STATE OF MISSOURI
Jeremiah W. (Jay) Nixon, Governor • Sara Parker Pauley, Director
DEPARTMENT OF NATURAL RESOURCES
www.dnr.mo.gov

AUG 29 2014

Mr. Karl Brooks
Regional Administrator
U.S. EPA, Region VII
11201 Renner Boulevard
Lenexa, KS 66219

Dear Mr. Brooks:

The Missouri Department of Natural Resources' Air Pollution Control Program (Air Program) hereby submits the following Missouri State Implementation Plan (SIP) revision for your approval:

State of Missouri Regional Haze Plan: 5-Year Progress Report

The Missouri Department of Natural Resources (department) requests that the U.S. Environmental Protection Agency (EPA) grant final approval to this revision of the Missouri SIP to address the requirements of the federal Regional Haze Rule at 40 CFR 51.308(g) requiring periodic reports evaluating progress towards the State's Reasonable Progress Goals.

The department made the progress report available for public review on April 28, 2014, at least 30 days prior to holding a public hearing. The department then held a public hearing for this SIP revision on May 29, 2014, in front of the Missouri Air Conservation Commission (Commission). Comments received during the public comment period were evaluated and addressed in the report as appropriate. A summary of the comments received and our responses are attached. The amended progress report was adopted by the Commission on August 28, 2014.

In order to comply with Attachment A of the "Regional Consistency for the Administrative Requirements of State Implementation Plan Submittals and the Use of 'Letter Notices'" memo dated April 6, 2011, a searchable pdf version of this document will be emailed to the EPA Regional Office. Within three business days, this complete submittal package will be posted on our website at http://dnr.mo.gov/env/apcp/stateplans.htm.

The department appreciates the assistance and cooperation provided by EPA Region VII during the formulation of this report. Should you have any questions or comments concerning this SIP revision, please do not hesitate to contact Wendy Vit at the Missouri

Department of Natural Resources' Air Pollution Control Program, P.O. Box 176, Jefferson City, Missouri 65102, or by telephone at (573) 751-4817.

Sincerely,

AIR POLLUTION CONTROL PROGRAM

Kyra L. Moore

Kyra L. Moore
Director

KLM:akc

Enclosures:

Copy of Missouri's Regional Haze 5-Year Progress Report with Appendices
Copy of commission signature page certifying Missouri Air Conservation Commission adoption
Copy of public hearing notices
Copy of public hearing transcript introductory statement
Copy of recommendation for adoption
Copy of the summary of comments and responses

c: Missouri Air Conservation Commission
Project #1999-RH-7

State of Missouri Regional Haze Plan
5-Year Progress Report

A Missouri State Implementation Plan Revision

Prepared for the
Missouri Air Conservation Commission

MISSOURI
DEPARTMENT OF
NATURAL RESOURCES

Adopted:
August 28, 2014

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Project # 1999-RH-7 Progress Report

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EXECUTIVE SUMMARY

The purpose of this SIP revision is to provide a 5-year report on the progress toward reasonable progress goals (RPGs) as required by the federal Regional Haze Rule (RHR) [64 FR 35714, July 1, 1999]. The plan addresses the requirements for a 5-year progress report as specified in 40 CFR 51.308(g) and (h). The plan includes a review of current regional haze strategies, an emissions reductions summary from those strategies, and an assessment of visibility progress.

The Clean Air Act (CAA) establishes requirements for the protection of visibility in the 156 mandatory Federal Class I areas, consisting of national parks and wilderness areas. In 1999, the U.S. Environmental Protection Agency (EPA) issued the RHR which addressed regional haze impairment from manmade air pollution and established a comprehensive visibility protection program for Class I areas. States are required to submit State Implementation Plans (SIPs) to the EPA that demonstrate reasonable progress toward meeting the national goal of a return to natural visibility conditions by 2064. The rule directs states to graphically show what would be a "uniform rate of progress," also known as the "glide path," toward natural conditions for each Class I area within the State. The two Federal Class I areas within Missouri are Mingo and Hercules Glades.

On August 5, 2009, the Air Program submitted the initial RH plan to EPA, hereafter referenced as the 2009 RH plan. The 2009 RH plan included a long-term strategy and examined the possible application of Best Available Retrofit Technology (BART) among other reduction measures in order to establish RPGs for Mingo and Hercules Glades. The Air Program also submitted a technical supplement to the 2009 RH plan to EPA on January 30, 2012. On June 26, 2012, EPA finalized limited approval of the 2009 RH plan [77 FR 38007]. The BART for Electric Generating Units (EGUs) portion of the 2009 RH plan based on the Clean Air Interstate Rule (CAIR) and its successor Cross State Air Pollution Rule (CSAPR) was addressed in federal rulemaking finalized on June 7, 2012. Together these two EPA actions constitute full approval of Missouri's 2009 RH plan.

Strategies in the 2009 RH plan focus on the reduction of sulfur dioxide (SO_2) emissions and oxides of nitrogen (NO_X) emissions, which are the largest contributors to visibility impairment at both Hercules Glades and Mingo. Major sources of these emissions are EGUs and large industrial boilers. A majority of these sources have installed controls because of a number of requirements, including CAIR, CSAPR, state programs, and state and federal consent agreements. These mechanisms and additional recent regulations imposed on this source sector have reduced SO_2 and NO_X emissions during the 5-year period evaluated for this report.

The technical analyses contained in this plan demonstrate that both of the Class I areas in Missouri will achieve their 2018 RPGs. In the 2009 RH plan, the model-projected visibility conditions at Mingo and Hercules Glades were 23.71 dv and 23.06 dv, respectively, for 2018. These conditions were adopted as each area's RPG. Since then, Missouri sources have realized and planned reductions. As a result both Class I areas' visibility conditions are improving. This downward trend in visibility impairment at Missouri's Class I areas can most likely be attributed to the realized and planned reductions in SO_2 and NO_X emissions at EGUs, boilers, and other sources. Consequently, the Air Program has determined that current strategies in the 2009 RH plan are sufficient to achieve RPGs for visibility improvement and emissions reductions. The Air Program submits to EPA a negative declaration that further revision of the 2009 RH plan is not needed at this time.

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I. Regional Haze Five-Year Progress Report Review Requirements

A. Introduction

The Clean Air Act (CAA) establishes requirements for the protection of visibility, especially in Federal Class I areas. In 1999, the US Environmental Protection Agency (EPA) finalized the Regional Haze Rule (RHR) [64 FR 35714, July 1, 1999]. The rule addressed regional haze impairment from manmade air pollution and established a comprehensive visibility protection program for the 156 mandatory Class I Federal Areas, consisting of national parks and wilderness areas. Class I areas as defined by the Clean Air Act include national parks greater than 6,000 acres, wilderness areas and national memorial parks greater than 5,000 acres, and international parks, that existed as of August 1977.

States are required to develop state implementation plans (SIPs) to submit to the EPA in order to reduce the pollution that causes visibility impairment. These plans establish goals and emission reduction strategies based on trends from various sources including area source emissions, mobile source emissions (both on-road and non-road emissions), biogenic emissions, and wildfire and agriculture emissions. These plans were developed with the express intent that by 2064, the visibility in the Class I areas will be returned to natural conditions. Five multi-state regional planning organizations (RPOs) worked together to develop the technical basis for these SIPs. States used the products of the RPOs to establish monitoring strategies for evaluating visibility conditions, baselines and trends, and to develop long-term (10 to 15 years) strategies for making "reasonable progress" toward eliminating all manmade visibility impairment in mandatory Class I areas.

B. Background Summary

On August 5, 2009, the Air Program submitted the initial regional haze plan to EPA, hereafter referenced as the 2009 RH plan[1]. With the help of the Central Regional Air Planning Association (CENRAP) RPO, Missouri developed the 2009 RH plan to address visibility impairment in the state's two Class I Federal Areas: Hercules Glades Wilderness Area located in southwest Missouri and Mingo National Wildlife Refuge located in southeast Missouri, as shown in Figure 1. The United States Department of Agriculture (USDA) Forest Service manages the Hercules Glades Wilderness Area (Hercules Glades), as part of the Mark Twain National Forest. The area includes 12,413 acres located in the rugged hills of the Missouri Ozarks. The US Fish and Wildlife Service (FWS) manages the Mingo National Wildlife Refuge (Mingo), which is situated along the Mississippi Flyway. Only a portion of the refuge is a Class I area (7,730 acres out of a total 21,592 acres). In order to measure visibility impairment and pollutant concentrations in these protected areas, the IMPROVE (Interagency Monitoring of Protected Visual Environments) program was created and implemented an extensive long-term monitoring program. An IMPROVE monitor is located in each of Missouri's Class I areas. A third monitor, El Dorado Springs, located in Southwest Missouri, is a Protocol monitoring site that is maintained by the department to also measure visibility impairment in Missouri, but it is not located in a federal Class I area. It was established to aid in determining impacts to portions of the country where no Class I areas exist. This site provides trends and regional information while still following the same

[1] State of Missouri Regional Haze Plan Revision, August 5, 2009 (Available at: http://dnr.mo.gov/env/apcp/sips.htm#regionalhaze)

protocol as IMPROVE sites that are located in Class I areas. All three sites were included in this report's technical analysis to better characterize visibility and concentration trends across the entire state.

Between 2000 and 2007, Missouri participated in the CENRAP workgroup process to develop technical analyses and control strategies for the 2009 RH plan. Missouri determined baseline visibility conditions for each Class I area using monitoring data collected from 2000 through 2004 and compared them to established natural background conditions. The technical analyses showed that both of the Class I areas in Missouri will meet their 2018 Reasonable Progress Goals (RPG). The analyses in the 2009 RH plan demonstrate that the 2018 visibility goals for Mingo and Hercules Glades will be largely achieved from Electric Generating Unit (EGU) emission reductions resulting from the federal Clean Air Interstate Rule (CAIR) program. Missouri's long-term strategy also consists of other air pollution programs including the Missouri Oxides of Nitrogen (NO_X) State Implementation Plan (SIP) call, Tier 2 vehicle emission standards, other states' SIP controls, Missouri's and other states' Best Available Retrofit Technology (BART) controls, as well as other programs.

C. Purpose

In its final RHR, published as final July 1, 1999, (64 FR 35714), the EPA included two main requirements for comprehensive periodic plan revisions (section 51.308(f)) and progress reviews (section 51.308(g)). Section 51.308(f) requires the states to submit a comprehensive SIP revision in 2018 and every 10 years thereafter. Section 51.308(g) requires progress reports for each Class I area in the state in the form of SIP revisions every 5 years.

This plan addresses the requirements of 40 CFR 51.308(g) requiring periodic reports evaluating progress towards the RPGs established for each mandatory Class I area. In accordance with the requirements listed in Section 51.308(g) of the RHR, Missouri, in the 2009 RH plan, committed to submitting a report on reasonable progress to EPA every five years following the initial submittal of the plan. This document fulfills this requirement and is in the form of a SIP revision. This progress report evaluates the progress made towards the RPGs for Missouri's federal Class I areas: Mingo and Hercules Glades**.**

This plan follows the guidelines outlined in EPA's document entitled, "General Principles for the 5-Year Regional Haze Progress Reports for the Initial Regional Haze State Implementation Plans[2]," released in April 2013.

[2] EPA's General Principles Document for 5-Year Regional Haze Progress Reports, April 10, 2013. Available at: http://www.4cleanair.org/Documents/haze_5year_4-10-13.pdf

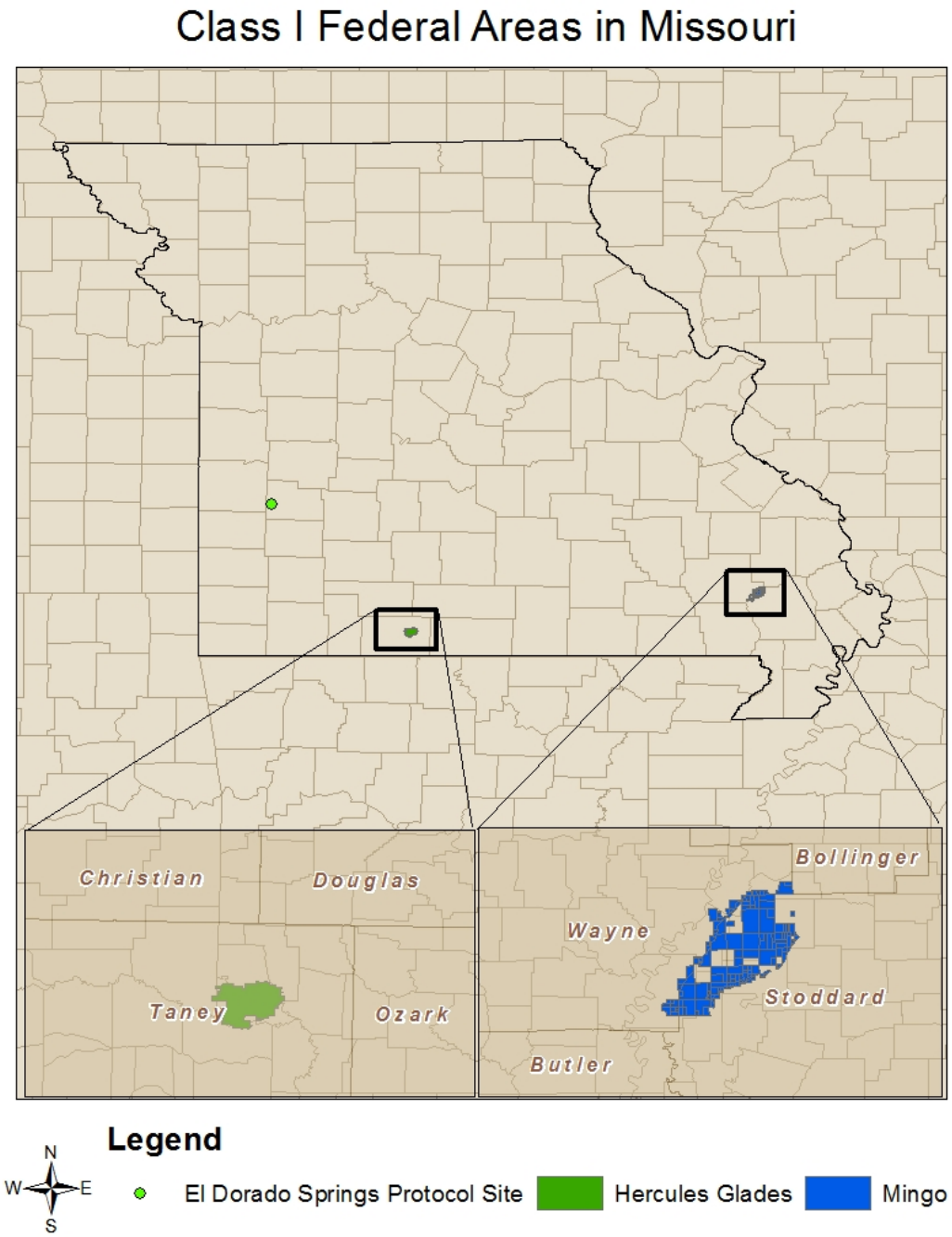

Figure 1. Map of Missouri's Class I Federal areas.

II. Progress Report Elements

A. Status of Control Strategies in the Regional Haze SIP

40 CFR 51.308(g)(1), requires "A description of the status of implementation of all measures included in the implementation plan for achieving reasonable progress goals for Class I areas both within and outside the State."

This summary provides a status of the emission reduction measures that were included in the 2009 RH plan and the associated modeling efforts. This summary includes discussions of benefits associated with each measure. Such benefits are quantified wherever possible. In instances where implementation of a measure did not occur in a timely manner, information is provided on the source category and its relative impact on the overall future year emissions inventories.

The paragraphs below also contain information on emissions strategies that were not included in the 2009 RH SIP submittal. At that time, these measures had not yet been published in final form or were not fully documented, and therefore the benefits of these measures were not included in future year inventories. Emission reductions from these measures are expected to help ensure that each Class I area meets or exceeds the visibility progress goal set in the 2009 RH plan.

Missouri used "on the books" control programs, found in A.1.1 – A.1.5, in the 2009 RH plan's modeling demonstration to meet the RPG requirements. Measures that were not included in the 2009 RH plan's modeling efforts but have since been or are currently being implemented and that could aid in improving visibility conditions are included in this summary and can be found in A.2.1 – A.2.5.

A.1. Control Measures included in the 2009 RH plan

A.1.1. Clean Air Interstate Rule (CAIR)

On March 10, 2005, EPA signed the Clean Air Interstate Rule (CAIR), following a three-year modeling study and cost analysis on SO_2 and NO_X controls (equivalent to a four-factor analysis).

As required by CAIR, Missouri promulgated state rules to implement CAIR. The rules were presented for public hearing at the December 7, 2006, Missouri Air Conservation Commission (MACC) Meeting and they were adopted at the February 1, 2007, MACC Meeting. The rules established a cap and trade system for NO_X and SO_2 emissions, and Missouri sources are included in the national program. The state rules are 10 CSR 10-6.362 *Clean Air Interstate Rule Annual NO_X Trading Program* and 10 CSR 10-6.366 *Clean Air Interstate Rule SO_X Trading Program*. State rule 10 CSR 10-6.362 includes schedules for compliance and unit-level emission allocations for years 2009-2014 and 2015 and beyond. State rule 10 CSR 10-6.366 incorporates by reference the following federal rules:

- 40 CFR 96.206
- 40 CFR 96.207
- 40 CFR 96.208
- 40 CFR 96, subparts BBB promulgated as of April 28, 2006
- 40 CFR 96, subparts CCC promulgated as of April 28, 2006
- 40 CFR 96, subparts DDD promulgated as of April 28, 2006

- 40 CFR 96, subparts FFF promulgated as of April 28, 2006
- 40 CFR 96, subparts GGG promulgated as of April 28, 2006
- 40 CFR 96, subparts III promulgated as of April 28, 2006

The controls in the state rules and the federal rules incorporated by reference have been in effect since their promulgation and will remain in effect, pending the outcome of litigation on EPA's Cross-State Air Pollution Rule (CSAPR).

A table summarizing all SO_2, NO_X, and PM controls installed prior to emission year 2013 on Missouri EGU's that are subject to CAIR is included in Appendix A. It was not included here due to its length. The table was generated from a query of the EPA's Clean Air Markets Division (CAMD) database.

A.1.2. Best Available Retrofit Technology (BART)

In developing the 2009 RH plan (submitted to EPA on August 5, 2009[3]), Missouri prepared a long-term strategy and examined the possible application of BART along with other programs in order to establish reasonable progress goals (RPGs) for Mingo and Hercules Glades. A BART analysis was performed to assure that the 2009 RH plan met the federal RHR requirements. This analysis included BART source development, screen-modeling analyses, and refined modeling. Twenty-six potential BART sources were identified, and twenty-five were eliminated through either screening or refined analyses. As a result, Missouri identified one source that is subject to BART.

The remaining one source, Holcim – Clarksville, entered into a consent agreement with the Missouri Department of Natural Resources, which requires them to limit emissions of SO_2 and NO_X to:

- SO_2—58,787 lb/day using a 30-day rolling average
- NO_X—42,287 lb/day using a 30-day rolling average

The emission limits are to be met as expeditiously as practicable, but no later than four years after approval of Missouri's regional haze plan. The U.S. Environmental Protection Agency granted limited approval of Missouri's regional haze plan on June 26, 2012 (77 FR 38007), including the consent agreement with Holcim – Clarksville. Therefore, Holcim – Clarksville has until June 26, 2016 to comply with the emission limits.

Since the consent agreement included in the 2009 plan, Holcim - Clarksville has discontinued Portland cement manufacturing and hazardous waste fuel burning operations. Remaining operations at the facility include receiving, storing, and shipping. The facility's operating permit (OP2004-002) was reclassified from a Part 70 to a Basic operating permit in 2010. The facility's new SO_2 and NO_X potential emissions are both zero tons per year.

No other sources were found to be subject to BART and, therefore, implementation of an emission trading program, other emission controls or other alternative measure in place of BART are not necessary.

A.1.3. Tier 2

[3] State of Missouri Regional Haze Plan Revision, August 5, 2009 (Available at: http://dnr.mo.gov/env/apcp/sips.htm#regionalhaze)

Tier 2 standards are federal emission standards for passenger cars, light trucks, and larger passenger vehicles. The program is designed to focus on reducing the emissions most responsible for the ozone and PM impact from these vehicles – NO_X and non-methane organic gases, consisting primarily of hydrocarbons and contributing VOCs. The Tier 2 standards reduce new vehicle NO_X levels to an average of 0.07 grams per mile. For new passenger cars and light duty trucks, these standards were phased in starting in 2004, and the standards were fully phased in by 2007. For heavy trucks and similar vehicles, the Tier 2 standards were phased in beginning in 2008, with full compliance in 2009.

During the phase-in period from 2004-2007, all passenger cars and light trucks not certified to the primary Tier 2 standards had to meet an interim average standard of 0.30 g/mi NO_X. During the period 2004-2008, heavy trucks and similar vehicles not certified to the final Tier 2 standards phased in to an interim program with an average standard of 0.20 g/mi NO_X. Those not covered by the phase-in must meet a per-vehicle standard (i.e., an emissions "cap") of 0.60 g/mi NO_X for trucks and 0.09 g/mi for similar vehicles.

A.1.4. Tier 4

EPA's Clean Air Nonroad Diesel Rule (Tier 4) requires stringent pollution controls on diesel engines used in industries such as construction, agriculture, and mining, and it will slash sulfur content of diesel fuel. This rule is the latest in a series of actions that are designed to reduce emissions from nearly every type of diesel vehicle and equipment. This nonroad diesel program combines cleaner engine technologies with cleaner fuel – similar to the on-highway diesel program. The standards cut emissions from nonroad diesel engines by over 90 percent. Nonroad diesel equipment, as described in this rule, accounts for 47 percent of diesel PM and 25 percent of NO_X from mobile sources nationwide.

Sulfur levels were reduced in nonroad diesel fuel by 99 percent from past levels (from approximately 3,000 parts per million (ppm) to 15 ppm in 2010). The lower sulfur fuel also reduces PM from engines in existing nonroad equipment. It makes it possible for engine manufacturers to use advanced clean technologies, similar to catalytic technologies used in passenger cars.

The Tier 4 emission limits are based on engine horsepower and were implemented in the stages depicted in Table 1.

Table 1. Tier 4 emission limits with corresponding implementation years.

Power Category	Model Year
Kw < 19	2008
19 < Kw < 56	2008
56 < Kw < 130	2012
130 < Kw < 560	2011
Kw > 560	2011

A.1.5. NO_X SIP Call

The NO_X SIP call was promulgated to assist downwind ozone areas in attaining the one-hour and 8-hour ozone NAAQS by providing upwind NO_X emission control. This rulemaking was developed through

the EPA's interpretation of the Ozone Transport Assessment Group (OTAG) recommendations and subsequent modeling and cost analysis of NO_X controls to reduce ozone transport. The final NO_X SIP call was published in the *Federal Register* on October 27, 1998.

Missouri's initial rule in response to the NO_X SIP Call, 10 CSR 10-6.350 *Emission Limitations and Emissions Trading of Oxides of Nitrogen*, was adopted by the MACC on April 24, 2003. The rule established an emission limitation of 0.25 lbs NO_X /MMBtu heat input for electric generating units in the eastern one-third of the state and a lower limit of 0.18 lbs NO_X /MMBtu heat input for Labadie, Rush Island, and Meramec power plants. EGUs in the western two-thirds of the state were limited to an emission rate of 0.35 lbs NO_X /MMBtu of heat input. Cyclone boilers (Sibley and Asbury power plants) that burn tire-derived fuels are allowed to meet 0.68 lbs NO_X /MMBtu heat input. Implementation of the NO_X SIP Call began on May 1, 2004.

On April 21, 2004, the EPA finalized the second phase of NO_X SIP call. Phase II of the SIP call excluded the portion known as the "coarse grid" (the western 2/3 of Missouri) from the NO_X SIP Call, defined the area of the eastern 1/3 of Missouri to include the same counties as established in 10 CSR 10-6.350, with the one exception of not including Phelps County, and revised the cap for NO_X emissions from the previous statewide budget of 114,532 tons of NO_X per ozone season to a partial state budget of 61,406 tons of NO_X per ozone season in the eastern 1/3 of Missouri. The budget assumed control levels of 0.15 lbs/MMBtu for electric generating units, 82 percent emissions reductions for large natural gas-fired stationary internal combustion engines, 90 percent emissions reductions for diesel and dual fuel stationary internal combustion engines, 60 percent emissions reductions for non-utility boilers and turbines, and 30 percent emissions reductions for cement manufacturing plants. Small cogeneration units were excluded from the NO_X SIP Call. Small cogeneration units are units that supply one-third or less of their potential electrical output capacity, or 25 megawatts or less, to any utility power distribution system for sale.

The department's Air Pollution Control Program developed 10 CSR 10-6.360 *Control of NO_X Emissions from Electric Generating Units and Non-Electric Generating Boilers*, 10 CSR 10-6.380 *Control of NO_X Emissions from Portland Cement Kilns*, and 10 CSR 10-6.390 *Control of NO_X Emission from Large Stationary Internal Combustion Engines*. This set of three rules constitutes Missouri's response to EPA's NO_X SIP Call. These rules were presented at public hearing on April 28, 2005 and were adopted at the May 26, 2005 MACC meeting. The state rules include schedules for compliance, sources affected by the rule and emissions limitations.

State rules 10 CSR 10-6.350 *Emission Limitations and Emissions Trading of Oxides of Nitrogen* and 10 CSR 10-6.360 *Control of NO_X Emissions from Electric Generating Units and Non-Electric Generating Boilers* will be superseded by CAIR and eventually CSAPR, when the legal proceedings against CSAPR have been adjudicated.

CAIR and CSAPR do not, however, regulate portland cement kilns or large stationary internal combustion engines, therefore state rules 10 CSR 10-6.380 Control of NO_X *Emissions from Portland Cement Kilns* and 10 CSR 10-6.390 *Control of NO_X Emission from Large Stationary Internal Combustion Engines* are not superseded by CAIR or CSAPR.

Ongoing air pollution control programs, as described above, are sufficient to meet the 2018 Regional Progress Goals for the Mingo and Hercules Glades Class I areas. These ongoing programs such as CAIR, CSAPR, or BART have been demonstrated to be very cost-effective in reducing the visibility impairment in Missouri's Class I areas.

A.2. Additional Measures not included in the 2009 RH plan

Additional measures not explicitly included in the modeling demonstration in the 2009 RH plan but that could aid in reducing visibility impairment and in achieving the RPGs in Missouri's Class I areas are described below. These additional control measures include the 2010 SO_2 NAAQS Attainment Demonstrations, Illinois Multi-Pollutant Regulation, Federal Tier 3 vehicle emission and fuel standards, and the 2007 Federal Heavy-Duty Highway Rule.

A.2.1. 2010 SO_2 NAAQS Attainment Demonstrations

Missouri is in the process of preparing implementation plans or attainment demonstrations to bring the portions of Jackson and Jefferson counties designated as nonattainment under the 2010 SO_2 NAAQS into attainment. As part of the attainment demonstration, extensive dispersion modeling must be performed to evaluate nearby SO_2 emitting sources, their potential impacts on the nonattainment area must be identified, and any necessary control measures must be determined in order to demonstrate compliance. In doing so, it is expected that significant reductions in SO_2 emissions will be achieved prior to the attainment date for this standard, October 4, 2018. Any reductions in SO_2 emissions will greatly benefit visibility conditions throughout Missouri and nearby areas; as mentioned previously, SO_2 is a large contributor to visibility impairment.

A.2.2. Illinois Multi-Pollutant Regulation

In 2006, the Illinois Pollution Control Board and the Joint Committee on Administrative Rules approved a multi-pollutant standard (MPS) rule. This multi-pollutant rule resulted in measurable reductions in mercury, SO_2, and NO_X emissions. The rule targeted the three largest coal-fired power plant companies in Illinois: Midwest Generation, Ameren, and Dynegy. These three companies represent 88 percent of Illinois' 17,007 Megawatts of electric generating capacity from coal-fired plants. By implementation of this rule, the Illinois Environmental Protection Agency estimated the total emissions reduction from all three power companies is 233,600 tons per year of SO_2 and 61,434 tons per year of NO_X. These significant emission reductions in Illinois can be expected to improve visibility in Missouri as well.

A.2.3. Tier 3

On April 28, 2014, EPA finalized Tier 3 motor vehicle emission and fuel standards (79 FR 23414). The Tier 3 vehicle standards reduce both tailpipe and evaporative emissions from passenger cars, light-duty trucks, medium-duty passenger vehicles, and some heavy-duty vehicles. The gasoline sulfur standard will make emission control systems more effective for both existing and new vehicles, and will enable more stringent vehicle emissions standards. The Tier 3 standards are scheduled to start in 2017.

Compared to current standards, the non-methane organic gases (NMOG) and NO_X, presented as NMOG+NO_X, tailpipe standards for light-duty vehicles represent approximately an 80% reduction from

today's fleet average and a 70% reduction in per-vehicle particulate matter (PM) standards. Heavy-duty tailpipe standards represent about a 60% reduction in fleet average NMOG+NO_X and per-vehicle PM standards.

The evaporative emissions program represents a 50 percent reduction from current standards and applies to all light-duty and onroad gasoline powered heavy-duty vehicles.

The gasoline sulfur standards limit federal gasoline to no more than 10 parts per million (ppm) sulfur on an annual average basis.

A.2.4. 2007 Heavy-Duty Highway Rule (40 CFR Part 86, Subpart P)

In this regulation, EPA set a PM emissions standard for new heavy-duty engines of 0.01 grams per brake horsepower-hour (g/bhp-hr), which took full effect for diesel engines in the 2007 model year. This rule also included standards for NO_X and non-methane hydrocarbons (NMHC) of 0.20 g/bhp-hr and 0.14 g/bhp-hr, respectively. These diesel engine NO_X and NMHC standards were successfully phased in together between 2007 and 2010. The rule also required that sulfur in diesel fuel be reduced to facilitate the use of modern pollution-control technology on these trucks and buses. The EPA required a 97 percent reduction in the sulfur content of highway diesel fuel -- from levels of 500 ppm (low sulfur diesel) to 15 ppm (ultra-low sulfur diesel). These requirements were successfully implemented on the timeline in the regulation.

A.3. Facilities with Expected Emission Changes to Occur between 2012-2017

The Air Program's Air Quality Analysis Section gathered this information to assist EPA in their development of the 2011 base year Modeling Platform, which will be used to forecast emissions for several EPA projects (see http://www.epa.gov/ttnchie1/emch/). Facilities with significant expected changes listed are based on information from the Air Program's permit, planning, and enforcement staff, and Energy Information Administration (EIA) reports submitted by electric generation facilities. These expected changes are detailed in Table 2. The changes listed herein may not be final action and therefore subject to change. These changes were not included in the 2009 RH plan's modeling demonstration, as they are not yet permanent and enforceable. These changes are included for informational purposes only. Total emission changes are approximated for each facility, and the total change in emissions from 2012 to 2017 is estimated to be 36,000 tons of emissions reduced.

Table 2. Facilities with Expected Emission Changes to Occur between 2012-2017.

