Appendix 1 - Class 1 Areas Located Within (or Impacted by) Midwest RPO States

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Draft List of Class I Areas Located Within (or Impacted by) Midwest RPO States

The purpose of this paper is to provide a draft list of Class I areas located within or impacted by a Midwest Regional Planning Organization (MRPO) State. A variety of technical analyses were considered in developing the draft list, including base year (2002) and future year (2018) modeling, back trajectories, and other data analyses. This information shows that every MRPO State impacts multiple Class I areas in the eastern U.S.

Regulatory Requirements

EPA's regional haze rule requires a state to "address regional haze I each mandatory Class I Federal area located within the State and in each mandatory Class I Federal area located outside the State which may be affected by emissions from within the State." (40 CFR Part 51.308(d)) EPA has interpreted this provision as requiring a table identifying each mandatory Class I Federal area located within the State and each mandatory Class I Federal area located outside the State affected by emissions from within the State (see Draft EPA Checklist for Regional Haze SIPs Submitted Under 40 CFR 51.308 - *7/13/06 Staff Draft*).

Discussion

Technical analyses conducted by the RPOs were consulted to obtain information on areas of influence and culpability for Class I areas in the eastern U.S.[1] A summary of this information is provided below and in Table 1.

For the MRPO analyses, a state was assumed to affect visibility impairment in a Class I area if it contributes 2% (or more) to total light extinction. This criterion was selected based on a review of the back trajectory and modeling results which showed that states contributing 2% (or more) make-up about 90-95% of total light extinction, whereas states contributing 5% (or more) make-up only about 75-80% of total light extinction. For the other RPO analyses, deference was given to the criteria established by each group to identify contributing states.

(1) MRPO Back Trajectory Analyses

An initial trajectory analysis was conducted using data for 1997-2001 (all sampling days), a start height of 200 m, and a 72-hour (3-day) trajectory period (Cite: "Quantifying Transboundary Transport of $PM_{2.5}$: A GIS Analysis", May 2003, LADCO). By combining trajectory frequencies with concentration information, the average contribution to $PM_{2.5}$ mass and individual $PM_{2.5}$ species was estimated (which, in turn, was used to estimate the average contribution to light extinction). The results for 17 Class I areas in eastern U.S. were examined to identify those Class I areas where an MRPO state had at least a 2% contribution to total light extinction (based on all days).

[1] Back trajectories and modeling conducted by the WRAP indicate that the Midwest RPO States are not important contributors to visibility impairment due to sulfates and nitrates in western Class I areas (Cite: "Attribution of Haze Phase I Report, Geographic Attribution for the Implementation of the Regional Haze Rule", March 14, 2005). The analyses show only five groups of western Class I areas with at least 5% contribution from states outside the WRAP. The outside-WRAP contribution is generally small (on the order of 0-15%), and is likely due mostly to nearby CENRAP states.

A second trajectory analysis was conducted using data for 2000-2003 (20% highest and lowest days), a start height of 200m, and a 120-hour (5-day) trajectory period (Cite: "Sensitivity Analysis of Various Trajectory Parameters", June 2005, LADCO). Back trajectory plots were prepared for each of the four northern Class I areas in Michigan and Minnesota for the high extinction days (see Figure 1 – note: areas in orange are mostly likely upwind and the areas in green are least likely upwind on poor visibility days). Although somewhat qualitative, these results provide additional information in identifying states impacting the northern Class I areas.

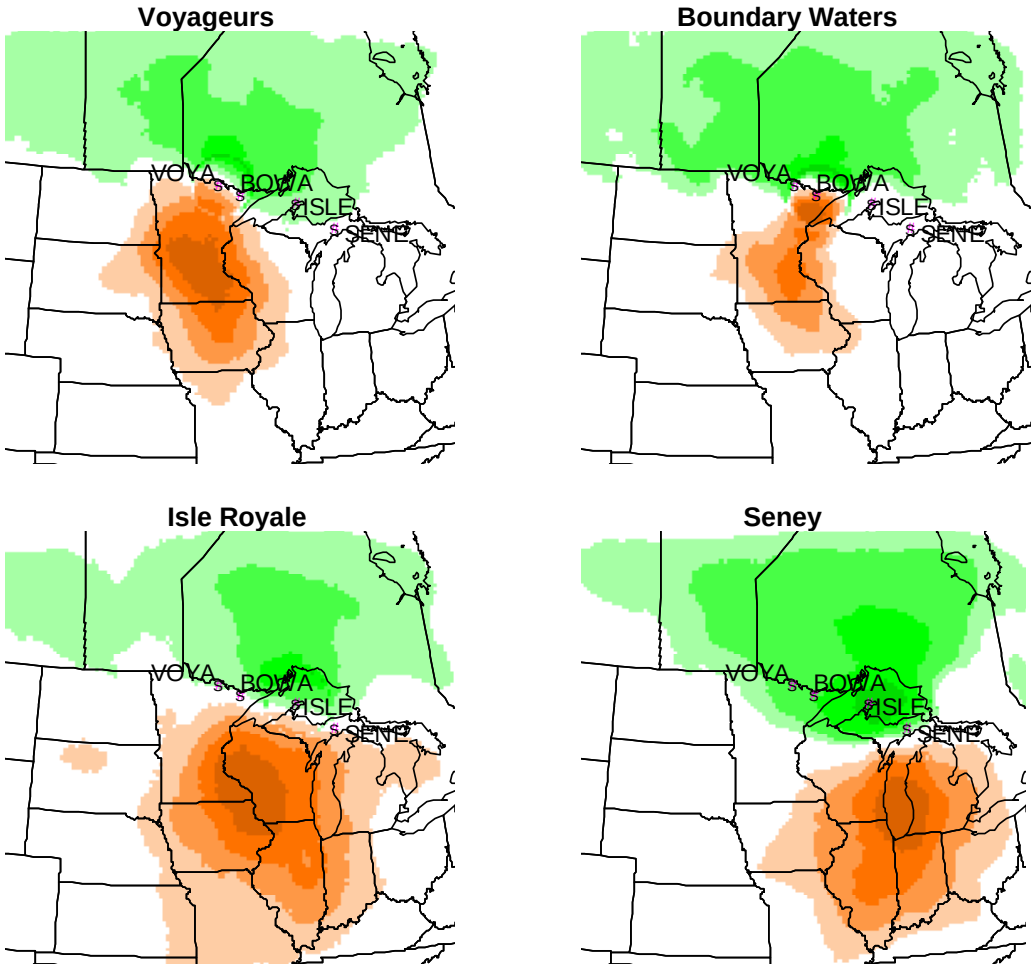

Figure 1. Contoured trajectory plots for poor visibility days for Class I areas in northern Minnesota and Michigan

(2) MRPO PSAT Modeling

A photochemical grid model (CAMx) was applied to provide source contribution information for 2018 conditions. Specifically, the model estimated the impact of 18 geographic source regions and 6 source sectors (EGU point, non-EGU point, on-road, off-road, area, and ammonia sources) at Class I areas in the eastern U.S. Example results for four Class I areas (Seney, Mammoth Cave, Mingo, and Shenandoah) are presented in Figure 2. The results for 13 Class I areas in eastern U.S. were examined to identify those Class I areas where an MRPO state had at least a 2% contribution to total light extinction.

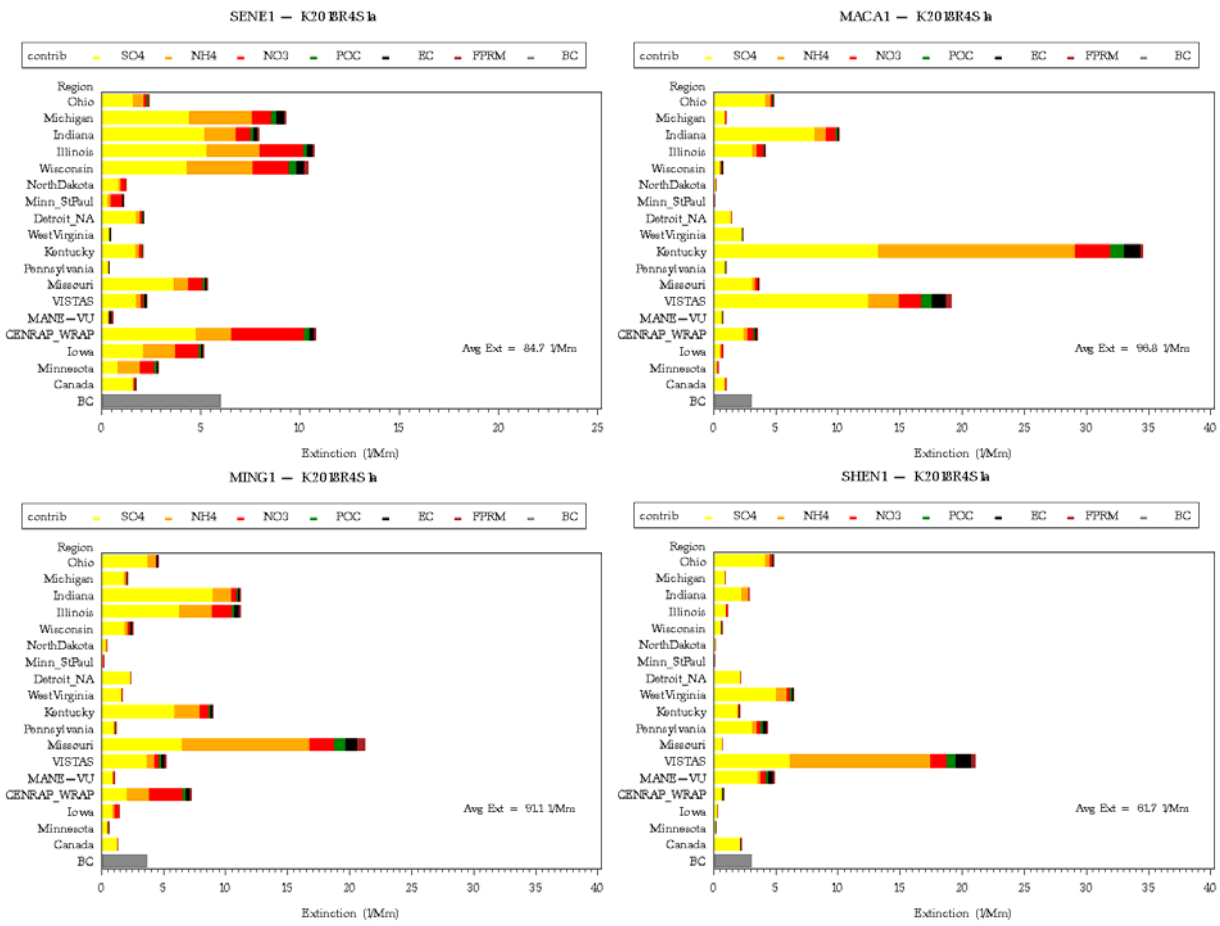

Figure 2. Source region contributions to light extinction based on MRPO PSAT modeling for select Class I areas: Seney, Mammoth Cave, Mingo, and Shenandoah

(3) MANE-VU Contribution Assessment

A weight-of-evidence report was prepared by NESCAUM (on behalf of MANE-VU) to understand the causes of sulfate-driven visibility impairment at Class I areas in the northeastern and mid-Atlantic portions of the U.S. (cite: "Contributions to Regional Haze in the Northeast and Mid-Atlantic United States", August 2006) The report provides information on the relative contribution of various emissions sources and geographic source regions. The analytical and assessment tools considered include Eulerian and Lagangian air quality models, and data analysis techniques, such as source apportionment analyses, back trajectories, and examination of emissions and monitoring data. Sulfate impacts were quantified using five analytical techniques based on 2002 conditions: REMSAD, Q/d, CALPUFF (w/ NWS data), CALPUFF (w/ MM5 data), and percent time upwind (based on trajectory analyses). Figure 3 summarizes the five sets of results for three MANE-VU Class I areas. Although no specific criteria were identified in the report to determine a significant contribution, the States of Vermont, New Hampshire, Maine, and New Jersey assumed a 2% sulfate impact in recent letters to other states inviting them to consult on reasonable progress goals. The MRPO States identified as contributing to a MANE-VU Class I area were Illinois, Indiana, Michigan, and Ohio

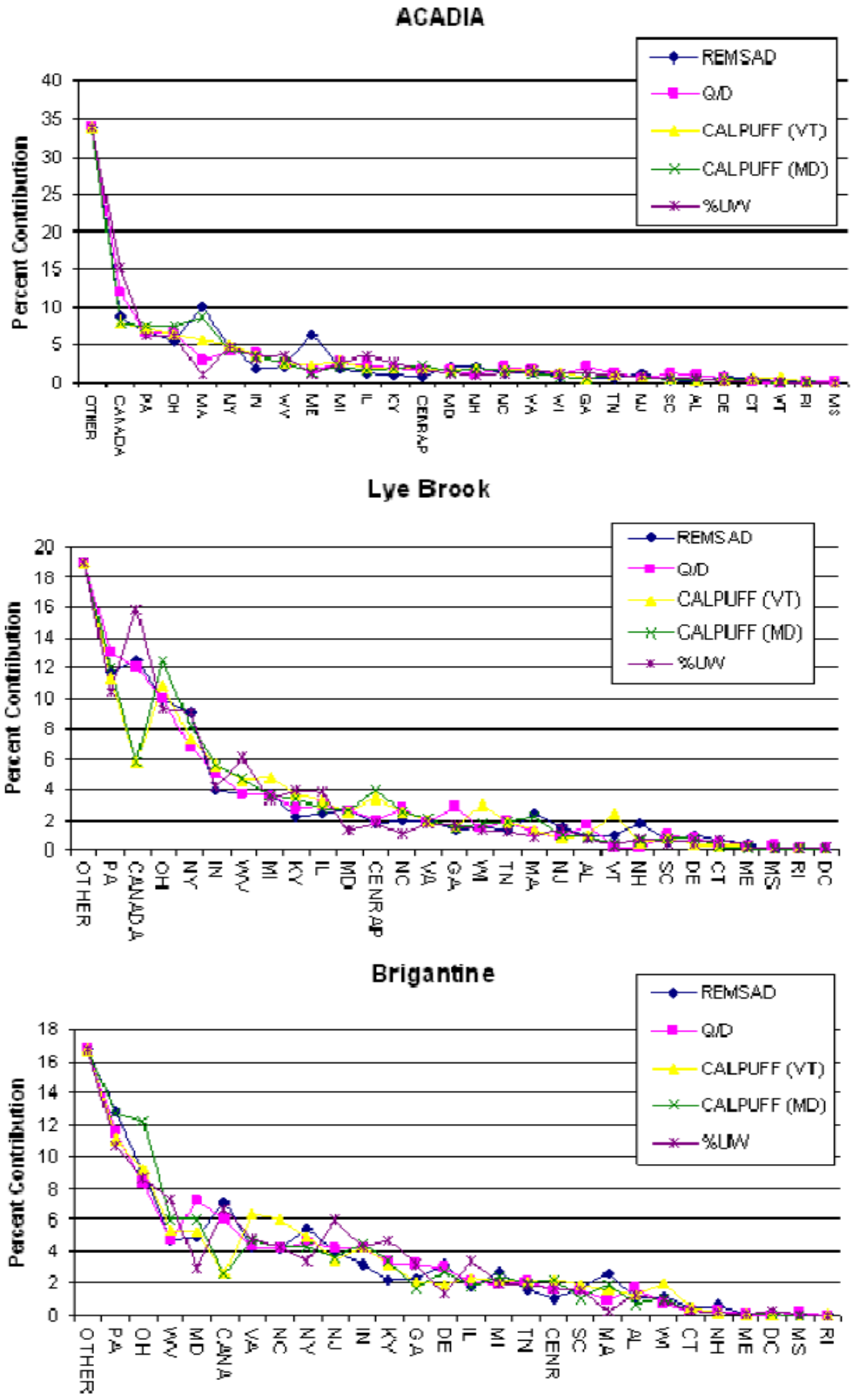

Figure 3. Percent contribution results using different techniques for ranking state contributions to sulfate levels at MANE-VU Class areas (cite: "Contributions to Regional Haze in the Northeastern and Mid-Atlantic Portions of the U.S.", August 2006)

(4) Missouri-Arkansas Contribution Assessment

The draft Consultation Plan for the two Missouri and two Arkansas Class I areas provides information on source regions affecting these Class I areas (i.e., areas of influence) using a variety of data and analyses. (cite: "Central Class I Areas Consultation Plan", States of Missouri and Arkansas, February 2007) A decision on whether a given state is a contributor to visibility impairment in these Class I areas was based on the combined results of three approaches: areas of influence (see Figure 4), PSAT modeling (based on 2018 conditions), and monitoring data analyses (PMF and back trajectories). According to the draft plan, if a state was a major contributor for at least two of the three approaches (for either sulfate or nitrate), then it was determined to be a significant contributor. The MRPO States identified as contributing to a central CENRAP Class I area were Illinois, Indiana, and Ohio.

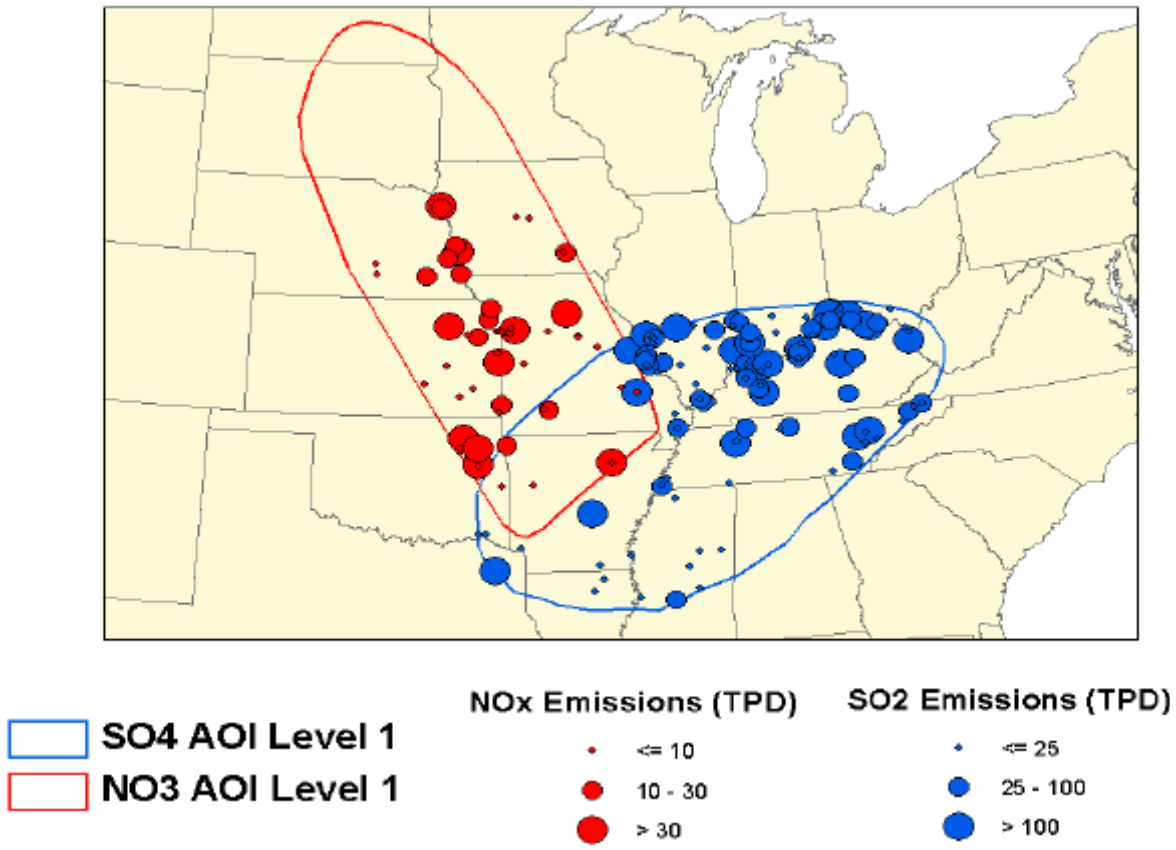

Figure 4. Areas of Influence for Central CENRAP Class I Areas (cite: "Central Class I Areas Consultation Plan", States of Missouri and Arkansas, February 2007)

(5) VISTAS Area of Influence Analysis

Areas of influence (AOI) were identified for Class I areas in the southeastern U.S. using residence time plots based on wind trajectory direction and frequency, and weighted by visibility impact (light extinction by ammonium sulfate, ammonium nitrate, or elemental carbon). (Cite: "VISTAS Areas of Influence Analysis", Draft, February 28, 2007). These extinction-weighted residence time analyses were overlaid on gridded emissions (for both 2002 and 2018) to define emission sources in the areas of greatest influence for each Class I area. Figure 5 shows the plots for two VISTAS Class I areas. AOIs were defined on the basis of residence times greater than 10%. The MRPO States identified as contributing to a VISTAS Class I area were Illinois, Indiana, and Ohio.

