2013 guidance memorandum entitled "Initial Area Designations for the 2012 Revised Primary Annual Fine Particle National Ambient Air Quality Standard", EPA has set the deadline for submitting these recommendations as December 13, 2013. The following discussion is the Georgia Environmental Protection Division's (EPD's) technical analysis to support these recommendations.

EPA's April 16, 2013, guidance document recommends that nonattainment area recommendation analysis start with counties included in each Core Based Statistical Area (CBSA) or Combined Statistical Area (CSA). As of the end of 2012, Georgia has 26 monitors in 10 CBSAs or CSAs and an additional two monitors located in areas that are not part of a CBSA. In addition, six non-Georgia monitors are located in multi-state CSAs or CBSAs. Each of these CBSAs, CSAs, and other areas are shown in Appendix A, and our analysis is organized accordingly.

Note that 2012 design values, quarterly data completeness, and design value validity is taken from EPA's 2012 Design Value Report entitled "PM_{2.5} Detailed Information" found at <http://www.epa.gov/airtrends/values.html>.

Although EPA's April 16, 2013 memorandum recommends the use of 2010 to 2012 data for state recommendations (p. 2), the memorandum also states that "...EPA's final designation decisions will be based on data from 2011 to 2013" (p. 3). There is strong evidence that the 2011-2013 design values will be significantly lower than the 2010-2012 design values. Figures 1 and 2 show the long-term trends for all of the areas discussed in this document. (For areas with multiple monitors, the value indicates the maximum value for each area.)

There are six Georgia monitors with 2010-2012 design values over the 2012 PM_{2.5} standard. Review of 2013 data to date shows a significant reduction compared to previous years. Figures 3 through 8 compare monthly PM_{2.5} values for each of these six monitors. As can be seen from this data, monthly 2012 PM_{2.5} levels were generally lower than 2010 and 2011 values, particularly during the warmer months. Monthly PM_{2.5} levels for 2013 appear to be trending even lower than 2012. (Note: Months with less than 50% data completeness are not shown.)

Note: source of data for figures 1 through 8 is from EPA's Technology Transfer Network (TTN) Air Quality System (AQS)

Technical Analysis for 2012 PM_{2.5} NAAQS Designation Recommendations

Figure 1 – PM_{2.5} Annual Averages

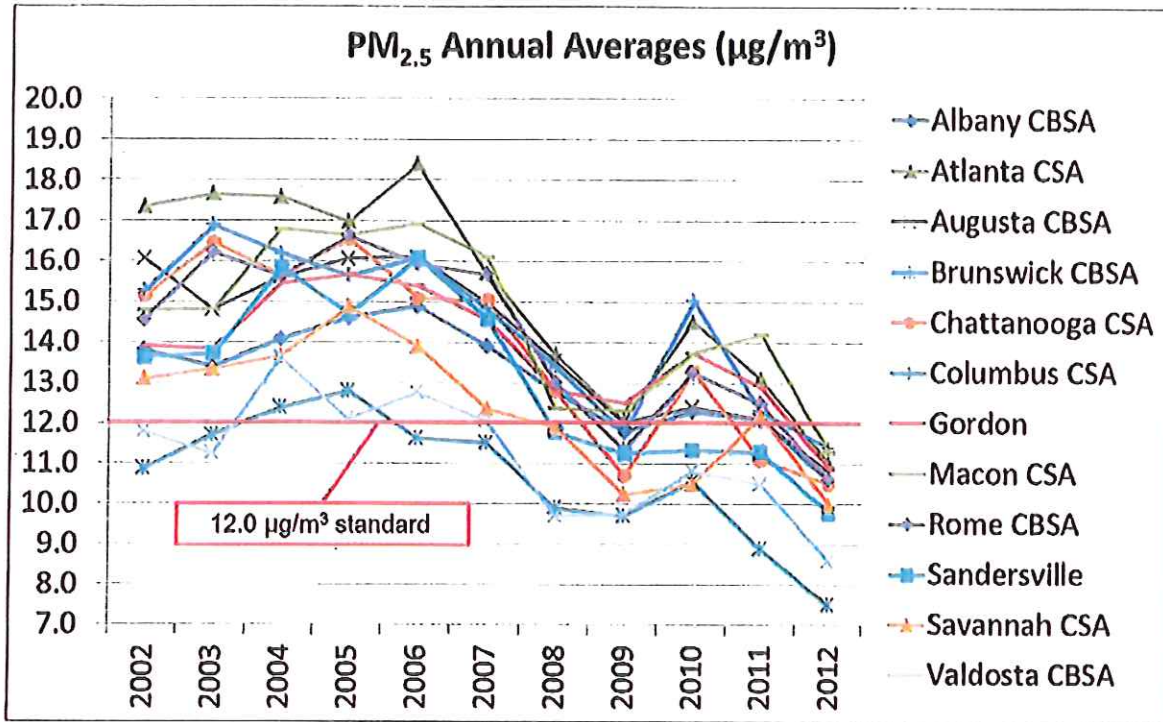
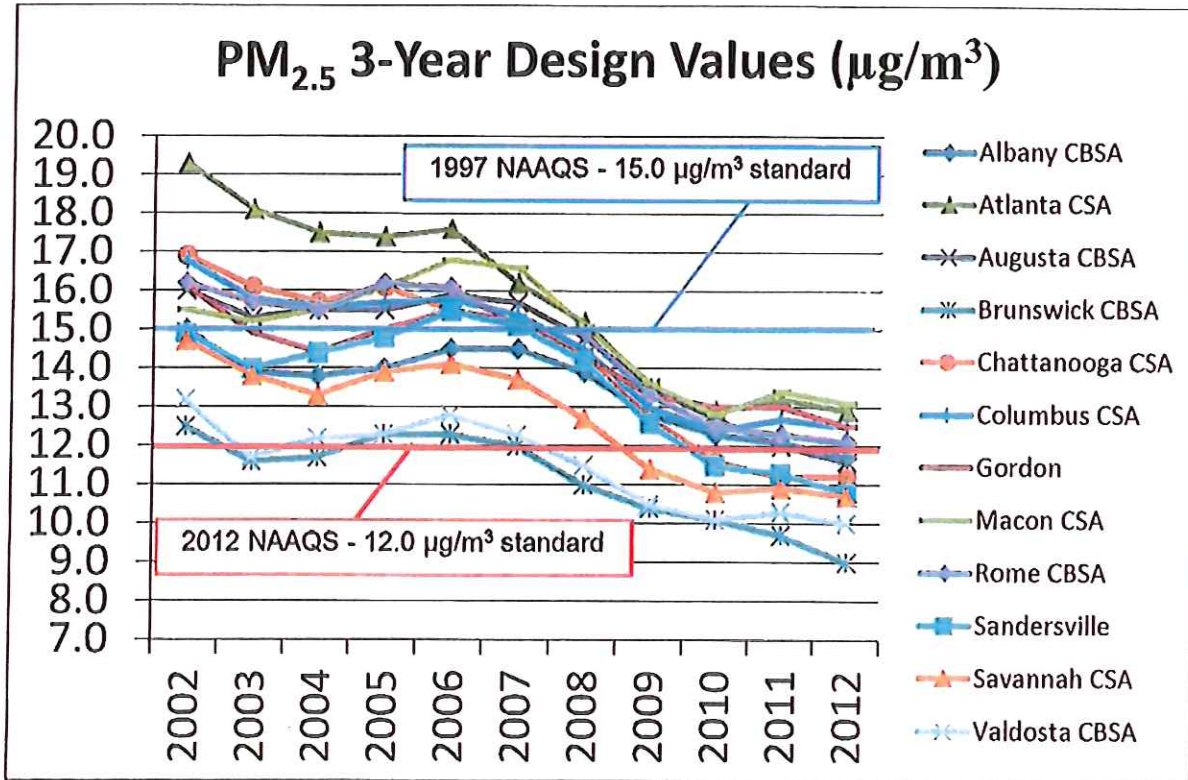