Expected Facility Changes - EGU's					
FIPS	**Facility**	**Permit #**	**Project #**	**Notes**	**Expected Emission Change**
175-0001	Thomas Hill	042013-002		Specifies the use of refined coal for Unit 3 starting in 2014. A specific reduction is not listed other than possible reduction in mercury and PM	Estimated PM/HAP emission reductions ~ 10 tons.
175-0002	Thomas Hill		2012-05-075	Specified the use of powdered activated carbon for units 1 and 2 starting in 2014 was submitted by the facility to control mercury, but the project did not require a permit.	Estimated PM/HAP emission reductions ~ 10 tons.
201-0017	Sikeston Power Station		2013-01-013	The wet scrubber on unit 1 was shutdown in 1998 when the company switched to low sulfur coal. The wet scrubber will start up again in 2015. This is according to an application, that did not require a permit.	Reported emissions in 2012 were 5,200 tons of SO2, after the change there is a reduction estimate of ~3,000 tons in 2015
097-0001	Empire District Electric Co. - Asbury Plant	022012-010		The addition of a dry scrubber and powdered activated carbon based to EU # 7 (Boiler) starting in 2014, the permit also notes the baghouse at the facility will continue to operate	Last reported emissions were 6,200 tons of SO2 in 2012, with an SO2 reduction estimate of ~4,000 tons in 2014 after the change
151-0002	Central Electric Power Cooperative, Chamois			Facility shut down in September 2013.	Reported emissions in 2011 were 5,500 tons total chargeable, which dropped by almost half in 2012 to 2,500 tons chargeable. Total reduction estimate for all pollutants is to 1,000 tons in 2013 and zero tons in 2014
083-0001	Kansas City Power and Light Co, Montrose Generating Station			P06 - Boiler Unit 1 will be retired in 2016 per the EIA	In 2012, the facility reported 2,400 tons of SO2, 1,100 tons of NOx, and 50 tons of PM10. The expected reduction estimate is 3,500 tons in 2016
095-0031	Kansas City Power and Light Co, Sibley Generating Station			EU# 5A - Boiler 1 and EU# 5B - Boiler 2 will be retired in 2017 per the EIA	In 2012, the facility reported (from boilers 1 & 2) 700 tons of SO2 and 300 tons of NOx. The expected reduction estimate is 1,000 tons in 2017

Expected Facility Changes - Non-EGU's					
FIPS	**Facility**	**Permit #**	**Project #**	**Notes**	**Expected Emission Change**
031-0053	Procter & Gamble	092012-006		Facility will be adding 3 natural gas boilers in 2014	Estimate around 100 tons per year increase in emissions (the majority being NOx)
127-0001	BASF		2013-04-015	Facility will shut down its coal boilers and install natural gas boilers. This project has not been permitted yet; the application for this project was received in April of 2013	The facility reported 1,300 tons of SO2 and 400 tons of NOx in 2012. The expected reduction estimate is 1,700 tons by 2015
095-0017	Folgers			The Kansas City plant is shutdown as of March 2012	The facility reported 600 tons of total chargeable emissions in 2010. This dropped down to 14 tons in 2012 for a partial year of operation then reduces to zero in 2013.
099-0003	Doe Run Herculaneum			The smelter shutdown Dec. 31, 2013.	The facility reported 18,000 tons of SO2 emissions in 2012. The expected reduction estimate is then approximately 18,000 tons (remaining sources ~50 tons).
093-0009	Doe Run Buick			The facility will be adding a wet scrubber to EP-08 starting in 2014.	The facility reported 2,800 tons of SO2 emissions in 2012. The expected reduction estimate is 2,000 tons.
023-0062	Nordyne - Poplar Bluff			Nordyne will be closing their Poplar Bluff and Boonville facilities by the end of 2015, according to their website. http://www.nordyneinfo.com/	The sites reported 60 tons of VOC emissions combined for 2012, which results in an expected reduction estimate of 60 tons in 2016.
053-0021	Nordyne - Boonville				
Total Estimated Emissions Reduction for all changes listed in Table (from the 2012 level until the last change takes effect in emission year 2017) : 36,000 tons of emissions reduced					

B. Emissions Reductions from Regional Haze SIP Strategies

Section 51.308(g)(2)
A summary of the emissions reductions achieved throughout the State through implementation of the measures described in paragraph (g)(1) of this section.

As in the 2009 RH plan submittal, this periodic update is focused on one of the largest contributors to visibility impairment, sulfates. Overall SO_2 emissions have decreased in Missouri. The main source category related to SO_2 emissions is electric generating units (EGUs). The information presented here only captures available data for EGUs (units with output greater than 25 Megawatts) that are required to operate Continuous Emission Monitoring Systems (CEMS) and to report emissions to EPA's Clean Air Markets Division (CAMD); therefore, this analysis does not capture reductions in emissions from units not required to operate CEMS.

The reductions in SO_2 emissions from EGUs during this period resulted from many factors, including installation of controls, units switching to cleaner fuels, load shifting from dirtier units to cleaner units, and an overall decrease in demand for generation. EPA's CAMD data for Acid Rain Program units from 2007 through 2012 indicate that reductions in SO_2 emissions appear to be maintained, and further reductions achieved, even though heat input to these units increased between 2009 and 2011.

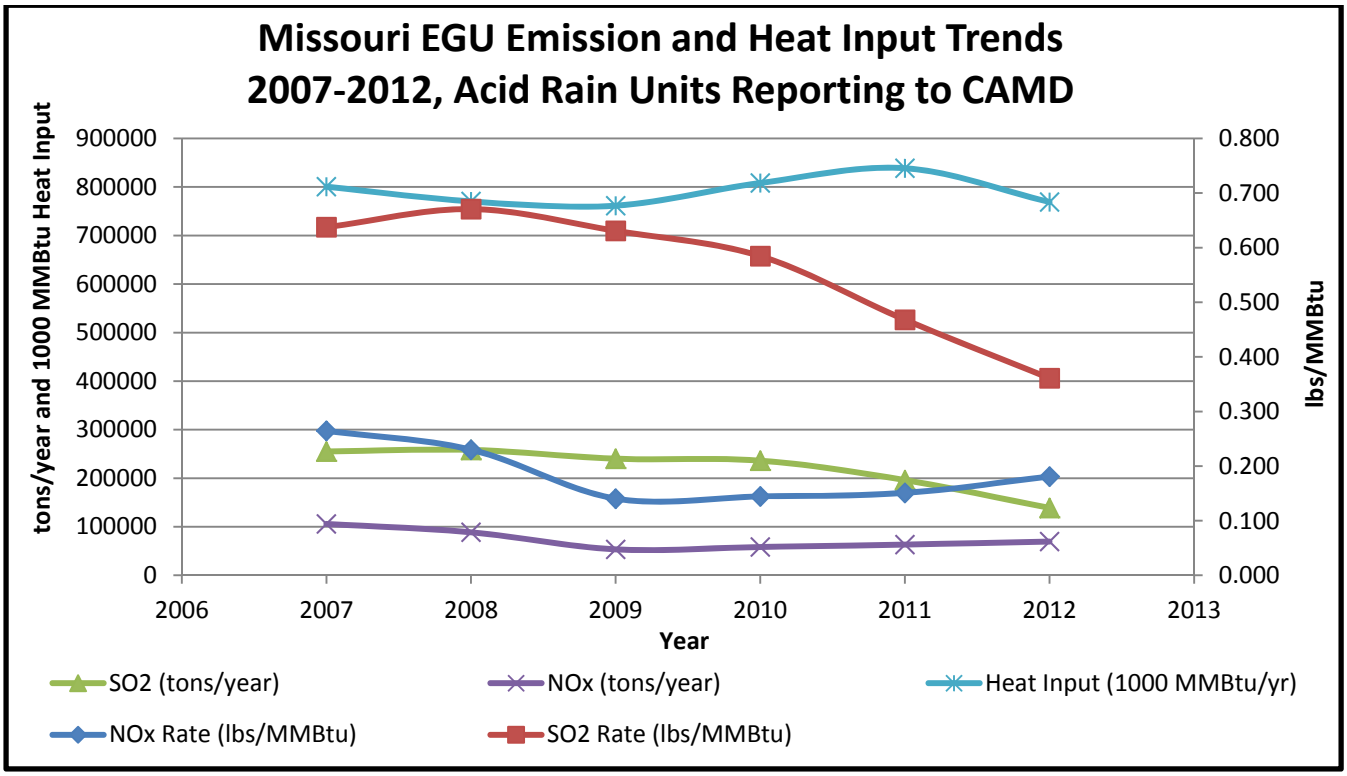

Figure 2. Missouri's EGU Trends for 2007-2012, from EPA's Clean Air Markets Division (CAMD) online database. http://ampd.epa.gov/ampd/

Figure 2 depicts the trends for Missouri's Acid Rain Program units that report annual emissions to CAMD. Between 2007 and 2011, heat input to these units actually increased from approximately

800,610,888 MMBtu to 838,655,089 MMBtu. However, actual SO_2 emissions from these units decreased from 255,201 tons annually in 2007 to 138,805.42 tons annually in 2012, a decrease of 45.6 percent. Furthermore, the average SO_2 emission rate from these units decreased from 0.637 lbs SO_2/ MMBtu in 2007 to 0.361 lbs SO_2/ MMBtu in 2012, a decrease of 43.4 percent. The reductions in emissions demonstrate that even with an increase in demand for power, as evidenced by the increased heat input to these units, a significant reduction to overall SO_2 emissions occurred due to the installation of controls and the use of cleaner burning fuels.

During the period of 2009-2011, SO_2 emissions fell from 240,201.92 tons to 196,255.62 tons, respectively. For this same time period, heat input data for Missouri went up slightly, from 761,579,014 MMBtu to 838,655,089 MMBtu, indicating SO_2 emission reductions and power demand were not influenced by changing economic conditions during this period.

As indicated in Table 3, NOx emissions decreased from 105,921 tons in 2007 to 69,562 tons in 2012. NOx emission rates also depict a decrease from 2007 to 2012, from 0.265 lbs NOx/MMBtu to 0.181 lbs NOx/MMBtu, respectively.

As additional controls are installed to meet the stringent requirements of the Cross State Air Pollution Rule (CSAPR), the Industrial Boiler Maximum Achievable Control Technology (MACT) regulation, and the Mercury and Air Toxics Standard (MATS), emission rates may decrease even further. Since sulfates have been shown to be the predominant species of concern to visibility impairment at both Hercules Glades and Mingo during the first round of regional haze planning, visibility improvements from reduced sulfate contribution should continue into the future even though demand for power and heat input to these units may increase. Table 3 summarizes these trends for Missouri.

Table 3. Missouri's EGU Trends for 2007-2012. As depicted graphically in Figure 2. From http://ampd.epa.gov/ampd/

Missouri Emission Trends from CAMD					
Year	SO2 (tons)	NOx (tons)	Heat Input (MMBtu)	SO2 Rate (lbs/MMBtu)	NOx Rate (lbs/MMBtu)
2007	255,202	105,921	800,610,888	0.638	0.265
2008	258,269	88,600	770,260,872	0.671	0.230
2009	240,202	53,475	761,579,014	0.631	0.140
2010	236,217	58,364	808,226,597	0.585	0.144
2011	196,256	63,278	838,655,089	0.468	0.151
2012	138,805	69,562	769,110,993	0.361	0.181

As evidenced by the trend graph, emission rates for SO_2 and NO_X have declined over the past 5 years and are expected to continue declining as more federal regulations are implemented in the future. This reinforces the determination that Missouri's Class I areas will meet the established RPGs in the required timeframe.

C. Visibility Progress

Section 51.308(g)(3)
For each mandatory Class I Federal area within the State, the State must assess the following visibility conditions and changes, with values for most impaired and least impaired days expressed in terms of 5-year averages of these annual values.

(i) The current visibility conditions for the most impaired and least impaired days;

(ii) The difference between current visibility conditions for the most impaired and least impaired days and baseline visibility conditions;

(iii) The change in visibility impairment for the most impaired and least impaired days over the past 5 years.

The goal of the Regional Haze Rule is to restore natural visibility conditions to the 156 Class I areas identified in the 1977 CAA Amendments. For each Class I area, there are three metrics of visibility that are part of the determination of reasonable progress:

- Baseline Conditions
- Natural Conditions
- Current Conditions

The RHR at 40 CFR Section 51.308(d)(1) requires states to establish RPGs (in deciviews) for each Class I area within the state that provide for reasonable progress towards achieving natural visibility. In developing the 2009 RH plan (submitted to EPA on August 5, 2009,[4]), Missouri prepared a long-term strategy and examined the possible application of BART along with other programs in order to establish RPGs for Mingo and Hercules Glades.

IMPROVE monitoring sites were required to have three valid years of data, during the five-year (2000-2004) baseline period, from which the baseline conditions were constructed. As provided in the 2009 RH plan, Missouri established baseline visibility conditions for each area. Missouri elected to perform all visibility projections using the revised IMPROVE algorithm. The natural conditions (for 2064) were estimated using the EPA's document entitled, "Guidance for Tracking Progress under the Regional Haze Rule," as released September 2003.[5] The natural visibility conditions for both Class I areas for the twenty percent worst visibility days were set, using EPA default conditions, at 11.3 dv. Also established in the 2009 RH plan is a uniform rate of progress glidepath, which is a linear visibility glidepath in deciviews from the observed 2000-2004 baseline for the worst 20 percent days to the set 2064 Natural Conditions. It is with these calculations and the model predictions that Missouri developed RPGs for each Class I area, as described in the 2009 RH plan.

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[4] State of Missouri Regional Haze Plan Revision, August 5, 2009 (Available at: http://dnr.mo.gov/env/apcp/sips.htm#regionalhaze)

[5] EPA's "Guidance for Tracking Progress under the Regional Haze Rule," September 2003 (Available at: http://www.epa.gov/ttn/oarpg/t1/memoranda/rh_tpurhr_gd.pdf)

Baseline conditions, natural conditions, and the established 2018 RPGs, are detailed in Table 4. Site-specific data analysis was performed to evaluate reasonable progress and to predict whether RPGs for 2018 will likely be met. These data and trend analyses are detailed in the following paragraphs. All data utilized in the following analyses are publicly available through the Western Regional Air Partnership's (WRAP) Technical Support System (TSS) website, http://vista.cira.colostate.edu/tss/Results/HazePlanning.aspx. Tables of the underlying data for the following charts are also included in Appendix A. Underlying Data Tables, for ease of reference.

Visibility conditions are typically measured using the unit of deciview. A deciview is a measurement of haze that gauges the impact air pollutants have on visibility. A reading of zero deciviews indicates clear conditions with no visibility impairment. The more deciviews measured, the more visibility impairment, which limits the distance one can see. Another method of measuring visibility conditions is light extinction. The extinction coefficient is a measure of the ability of particles or gases to absorb and scatter photons from a beam of light. It is a number that is proportional to the number of photons removed from the sight path per unit length, the unit for this is an inverse Megameter (Mm^{-1}). A higher measured extinction coefficient means a higher level of visibility impairment.

The technical analyses contained in this plan only cover Missouri's Class I areas (and the protocol site); however, the emission reductions and visibility improvements that have already been achieved and future emission reductions expected to occur in Missouri will also benefit visibility conditions at nearby areas in other states. The logic applied in this regard concludes that if current and expected emission reductions from Missouri sources are great enough for Missouri's Class I areas to achieve their reasonable progress goals in 2018, then Missouri's impact would be even less in other states' Class I areas and therefore would not hinder the attainment of their RPGs.

Table 4. Established 20% Worst Days Visibility Conditions for Missouri Class I Areas.

Federal Class I Area	Established Baseline Conditions (dv) (2000-2004)	Established 2064 Natural Conditions (dv)	Established 2018 RPGs (Modeled Predictions) (dv)	Expected to Meet 2018 RPGs?
Mingo	28.02	11.3	23.71	Yes
Hercules Glades	26.75	11.3	23.06	Yes

C.1. Area Specific Information and Analysis

C.1.1 Mingo National Wildlife Refuge

In order to determine reasonable progress for an area, a baseline condition must be established as a starting point. The IMPROVE monitor located in Mingo National Wildlife Refuge began sampling all pollutants that affect visibility on May 24, 2000. Sampling data taken from Mingo is quality assured by staff at Colorado State University (CSU) on behalf of the Air Program. Staff at CSU noticed a decrease in trends of the Organic Carbon (OC) and Elemental Carbon (EC) concentrations, (both are categories of species measured as fine particulate matter, $PM_{2.5}$) at Mingo that was not noticed at any neighboring

sampling sites. It was later discovered that there was a monitor inlet clogging problem associated with a particular inlet design that was difficult to clean. Because of the clogged Module C Inlet, carbon data was not available from June 2000 to January 2002. The resolution was a substitution protocol developed by Warren White using organic mass hydrogen (OMH) to develop a surrogate for organic mass carbon (OMC). Data filling was used to obtain sufficient data so that three years of valid data were available from which baseline conditions could be calculated. Mingo monitoring data for 2005 and 2012 are currently unavailable on the technical support site, due to completeness and quality assurance issues; therefore, they could not be included in this analysis.

The baseline condition for visibility for the twenty percent worst sampling days was estimated at 28.02 dv. The established baseline condition for the twenty percent best days is 13.76 dv. The natural condition for the worst days is set at 11.3 dv using EPA default conditions. As detailed in the 2009 RH plan, the modeled prediction for 2018 was adopted as the RPG for Mingo at 23.71 dv for the worst sampling days. Monitored data available through the WRAP TSS, as both annual and five-year averages depict a downward trend toward the RPG. The goal for the twenty percent best sampling days is to show no degradation in visibility conditions from the baseline, and the available monitored data for this first planning period show no degradation, and in fact show improvement.

The following figures depict trends for the Mingo Class I area for visibility on the best and worst 20% sampling days. Trends for all speciated pollutants are analyzed by mass concentration and light extinction, for the 20% best and worst days, in order to properly characterize the conditions at Mingo.

The following table is a summary of visibility conditions including five-year averages for this first planning period, which breaks out the individual species as well as total light extinction, and deciviews. As shown in the table, there is a noticeable downward trend in sulfate measurements as well as in total light extinction and deciviews. This table is available on the WRAP TSS. These trends are also depicted graphically in the figures following the corresponding tables.

Table 5. Mingo Visibility Conditions Reasonable Progress Summary Table – Worst 20% Days

Class I Area Visibility Summary: Mingo NWRW, MO Class I area **Visibility Conditions:** Worst 20% Days **Reasonable Progress Summary**					
	2000-04 Baseline Conditions (Mm^{-1})	2005-09 Progress Period (Mm^{-1})	2006-10 Progress Period (Mm^{-1})	2007-11 Progress Period (Mm^{-1})	2008-12 Progress Period (Mm^{-1})
Sulfate	104.6	93.7	84.6	75.0	63.5
Nitrate	27.2	12.5	15.9	19.9	22.2
Organic Carbon	20.5	22.6	23.9	24.3	22.2
Elemental Carbon	5.5	6.4	6.3	6.1	5.6

Fine Soil	1.4	2.0	2.0	1.7	1.6
Coarse Material	6.5	7.4	7.3	6.6	6.1
Sea Salt	0.2	0.3	0.3	0.3	0.3
Total Light Extinction	177.9	156.8	152.5	145.9	133.6
Deciview	28.02	27.1	26.8	26.4	25.7

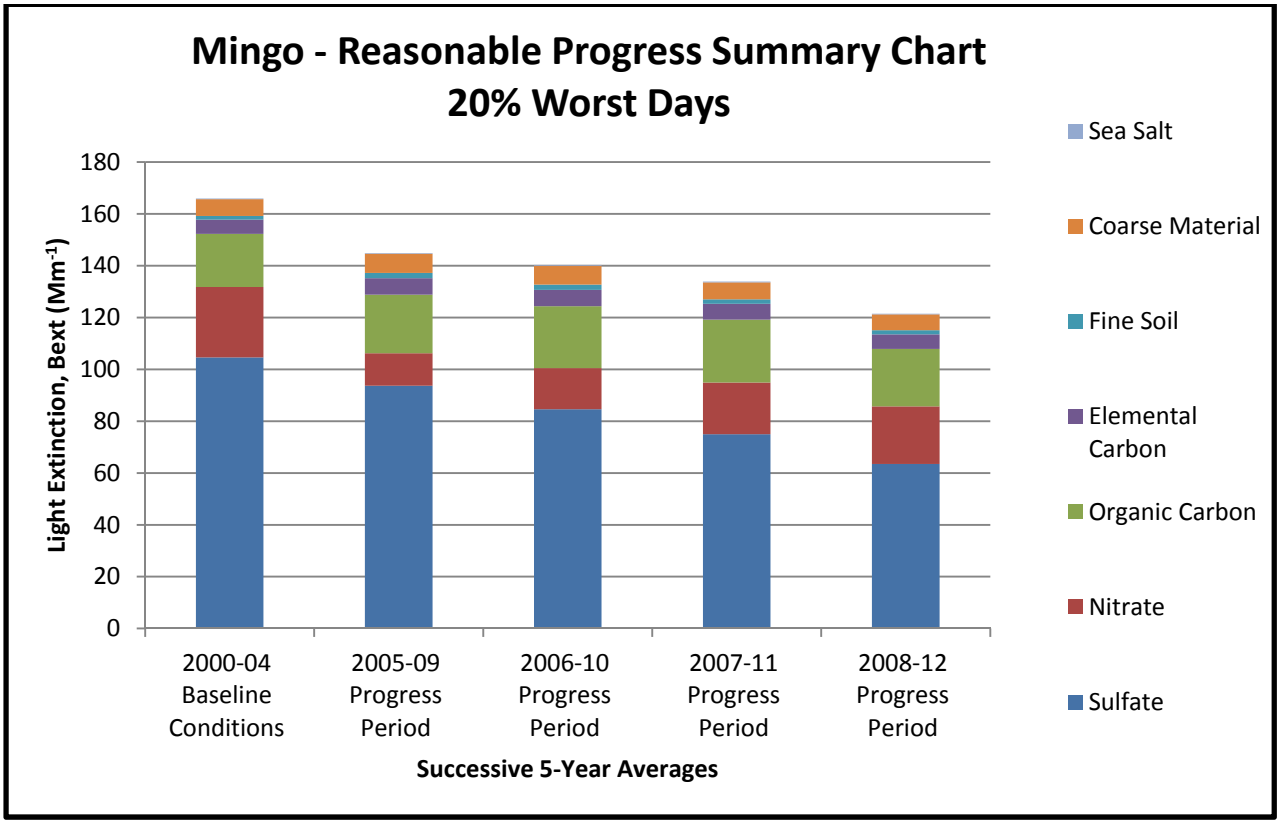

Figure 3. Mingo's Reasonable Progress Summary Chart –Worst 20% Days

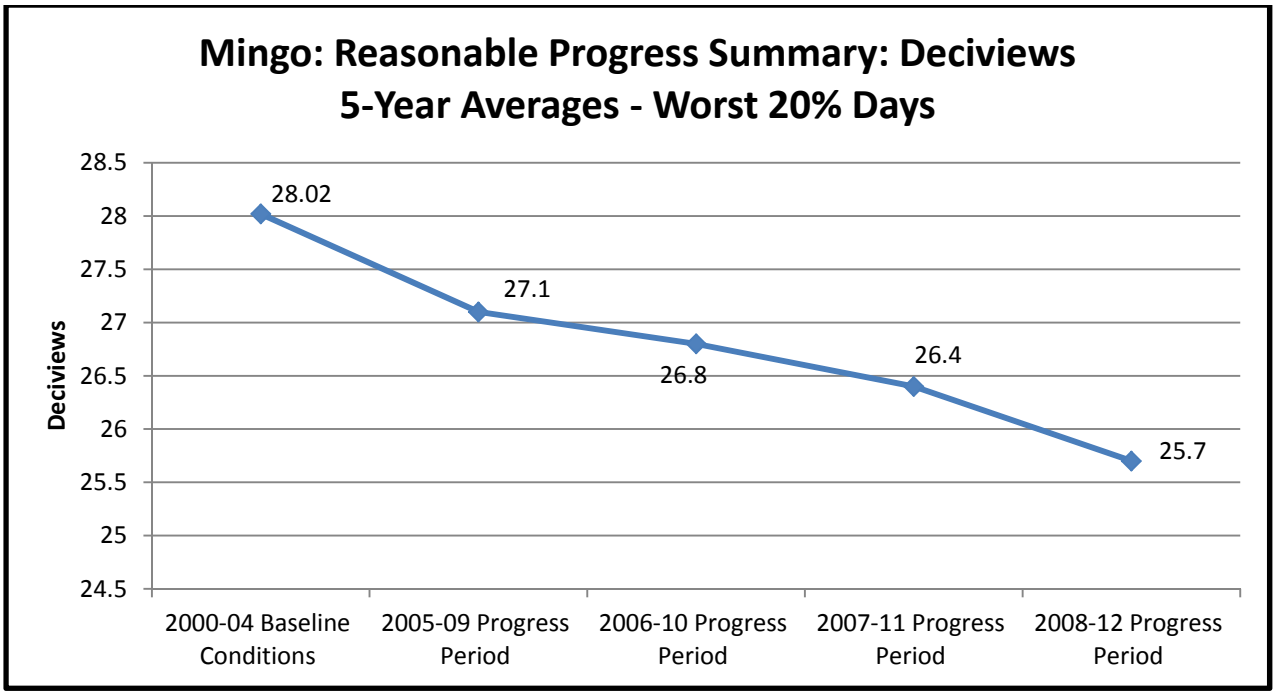

Figure 4. Mingo's Reasonable Progress Summary: Deciviews - 5-Year Averages-Worst 20% Days

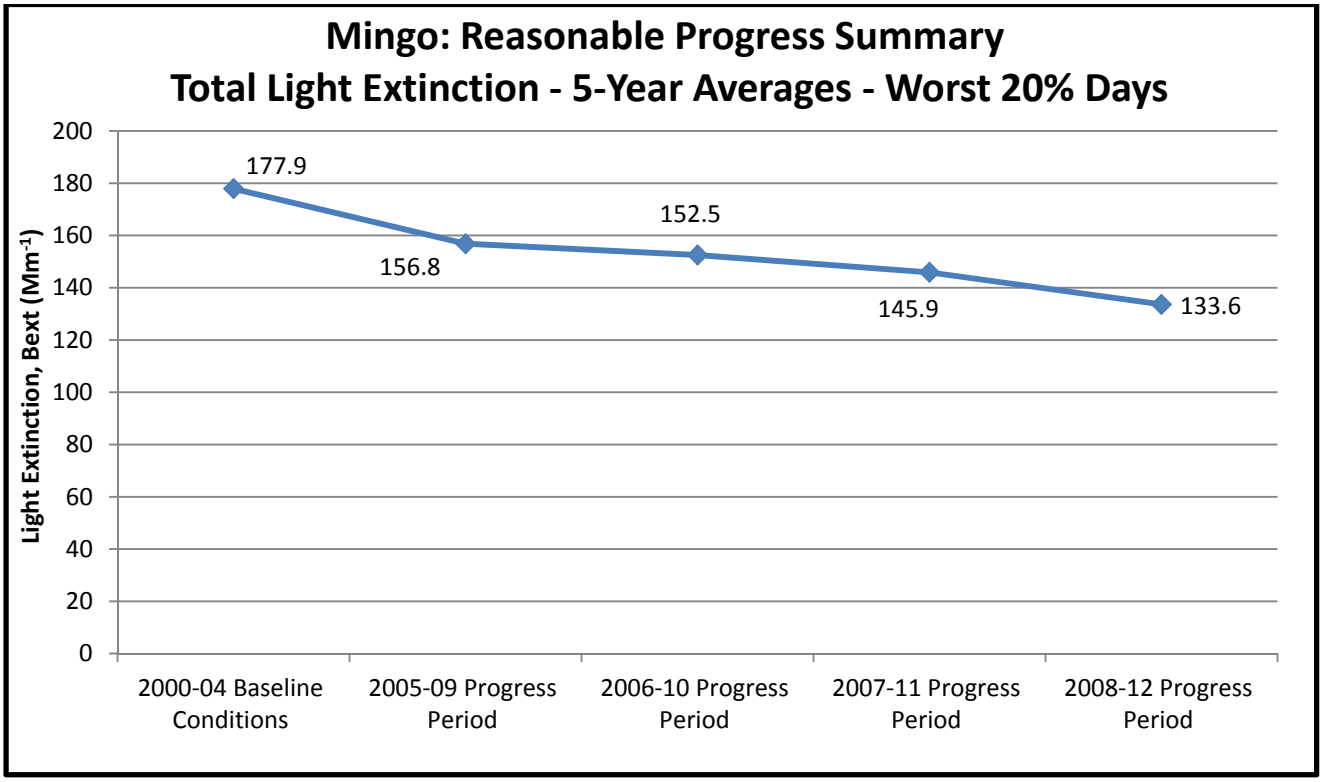

Figure 5. Mingo's Reasonable Progress Summary: Total Light Extinction – 5-Year Averages-Worst 20% Days

Table 6. Mingo Visibility Conditions Reasonable Progress Summary Table – Best 20% Days

Class I Area Visibility Summary: Mingo NWRW, MO Class I area					
Visibility Conditions: Best 20% Days					
Reasonable Progress Summary					
	2000-04 Baseline Conditions	**2005-09 Progress Period**	**2006-10 Progress Period**	**2007-11 Progress Period**	**2008-12 Progress Period**
Sulfate	13.8	13.6	13.7	12.7	12.2
Nitrate	4.4	4.2	3.9	3.7	3.1
Organic Carbon	6.3	5	5	5	4.8
Elemental Carbon	2.3	2.1	2	1.9	1.8
Fine Soil	0.4	0.5	0.5	0.5	0.5
Coarse Material	3.2	3.2	3.1	3.3	3
Sea Salt	0.1	0.2	0.2	0.2	0.2
Total Light Extinction	42.5	41	40.6	39.3	37.6
Deciview	14.3	13.9	13.8	13.5	13.1