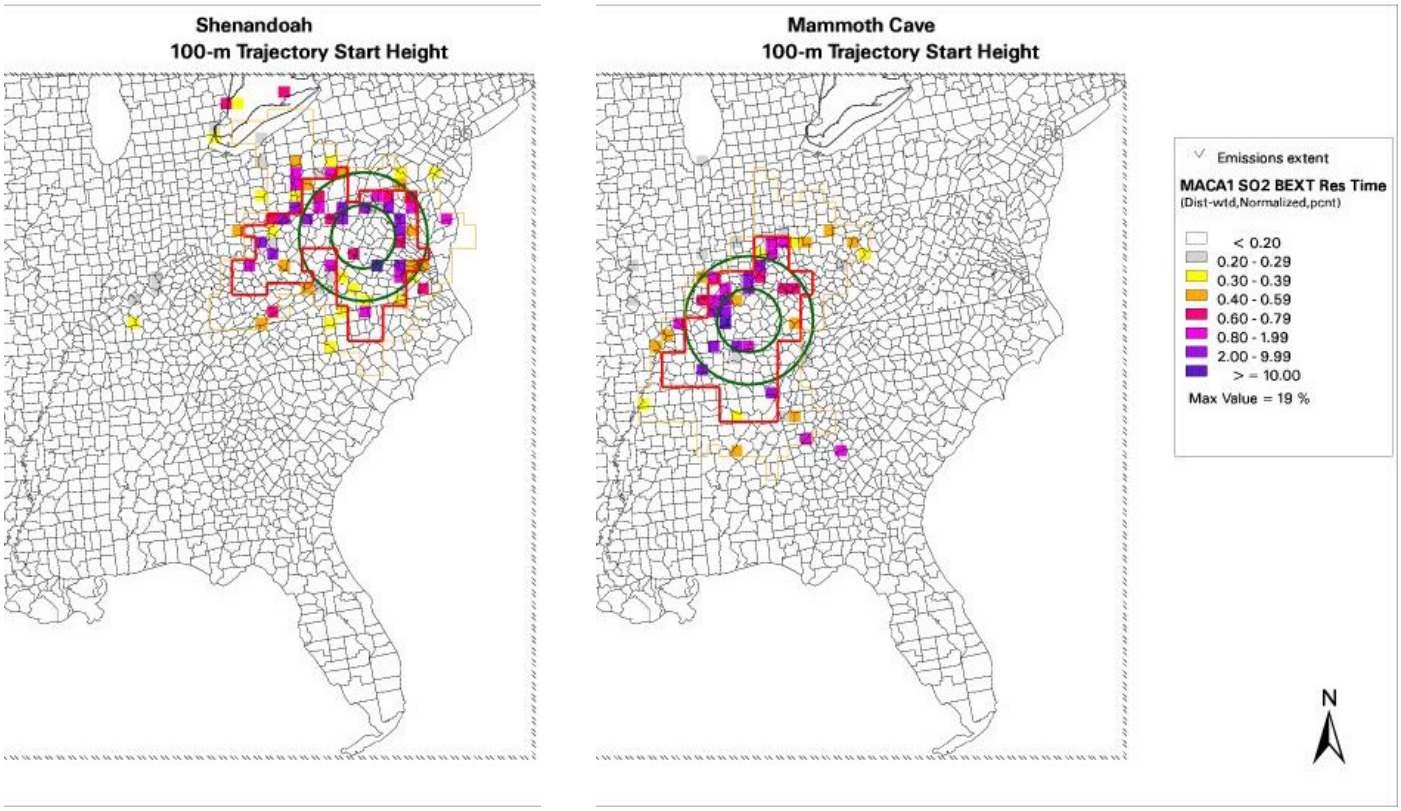

Figure 5. Areas of Influence for Shenandoah (left) and Mammoth Cave (right) for 2018 conditions (cite: "VISTAS Area of Influence Analyses" PowerPoint presentation, November 28, 2006)

Note: green circles indicate 100- and 200-km radii from Class I area, red line perimeter indicate AOI with residence time ≥ 10%, and orange line perimeter indicate AOI with residence time ≥ 5%

Table 1. Draft List of Class I Areas Impacted by MRPO States - References

AREA NAME	IL	IN	MI	OH	WI
81.401 Alabama.					
Sipsey Wilderness Area	(1)	(1)			
81.404 Arkansas.					
Caney Creek National Wilderness Area	(2), (4)	(2), (4)		(2), (4)	
Upper Buffalo National Wilderness Area	(1),(2),(4),(5)	(2), (4)		(2), (4)	(2)
81.408 Georgia.					
Cohotta Wilderness Area					
Okefenokee Wilderness Area					
Wolf Island Wilderness Area					
81.411 Kentucky.					
Mammoth Cave National Park	(1), (2), (5)	(1), (2), (5)	(1), (2)	(1), (2), (5)	
81.412 Louisiana.					
Breton Wilderness Area					
81.413 Maine.					
Acadia National Park	(3)	(3)	(3)	(3)	
Moosehorn Wilderness Area.	(3)	(3)	(3)	(3)	
81.414 Michigan.					
Isle Royale National Park	(1), (2)	(1), (2)	(1), (2)		(1), (2)
Seney National Wilderness Area	(1), (2)	(1), (2)	(1), (2)	(1), (2)	(1), (2)
81.415 Minnesota.					
Boundary Waters Canoe Area National Wilderness Area	(2)	(2)	(2)		(1), (2)
Voyageurs National Park	(2)	(2)			(1), (2)
81.416 Missouri.					
Hercules-Glades National Wilderness Area	(2), (4), (5)	(2), (4), (5)		(2), (4)	(2)
Mingo National Wilderness Area	(2), (4), (5)	(2), (4), (5)	(2)	(2), (4)	(2)
81.419 New Hampshire.					
Great Gulf National Wilderness Area	(3)	(3)	(3)	(1), (3)	
Pres. Range-Dry River National Wilderness Area					

AREA NAME	IL	IN	MI	OH	WI
81.42 New Jersey.					
Brigantine National Wilderness Area	(3)	(3)	(1), (3)	(1), (3)	
81.422 North Carolina.					
Great Smoky Mountains NP{1}	(1)	(1)		(1)	
Joyce Kilmer-Slickrock Wilderness Area{2}					
Linville Gorge Wilderness Area.					
Shining Rock Wilderness Area.					
Swanquarter Wilderness Area					
81.426 South Carolina.					
Cape Romain Wilderness					
81.428 Tennessee.					
Great Smoky Mountains NP{1}.	(1)	(1)		(1)	
Joyce Kilmer-Slickrock Wilderness{2}					
81.431 Vermont.					
Lye Brook National Wilderness Area	(2), (3)	(2), (3)	(2), (3)	(1), (2), (3)	
81.433 Virginia.					
James River Face National Wilderness Area	(2)	(2)	(2)	(2), (5)	
Shenandoah National Park	(2), (3)	(1), (2), (3)	(2), (3)	(1),(2),(3),(5)	
81.435 West Virginia.					
Dolly Sods/Otter Creek National Wilderness Area	(2), (3)	(1), (2), (3)	(1), (2), (3)	(1),(2),(3),(5)	

Key

(1) MRPO Back Trajectory Analyses
(2) MRPO PSAT Modeling
(3) MANE-VU Contribution Assessment
(4) Missouri-Arkansas Contribution Assessment
(5) VISTAS Areas of Influence

Appendix 2 - Letters Requesting Participation by States with Class I Areas

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Letters requesting Participation by States with Class I Areas

As a result of the various analyses performed by the MRPO and other RPOs, Indiana was invited to participate in a number of consultations regarding contributions to Class I areas. The states and organizations include Michigan, Minnesota, Arkansas and Missouri, Vermont, New Hampshire, New Jersey, and MANE-VU, also including Vermont, New Hampshire, and New Jersey. Copies of letters from Arkansas and Missouri, Vermont, New Hampshire, New Jersey, and MANE-VU follow.

Indiana participated in these processes, attending meetings and calls as appropriate.

Initial letter from Missouri and Arkansas requesting Indiana participation in their regional planning process for Mingo Wilderness, Hercules Glades Wilderness, Upper Buffalo Wilderness, and Caney Creek Wilderness areas.

STATE OF MISSOURI

Matt Blunt, Governor • Doyle Childers, Director

DEPARTMENT OF NATURAL RESOURCES

www.dnr.mo.gov

RECEIVED
STATE OF INDIANA
MAR - 1 2007
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY

FEB 2 6 2007

Ms. Kathryn Watson, Branch Chief
Indiana Department of Environmental Management
Office of Air Quality
100 North Senate Avenue
Indianapolis, IN 46206

Dear Ms. Watson:

As you are probably aware, the U.S. Environmental Protection Agency (EPA) promulgated the federal Regional Haze Rule on July 1, 1999. The federal Regional Haze Rule and the Clean Air Act require consultation between the States and the Federal Land Managers (FLMs) responsible for managing federal Class I areas. This consultation process provides an opportunity for us to work together to achieve a common goal of protecting the visibility of Class I areas.

The Missouri Department of Natural Resources' Air Pollution Control Program and the Arkansas Department of Environmental Quality would like to officially begin this consultation process for the following Class I areas located in Missouri and Arkansas:

- Mingo Wilderness Area (Missouri)
- Hercules Glades Wilderness Area (Missouri)
- Upper Buffalo Wilderness Area (Arkansas)
- Caney Creek Wilderness Area (Arkansas)

To do so, we are requesting your participation in a "kick-off" conference call to initiate this multi-state planning effort. We would like to schedule this conference call in March 2007.

Enclosed is a draft Consultation Plan that includes the objectives, timelines, activities, and technical information to facilitate the consultation. Please review this draft plan so that we can discuss it and consider any changes that might be beneficial on the call. Participants in the central Class I Areas consultation process will include States and Tribes that have been identified by modeling and technical analysis to have an impact on visibility at these four Class I areas. A list of the invitees that have been requested for the consultation is included in the draft plan. Regional Planning Organizations, FLMs and the EPA will also have the opportunity to participate in this process. The Arkansas Department of Environmental Quality may also provide additional information before the consultation call.

Recycled Paper

At this time, the modeling analysis shows that we are very close to meeting the reasonable progress goal at the four central Class I areas. It is our hope that through the consultation process we will be able to obtain additional information on the controls currently being implemented or planned by the participating states and tribes, and that we will be able to use that information in the model to demonstrate that we will be able to meet the first progress goal for these areas.

We look forward to working with you on this important effort and request that you please respond to this letter by advising who will be participating in this call for your organization along with their contact information. We will be working with them to develop an agenda and date for the "kick-off" conference call.

If you should have any questions about this letter or the consultation process, please contact either Calvin Ku of the Missouri Department of Natural Resources' Air Pollution Control Program at (573) 751-4817 or Tony Davis of the Arkansas Department of Environmental Quality at (501) 682-0728. Thank you.

Sincerely,

MISSOURI DEPARTMENT OF NATURAL RESOURCES
AIR POLLUTION CONTROL PROGRAM

James L. Kavanaugh
Director

ARKANSAS DEPARTMENT OF ENVIRONMENTAL QUALITY

Mike Bates
Chief – Air Division

Enclosure

JLK/MB:ckt

c: Mr. Daniel R. Schuette, Missouri Department of Natural Resources
Ms. Annette Sharp, CENRAP

Initial letter from Vermont requesting Indiana's participation in regional consultations.

VERMONT

TE
Kathy

State of Vermont
Department of Environmental Conservation

AGENCY OF NATURAL RESOURCES

AIR POLLUTION CONTROL DIVISION
Building 3 South
103 South Main Street
Waterbury, VT 05671-0402

TEL 802-241-3840
FAX 802-241-2590

Dept. Of Environmental Management
Commissioner's Office

MAR 12 2007

February 23, 2007

Thomas Easterly, Commissioner
Indiana Department of Environmental Management
100 North Senate Avenue, P.O. Box 6015
Indianapolis, Indiana 46206-6015

Dear Commissioner Easterly:

This letter has two purposes. Its first purpose is to present a brief summary of results of analyses which the State of Vermont , in conjunction with the Regional Planning Organization (RPO) MANE-VU, has conducted to fulfill requirements for the protection of visibility in federally managed areas of the United States known as Class I areas (Section 169A of the Clean Air Act). The analyses indicate that sources of visibility impairing air pollutants in the State of Indiana are contributing significantly to regional haze in he Class I Lye Brook Wilderness area located in Vermont.

Its second purpose is to invite you and/or representatives from the department/agency responsible in your state for regulatory air matters, to participate in a consultation process to determine an appropriate mitigation strategy for Lye Brook Wilderness. The consultation process will develop a recommendation for the most cost-effective strategy, agreeable to all jurisdictions involved, for implementation of long-term measures and controls which demonstrate that reasonable progress goals for the Class I area, to be established in Vermont's State Implementation Plan (SIP), will be achieved.

Background:

Environmental Protection Agency (EPA) final regional haze rules promulgated on July 1, 1999 require every state, whether containing a Class I area or not, to develop a SIP describing that state's control commitments (if any) to a long-term strategy for achieving reasonable progress goals (RPGs) in all Class I areas by 2018. 2018 is the end of the first 10 year period in a series of periodic SIP submittals that are required by the rules. The first SIPs under the regional haze rules (40 CFR 51.300) must be submitted to EPA by December 2007. Individual state plans that are developed need to be consistent with each other for them to be effective in achieving the RPGs. The regulations at 40 CFR 51.308 (d) (1) (iv) require a documented consultation process between all states involved in any multi-state strategy aimed at achieving the RPGs. This consultation record is one element required in the SIP of any state such as Vermont which contains one or more Class I areas. This letter serves to initiate the formal consultation process between our two states regarding the strategies to be incorporated in our state SIPs for submittal in December 2007.

Because the development of an effective strategy for mitigation of regional haze will be regional in nature, several other states have also been invited to participate in this consultative process to develop a SIP strategy that demonstrates the RPGs for visibility will be met in Lye Brook Wilderness Area by 2018. Vermont is a member of the Regional Planning Organization MANE-VU which is comprised of the New England States and New York, New Jersey, Pennsylvania, Delaware, Maryland, and the District of Columbia. All other MANE-VU member states are being invited to consult with Vermont on our SIP strategy. In addition, a total of eleven other states outside of MANE-VU have been identified as having a level of impact on regional haze in the Lye Brook Wilderness area which is considered "significant" for this first round of regional haze SIPs with a 2018 target for RPGs. The attached Table 1 identifies all of the states with which Vermont believes it must consult during this planning period.

Table 1 summarizes the specific analytical results for each state which lead us to believe sources of haze-causing air pollutants in your state contribute significantly to the regional haze experienced at Vermont's Class I area. Over the past three years MANE-VU has conducted a number of studies and used several accepted scientific methodologies to identify the sources of impacts on visibility at all of the Class I areas in the northeast. These have been collected into a technical document entitled "Contributions to Regional Haze in the Northeast and Mid-Atlantic United States" dated August 2006 (http://manevu.org). This information will be available along with other technical study results during our consultative process. All MANE-VU states have determined that they will participate in each of the consultation processes for each of the MANE-VU Class I areas. In that context, if your state is a member of MANE-VU, staff from your state will already be aware of the consultation that has been ongoing internally through committees and workgroups involved in MANE-VU RPO planning efforts.

If your state is not a member of MANE-VU, you are also invited and encouraged to send a representative to future consultation meetings which will be scheduled through contacts between our respective RPOs (MANE-VU, VISTAS, MRPO). These meetings will be held over a period of months in the near future. At the meetings, establishment of the 2018 RPGs for each of the Class I areas in the northeastern U.S. will be discussed and strategies intended to achieve the RPGs will be proposed and defined. Please send us the name, address and contact phone number and/or email address of the appropriate person within your organization to contact when details of the first consultation meeting have been finalized.

The Vermont contact for this consultation process is Paul Wishinski, Air Quality Planning Chief for the Vermont Air Pollution Control Division, Phone: 802-241-3862 Fax: 802-241-2590 email: Paul.Wishinski@state.vt.us. Please contact him if you have any questions about the regional haze planning consultation process that we are formally proposing with this letter.

Sincerely,

Justin Johnson, Deputy Commissioner
Department of Environmental Conservation
Vermont Agency of Natural Resources

VERMONT

State of Vermont
Department of Environmental Conservation

AGENCY OF NATURAL RESOURCES

TABLE 1

States to be Consulted on Establishing Vermont's Class I Area 2018 Reasonable Progress Goals and Strategies for Achieving Them

State Name	Primary Haze-Causing Significant Impact[1] and/or Other Reason for Inclusion
Connecticut	MANE-VU member
Delaware	MANE-VU member
District of Columbia	MANE-VU member
Georgia	Sources impact > 2% Sulfate Contribution
Illinois	Sources impact > 2% Sulfate Contribution
Indiana	Sources impact > 2% Sulfate Contribution
Kentucky	Sources impact > 2% Sulfate Contribution
Maine	MANE-VU member
Maryland	Sources impact > 2% Sulfate Contribution
Massachusetts	Sources impact > 2% Sulfate Contribution
Michigan	Sources impact > 2% Sulfate Contribution
New Hampshire	MANE-VU member
New Jersey	MANE-VU member
New York	Sources impact > 2% Sulfate Contribution
North Carolina	Sources impact > 2% Sulfate Contribution
Ohio	Sources impact > 2% Sulfate Contribution
Pennsylvania	Sources impact > 2% Sulfate Contribution
Rhode Island	MANE-VU member
Tennessee	Sources impact > 2% Sulfate Contribution
Virginia	Sources impact > 2% Sulfate Contribution
West Virginia	Sources impact > 2% Sulfate Contribution
Wisconsin	Sources impact > 2% Sulfate Contribution

[1] From the report entitled "Contributions to Regional Haze in the Northeast and Mid-Atlantic United States", prepared by NESCAUM for the Mid-Atlantic / Northeast Visibility Union (MANE-VU), August 2006. The primary criteria Vermont used to identify a state as having a significant impact on Vermont's Class I area was the modeled base-year 2002 state-wide sulfur oxide emission impacts on the ambient sulfate levels predicted at receptors in the Class I area. Any state with a modeled annual average sulfate ion impact greater than 2% of all modeled sulfate ion impacts was considered to have "significant impacts" for purposes of consultation on long-term strategies and reasonable progress goals.

Initial letter from New Hampshire requesting Indiana's participation in regional consultations.

The State of New Hampshire
DEPARTMENT OF ENVIRONMENTAL SERVICES

Thomas S. Burack, Commissioner

April 4, 2007

Thomas W. Easterly
Commissioner
IN DEM
100 N. Senate Ave., Mail Code 50-01
Indianapolis, IN 46204-2251

Dear Commissioner ~~Easterly~~ Tom:

As you are aware, New Hampshire is home to two Class I areas as designated under Section 169A of the U.S. federal Clean Air Act. The Great Gulf and the Presidential Range – Dry River Class I areas are located on the beautiful slopes of Mt. Washington, the highest point in the Northeastern United States. While this area is renowned for having some of the most challenging weather in the world, it also is known for providing very impressive vistas, that is, when visibility is not impaired by air pollution. Fortunately for those who visit this region and for those who live and work there, the Regional Haze rule requires that these areas and 154 others nationwide gradually improve visibility, with a goal of achieving natural conditions by 2064. While this ultimate goal is decades away, we begin today by taking reasonable actions and by partnering in consultation with states and Canadian provinces, as needed, to begin planning to take the first steps toward meeting this goal. I write today because we have identified your state or province as one that needs to be part of our collective solution to regional haze in New Hampshire.

According to the Clean Air Act, all U.S. states must submit State Implementation Plans (SIPs) by December 2007 for regional haze, regardless of whether they are home to a Class I area. Under the Act's section 169A (including regulations at 40 CFR 51.300), the regional haze SIP must demonstrate that reasonable progress will be made at nearby Class I areas at 10-year intervals, beginning in 2018. The regulations of 40 CFR 51.308(d)(1)(iv) specify that states with Class I areas should develop reasonable progress goals for their Class I areas and associated measures to meet those goals, in consultation with any jurisdiction that may reasonably cause or contribute to visibility impairment in those areas. The Federal Land Managers for the Class I area are also required to be consulted in this process.

While it is believed by the scientific community that every U.S. state contributes in some way to air pollution in The Great Gulf and the Presidential Range – Dry River Class I areas, we have limited our requests for consultations to only those states and Canadian providences that our analyses indicate have the potential for contributions over certain thresholds for $PM_{2.5}$ and/or sulfate to regional haze in our Class I areas. Beyond this, we are asking all states within our own Regional Planning Organization, the Mid-Atlantic

DES Web site: **www.des.nh.gov**
P.O. Box 95, 29 Hazen Drive, Concord, New Hampshire 03302-0095
Telephone: (603) 271-1370 • Fax: (603) 271-1381 • TDD Access: Relay NH 1-800-735-2964

Northeast – Visibility Union (MANE-VU) to consult with us. Because we have asked you to join us in consultation does not necessarily imply that we will be asking for air pollution control beyond measures you may have already identified as necessary for your own state for ozone and $PM_{2.5}$ ambient air standard attainment. By joining us, you can help us shape our regional haze progress goals for 2018 and help play a part in determining the best way to meet those goals for the New Hampshire Class I areas.