Figure 2 – PM_{2.5} Design Values



Technical Analysis for 2012 PM_{2.5} NAAQS Designation Recommendations

Figure 3 – Monthly Averages, Forest Park

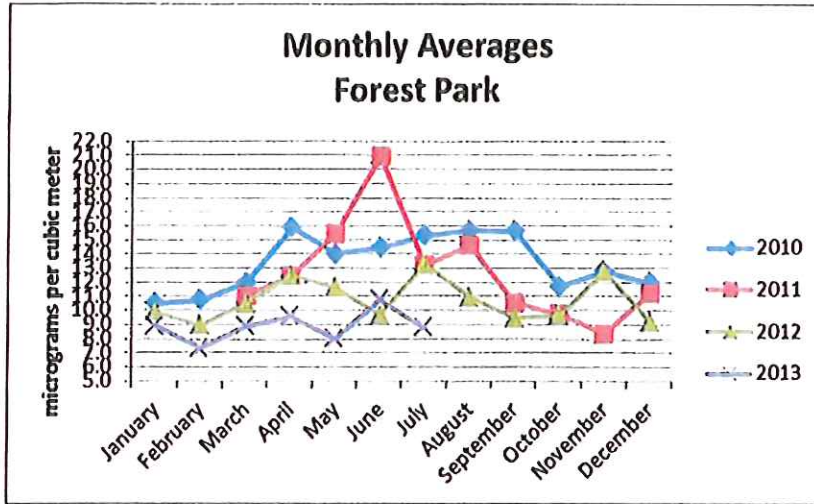


Figure 4 – Monthly Averages – Atlanta, Fire Station #8

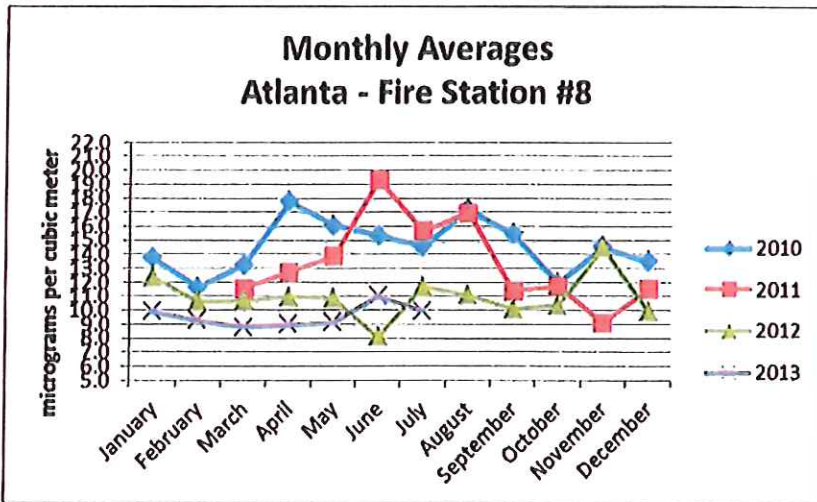
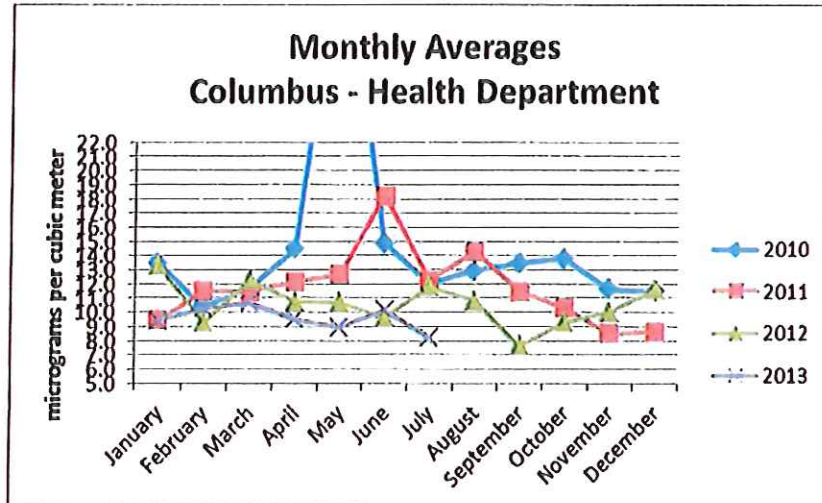