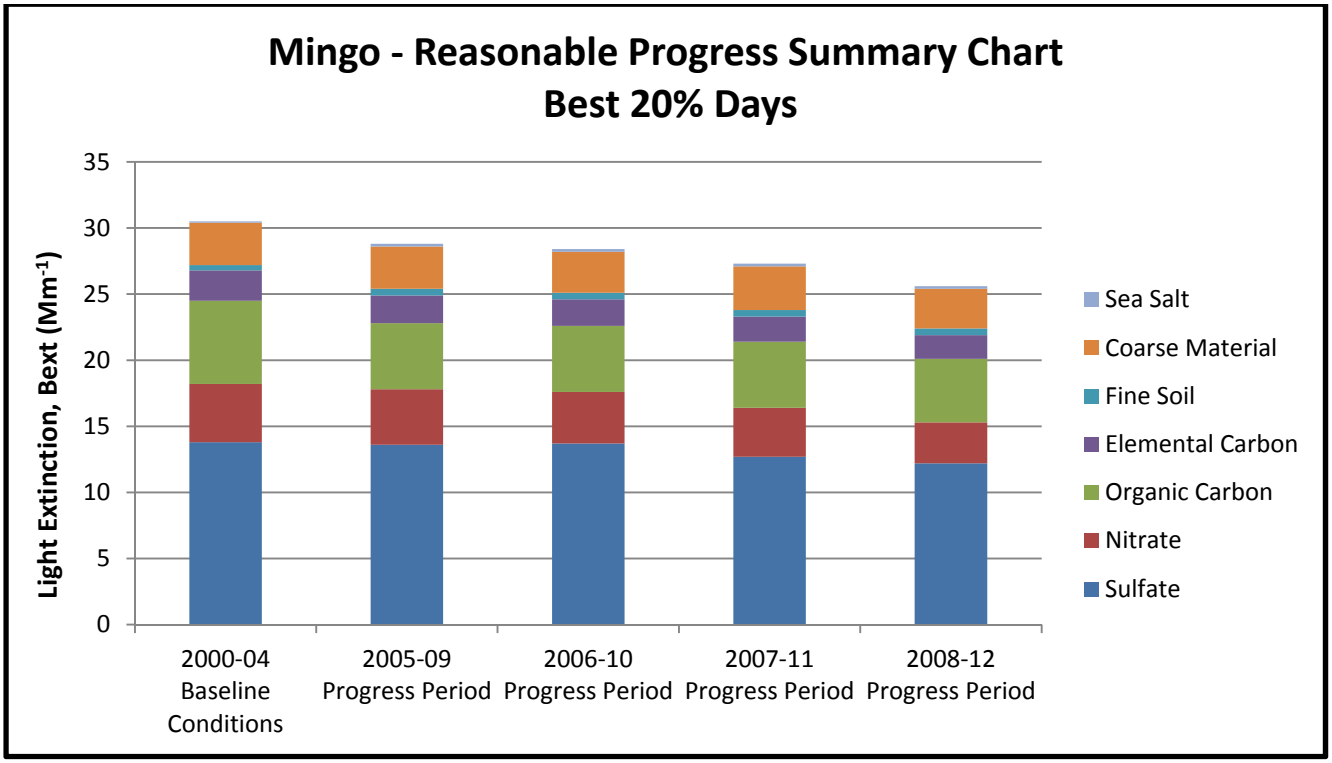

Figure 6. Mingo's Reasonable Progress Summary Chart –Best 20% Days

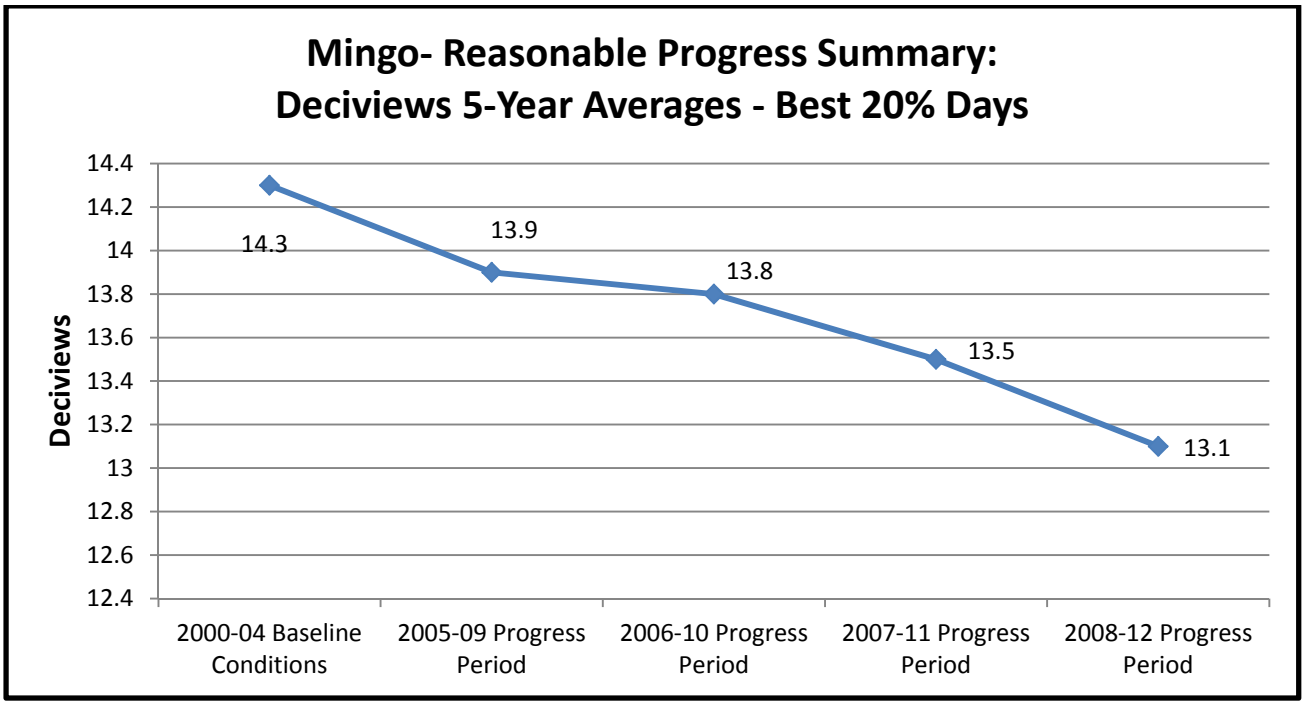

Figure 7. Mingo's Reasonable Progress Summary: Deciviews – 5-Year Averages-Best 20% Days

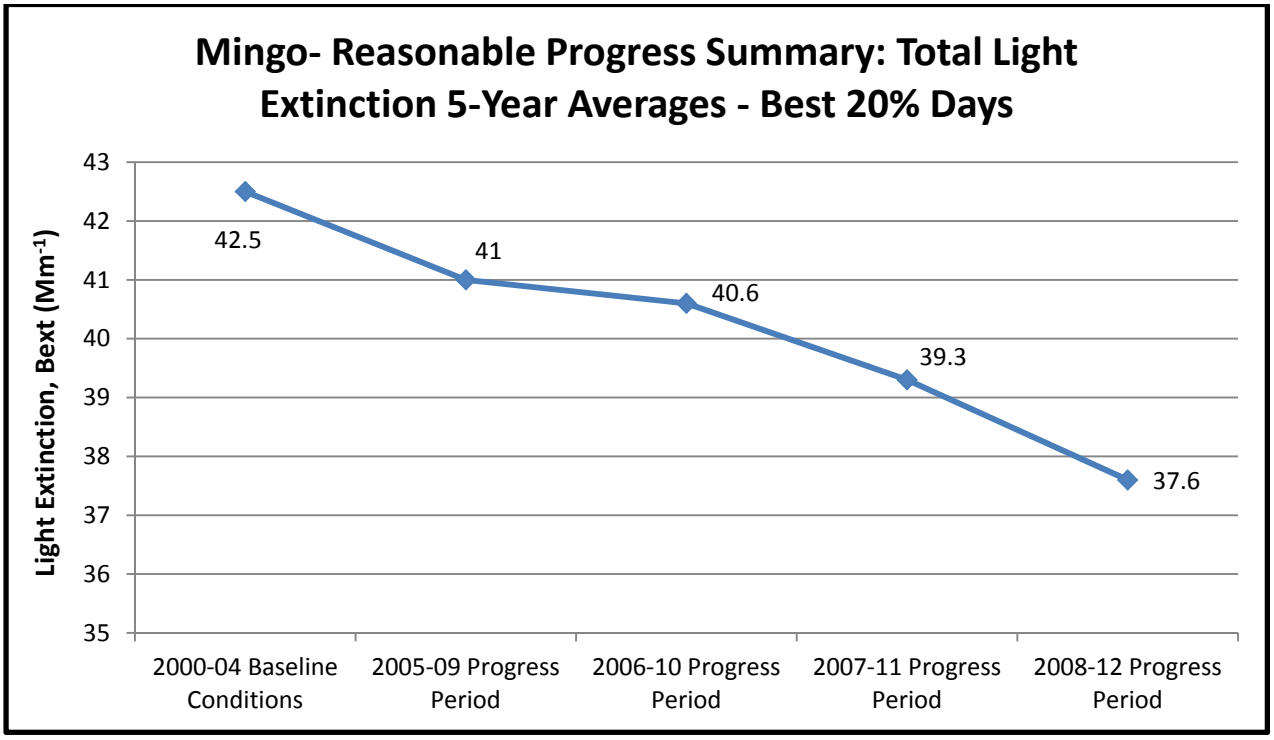

Figure 8. Mingo's Reasonable Progress Summary: Total Light Extinction – 5-Year Averages-Best 20% Days

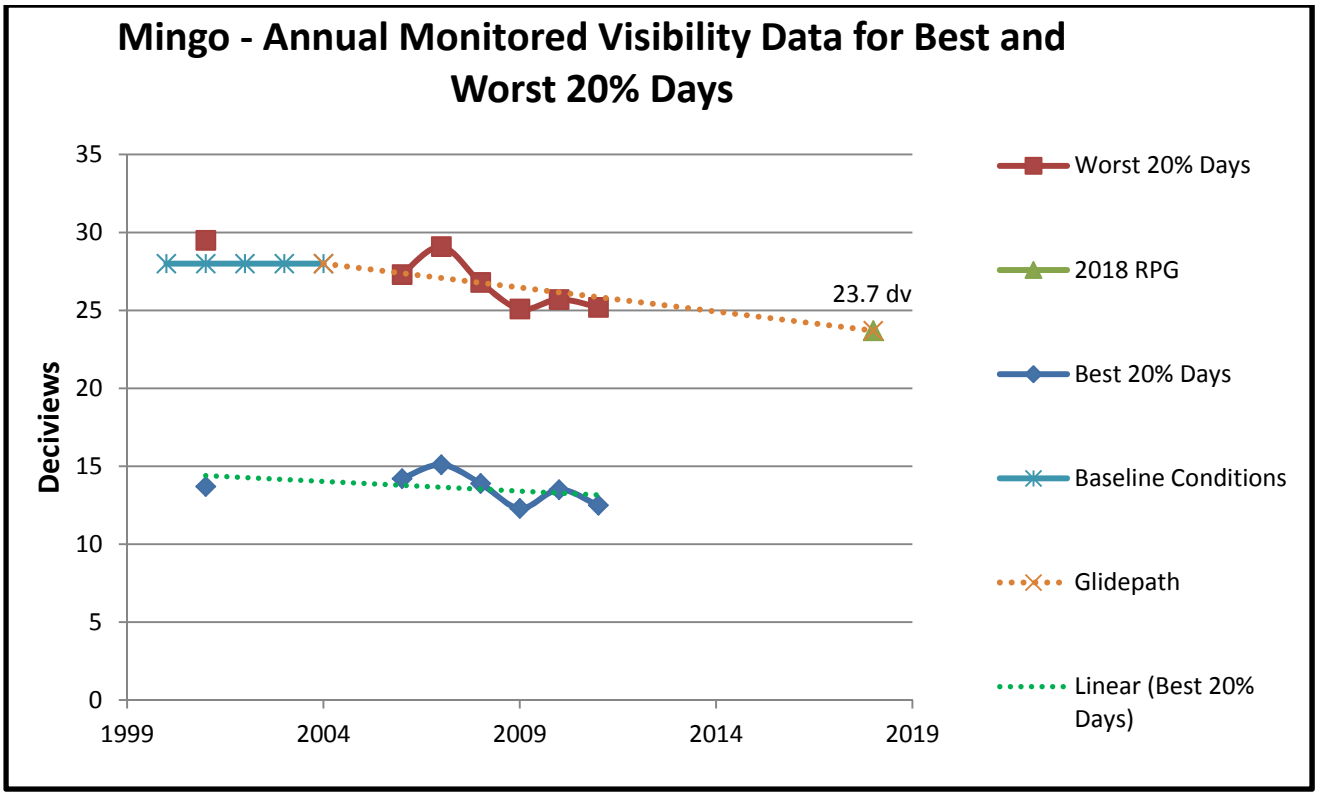

Figure 9. Mingo's Annual Monitored Visibility Data with Glidepath to 2018 RPGs

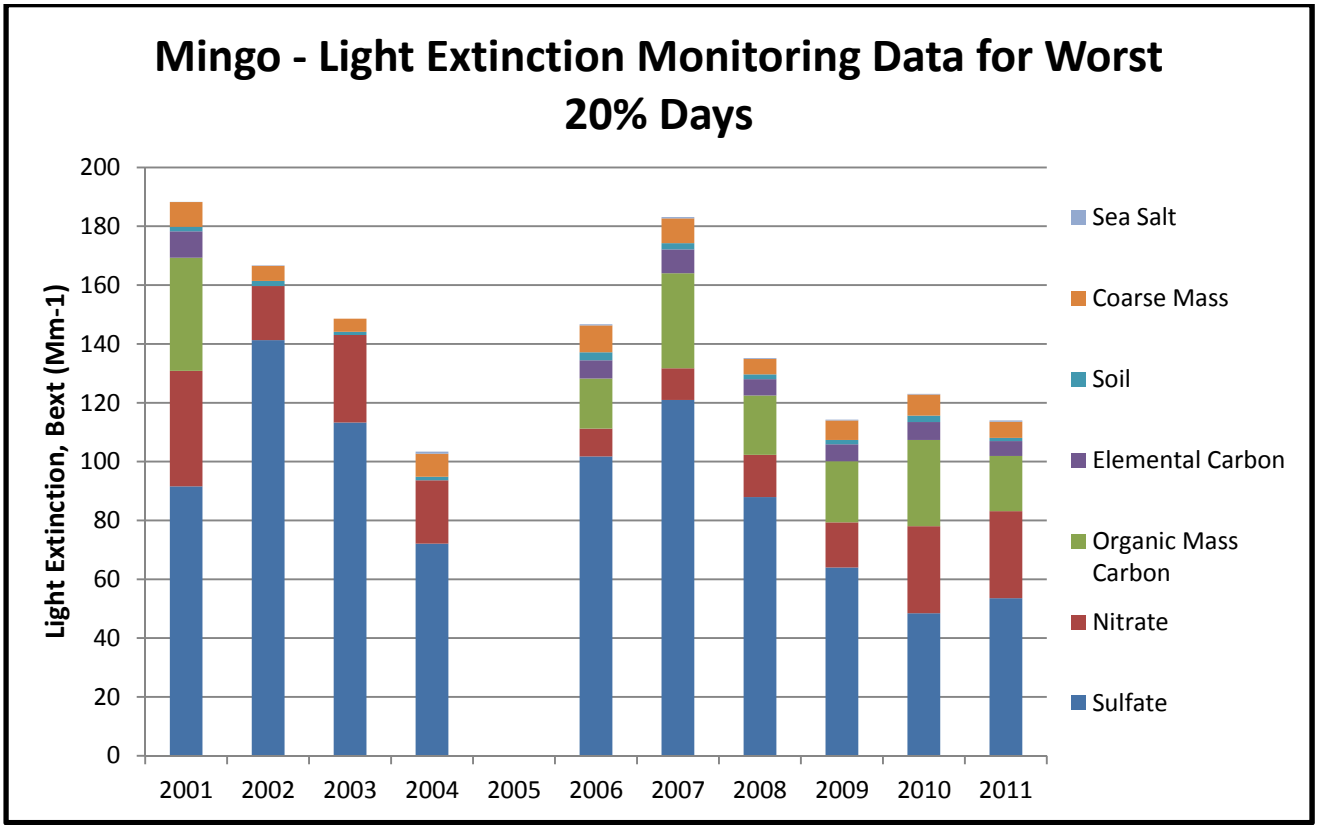

Figure 10. Mingo – Light Extinction Monitoring Data for Worst 20% Days.

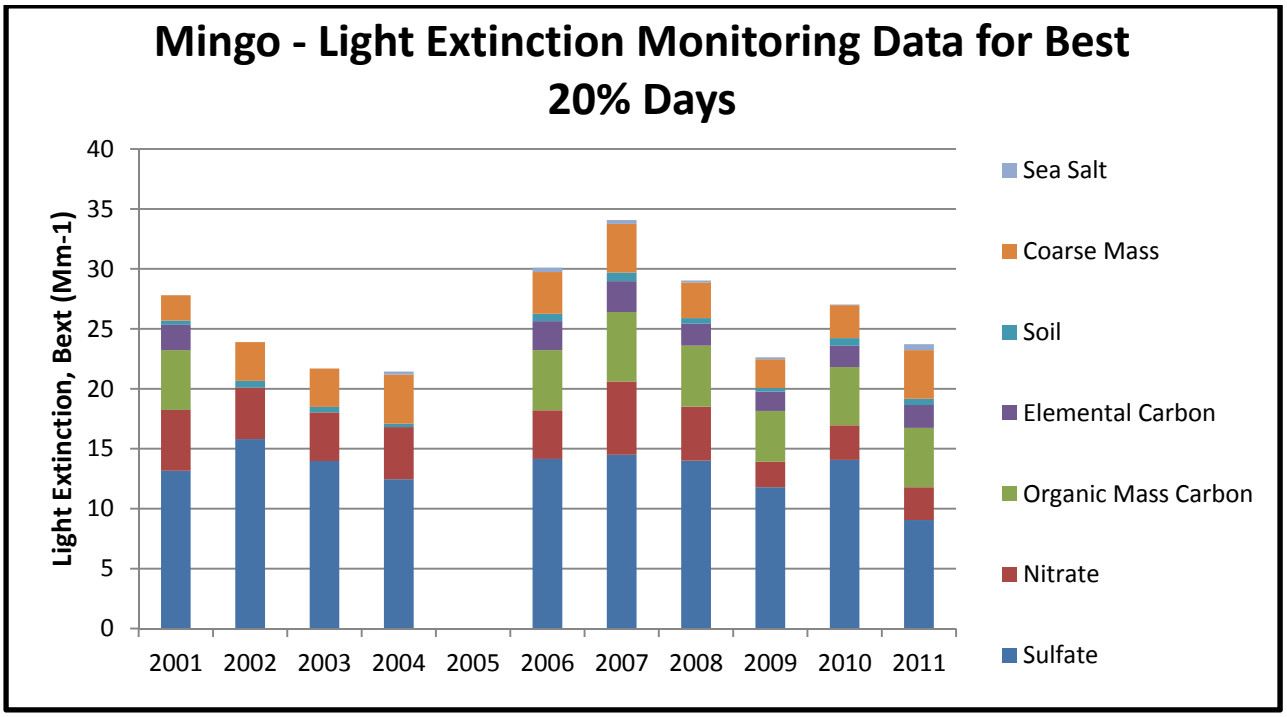

Figure 11. Mingo – Light Extinction Monitoring Data for Best 20% Days.

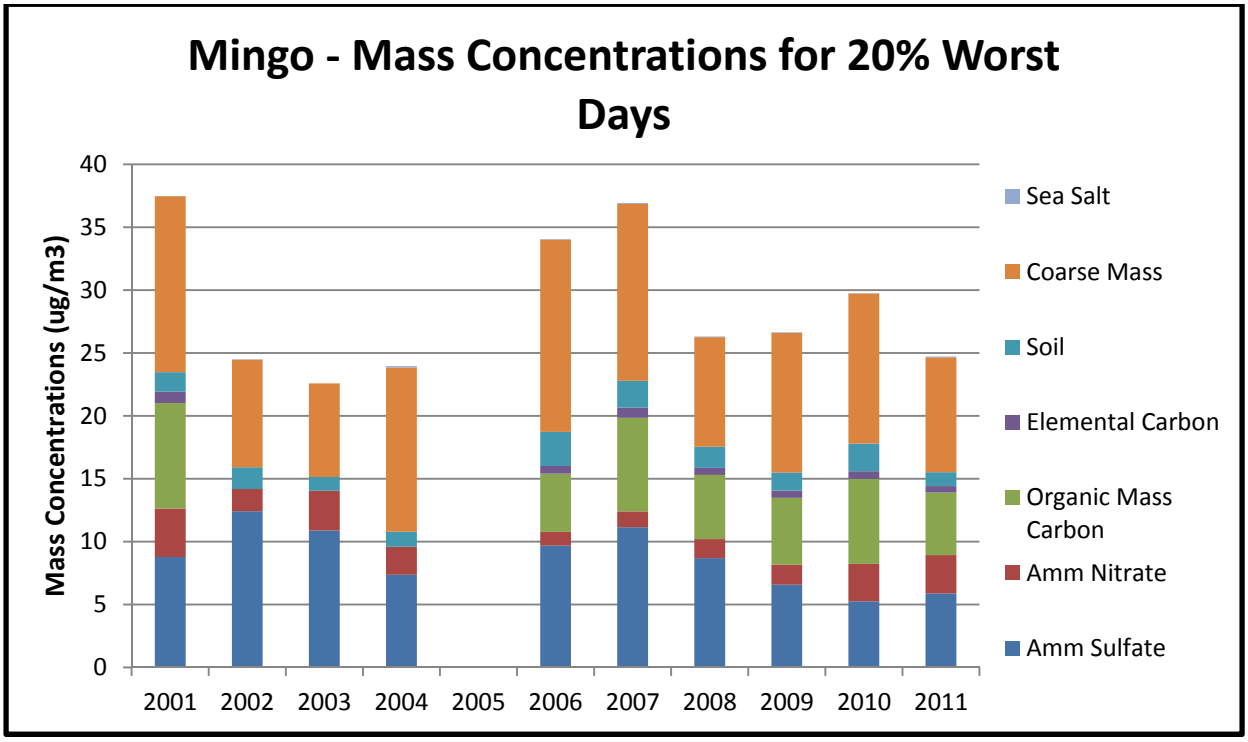

Figure 12. Mingo – Mass Concentrations Monitoring Data for Worst 20% Days.

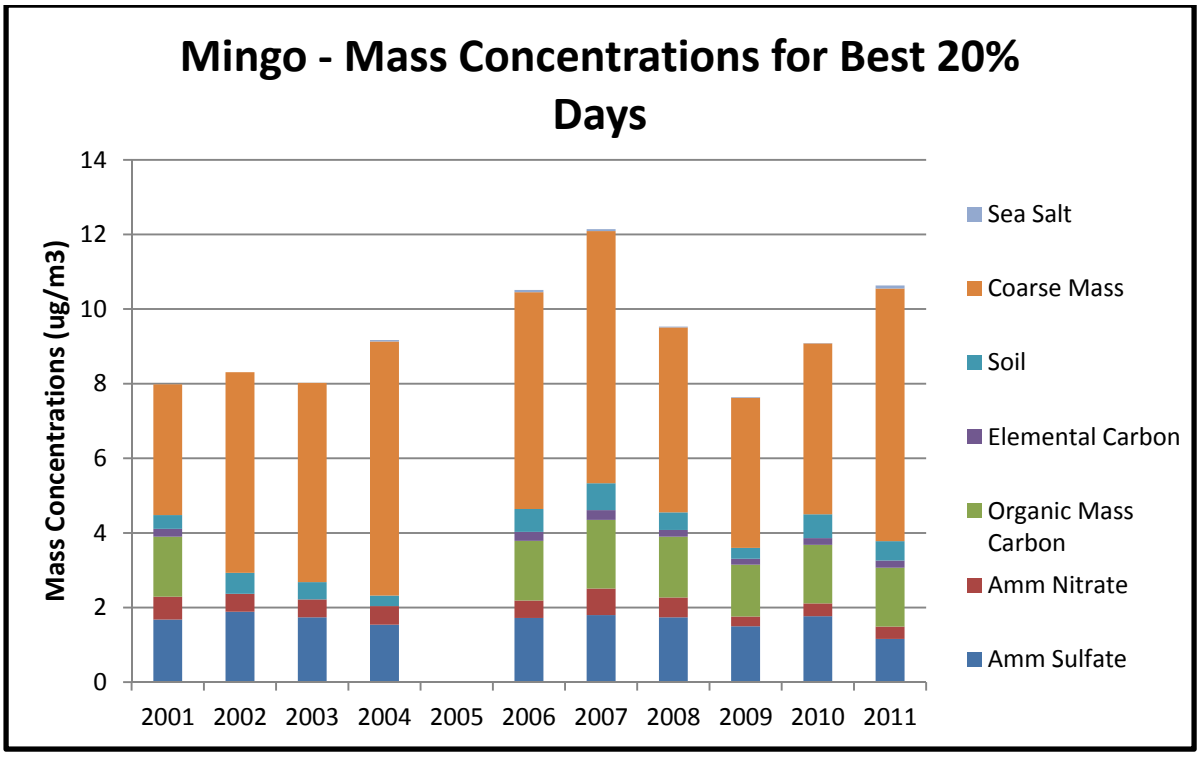

Figure 13. Mingo – Mass Concentrations Monitoring Data for Best 20% Days.

C.1.2. Hercules Glades National Wilderness Area

In order to determine reasonable progress for an area, a baseline condition must be established. The IMPROVE monitor located in the Hercules Glades National Wilderness Area began monitoring and reporting data on March 2, 2001. The baseline condition for the twenty percent worst days at Hercules Glades, using sampling data from the period 2001 through 2004, is estimated at 26.75 deciviews (dv). The established baseline condition for the twenty percent best days is 12.84 dv. The natural conditions at Hercules Glades for the worst days were set at 11.3 dv using EPA default conditions. As detailed in the 2009 RH plan, the modeled prediction for 2018 was adopted as the RPG for Hercules Glades at 23.06 dv for the worst sampling days. Monitored data available through the WRAP TSS, as both annual and five-year averages depict a downward trend toward the RPG. The goal for the twenty percent best sampling days is to show no degradation in visibility conditions from the baseline, and the available monitored data for this first planning period show no degradation, and in fact show improvement.

The following figures depict trends for the Hercules Glades Class I area for visibility on the best and worst 20% sampling days. Trends for all speciated pollutants are analyzed by mass concentration and light extinction, for the 20% best and worst days, in order to properly characterize the conditions at Hercules Glades.

The following table is a summary of visibility conditions including five-year averages for this first planning period, which breaks out the individual species as well as total light extinction, and deciviews. This table depicts the downward trends in sulfate measurements as well as in total light extinction and

deciviews. This table is available using the WRAP TSS. These trends are also depicted graphically in the figures following the corresponding tables.

Table 7. Hercules Glades Visibility Conditions Reasonable Progress Summary Table-Worst 20% Days

	Class I Area Visibility Summary: Hercules-Glades W, MO Class I area **Visibility Conditions:** Worst 20% Days **Reasonable Progress Summary**				
	2000-04 Baseline Conditions (Mm^{-1})	**2005-09 Progress Period (Mm^{-1})**	**2006-10 Progress Period (Mm^{-1})**	**2007-11 Progress Period (Mm^{-1})**	**2008-12 Progress Period (Mm^{-1})**
Sulfate	87.9	86.7	67.3	61.4	50.4
Nitrate	17.9	17.4	19.8	21.8	22.2
Organic Carbon	25.3	18.5	17.2	16.6	15.5
Elemental Carbon	5.2	5.1	4.6	4.3	4.0
Fine Soil	0.9	0.9	0.9	0.8	0.7
Coarse Material	2.8	3.5	3.7	4.0	4.1
Sea Salt	0.2	0.5	0.3	0.3	0.2
Total Light Extinction	151.2	143.5	124.8	120.1	108.1
Deciview	26.7	26.0	24.9	24.5	23.5

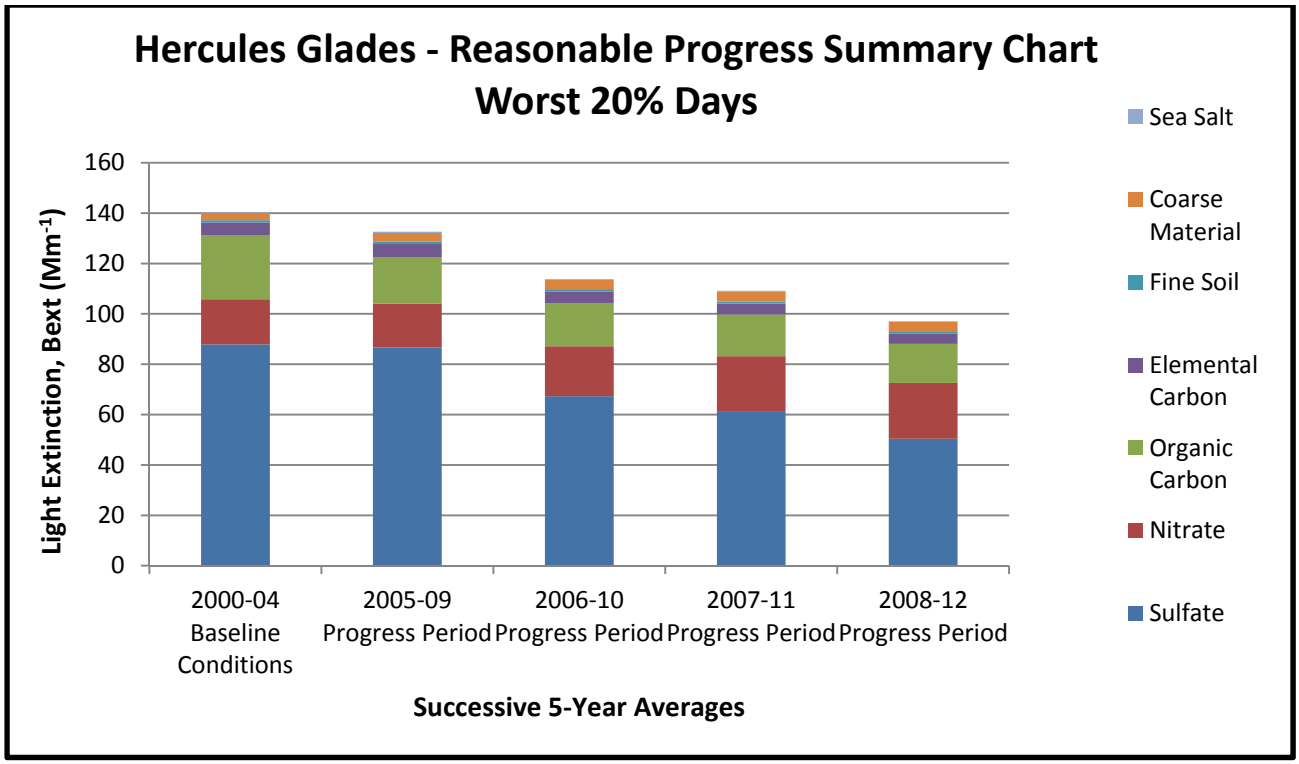

Figure 14. Hercules Glades' Reasonable Progress Summary Chart for Worst 20% Days

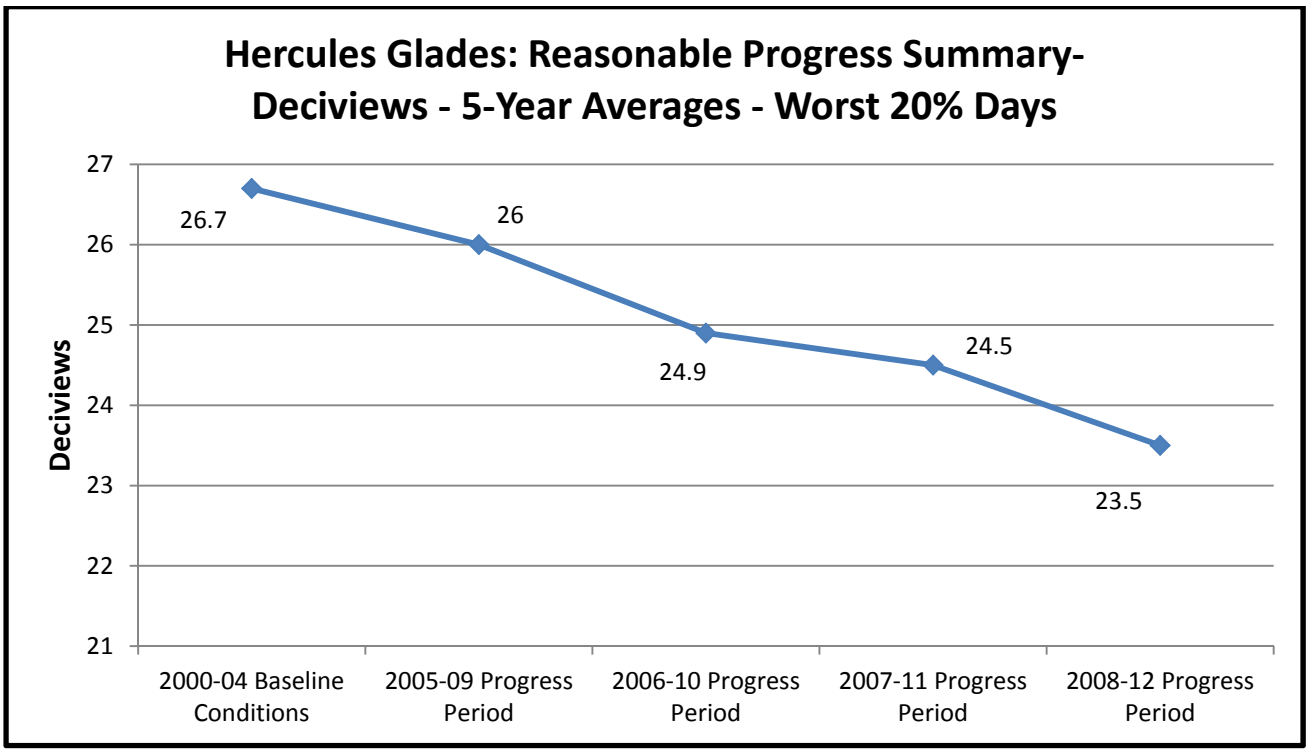

Figure 15. Hercules Glades' Reasonable Progress Summary: Deciviews 5-Year Averages-Worst 20% Days