We, or a representative from MANE-VU, will be contacting you soon to arrange a consultation meeting. Thank you for your anticipated participation in this consultation and we look forward to working with you and your staff. Should you have any questions, please contact Jeff Underhill of my staff at 603-271-1370 (or email: junderhill@des.state.nh.us).

Sincerely Yours,

Thomas S. Burack

Thomas S. Burack
Commissioner

cc: Robert Scott, NHDES Air Resources Division
Jeffrey Underhill, NHDES Air Resources Division
Anna Garcia, OTC
Arthur Marin, NESCAUM
Susan Weirman, MARAMA

Initial letter from New Jersey requesting Indiana's participation in regional consultations.

State of New Jersey
DEPARTMENT OF ENVIRONMENTAL PROTECTION
PO Box 402
TRENTON, NJ 08625-0402
TEL. # (609) 292-2885
FAX # (609) 292-7695

JON S. CORZINE
Governor

LISA P. JACKSON
Commissioner

March 15, 2007

Thomas Easterly, Commissioner
Indiana Department of Environmental Management
100 North Senate Avenue
Indianapolis, Indiana 46204

Dear Mr. Easterly,

New Jersey is home to an area designated as a Class I area under Section 169A of the federal Clean Air Act, namely the Brigantine Wilderness area of the Edwin B. Forsythe National Wildlife Refuge. This area is one of 156 Class I areas located throughout the United States. Among the Class I areas in the eastern United States are the Otter Creek Wilderness area in West Virginia, Shenandoah National Park in Virginia, the Cape Romain Wilderness area in South Carolina and Acadia National Park in Maine. States with Class I areas are required to maintain and improve visibility in these areas to achieve natural background conditions by the year 2064. Existing visibility impairment in these Class I areas, also called regional haze, is caused by many sources located over a wide region.

All States, regardless of whether they are home to a Class I area, must prepare a State Implementation Plan (SIP) for Regional Haze by December, 2007, to meet the United States Environmental Protection Agency (USEPA) rules implementing Section 169A of the Clean Air Act (40 CFR 51.300). This Regional Haze SIP must demonstrate that reasonable progress towards improved visibility at the nearby Class I area will be made by certain milestone years. The first milestone year is 2018. The regulations at 40 CFR 51.308 (d) (1) (iv) require States with Class I areas to develop reasonable progress goals in consultation with any State that may reasonably cause or contribute to visibility impairment in the Class I area. This letter is part of New Jersey's consultation process for improving visibility at Brigantine.

Thus we are seeking your consultation on the reasonable progress goal and development of a coordinated emissions management strategy. For the purpose of establishing reasonable progress goals for the first Regional Haze SIP, the New Jersey Department of Environmental Protection has identified several States that may reasonably contribute to visibility impairment at Brigantine[1] or

[1] From the report entitled "Contributions to Regional Haze in the Northeast and Mid-Atlantic United States", prepared by NESCAUM for the Mid-Atlantic / Northeast Visibility Union (MANE-VU), August 2006.

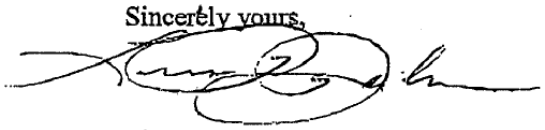
that are members of the Mid-Atlantic Northeast –Visibility Union (MANE-VU) planning organization. These States and the reason for their inclusion in our first consultation process are listed in the attached Table 1.

Future regulations to control air pollutant emissions that affect visibility must be evaluated and included in our Regional Haze SIPs before setting this first reasonable progress goal for the year 2018. To be as inclusive as possible in this important planning process, this letter is being sent to all States within the eastern United States. We plan to focus our initial planning efforts, and to jointly develop a coordinated emission management strategy to meet the first reasonable progress goal of this first round of SIP development, on the States identified in Table 1.

Regardless of whether your State has been identified as causing or contributing to visibility impairment at the Brigantine Wilderness area, you are invited to send a representative of your State to future meetings to be scheduled through our respective Regional Planning Organizations. At these meetings, establishment of the first reasonable progress goal for the Class I areas of the northeastern United States will be specifically discussed. New Jersey will be working with your State through MANE-VU, a regional planning group formed to coordinate and facilitate the regional haze SIP activities. MANE-VU will also be working with other Regional Planning Organizations (RPOs) to which your State may belong (i.e.; the Mid-West RPO or VISTAS). Please send us the name, address and telephone number of the appropriate person within your organization to contact to inform them of the particulars of the first meeting. Please send this to Ray Papalski, 401 East State Street, P. O. Box 418, Trenton, New Jersey 08625-0418.

Should your staff have any questions on this request or on the technical aspects of this letter, please call Ray Papalski at (609) 633-7225 or e-mail him at ray.papalski@dep.state.nj.us. Should you have any questions on New Jersey's plans for the consultation process, please call Mr. Chris Salmi of my staff at (609) 292-6710. Thank you for your anticipated cooperation, and we look forward to working with you and your staff in the near future.

Sincerely yours,



Lisa P. Jackson
Commissioner

Attachment

c: Arthur Marin, NESCAUM
Susan Weirman, MARAMA
Chris Recchia, OTC
Raymond Werner, USEPA
Sandra Silva, USFWS
Randy Moore, USDA, FS
Chris Shaver, NPS

Table 1

States to be Consulted on Establishing New Jersey's Class I Area 2018 Reasonable Progress Goals

State Name (alphabetical order)	Technique / Reason for Inclusion[2]
Connecticut	MANE-VU member
Delaware	MANE-VU member
District of Columbia	MANE-VU member
Georgia	> 0.1 ug/m^3 or > 2% Sulfate Contribution
Illinois	> 0.1 ug/m^3 or > 2% Sulfate Contribution
Indiana	3 of 5 techniques (Q/D, Calpuff 1 & 2)
Kentucky	> 0.1 ug/m^3 or > 2% Sulfate Contribution
Maine	MANE-VU member
Maryland	4 of 5 techniques (Q/D, Remsad, Calpuff 1 &2)
Massachusetts	MANE-VU member
Michigan	> 0.1 ug/m^3 or > 2% Sulfate Contribution
New Hampshire	MANE-VU member
New York	4 of 5 techniques (Q/D, Remsad, Calpuff 1 &2)
North Carolina	4 of 5 techniques (Q/D, Remsad, Calpuff 1 &2)
Ohio	All techniques
Pennsylvania	All techniques
Rhode Island	MANE-VU member
South Carolina	> 0.1 ug/m^3 or > 2% Sulfate Contribution
Tennessee	> 0.1 ug/m^3 or > 2% Sulfate Contribution
Vermont	MANE-VU member
Virginia	4 of 5 techniques (Q/D, Remsad, Calpuff 1 &2)
West Virginia	All techniques

Letter from MANE VU Regional Planning Organization requesting Indiana's participation in regional consultations.

KADR

OZONE TRANSPORT COMMISSION

July 10, 2007

Thomas Easterly, Commissioner
Indiana Department of Environmental Management
100 North Senate Avenue, Room N1255
Indianapolis, IN 46204-2222

444 N. Capitol St. NW
Suite 638
Washington, DC 20001
(202) 508-3840
FAX (202) 508-3841
e-mail: ozone@otcair.org

Dear Mr. Easterly,

On behalf of New Jersey, New Hampshire, Vermont, and Maine, the Mid-Atlantic/Northeast Visibility Union (MANE-VU) States with Class I areas, I am pleased to invite you to our upcoming State-to-State consultation call and meetings. We are holding these events in order to comply with the consultation requirements specified in 40 CFR, Part 51, and in accordance with the Inter-RPO Consultation Framework that MANE-VU approved at its May 5, 2005 Board Meeting.

Our goal for these and future consultation calls and meetings is to help states exchange and understand information regarding visibility issues in MANE-VU Class I areas, and to facilitate States' working together to develop acceptable approaches and policies for improving visibility.

After reviewing technical analyses the MANE-VU Class I states have formulated some ideas on the types and amounts of emissions reductions that are reasonable and, therefore, necessary to achieve reasonable progress in improving visibility at MANE-VU Class I areas. Due to the downwind location of MANE-VU Class I areas, these emissions reductions would be from states both within and outside the MANE-VU region. We know that you have also been working hard to address the visibility issues facing your own region's Class I areas. The consultation calls and meetings we engage in over the next several weeks will allow us to compare our work and findings, discuss what adjustments may be appropriate, and provide an opportunity to develop mutually beneficial solutions.

MANE-VU has been working closely with the Midwest Regional Planning Organization (MRPO) to find mutually convenient dates and times for these events, and we hope that you will be able to participate in these discussions. The schedule of calls and meetings that have been planned are as follows:

- Open Technical Call on July 19, 2007 from 10 am – 12:30 pm EDT, 9:00 am – 11:30 am CDT (call-in number 1-866-537-1634, passcode 7545482#); and

- In-person Consultation Meeting on August 6, 2007 (still to be confirmed) in Chicago, IL from 10:00 am – 3:30 pm CDT.

The purpose of the Open Technical Call on July 19th is to provide a forum for States/staff from all three RPOs to summarize their technical analyses and findings, and to discuss the initial ideas on the types and amounts of reductions that may be needed to achieve reasonable progress. The call is open to all States and Tribes in the MANE-VU, MRPO, and VISTAS regions, and open to all levels of participation (Commissioner/Secretary, Air Director and staff), as well as to representatives from the U.S. Environmental Protection Agency and the Federal Land Manager agencies.

The purpose of the in-person Consultation Meeting on August 6th is to have State-to-State policy discussions based on the technical analyses and findings presented during the Open Technical Call. We anticipate that at this meeting we will go into greater depth in our discussion of the types of actions and reductions necessary to achieve reasonable progress, in accordance with the requirements of the Regional Haze Rule. The meeting is open to all States and tribes in the MANE-VU and MRPO regions, as well as to representatives from the U.S. Environmental Protection Agency and the Federal Land Manager agencies. We welcome all levels of State and Tribal participation, but it will be particularly important to have decision-makers in attendance who can engage in meaningful discussions with other States and Tribes on policies and solutions to the visibility issues affecting the Class I areas.

As both the Open Technical Call and the in-person Consultation Meeting are government-to-government transactions, stakeholders are not to participate.

Attached are draft agendas for the Open Technical Call and the in-person Consultation Meeting. We are circulating these drafts for your review and comment, and will work with the MRPO to revise as necessary to facilitate our discussions.

In addition, attached is the draft table of contents for a briefing book which will contain summaries of the technical analyses and work that MANE-VU has performed. We will be developing these briefing books and getting them to you in advance for your use during the Open Technical Call and Consultation Meeting.

Finally, we are attaching a copy of four actions recently approved by MANE-VU. The first is a Resolution by the MANE-VU States with Class I areas outlining the principles they will follow in implementing the Regional Haze Rule. The second is a Statement that lays out a course of action that MANE-VU, as a region, will pursue toward assuring reasonable progress.

The third is a Statement that outlines the MANE-VU States' initial request for a course of action by States outside of the MANE-VU region toward assuring reasonable progress at our Class I areas. The course of action described is intended as a starting point for our discussions, and will be examined in light of the technical work and findings provided by or on behalf of the affected States during the Open Technical Call and the in-person Consultation Meeting. The fourth of these attachments is a request that we are making of the U.S. Environmental Protection Agency to work with the eastern Regional Planning Organizations to develop a national proposal to achieve additional cost-effective SO_2 reductions. MANE-VU would welcome support from other RPOs for this request for EPA action.

Please contact me if you have any questions about the scheduling or logistics of the call or meeting, or generally about the consultation process. On behalf of the MANE-VU States, I look forward to working with you and the MRPO to develop an informative and productive consultation process of that yields mutually beneficial results.

Sincerely,

Anna Garcia
Acting Executive Director

Cc: Daniel Murray, Indiana DEM
Ken Ritter, Indiana DEM
Christine Pedersen, Indiana DEM

Enclosures

Appendix 3 - Assessment of Class 1 Areas Impacted by Indiana Sources

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Background

IDEM assessed each of the areas identified in the MRPO report (Appendix 1) as being impacted by Indiana sources. Information provided by the MRPO, technical documents from the other RPOs, and letters received from other states indicating their decisions regarding reasonable further progress goals were used to make these assessments.

Class 1 areas outside the comprehensive lists in Section 5 were not analyzed further, as there was no impact from Indiana sources shown. Further, no impacts from Indiana were noted in the WRAP states and no requests for controls were initiated by those states.

In the following sections, these analyses are presented.

App. 3 - 1. Voyageurs National Park and Boundary Waters Canoe Area Wilderness

Indiana sources have shown an impact on these Class 1 areas through some modeling studies. Minnesota has determined that several states, not including Indiana, are significant contributors to visibility impairment in these areas at this time and is working with them as they develop their reasonable progress goals.

The following cover letter from the Minnesota Pollution Control Agency contains this information. Indiana has participated in the consultation calls and the MRPO modeling process used by Minnesota to reach their conclusions.

As can be seen in the map on page 6 of the letter, Indiana is barely in the Area of Influence that impact their Class 1 areas. Minnesota has developed a long term strategy sufficient to meet their 2018 reasonable progress goals.

Indiana concurs that this is the best approach for addressing visibility impairment at Voyagers and Boundary Waters Class 1 areas at this time. Therefore, no further analysis for this SIP is necessary.

Minnesota Pollution Control Agency
520 Lafayette Road North | St. Paul, MN 55155-4194 | 651-296-6300 | 800-657-3864 | 651-282-5332 TTY | www.pca.state.mn.us

September 19, 2007

TO: Participants in the Northern Class I Areas Consultation Process

RE: Northern Class I Areas Consultation Conclusion

As you are aware, Minnesota is home to two federal Class I areas, Voyageurs National Park (VNP) and the Boundary Waters Canoe Area Wilderness (BWCAW), located in the northern portion of the state. Under the federal Regional Haze Rule (40 CFR 51.300-309), the State of Minnesota is required to work to improve visibility in these two areas, with a goal of no man-made visibility impairment by 2064.

Under the portion of the Regional Haze regulations at 40 CFR 51.308(d)(1)(iv), states with Class I areas are required to develop reasonable progress goals (RPG) for visibility improvement at their Class I areas and associated measures to meet those goals, in consultation with any other State or Tribe that may reasonably cause or contribute to visibility impairment in those areas. This letter provides information on how Minnesota intends to address the reasonable progress goals, identification of the states that cause or contribute to visibility impairment in Minnesota's Class I areas, and our expectations for continued coordination with those states on haze-reducing strategies.

Beginning in 2004 and 2005, a number of discussions were held between state and tribal representatives in the upper Midwest concerning air quality planning to address regional haze in the four Class I areas in Michigan and Minnesota. Formal discussions geared toward the State Implementation Plans (SIP) consultation requirements began in July 2006, in a conference call among representatives from Iowa, Michigan, Minnesota, North Dakota, Wisconsin, the Mille Lacs and Leech Lake bands of Ojibwe, and Federal Land Managers (FLM), Regional Planning Organization (RPO) and U.S. Environmental Protection Agency (EPA) personnel. It was decided that other potentially contributing states should be asked to participate in the consultation process, and that consultation should continue through ongoing conference calls during the development of the regional haze SIP. Minutes of the conference calls and other documentation can be found on the Lake Michigan Air Directors Consortium/Midwest Regional Planning Organization (LADCO/MRPO) Web site.[1]

The group consulted on technical information, producing a document entitled *Regional Haze in the Upper Midwest: Summary of Technical Information*, which lays out the basic sources that cause and contribute to haze in the four Northern Class I areas, as agreed to by all the participating states.[2]

[1] http://www.ladco.org/Regional_haze_consultation.htm
[2] http://www.ladco.org/Final%20Technical%20Memo%20-%20Version%205d1.pdf

Based on the technical information contained in this document and other supporting analyses, Minnesota has determined that, in addition to Minnesota, Illinois, Iowa, Missouri, North Dakota, and Wisconsin are significant contributors to visibility impairment in VNP and the BWCAW. Attachment 1 to this letter provides a summary of how Minnesota reached this conclusion.[3]

The Minnesota Pollution Control Agency (MPCA) has not yet completed modeling to determine the RPG for these two Class I Areas. However, because of the varying timelines and different non-attainment issues impacting Minnesota and other contributing states, Minnesota intends to submit a RPG resulting from implementation of the minimum interim control measures Minnesota would consider to be reasonable. This decision reflects the need for more in-depth analysis before additional control measures can be determined to be reasonable. The RPG would be revised in the Five Year SIP Assessment to reflect final control measures.

In addition to on-the-books controls, such as the Clean Air Interstate Rule (CAIR), Minnesota expects the RPG to reflect Best Available Retrofit Technology (BART) determinations in Minnesota and surrounding states (where known), the plan for a 30 percent reduction in combined sulfur dioxide (SO_2) and nitrogen oxides (NO_X) emissions in Northeastern Minnesota, voluntary emission reductions planned by Minnesota utilities beyond those predicted from CAIR, and, where known, any additional control measures undertaken in other states for regional haze or attainment purposes. The MPCA expects that the modeling information needed to set the RPG would be available by October 2007.

Minnesota commits to evaluating additional control measures and implementing those that are reasonable under the four factors listed in 40 CFR 51.308(d)(1)(i)(A) in the 2008 SIP. Minnesota expects that additional control measures may be found to be reasonable, and commits to including a plan for implementation of those additional reasonable measures in the Five Year SIP Assessment. Minnesota asks the five other significantly contributing states to make these same commitments for further evaluation and implementation of reasonable control measures.

In particular, Minnesota asks Iowa, Missouri, North Dakota, and Wisconsin to evaluate further reductions of SO_2 from electric generating units (EGU) in order to reduce SO_2 emissions by 2018 to a rate that is more comparable to the rate projected in 2018 for Minnesota, approximately 0.25 lbs/mmBtu. Minnesota believes that Illinois is already in the process of meeting this goal. Emission reductions in Wisconsin are particularly important, as Wisconsin is the highest contributor outside Minnesota to visibility impairment in Minnesota's Class I areas.

Minnesota also asks North Dakota to evaluate the potential for reductions of NO_X from EGUs due to predicted higher NO_X emission rates compared with Minnesota and other contributing states. Illinois, Missouri, and Wisconsin are in the process of evaluating NO_X emission

[3] Minnesota is relying primarily on data analysis and technical work done by MRPO and CENRAP.

reductions for their ozone SIPs. Minnesota would expect these three states to share information on the NO_X controls being undertaken as part of those ozone SIPs.

Minnesota acknowledges that each state is in a unique position; for example, North Dakota has a different regulatory background and a different fuel mix than other contributing states. Minnesota's use of emission rates to point towards areas where additional emission control strategies should be investigated does not mean that Minnesota expects all the contributing states to achieve the same emission rates. However, the contributing states with higher emission rates should evaluate potential control measures, and should, in their initial SIPs or Five Year SIP Assessments, show either enforceable plans to reduce emissions or a rationale for why such emission reductions are not reasonable (e.g., an overly high cost in $/ton or $/deciview, or lack of visibility improvement).

Minnesota, in turn, also commits to a more detailed review of potential emission reductions from large Industrial, Commercial, and Institutional (ICI) Boilers and other point sources (such as reciprocating engines and turbines) with regulations or permit limits developed by 2013 and included in the Five Year SIP Assessment if control measures on these source categories appear to be reasonable. Minnesota asks the five contributing states to make a similar commitment.

It is the intent of Minnesota to proceed with the development and submittal of a Regional Haze Plan which includes the aforementioned RPG and expectations for contributing states. Minnesota commits to continuing work with the other states to review and analyze potential region-wide control strategies and emission reductions plans and to continue on-going assessments of progress towards visibility improvement goals.

Minnesota asks that any additional control measures found to be reasonable will be included in each state's SIP or Five Year SIP Assessment in an enforceable form. This will ensure that the control measures are on track to be implemented by the 2018 deadline for submittal of SIPs covering the second phase of the Regional Haze process.

Minnesota believes that the consultations conducted to date satisfy the consultation process requirements, providing for consistency between state SIPs and allowing each state to move forward with SIP preparation and submittal. As necessary, Minnesota will engage in future consultation to address any issues identified in the review of the Regional Haze SIPs, any additional technical information, and to ensure continued coordinated efforts among the Midwestern states.

Attached to this letter is an outline of the reasonable progress discussion to appear in our SIP and additional supporting tables and graphs.