Figure 5 – Monthly Averages – Columbus, Health Department



Technical Analysis for 2012 PM_{2.5} NAAQS Designation Recommendations

Figure 6 – Monthly Averages - Gordon

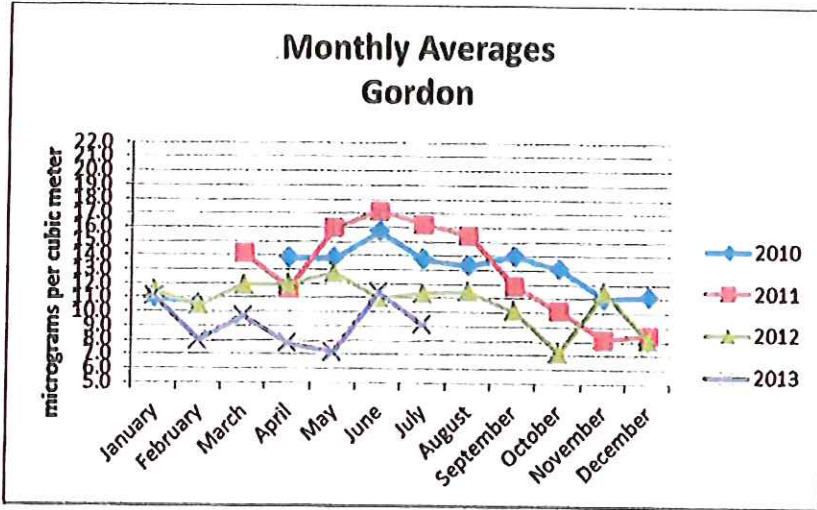


Figure 7 – Monthly Averages – Macon, Allied Chemical

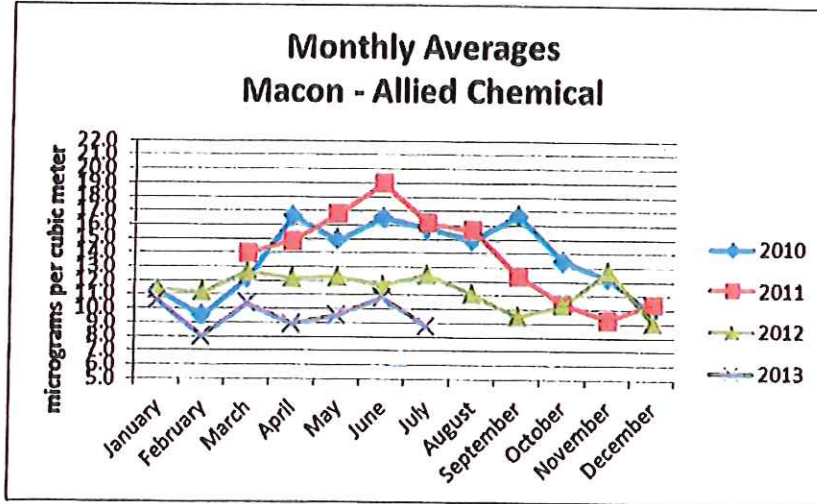
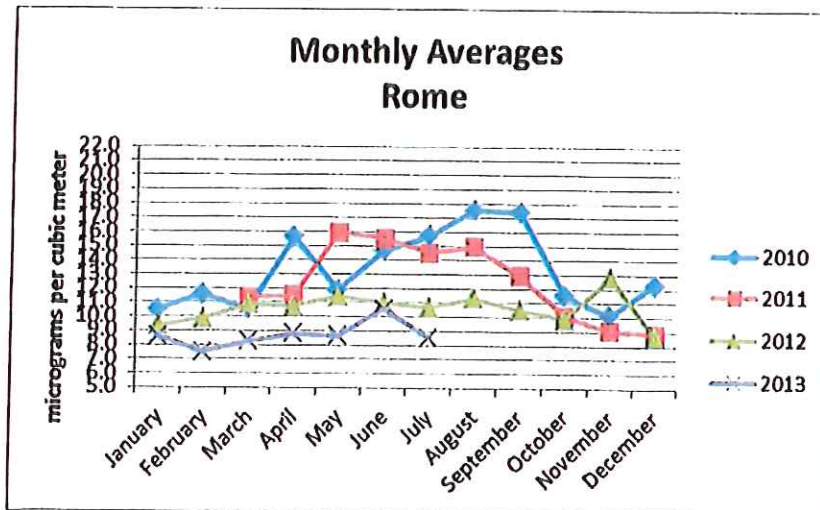


Figure 8 – Monthly Averages – Rome

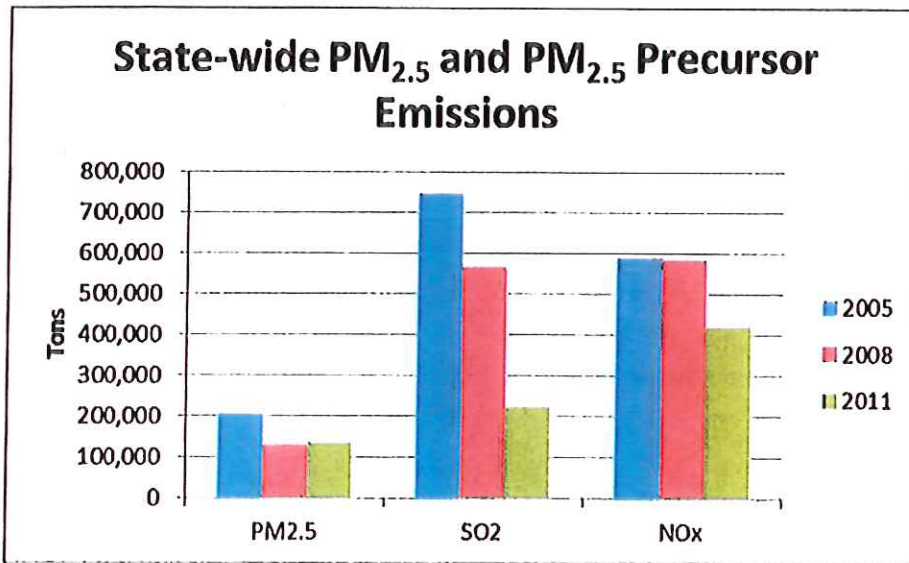


Technical Analysis for 2012 PM_{2.5} NAAQS Designation Recommendations

EPD has developed a method for predicting 2011-2013 design values for all monitors in Georgia as weight of evidence to support EPD's recommendations. This method uses actual monitor data for calendar years 2011 and 2012 and actual data for the first and second quarters and July of 2013. EPD then found the highest August-September averages for 2011 and 2012 and together with July, 2013, predicted a third quarter 2013 value. EPD then found the highest quarterly averages for the fourth quarter in 2011 and 2012 and used that as the predicted fourth quarter 2013 values. Since meteorology for the third quarter of 2013 has not been conducive for the photochemical formation of PM_{2.5} (i.e., it was cooler and rainier than normal), actual third quarter 2013 PM_{2.5} values are likely to be lower than the predicted values used in this approach. As a result, actual 2011-2013 design values are likely to be lower than predicted. The predicted 2011-2013 design values are found in Appendix B. Once actual 2013 data becomes available, this technical analysis will be amended in spring, 2014, using that data, and EPD will make revisions to the recommended designations as appropriate.

Information is available to indicate that these lower PM_{2.5} levels are due to real and permanent emission reductions. There have been significant reductions in direct PM_{2.5} and PM_{2.5} precursor emissions in recent years. Figure 9 compares 2005, 2008, and 2011 NEI data for state-wide anthropogenic PM_{2.5}, NO_x, and SO₂ for Georgia. (Note: Fire emissions are excluded in order to provide an equitable comparison.)

Figure 9. State-Wide PM_{2.5} and PM_{2.5} Emission Trends



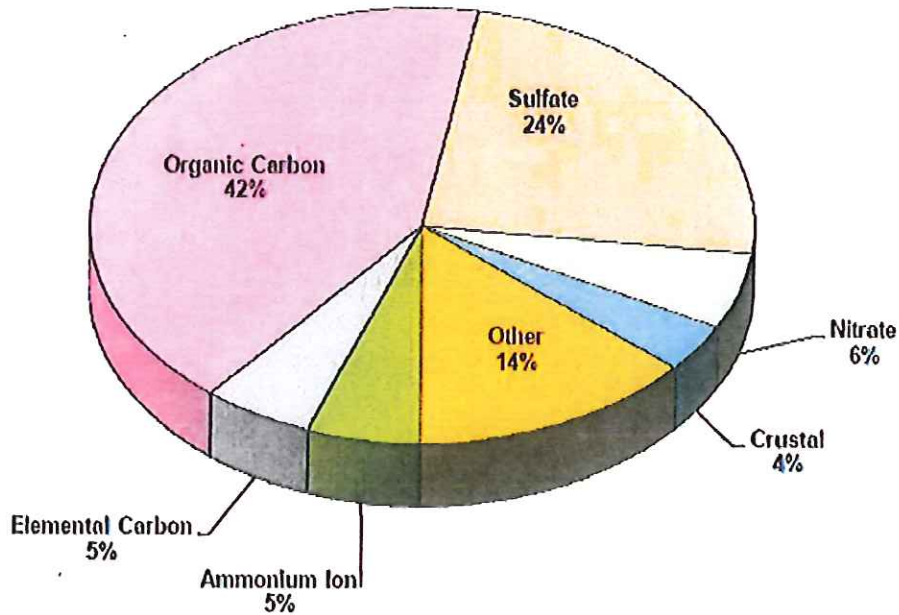
Source: 2005 CERR, 2008 NEI, and 2011 draft NEI

A significant portion of the PM_{2.5} measured at Georgia's monitors is secondary sulfate. Figure 10 shows the most recent data from Georgia's speciation monitors. The largest fraction is organic carbon, a significant amount of which is believed to be biogenic. The second largest fraction is secondary sulfate. There have been significant reductions in sulfur dioxide (SO₂) emissions (from which secondary sulfate compounds are formed) in Georgia and the southeast from the electric utility sector, the largest source of SO₂ in the region. These trends are shown in Figure 11. EPD anticipates that this downward trend to