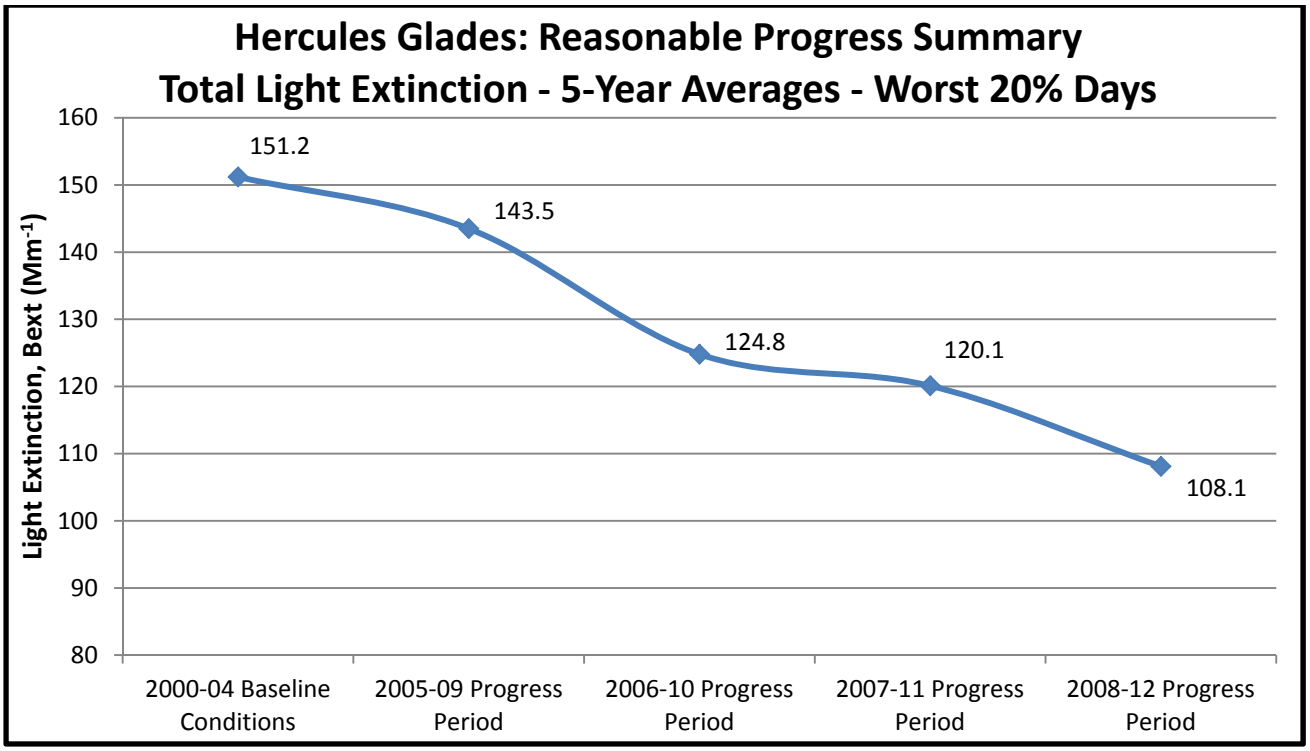

Figure 16. Hercules Glades' Reasonable Progress Summary: Total Light Extinction – 5-Year Averages-Worst 20% Days

Table 8. Hercules Glades Visibility Conditions Reasonable Progress Summary Table-Best 20% Days

Class I Area Visibility Summary: Hercules-Glades W, MO Class I area					
Visibility Conditions: Best 20% Days					
Reasonable Progress Summary					
	2000-04 Baseline Conditions	**2005-09 Progress Period**	**2006-10 Progress Period**	**2007-11 Progress Period**	**2008-12 Progress Period**
Sulfate	10.8	11.8	10.7	9.6	9.1
Nitrate	4.9	3.9	3.6	3.5	2.8
Organic Carbon	5.1	4.5	4.3	4.1	3.8
Elemental Carbon	2	1.9	1.7	1.6	1.5
Fine Soil	0.3	0.3	0.3	0.3	0.3
Coarse Material	2.3	2.3	2.4	2.6	2.7
Sea Salt	0.2	0.1	0.1	0.1	0.1
Total Light Extinction	36.6	35.8	34.1	32.8	31.3
Deciview	12.8	12.5	12.1	11.7	11.3

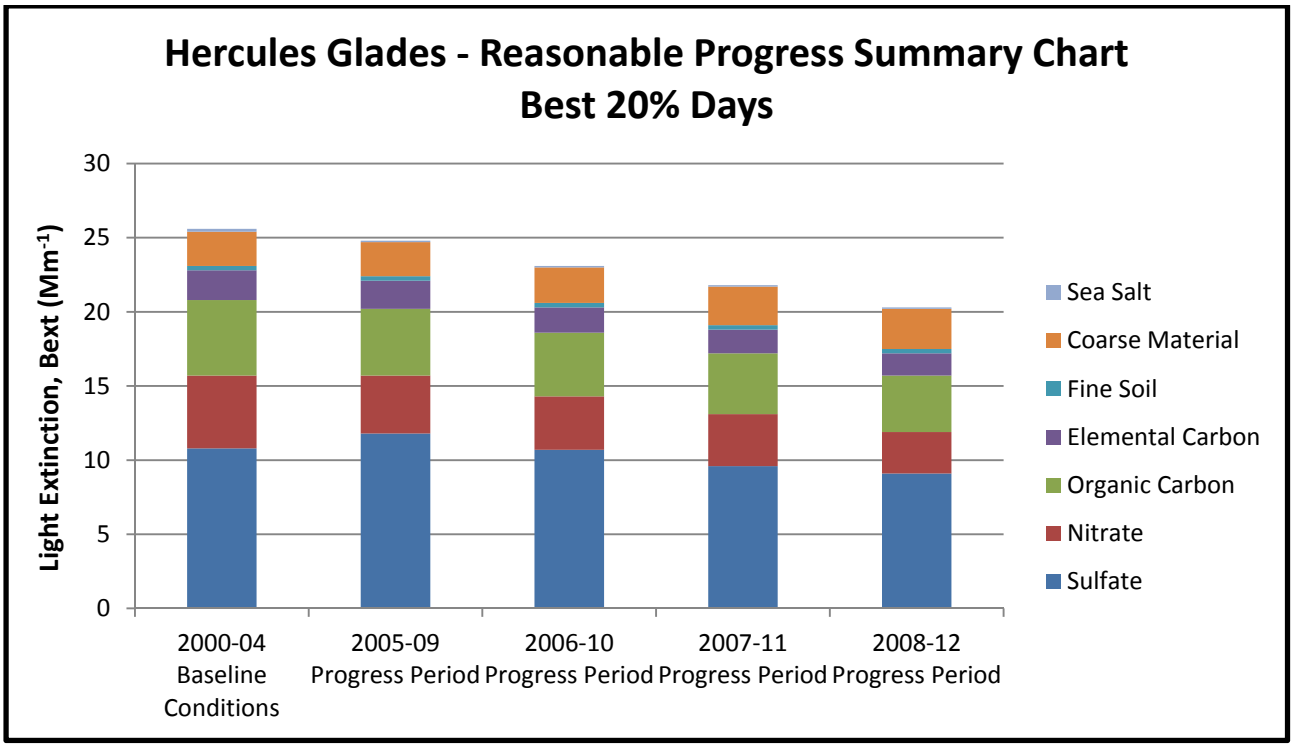

Figure 17. Hercules Glades' Reasonable Progress Summary Chart for Best 20% Days

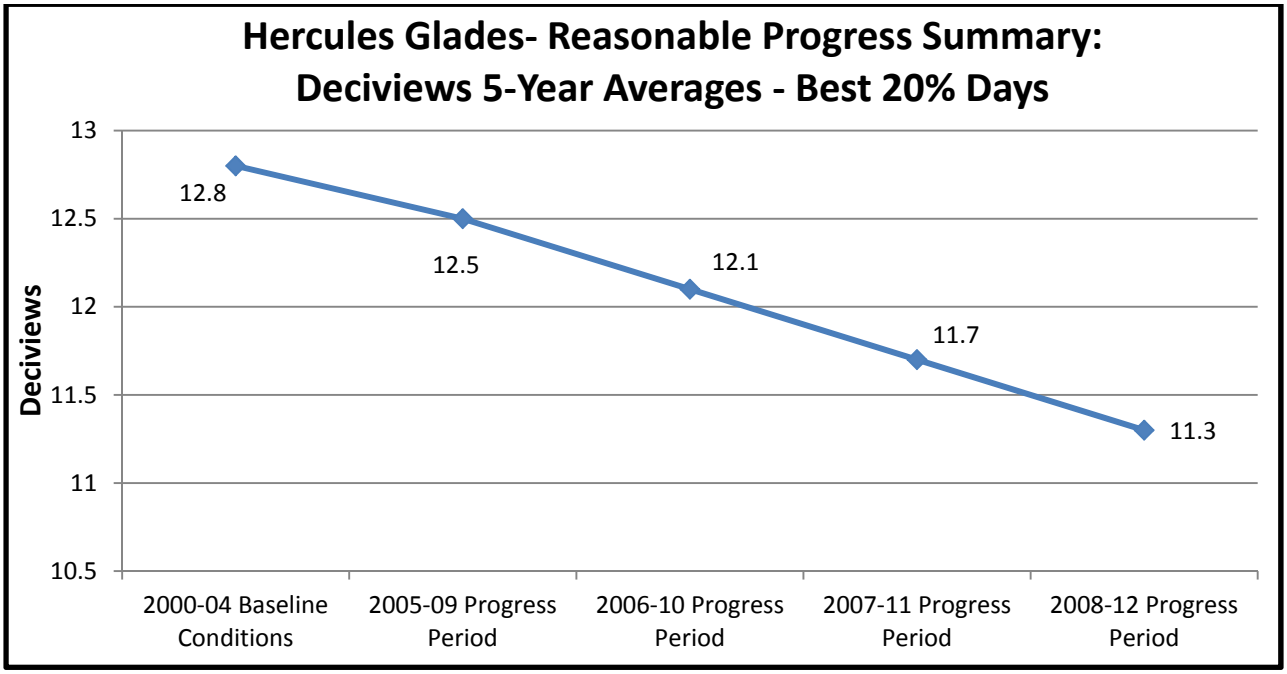

Figure 18. Hercules Glades' Reasonable Progress Summary: Deciviews 5-Year Averages-Best 20% Days

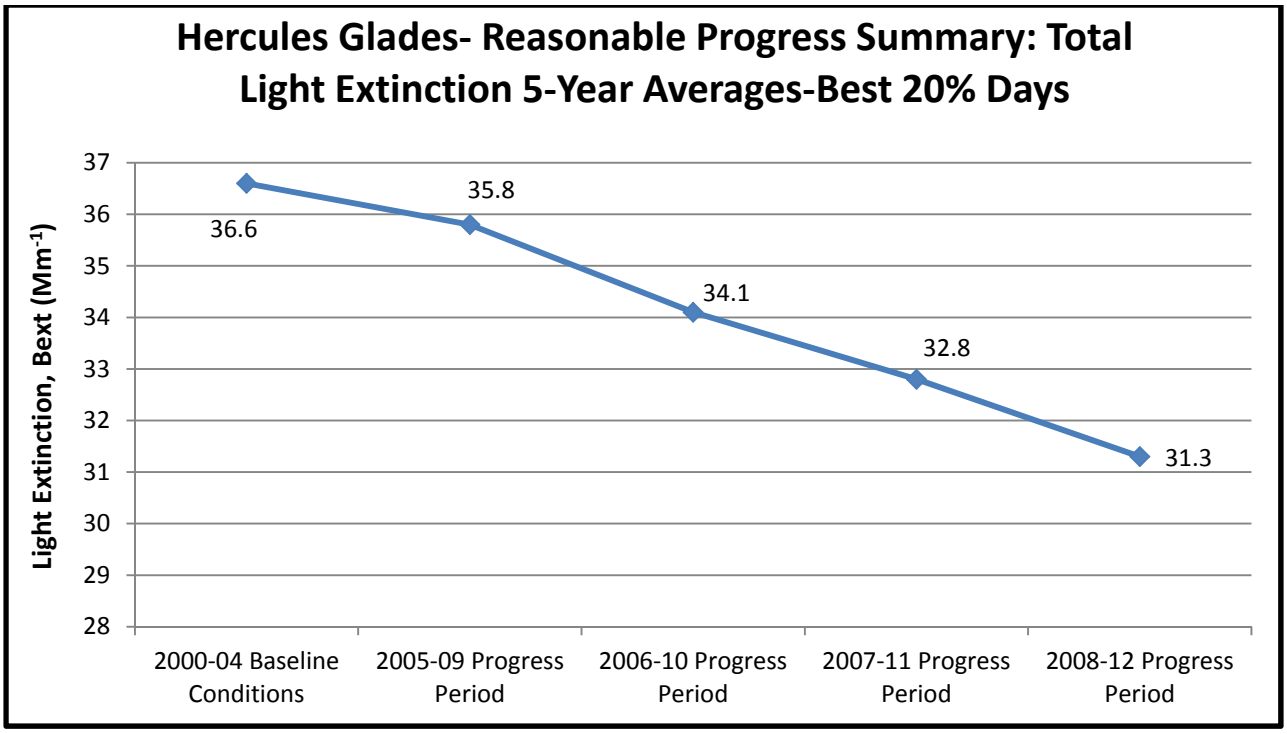

Figure 19. Hercules Glades' Reasonable Progress Summary: Total Light Extinction – 5-Year Averages-Best 20% Days

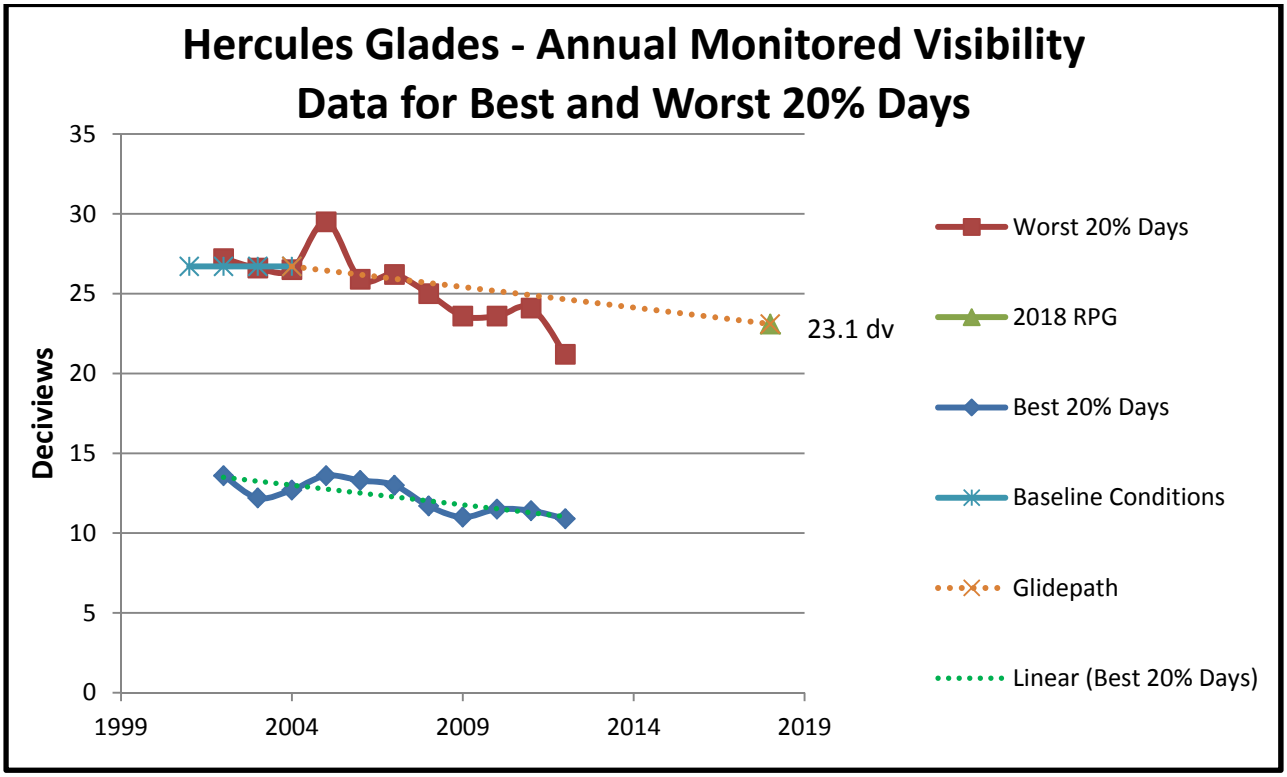

Figure 20. Hercules Glades' Annual Monitored Visibility Data with Glidepath to 2018 RPGs

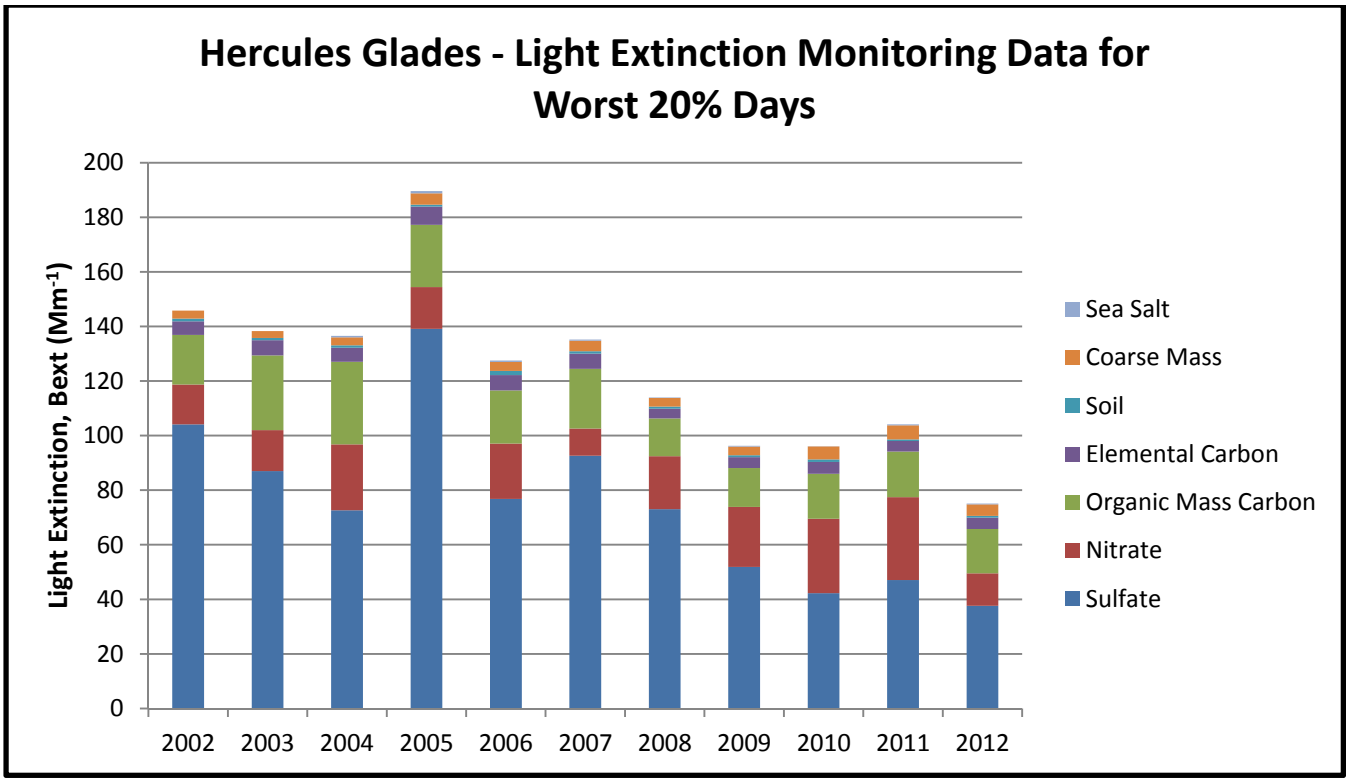

Figure 21. Hercules Glades – Light Extinction Monitoring Data for Worst 20% Days.

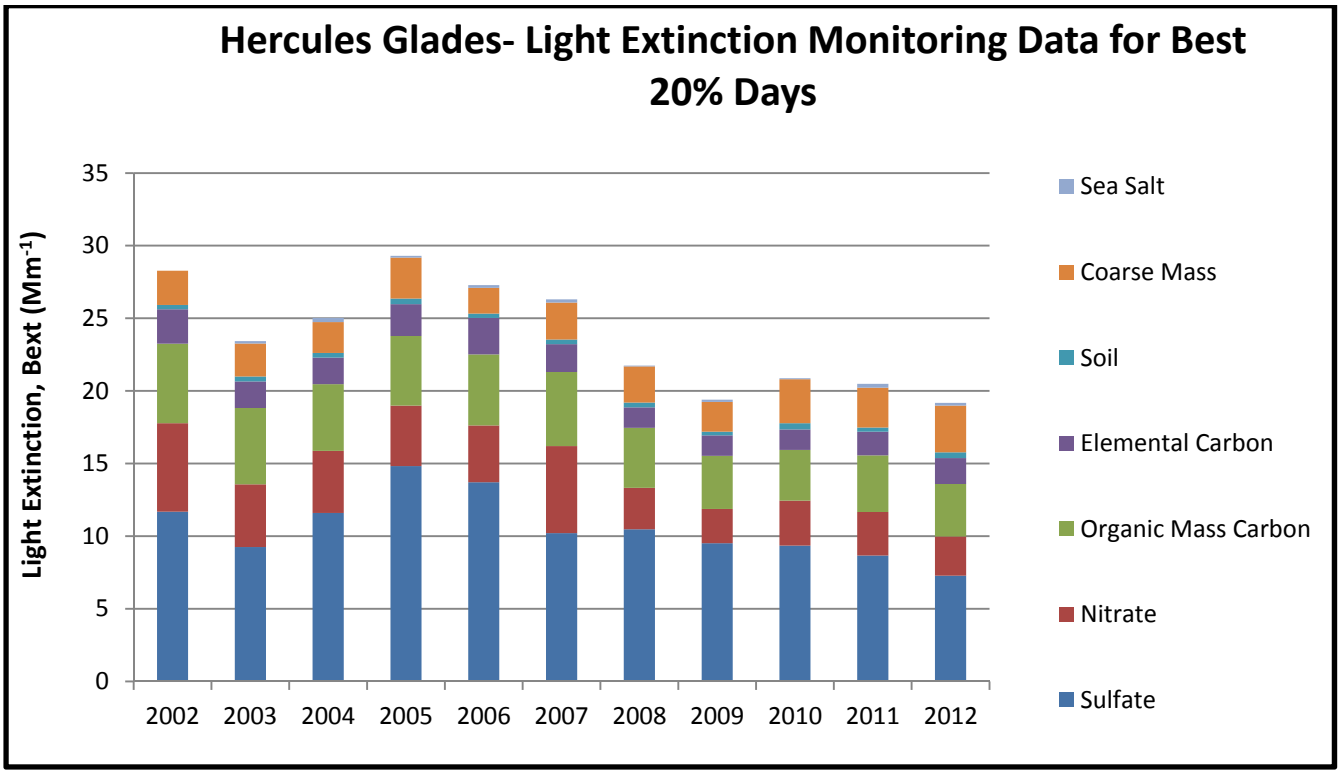

Figure 22. Hercules Glades – Light Extinction Monitoring Data for Best 20% Days.

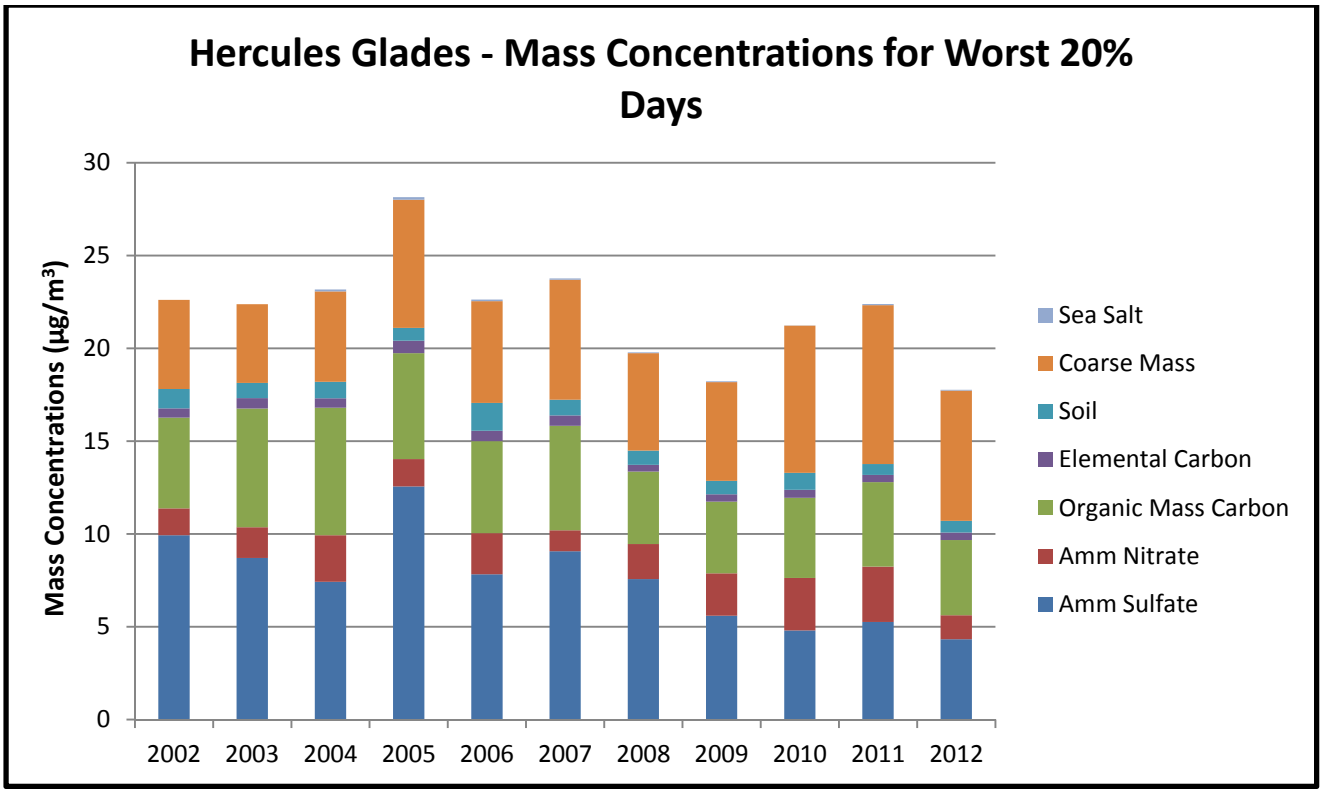

Figure 23. Hercules Glades – Mass Concentrations Monitoring Data for Worst 20% Days.

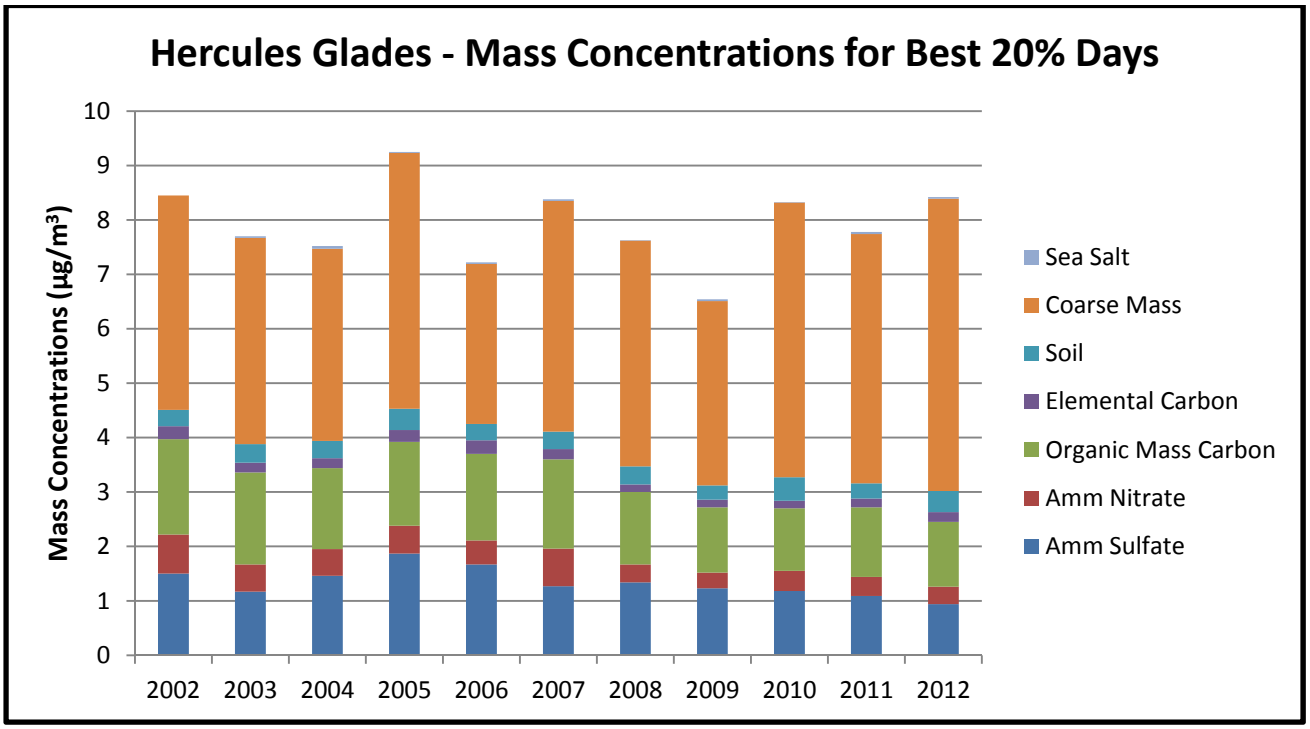

Figure 24. Hercules Glades – Mass Concentrations Monitoring Data for Best 20% Days.

C.1.3. El Dorado Springs Protocol Site

El Dorado Springs' IMPROVE Protocol monitor began monitoring and reporting data on June 1st, 2002. In order to determine reasonable progress for an area, a baseline condition must be established. In the first few years of operation at El Dorado Springs there were some inconsistencies across sampling data for varying $PM_{2.5}$ species, therefore a different time period was chosen to represent the baseline conditions for the worst sampling days. The chosen time period, 2005 through 2007, resulted in estimated baseline conditions for the worst 20% sampling days of 26.97 deciviews (dv). The natural conditions for the worst days are estimated at 11.3 dv.

The following figures depict trends for the El Dorado Springs Protocol Site for visibility on the best and worst 20% sampling days. Trends for all speciated pollutants are analyzed by mass concentration and light extinction, for the best and worst days, in order to properly characterize the conditions at El Dorado Springs. Analysis and trends for El Dorado Springs were included to strengthen the argument that visibility conditions across the entire state, not just in the required Class I areas, are in fact improving at a reassuring rate, and are expected to achieve the established 2018 reasonable progress goals.