In order to document the consultation process, the MPCA is asking that the State and Tribal recipients of this letter respond within 30 days with a letter documenting that these consultations have taken place to the satisfaction of your State or Tribe, or detailing areas where additional

consultation should occur. Those states that Minnesota has identified as additional contributing states should respond with your agreement or disagreement with the determination of contributing states and the additional controls strategies that will be evaluated.

Thank you for your participation and contributions in this consultation process. Your time and efforts are appreciated. If you require additional information regarding this matter, please contact John Seltz at 651-296-7801 or john.seltz@pca.state.mn.us.

Sincerely,

Brad Moore
Commissioner

BM/CN:ld:tgr

Attachments

Attachments Showing Minnesota RPG Analysis

Attachment 1: Supporting Technical Information – Determination of Contributing States

Minnesota used the LADCO 2002 – 2003 Trajectory Analyses and the LADCO 2018 PSAT analysis, using a 5% threshold of contribution from either analysis to either of Minnesota's Class I areas, to define a contributing state. Based on this information, the States identified as contributing to visibility impairment in Minnesota's Class I Areas are: Minnesota, Wisconsin, Illinois, Iowa, Missouri, and North Dakota.

The table below documents the percent contribution to visibility impairment by the States that have participated in the Northern Class I consultation process, estimated from 2000 – 2003 LADCO trajectory analysis, with supporting information from the CENRAP 2002 PSAT model of the 20% worst days.[4]

State Impacts on Minnesota's Class I Areas – Baseline Period

	LADCO Trajectory Analyses (2000-2003)		CENRAP PSAT Modeling (2002)	
	BWCAW	VNP	BWCAW	VNP
Michigan	0.7%	1.6%	2.6%	1.4%
Minnesota	37.6%	36.9%	25.4%	27.6
Wisconsin	11.1%	9.7%	8.6%	5.6%
Illinois	2.7%	1.2%	7.3%	3.7%
Indiana	1.2%		3.8%	1.8%
Iowa	7.4%	10.2%	3.9%	3.8%
Missouri	3.3%	0.3%	2.7%	2.1%
N. Dakota	5.9%	7.1%	4.8%	7.1%
TOTAL	69.9%	67.0%	59.2%	53.1%

The following table documents the percent contribution from these same states projected for the future based on LADCO's 2018 Particulate Matter Source Apportionment Technology (PSAT) analysis, with supporting information from the CENRAP 2018 PSAT model of the 20% worst days.[5] Although in some cases the percentage impacts predicted by CENRAP are lower than those predicted by the MRPO PSAT analysis (Iowa, Missouri), the identified states remain the higher contributors. The relative order of contributing states does not change much between 2002 and 2018.

[4] Environ. (2007, July 18). *CENRAP PSAT Visualization Tool.* (Corrected Version). Available on the CENRAP Projects webpage

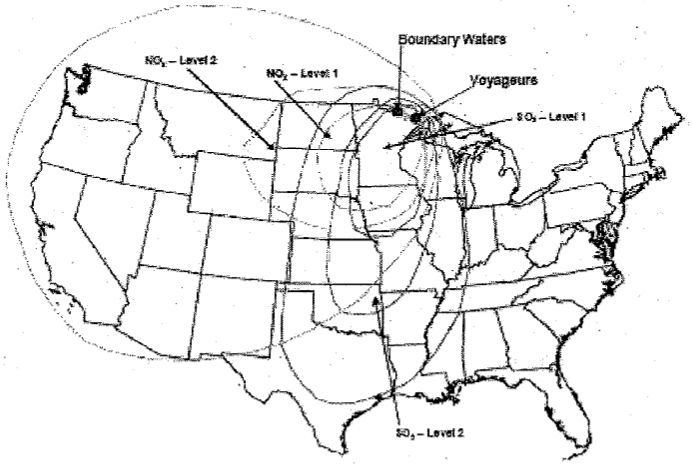
[5] Ibid.

State Impacts on Minnesota's Class I Areas – Future Year (2018 PSAT)

	LADCO PSAT Modeling (2018)		CENRAP PSAT Modeling (2018)	
	BWCAW	VNP	BWCAW	VNP
Michigan	2.6%	1.3%	2.2%	1%
Minnesota	30.5%	35.0%	19.8%	18.0%
Wisconsin	10.4%	6.3%	6.0%	3.1%
Illinois	5.2%	3.0%	3.7%	1.6%
Indiana	2.9%	1.6%	1.8%	0.8%
Iowa	7.6%	7.4%	2.9%	2.5%
Missouri	5.2%	4.3%	2.3%	1.6%
N. Dakota	5.7%	10.3%	3.7%	4.7%
TOTAL	70.1%	69.2%	42.5%	33.3%

The states with contributions over 5% to the Class I areas in these analyses generally match well with the impacting states shown in the Area of Influence (AOI) analysis done by Alpine Geophysics for CENRAP.

AOIs for Minnesota's Class I Areas[6]



[6] Stella, G.M et al. (2006, May 9). *CENRAP Regional Haze Control Strategy Analysis Plan.* Prepared by Alpine Geophysics. Available on the CENRAP Projects webpage http://www.cenrap.org/projects.asp

Attachment 2: Outline of an Approach to Defining Reasonable Progress for Minnesota Class I Areas in the Minnesota Regional Haze SIP

Under EPA rules, Minnesota has a responsibility to set a Reasonable Progress Goal (RPG) for visibility in the Boundary Waters and Voyageurs Park. Because the states that contribute to our Class I areas will submit their SIPs at different times, Minnesota sets forth the following proposal for setting a RPG for our two Class I areas. This document lays out the elements that we plan to include.

Minnesota's Long Term Strategy section will include those control strategies which we plan to undertake and which we consider to be reasonable. It will also include any known controls that are being undertaken in the nearby states, particularly the five states (IL, WI, ND, IA, and MO) that have been identified as contributors to BWCAW and VNP.

- Minnesota's LTS Contains
  - BART
    - For Minnesota: Minimal emission reductions
    - As known for other states
  - CAIR and resulting EGU reductions
    - For Minnesota
    - As known for other states
  - Control strategies for $PM_{2.5}$ and Ozone attainment SIPs
    - As known for other states
  - Other federal on-the-books (OTB) controls:
    - Tier II for on-highway mobile sources
    - Heavy-duty diesel (2007) engine standards
    - Low sulfur fuel standards
    - Federal control programs for nonroad mobile sources
  - Additional Emission Limitations
    - NE Minnesota Plan (30% reduction in combined SO_2/NO_X as a fair share)
    - Additional voluntary reductions as a result of MN Statutes 216B.1692 (emission reduction rider)
    - Anything known for other states
  - Other long term strategy (LTS) Components (without specific emission reductions)
    - Measures to mitigate emissions from construction
    - Source retirement and replacement
    - Smoke management for prescribed burns in Minnesota

After documenting all the components of the LTS, Minnesota will lay out the RPG determined for the best and worst days at VNP and BWCAW.

Reasonable Progress Goals

Once determined, the RPG submitted in Minnesota's SIP will represent an **interim, minimum** visibility improvement Minnesota would consider to be reasonable, and contain emission reductions resulting from the elements of the long term strategy.

At this time, Minnesota believes that this is an appropriate goal because other impacting states are working on a multi-SIP approach and have yet to determine what reductions are reasonable in their states for both haze and attainment purposes. Although we cannot compel the states to undertake reductions, Minnesota would expect further emissions reductions than are documented here, resulting in larger visibility improvement. Minnesota intends to revise the RPG for 2018 in the Five Year SIP Assessment, in order to reflect the additional control strategies found to be reasonable.

Steps in Reviewing Control Strategies and Revising RPG

In reviewing additional control strategies to determine those that are reasonable under the Regional Haze rule, Minnesota will focus on strategies that will result in emission reductions in those states that are significant contributors to visibility impairment in either BWCAW or VNP: Minnesota, Wisconsin, Iowa, N. Dakota, Missouri and Illinois.

The MPCA commits to further evaluation of reasonable control strategies that are possible within Minnesota. Minnesota will work with the other contributing states through their submittals of the first haze SIP and through 2013 to develop reasonable control strategies.

In the Five Year SIP Assessment, the MPCA would submit enforceable documents for any additional control measures found to be reasonable within Minnesota. In addition, that report would contain a listing of the additional control measures to be implemented by the other contributing states. Minnesota would then submit modeling that includes all these enforceable measures and would revise the 2018 RPG to reflect the larger degree of visibility improvement expected from the chosen control strategies.

Specific Control Strategies to Be Reviewed

Minnesota will use the EC/R five factor analysis report, the control cost analysis carried out by Alpine Geophysics for CENRAP and the CENRAP Control Sensitivity Model run to identify reasonable region-wide emission reduction strategies. (*See Attachment 3*).

The specific strategies that at this time appear to potentially be reasonable, and Minnesota's expectation for each of these strategies for other states, are outlined below.

EGU SO_2 Reductions

Minnesota will ask the contributing states to look at their EGU emissions of SO_2; Minnesota will particularly focus on possible reductions in states with emission rates that appear to be higher than the average among the Midwestern states. Since contributor states face a variety of regulatory demands and fuel types, it may not be possible to attain uniform emission performance. An emission rate of about 0.25 lb/mmBTU should be achievable in a cost-effective manner; this is the level being achieved in Minnesota and Illinois, and the EC/R report

shows that the "EGU1" scenario, a 0.15 lb/mmBTU emission rate, is generally achievable in the Midwest at a reasonable $/ton figure. (See Attachment 3).

Minnesota asks the identified states to demonstrate that reductions are occurring or being undertaken that will allow the state to reach at least the 0.25 lb/mmBTU emission rate, or to describe in their SIPs or Five-Year SIP Assessments why further reductions of SO_2 from EGU are not reasonable. Further reductions may not be reasonable due to the cost of implementation in $/ton or $/deciview or lack of impact on visibility impairment, but they should be evaluated.

At present, it appears as though Illinois has planned or proposed reductions that appear reasonable. It appears that more cost effective reductions are possible in Iowa, Missouri, North Dakota, and Wisconsin. Since Wisconsin is the largest non-Minnesota contributor to Minnesota's Class I areas, their efforts to reduce EGU SO_2 emissions are particularly important.

EGU NO_X Reductions

Wisconsin, Missouri, and Illinois have already reduced NO_X emissions to alleviate ozone standard violations, and Iowa appears to already have relatively low EGU NO_X emissions.

Minnesota will ask North Dakota to look at their EGU emissions of NO_X and to describe in their SIP or Five-Year SIP Assessment why further reductions of NO_X from EGU are not reasonable. Again, an emission rate of approximately 0.25 lb/mmBTU appears to be a reasonable benchmark. Further reductions may not be reasonable due to the cost of implementation in $/ton or $/deciview or lack of impact on visibility impairment, but they should be evaluated.

ICI Boiler Emission Reductions

Minnesota will commit to a more detailed review of potential NO_X and SO_2 reductions from large ICI boilers. Regulations or permit limits will be developed by 2013 if significant cost effective reductions prove feasible from this sector. Minnesota will expect the five contributing states to make at least this level of commitment.

Other Point Source Emission Reductions

Reciprocating engines and turbines appear to be a sector with potential cost effective NO_X controls. Minnesota commits to review this sector in more detail and if, after consideration of planned federal control programs, cost effective reductions appear feasible, Minnesota commits to develop regulations or permit limits for major sources by 2013. Minnesota will expect the five contributing states to make a similar commitment.

Mobile Source Emission Reductions

There appear to be relatively few cost effective NO_X controls for transportation available to states. Minnesota commits to work with LADCO states to implement appropriate cost effective NO_X controls to improve visibility and lower ozone levels in non-attainment areas.

NO_X Modeling, Ammonia, Agricultural Sources

It is not appropriate to commit to control of ammonia sources at this time. However, there is a clear need to improve 1) our understanding of the role of ammonia in haze formation, 2) our understanding of potential ammonia controls, and 3) the accuracy of particulate nitrate

predictions. Minnesota does not consider it our responsibility to conduct such research. Minnesota therefore encourages EPA and the regional planning organizations to continue work in these areas and commits to work with EPA and the RPOs to these ends.

Timeline for Reviewing Control Strategies

Minnesota commits to reviewing these control strategies on such a timeline that the 2013 SIP Report will include the four factor analysis for these control strategies, and that any control strategies deemed to be reasonable will be in place with an enforceable document (state rule, order, or permit conditions). Although any control measures ultimately deemed to be reasonable may not be fully implemented by 2013, they will be clearly "on the way" and the SIP Report will include estimates of emission reductions and projected 2018 visibility conditions.

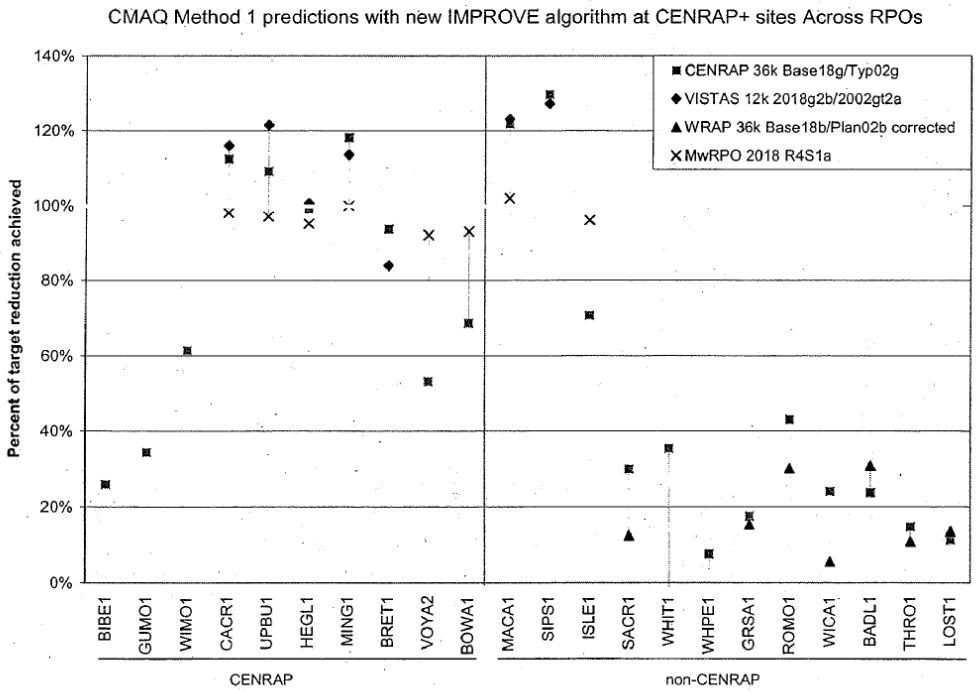
Acknowledging that most states are far along in the process of writing their Regional Haze SIPs, Minnesota would expect that all other contributing states would commit to a timeline that would allow reasonable predictions of the emission reductions and visibility improvement by 2018 from those states in the 2013 SIP Report.

Attachment 3: Supporting Technical Information – Need for Additional Control Strategies

Although there are some fairly major differences in the degree of visibility improvement expected at VNP and BWCAW due to on- the- books controls, projections by both CENRAP and Midwest RPO show that Minnesota's Class I areas are not yet projected to meet the Uniform Rate of Progress, as shown in the graph below.[7] In this graph, the URP is the "target reduction."

EPA's recent guidance on determining the reasonable progress goal (RPG) indicates that states may set a RPG that provides for more, less, or equivalent improvement as the URP. However, the guidance continues to emphasize that an analysis of control strategies with the four factors is necessary; Minnesota believes this is particularly true in light of the lesser degree of visibility improvement shown from on- the- books controls in Minnesota's Class I Areas.

The EGU 2018 Summary table, following, shows projected 2018 EGU SO2 and NOX emissions. Highlighted cells indicate specific states and pollutants of concerns, where Minnesota has requested evaluation of potential reasonable control measures.[8]



[7] Morris, R. (2007, July 24). *CENRAP Emissions and Modeling Technical Support Document,* Prepared by Environ. Presentation Given at CENRAP Workgroup/POG Meeting.
[8] Provided by Midwest RPO from the IPM 3.0 base run and edits made by certain states.

EGU Summary for 2018

	Heat Input (MMBTU/year)	Scenario	SO2 (tons/year)	SO2 % Reduction (From 2001 - 03 Average)	SO2 (lb/MMBTU)	NOx (tons/year)	NOx % Reduction (From 2001 - 03 Average)	NOx (lb/MMBTU)
IL	**980,197,198**	**2001 - 2003 (average)**	**362,417**		**0.74**	**173,296**		**0.35**
	1,310,188,544	IPM3.0 (base)	277,337	23.5	0.423	70,378	59.4	0.107
		IPM3.0 - will do	140,296	61.3	0.214	62,990	63.7	0.096
		IPM3.0 - may do	140,296	61.3	0.214	62,990	63.7	0.096
IA	**390,791,671**	**2001 - 2003 (average)**	**131,080**		**0.67**	**77,935**		**0.40**
	534,824,314	IPM3.0 (base)	115,938	11.6	0.434	59,994	23.0	0.224
		IPM3.0 - will do	115,938	11.6	0.434	59,994	23.0	0.224
		IPM3.0 - may do	100,762	23.1	0.377	58,748	24.6	0.220
MN	**401,344,495**	**2001 - 2003 (average)**	**101,605**		**0.50**	**85,955**		**0.42**
	447,645,758	IPM3.0 (base)	61,739	39.2	0.276	41,550	51.7	0.186
		IPM3.0 - will do	54,315	46.5	0.243	49,488	42.4	0.221
		IPM3.0 - may do	51,290	49.5	0.229	39,085	54.5	0.175
MO	**759,902,542**	**2001 - 2003 (average)**	**241,375**		**0.63**	**143,116**		**0.37**
	893,454,905	IPM3.0 (base)	243,684	(1.0)	0.545	72,950	49.0	0.163
		IPM3.0 - will do	237,600	1.6	0.532	72,950	49.0	0.163
		IPM3.0 - may do	237,600	1.6	0.532	72,950	49.0	0.163
ND	**339,952,821**	**2001 - 2003 (average)**	**145,096**		**0.85**	**76,788**		**0.45**
	342,685,501	IPM3.0 (base)	41,149	71.6	0.240	44,164	42.5	0.258
		IPM3.0 - will do	56,175	61.3	0.328	58,850	23.4	0.343
		IPM3.0 - may do	56,175	61.3	0.328	58,850	23.4	0.343
WI	**495,475,007**	**2001 - 2003 (average)**	**191,137**		**0.77**	**90,703**		**0.36**
	675,863,447	IPM3.0 (base)	127,930	33.1	0.379	56,526	37.7	0.167
		IPM3.0 - will do	150,340	21.3	0.445	55,019	39.3	0.163
		IPM3.0 - may do	62,439	67.3	0.185	46,154	49.1	0.137

Minnesota also used the cost-curve analysis performed for CENRAP by Alpine Geophysics, originally included in the *CENRAP Regional Haze Control Strategy Analysis Plan* and updated in March 2007, to determine which states might have additional reasonable control strategies. The cost curves were used to perform a modeling run (the "Control Sensitivity Run") in order to determine the visibility improvement that could result from implementing certain control strategies.[9]

The following tables show which point sources are controlled in the CENRAP states that the MPCA has identified as contributing to visibility impairment in BWCAW and VNP (Iowa, Minnesota, Missouri) under the following assumptions: 1) a cost less than $5000/ton, and 2) facility emissions divided by the facility's distance from any Class I area, is greater than or equal to five (often called the Q/5D criteria). The tables include sources that are within Q/5D of either VNP or BWCAW.

The report prepared for the MPCA and Midwest RPO by EC/R, entitled "Reasonable Progress for Class I Areas in the Northern Midwest – Factor Analysis," also provides documentation that the various control strategies mentioned in Attachment 2 are likely to be reasonable, at least for some states. A summary table follows the tables of units controlled in the CENRAP control sensitivity run.[10]

[9] Information on the Control Sensitivity run is available on CENRAP's Project website, http://www.cenrap.org/projects.asp, under the link entitled *Results from Control Sensitivity Run, Base18Gc1 - Cost Curve Criteria of 5k per ton, Q over 5D*

[10] Battye, W. et al (2007, July 18). Reasonable Progress for Class I Areas in the Northern Midwest – Factor Analysis. Prepared for MPCA and MRPO by EC/R. http://www.ladco.org/MRPO%20Report_071807.pdf. See Table 6.5-3, page 110.