Technical Analysis for 2012 PM_{2.5} NAAQS Designation Recommendations

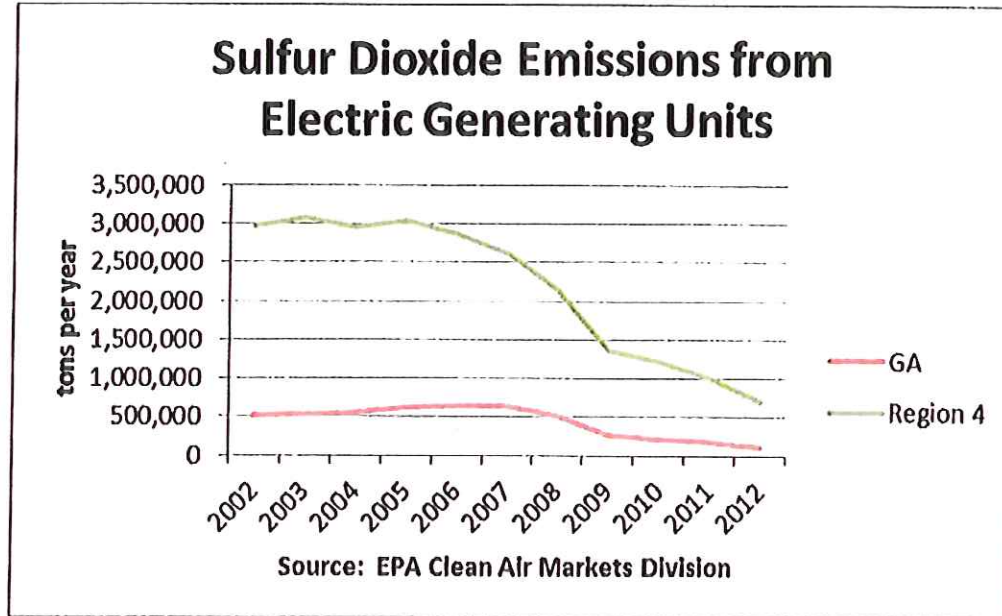
continue as the result of compliance with Georgia's multi-pollutant rule (391-3-1-.02(2)(sss)), EPA's Mercury and Air Toxics Standard, and federal transport rules.

Figure 10 – Particle Speciation – 2012 Statewide Average



Source: 2012 Ambient Air Surveillance Report, Environmental Protection Division, Air Protection Branch

Figure 11 – Sulfur Dioxide Emissions from Electric Generating Units



Source: EPA's Clean Air Markets website

Technical Analysis for 2012 PM_{2.5} NAAQS Designation Recommendations

Section 4.1(b) of 40 CFR 50 Subpart N states the following regarding data completeness:

Three years of valid annual means are required to produce a valid annual PM_{2.5} NAAQS DV. A year meets data completeness requirements when quarterly data capture rates for all four quarters are at least 75 percent. However, years with at least 11 creditable samples in each quarter shall also be considered valid if the resulting annual mean or resulting annual PM_{2.5} NAAQS DV (rounded according to the conventions of section 4.3 of this appendix) is greater than the level of the applicable primary or secondary annual PM_{2.5} NAAQS

EPA's 2012 Design Value Report for PM_{2.5} identifies a number of incomplete quarters for Georgia's PM_{2.5} monitoring data. EPD has reviewed this data and determined which annual arithmetic means are incomplete and (for values above the 2012 standard of 12.0 µg/m³) do not have at least 11 creditable samples in each quarter. Those annual values with incomplete and invalid values are indicated in Appendix A. The 2012 design value report also contains the results of the "quarterly value data substitution test" as specified in section 4.1(c). Those results are included in the discussion for each area where appropriate.

It is important to note that all of the Georgia monitors, except for South DeKalb², have incomplete data for the first quarter of 2011. This was due to circumstances out of EPD's control that resulted from a snow and ice storm from January 9th through 11th, 2011. The storm caused problems with the power and environmental control systems for the EPD Laboratory which lost power on and off during the following week. The systems were brought on line by Friday, January 14th; however, the weigh rooms could not be stabilized until February 2nd, 24 days after the storm began. In order to meet Federal ambient monitor sampling deadlines, both pre- and post-sample weighing had to be conducted during this period. Furthermore, samples could not have been prepared or taken through the preparation process at another laboratory (commercial, Federal, State or academic) and still meet Federal sampling requirements. A number of data analysis studies were conducted to determine the sample validity status. These studies included a correlation analysis between our lab (Rossville) and Chattanooga, Tennessee, sites (Soddy Daisy, Tombras and Siskin Drive); a statewide correlation test between the affected Federal Reference Monitor (FRM) and the co-located continuous monitors; scatter plots; and line plots. All of these analyses indicated that, while in general there is good correlation, there are certain areas that show poor correlation and since the data does not meet laboratory requirements, the data was not submitted to AQS as flagged, but as invalid. While EPD continues discussions with EPA regarding flagging this data as an exceptional event, the data at this time are noted as invalid due to lab error and is not used in calculating design values.

² A continuous FEM monitor was located at the South DeKalb site during the incident. This FEM data was substituted for missing FRM data resulting in a complete data set for first quarter, 2011.

Technical Analysis for 2012 PM_{2.5} NAAQS Designation Recommendations

Albany GA Core Based Statistical Area

The Albany GA CBSA consists of Baker, Dougherty, Lee, Terrell, and Worth Counties. There is one PM_{2.5} monitoring site in the Albany CBSA. The 2012 design value for the Albany monitor is 11.7 µg/m³, which indicates attainment with the 2012 PM_{2.5} annual NAAQS. The Albany monitor has two quarters in 2010, one quarter, and 2011, and three quarters in 2012 that do not meet 75% data completeness necessary to show that an area does not meet the standard^a. However, since the 2010 and 2011 arithmetic means were above the standard, and all quarters in those years had at least 11 samples, the 2010 and 2011 values are considered valid. The 2012 annual arithmetic mean was below the standard, so the 2012 value is not considered valid. The EPA 2012 Design Value Report indicates that the Albany monitor does not pass the data substitution test^a to show that this monitor met the standard with incomplete data and, thus, is not a valid design value. However, Georgia EPD has substituted data from a co-located, non-Federal Equivalent Method (non-FEM) continuous monitor for missing data from the FRM monitor as evidence that the Albany monitor was below the standard (Table 1 and Figure 12). Figure 13 shows that the continuous PM_{2.5} measurements at the Albany monitor are generally higher than the FRM measurements; therefore, the replacement of missing data with the continuous data is a conservative approach. EPD has also calculated a predicted 2013 design value for the Albany monitor as evidence that the area will continue to attain the standard (see Appendix B). Therefore, EPD recommends that all counties in the Albany GA CBSA be designated attainment for the 2012 PM_{2.5} annual NAAQS.

Albany CBSA	% Complete												Design Value
	2010				2011				2012				
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
FRM	68%	78%	92%	67%	51%	98%	98%	95%	86%	60%	57%	64%	11.7
FRM + Cont.	99%	99%	99%	100%	99%	100%	100%	100%	100%	100%	99%	100%	11.8

Technical Analysis for 2012 PM_{2.5} NAAQS Designation Recommendations

Figure 12. Combination of original FRM data with substituted data from the Albany continuous monitor.