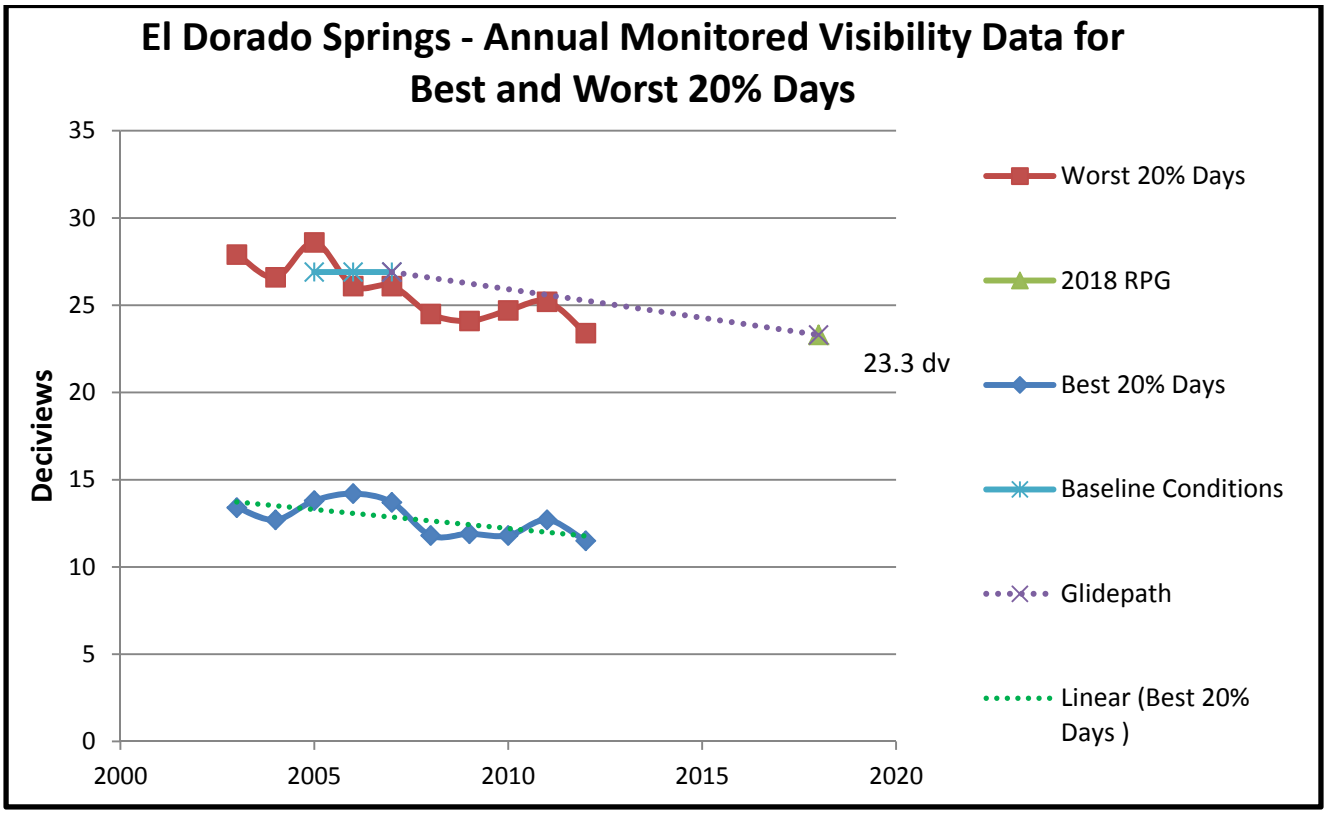

Figure 25. El Dorado Springs' Annual Monitored Visibility Data with Glidepath to 2018 RPGs

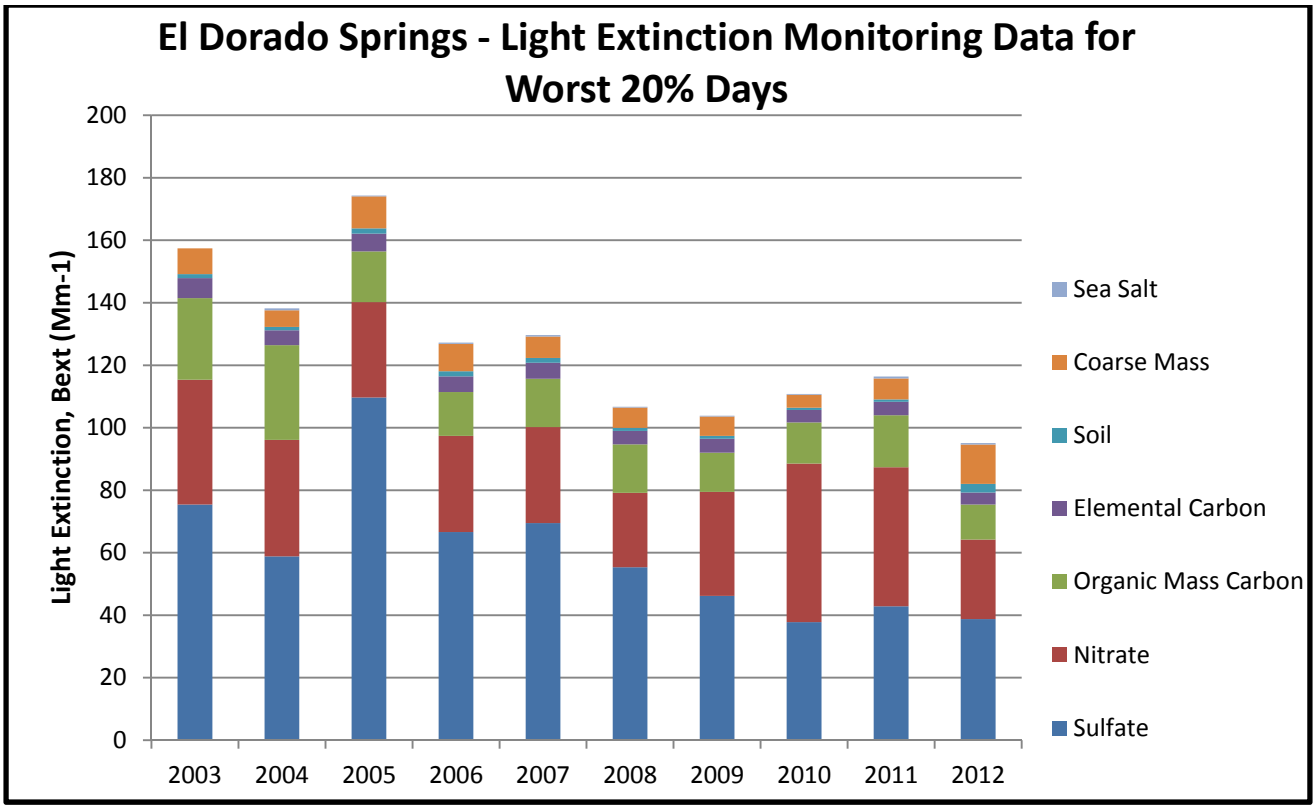

Figure 26. El Dorado Springs – Light Extinction Monitoring Data for Worst 20% Days.

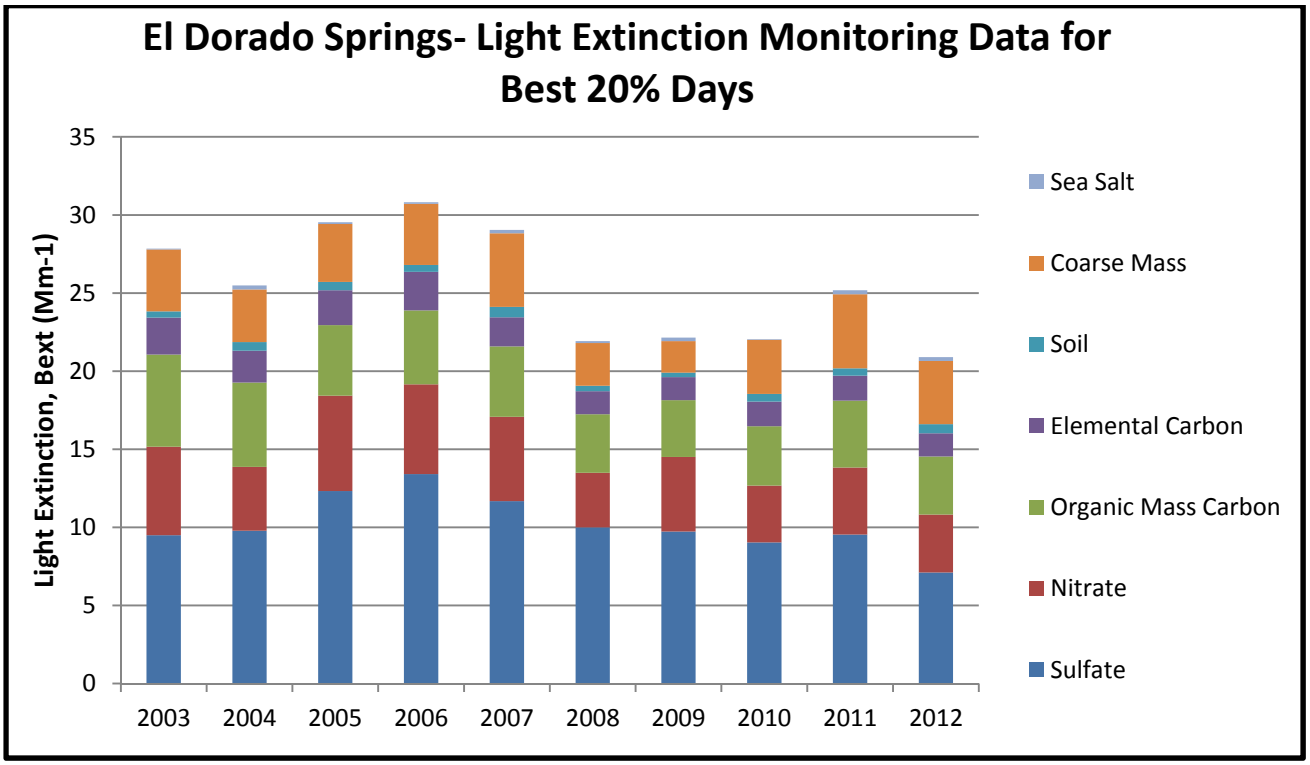

Figure 27. El Dorado Springs – Light Extinction Monitoring Data for Best 20% Days.

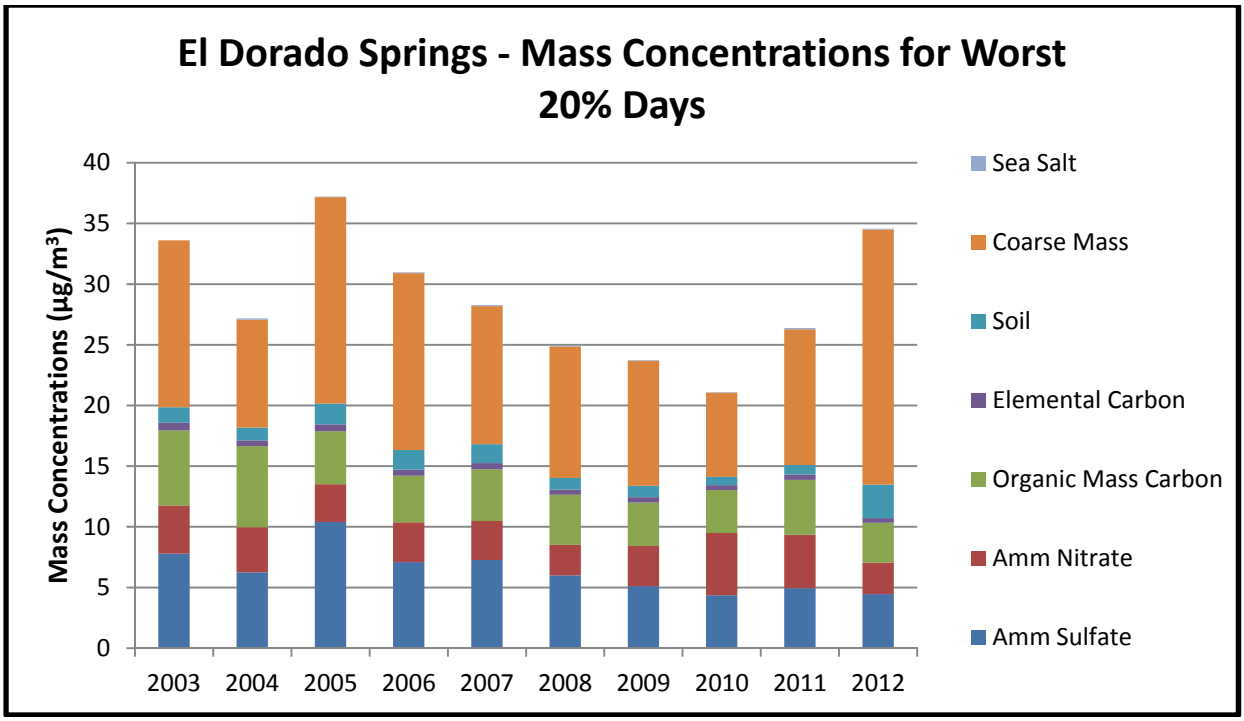

Figure 28. El Dorado Springs – Mass Concentrations Monitoring Data for Worst 20% Days.

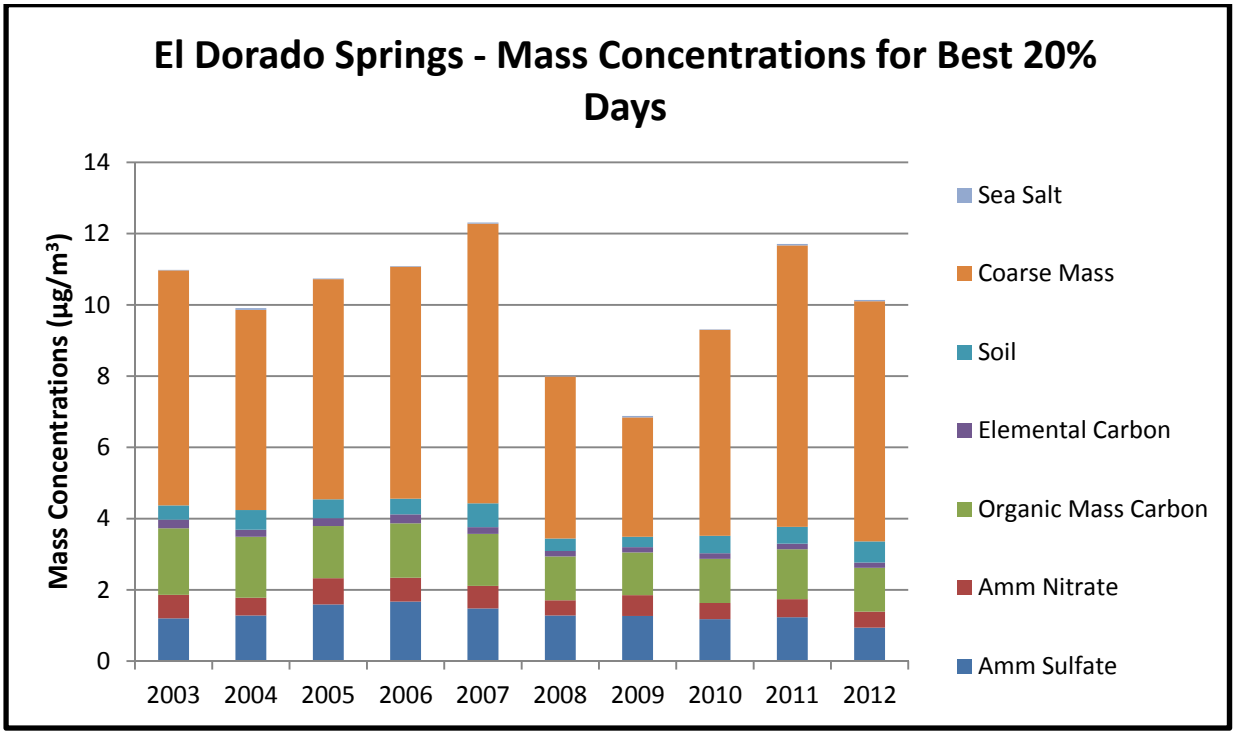

Figure 29. El Dorado Springs – Mass Concentrations Monitoring Data for Best 20% Days.

C.2. Visibility Trends in Nearby Out-of-State Class I Areas

Two Class I areas are located within 250 km of the Missouri boundary, Upper Buffalo and Caney Creek which are in Arkansas. These areas were included in the 2009 RH plan analysis; therefore, a brief summary of their visibility trends is included here. The reasonable progress summary tables below depict a downward trend in visibility impairment in these areas, as was also shown for the areas within Missouri. This supports the claim that Missouri's current strategy is still adequate and that reductions achieved in Missouri have benefited areas both in and outside the state.

The following tables summarize visibility conditions, including five-year averages for this first planning period, for individual species as well as total light extinction, and deciviews, for the two nearby Class I areas located in Arkansas. Both tables depict downward trends in sulfate measurements as well as in total light extinction and deciviews. These are available on the WRAP TSS.

C.2.1. Upper Buffalo Wilderness Area – Arkansas

Table 9. Arkansas – Upper Buffalo Visibility Conditions Reasonable Progress Summary Table

	Class I Area Visibility Summary: Upper Buffalo W, AR Class I area **Visibility Conditions:** Worst 20% Days **Reasonable Progress Summary**				
	2000-04 Baseline Conditions (Mm-1)	2005-09 Progress Period (Mm-1)	2006-10 Progress Period (Mm-1)	2007-11 Progress Period (Mm-1)	2008-12 Progress Period (Mm-1)
Sulfate	83.2	90.0	70.0	62.1	50.7
Nitrate	13.3	11.9	13.0	14.4	14.4
Organic Carbon	22.5	19.8	18.7	18.7	14.9
Elemental Carbon	4.7	4.7	4.2	4.1	3.7
Fine Soil	1.2	1.2	1.3	1.1	1.1
Coarse Material	6.8	4.9	5.5	5.1	5.4
Sea Salt	0.2	0.4	0.5	0.4	0.4

Total Light Extinction	142.9	143.9	124.1	117.0	101.6
Deciview	26.3	25.9	24.7	24.1	22.9

C.2.2. Caney Creek Wilderness Area – Arkansas

Table 10. Arkansas – Caney Creek Visibility Conditions Reasonable Progress Summary Table.

	Class I Area Visibility Summary: Caney Creek W, AR Class I area **Visibility Conditions:** Worst 20% Days **Reasonable Progress Summary**				
	2000-04 Baseline Conditions (Mm-1)	2005-09 Progress Period (Mm-1)	2006-10 Progress Period (Mm-1)	2007-11 Progress Period (Mm-1)	2008-12 Progress Period (Mm-1)
Sulfate	87.1	87.0	63.4	53.9	51.9
Nitrate	13.8	9.5	11.2	12.6	12.5
Organic Carbon	23.4	16.4	14.8	14.1	13.3
Elemental Carbon	4.8	4.2	3.5	3.3	3.3
Fine Soil	1.1	1.2	1.5	1.3	1.4
Coarse Material	3.7	4.0	4.3	4.3	4.2
Sea Salt	0.2	0.3	0.3	0.4	0.5
Total Light Extinction	145.1	133.6	110.1	100.9	97.9
Deciview	26.4	25.3	23.7	23.0	22.7

D. Emissions Progress

Section 51.308(g)(4)
An analysis tracking the change over the past 5 years in emissions of pollutants contributing to visibility impairment from all sources and activities within the State. Emissions changes should be identified by type of source or activity. The analysis must be based on the most recent updated emissions inventory, with estimates projected forward as necessary and appropriate, to account for emissions changes during the applicable 5-year period.

According to the EPA's recent guidance on 5-year progress reports, in order to track changes in emissions over the past 5 years: State-wide emissions from at least two separate points in time, at least 5 years apart, with one being the most recent updated emission inventory year, must be compared. The Air Program selected to compare data from 2005, 2008, and 2011, which exceeds the aforementioned minimum requirements for this report element. The following three tables include emissions totals from different source categories as reported in the National Emission Inventory (NEI), in 2011, 2008, and 2005, respectively. As mentioned before, the pollutants that affect visibility the most include: sulfur dioxide, nitrogen oxides, particulate matter, and in some cases Volatile Organic Compounds (VOCs). A graph including these pollutants that depicts the downward trend in point source emissions over the last three NEI years, is shown in Figure 30. Generally downward trends for these pollutants correlate strongly to a reduction in visibility impairment, as was shown for the areas of interest in previous sections.

Emissions that contribute to visibility impairment can be from both manmade and natural sources, which can also be viewed as controllable and uncontrollable emissions. Controlling point sources provides a much higher level of reduction certainty than other source sectors; therefore, point source emissions trends are the most relevant to visibility improvement, as discussed in this report. Though the decreasing trend in point source emissions of SO_2 and NO_X are of the greatest significance to visibility improvement, other changes in emission levels also occurred between 2008 and 2011 that warrant clarification. Point source carbon monoxide (CO) levels increased by 23% or 21,033 tons from 2008 to 2011. This increase in CO emissions is due to increased industrial activity and increased demand for power generation over this period. Point source $PM_{2.5}$ emission levels increased by 6% or 567.53 tons between 2008 and 2011. Many point sources had significant changes in $PM_{2.5}$ emissions. The increases in $PM_{2.5}$ emissions are due to both updated stack test emission factors and increased activities at several sources. During this period, there were also decreases in emissions due to the shutdown of Holcim-Clarksville's main operations and reduced activities at several other sources. The overall effect was a small increase in emissions. Despite these increases in emissions, the decrease in SO_2 and NO_X emissions from point sources and the corresponding improvement in visibility conditions are most significant and therefore are the focus of this report.

Nonpoint fire source emissions increased for all pollutants from 2008-2011. Per EPA's Draft 2011NEIv1 Technical Support Document from November 2013, (http://www.epa.gov/ttn/chief/net/2011nei/2011_neiv1_tsd_draft.pdf), page 209 describes the 2011 fire inventory and compares it to 2008. Their estimate of about 30% more acres burned in 2011 compared to 2008 is reflected in the higher emissions in 2011. The events cited in the 2011 fire inventories include several forest fires of over 1,000 acres within the Mark Twain National Forest in Southern Missouri. A windstorm in 2009 knocked down much timber in the area providing ample fuel for the 2011 fires.

According to the USDA Forest Service Fiscal Year 2010 Monitoring and Evaluation Report for the Mark Twain National Forest, page 24, http://www.fs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb5401002.pdf, FY08 was an anomalously low year for wildland fires, with only 3,150 acres burned compared to the 5-year period with between 5,000 and 7,500 acres burned. Page 28 also shows that prescribed fire burn acreage of 22,551 was lower than following years with 34,000 and 42,000 acres burned, on track to meet their goal of 45,000 acres burned annually to meet forest management goals.

Biogenic emissions also changed between 2008 and 2011 with some pollutants increasing and some decreasing. EPA used their Biogenic Emissions Inventory System (BEIS) version 3.14 to create the 2011 inventory with 2011 meteorology. EPA used BEIS 3.14 with 2007 meteorology to create the 2008 inventory. The technical support documents for the 2008 and 2011 inventories do not explicitly describe the changes to the vegetation dataset or other factors between years; therefore, EPA would need to clarify the reason for the changes in biogenic emissions between 2008 and 2011.

The theme of this section is that the paramount pollutants to visibility improvement, SO_2 and NO_X emissions, show a steady downward trend over the last 5 years that can be linked to steadily improving visibility conditions. Though other emissions varied slightly during this first planning period, the main visibility impacting pollutants have decreased and visibility has improved.

Table 11. 2011 Missouri Emission Inventory as reported to the NEI.

2011 Missouri Emission Inventory - Statewide Totals in tons per year							
	CO	NH3	NOX	PM10-PRI	PM25-PRI	SO2	VOC
Permitted Facilities	113,272.26	1,642.30	92,721.41	16,726.61	9,834.40	255,216.89	14,502.54
Airports	6,931.82		1,716.57	123.17	106.55	214.70	397.44
Point Source Total	120,204.08	1,642.30	94,437.98	16,849.78	9,940.94	255,431.59	14,899.98
Paved and Unpaved Roads				577,332.72	63,288.46		
Construction Dust				45,214.61	4,521.46		
Agricultural Tilling				187,392.57	37,478.18		
Fires (Agricultural, Prescribed, Wildland)	680,308.91	9,936.42	11,274.56	73,499.14	59,444.47	6,003.95	148,593.96
All other area sources	115,151.42	124,463.94	14,402.78	21,606.47	19,375.72	994.63	105,932.32
Area Source Total	795,460.33	134,400.36	25,677.34	905,045.51	184,108.29	6,998.57	254,526.27
Onroad Mobile	599,053.56	2,587.85	180,579.42	8,415.68	6,759.82	1,207.95	61,784.73
Mobile Equipment from Nonroad Model	316,737.16	50.76	41,970.54	4,133.56	3,952.02	106.81	45,082.96
Commercial Marine, Locomotive	5,331.30	16.57	36,093.55	1,194.79	1,104.83	371.86	1,777.05
Offroad Mobile Total	322,068.46	67.33	78,064.09	5,328.35	5,056.85	478.67	46,860.01
Biogenic Total	138,953.65		28,310.97				1,168,254.45
Statewide Totals	1,975,740.08	138,697.84	407,069.79	935,639.32	205,865.91	264,116.78	1,546,325.43

Table 12. 2008 Missouri Emission Inventory as reported to the NEI.

2008 Missouri Emission Inventory - Statewide Totals in tons per year							
	CO	NH3	NOX	PM10-PRI	PM25-PRI	SO2	VOC
Permitted Facilities	92,239	1,655	129,953	18,318	9,267	367,370	17,420
Airports	5,215	-	1,714	118	45	202	427
Point Source Total	97,454	1,655	131,667	18,436	9,312	367,572	17,846
Paved and Unpaved Roads				545,853.93	59,357.59		
Construction Dust				42,840.09	4,284.01		
Agricultural Tilling				183,967.32	36,793.16		
Fires (Agricultural, Prescribed, Wildland)	317,134.78	4,786.40	5,355.11	33,515.30	28,964.19	2,411.04	71,128.88
All other area sources	78,609.33	125,959.11	15,684.64	21,876.74	13,173.76	44,212.74	118,540.71
Area Source Total	395,744.12	130,745.51	21,039.75	828,053.39	142,572.70	46,623.77	189,669.59
Onroad Mobile	978,206.68	6,919.69	117,463.88	3,516.20	2,289.89	1,213.32	80,126.91
Mobile Equipment from Nonroad Model	366,432.23	48.12	47,584.00	4,626.39	4,427.17	888.00	51,452.13
Commercial Marine, Locomotive	5,654.53	17.19	38,156.92	1,269.45	1,175.73	533.51	1,839.32
Offroad Mobile Total	372,086.76	65.32	85,740.93	5,895.84	5,602.90	1,421.50	53,291.46
Biogenic Total	123,861.94		29,967.34				993,543.53
Statewide Totals	1,967,353.23	139,385.97	385,878.57	855,901.84	159,777.65	416,830.38	1,334,477.86

Table 13. 2005 Missouri Emission Inventory as reported to the NEI.

2005 Missouri Emission Inventory - Statewide Totals in tons per year

State	Data Category	CO	NH3	NOx	PM10-PRI	PM25-PRI	SO2	VOC
MO	Event	5,848.25	97.76	171.01	676.40	573.22	71.84	1,405.25
MO	Nonpoint	309,960.74	115,064.35	108,752.50	968,551.08	134,742.75	51,161.18	195,540.93
MO	Nonroad	3,223.15		17.44	63.50	43.82	2.68	115.71
MO	Onroad	1,249,014.53	7,061.16	159,980.03	4,487.03	3,163.71	4,250.87	100,847.02
MO	Point	85,276.36	1,005.39	163,012.19	22,200.27	13,058.87	355,440.91	20,081.44
MO	Biogenic (duplicate 2002) ***	134,123.40		22,518.60				1,428,260.00
Statewide Total (tons)		1,787,446.43	123,228.65	454,451.78	995,978.28	151,582.36	410,927.49	1,746,250.35

** Point source emissions in the NEI do not match emissions in Missouri's database.

*** EPA did not run the biogenic model in 2005 due to the reduced effort year, so 2002 emissions were copied forward (as was done for nonpoint 2005 emissions)

See http://www.epa.gov/ttn/chief/net/2005inventory.html for an explanation of the 2005 reduced effort inventory.

Due to differences in the point source totals in the NEI and MoEIS, below is a display of the first-cut emissions from MoEIS for comparison and reference.

State	Data Category	CO	NH3	NOx	PM10-PRI	PM25-PRI	SO2	VOC
MO	Point	102,945.18	2,691.58	169,128.59	19,617.73	3,404.17	397,226.21	26,836.88

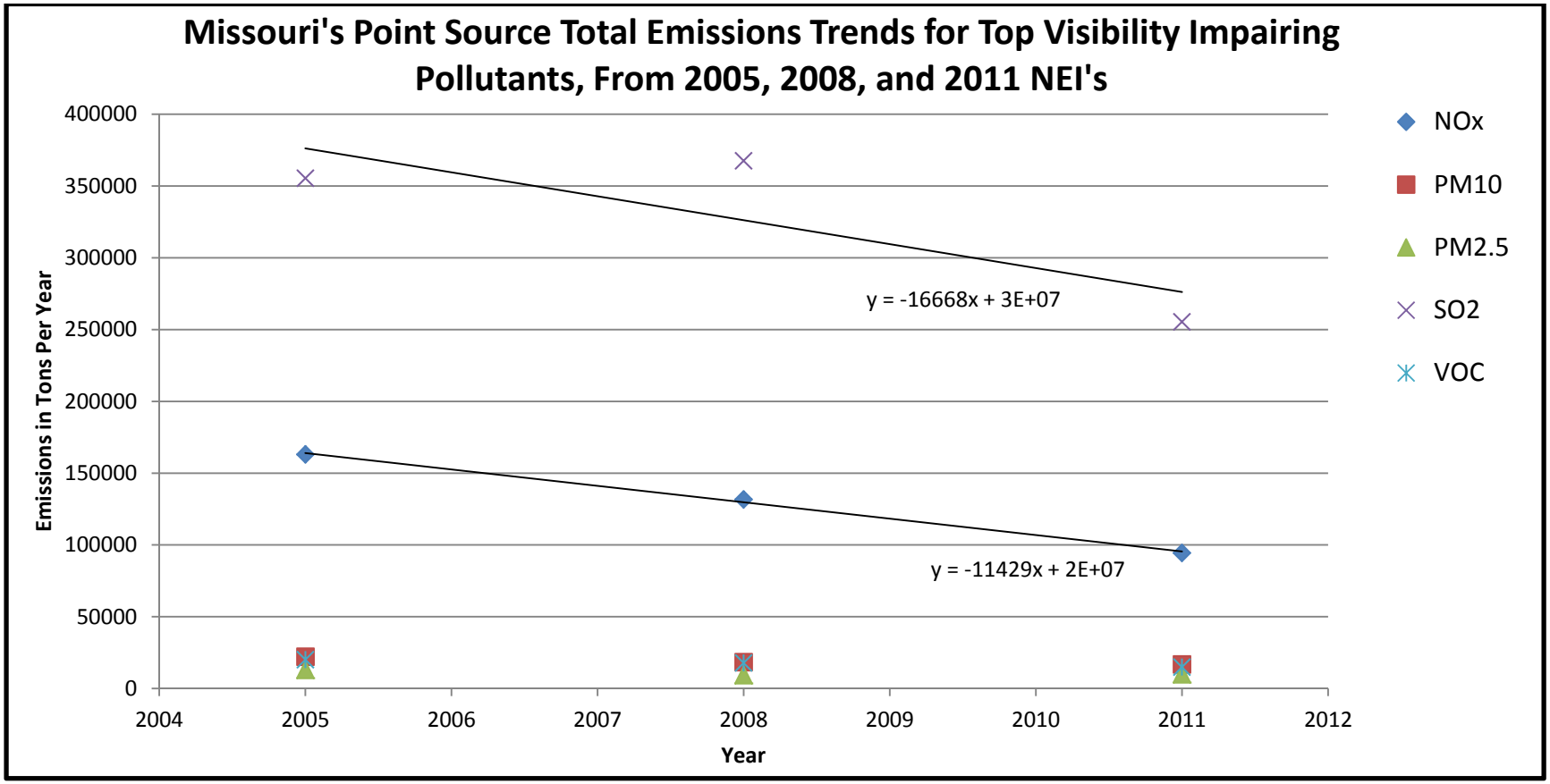

Figure 30. Missouri's Point Source Total Emission Trends for Top Visibility Impairing Pollutants; 2005, 2008, 2011.