NO_X Controls, Q/5D for BWCAW and VNP

State	County	Plant Name	Point ID	Source Type for Control	Control Measure	Tons Reduced	Annualized Cost ($2005)	Cost Per Ton Reduced
Iowa	Woodbury	MIDAMERICAN ENERGY CO. - GEORGE NEAL NOR	148766	Utility Boiler - Coal/Wall	SCR	3739	$5,252,502	$1,405
Iowa	Woodbury	MIDAMERICAN ENERGY CO. - GEORGE NEAL SOU	147140	Utility Boiler - Coal/Wall - Other Coal	LNBO	1191	$2,900,440	$2,435
Iowa	Wapello	IPL - OTTUMWA GENERATING STATION	143977	Utility Boiler - Coal/Tangential	SCR	4708	$13,000,038	$2,761
Iowa	Pottawattamie	MIDAMERICAN ENERGY CO. - COUNCIL BLUFFS	143798	Utility Boiler - Coal/Wall - Other Coal	LNBO	671	$2,960,866	$4,413
Minnesota	Cook	MINNESOTA POWER - TACONITE HARBOR ENERGY	EU001	Utility Boiler - Coal/Tangential	SCR	411	$1,536,959	$3,737
Minnesota	Cook	MINNESOTA POWER - TACONITE HARBOR ENERGY	EU002	Utility Boiler - Coal/Tangential	SCR	411	$1,574,337	$3,828
Minnesota	Cook	MINNESOTA POWER - TACONITE HARBOR ENERGY	EU003	Utility Boiler - Coal/Tangential	SCR	411	$1,592,948	$3,873
Minnesota	Itasca	MINNESOTA POWER INC - BOSWELL ENERGY CTR	EU004	Utility Boiler - Coal/Tangential - POD10	LNC3	806	$1,413,275	$1,753
Minnesota	Itasca	MINNESOTA POWER INC - BOSWELL ENERGY CTR	EU003	Utility Boiler - Coal/Tangential - POD10	LNC3	600	$884,162	$1,474
Minnesota	Koochiching	Boise Cascade Corp - International Falls	EU320	Sulfate Pulping - Recovery Furnaces	SCR	361	$939,170	$2,603
Minnesota	St. Louis	MINNESOTA POWER INC - LASKIN ENERGY CTR	EU001	Utility Boiler - Coal/Tangential	SCR	1064	$1,346,571	$1,265
Minnesota	St. Louis	MINNESOTA POWER INC - LASKIN ENERGY CTR	EU002	Utility Boiler - Coal/Tangential	SCR	1063	$1,346,571	$1,267
Minnesota	St. Louis	EVTAC Mining - Fairlane Plant	EU042	ICI Boilers - Coke	SCR	1365	$3,142,325	$2,302
Minnesota	Sherburne	NSP - SHERBURNE GENERATING PLANT	EU002	Utility Boiler - Coal/Tangential - POD10	LNC3	998	$1,873,316	$1,877
Minnesota	Sherburne	NSP - SHERBURNE GENERATING PLANT	EU001	Utility Boiler - Coal/Tangential - POD10	LNC3	701	$1,880,449	$2,682
Missouri	Pike	HOLCIM (US) INC-CLARKSVILLE	16745	Cement Manufacturing - Wet	Mid-Kiln Firing	1808	$149,510	$83
Missouri	Randolph	ASSOCIATED ELECTRIC COOPERATIVE INC-THOM	17575	Utility Boiler - Coal/Wall - Other Coal	LNBO	682	$3,114,256	$4,563

SO_2 Controls, Q/5D for BWCAW or VNP

State	County	Plant Name	Point ID	Source Type for Control	Control Measure	Tons Reduced	Annualized Cost ($2005)	Cost Per Ton Reduced
Iowa	Muscatine	CENTRAL IOWA POWER COOP. - FAIR STATION	100125	Utility Boilers - Medium Sulfur Content	FGD Wet Scrubber	4504	$5,854,468	$1,300
Iowa	Woodbury	MIDAMERICAN ENERGY CO. - GEORGE NEAL NOR	148766	Utility Boilers - Medium Sulfur Content	FGD Wet Scrubber	11440	$20,886,351	$1,826
Iowa	Woodbury	MIDAMERICAN ENERGY CO. - GEORGE NEAL NOR	148765	Utility Boilers - Medium Sulfur Content	FGD Wet Scrubber	7020	$13,365,237	$1,904
Iowa	Woodbury	MIDAMERICAN ENERGY CO. - GEORGE NEAL SOU	147140	Utility Boilers - Medium Sulfur Content	FGD Wet Scrubber	14255	$35,558,570	$2,494
Iowa	Wapello	IPL - OTTUMWA GENERATING STATION	143977	Utility Boilers - Medium Sulfur Content	FGD Wet Scrubber	15894	$40,687,209	$2,560
Iowa	Louisa	MIDAMERICAN ENERGY CO. - LOUISA STATION	147281	Utility Boilers - Medium Sulfur Content	FGD Wet Scrubber	12964	$36,698,267	$2,831
Iowa	Pottawattamie	MIDAMERICAN ENERGY CO. - COUNCIL BLUFFS	143798	Utility Boilers - Medium Sulfur Content	FGD Wet Scrubber	12141	$36,299,373	$2,990
Iowa	Des Moines	IPL - BURLINGTON GENERATING STATION	145381	Utility Boilers - Medium Sulfur Content	FGD Wet Scrubber	5384	$17,059,783	$3,169
Iowa	Allamakee	IPL - LANSING GENERATING STATION	145136	Utility Boilers - Medium Sulfur Content	FGD Wet Scrubber	5926	$19,213,055	$3,242
Iowa	Clinton	IPL - M.L. KAPP GENERATING STATION	144559	Utility Boilers - Medium Sulfur Content	FGD Wet Scrubber	5036	$17,331,069	$3,441
Iowa	Linn	IPL - PRAIRIE CREEK GENERATING STATION	144096	Utility Boilers - Medium Sulfur Content	FGD Wet Scrubber	3753	$13,730,673	$3,658
Minnesota	Itasca	MINNESOTA POWER INC - BOSWELL ENERGY CTR	EU001	Utility Boilers - Medium Sulfur Content	FGD Wet Scrubber	2329	$9,472,980	$4,068
Minnesota	Itasca	MINNESOTA POWER INC - BOSWELL ENERGY CTR	EU002	Utility Boilers - Medium Sulfur Content	FGD Wet Scrubber	2315	$9,472,980	$4,092
Minnesota	Itasca	MINNESOTA POWER INC - BOSWELL ENERGY CTR	EU004	Utility Boilers - Medium Sulfur Content	FGD Wet Scrubber	7403	$30,486,914	$4,118
Missouri	Clay	INDEPENDENCE POWER AND LIGHT-MISSOURI CI	5430	Utility Boilers - Very High Sulfur Content	FGD Wet Scrubber	8058	$6,232,581	$774
Missouri	Franklin	AMERENUE-LABADIE PLANT	6964	Utility Boilers - Medium Sulfur Content	FGD Wet Scrubber	14741	$34,190,931	$2,319

State	County	Plant Name	Point ID	Source Type for Control	Control Measure	Tons Reduced	Annualized Cost ($2005)	Cost Per Ton Reduced
Missouri	Franklin	AMERENUE-LABADIE PLANT	7408	Utility Boilers - Medium Sulfur Content	FGD Wet Scrubber	14988	$34,874,750	$2,327
Missouri	Franklin	AMERENUE-LABADIE PLANT	7262	Utility Boilers - Medium Sulfur Content	FGD Wet Scrubber	14912	$34,874,750	$2,339
Missouri	Jefferson	AMERENUE-RUSH ISLAND PLANT	11565	Utility Boilers - Medium Sulfur Content	FGD Wet Scrubber	13979	$32,994,250	$2,360
Missouri	Franklin	AMERENUE-LABADIE PLANT	7087	Utility Boilers - Medium Sulfur Content	FGD Wet Scrubber	14285	$34,019,977	$2,382
Missouri	Henry	KANSAS CITY POWER & LIGHT CO-MONTROSE GE	7847	Utility Boilers - Medium Sulfur Content	FGD Wet Scrubber	6362	$15,425,097	$2,425
Missouri	Henry	KANSAS CITY POWER & LIGHT CO-MONTROSE GE	7849	Utility Boilers - Medium Sulfur Content	FGD Wet Scrubber	6191	$15,134,675	$2,445
Missouri	Jefferson	AMERENUE-RUSH ISLAND PLANT	11563	Utility Boilers - Medium Sulfur Content	FGD Wet Scrubber	13276	$32,994,250	$2,485
Missouri	Henry	KANSAS CITY POWER & LIGHT CO-MONTROSE GE	7848	Utility Boilers - Medium Sulfur Content	FGD Wet Scrubber	5928	$14,840,835	$2,504
Missouri	St. Louis	AMERENUE-MERAMEC PLANT	21421	Utility Boilers - Medium Sulfur Content	FGD Wet Scrubber	8494	$21,733,761	$2,559
Missouri	St. Louis	ANHEUSER-BUSCH INC-ST. LOUIS	20274	Bituminous/Subbituminous Coal (Industrial Boilers)	SDA	1996	$5,303,934	$2,658
Missouri	Platte	KANSAS CITY POWER & LIGHT CO-IATAN GENER	16912	Utility Boilers - Medium Sulfur Content	FGD Wet Scrubber	14332	$38,179,875	$2,664
Missouri	Jackson	AQUILA INC-SIBLEY GENERATING STATION	9953	Utility Boilers - Medium Sulfur Content	FGD Wet Scrubber	9166	$24,430,935	$2,665
Missouri	St. Louis	AMERENUE-MERAMEC PLANT	21423	Utility Boilers - Medium Sulfur Content	FGD Wet Scrubber	7081	$19,721,240	$2,785
Missouri	Randolph	ASSOCIATED ELECTRIC COOPERATIVE INC-THOM	17575	Utility Boilers - Medium Sulfur Content	FGD Wet Scrubber	9469	$38,179,875	$4,032
Missouri	New Madrid	ASSOCIATED ELECTRIC COOPERATIVE INC-NEW	14944	Utility Boilers - Medium Sulfur Content	FGD Wet Scrubber	8132	$33,051,234	$4,064
Missouri	New Madrid	ASSOCIATED ELECTRIC COOPERATIVE INC-NEW	14942	Utility Boilers - Medium Sulfur Content	FGD Wet Scrubber	8026	$33,051,234	$4,118
Missouri	Jefferson	DOE RUN COMPANY-HERCULANEUM SMELTER	11722	Primary Metals Industry	Sulfuric Acid Plant	10653	$46,396,391	$4,355

Table 6.5-3. Summary of Visibility Impactes and Cost Effectiveness of Potential Control Measures

Emission category	Control strategy	Region	Pollutant	Average estimated visibility improvement for the four Midwest Class I areas (deciviews)	Cost effectiveness ($/ton)	Cost effectiveness per visibility improvement ($million/deciview)
EGU	EGU1	3-State	SO2	0.32	1,540	2,249
			NOX	0.06	2,037	2,585
		9-State	SO2	0.74	1,743	2,994
			NOX	0.17	1,782	2,332
	EGU2	3-State	SO2	0.41	1,775	2,281
			NOX	0.09	3,016	3,604
		9-State	SO2	0.85	1,952	3,336
			NOX	0.24	2,984	4,045
ICI boilers	ICI1	3-State	SO2	0.055	2,992	1,776
			NOX	0.043	2,537	1,327
		9-State	SO2	0.084	2,275	2,825
			NOX	0.068	1,899	2,034
	ICI Workgroup	3-State	SO2	0.089	2,731	1,618
			NOX	0.055	3,814	1,993
		9-State	SO2	0.136	2,743	3,397
			NOX	0.080	2,311	2,473
Reciprocating engines and turbines	Reciprocating engines emitting 100 tons/year or more	3-State	NOX	0.015	538	282
		9-State	NOX	0.052	506	542
	Turbines emitting 100 tons/year or more	3-State	NOX	0.008	754	395
		9-State	NOX	0.007	754	810
	Reciprocating engines emitting 10 tons/year or more	3-State	NOX	0.037	1,286	673
		9-State	NOX	0.073	1,023	1,095
	Turbines emitting 10 tons/year or more	3-State	NOX	0.011	800	419
		9-State	NOX	0.012	819	880
Agricultural sources	10% reduction	3-State	NH3	0.10	31 - 2,700	8 - 750
		9-State	NH3	0.16	31 - 2,700	18 - 1,500
	15% reduction	3-State	NH3	0.15	31 - 2,700	8 - 750
		9-State	NH3	0.25	31 - 2,700	18 - 1,500
Mobile sources	Low-NOX Reflash	3-State	NOX	0.007	241	516
		9-State	NOX	0.010	241	616
	MCDI	3-State	NOX	0.015	10,697	7,595
		9-State	NOX	0.015	2,408	4,146
	Anti-Idling	3-State	NOX	0.009	(430) - 1,700	(410) - 1,600
		9-State	NOX	0.006	(430) - 1,700	(410) - 1,600
	Cetane Additive Program	3-State	NOX	0.009	4,119	3,155
		9-State	NOX	0.008	4,119	10,553

Attachment 4: Organizations Participating in Northern Class I Consultation Process

States and Provinces
Illinois Environmental Protection Agency
Indiana Department of Environmental Management
Iowa Department of Natural Resources
Michigan Department of Environmental Quality
Minnesota Pollution Control Agency
Missouri Department of Natural Resources
North Dakota Department of Health
Wisconsin Department of Natural Resources
Ontario Ministry of the Environment

Tribes
Leech Lake Band of Ojibwe
Fond du Lac Band of Lake Superior Chippewa
Mille Lacs Band of Ojibwe
Upper and Lower Sioux Community
Red Lake Band of Chippewa
Grand Portage Band of Chippewa
Nottawaseppi Huron Band of Potawatomi

Regional Planning Organizations
Midwest Regional Planning Organization
Central Regional Air Planning Association

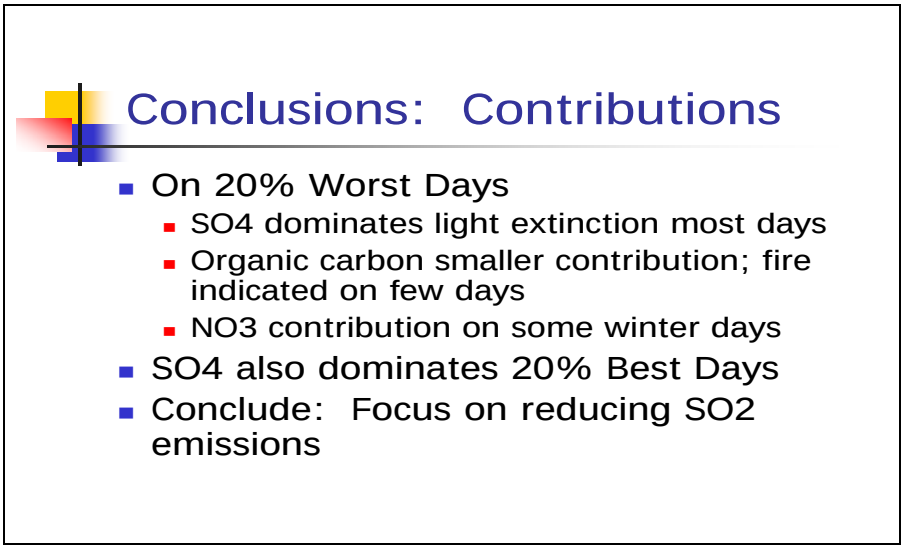
Federal Government
USDA Forest Service
U.S. Fish and Wildlife Service
National Park Service
USDA Forest Service
Environmental Protection Agency, Region 5

App. 3 - 2. Mammoth Cave

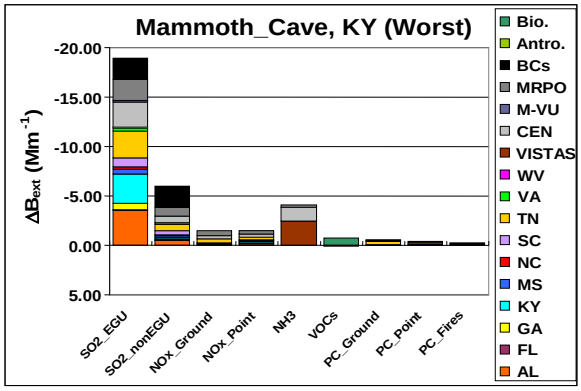
Indiana sources have shown an impact on this Class 1 area through some modeling studies. However, since sources in Kentucky and Indiana must comply with CAIR requirements, the Kentucky analysis has determined that these controls are sufficient to address visibility in this area. Further, VISTAS modeling has shown that Mammoth Cave is more than meeting its uniform rate of progress (glidepath) and has determined that no additional reductions are needed from Indiana at this time.

The attached cover letter from the Kentucky Department for Environmental Protection contains this information.

The following slides from the VISTAS report, "Contribution Assessment Mammoth Cave", draft May 29, 2007, show some analyses performed to reach these conclusions.

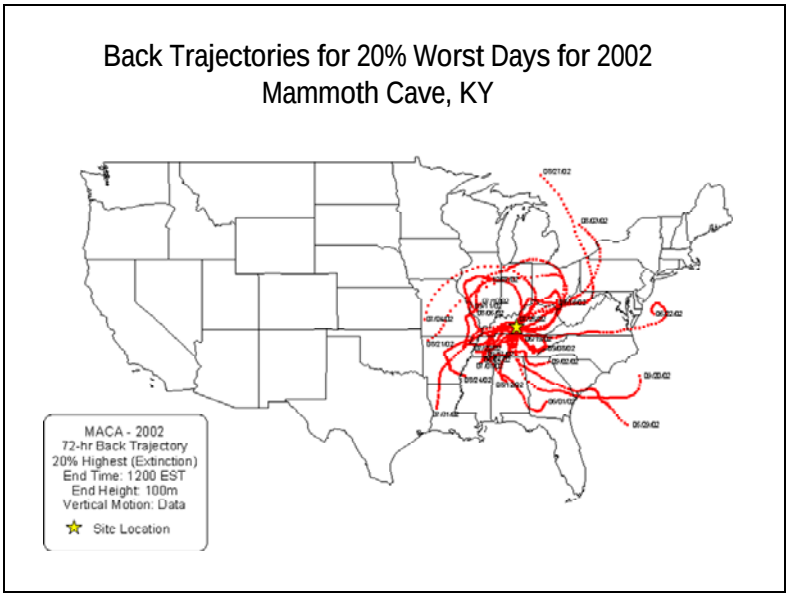


The following chart illustrates the impairment contribution from Sulfates. Note that the contribution from the Midwest RPO states, in total, is small. Indiana is not individually apportioned.



The following maps show contributions to visibility impairment on the 20% worst days during the 2000 - 2004 timeframe.

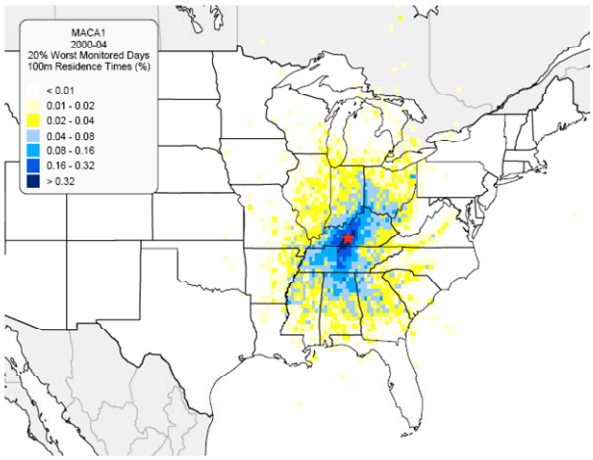
The following map is a meteorological back trajectory analysis for IMPROVE monitoring sites in 2000 - 2004. Using the descriptions from VISTAS, back trajectory analyses use interpolated measured or modeled meteorological fields to estimate the most likely central path of air masses that arrive at a receptor at a given time. The method essentially follows a parcel of air backward in hourly steps for a specified length of time. This map is for Mammoth Cave for the 20% worst days in 2002



The following map is a residence time plot. This was created using five years of back trajectories for the 20% worst visibility days in 2000-2004. Residence time is the frequency that winds pass over a specific geographic area on the path to a Class 1 area.

Residence Time for 20% Worst Days in 2000-2004

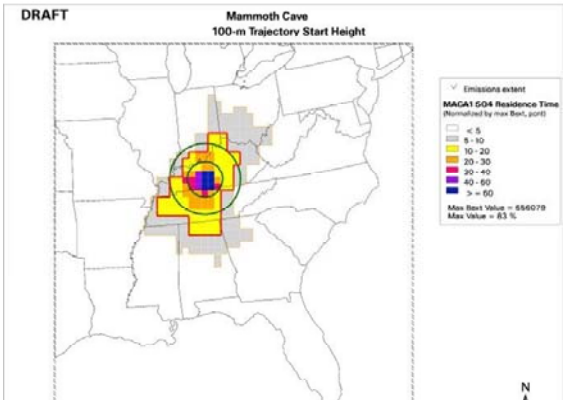
Mammoth Cave, KY



It can be seen that there are lesser impacts from most MRPO states. However, the greatest impacts are coming from sources closer to Mammoth Cave and south.