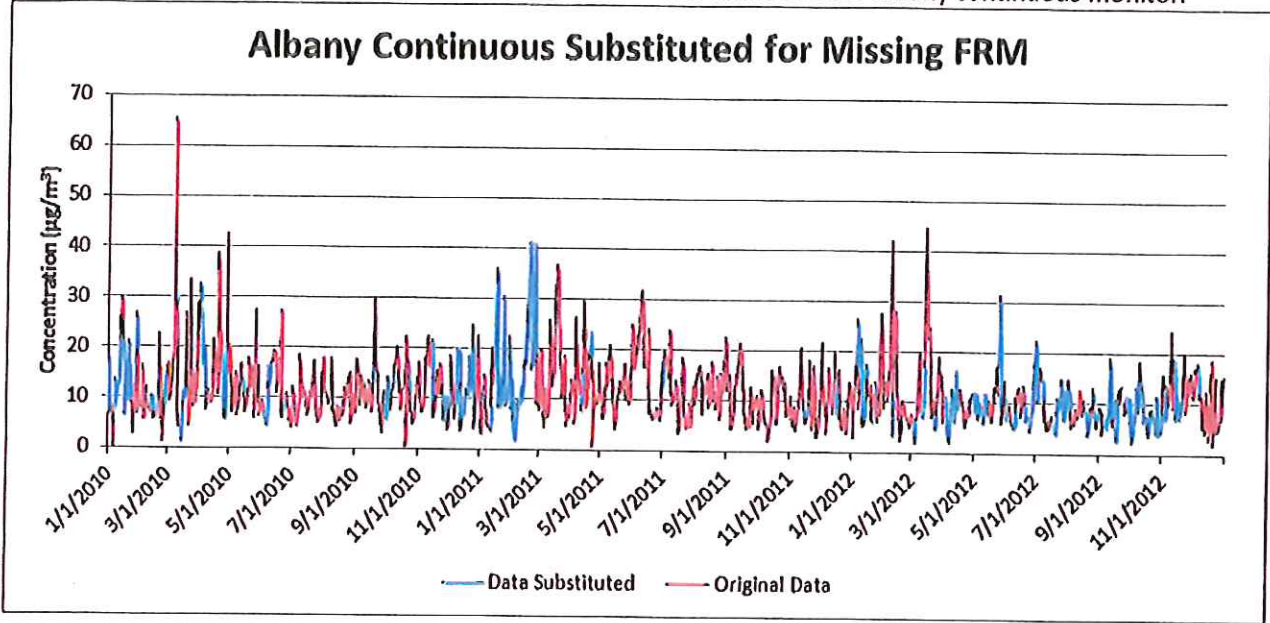
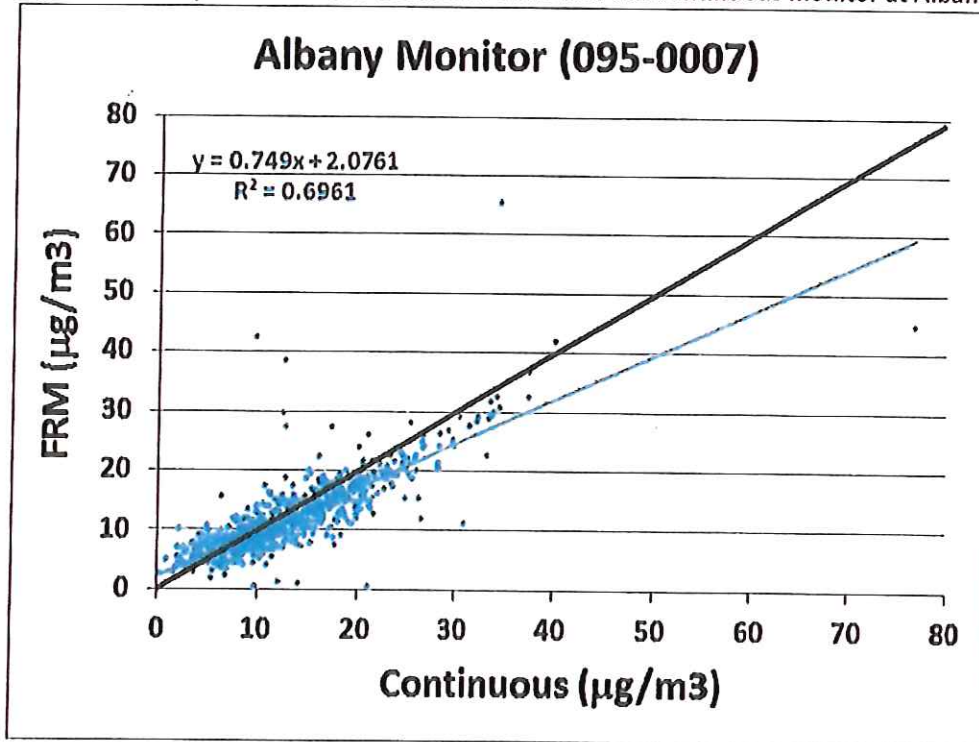


Figure 13. Comparison of 2010-2012 FRM data with the continuous monitor at Albany.



Technical Analysis for 2012 PM_{2.5} NAAQS Designation Recommendations

Atlanta--Athens-Clarke County--Sandy Springs, GA Combined Statistical Area

The Atlanta-Athens-Clarke County-Sandy Springs Combined Statistical Area (Atlanta CSA) consists of eight CBSAs:

Athens- Clark County GA CBSA - Clarke, Madison, Oconee, and Oglethorpe Counties

Atlanta-Sandy Springs-Roswell GA CBSA - Barrow, Bartow, Butts, Carroll, Cherokee, Clayton, Cobb, Coweta, Dawson, DeKalb, Douglas, Fayette, Forsyth, Fulton, Gwinnett, Haralson, Heard, Henry, Jasper, Lamar, Meriwether, Morgan, Newton, Paulding, Pickens, Pike, Rockdale, Spalding, and Walton Counties

Calhoun GA CBSA - Gordon County

Cedartown GA CBSA - Polk County

Gainesville GA CBSA - Hall County

Jefferson GA CBSA - Jackson County

LaGrange GA CBSA - Troup County

Thomaston GA CBSA - Upson County

There are eleven monitoring sites in the Atlanta CSA. Nine of the eleven monitors have attained design values ranging from 10.2 $\mu\text{g}/\text{m}^3$ to 11.5 $\mu\text{g}/\text{m}^3$, respectively. Two monitors in the CSA, Atlanta Fire Station #8 and Forest Park have 2012 design values above the standard at 12.9 $\mu\text{g}/\text{m}^3$ and 12.3 $\mu\text{g}/\text{m}^3$, respectively. EPD has calculated a predicted 2013 design value for all eleven of the Atlanta CSA monitors as evidence that the area will attain the standard following receipt and certification of the 2013 monitoring data (see Appendix B). Therefore, EPD recommends that all counties in the Atlanta-Athens-Clarke County-Sandy Springs Combined Statistical Area be designated attainment for the 2012 PM_{2.5} annual NAAQS.

Augusta-Richmond County, GA-SC Core Based Statistical Area

The Augusta-Richmond County GA CBSA (Augusta CBSA) consists of Burke, Columbia, Lincoln, McDuffie, and Richmond counties in Georgia and Aiken and Edgefield Counties in South Carolina. There are three PM_{2.5} monitoring sites in the Augusta CBSA. The 2012 design values for these three monitors are 11.6 $\mu\text{g}/\text{m}^3$ (Medical College of Georgia), 11.5 $\mu\text{g}/\text{m}^3$ (Bungalow Road), and 9.8 $\mu\text{g}/\text{m}^3$ (Trenton, S.C.). Both the Medical College of Georgia and Bungalow Rd. Elementary monitors have incomplete data in first quarter, 2011. However, since the 2011 design value for the Medical College of Georgia monitor was above the standard (at 12.1 $\mu\text{g}/\text{m}^3$), that value is considered valid. The Trenton monitor had no incomplete quarters. EPD has also calculated a predicted 2013 design value for the Bungalow Road monitor (the Medical College of Georgia Monitor ceased operation in 2013) as evidence that the area will continue to attain the standard (see Appendix B). Therefore, EPD recommends that all of the Georgia counties in the Augusta-Richmond County CBSA (i.e., Burke, Columbia, Lincoln, McDuffie, and Richmond Counties) be designated attainment for the 2012 PM_{2.5} annual NAAQS.