E. Assessment of Changes Impeding Visibility Progress

Section 51.308(g)(5)
An assessment of any significant changes in anthropogenic emissions within or outside the State that have occurred over the past 5 years that have limited or impeded progress in reducing pollutant emissions and improving visibility.

The visibility and pollutant trends from the three monitoring sites indicate an overall decreasing trend in visibility impairment, as discussed in previous sections. However, one extraneous peak appears in the data for 2010, especially at the El Dorado protocol site. This can most likely be attributed to a fire event that occurred that year. Missouri State University (in Springfield, Missouri) monitored an exceedance of $PM_{2.5}$ (35.7 $\mu g/m^3$, 24-hour average) on March 6, 2010. There was a prescribed fire agricultural burning activity in the region prior to the exceedance. However, the $PM_{2.5}$ concentrations during the remainder of 2010 and in the preceding and following years were measurably lower than the standard so the single exceedance was not enough to trigger a violation in any of the design values that include 2010.

Missouri adopted its current Smoke Management Plan (SMP) in 2007. The purpose of the SMP is to identify the responsibilities of the department, FLMs and state land managers to coordinate procedures that mitigate the impacts of prescribed fire and wildland fire. The plan was designed to meet the policies of the EPA's Interim Air Quality Policy on Wildland and Prescribed Fires (1998). This SMP establishes a basic framework of procedures and requirements for managing smoke from fires managed for resource benefits. The intent of a SMP is to mitigate the nuisance and public safety hazards posed by smoke intrusions into populated areas; to prevent deterioration of air quality and NAAQS violations; and to address visibility impacts in mandatory federal Class I areas. Class I areas are protected visual environments and are particularly sensitive receptors to smoke intrusion and subsequent visibility impairment. The purpose of the Missouri SMP is to provide additional protection to the federal Class I areas.

If in the future there is a fire event that results in a NAAQS violation or other extreme case, the SMP may undergo an evaluation for possible revision, to prevent such a scenario from recurring.

As mentioned in previous sections, there is an overall downward trend in visibility impairment that can be expected to continue in the coming years as more federal regulations are implemented and as federal health-based standards continue to be tightened. As depicted in Table 2, there are several facilities with large expected changes within the next few years. These changes will contribute to the downward trend as well.

F. Assessment of Current Strategy

Section 51.308(g)(6)
An assessment of whether the current implementation plan elements and strategies are sufficient to enable the State, or other States with mandatory Federal Class I areas affected by emissions from the State, to meet all established reasonable progress goals.

The realized and planned controls and reductions discussed in Section A detail the current strategy as relied upon in the 2009 RH plan as well as additional measures that were not relied upon but will aid visibility improvement. The realized reductions and improvements are evidenced in the emissions trends and extensive visibility analyses contained in Sections B and C, respectively. Section D also details realized emission reductions that have occurred in the first planning period.

Based on the trends and data analyses contained in the preceding sections, the current relied upon strategy as established in the 2009 RH plan continues to be sufficient in achieving the reasonable progress goals for 2018. Table 4 summarizes Missouri's Class I Areas' visibility conditions including the baseline conditions compared to current trends for each area, based on available monitoring data. The glidepath from baseline conditions to the 2018 RPGs is compared to the trend of monitored data for each area, and the monitored trends are currently below this glidepath. This reinforces the assessment that the current strategy is still adequate. In addition, the current strategy continues to be sufficient in not impeding visibility progress in nearby Class I areas, i.e. Upper Buffalo and Caney Creek in Arkansas, as evidenced by the downward trends in visibility impairment seen in both areas, depicted in Tables 9 and 10, respectively. The downward trends in nearby out-of-state Class I areas further reinforces that Missouri's current strategy continues to be sufficient in reducing visibility impairment in Class I areas.

G. Review of Visibility Monitoring Strategy

Section 51.308(g)(7)

A review of the State's visibility monitoring strategy and any modifications to the strategy as necessary.

The Missouri Regional Haze monitoring strategy will continue to rely on the IMPROVE Monitoring Network in the Hercules Glades Wilderness and Mingo Wildlife Refuge Class I areas of the state.

The 2009 RH plan indicated that when CENRAP was created the organization identified large visibility data voids in southern Arkansas, Iowa, Kansas, Southern Minnesota, Nebraska, and Oklahoma. Only five IMPROVE sites were located in the CENRAP region at that time. Because of this evaluation, states added other sites to fill some spatial gaps in the IMPROVE monitoring network. Between 2000 and 2003, five more IMPROVE sites and 15 IMPROVE protocol sites were installed in the CENRAP Region. Missouri installed an IMPROVE protocol sampler located at the El Dorado Springs ambient air monitoring site in Cedar County, Missouri.

Missouri will continue IMPROVE monitoring at Hercules Glades Wilderness and Mingo Wildlife refuge Class I areas consistent with the requirements of 40 CFR 51.308(d)(4)(iv). IMPROVE Protocol monitoring will continue at El Dorado Springs since this data can supplement potential data analysis projects which may be needed to address issues regarding regional transport of $PM_{2.5}$ air pollution regulated under the recently revised Annual $PM_{2.5}$ NAAQS. El Dorado Springs is classified as a regional transport site for $PM_{2.5}$ consistent with the network design requirements of 40 CFR 58 Appendix D, Section 4.7.3.

The three IMPROVE monitoring sites provide spatial coverage for the Regional Haze program. There are no weaknesses in the network or any plans to change the monitoring network. However, recent reductions in both state and federal funding in recent years have put core monitoring programs under considerable strain. Federal funding for the Regional Haze program is critical for continued operation of Class I area IMPROVE monitoring. Federal funding supports all of the analytical analysis for the Missouri IMPROVE monitoring sites. If federal funding were reduced such that the State of Missouri would be required to fund some or all of the sample analysis, serious consideration would be given to whether or not the El Dorado Springs protocol site would be continued.

H. Determination of Adequacy

Section 51.308(h)
(h) Determination of the adequacy of existing implementation plan. At the same time the State is required to submit any 5-year progress report to the EPA in accordance with paragraph (g) of this section, the State must also take one of the following actions based upon the information presented in the progress report:

(1) If the State determines that the existing implementation plan requires no further substantive revision at this time in order to achieve established goals for visibility improvement and emissions reductions, the State must provide to the Administrator a negative declaration that further revision of the existing implementation plan is not needed at this time.

(2) If the State determines that the implementation plan is or may be inadequate to ensure reasonable progress due to emissions from sources in another State(s) which participated in a regional planning process, the State must provide notification to the Administrator and to the other State(s) which participated in the regional planning process with the States. The State must also collaborate with the other State(s) through the regional planning process for the purpose of developing additional strategies to address the plan's deficiencies.

(3) Where the State determines that the implementation plan is or may be inadequate to ensure reasonable progress due to emissions from sources in another country, the State shall provide notification, along with available information, to the Administrator.

(4) Where the State determines that the implementation plan is or may be inadequate to ensure reasonable progress due to emissions from sources within the State, the State shall revise its implementation plan to address the plan's deficiencies within one year.

Based on the analysis and trends discussed in preceding sections, Missouri has determined that the current strategy as established in the 2009 RH plan, continues to be adequate and sufficient in achieving the goals laid out by the Federal Regional Haze Rule. Based on the options given and the evidence presented in this report, Missouri submits a negative declaration specifying that no additional controls or further revision of the 2009 RH plan is necessary during this, the first 5-year progress report.

III. General Planning Provisions

A. EPA Administrative Process Requirements

The Air Program has been working with EPA Region 7 to simplify general procedural requirements. The following two memoranda were the result of nationwide EPA and State cooperation and were taken into consideration when developing this report and throughout the corresponding consultation and public participation process.
(1) Memorandum from Janet McCabe to the EPA Regional Administrators: Regional Consistency for the Administrative Requirements of State Implementation Plan Submittals and the Use of "Letter Notices." April 11, 2011.
http://www.epa.gov/airquality/urbanair/sipstatus/docs/mccabeLltrRAs.pdf
(2) Memorandum from Janet McCabe to the EPA Regional Administrators: Guidance for Preparing Letters Submitting State Implementation Plans (SIPs) to the EPA and for Preparing Public Notices for SIPs. November 22, 2011.
http://www.epa.gov/airquality/urbanair/sipstatus/docs/FINALSIPGuidelinesSubLtrsPN.pdf

B. Report Submission

Pursuant to the requirements of 51.308(a) and (b), this Missouri Regional Haze 5-Year Progress Report is being submitted to the EPA for inclusion into the Missouri State Implementation Plan (SIP) as adopted to meet the requirements of EPA's Regional Haze Rule that was implemented to comply with requirements set forth in the CAA. This report is being submitted as a SIP revision. Elements of this report address the core requirements pursuant to 40 CFR 51.308(d). In addition, this plan addresses regional planning; state/tribe and FLM coordination; and contains a commitment to provide plan revisions and adequacy determinations. Missouri will have adopted this plan submittal in accordance with state laws and rules. This report is due within 5 years of the initial Missouri Regional Haze plan submittal date to EPA. The original plan was submitted on August 5, 2009, so this 5-year progress report is due to EPA no later than August 5, 2014.

C. Public Participation

In accordance with the federal Regional Haze Rule, the Air Program is required to hold a public hearing prior to adoption of this progress report and the subsequent submittal to the EPA. The Air Program notified the public and other interested parties of an upcoming public hearing and comment period 30 days prior to holding such hearing for this state plan as follows:

- Federal Land Managers (FLMs) were provided the opportunity for review of this report beginning on February 14, 2014, which is at least 60 days prior to the scheduled public hearing for this report.

- Notice of availability of the Regional Haze 5-Year Progress Report was posted on the Department of Natural Resources' Air Pollution Control Program website on April 28, 2014, at: http://dnr.mo.gov/env/apcp/public-notices.htm

- The public comment period for this Missouri Regional Haze 5-Year Progress Report opened when it was posted on the Department of Natural Resources' Air Pollution Control Program website on Monday, April 28, 2014, and closed on Thursday, June 5, 2014, seven days after the public hearing.

- The public hearing on the Regional Haze 5-Year Progress Report was scheduled for 9:00 a.m., Thursday, May 29, 2014. The public hearing was held at the St. Louis Regional Office, 7545 S. Lindbergh, Suite 220, DESE Conference Room, in St. Louis, Missouri.

A printout of the online public notice with date stamp is included in Appendix B.

A copy of the MACC adoption signature page is included in Appendix D.

D. Consultation and Commitment to Revise Plan

In keeping with the EPA's recommendations related to consultation, the Air Program enlisted the support of appropriate state and local air pollution control agencies as well as EPA Region 7 and the Federal Land Management Agencies (FLMs) to formulate this report. As part of this commitment, the Air Program made an advanced, draft copy of this report available to the aforementioned agencies and sought their input. Comments received as part of this consultation are included in Appendix C. Relevant comments were taken into account in the development of this progress report.

Consultation between the states and the FLMs will continue as the federal regional haze program progresses. Missouri will continue to coordinate with other states, FLMs, EPA, CenSARA, CENRAP, and other RPOs to maintain/improve the visibility in Missouri's Class I areas. This coordination will continue to include five-year progress reports and any necessary SIP revisions. If deemed necessary, there will be face-to-face consultation meetings. It will also provide for consideration of any other programs that are implemented and have the potential to aid in reducing the impairment of visibility in Class I areas.

LIST OF APPENDICES

Appendix A: Underlying Data Tables

Appendix B: Online Public Notice Screenshot with Date Stamp

Appendix C: Written Comments and Responses and Consultation Correspondence

Appendix D: MACC Adoption Signature Page

Appendix A: Underlying Data Tables

Missouri's CAMD Acid Rain Program Unit Data:

State	Year	SO2 (tons)	NOx (tons)	Heat Input (MMBtu)
MO	2007	255201.637	105921.124	800610887.9
MO	2008	258268.854	88599.982	770260872.5
MO	2009	240201.919	53474.868	761579014
MO	2010	236216.924	58364.015	808226596.8
MO	2011	196255.617	63277.666	838655088.9
MO	2012	138805.424	69561.901	769110993.1

Visibility Data from the WRAP TSS for Mingo, Hercules Glades, and El Dorado Springs:

Note: Underlying Data for Figures included in the Visibility Progress Section are also publicly available online through the WRAP TSS website, http://vista.cira.colostate.edu/tss/Results/HazePlanning.aspx.

Extinction (Mm^{-1}) and Deciviews for Worst 20% Days:

Site	Method	Year	N	Deciview	Total Extinction	SO4 Extinction	NO3 Extinction	OMC Extinction	EC Extinction	Soil Extinction	CM Extinction	SeaSalt Extinction
MING1	NIA	2001	23	29.5	200.25	91.58	39.27	38.47	8.95	1.55	8.4	0.03
MING1	NIA	2002	13			141.31	18.35			1.73	5.14	0.14
MING1	NIA	2003	19			113.31	29.7			1.1	4.46	0
MING1	NIA	2004	21			72.09	21.54			1.2	7.83	0.7
MING1	NIA	2005										
MING1	NIA	2006	23	27.3	158.68	101.77	9.43	17.05	6.19	2.71	9.16	0.37

MING1	NIA	2007	23	29.1	195.08	120.95	10.75	32.32	8.09	2.12	8.45	0.41
MING1	NIA	2008	22	26.8	147.21	87.92	14.4	20.13	5.56	1.67	5.23	0.3
MING1	NIA	2009	20	25.1	126.28	64.02	15.35	20.73	5.8	1.44	6.65	0.29
MING1	NIA	2010	21	25.7	135.02	48.48	29.56	29.33	6.07	2.2	7.16	0.22
MING1	NIA	2011	20	25.2	125.99	53.56	29.62	18.75	5.06	1.1	5.48	0.42
HEGL1	NIA	2002	25	27.2	156.8	104.15	14.6	18.16	4.96	1.04	2.88	0
HEGL1	NIA	2003	24	26.6	149.33	87.02	14.99	27.36	5.59	0.82	2.55	0
HEGL1	NIA	2004	25	26.5	147.58	72.64	24.15	30.28	5.12	0.89	2.92	0.58
HEGL1	NIA	2005	24	29.5	200.64	139.16	15.27	22.82	6.71	0.69	4.14	0.85
HEGL1	NIA	2006	24	25.9	138.54	76.78	20.29	19.51	5.62	1.5	3.29	0.55
HEGL1	NIA	2007	25	26.2	146.19	92.61	10	21.87	5.59	0.84	3.88	0.4
HEGL1	NIA	2008	22	25	125.01	73.04	19.41	13.84	3.57	0.77	3.15	0.22
HEGL1	NIA	2009	25	23.6	107.26	51.87	21.97	14.29	3.96	0.72	3.19	0.25
HEGL1	NIA	2010	24	23.6	107.09	42.24	27.31	16.48	4.33	0.91	4.76	0.06
HEGL1	NIA	2011	23	24.1	115.12	47.09	30.35	16.69	3.9	0.59	5.13	0.37
HEGL1	NIA	2012	25	21.2	86.08	37.65	11.9	16.25	4.15	0.63	4.21	0.3
ELDO1	NIA	2003	24	27.9	168.43	75.41	39.94	26.14	6.41	1.27	8.26	0
ELDO1	NIA	2004	23	26.6	149.22	58.82	37.27	30.32	4.8	1.05	5.34	0.63
ELDO1	NIA	2005	23	28.6	185.3	109.67	30.53	16.24	5.68	1.71	10.2	0.27
ELDO1	NIA	2006	20	26.1	138.25	66.63	30.74	14.06	5.02	1.63	8.74	0.42
ELDO1	NIA	2007	21	26.1	140.62	69.47	30.73	15.49	5.1	1.56	6.83	0.45
ELDO1	NIA	2008	25	24.5	117.74	55.36	23.79	15.54	4.3	0.96	6.49	0.28
ELDO1	NIA	2009	23	24.1	114.86	46.19	33.27	12.56	4.45	0.93	6.18	0.27
ELDO1	NIA	2010	23	24.7	121.79	37.77	50.74	13.19	3.99	0.69	4.16	0.27
ELDO1	NIA	2011	21	25.2	127.41	42.85	44.49	16.66	4.3	0.79	6.71	0.6
ELDO1	NIA	2012	24	23.4	106.08	38.74	25.47	11.2	3.87	2.75	12.62	0.43

Mass Concentrations (μg/m^3) for Worst 20% Days:

Site	Method	Year	N	ammSO4	ammNO3	OMC	EC	Soil	CM	SeaSalt
MING1	NIA	2001	23	8.78	3.85	8.39	0.9	1.55	14	0.01
MING1	NIA	2002	13	12.42	1.76			1.73	8.57	0.02
MING1	NIA	2003	19	10.89	3.15			1.1	7.44	0
MING1	NIA	2004	21	7.36	2.23			1.2	13.05	0.11
MING1	NIA	2006	23	9.68	1.09	4.63	0.62	2.71	15.27	0.06
MING1	NIA	2007	23	11.15	1.26	7.44	0.81	2.12	14.08	0.07
MING1	NIA	2008	22	8.69	1.51	5.11	0.56	1.67	8.72	0.05
MING1	NIA	2009	20	6.58	1.59	5.31	0.58	1.44	11.09	0.05
MING1	NIA	2010	21	5.26	2.97	6.76	0.61	2.2	11.93	0.03
MING1	NIA	2011	20	5.88	3.05	4.98	0.51	1.1	9.13	0.07
HEGL1	NIA	2002	25	9.93	1.45	4.89	0.5	1.04	4.8	0
HEGL1	NIA	2003	24	8.71	1.65	6.4	0.56	0.82	4.24	0
HEGL1	NIA	2004	25	7.42	2.51	6.87	0.51	0.89	4.87	0.1
HEGL1	NIA	2005	24	12.56	1.47	5.71	0.67	0.69	6.91	0.14
HEGL1	NIA	2006	24	7.83	2.21	4.96	0.56	1.5	5.48	0.09
HEGL1	NIA	2007	25	9.07	1.13	5.63	0.56	0.84	6.47	0.07
HEGL1	NIA	2008	22	7.57	1.89	3.9	0.36	0.77	5.25	0.04
HEGL1	NIA	2009	25	5.59	2.29	3.86	0.4	0.72	5.32	0.04
HEGL1	NIA	2010	24	4.8	2.83	4.32	0.43	0.91	7.93	0.01
HEGL1	NIA	2011	23	5.26	2.98	4.55	0.39	0.59	8.56	0.06
HEGL1	NIA	2012	25	4.33	1.29	4.05	0.41	0.63	7.01	0.05
ELDO1	NIA	2003	24	7.79	3.97	6.18	0.64	1.27	13.76	0
ELDO1	NIA	2004	23	6.25	3.72	6.68	0.48	1.05	8.89	0.1
ELDO1	NIA	2005	23	10.4	3.12	4.36	0.57	1.71	17.01	0.04
ELDO1	NIA	2006	20	7.09	3.28	3.84	0.5	1.63	14.56	0.07
ELDO1	NIA	2007	21	7.26	3.22	4.26	0.51	1.56	11.38	0.08

ELDO1	NIA	2008	25	6	2.52	4.12	0.43	0.96	10.82	0.05
ELDO1	NIA	2009	23	5.11	3.31	3.58	0.45	0.93	10.3	0.05
ELDO1	NIA	2010	23	4.36	5.13	3.54	0.4	0.69	6.93	0.04
ELDO1	NIA	2011	21	4.95	4.4	4.52	0.43	0.79	11.19	0.1
ELDO1	NIA	2012	24	4.46	2.59	3.28	0.39	2.75	21.03	0.07

Extinction (Mm^{-1}) and Deciviews for Best 20% Days:

Site	Method	Year	N	Deciview	Total Extinction	SO4 Extinction	NO3 Extinction	OMC Extinction	EC Extinction	Soil Extinction	CM Extinction	SeaSalt Extinction
MING1	NIA	2001	22	13.7	39.81	13.16	5.08	4.99	2.1	0.37	2.1	0.01
MING1	NIA	2002	12			15.81	4.29			0.56	3.23	0
MING1	NIA	2003	18			13.98	4.05			0.46	3.2	0
MING1	NIA	2004	20			12.45	4.36			0.28	4.09	0.25
MING1	NIA	2006	23	14.2	42.1	14.15	4.06	5.01	2.42	0.61	3.49	0.36
MING1	NIA	2007	22	15.1	46.08	14.5	6.11	5.79	2.58	0.72	4.06	0.32
MING1	NIA	2008	22	13.9	41.02	14	4.51	5.09	1.82	0.47	2.98	0.16
MING1	NIA	2009	19	12.3	34.62	11.79	2.12	4.24	1.62	0.29	2.41	0.15
MING1	NIA	2010	21	13.5	39.04	14.07	2.88	4.86	1.78	0.64	2.75	0.05
MING1	NIA	2011	19	12.5	35.73	9.05	2.74	4.95	1.91	0.52	4.06	0.49
HEGL1	NIA	2002	24	13.6	39.28	11.69	6.09	5.47	2.37	0.3	2.36	0
HEGL1	NIA	2003	24	12.2	34.44	9.25	4.32	5.26	1.83	0.34	2.27	0.16
HEGL1	NIA	2004	24	12.7	36.02	11.6	4.27	4.6	1.83	0.32	2.12	0.29
HEGL1	NIA	2005	23	13.6	40.28	14.83	4.16	4.79	2.19	0.39	2.82	0.12
HEGL1	NIA	2006	23	13.3	38.3	13.72	3.91	4.89	2.51	0.3	1.77	0.19
HEGL1	NIA	2007	24	13	37.3	10.21	5.99	5.1	1.92	0.32	2.54	0.22
HEGL1	NIA	2008	21	11.7	32.74	10.48	2.85	4.13	1.41	0.33	2.49	0.05
HEGL1	NIA	2009	24	11	30.4	9.52	2.36	3.65	1.41	0.26	2.04	0.16

HEGL1	NIA	2010	23	11.5	31.87	9.35	3.1	3.49	1.41	0.43	3.03	0.06
HEGL1	NIA	2011	22	11.4	31.49	8.67	3	3.9	1.63	0.28	2.75	0.26
HEGL1	NIA	2012	24	10.9	30.18	7.28	2.7	3.62	1.78	0.39	3.22	0.19
ELDO1	NIA	2003	24	13.4	38.84	9.5	5.66	5.9	2.37	0.4	3.96	0.05
ELDO1	NIA	2004	22	12.7	36.49	9.78	4.09	5.4	2.04	0.55	3.37	0.26
ELDO1	NIA	2005	22	13.8	40.53	12.32	6.11	4.52	2.23	0.53	3.71	0.11
ELDO1	NIA	2006	19	14.2	41.81	13.41	5.75	4.73	2.47	0.44	3.91	0.1
ELDO1	NIA	2007	21	13.7	40.03	11.68	5.4	4.5	1.87	0.67	4.71	0.21
ELDO1	NIA	2008	24	11.8	32.92	10	3.49	3.75	1.48	0.35	2.73	0.12
ELDO1	NIA	2009	23	11.9	33.15	9.73	4.78	3.63	1.48	0.29	2.01	0.23
ELDO1	NIA	2010	23	11.8	33.04	9.04	3.63	3.8	1.58	0.49	3.47	0.04
ELDO1	NIA	2011	20	12.7	36.18	9.54	4.29	4.28	1.6	0.47	4.74	0.26
ELDO1	NIA	2012	23	11.5	31.9	7.11	3.71	3.72	1.48	0.59	4.04	0.25

Mass Concentrations ($\mu g/m^3$) for Best 20% Days:

Site	Method	Year	N	ammSO4	ammNO3	OMC	EC	Soil	CM	SeaSalt
MING1	NIA	2001	22	1.68	0.61	1.61	0.21	0.37	3.5	0
MING1	NIA	2002	12	1.89	0.48			0.56	5.38	0
MING1	NIA	2003	18	1.74	0.48			0.46	5.34	0
MING1	NIA	2004	20	1.54	0.5			0.28	6.81	0.04
MING1	NIA	2006	23	1.72	0.47	1.6	0.24	0.61	5.81	0.06
MING1	NIA	2007	22	1.8	0.71	1.84	0.26	0.72	6.76	0.05
MING1	NIA	2008	22	1.74	0.53	1.63	0.18	0.47	4.96	0.02
MING1	NIA	2009	19	1.5	0.26	1.39	0.16	0.29	4.02	0.02
MING1	NIA	2010	21	1.77	0.34	1.57	0.18	0.64	4.58	0.01
MING1	NIA	2011	19	1.16	0.33	1.58	0.19	0.52	6.77	0.08

HEGL1	NIA	2002	24	1.5	0.72	1.75	0.24	0.3	3.94	0
HEGL1	NIA	2003	24	1.17	0.5	1.69	0.18	0.34	3.79	0.03
HEGL1	NIA	2004	24	1.46	0.49	1.49	0.18	0.32	3.53	0.05
HEGL1	NIA	2005	23	1.87	0.51	1.54	0.22	0.39	4.7	0.02
HEGL1	NIA	2006	23	1.67	0.44	1.59	0.25	0.3	2.94	0.03
HEGL1	NIA	2007	24	1.27	0.69	1.64	0.19	0.32	4.24	0.03
HEGL1	NIA	2008	21	1.34	0.33	1.33	0.14	0.33	4.15	0.01
HEGL1	NIA	2009	24	1.23	0.29	1.2	0.14	0.26	3.39	0.03
HEGL1	NIA	2010	23	1.18	0.37	1.15	0.14	0.43	5.05	0.01
HEGL1	NIA	2011	22	1.09	0.35	1.28	0.16	0.28	4.58	0.04
HEGL1	NIA	2012	24	0.94	0.32	1.19	0.18	0.39	5.37	0.03
ELDO1	NIA	2003	24	1.2	0.66	1.87	0.24	0.4	6.6	0.01
ELDO1	NIA	2004	22	1.28	0.5	1.71	0.2	0.55	5.62	0.05
ELDO1	NIA	2005	22	1.59	0.74	1.46	0.22	0.53	6.18	0.02
ELDO1	NIA	2006	19	1.67	0.67	1.53	0.25	0.44	6.51	0.02
ELDO1	NIA	2007	21	1.48	0.63	1.46	0.19	0.67	7.85	0.03
ELDO1	NIA	2008	24	1.28	0.43	1.23	0.15	0.35	4.55	0.02
ELDO1	NIA	2009	23	1.27	0.58	1.2	0.15	0.29	3.35	0.04
ELDO1	NIA	2010	23	1.18	0.45	1.24	0.16	0.49	5.78	0.01
ELDO1	NIA	2011	20	1.23	0.51	1.4	0.16	0.47	7.9	0.04
ELDO1	NIA	2012	23	0.94	0.45	1.23	0.15	0.59	6.74	0.04

Mingo's Reasonable Progress Chart of 5-Year Averages for Worst and Best 20% Days – from TSS:

Class I Area Visibility Summary: Mingo NWRW, MO Class I area **Visibility Conditions:** Worst 20% Days **Reasonable Progress Summary**					
	2000-04 Baseline Conditions (Mm^{-1})	**2005-09 Progress Period (Mm^{-1})**	**2006-10 Progress Period (Mm^{-1})**	**2007-11 Progress Period (Mm^{-1})**	**2008-12 Progress Period (Mm^{-1})**
Sulfate	104.6	93.7	84.6	75.0	63.5
Nitrate	27.2	12.5	15.9	19.9	22.2
Organic Carbon	20.5	22.6	23.9	24.3	22.2
Elemental Carbon	5.5	6.4	6.3	6.1	5.6
Fine Soil	1.4	2.0	2.0	1.7	1.6
Coarse Material	6.5	7.4	7.3	6.6	6.1
Sea Salt	0.2	0.3	0.3	0.3	0.3
Total Light Extinction	177.9	156.8	152.5	145.9	133.6
Deciview	28.02	27.1	26.8	26.4	25.7

Class I Area Visibility Summary: Mingo NWRW, MO Class I area					
Visibility Conditions: Best 20% Days					
Reasonable Progress Summary					
	2000-04 Baseline Conditions	**2005-09 Progress Period**	**2006-10 Progress Period**	**2007-11 Progress Period**	**2008-12 Progress Period**
Sulfate	13.8	13.6	13.7	12.7	12.2
Nitrate	4.4	4.2	3.9	3.7	3.1
Organic Carbon	6.3	5	5	5	4.8
Elemental Carbon	2.3	2.1	2	1.9	1.8
Fine Soil	0.4	0.5	0.5	0.5	0.5
Coarse Material	3.2	3.2	3.1	3.3	3
Sea Salt	0.1	0.2	0.2	0.2	0.2
Total Light Extinction	42.5	41	40.6	39.3	37.6
Deciview	14.3	13.9	13.8	13.5	13.1

Hercules Glades' Reasonable Progress Chart of 5-Year Averages for Worst and Best 20% Days – from TSS:

	Class I Area Visibility Summary: Hercules-Glades W, MO Class I area **Visibility Conditions:** Worst 20% Days **Reasonable Progress Summary**				
	2000-04 Baseline Conditions (Mm^{-1})	**2005-09 Progress Period (Mm^{-1})**	**2006-10 Progress Period (Mm^{-1})**	**2007-11 Progress Period (Mm^{-1})**	**2008-12 Progress Period (Mm^{-1})**
Sulfate	87.9	86.7	67.3	61.4	50.4
Nitrate	17.9	17.4	19.8	21.8	22.2
Organic Carbon	25.3	18.5	17.2	16.6	15.5
Elemental Carbon	5.2	5.1	4.6	4.3	4.0
Fine Soil	0.9	0.9	0.9	0.8	0.7
Coarse Material	2.8	3.5	3.7	4.0	4.1
Sea Salt	0.2	0.5	0.3	0.3	0.2
Total Light Extinction	151.2	143.5	124.8	120.1	108.1
Deciview	26.7	26.0	24.9	24.5	23.5

Class I Area Visibility Summary: Hercules-Glade W, MO Class I area					
Visibility Conditions: Best 20% Days					
Reasonable Progress Summary					
	2000-04 Baseline Conditions	**2005-09 Progress Period**	**2006-10 Progress Period**	**2007-11 Progress Period**	**2008-12 Progress Period**
Sulfate	10.8	11.8	10.7	9.6	9.1
Nitrate	4.9	3.9	3.6	3.5	2.8
Organic Carbon	5.1	4.5	4.3	4.1	3.8
Elemental Carbon	2	1.9	1.7	1.6	1.5
Fine Soil	0.3	0.3	0.3	0.3	0.3
Coarse Material	2.3	2.3	2.4	2.6	2.7
Sea Salt	0.2	0.1	0.1	0.1	0.1
Total Light Extinction	36.6	35.8	34.1	32.8	31.3
Deciview	12.8	12.5	12.1	11.7	11.3

Arkansas – Upper Buffalo

	Class I Area Visibility Summary: Upper Buffalo W, AR Class I area **Visibility Conditions:** Worst 20% Days **Reasonable Progress Summary**				
	2000-04 Baseline Conditions (Mm-1)	2005-09 Progress Period (Mm-1)	2006-10 Progress Period (Mm-1)	2007-11 Progress Period (Mm-1)	2008-12 Progress Period (Mm-1)
Sulfate	83.2	90.0	70.0	62.1	50.7
Nitrate	13.3	11.9	13.0	14.4	14.4
Organic Carbon	22.5	19.8	18.7	18.7	14.9
Elemental Carbon	4.7	4.7	4.2	4.1	3.7
Fine Soil	1.2	1.2	1.3	1.1	1.1
Coarse Material	6.8	4.9	5.5	5.1	5.4
Sea Salt	0.2	0.4	0.5	0.4	0.4