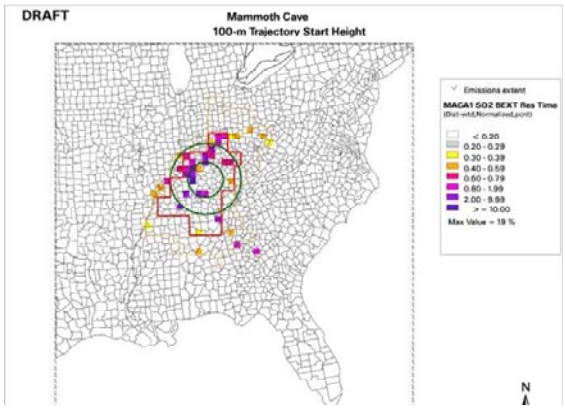
Sulfate extinction weighted residence time plots were developed to define the geographic area with the highest probability of influencing the receptor on the 20% worst days in 2000 - 2004 that were dominated by sulfate. Each back trajectory was weighted by sulfate extinction for that day. The resulting plots were used to define the geographic Area of Influence for sources of SO_2 emissions. In the following plot, the area representing 10% or greater residence time is outlined in red, and the area representing 5% or greater residence time is outlined in gray. The VISTAS states focused their analyses on the Area of Influence defined 5% or greater sulfate extinction weighted residence time.

SO2 Area of Influence for Mammoth Cave, KY



Green circles indicate 100-km and 200-km radii from Class I area.
Red line perimeter indicate Area of Influence with Residence Time ≥ 10%
Orange line perimeter indicate Area of Influence with Residence Time ≥ 5%.

2018 SO2 Emissions weighted by Residence Time
Mammoth Cave, KY

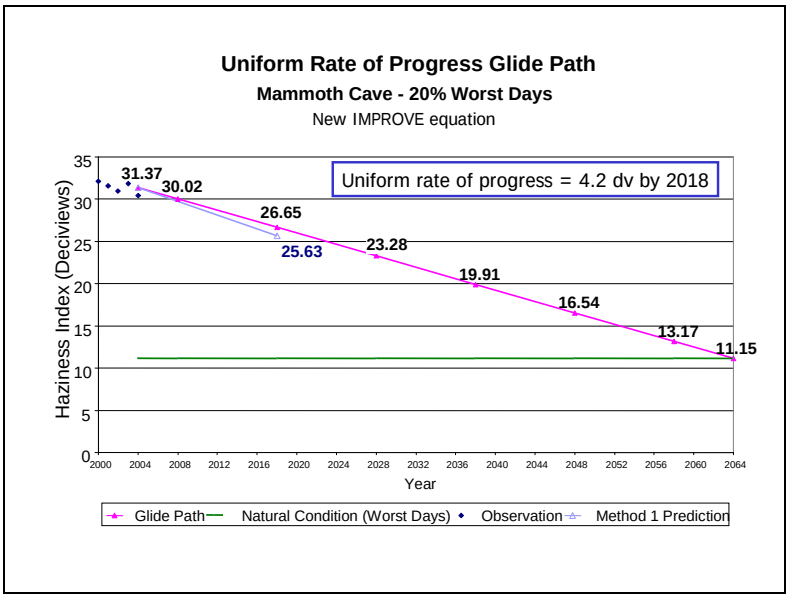


Green circles indicate 100-km and 200-km radii from Class I area.
Red line perimeter indicate Area of Influence with Residence Time ≥ 10%.
Orange line perimeter indicate Area of Influence with Residence Time ≥ 5%.

VISTAS further examined emissions sources within the SO_2 Areas of Influence. Residence time plots were combined with geographically-gridded emissions data based upon the 2002 baseline and 2018 projected inventories. As a way of incorporating the effects of transport, deposition, and chemical transformation of point source emissions along the path of the trajectories, those data were weighted by 1/d, where d was calculated as the distance between grid cell centers, in kilometers. The distance-weighted point source SO_2 emissions were then combined with the gridded extinction-weighted back-trajectory residence times at a spatial resolution of 36-km. The residence times and gridded emissions data were combined into plots. The distance weighted (1/d) gridded point source SO_2 emissions were multiplied by the total extinction-weighted back-trajectory residence times on a grid cell by grid cell basis. These results were then normalized by the domain-wide total and displayed as a percentage.

The resulting plots show the relative importance of sources contributing to visibility impairment within the Area of Influence. The above plot illustrates this information for 2018 projected emissions.

The results of the long term strategy developed by Kentucky and VISTAS provide anticipated visibility improvements below the glidepath.



Analyses performed by the MWRPO show similar results. Indiana concurs that this is the best approach for addressing visibility impairment at Mammoth Cave at this time. Therefore, no further analysis for this SIP is necessary.

As could be seen from the above maps and plots, sources in Indiana do contribute less significant amounts of sulfate on the 20% worst visibility days. For the 2013 five-year review, Indiana will work with the RPOs to determine that projected emissions reductions are occurring, and perform analyses to determine whether or not further SO_2 reductions from any sectors are reasonable or whether other pollutants such as NO_x should be controlled.

Letter from Kentucky Department for Environmental Protection

Ken R.

ENVIRONMENTAL AND PUBLIC PROTECTION CABINET

Ernie Fletcher
Governor

Department for Environmental Protection
Division for Air Quality
803 Schenkel Lane
Frankfort, Kentucky 40601-1403

Teresa J. Hill
Secretary

September 20, 2007

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State of Indiana
SEP 27 2007
Deptartment of Environmental Management
Office of Air Quality

Mr. Daniel Murray, Assistant Commissioner
Indiana Office of Air Quality
100 N. Senate Avenue
Indianapolis, Indiana 46204

Dear Mr. Murray:

Pursuant to previous communications with the Mr. Michael Koerber, with LADCO, regarding regional haze issues concerning Kentucky's Class I area Mammoth Cave National Park, Kentucky does not find a need to request additional emission reductions from Indiana sources at this time.

Based on its work with VISTAS, Kentucky has identified sources that may impact visibility at Mammoth Cave National Park based on the emission unit's Q/d multiplied by the RTMax being greater than or equal to 1% for all sources in the Mammoth Cave area of influence. Of the significant sources identified in the area of influence around Mammoth Cave, electric generating units (EGUs) reflect the most potential impact. For Indiana, six EGU units were identified with a value greater than 1% for all the Q/d times RTMax values (*Please see the enclosed list of the significant area of influence sources for Mammoth Cave*). However, as in Kentucky, EGUs must comply with CAIR and as a result air quality is expected to improve in the eastern U.S. In addition, given that VISTAS modeling indicates that Mammoth Cave is more than meeting its uniform rate of progress (glidepath) for regional haze, Kentucky will not be seeking additional emission controls for sources in Indiana at this time.

Kentucky believes that the consultations conducted regarding Mammoth Cave and Indiana sources provided and documented by this letter satisfy the consultation process requirements described in the Regional Haze Rule. If you have any questions or require additional information regarding this matter, please contact Lona Brewer or Martin Luther, of my staff, at 502-573-3382 or at lona.brewer@ky.gov or martin.luther@ky.gov.

Sincerely,

John S. Lyons
Director

JSL:mrl
Enclosure

KentuckyUnbridledSpirit.com

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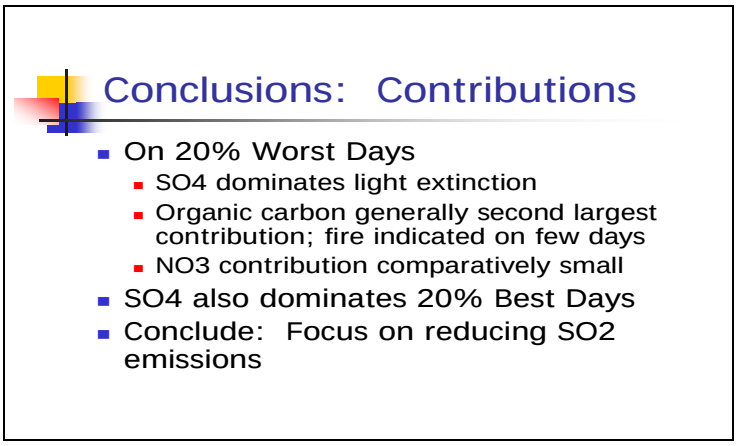
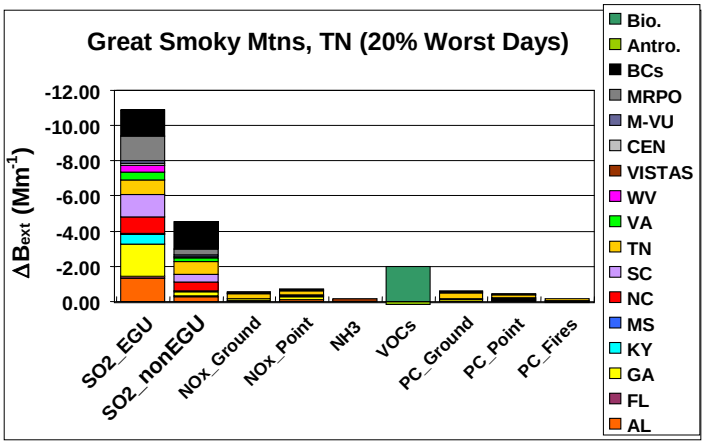
App. 3 - 3. Great Smoky Mountains National Park

In the MRPO summary of Class 1 areas impacted by sources from within the MRPO (Appendix 1), Indiana was determined to contribute to visibility impairment in this Class 1 area. Since that time, VISTAS has conducted several analyses to assist in developing reasonable progress goals. The following slides are from the VISTAS analysis, "Great Smoky Mountain Group Contribution Assessment", Draft, May 29, 2007. The text explaining the plots and charts is from "Technical Analyses Supporting Regional Haze State Implementation Plan", June 8, 2007, North Carolina Department of Environment and Natural Resources (NCDENR).

Sulfate reductions are the major focus.



This chart below shows the sources of SO_2 emissions by source sectors and regions. Indiana is not addressed individually. The MRPO states have a small contribution.

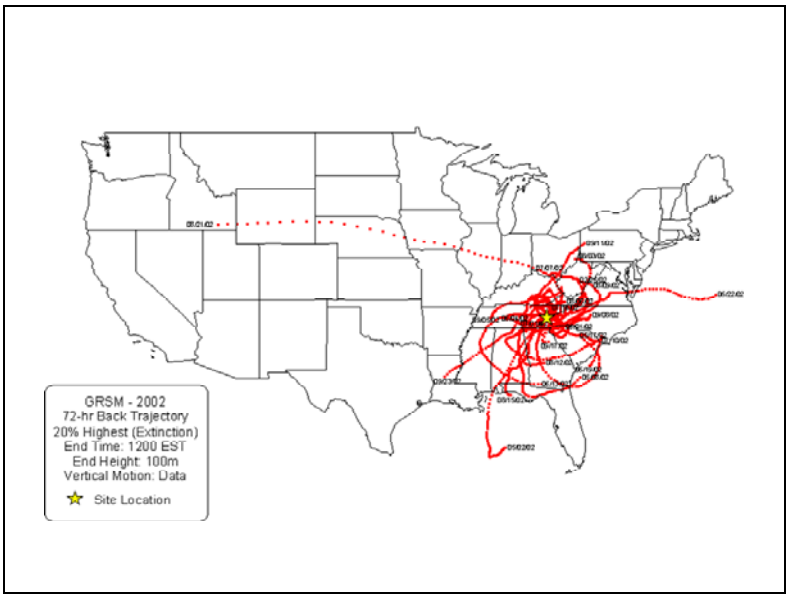


Greatest benefits from SO2 reductions from Utilities and Industries

The following three maps show analyses of areas impacting the Great Smoky Mountains National Park. They show contributions to visibility impairment on the 20% worst days during

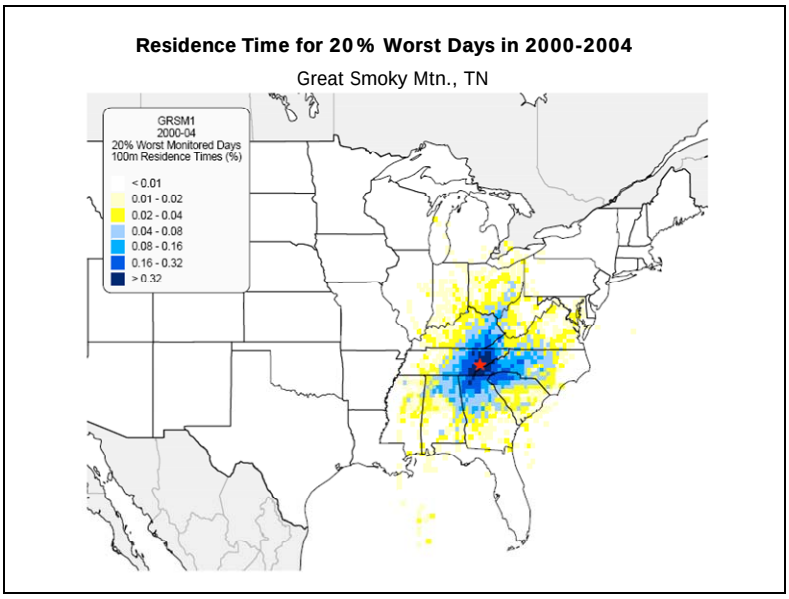
the 2000-2004 timeframe. As can be seen, Indiana sources do not have significant impacts on this area.

The following map is a meteorological back trajectory analysis for IMPROVE monitoring sites in 2000-2004. Using the descriptions from VISTAS and the NCDENR, back trajectory analyses use interpolated , measured, or modeled meteorological fields to estimate the most likely central path of air masses that arrive at a receptor at a given time. The method essentially follows a parcel of air backward in hourly steps for a specified length of time. This map is for the Great Smoky Mountain National Park for the 20% worst days in 2002.

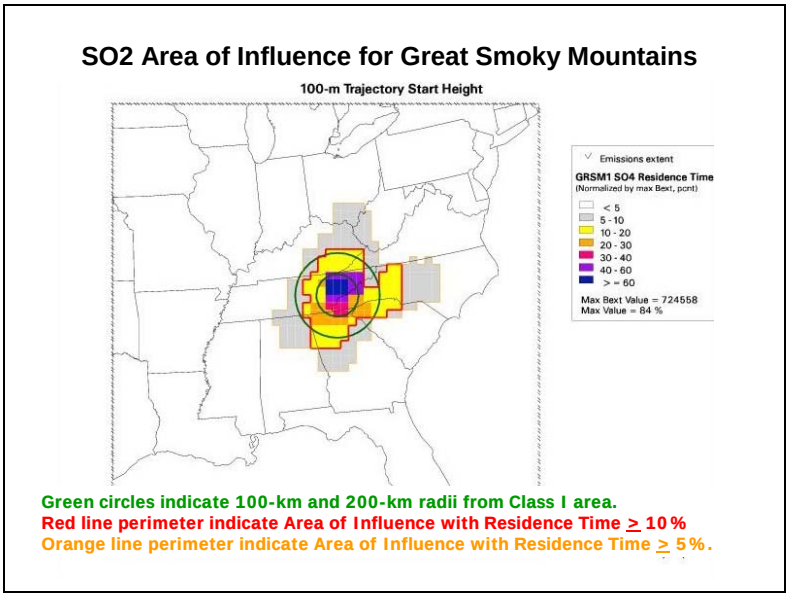


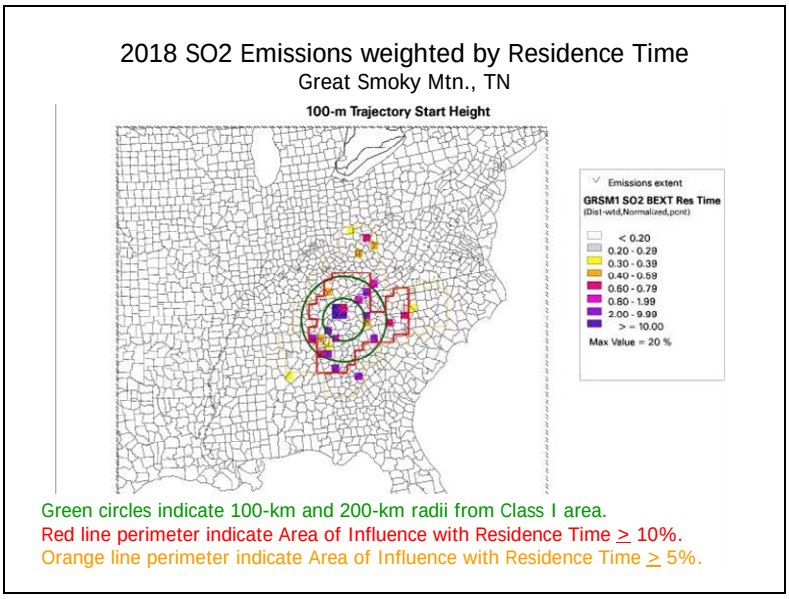
Back Trajectory Analysis for 20% Worst Days in 2002 - Great Smoky Mountains

The following map is a residence time plot. This was created using five years of back trajectories for the 20% worst visibility days in 2000-2004. Residence time is the frequency that winds pass over a specific geographic area on the path to a Class 1 area.



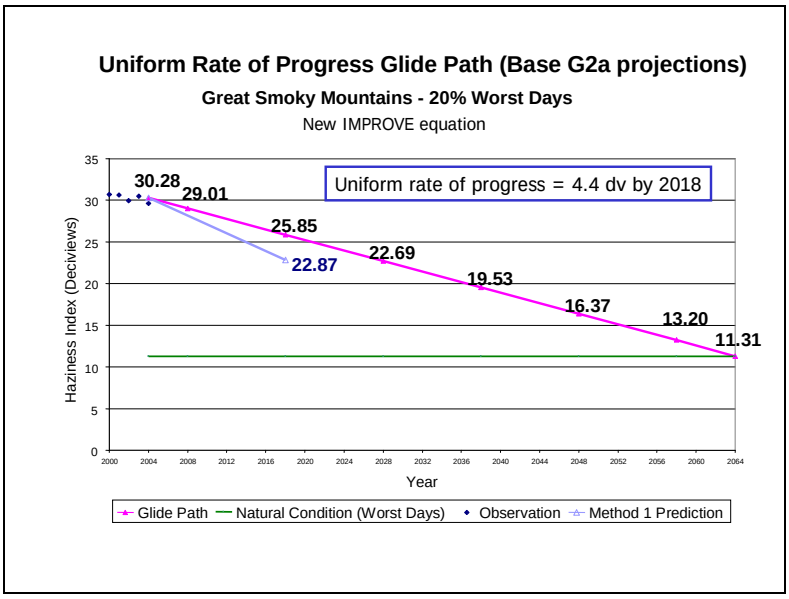
Sulfate extinction weighted residence time plots were developed to define the geographic area with the highest probability of influencing the receptor on the 20% worst days in 2000-2004 that were dominated by sulfate. Each back trajectory was weighted by sulfate extinction for that day. The resulting plots were used to define the geographic Area of Influence for sources of SO_2 emissions. In the following plot, the area representing 10% or greater residence time is outlined in red, and the area representing 5% or greater residence time is outlined in gray. The VISTAS states focused their analyses on the Area of Influence defined 5% or greater sulfate extinction weighted residence time.





VISTAS further examined emissions sources within the SO_2 Areas of Influence. Residence time plots were combined with geographically-gridded emissions data based upon the 2002 baseline and 2018 projected inventories. As a way of incorporating the effects of transport, deposition, and chemical transformation of point source emissions along the path of the trajectories, those data were weighted by 1/d, where d was calculated as the distance between grid cell centers, in kilometers. The distance-weighted point source SO_2 emissions were then combined with the gridded extinction-weighted back-trajectory residence times at a spatial resolution of 36 km. The residence times and gridded emissions data were combined into plots. The distance weighted (1/d) gridded point source SO_2 emissions were multiplied by the total extinction-weighted back-trajectory residence times on a grid cell by grid cell basis. These results were then normalized by the domain-wide total and displayed as a percentage. The resulting plots show the relative importance of sources contributing to visibility impairment within the Area of Influence. The above plot illustrates this information for 2018 projected emissions.

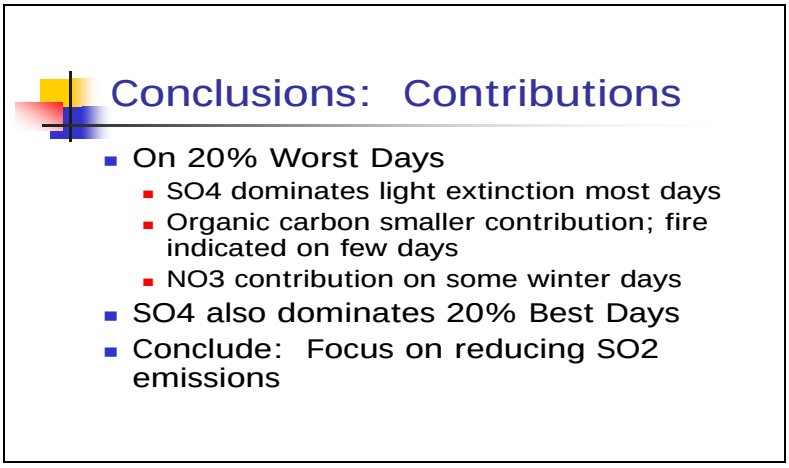
Further, the slide below shows that the long term strategy for this Class 1 area easily meets the glidepath through 2018.