Technical Analysis for 2012 PM_{2.5} NAAQS Designation Recommendations

Brunswick, GA Core Based Statistical Area

The Brunswick, Georgia, CBSA consists of Brantley, Glynn, and McIntosh Counties. There is one PM_{2.5} monitoring site in the Brunswick CBSA. The 2012 design value for the Brunswick monitor is 9.0 µg/m³, which indicates attainment with the 2012 PM_{2.5} annual NAAQS. The Brunswick monitor has eleven quarters that do not meet 75% data completeness necessary to show that an area does not meet the standard^a. The EPA 2012 Design Value Report indicates that the Brunswick monitor does not pass the data substitution test^a to show that this monitor met the standard with incomplete data and is thus not a valid design value. EPD has calculated a predicted 2013 design value for the Brunswick monitor as evidence that the area will continue to attain the standard (see Appendix B). Therefore, EPD recommends that all counties in the Brunswick, GA CBSA be designated attainment for the 2012 PM_{2.5} annual NAAQS.

Chattanooga-Cleveland-Dalton, TN-GA-AL Combined Statistical Area

The Chattanooga-Cleveland-Dalton Combined Statistical Area (Chattanooga CSA) consists of six CBSAs:

Athens TN CBSA - McMinn County, Tennessee

Chattanooga TN-GA CBSA - Catoosa, Dade and Walker Counties, Georgia, and Hamilton, Marion, and Sequatchie Counties, Tennessee

Cleveland TN CBSA - Bradley and Polk Counties, Tennessee

Dalton GA CBSA - Murray and Whitfield County, Georgia

Dayton TN CBSA - Rhea County, Tennessee

Scottsboro AL CBSA - Jackson County, Alabama

There are five monitoring sites in the Chattanooga CSA. The 2012 design values for these five monitors are 10.0 µg/m³ (Rossville), 11.1 µg/m³ (East Ridge, TN), 11.2 µg/m³ (Soddy Daisy, TN), 11.1 µg/m³ (Riverside, TN), and 10.5 µg/m³ (Athens, TN). The Rossville monitor and the Athens, Tennessee, monitor each have one quarter that does not meet 75% data completeness necessary to show that an area does not meet the standard^a. The EPA 2012 Design Value Report indicates that both the Rossville and the Athens, Tennessee, monitors pass the data substitution test^a to show that these monitors met the standard with incomplete data and are thus valid design values. EPD has also calculated a predicted 2013 design value for the Rossville monitor as evidence that the area will continue to attain the standard (see Appendix B). Therefore, EPD recommends that all of the Georgia counties in the Chattanooga-Cleveland-Dalton Combined Statistical Area (i.e., Catoosa, Dade, Murray, Walker, and Whitfield Counties) be designated attainment for the 2012 PM_{2.5} annual NAAQS.

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Columbus-Auburn-Opelika, GA-AL Combined Statistical Area

The Columbus-Auburn-Opelika Combined Statistical Area (Columbus CSA) consists of three CBSAs:

Auburn-Opelika AL CBSA - Lee County, Alabama

Columbus GA-AL CBSA - Chattahoochee, Harris, Marion, and Muscogee Counties, Georgia, and Russell County, Alabama

Valley AL CBSA - Chambers County, Alabama

The Columbus CSA has four monitors. Two of the four monitors have attaining 2012 design values of 11.3 µg/m³ (Columbus Airport) and 11.6 µg/m³ (Columbus Cussetta Road Elementary). Two monitors in the CSA have design values above the standard: Phenix City, AL (12.2 µg/m³) and Columbus Health Department (12.5 µg/m³). EPD has calculated a predicted 2013 design value for all the Columbus monitors as evidence that the area will attain the standard following receipt and certification of the 2013 monitoring data (see Appendix B). Therefore, EPD recommends that all Georgia counties (Chattahoochee, Harris, Marion, and Muscogee Counties) in the Columbus-Auburn-Opelika GA-AL Combined Statistical Area be designated attainment for the 2012 PM_{2.5} annual NAAQS.

Gordon

Georgia's Gordon monitor is in Wilkinson County, Georgia. Wilkinson County is not part of a CBSA. The Gordon monitor has a 2012 design value above the standard at 12.5 µg/m³. EPD has calculated a predicted 2013 design value for the Gordon monitor as evidence that the area will attain the standard following receipt and certification of the 2013 monitoring data (see Appendix B). Therefore, EPD recommends that Wilkinson County be designated attainment for the 2012 PM_{2.5} annual NAAQS.

Macon-Warner Robins, GA Combined Statistical Area

The Macon-Warner Robins Combined Statistical Area (Macon CSA) consists of two CBSA's:

Macon GA CBSA - Bibb, Crawford, Jones, Monroe, and Twiggs Counties

Warner Robins CBSA - Houston, Peach, and Pulaski Counties

There are three monitors in the Macon CSA. Two of the three monitors have attaining 2012 design values of 10.5 µg/m³ (Macon SE) and 11.0 µg/m³ (Warner Robins). The Macon-Allied monitor has a 2012 design value above the standard at 13.1 µg/m³. EPD has calculated a predicted 2013 design value for all three of the Macon CSA monitors. This evidence shows that the two attaining monitors should continue to attain the standard and the Macon-Allied monitor will attain the standard in 2013 (see Appendix B). Therefore, EPD recommends that all counties in the Macon-Warner Robins CSA be designated attainment for the 2012 PM_{2.5} annual NAAQS.

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Rome CBSA

The Rome CBSA consists only of Floyd County. The Rome monitor has a 2012 design value above the standard at 12.1 µg/m³. EPD has calculated a predicted 2013 design value for the Rome as evidence that the area will attain the standard following receipt and certification of the 2013 monitoring data (see Appendix B). Therefore, EPD recommends that Floyd County be designated attainment for the 2012 PM_{2.5} annual NAAQS.

Sandersville

Georgia's Sandersville monitor is in Washington County, Georgia. Washington County is not part of a CBSA. The 2012 design value for the Sandersville monitor is 10.8 µg/m³, which indicates attainment with the 2012 PM_{2.5} annual NAAQS. The Sandersville monitor has two quarters that do not meet 75% data completeness necessary to show that an area does not meet the standard^a. The EPA 2012 Design Value Report indicates that the Sandersville monitor does not pass the data substitution test^a to show that this monitor met the standard with incomplete data and is thus not a valid design value. EPD has calculated a predicted 2013 design value for the Sandersville monitor as evidence that the area will continue to attain the standard (see Appendix B). Therefore, EPD recommends that Washington County be designated attainment for the 2012 PM_{2.5} annual NAAQS.