Total Light Extinction	142.9	143.9	124.1	117.0	101.6
Deciview	26.3	25.9	24.7	24.1	22.9

Arkansas – Caney Creek

	Class I Area Visibility Summary: Caney Creek W, AR Class I area **Visibility Conditions:** Worst 20% Days **Reasonable Progress Summary**				
	2000-04 Baseline Conditions (Mm-1)	2005-09 Progress Period (Mm-1)	2006-10 Progress Period (Mm-1)	2007-11 Progress Period (Mm-1)	2008-12 Progress Period (Mm-1)
Sulfate	87.1	87.0	63.4	53.9	51.9
Nitrate	13.8	9.5	11.2	12.6	12.5
Organic Carbon	23.4	16.4	14.8	14.1	13.3
Elemental Carbon	4.8	4.2	3.5	3.3	3.3
Fine Soil	1.1	1.2	1.5	1.3	1.4

Coarse Material	3.7	4.0	4.3	4.3	4.2
Sea Salt	0.2	0.3	0.3	0.4	0.5
Total Light Extinction	145.1	133.6	110.1	100.9	97.9
Deciview	26.4	25.3	23.7	23.0	22.7

2013 EGU Control Summary for Units Subject to CAIR (queried from CAMD):

Facility Name	Facility ID (ORISPL)	Unit ID	Year	Unit Type	Fuel Type (Primary)	Fuel Type (Secondary)	SO2 Control(s)	NOx Control(s)	PM Control(s)
Asbury	2076	1	2013	Cyclone boiler	Coal			Overfire Air Selective Catalytic Reduction	Electrostatic Precipitator
Audrain Power Plant	55234	CT1	2013	Combustion turbine	Pipeline Natural Gas			Dry Low NOx Burners	
Audrain Power Plant	55234	CT2	2013	Combustion turbine	Pipeline Natural Gas			Dry Low NOx Burners	

Audrain Power Plant	55234	CT3	2013	Combustion turbine	Pipeline Natural Gas			Dry Low NOx Burners	
Audrain Power Plant	55234	CT4	2013	Combustion turbine	Pipeline Natural Gas			Dry Low NOx Burners	
Audrain Power Plant	55234	CT5	2013	Combustion turbine	Pipeline Natural Gas			Dry Low NOx Burners	
Audrain Power Plant	55234	CT6	2013	Combustion turbine	Pipeline Natural Gas			Dry Low NOx Burners	
Audrain Power Plant	55234	CT7	2013	Combustion turbine	Pipeline Natural Gas			Dry Low NOx Burners	
Audrain Power Plant	55234	CT8	2013	Combustion turbine	Pipeline Natural Gas			Dry Low NOx Burners	
Blue Valley	2132	3	2013	Tangentially-fired	Coal	Pipeline Natural Gas		Low NOx Burner Technology w/ Closed-coupled OFA	Electrostatic Precipitator
Chamois Power Plant	2169	2	2013	Cyclone boiler	Coal	Diesel Oil			Electrostatic Precipitator
Chillicothe	2122	GT1A	2013	Combustion turbine	Pipeline Natural Gas	Diesel Oil			
Chillicothe	2122	GT1B	2013	Combustion turbine	Pipeline Natural Gas	Diesel Oil			
Chillicothe	2122	GT2A	2013	Combustion turbine	Pipeline Natural Gas	Diesel Oil			

Chillicothe	2122	GT2B	2013	Combustion turbine	Pipeline Natural Gas	Diesel Oil			
Columbia	2123	6	2013	Stoker	Coal				Baghouse
Columbia	2123	7	2013	Stoker	Coal				Baghouse
Columbia	2123	8	2013	Dry bottom wall-fired boiler	Pipeline Natural Gas				
Columbia Energy Center (MO)	55447	CT01	2013	Combustion turbine	Pipeline Natural Gas			Dry Low NOx Burners	
Columbia Energy Center (MO)	55447	CT02	2013	Combustion turbine	Pipeline Natural Gas			Dry Low NOx Burners	
Columbia Energy Center (MO)	55447	CT03	2013	Combustion turbine	Pipeline Natural Gas			Dry Low NOx Burners	
Columbia Energy Center (MO)	55447	CT04	2013	Combustion turbine	Pipeline Natural Gas			Dry Low NOx Burners	
Dogwood Energy Facility	55178	CT-1	2013	Combined cycle	Pipeline Natural Gas			Selective Catalytic Reduction	
Dogwood Energy Facility	55178	CT-2	2013	Combined cycle	Pipeline Natural Gas			Selective Catalytic Reduction	
Empire District Elec Co Energy Ctr	6223	1	2013	Combustion turbine	Pipeline Natural Gas	Diesel Oil		Water Injection	

Empire District Elec Co Energy Ctr	6223	2	2013	Combustion turbine	Pipeline Natural Gas	Diesel Oil		Water Injection	
Empire District Elec Co Energy Ctr	6223	3A	2013	Combustion turbine	Pipeline Natural Gas	Diesel Oil		Water Injection	
Empire District Elec Co Energy Ctr	6223	3B	2013	Combustion turbine	Pipeline Natural Gas	Diesel Oil		Water Injection	
Empire District Elec Co Energy Ctr	6223	4A	2013	Combustion turbine	Pipeline Natural Gas	Diesel Oil		Water Injection	
Empire District Elec Co Energy Ctr	6223	4B	2013	Combustion turbine	Pipeline Natural Gas	Diesel Oil		Water Injection	
Essex Power Plant	7749	1	2013	Combustion turbine	Pipeline Natural Gas			Dry Low NOx Burners	
Fairgrounds	2082	CT01	2013	Combustion turbine	Diesel Oil				
Greenwood Energy Center	6074	1	2013	Combustion turbine	Pipeline Natural Gas	Diesel Oil			
Greenwood Energy Center	6074	2	2013	Combustion turbine	Pipeline Natural Gas	Diesel Oil			
Greenwood Energy Center	6074	3	2013	Combustion turbine	Pipeline Natural Gas	Diesel Oil			

Greenwood Energy Center	6074	4	2013	Combustion turbine	Pipeline Natural Gas	Diesel Oil			
Hawthorn	2079	5A	2013	Dry bottom wall-fired boiler	Coal		Dry Lime FGD	Low NOx Burner Technology w/ Overfire Air Selective Catalytic Reduction	Baghouse
Hawthorn	2079	6	2013	Combustion turbine	Pipeline Natural Gas			Other	
Hawthorn	2079	7	2013	Combustion turbine	Pipeline Natural Gas			Other	
Hawthorn	2079	8	2013	Combustion turbine	Pipeline Natural Gas			Other	
Hawthorn	2079	9	2013	Combined cycle	Pipeline Natural Gas			Selective Catalytic Reduction	
Higginsville Municipal Power Plant	2131	4A	2013	Combustion turbine	Pipeline Natural Gas	Diesel Oil		Water Injection	
Higginsville Municipal Power Plant	2131	4B	2013	Combustion turbine	Pipeline Natural Gas	Diesel Oil		Water Injection	
Holden Power Plant	7848	1	2013	Combustion turbine	Pipeline Natural Gas	Diesel Oil		Dry Low NOx Burners Water Injection	

Holden Power Plant	7848	2	2013	Combustion turbine	Pipeline Natural Gas	Diesel Oil		Dry Low NOx Burners Water Injection	
Holden Power Plant	7848	3	2013	Combustion turbine	Pipeline Natural Gas	Diesel Oil		Dry Low NOx Burners Water Injection	
Howard Bend	2102	CT1A	2013	Combustion turbine	Diesel Oil				
Howard Bend	2102	CT1B	2013	Combustion turbine	Diesel Oil				
Iatan	6065	1	2013	Dry bottom wall-fired boiler	Coal		Wet Lime FGD	Low NOx Burner Technology w/ Overfire Air Overfire Air Selective Catalytic Reduction	Baghouse
Iatan	6065	2	2013	Dry bottom wall-fired boiler	Coal		Wet Lime FGD	Low NOx Burner Technology w/ Overfire Air Overfire Air Selective Catalytic Reduction	Baghouse
James River	2161	**GT1	2013	Combustion turbine	Pipeline Natural Gas	Diesel Oil		Water Injection	
James River	2161	**GT2	2013	Combustion turbine	Pipeline Natural Gas	Diesel Oil		Water Injection	

James River	2161	3	2013	Dry bottom wall-fired boiler	Coal	Pipeline Natural Gas		Low NOx Burner Technology w/ Overfire Air	Electrostatic Precipitator
James River	2161	4	2013	Dry bottom wall-fired boiler	Coal	Pipeline Natural Gas		Low NOx Burner Technology w/ Overfire Air	Electrostatic Precipitator
James River	2161	5	2013	Dry bottom wall-fired boiler	Coal	Pipeline Natural Gas		Low NOx Burner Technology w/ Overfire Air	Electrostatic Precipitator
John Twitty Energy Center	6195	1	2013	Dry bottom wall-fired boiler	Coal	Diesel Oil, Pipeline Natural Gas		Other Selective Catalytic Reduction	Electrostatic Precipitator
John Twitty Energy Center	6195	2	2013	Dry bottom wall-fired boiler	Coal	Pipeline Natural Gas	Fluidized Bed Limestone Injection	Selective Catalytic Reduction	Baghouse
John Twitty Energy Center	6195	CT1A	2013	Combustion turbine	Pipeline Natural Gas	Diesel Oil		Water Injection	
John Twitty Energy Center	6195	CT1B	2013	Combustion turbine	Pipeline Natural Gas	Diesel Oil		Water Injection	
John Twitty Energy Center	6195	CT2A	2013	Combustion turbine	Pipeline Natural Gas	Diesel Oil		Water Injection	
John Twitty Energy Center	6195	CT2B	2013	Combustion turbine	Pipeline Natural Gas	Diesel Oil		Water Injection	

Labadie	2103	1	2013	Tangentially-fired	Coal			Low NOx Burner Technology w/ Closed-coupled/Separated OFA	Electrostatic Precipitator
Labadie	2103	2	2013	Tangentially-fired	Coal			Low NOx Burner Technology w/ Closed-coupled/Separated OFA	Electrostatic Precipitator
Labadie	2103	3	2013	Tangentially-fired	Coal			Low NOx Burner Technology w/ Closed-coupled/Separated OFA	Electrostatic Precipitator
Labadie	2103	4	2013	Tangentially-fired	Coal			Low NOx Burner Technology w/ Closed-coupled/Separated OFA	Electrostatic Precipitator
Lake Road	2098	6	2013	Cyclone boiler	Coal	Pipeline Natural Gas		Overfire Air	Electrostatic Precipitator
Lake Road	2098	GT5	2013	Combustion turbine	Pipeline Natural Gas	Diesel Oil			
McCartney Generating Station	7903	MGS1A	2013	Combustion turbine	Pipeline Natural Gas			Water Injection	
McCartney Generating Station	7903	MGS1B	2013	Combustion turbine	Pipeline Natural Gas			Water Injection	

McCartney Generating Station	7903	MGS2A	2013	Combustion turbine	Pipeline Natural Gas			Water Injection	
McCartney Generating Station	7903	MGS2B	2013	Combustion turbine	Pipeline Natural Gas			Water Injection	
Meramec	2104	1	2013	Tangentially-fired	Coal			Low NOx Burner Technology w/ Separated OFA	Electrostatic Precipitator
Meramec	2104	2	2013	Tangentially-fired	Coal			Low NOx Burner Technology w/ Separated OFA	Electrostatic Precipitator
Meramec	2104	3	2013	Dry bottom wall-fired boiler	Coal			Low NOx Burner Technology w/ Overfire Air	Electrostatic Precipitator
Meramec	2104	4	2013	Dry bottom wall-fired boiler	Coal			Low NOx Burner Technology w/ Overfire Air	Electrostatic Precipitator
Meramec	2104	CT01	2013	Combustion turbine	Diesel Oil				
Meramec	2104	CT2A	2013	Combustion turbine	Pipeline Natural Gas	Diesel Oil		Water Injection	
Meramec	2104	CT2B	2013	Combustion turbine	Pipeline Natural Gas	Diesel Oil		Water Injection	
Mexico	6650	CT01	2013	Combustion turbine	Diesel Oil				
Moberly	6651	CT01	2013	Combustion turbine	Diesel Oil				

Montrose	2080	1	2013	Tangentially-fired	Coal				Electrostatic Precipitator
Montrose	2080	2	2013	Tangentially-fired	Coal			Overfire Air	Electrostatic Precipitator
Montrose	2080	3	2013	Tangentially-fired	Coal			Overfire Air	Electrostatic Precipitator
Moreau	6652	CT01	2013	Combustion turbine	Diesel Oil				
New Madrid Power Plant	2167	1	2013	Cyclone boiler	Coal	Diesel Oil		Selective Catalytic Reduction Overfire Air	Electrostatic Precipitator
New Madrid Power Plant	2167	2	2013	Cyclone boiler	Coal	Diesel Oil		Selective Catalytic Reduction Overfire Air	Electrostatic Precipitator
Nodaway Power Plant	7754	1	2013	Combustion turbine	Pipeline Natural Gas			Dry Low NOx Burners	
Nodaway Power Plant	7754	2	2013	Combustion turbine	Pipeline Natural Gas			Dry Low NOx Burners	
Northeast Generating Station	2081	11	2013	Combustion turbine	Diesel Oil				
Northeast Generating Station	2081	12	2013	Combustion turbine	Diesel Oil				
Northeast Generating Station	2081	13	2013	Combustion turbine	Diesel Oil				

Northeast Generating Station	2081	14	2013	Combustion turbine	Diesel Oil				
Northeast Generating Station	2081	15	2013	Combustion turbine	Diesel Oil				
Northeast Generating Station	2081	16	2013	Combustion turbine	Diesel Oil				
Northeast Generating Station	2081	17	2013	Combustion turbine	Diesel Oil				
Northeast Generating Station	2081	18	2013	Combustion turbine	Diesel Oil				
Peno Creek Energy Center	7964	CT1A	2013	Combustion turbine	Pipeline Natural Gas	Diesel Oil		Water Injection	
Peno Creek Energy Center	7964	CT1B	2013	Combustion turbine	Pipeline Natural Gas	Diesel Oil		Water Injection	
Peno Creek Energy Center	7964	CT2A	2013	Combustion turbine	Pipeline Natural Gas	Diesel Oil		Water Injection	
Peno Creek Energy Center	7964	CT2B	2013	Combustion turbine	Pipeline Natural Gas	Diesel Oil		Water Injection	
Peno Creek Energy Center	7964	CT3A	2013	Combustion turbine	Pipeline Natural Gas	Diesel Oil		Water Injection	

Peno Creek Energy Center	7964	CT3B	2013	Combustion turbine	Pipeline Natural Gas	Diesel Oil		Water Injection	
Peno Creek Energy Center	7964	CT4A	2013	Combustion turbine	Pipeline Natural Gas	Diesel Oil		Water Injection	
Peno Creek Energy Center	7964	CT4B	2013	Combustion turbine	Pipeline Natural Gas	Diesel Oil		Water Injection	
Ralph Green Station	2092	3	2013	Combustion turbine	Pipeline Natural Gas			Water Injection	
Rush Island	6155	1	2013	Tangentially-fired	Coal			Low NOx Burner Technology w/ Closed-coupled/Separated OFA	Electrostatic Precipitator
Rush Island	6155	2	2013	Tangentially-fired	Coal			Low NOx Burner Technology w/ Closed-coupled/Separated OFA	Electrostatic Precipitator
Sibley	2094	1	2013	Cyclone boiler	Coal			Overfire Air Selective Non-catalytic Reduction	Electrostatic Precipitator
Sibley	2094	2	2013	Cyclone boiler	Coal			Overfire Air Selective Non-catalytic Reduction	Electrostatic Precipitator

Sibley	2094	3	2013	Cyclone boiler	Coal			Overfire Air Selective Catalytic Reduction	Electrostatic Precipitator
Sikeston	6768	1	2013	Dry bottom wall-fired boiler	Coal	Other Oil		Selective Non-catalytic Reduction Low NOx Burner Technology (Dry Bottom only)	Electrostatic Precipitator
Sioux	2107	1	2013	Cyclone boiler	Coal		Wet Limestone	Overfire Air Other	Electrostatic Precipitator
Sioux	2107	2	2013	Cyclone boiler	Coal		Wet Limestone	Overfire Air Other	Electrostatic Precipitator
South Harper Peaking Facility	56151	1	2013	Combustion turbine	Pipeline Natural Gas				
South Harper Peaking Facility	56151	2	2013	Combustion turbine	Pipeline Natural Gas				
South Harper Peaking Facility	56151	3	2013	Combustion turbine	Pipeline Natural Gas				
St. Francis Power Plant	7604	1	2013	Combined cycle	Pipeline Natural Gas			Dry Low NOx Burners Selective Catalytic Reduction	

St. Francis Power Plant	7604	2	2013	Combined cycle	Pipeline Natural Gas			Dry Low NOx Burners Selective Catalytic Reduction	
State Line (MO)	7296	1	2013	Combustion turbine	Pipeline Natural Gas	Diesel Oil		Dry Low NOx Burners Water Injection	
State Line (MO)	7296	41671	2013	Combined cycle	Pipeline Natural Gas			Selective Catalytic Reduction	
State Line (MO)	7296	41672	2013	Combined cycle	Pipeline Natural Gas			Selective Catalytic Reduction	
Thomas Hill Energy Center	2168	MB1	2013	Cyclone boiler	Coal	Diesel Oil		Overfire Air Selective Catalytic Reduction	Electrostatic Precipitator
Thomas Hill Energy Center	2168	MB2	2013	Cyclone boiler	Coal	Diesel Oil		Overfire Air Selective Catalytic Reduction	Electrostatic Precipitator
Thomas Hill Energy Center	2168	MB3	2013	Dry bottom wall-fired boiler	Coal	Diesel Oil		Overfire Air Low NOx Burner Technology (Dry Bottom only) Selective Catalytic Reduction	Electrostatic Precipitator

Appendix B: Online Public Notice Screenshot with Date Stamp

Jay Nixon, Governor
Sara Parker Pauley, Director

Air Pollution Control Program

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State Plan Actions

On Public Notice | Proposed for Adoption

On Public Notice

Missouri State Implementation Plan Revision - Regional Haze Plan 5-Year Progress Report

The federal Clean Air Act establishes requirements for the protection of visibility in Class I areas, consisting of national parks and wilderness areas. States are required to submit state implementation plans (SIPs) that demonstrate reasonable progress toward meeting the national goal of a return to natural visibility conditions in Class I areas by 2064. There are two Class I areas in Missouri: Hercules Glades Wilderness Area and Mingo National Wildlife Refuge. Missouri's regional haze SIP, which was submitted to the U.S. Environmental Protection Agency in August 2009, established visibility goals for the year 2018 for each of the state's Class I areas in order to make reasonable progress toward the 2064 goal. The purpose of this report is to assess progress made toward the 2018 visibility goals in Hercules Glades and Mingo in the five years since Missouri's regional haze SIP was submitted to EPA. This 5-year progress report demonstrates that both of Missouri's Class I areas are expected to meet their 2018 visibility goals based on control strategies currently in place, which largely consist of sulfur dioxide and nitrogen oxides emission reduction measures for utilities, industrial boilers, and other sources.

Regional Haze Plan 5-Year Progress Report
Appendices

Submit Comments Now

A public hearing is scheduled for this plan action on May 29, 2014. Comments about this plan action will be accepted through the close of business on June 5, 2014.

Appendix C: Written Comments and Responses and Consultation Correspondence

In order to fulfill the 60-day required consultation with the Federal Land Management agencies (FLMs) the Air Program submitted an official letter and draft copy of the report with each of the three FLMs: Forest Service, Fish & Wildlife Service, and National Park Service, on February 14, 2014.

The same email from the Air Program Director with attached official letter and draft report was sent to all three agencies, as well as forwarded on to EPA Region 7 Staff. All emails/letters are included below for documentation purposes. Comments were requested back by April 18, 2014, in order to be incorporated before posting the report online for public notice. A conference call was held on March 17, 2014, with the Air Program and all three FLMs to discuss their comments and suggestions. Comments from the FLM agencies were shared with the Air Program via email and comment letters. These are included in this appendix as well.

The draft report was shared with the following FLM agency contacts, the same contacts all participated in the aforementioned conference call as well.

Fish & Wildlife Service: Tim Allen
Forest Service: Claire O'Dea and Bret Anderson (the report was forwarded to Bret after it was sent officially to Claire)
National Park Service: Patricia Brewer

Emails from Air Program Director to FLM agency contacts:

From: Moore, Kyra
Sent: Friday, February 14, 2014 4:18 PM
To: tim_allen@fws.gov
Cc: Vit, Wendy; Wilbur, Emily; Jurgensmeyer, Ashley
Subject: Missouri Regional Haze Periodic Update

Mr. Allen,

Please find attached a cover letter and a draft report regarding the Missouri Department of Natural Resources Regional Haze Report.
If you have any questions, please let us know.
Thank you!

Kyra L. Moore, Director
MDNR Air Pollution Control Program
1659 E. Elm Street
Jefferson City, MO 65102
(573) 751-7840
(573) 751-0303 direct line

From: Moore, Kyra
Sent: Friday, February 14, 2014 4:38 PM
To: cbodea@fs.fed.us
Cc: Vit, Wendy; Wilbur, Emily; Jurgensmeyer, Ashley
Subject: Missouri Regional Haze Periodic Update

Ms. Odea,

Please find attached a cover letter and a draft report regarding the Missouri Department of Natural Resources Regional Haze Report.
If you have any questions, please let us know.
Thank you!

Kyra L. Moore, Director
MDNR Air Pollution Control Program
1659 E. Elm Street
Jefferson City, MO 65102
(573) 751-7840
(573) 751-0303 direct line

From: Moore, Kyra
Sent: Friday, February 14, 2014 4:40 PM
To: Patricia_F_Brewer@nps.gov
Cc: Vit, Wendy; Wilbur, Emily; Jurgensmeyer, Ashley
Subject: Missouri Regional Haze Periodic Update

Ms. Brewer,

Please find attached a cover letter and a draft report regarding the Missouri Department of Natural Resources Regional Haze Report.
If you have any questions, please let us know.
Thank you!

Kyra L. Moore, Director
MDNR Air Pollution Control Program
1659 E. Elm Street
Jefferson City, MO 65102
(573) 751-7840
(573) 751-0303 direct line

Official letter to FLMs (attached to the above emails):

Mr. Tim Allen
U.S. Fish & Wildlife Service
7333 West Jefferson, Suite 375
Lakewood, CO 80235

RE: Regional Haze Rule Periodic Update Consultation with Federal Land Management Agencies

Dear Mr. Allen:

The purpose of this correspondence is to begin consultation with the Federal Land Management (FLM) agencies on the 1999 Regional Haze Rule (RHR) requirement for periodic reports. Enclosed with this letter is Missouri's draft Regional Haze 5-Year Progress Report for the two federal Class I Areas: Hercules Glades National Wilderness Area and Mingo National Wildlife Refuge.

The Missouri Department of Natural Resources (department) has prepared the enclosed report to meet the requirements at 40 CFR 51.308(g), which address the need for periodic reports that evaluate progress towards the reasonable progress goals established in the State Implementation Plan (SIP). The RHR also requires states to consult with the FLM agencies at least 60 days prior to holding any public hearing on a RHR SIP or SIP revision (40 CFR 51.308(i)).

State periodic reports for this first implementation period are due to the U.S. Environmental Protection Agency (EPA) no later than five years after the state's initial SIP submittal to EPA. The department submitted its initial Regional Haze SIP to the EPA on August 5, 2009. Therefore, Missouri's completed progress report is due to EPA no later than August 2014. In order to facilitate this process and to continue our collective efforts to develop a complete SIP package for submittal in August of this year, the department has tentatively scheduled a public hearing for this report on May 29, 2014 and the subsequent adoption hearing for July 30, 2014.

The department requests that the FLM acknowledge the date of this submission as the formal commencement of the required 60-day consultation period. We would appreciate your comments on or before **April 18, 2014**. Should you have any further questions concerning Missouri's 5-Year Progress Report, please do not hesitate to contact Ashley Jurgensmeyer at the Missouri Department of Natural Resources' Air Pollution Control Program, P.O. Box 176, Jefferson City, Missouri 65102, or by telephone at (573) 751-4817.

Sincerely,

AIR POLLUTION CONTROL PROGRAM

Kyra L. Moore
Director

KLM:ajc

Enclosures: Copy of Missouri's Draft Regional Haze 5-Year Progress Report

c: Project #1999-RH-7

Ms. Claire O'Dea, Ph.D.
Air Quality Specialist
USDA Forest Service Eastern Region
Rosslyn Plaza C
1601 North Kent Street, Suite 400
Arlington, VA 22209

RE: Regional Haze Rule Periodic Update Consultation with Federal Land Management Agencies

Dear Ms. O'Dea:

The purpose of this correspondence is to begin consultation with the Federal Land Management (FLM) agencies on the 1999 Regional Haze Rule (RHR) requirement for periodic reports. Enclosed with this letter is Missouri's draft Regional Haze 5-Year Progress Report for the two federal Class I Areas: Hercules Glades National Wilderness Area and Mingo National Wildlife Refuge.

The Missouri Department of Natural Resources (department) has prepared the enclosed report to meet the requirements at 40 CFR 51.308(g), which address the need for periodic reports that evaluate progress towards the reasonable progress goals established in the State Implementation Plan (SIP). The RHR also requires States to consult with the FLM agencies at least 60 days prior to holding any public hearing on a RHR SIP or SIP revision (40 CFR 51.308(i)).

State periodic reports for this first implementation period are due to the U.S. Environmental Protection Agency (EPA) no later than five years after the state's initial SIP submittal to EPA. The department submitted its initial Regional Haze SIP to the EPA on August 5, 2009. Therefore, Missouri's completed progress report is due to EPA no later than August 2014. In order to facilitate this process and to continue our collective efforts to develop a complete SIP package for submittal in August of this year, the department has tentatively scheduled a public hearing for this report on May 29, 2014 and the subsequent adoption hearing for July 30, 2014.

The department requests that the FLM acknowledge the date of this submission as the formal commencement of the required 60-day consultation period. We would appreciate your comments on or before **April 18, 2014**. Should you have any further questions concerning Missouri's 5-Year Progress Report, please do not hesitate to contact Ashley Jurgensmeyer at the

Missouri Department of Natural Resources' Air Pollution Control Program, P.O. Box 176, Jefferson City, Missouri 65102, or by telephone at (573) 751-4817.

Sincerely,

AIR POLLUTION CONTROL PROGRAM

Kyra L. Moore
Director

KLM:ajc

Enclosures: Copy of Missouri's Draft Regional Haze 5-Year Progress Report

c: Project #1999-RH-7

Ms. Patricia Brewer
Environmental Protection Specialist
Air Resource Division
National Park Service
Post Office Box 25287
Denver, CO 80225

RE: Regional Haze Rule Periodic Update Consultation with Federal Land Management Agencies

Dear Ms. Brewer:

The purpose of this correspondence is to begin consultation with the Federal Land Management (FLM) agencies on the 1999 Regional Haze Rule (RHR) requirement for periodic reports. Enclosed with this letter is Missouri's draft Regional Haze 5-Year Progress Report for the two federal Class I Areas: Hercules Glades National Wilderness Area and Mingo National Wildlife Refuge.

The Missouri Department of Natural Resources (department) has prepared the enclosed report to meet the requirements at 40 CFR 51.308(g), which address the need for periodic reports that evaluate progress towards the reasonable progress goals established in the State Implementation Plan (SIP). The RHR also requires states to consult with the FLM agencies at least 60 days prior to holding any public hearing on a RHR SIP or SIP revision (40 CFR 51.308(i)).

State periodic reports for this first implementation period are due to the U.S. Environmental Protection Agency (EPA) no later than five years after the state's initial SIP submittal to EPA. The department submitted its initial Regional Haze SIP to the EPA on August 5, 2009. Therefore, Missouri's completed progress report is due to EPA no later than August 2014. In order to facilitate this process and to continue our collective efforts to develop a complete SIP package for

submittal in August of this year, the department has tentatively scheduled a public hearing for this report on May 29, 2014 and the subsequent adoption hearing for July 30, 2014.

The department requests that the FLM acknowledge the date of this submission as the formal commencement of the required 60-day consultation period. We would appreciate your comments on or before **April 18, 2014**. Should you have any further questions concerning Missouri's 5-Year Progress Report, please do not hesitate to contact Ashley Jurgensmeyer at the Missouri Department of Natural Resources' Air Pollution Control Program, P.O. Box 176, Jefferson City, Missouri 65102, or by telephone at (573) 751-4817.

Sincerely,

AIR POLLUTION CONTROL PROGRAM

Kyra L. Moore
Director

KLM:ajc

Enclosures: Copy of Missouri's Draft Regional Haze 5-Year Progress Report

c: Project #1999-RH-7

Email from Air Program to EPA Region 7 informally sharing draft report:

From: Vit, Wendy
Sent: Tuesday, February 18, 2014 8:37 AM
To: Amy Bhesania
Cc: Wilbur, Emily; Jurgensmeyer, Ashley
Subject: FW: Missouri Regional Haze Periodic Update

Hi Amy. I'm forwarding the regional haze 5-year progress report. Please share with others as appropriate. (This email happens to be the one we sent to the National Park Service. We also sent copies to the Forest Service and Fish & Wildlife; let me know if you want me to forward those emails to you for your records.) We're asking for comments from the FLMs by April 18, 2014, and we'd appreciate any feedback from you by then as well. Please let us know if you have questions or if you'd like to discuss this draft. Thanks.

Wendy Vit
Air Quality Planning Section Chief
Air Pollution Control Program
Missouri Department of Natural Resources
(573) 526-3167
wendy.vit@dnr.mo.gov

Comment Letter Received from the Forest Service on March 21, 2014:

File Code: 2580
Date: March 21, 2014

Ms. Kyra L. Moore
Director
MDNR Air Pollution Control Program
1659 E. Elm Street
Jefferson City, MO 65102

Dear Ms. Moore:

The USDA Forest Service has completed our review of the document entitled "State of Missouri Regional Haze Plan 5-Year Progress Report: A Missouri State Implementation Plan Revision." We appreciated the opportunity to review the document and the chance to once again work cooperatively with your staff.

We concur with your findings that the Missouri Air Pollution Control Program is on track to meet the reasonable progress goal for the Hercules Glades Wilderness, a Federally mandated Class I area. The current projections of sulfur dioxide emissions from the electric generating units in Missouri are significantly lower than were originally projected for 2018 in the Regional Haze State Implementation Plan. Therefore, we agree with your conclusion that no additional controls are necessary for the first planning period for emission sources in Missouri in order to achieve reasonable progress in visibility for the Hercules Glades Wilderness.

We do, however, have a few recommendations to enhance the clarity of the 5-Year Progress Report:

1. The EPA document *General Principles for the 5-Year Regional Haze Progress Reports for the Initial Regional Haze State Implementation Plans* (2013), Section C. Visibility Progress, states that, "For each mandatory Class I Federal area within the State, the State must assess the following visibility conditions and changes, with values for most impaired and least impaired days expressed in terms of 5-year averages of these annual values." In the 5-Year Progress Report, Missouri assesses visibility conditions and changes by calculating a rate of improvement comparing baseline with current conditions. We, therefore, recommend recalculating visibility improvements by expressing visibility conditions and changes in terms of 5-year averages.