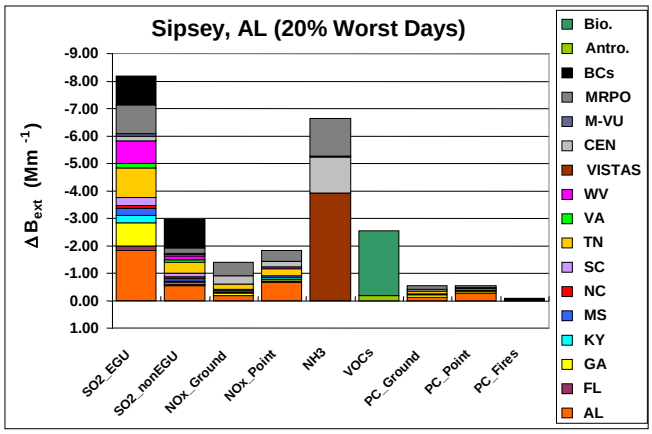
In the "Technical Analyses Supporting Regional Haze State Implementation Plan," June 8, 2007, NCDENR stated that contributions from other RPOs are comparatively small and the greatest benefits would likely be from further EGU reductions within the VISTAS states. Indiana was not contacted by Tennessee or North Carolina regarding consultations for this area and believes that no further analysis for a long term control strategy is necessary at this time.

App. 3 - 4. Sipsey Wilderness Area

In the MRPO summary of Class 1 areas impacted by sources from within the MRPO (Appendix 1), Indiana was determined to contribute to visibility impairment in this Class 1 area. Since that time, VISTAS has conducted several analyses to assist in developing reasonable progress goals. The following slides are from the VISTAS analysis, "Sipsey Contribution Assessment", Draft, May 29, 2007. As in most VISTAS areas, sulfate reductions are the major focus, although in this case, NH_3 is a significant contributor. The text explaining the plots and charts is from "Technical Analyses Supporting Regional Haze State Implementation Plan", June 8, 2007, NCDENR, another VISTAS state.

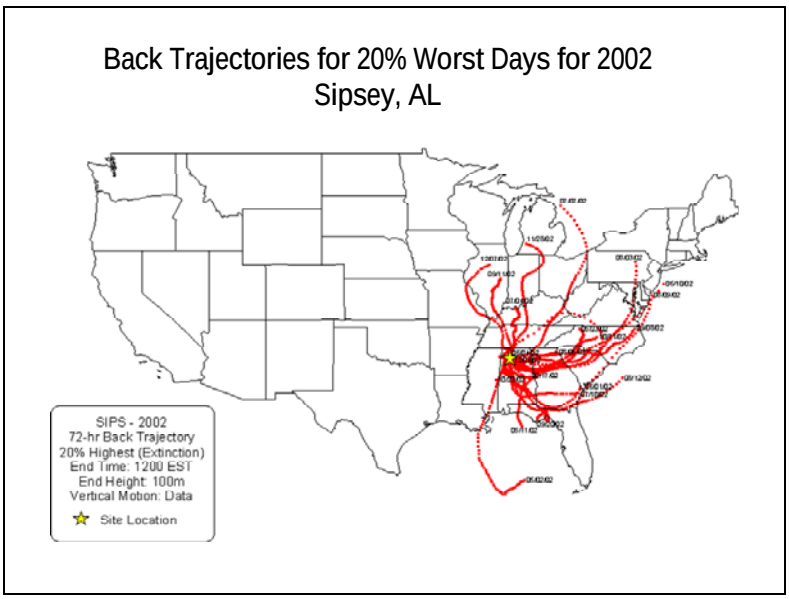


The following charts and maps show contributions to visibility impairment in this Class 1 area. Note that the MRPO states, in total, have a small contribution. Indiana is not listed individually.

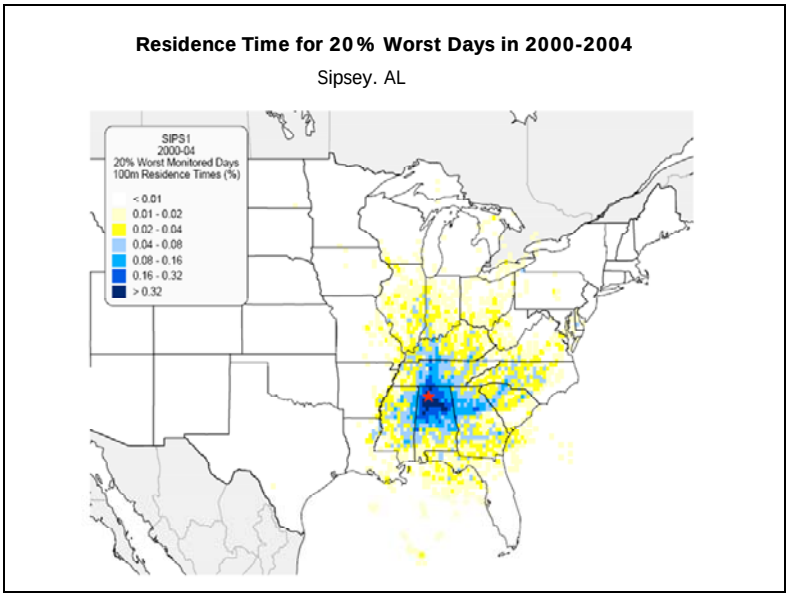


The following three maps show analyses of areas impacting the Sipsey Wilderness Area. They show contributions to visibility impairment on the 20% worst days during the 2000-2004 timeframe. As can be seen, Indiana sources do not have significant impacts on this area.

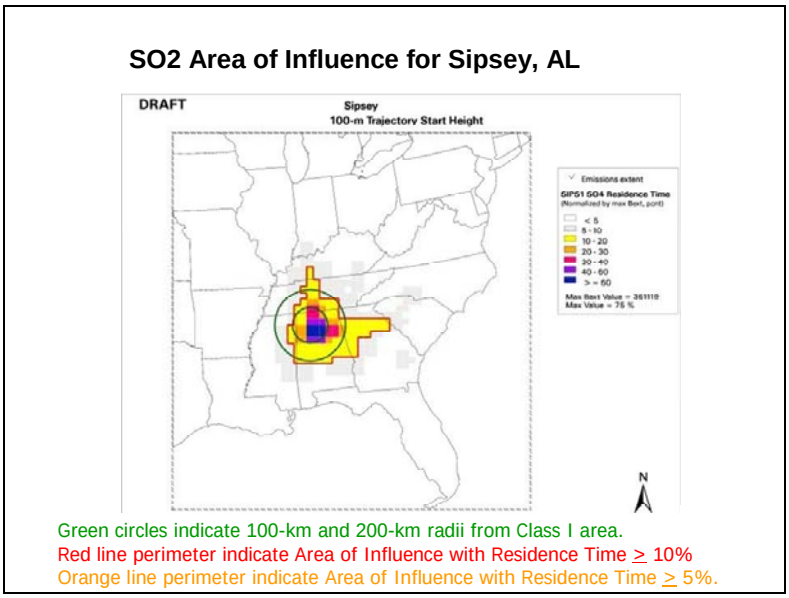
The following map is a meteorological back trajectory analysis for IMPROVE monitoring sites in 2000-2004. Using the descriptions from VISTAS and NCDENR, back trajectory analyses use interpolated, measured, or modeled meteorological fields to estimate the most likely central path of air masses that arrive at a receptor at a given time. The method essentially follows a parcel of air backward in hourly steps for a specified length of time. This map is for the Sipsey Wilderness area for the 20% worst days in 2002.



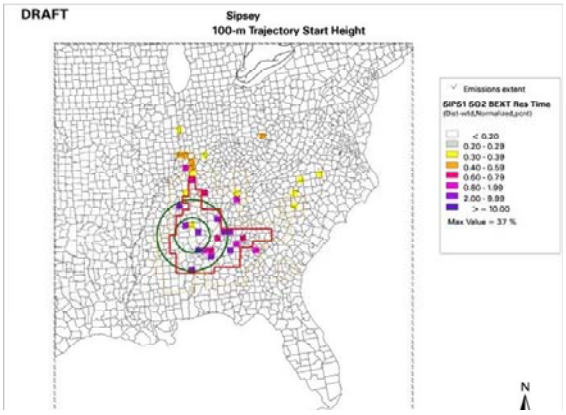
The following map is a residence time plot. This was created using five years of back trajectories for the 20% worst visibility days in 2000-2004. Residence time is the frequency that winds pass over a specific geographic area on the path to a Class 1 area.



Sulfate extinction weighted residence time plots were developed to define the geographic area with the highest probability of influencing the receptor on the 20% worst days in 2000-2004 that were dominated by sulfate. Each back trajectory was weighted by sulfate extinction for that day. The resulting plots were used to define the geographic Area of Influence for sources of SO_2 emissions. In the following plot, the area representing 10% or greater residence time is outlined in red, and the area representing 5% or greater residence time is outlined in gray. The VISTAS states focused their analyses on the Area of Influence defined 5% or greater sulfate extinction weighted residence time.



2018 SO2 Emissions weighted by Residence Time
Sipsey, AL

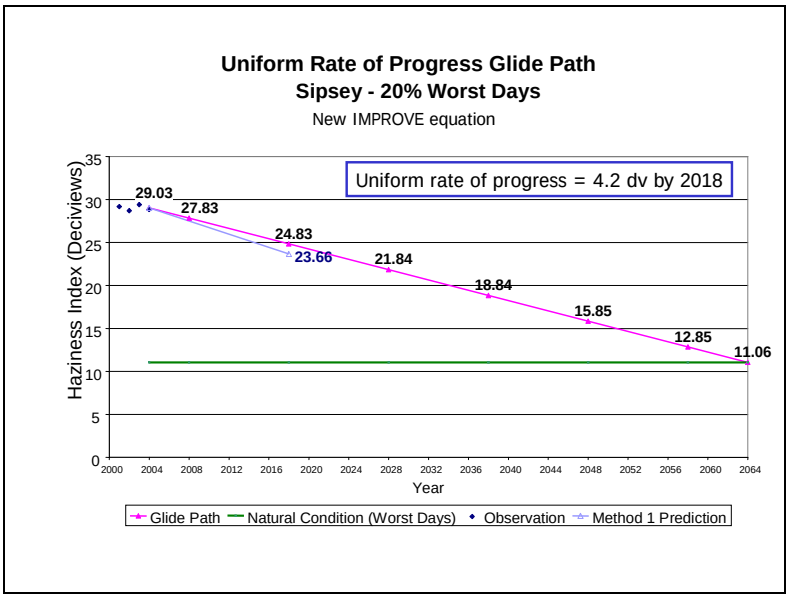


Green circles indicate 100-km and 200-km radii from Class I area.
Red line perimeter indicate Area of Influence with Residence Time ≥ 10%.
Orange line perimeter indicate Area of Influence with Residence Time ≥ 5%.

VISTAS further examined emissions sources within the SO_2 Areas of Influence. Residence time plots were combined with geographically-gridded emissions data based upon the 2002 baseline and 2018 projected inventories. As a way of incorporating the effects of transport, deposition, and chemical transformation of point source emissions along the path of the trajectories, those data were weighted by 1/d, where d was calculated as the distance between grid cell centers, in kilometers. The distance-weighted point source SO_2 emissions were then combined with the gridded extinction-weighted back-trajectory residence times at a spatial resolution of 36 km. The residence times and gridded emissions data were combined into plots. The distance weighted (1/d) gridded point source SO_2 emissions were multiplied by the total extinction-weighted back-trajectory residence times on a grid cell by grid cell basis. These results were then normalized by the domain-wide total and displayed as a percentage. The resulting plots show the relative importance of sources contributing to visibility impairment within the Area of Influence. The above plot illustrates this information for 2018 projected emissions.

Further, the slide below shows that the long term strategy for this Class 1 area meets the glidepath through 2018.

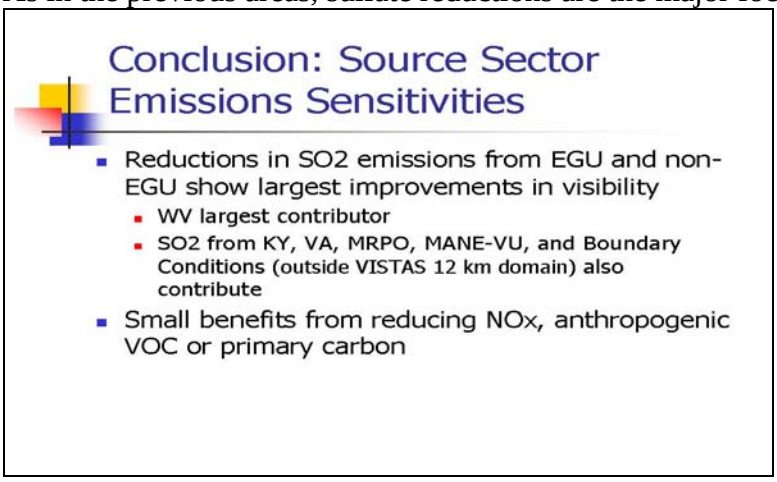
Indiana has not been contacted by Alabama regarding consultations for this area and believes that no further analysis for a long term control strategy is necessary at this time.



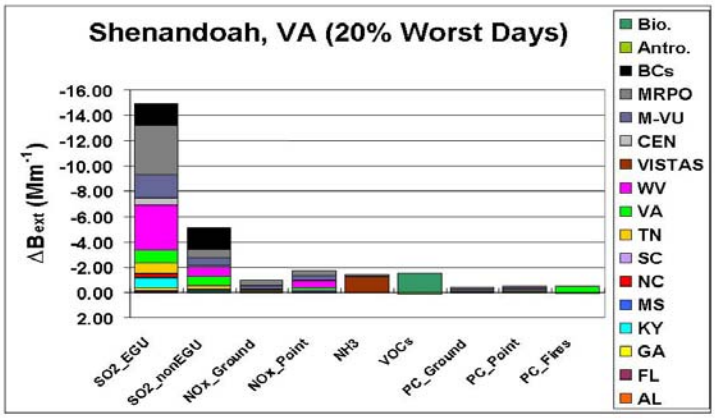
App. 3 - 5. James River Face Wilderness, Shenandoah National Park, Dolly Sods/Otter Creek Wilderness

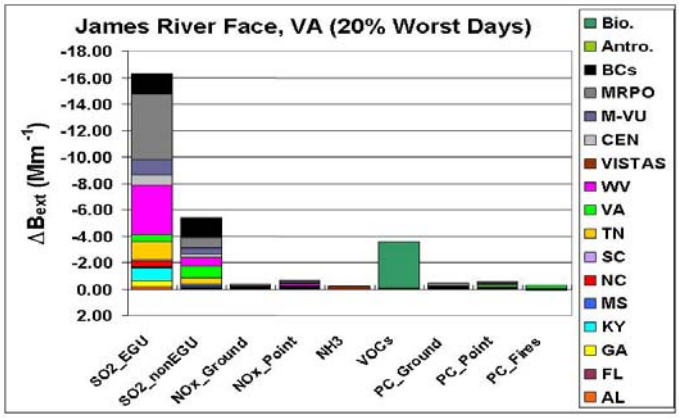
In the MRPO summary of Class 1 areas impacted by sources from within the MRPO (Appendix 1), Indiana was determined to contribute to visibility impairment in these more distant Class 1 areas. Since that time, VISTAS has conducted several analyses to assist in developing reasonable progress goals. The following slides are from the VISTAS analysis, "Shenandoah Group Contribution Assessment", Draft, May 29, 2007. Since these areas are analyzed together in the VISTAS work, it is easier to consider them together in this document. The charts and plots are the same type as in the previous sections, and so the text is omitted to keep this section short.

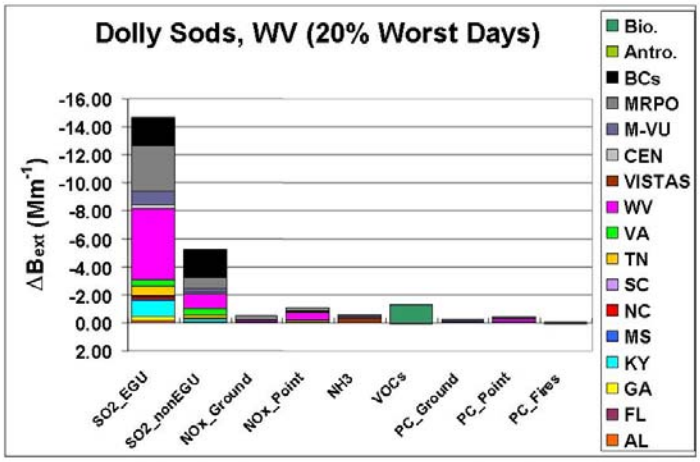
As in the previous areas, sulfate reductions are the major focus.



The following charts show the emissions by sector and location contributing to impaired visibility on the 20% worst days.



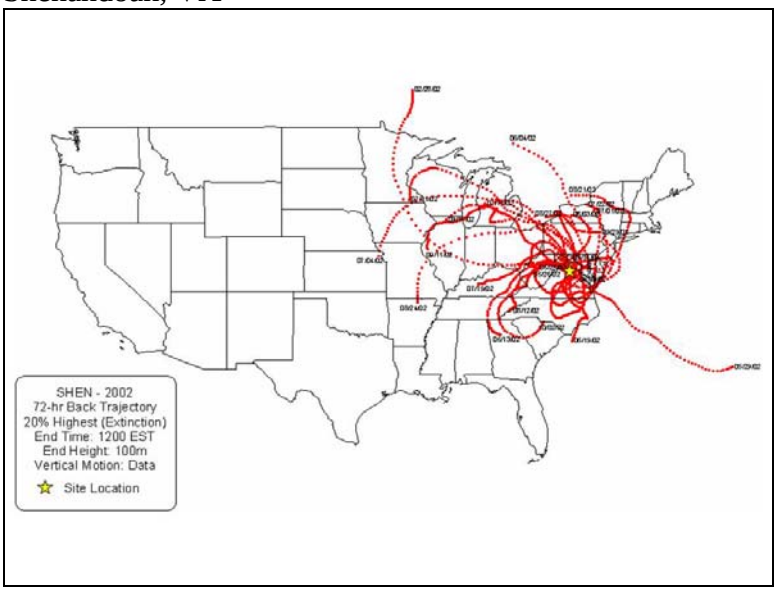




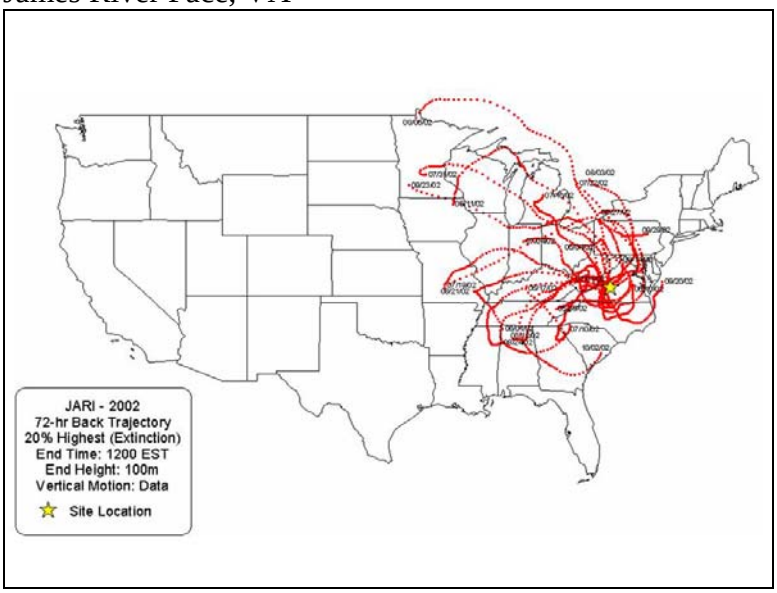
Emissions sensitivities for Otter Creek are the same as for Dolly Sods

The following maps show back trajectories for the 20% Worst Days for 2002.