Savannah-Hinesville-Statesboro, GA Combined Statistical Area

The Savannah-Hinesville-Statesboro Combined Statistical Area (Savannah CSA) consists of two CBSAs:

Hinesville GA CBSA - Liberty and Long Counties

Savannah GA CBSA - Bryan, Chatham, Effingham, and Bulloch Counties

There were two PM_{2.5} monitors in the Savannah CSA in 2012. The Savannah-Market Street monitor had a 2012 design value of 10.7 µg/m³ and the Savannah-Mercer Middle monitor has a 2012 design value of 10.6 µg/m³. Both of these are below the 2012 Annual PM_{2.5} NAAQS. The Market Street monitor has one quarter that does not meet 75% data completeness necessary to show that an area does not meet the standard, and the Mercer Middle monitor has five quarters that do not meet 75%^a. The EPA 2012 Design Value Report indicates that the Market Street monitor does pass the data substitution test¹ and thus shows that this monitor met the standard with incomplete data. The Market Street 2012 design value is therefore a valid design value. EPD has also calculated a predicted 2013 design value for the Mercer Middle monitor as evidence that the area will continue to attain the standard (see Appendix B). (Note that the Market Street Monitor ceased operation in 2013.) Therefore, EPD recommends that all counties in the Savannah-Hinesville-Statesboro GA CSA be designated attainment for the 2012 PM_{2.5} annual NAAQS.

Valdosta GA Core Based Statistical Area

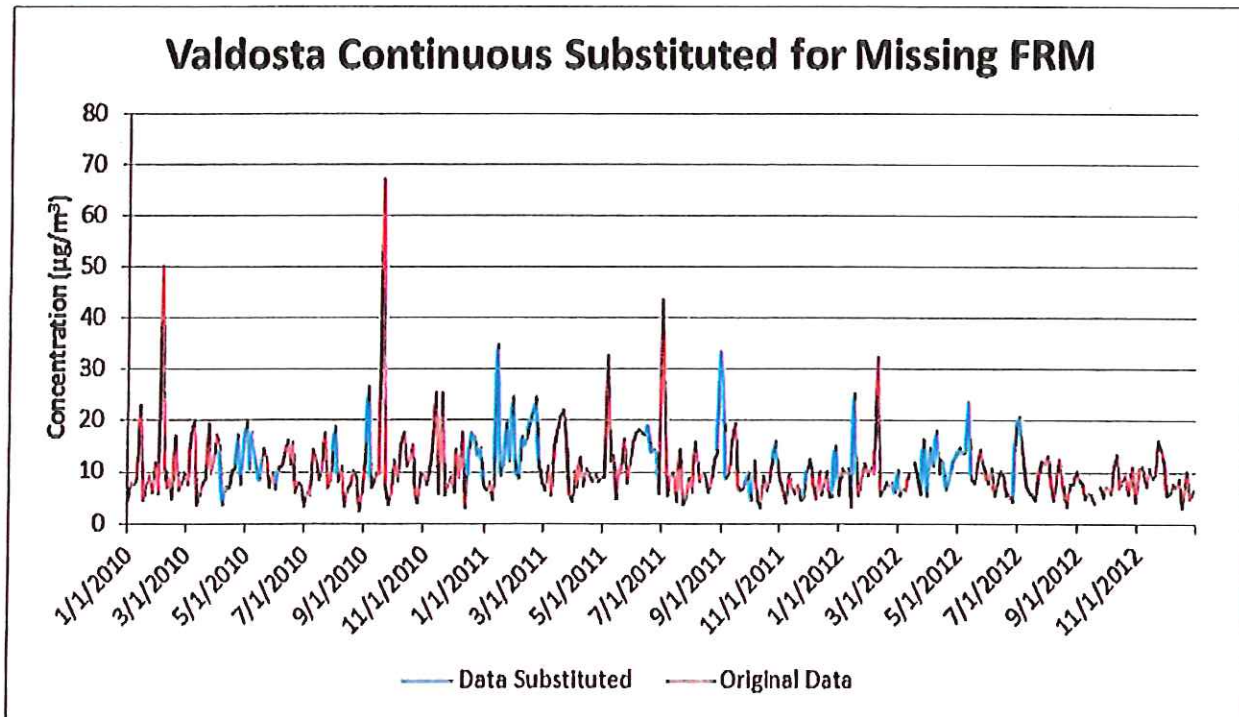
The Valdosta CBSA consists of Brooks, Echols, Lanier, and Lowndes Counties. There is one PM_{2.5} monitoring site in the Valdosta CBSA. The 2012 design value for the Valdosta monitor is 10.0 µg/m³, which indicates attainment with the 2012 PM_{2.5} annual NAAQS. The Valdosta monitor has three

Technical Analysis for 2012 PM_{2.5} NAAQS Designation Recommendations

quarters that do not meet 75% data completeness necessary to show that an area does not meet the standard⁹. The EPA 2012 Design Value Report indicates that the Valdosta monitor does not pass the data substitution test^a to show that this monitor met the standard with incomplete data and is thus not a valid design value. However, Georgia EPA has substituted data from a co-located non-Federal Equivalent Method (non-FEM) continuous monitor for missing data from the Federal Reference Method (FRM) monitor as evidence that the Valdosta monitor was below the standard (see Table 2 and Figure 14). Figure 15 shows that the continuous PM_{2.5} measurements at the Valdosta monitor are generally higher than the FRM measurements; therefore, the replacement of missing data with the continuous data is a conservative approach. EPD has also calculated a predicted 2013 design value for the Valdosta monitor as evidence that the area will continue to attain the standard (see Appendix B). Therefore, EPD recommends that all counties in the Valdosta GA CBSA be designated attainment for the 2012 PM_{2.5} annual NAAQS.

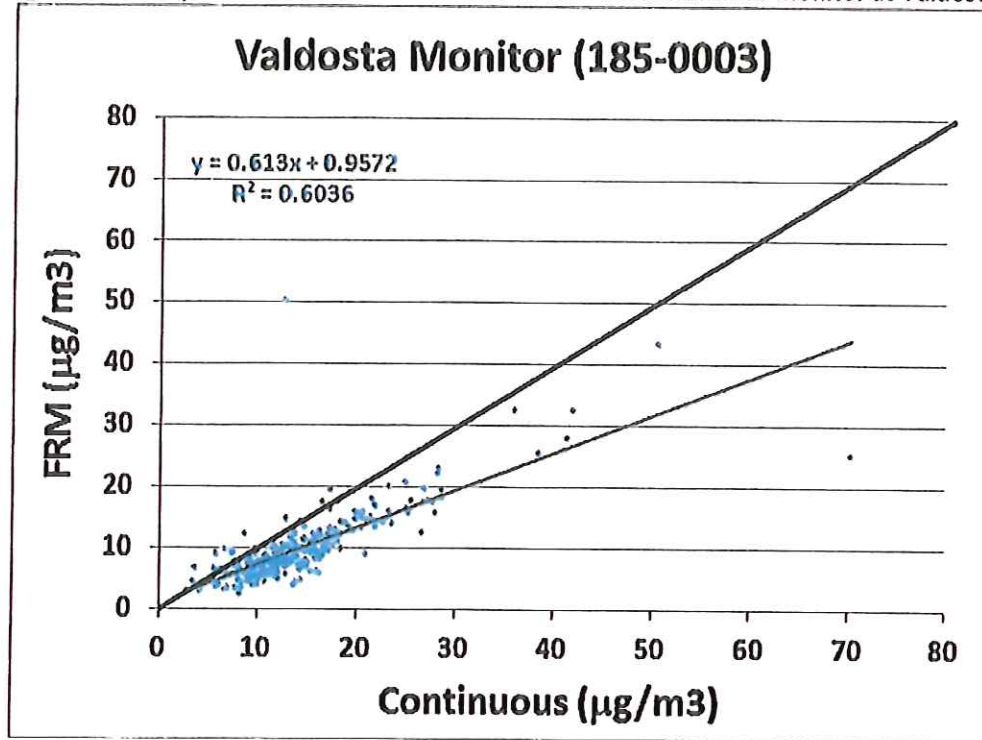
Albany CBSA	% Complete												Design Value
	2010				2011				2012				
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
FRM	100%	70%	94%	84%	53%	87%	87%	87%	84%	60%	94%	100%	10.0
FRM + Cont.	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	10.8

Figure 14. Combination of original FRM data with substituted data from the Valdosta continuous monitor.