2. The Glide Path Projected 2018 Conditions value listed for Hercules-Glades Class I Area in Table 4, also referred to later in the document as the established 2018 Reasonable Progress Goal (RPG), is listed at 22.63 deciviews. This value does not match the 2009 SIP 2018 RPG value of 23.06 deciviews (taken from Table 10.1, 2018 Modeled Predictions where Missouri stated, "Missouri has determined that the modeled rate of visibility improvement by 2018 shown in Table 10.1 is reasonable and hereby adopts it as the RPG for the listed Class I areas"). We recommend clarifying why the 2018 RPG listed in the MO 5-Year Progress Report differs from the 2018 RPG selected in the 2009 SIP.

3. As stated above, Missouri assesses visibility conditions and changes by calculating a rate of improvement comparing baseline with current conditions in the 5-Year Progress Report. In Table 4 of the 5-Year Progress Report, Missouri lists a projected rate of progress for Hercules-Glades Wilderness (from 2001 to June 2012, based on monitored values) of 0.494 deciviews/year. Trying to recreate these calculations, we calculate a rate of 0.4625 dv/yr, resulting in an expected 2018 visibility of 18.26 dv (instead of 18.84 dv). We ask for clarification of these calculations, including specifying values used for current visibility for 20% haziest and clearest days, so that these calculations can be replicated.

4. The 5-Year Progress Report, Section A.2.1., discusses SO_2 and NO_x RACT in St. Louis. From our understanding, St. Louis has not officially been designated by EPA as nonattainment of the new $PM_{2.5}$ 12 µg National Ambient Air Quality Standard (NAAQS) standard, and further has petitioned EPA to not be included in the nonattainment area due to the fact that violations have occurred only on the Illinois side of St. Louis. We, therefore, recommend that this section reflect the uncertainty in RACT/RACM implementation based on the fact that St. Louis is not currently designated as nonattainment of the new $PM_{2.5}$ NAAQS.

5. The 5-Year Progress Report, Section C, identifies trends for visibility on the best and worst 20% sampling days for the three locations with IMPROVE monitors. This trends analysis focuses on sulfate and nitrate concentrations. Visibility impairment in the form of light extinction also occurs due to organic matter and elemental carbon. In fact, for the 2012 average of the worst 20% days, organic matter contributes more to light extinction than ammonium nitrate. We, therefore, recommend that trends in organic carbon matter and elemental carbon be included in the analysis.

6. The 5-Year Progress Report, Section C, calculates rate of improvement from baseline to present and states that natural conditions will be achieved between 2025-2035 for all of the IMPROVE locations if this rate of improvement remains constant. Analysis of future on-the-books/on-the-way controls does not support a continued rate of improvement. We recommend providing justification for this assertion, or removing it from the analysis.

We look forward to our continued close cooperation toward the national goal of no "man-made" visibility impairment to the Class I areas in our region by 2064. If you have questions, please contact Claire O'Dea at (202) 205-1686.

Sincerely,

/s/ William B. Nightingale
WILLIAM B. NIGHTINGALE
Forest Supervisor

cc:
Claire O'Dea

Emailed comments from the Fish & Wildlife Service, received March 17, 2014:

From: Allen, Tim [mailto:tim_allen@fws.gov]
Sent: Monday, March 17, 2014 1:43 PM
To: Jurgensmeyer, Ashley
Cc: Wilbur, Emily; Patricia Brewer; Anderson, Bret A -FS; O'Dea, Claire B -FS
Subject: Re: Missouri's Draft Regional Haze 5-Year Report Consultation

Hi,

Thank you for inviting me to discuss your Regional Haze 5yr review. I do appreciate the work you've put into this document and offer the following comments for consideration.

1. In section E., visibility impacts from agricultural burning activity is attributed to impeding visibility progress. No discussion is provided on current or future potential changes to smoke management procedures that might resolve this concern. Agricultural burning is a source category that should be addressed by a certified smoke management plan, which includes use of best management practices, day-to-day burn calls, long term tracking of emissions, and a declaration that Class I areas are sensitive receptors.

2. In section C.1.1 and associated Figures, data begins with 2006. Although monitoring data prior to 2006 had substitution requirements due to missing data, it was none-the-less used as part of establishing the visibility baseline for MINGO NWR in your Regional Haze SIP. Since this 5 year review addresses progress from your prior SIP, it is important to continue to report those monitoring years. Please include data from 2002 on as with the other Class I area reported.

3. In section C.1.1 narrative, a projection that natural conditions will be met by 2025 is included in the draft. Although we appreciate you optimism, it is unlikely that future emission reductions will continue at previous rates.

The mid-term review does not require sufficient modeling analysis or refinements to emission inventories in a way to appropriately revise Class I reasonable progress goals (RPG). Please consider waiting to revise Mingo's RPG until the next major RH SIP revision.

Thank you,
Tim

Emailed Comments from National Park Service, received March 17, 2014:

From: Brewer, Patricia [mailto:patricia_f_brewer@nps.gov]
Sent: Monday, March 17, 2014 6:34 PM
To: Jurgensmeyer, Ashley
Cc: O'Dea, Claire B -FS; Wilbur, Emily; Anderson, Bret A -FS; Tim_Allen@fws.gov
Subject: Re: Missouri's Draft Regional Haze 5-Year Report Consultation

Ashley and Emily,

Attached are tables and charts for Hercules Glade and Mingo that are copied from the WRAP's Technical Support System. http://vista.cira.colostate.edu/tss/Results/HazePlanning.aspx

The tables of 5-year averages show the contributions of different pollutant species to light extinction and help to understand the dv trends.

The charts show the relative contributions of the pollutants and show the annual variability that is missing in the tables of 5-year averages.

Section C 1.1.1 indicates that the Mingo OC and EC data were invalidated for 2002-2205. But data substitution was done using approved methods (Hercules Glade as the donor site?) and EPA approved the 2000-2004 baseline in your Regional Haze SIP. Also, your progress report is focusing on SO4 and NO3 trends, still valid in the 2000-2004 period (and used for Hercules Glade). So you probably could use the 2000-2004 baseline to keep the longer period of record.

I will provide written comments on other points next week.

thanks, Pat Brewer

Letter from National Park Service, received April 17, 2014:

TRANSMITTED VIA ELECTRONIC MAIL - NO HARDCOPY TO FOLLOW
N3615 (2350)
April 17, 2014
Kyra L. Moore,
Director, Air Pollution Control Program
Missouri Department of Natural Resources
1659 E. Elm Street
Jefferson City, MO 65102

Dear Ms. Moore:
Thank you for the opportunity to review and comment on Missouri's Regional Haze Plan 5-Year Progress Report. We agree with Missouri Air Pollution Control Program, consistent with the periodic reporting requirements of 40 CFR 51.308(g) and (h), that the emissions reductions under Missouri's Regional Haze Plan are sufficient for Missouri to meet the 2018 Reasonable Progress Goals set in the State's Regional Haze plan. We also agree that no further revision of the Regional Haze Plan is needed at this time to meet the 2018 goals. However, we did not see discussion of Missouri's contributions to haze in Class I areas in neighboring states, as required under 51.308(g)(6).

We have several suggestions to better support Missouri's demonstration:
• Executive Summary:
In response to comments on Section C, please revise the discussion of expected visibility improvements by 2018.

• Section A: Status of Emissions Control Strategies:
For Electric Generating Units (EGU) that installed controls under the Clean Air Interstate Rule (CAIR), please provide summary of specific facilities, controls, and year that controls began operation.
Section A3: Please clarify if any of the emission reductions expected between 2012 and 2017 (Table 2) were included in the 2018 projection inventory and modeling that was used to set 2018 reasonable progress goals.

• Section B: Emissions Reductions:
Please add brief summary of nitrogen oxide emission trends for electric generating units (EGU) in Figure 2 and Table 3.

• Section C: Visibility Trends
We recommend using the same baseline data and natural condition assumptions for Mingo in the progress report as were used in the Missouri Regional Haze Plan.
Substituted data were developed for Mingo for the baseline period.
We do not recommend using a partial year of data for 2012. The 2012 IMPROVE data are currently not publicly available, so we recommend that Missouri use IMPROVE data through 2011.
Missouri should not extrapolate from the rate of visibility improvement for 2006-2012 to 2018 or beyond (Figures 3, 11, 19.) Regional EGU controls between 2006 and 2012 significantly reduced sulfur dioxide emissions and sulfate concentrations in the Class I areas, but Missouri has not demonstrated that emissions reductions of that magnitude will continue in the future. We recommend that Missouri focus in Table 4 on visibility (measured in deciviews) for the 20% worst ad 20% best visibility days for the 2000-2004
Baseline, Natural Conditions, 2018 Reasonable Progress Goals (from the Regional Haze Plan), and 2007-2011 5-year averages. Including pollutant contributions to light extinction would further identify the bases for the observed trends. These latter data are
available on the WRAP Technical Support System website
(http://vista.cira.colostate.edu/tss/Results/HazePlanning.aspx.) With the evidence available, Missouri can demonstrate that the state is on track to meet the 2018 reasonable progress goals. Redefining the 2018 goals would require regional emissions projections and regional air quality modeling that are beyond the expectations for the five year progress reports.

• Section E. Changes Impeding Visibility Progress
Missouri did not include IMPROVE data to support the discussion of the contribution of prescribed fire in 2010 to visibility trends. You may want to add discussion of the role of agricultural burning compared to prescribed fire for forest management. Does Missouri have a smoke management plan?

• Section F. Assessment of Current Strategy
Please add discussion of the contribution of Missouri emissions to haze in Class I areas in neighboring states. Source apportionment results from the Regional Haze Plan would support Missouri's conclusion that it expects to meet the 2018 emission projections that
were used to set reasonable progress goals for Class I areas in neighboring states and therefore is not impeding neighboring states from meeting their goals.

Comment Letter from EPA Region 7 (Received June 2, 2014):

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 7
11201 Renner Boulevard
Lenexa, Kansas 66219

MAY 30 2014

Ms. Wendy Vit, Chief
Operations Section
Missouri Department of Natural Resources
Air Pollution Control Program
1659 East Elm Street
Jefferson City, Missouri 65101

Dear Ms. Vit:

We appreciate the opportunity to provide written comments on the Regional Haze Plan 5-Year Progress Report.

The U.S. Environmental Protection Agency Region 7 is providing comments pursuant to the public notice for this plan. We appreciate the state's diligence in submitting plans consistent with Clean Air Act requirements.

1. The EPA recommends that MDNR address whether progress has been made toward Holcim-Clarksville's compliance with emissions limits in Section A.1.2 on page 12.

2. The EPA recommends that MDNR review the document and figures for consistent tense, timeframes, data values and labels.

3. The EPA recommends that MDNR review Section D and provide appropriate explanations for emission trend values in the table.

If you or your staff have any questions or would like to discuss these comments, please contact Amy Bhesania, of my staff, by email at bhesania.amy@epa.gov or by phone at (913) 551-7147.

Sincerely,

Joshua Tapp
Chief
Air Planning and Development Branch
Air and Waste Management Division

Response to Received Comments:

Response to Comments from Fish& Wildlife Service: (Emailed Comments received March 17, 2014)

1. In response to comment 1., additional language was added to Section E. of the report. Specifically discussion was added to clarify the impact fire events could have on visibility conditions in sensitive Class I areas. In addition, Missouri's current Smoke Management plan (SMP) should aid in protecting these visual environments and in the event of a violation or other extreme case the SMP may be evaluated and revised in order to properly protect these environments.

2. All available visibility data was added to Section C. of the report in response to this comment and comments from other FLMs.

3. Projections to 2018 and beyond were removed from the report in response to this comment and other FLM comments.

Response to Comments from National Park Service: (Emailed Comments received March 17, 2014)

1. The data used in the visibility analysis of this report in Section C., were updated using the Western Regional Air Partnership (WRAP) Technical Support System (TSS) data set as recommended by FLM comments and as referenced in the EPA's Guiding Principles on 5-Year Reports document.

2. The available 5-Year Average Summary tables and corresponding graphs were added to the visibility analysis section of the report.

3. As mentioned in previous response to comments, all available data was added to the tables/graphs included in the visibility analysis section.

Response to Comments from National Park Service: (Letter received April 17, 2014)

1. The executive summary has been updated in response to this comment.

2. In response to this comment, a table summarizing all SO_2, NO_X, and PM controls installed prior to emission year 2013 on Missouri EGU's that are subject to CAIR was added to Appendix A. It was not included in the plan text due to its length. The table was generated by running a query of the EPA's Clean Air Markets Division (CAMD) database.
The expected facility changes included in Table 2 are new developments and are not yet permanent and enforceable; therefore, these changes were not included in the 2009 RH plan's modeling efforts and language has been added to clarify this in the report in response to this comment.

3. Brief language discussing the downward trend in NOx emissions and rates has been added to Section B in response to this comment.

4. The baseline/natural conditions were changed to match 2009 RH plan estimations, this change is also discussed in the other comment responses as well. The partial year of data was removed from the analysis in response to this comment. The extrapolation to 2018 was removed from the report and a glidepath between the baseline and RPGs was added to show the trend of monitored data is below the glidepath and on track to achieve the RPGs.
The available five-year average tables for all Class I areas for all speciated pollutant light extinctions and deciviews were added (from the TSS) to support the visibility analysis section in response to this and other comments received.

5. Missouri currently has an adopted Smoke Management plan and additional clarifying language was added to Section E in response to this and other comments received.

6. In response to this comment, monitoring trend data for the two nearby Class I areas in Arkansas were added to the visibility progress section of the report to reinforce the claim that Missouri will not prevent nearby areas from achieving their RPGs in 2018. Additional clarifying language was also added to Section F to fully address this comment.

Response to Comments from Forest Service (Letter received March 21, 2014):

1. All available 5-Year Average summary tables and graphs were added to the visibility analysis section of the report. The 'reasonable progress' tables were available using the WRAP TSS site, and include speciated pollutants, total light extinction and deciview trends to aid in characterizing visibility progress.

2. and 3. In the first draft report, raw data was manipulated by the Air Program and due to slight differences, the RPGs were mischaracterized as different from the initial RH SIP. Therefore, the RPGs are indeed the same as adopted in the initial RH SIP and the data used for comparison and analysis was accessed (via the TSS) in final best/worst percent format to avoid any slight assumption differences due to external manipulation. The differences in data manipulation and assumptions as well as data availability at time of calculation can be accounted for the slight differences in values as discussed in Comment 3. Both comments are addressed by the replacement of data as described above.

4. The reference to SO2 & NOx RACT in St. Louis was removed as it is no longer a control strategy, this was a remnant of the original SIP's assumptions. The SO2 attainment demonstrations for Jackson and Jefferson Counties were added as a future control measure that will result in additional SO2 emission reductions not included in the initial RH SIP's modeling efforts.

5. Trends for all speciated pollutants were added to the analysis in response to this and other comments of the like.

6. As mentioned in previous response to comments, the future predicted rate of visibility improvement to 2018 and beyond has been removed from the report.

Response to Comments from EPA Region 7 (Letter received June 2, 2014):

1. In response to comment 1, additional language was added to A.1.2. of the report to detail progress made by Holcim-Clarksville since the consent agreement.

2. In response to comment 2, various minor changes were made to the report to correct any errors of tense, grammar, or spelling.

3. In response to comment 3, additional explanation was added to Section D of the report to clarify referenced emissions trends and their correlation to overall visibility improvement.

Appendix D: MACC Adoption Signature Page

The Missouri Air Conservation Commission **ADOPTS** the following action on this 28th day of August, 2014:

Missouri State Implementation Plan Revision – Regional Haze Plan 5-Year Progress Report

_____, Chairman

_____, Vice Chairman

_____, Member

_____, Member

_____, Member

_____, Member

_____, Member

_____, Member

The Missouri Air Conservation Commission **ADOPTS** the following action on this 28th day of August, 2014:

Missouri State Implementation Plan Revision – Regional Haze Plan 5-Year Progress Report

_____, Chairman

_____, Vice Chairman

_____, Member

_____, Member

_____, Member

_____, Member

_____, Member

_____, Member

Jay Nixon, Governor
Sara Parker Pauley, Director

Air Pollution Control Program

State Plan Actions

On Public Notice | Proposed for Adoption

On Public Notice

Missouri State Implementation Plan Revision – Regional Haze Plan 5-Year Progress Report

The federal Clean Air Act establishes requirements for the protection of visibility in Class I areas, consisting of national parks and wilderness areas. States are required to submit state implementation plans (SIPs) that demonstrate reasonable progress toward meeting the national goal of a return to natural visibility conditions in Class I areas by 2064. There are two Class I areas in Missouri: Hercules Glades Wilderness Area and Mingo National Wildlife Refuge. Missouri's regional haze SIP, which was submitted to the U.S. Environmental Protection Agency in August 2009, established visibility goals for the year 2018 for each of the state's Class I areas in order to make reasonable progress toward the 2064 goal. The purpose of this report is to assess progress made toward the 2018 visibility goals in Hercules Glades and Mingo in the five years since Missouri's regional haze SIP was submitted to EPA. This 5-year progress report demonstrates that both of Missouri's Class I areas are expected to meet their 2018 visibility goals based on control strategies currently in place, which largely consist of sulfur dioxide and nitrogen oxides emission reduction measures for utilities, industrial boilers, and other sources.

Regional Haze Plan 5-Year Progress Report
Appendices

Submit Comments Now

A public hearing is scheduled for this plan action on May 29, 2014. Comments about this plan action will be accepted through the close of business on June 5, 2014.

Missouri State Implementation Plan Revision – Marginal Area Plan for the Missouri Portion of the St. Louis Nonattainment Area for the 2008 8-Hour Ground Level Ozone National Ambient Air Quality Standard

The purpose of this State Implementation Plan (SIP) revision is to address the emissions inventory and other marginal ozone nonattainment area requirements pursuant to Clean Air Act Section 182(a) for the Missouri portion of the St. Louis nonattainment area under the 2008 8-hour ozone national ambient air quality standard (NAAQS). The Missouri portion of

the St. Louis nonattainment area includes the City of St. Louis and the Counties of St. Louis, St. Charles, Franklin, and Jefferson, which were designated as a marginal nonattainment area under the 2008 8-hour ozone NAAQS on May 21, 2012.

Marginal Area Plan for the Missouri Portion of the St. Louis Nonattainment Area for the 2008 8-Hour Ground Level Ozone National Ambient Air Quality Standard

Appendix A
Appendix B

Appendix B-1
Appendix B-2
Appendix B-3
Appendix B-4
Appendix B-5
Appendix B-6
Appendix B-7

Submit Comments Now

A public hearing is scheduled for this plan action on May 29, 2014. Comments about this plan action will be accepted through the close of business on June 5, 2014.

Proposed for Adoption

None at this time.

Back to top

Bechtel, Cheri

From: Missouri DNR <MODNR@public.govdelivery.com>
Sent: Friday, April 25, 2014 2:54 PM
To: Bungart, Renee; Archer, Larry; Lovejoy, Victoria; Moore, Kyra; Vit, Wendy; Bechtel, Cheri; Crawford, Betsy; Terlizzi, Gena
Subject: Courtesy Copy: Missouri DNR Air Public Notices Update - Missouri Air Conservation Commission Public Hearing, May 29, 2014

This is a courtesy copy of an email bulletin sent by Cheri Bechtel.

This bulletin was sent to the following groups of people:

Subscribers of Air Public Notices (579 recipients)

Missouri Department of
Natural Resources

Having trouble viewing this email? View it as a Web page.

SHARE

MISSOURI AIR CONSERVATION COMMISSION
WILL HOLD PUBLIC HEARING

JEFFERSON CITY, MO -- The Missouri Air Conservation Commission will hold a public hearing on Thursday, May 29, 2014 beginning at 9 a.m. at the St. Louis Regional Office, 7545 S. Lindbergh, Suite 220, DESE Conference Room, St. Louis, Missouri. The commission will hear testimony related to the following proposed action(s):

* 10 CSR 10-5.220 (amendment) Control of Petroleum Liquid Storage, Loading and Transfer

  This proposed amendment will remove the requirements for Stage II vapor recovery controls at gasoline dispensing facilities (GDFs) in the St. Louis area. Stage II systems control emissions of volatile organic compounds during vehicle refueling and have been an ozone-reduction measure in the St. Louis area since the late 1980s. In May 2012, the U.S. Environmental Protection Agency (EPA) determined that Onboard Refueling Vapor Recovery (ORVR) technology is in widespread use throughout the motor vehicle fleet for purposes of controlling motor vehicle refueling emissions. ORVR is an improved method of controlling the vapor displaced during refueling that is built into newer motor vehicles. ORVR makes Stage II controls obsolete, and EPA's widespread use determination allows the removal of Stage II controls if Clean Air Act anti-backsliding requirements are met to ensure air quality is not adversely impacted. EPA has already given verbal concurrence on our technical analysis showing removal of Stage II controls as proposed in this rulemaking will not adversely affect St. Louis air quality. The rulemaking will also address the following items:
  - Certification and testing procedures for the remaining Stage I systems will use the California Air Resources Board (CARB) vapor recovery program instead of the Missouri Performance and Test Procedures (MOPETP). Stage I systems capture displaced vapors when fuel storage

tanks at GDFs are loaded from delivery vessels.

- The prohibition of aboveground storage tanks (ASTs) at GDFs will be codified. The rule never allowed ASTs because MOPETP never certified ASTs. Elimination of MOPETP requires adding language to the rule to clarify that ASTs will continue to be prohibited.
- Permitting provisions will be revised to address the decommissioning of Stage II systems and clarify the permitting requirements and fees for Stage I systems. The permitting fees will remain $100 per permit but the frequency with which permits are issued will change.

* Missouri State Implementation Plan Revision – Regional Haze Plan 5-Year Progress Report

The federal Clean Air Act establishes requirements for the protection of visibility in Class I areas, consisting of national parks and wilderness areas. States are required to submit state implementation plans (SIPs) that demonstrate reasonable progress toward meeting the national goal of a return to natural visibility conditions in Class I areas by 2064. There are two Class I areas in Missouri: Hercules Glades Wilderness Area and Mingo National Wildlife Refuge. Missouri's regional haze SIP, which was submitted to the U.S. Environmental Protection Agency in August 2009, established visibility goals for the year 2018 for each of the state's Class I areas in order to make reasonable progress toward the 2064 goal. The purpose of this report is to assess progress made toward the 2018 visibility goals in Hercules Glades and Mingo in the five years since Missouri's regional haze SIP was submitted to EPA. This 5-year progress report demonstrates that both of Missouri's Class I areas are expected to meet their 2018 visibility goals based on control strategies currently in place, which largely consist of sulfur dioxide and nitrogen oxides emission reduction measures for utilities, industrial boilers, and other sources.

* Missouri State Implementation Plan Revision – Marginal Area Plan for the Missouri Portion of the St. Louis Nonattainment Area for the 2008 8-Hour Ground Level Ozone National Ambient Air Quality Standard

The purpose of this State Implementation Plan (SIP) revision is to address the emissions inventory and other marginal ozone nonattainment area requirements pursuant to Clean Air Act Section 182(a) for the Missouri portion of the St. Louis nonattainment area under the 2008 8-hour ozone national ambient air quality standard (NAAQS). The Missouri portion of the St. Louis nonattainment area includes the City of St. Louis and the Counties of St. Louis, St. Charles, Franklin, and Jefferson, which were designated as a marginal nonattainment area under the 2008 8-hour ozone NAAQS on May 21, 2012.

* 10 CSR 10-6.040 (amendment) Reference Methods

This proposed amendment will update the incorporation by reference date to include the latest Federal Register notices for ambient air monitoring methods. Two of these notices promulgated existing methods as new equivalency methods for measuring lead, nitrogen dioxide, particulate matter less than 2.5 microns, particulate matter less than 10 microns, and particulate matter between 10 and 2.5 microns in diameter. In addition, EPA finalized a new Federal Reference Method for measuring lead in total suspended particulate matter and, at the same time, designated it as a new Federal Equivalency Method.

If the Commission adopts the action(s), it will be the Department's intention to submit the action(s) to the U.S. Environmental Protection Agency to be included in Missouri's State Implementation Plan unless otherwise noted above.

Documents for the above item(s) will be available for review at the Missouri Department of Natural

Resources, Air Pollution Control Program, 1659 Elm Street, Jefferson City,
(573) 751-4817 and in the Public Notices section of the program web site http://dnr.mo.gov/env/apcp/public-notices.htm. This information will be available at least 30 days prior to the public hearing date.

The Department will accept written or email comments for the record until 5 p.m. on June 5, 2014. Please send written comments to Chief, Air Quality Planning Section, Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102-0176. Email comments may be submitted via the program web site noted above. All written and email comments and public hearing testimony will be equally considered.

Citizens wishing to speak at the public hearing should notify the secretary to the Missouri Air Conservation Commission, Missouri Department of Natural Resources, Air Pollution Control Program, P.O. Box 176, Jefferson City, Missouri 65102-0176, or telephone (573) 526-3420. The Department requests persons intending to give verbal presentations also provide a written copy of their testimony to the commission secretary at the time of the public hearing.

Persons with disabilities requiring special services or accommodations to attend the meeting can make arrangements by calling the Program directly at (573) 751-4817, the Division of Environmental Quality's toll free number at (800) 361-4827, or by writing two weeks in advance of the meeting to: Missouri Department of Natural Resources, Air Conservation Commission Secretary, P.O. Box 176, Jefferson City, MO 65102. Hearing impaired persons may contact the program through Relay Missouri, (800) 735-2966.

You are subscribed to the Air Public Notices topic for Missouri DNR. This information has recently been updated, and is now available at the link below. Thank you for your interest in the Air Public Notices.

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1 MISSOURI AIR CONSERVATION COMMISSION MEETING

2 St. Louis Regional Office

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12 PUBLIC HEARING

13 TAKEN ON BEHALF OF

14 THE MISSOURI DEPARTMENT OF NATURAL RESOURCES

15 MAY 29, 2014

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22 (Starting time of the hearing: 9:01 a.m.)

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1 IT IS HEREBY STIPULATED AND AGREED that
2 this hearing may be taken in shorthand by
3 Rebecca Brewer, RPR, CRR, CSR, Certified
4 Court Reporter, and Notary Public, and
5 afterwards transcribed into typewriting;
6 * * * * *
7 MR. PENDERGRASS: The hearing will come to
8 order. Let the record show the following
9 commissioners are present: Jack Baker, Mark
10 Garnett, Gary Pendergrass, and David Zimmermann.
11 The Air Conservation Commission of the State of
12 Missouri has called this public hearing pursuant to
13 Section 643.070, Revised Statutes of Missouri, EPA
14 Promulgated Rule 40 CFR 51.102 for the purpose of
15 hearing testimony related to: 10 CSR 10-5.220,
16 amendment, Control of Petroleum Liquid Storage,
17 Loading and Transfer; Missouri State Implementation
18 Plan Revision, Regional Haze Plan, 5-year Progress
19 Report; Missouri State Implementation Plan
20 Revision, Marginal Area Plan for the Missouri
21 Portion of the St. Louis Non-Attainment area for
22 the 2008 8-hour Ground Level Ozone National Ambient
23 Air Quality Standard; and 10 CSR 10-6.040,
24 amendment, Reference Methods.
25 The hearing record will close at 5

1 MR. PENDERGRASS: Thank you. Next we have
2 Missouri State Implementation Plan Revision,
3 Regional Haze Plan, 5-year Progress report. Emily
4 Wilbur?
5 * * * * *
6 EMILY WILBUR,
7 Of lawful age, produced and sworn, deposes
8 and says:
9 MS. WILBUR: Mr. Chairman, members of the
10 Commission, my name is Emily Wilbur. I'm employed
11 as the State Implement Plan, or SIP, Unit Chief
12 with the Missouri Department of Natural Resources
13 Air Pollution Control Program. I work at 1659 East
14 Elm Street, Jefferson City, Missouri. I am here
15 today to present testimony on the proposed Missouri
16 SIP revision entitled Missouri's Regional Haze
17 Plan, 5-year Progress Report.
18 The executive summary for the plan
19 starts on Page 97 of the briefing document. In this
20 testimony and presentation, I will cover an
21 introduction to regional haze, regulatory
22 background, Missouri regional haze plan, and this
23 5-year progress report.
24 Regional haze or visibility
25 impairment is caused by microscopic particles in the

RECOMMENDATION FOR ADOPTION

PROPOSED REVISION TO

MISSOURI STATE IMPLEMENTATION PLAN –
State of Missouri Regional Haze Plan 5-Year Progress Report

On May 29, 2014, the Missouri Air Conservation Commission held a public hearing concerning a revision to the Missouri State Implementation Plan (SIP) – Regional Haze Plan 5-Year Progress Report. A summary of comments received and the Air Program's corresponding responses is included on the following page. Revisions were made to the proposed plan as a result of comments received.

The revised plan has not been reprinted in the briefing document due to its volume. The entire revised plan is available for review at the Missouri Department of Natural Resources' Air Pollution Control Program, 1659 East Elm Street, Jefferson City, Missouri, 65101, (573)751-4817. It is also available online at http://dnr.mo.gov/env/apcp/stateplanrevisions.htm.

The Air Program recommends the commission adopt the plan as revised. If the commission adopts this plan, it will be the department's intention to submit it to the U.S. Environmental Protection Agency for inclusion in the Missouri State Implementation Plan.

COMMENTS AND RESPONSES ON

PROPOSED REVISION TO

MISSOURI STATE IMPLEMENTATION PLAN –
State of Missouri Regional Haze Plan 5-Year Progress Report

The public comment period for the proposed revision to the Missouri State Implementation Plan (SIP) for the Regional Haze Plan 5-Year Progress Report opened on April 28, 2014, and closed on June 5, 2014. Revisions to the proposed plan were made as a result of comments.

The following is a summary of comments received and the Missouri Department of Natural Resources' Air Pollution Control Program's (Air Program's) corresponding responses. Any changes to the proposed plan are included in the response to comments.

SUMMARY OF COMMENTS: During the public comment period for the proposed plan, the Air Program received three comments from EPA Region 7.

COMMENT #1: Under Section A.1.2 of the report, EPA Region 7 commented that the Air Program should address whether progress has been made toward Holcim-Clarksville's compliance with the emission limits imposed through a consent agreement to satisfy Best Available Retrofit Technology (BART) requirements.

RESPONSE AND EXPLANATION OF CHANGE: The Air Program added the language below to Section A.1.2 explaining that Holcim-Clarksville has ceased all SO_2 and NO_X emitting operations since the consent agreement and are now in compliance with the consent agreement.

"Since the consent agreement included in the 2009 plan, Holcim (US) Inc., in Clarksville, Missouri, has discontinued Portland cement manufacturing and hazardous waste fuel burning operations. Remaining operations at the facility include receiving, storing, and shipping. The facility's operating permit (OP2004-002) was reclassified from a Part 70 to a Basic operating permit in 2010. The facility's new SO_2 and NO_X potential emissions are both zero tons per year."

COMMENT #2: EPA Region 7 commented that the Air Program should review the document and figures for consistent tense, timeframes, data values, and labels.

RESPONSE AND EXPLANATION OF CHANGE: The Air Program reviewed the document and made minor revisions to ensure correct and consistent tense, timeframes, values, and labels. Specifically, revisions of a grammatical nature were made in Sections A, B, and C.

COMMENT #3: EPA Region 7 commented that the Air Program should review and provide additional explanations for emission trend values in the tables in Section D.

RESPONSE AND EXPLANATION OF CHANGE: The Air Program reviewed Section D and added a discussion explaining the emissions trends depicted in the tables. The decreasing trend

in point source emissions of SO_2 and NO_X are of the greatest significance to visibility improvement, therefore, these trends are the focus of Section D. However, other pollutants and source sectors show varying trends that warranted additional clarification. These other trends include a slight increase in carbon monoxide (CO) emissions and fine particulate emissions, and a slight increase in fire and biogenic emissions. A majority of the changes are due to new calculation methods and emission factors being used to estimate emissions values. Despite these increases in emissions, the decrease in SO_2 and NO_X emissions from point sources and the corresponding improvement in visibility conditions are most significant and are the focus of the progress report.