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Figure 15. Comparison of 2010-2012 FRM data with the continuous monitor at Valdosta.



Appendix A

2010-2012 Annual Arithmetic Means and Design Values

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AQS Number	CSA or CBSA/Monitor	2010 Value	2011 Value	2012 Value	2010-2012 Design Value
13-095-0007	Albany CBSA	12.3	12.1	10.6*	11.7
Atlanta CSA					
13-059-0002	Athens CSA	11.3	10.7*	9.3*	10.4
13-063-0091	Forest Park	13.4	12.7	10.8	12.3
13-067-0003	Kennesaw	12.2	11.5*	10.1	11.3
13-067-0004	Powder Springs	12.2	11.3*	9.8	11.1
13-089-0002	South DeKalb	12.3	12.0	10.2	11.5
13-089-2001	Doraville	12.2	11.6*	10.1	11.3
13-121-0032	E. Rivers	12.2	11.7*	10.2	11.4
13-121-0039	Fire Station #8	14.5	13.1	11.0	12.9
13-135-0002	Gwinnett	12.3	11.0*	10.3	11.2
13-139-0003	Gainesville	11.4	10.7*	9.3	10.4
13-223-0003	Yorkville	11.1	10.7*	8.8	10.2
Augusta CBSA					
13-245-0005	Medical College of Georgia	12.1	12.1	10.8	11.6
13-245-0091	Bungalow Rd. Elementary	12.4	11.7*	10.4	11.5
45-037-0001	Trenton (SC)	10.3	10.4	8.9	9.8
13-127-0006	Brunswick CBSA	10.6*	8.9*	7.5*	9.0
Chattanooga CSA					
13-295-0002	Rossville	8.7	10.8*	10.5	10.0
47-065-0031	East Ridge (TN)	12.0	11.1	10.1	11.1
47-065-1011	Soddy Daisy (TN)	13.3	10.3	10.0	11.2
47-065-4002	Riverside (TN)	11.7	11.1	10.0	10.9
47-107-1002	Athens (TN)	11.9	10.6	9.1*	10.5
Columbus CSA					
13-215-0001	Health Department	14.9	11.8*	10.8*	12.5
13-215-0008	Alrport	12.2	11.4*	10.2	11.3
13-215-0011	Cusseta Rd. Elementary	12.6	11.9*	10.4	11.6
01-113-0001	Phenix City (AL)	13.0	12.3	11.4	12.2
13-319-0001	Gordon	13.7	12.9	10.9	12.5
Macon CSA					
13-021-0007	Allied Chemical	13.8	14.2	11.3	13.1
13-021-0012	Georgia Forestry Commission	11.4	11.0*	9.0*	10.5
13-153-0001	Warner Robins	12.2	11.4*	9.5	11.0
13-115-0003	Rome CBSA	13.3	12.5	10.6	12.1
13-303-0001	Sandersville	11.4*	11.3*	9.8	10.8
Savannah CSA					
13-051-0017	Market Street	10.5*	11.7*	10.0	10.7
13-051-0091	Mercer Middle School	10.5*	12.2	9.2*	10.6
13-185-0003	Valdosta CBSA	10.8*	10.5*	8.6*	10.0

*incomplete and invalid data per 40 CFR 50 Appendix N

Appendix B

Predicted 2013 Design Values

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AQS Number	CSA or CBSA/Monitor	2011 Value	2012 Value	Actual 2013 Q1	Actual 2013 Q2	Predicted 2013 Q3	Predicted 2013 Q4	Predicted 2013 Value	Predicted 2011-13 Design Value
13-095-0007	Albany CBSA	12.1	12.1	11.8	9.4	10.4	11.5	10.0	10.7
Atlanta CSA									
13-059-0002	Athens CSA	10.7	12.3	8.9	7.9	10.2	8.8	8.7	9.6
13-063-0091	Forest Park	12.7	11.3	8.5	9.4	11.4	10.6	8.7	11.0
13-067-0003	Kennesaw	11.5	11.1	8.5	9.2	11.1	10.0	9.4	10.5
13-067-0004	Powder Springs	11.3	11.5	Shut Down					n.a.
13-089-0002	South DeKalb	12.0	11.3	8.1	9.2	11.4	10.4	9.6	10.6
13-089-2001	Doraville	11.6	11.4	Shut Down					n.a.
13-121-0032	E. Rivers	11.7	12.9	Shut Down					n.a.
13-121-0039	Fire Station #8	13.1	11.2	9.3	9.6	12.8	11.7	10.7	11.7
13-135-0002	Gwinnett	11.0	10.4	8.5	8.5	10.5	10.5	9.2	10.2
13-139-0003	Gainesville	10.7	10.2	7.8	8.5	10.2	9.1	8.7	9.5
13-223-0003	Yorkville	10.7	10.7	7.7	8.6	10.6	7.8	8.7	9.5
Augusta CBSA									
13-245-0005	Medical College of Georgia	12.1	12.1	Shut Down					n.a.
13-245-0091	Bungalow Rd. Elementary	11.7	11.7	9.6	8.6	10.4	10.1	9.2	10.4
13-127-0006	Brunswick CBSA	8.9	8.9	7.6	7.4	9.2	6.8	7.5	8.2

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AQS Number	CSA or CBSA/Monitor	2011 Value	2012 Value	Actual 2013 Q1	Actual 2013 Q2	Predicted 2013 Q3	Predicted 2013 Q4	Predicted 2013 Value	Predicted 2011-13 Design Value
Chattanooga CSA									
13-295-0002	Rossville	10.8	10.8	9.2	8.9	10.8	11.7	9.9	10.4
Columbus CSA									
13-215-0001	Health Department	11.8	10.8	10.1	9.7	11.3	11.4	10.1	10.9
13-215-0008	Airport	11.4	10.2	9.7	10.7	12.0	11.2	10.7	10.7
13-215-0011	Cusseta Rd. Elementary	11.9	10.4	10.2	9.5	11.4	10.1	9.9	10.7
13-319-0001	Gordon	12.9	10.9	9.6	8.9	12.5	10.7	9.8	11.3
Macon CSA									
13-021-0007	Allied Chemical	14.2	11.3	9.7	9.7	12.3	10.7	10.2	11.8
13-021-0012	Georgia Forestry Commission	11.0	9.0	7.5	7.9	10.3	7.7	8.2	9.8
13-153-0001	Warner Robins	11.4	9.5	9.1	7.8	10.4	9.1	8.8	9.8
13-115-0003	Rome CBSA	12.5	10.6	8.2	9.3	12.1	10.5	9.7	11.1
13-303-0001	Sandersville	11.3	9.8	10.0	9.1	10.9	8.8	9.3	10.2
Savannah CSA									
13-051-0017	Market Street	11.7	10.0	Shut Down					
13-051-0091	Mercer Middle School	12.2	9.2	9.8	8.6	10.6	9.1	9.1	10.1
13-185-0003	Valdosta CBSA	10.5	8.6	11.1	7.6	10.3	8.6	9.0	9.3

^a Guideline on Data Handling Conventions for the PM NAAQS, EPA-454/R-99-008, April 1999