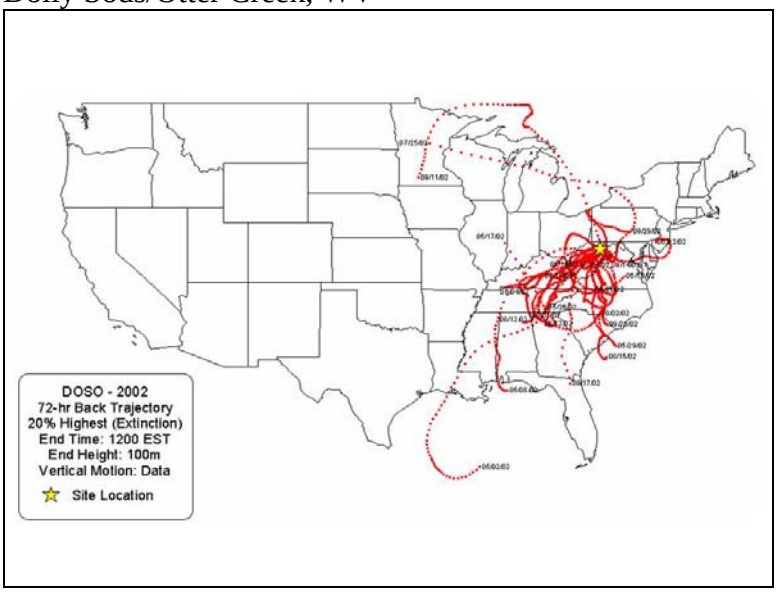
Shenandoah, VA



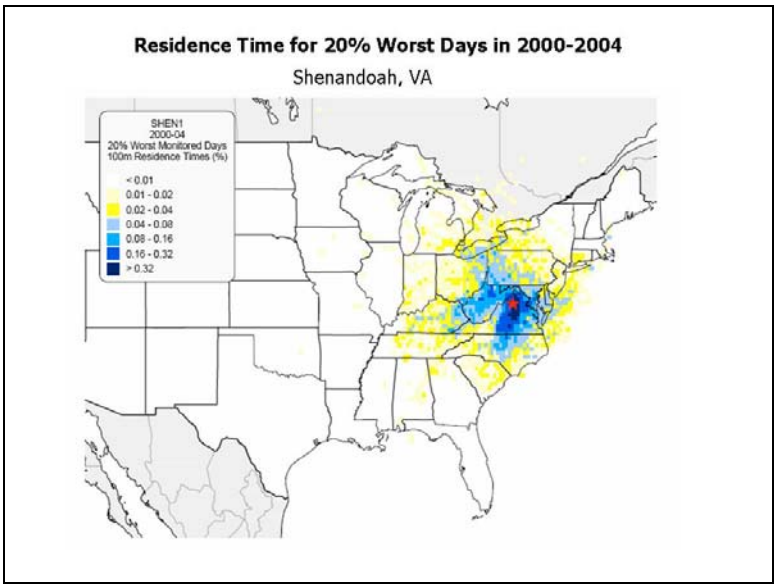
James River Face, VA

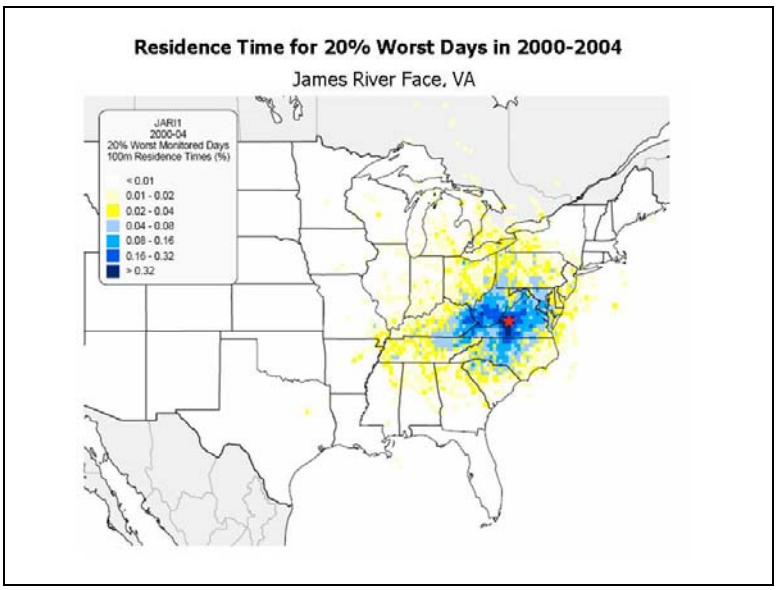


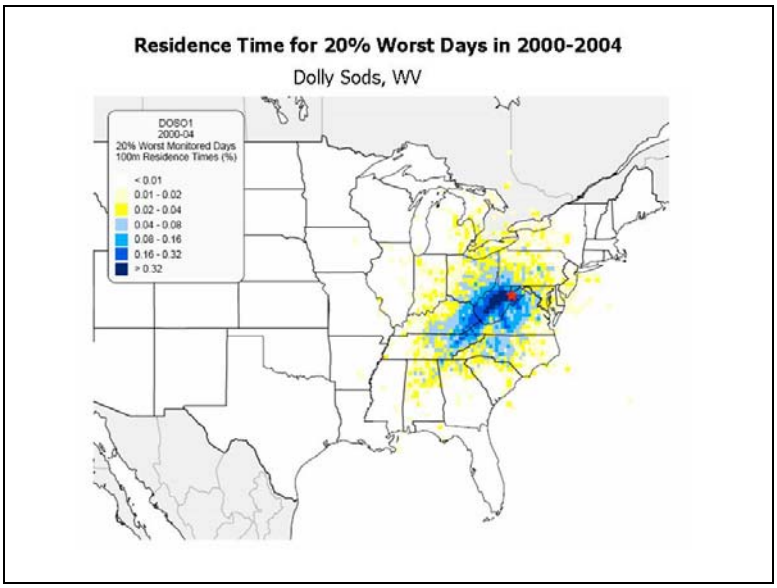
Dolly Sods/Otter Creek, WV



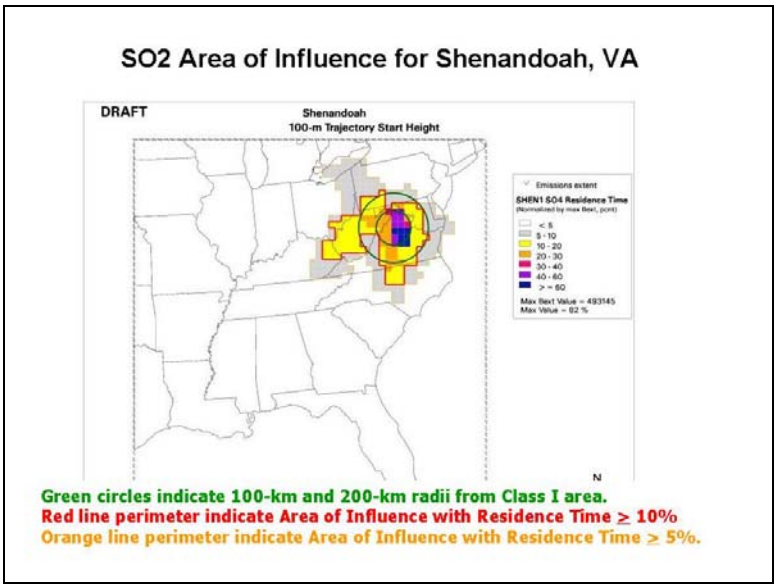
The residence times for the 20% worst days in 2000-2004 are shown for the areas in the next three plots.



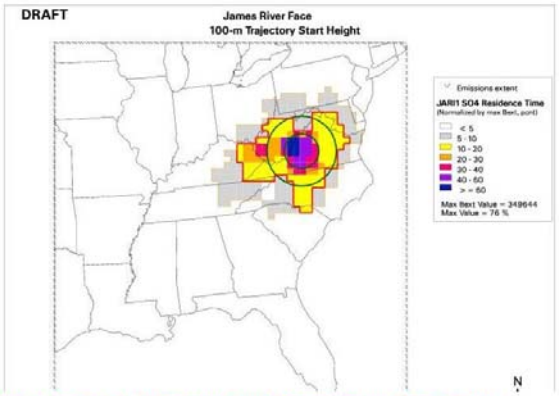




The SO_2 Areas of Influence are shown in the next three plots.



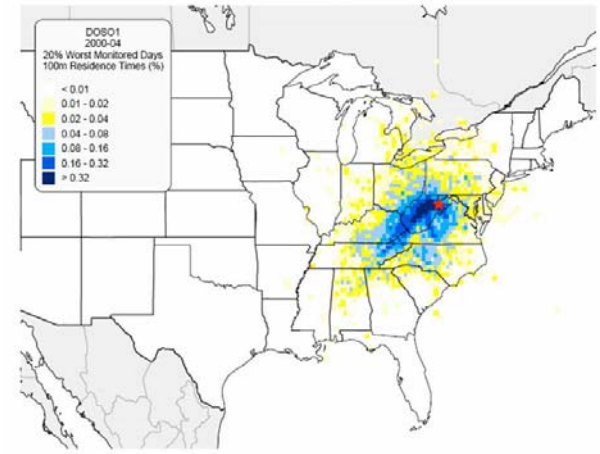
SO2 Area of Influence for James River Face, VA



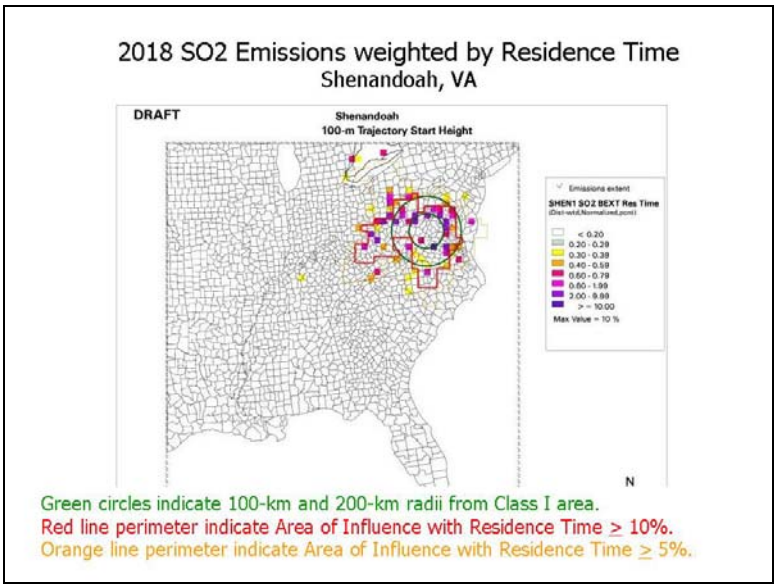
Green circles indicate 100-km and 200-km radii from Class I area.
Red line perimeter indicate Area of Influence with Residence Time ≥ 10%
Orange line perimeter indicate Area of Influence with Residence Time ≥ 5%.

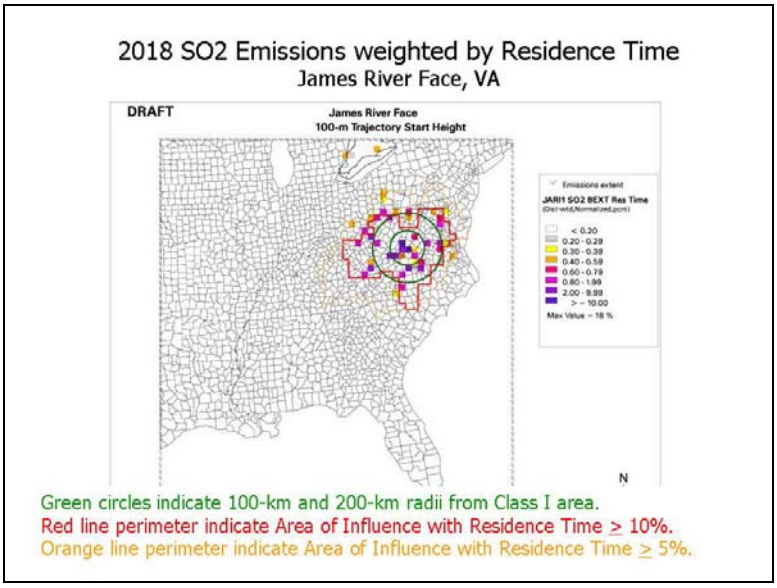
Residence Time for 20% Worst Days in 2000-2004

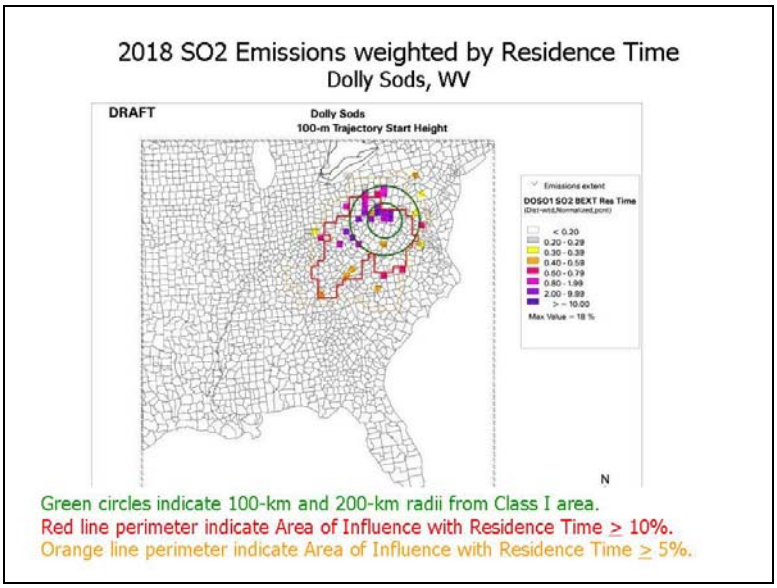
Dolly Sods, WV



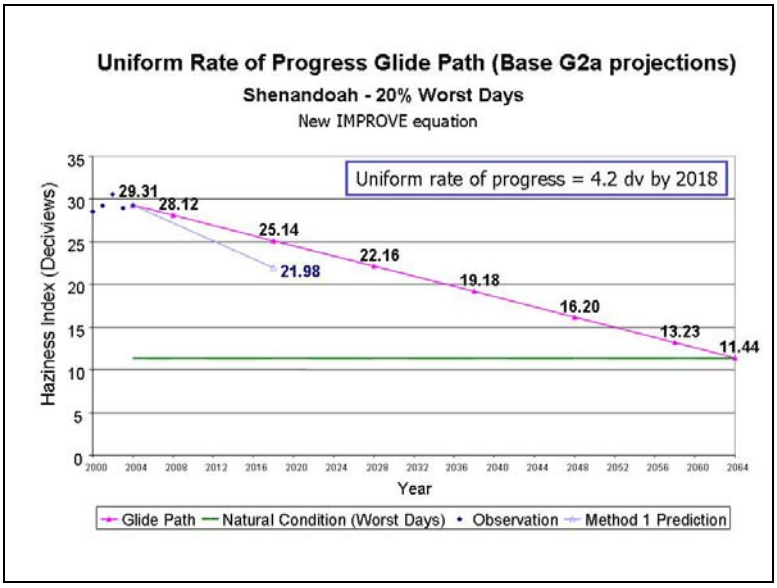
The 2018 Emissions weighted by Residence Time plots are shown for all three areas. These show the relative importance and locations of sources impacting a given area.

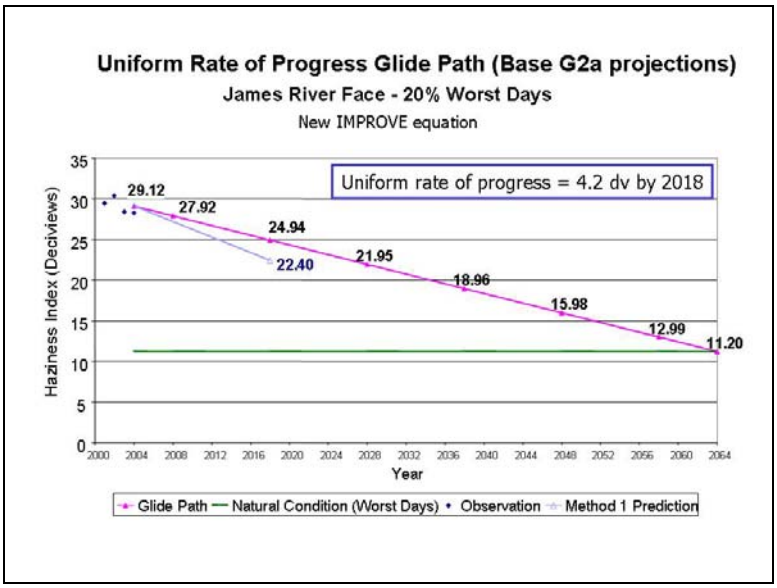


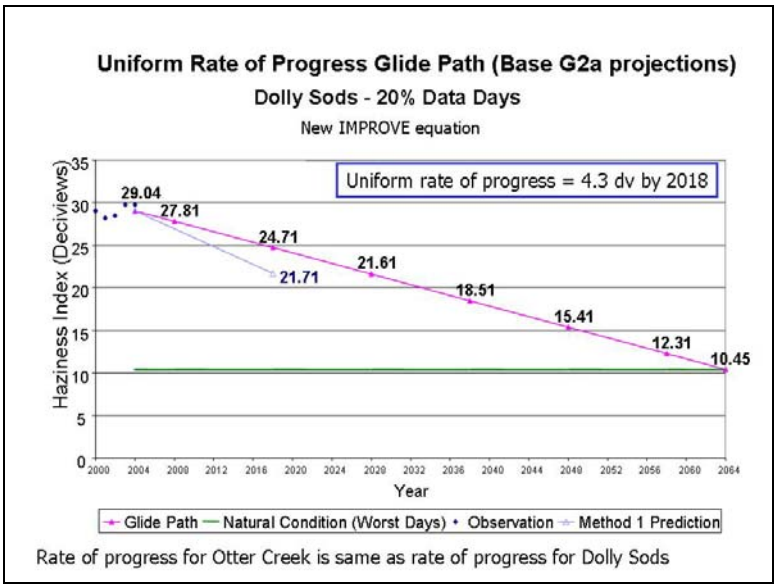




The results of the long term strategy developed by the states and VISTAS provide anticipated visibility improvements below the glidepath.







Rate of progress for Otter Creek is same as rate of progress for Dolly Sods

This series of charts and plots show that impacts from Indiana sources are minimal. Neither Virginia nor West Virginia contacted IDEM to participate in consultations for these areas. The four-factor analyses performed by the VISTAS states and resulting long term strategies that indicate controls closer to the Class 1 areas provide the most effective reductions at this time. Additionally, the long term strategies provide anticipated visibility improvements below the glidepaths. Indiana concurs with these conclusions.

App. 3 - 6. Caney Creek Wilderness Area and Upper Buffalo Wilderness Area, AR; Hercules-Glades Wilderness Area and Mingo Wilderness Area, MO

These areas were identified in early MRPO modeling and other analyses as being impacted by Indiana sources. Indiana was invited to participate in the consultation process for these areas, and attended the conference phone calls. Arkansas and Missouri notified IDEM that they

consider the consultation process finished. They have developed long term strategies that meet rate of progress goals by 2018. At this time, they have indicated that no reductions are necessary from Indiana. Indiana concurs with this finding.

The letter providing this information is below in this section.

Following the letter from Arkansas and Missouri are charts showing glidepaths resulting from the long term strategies developed by the states. All the Class 1 areas are projected to meet their reasonable progress goals in 2018. These charts are from the "12 Sep 2007 Appendices" found on the CENRAP website, http://www.cenrap.org/projects.asp. They are based upon the information and strategies found in the Draft Technical Support Document, of the same date and from the same location.

An additional analysis is included with information obtained from VISTAS and is similar to that contained in the previous sections. The focus of this work was to determine the impact of VISTAS states upon the CENRAP areas, but includes useful information regarding midwestern sources as well. This was done prior to the CENRAP work, but is consistent with materials presented for the other areas.

Letter from Arkansas and Missouri regarding conclusion of consultation process.

ADEQ
ARKANSAS
Department of Environmental Quality

July 23, 2007

To: Participants in the Central Class I Areas Consultation Process

Re: Central Class I Areas Consultation Conclusion

On Feb. 26, 2007, an invitation letter was sent to 12 states and tribes from the states of Missouri and Arkansas. The invitation included a consultation plan, which detailed the procedures and timelines for identifying possible contributors to regional haze in Arkansas and Missouri Class I Areas (Caney Creek, Upper Buffalo, Hercules Glade and Mingo). This process was initiated because the federal Regional Haze Rule requires states to consult with other states and tribes that may be causing or contributing to visibility impairments in federal Class I areas.

These consultations have been accomplished through a series of conference calls. The calls were held on April 3, May 11 and June 7, 2007. Participants included states and tribes, Environmental Protection Agency personnel, regional office staff, Federal Land Managers, and other Regional Planning Organizations. A summary of these conference calls can be found on the CENRAP Web site.

A Uniform Rate of Progress was developed for each of the Class I Areas in Arkansas and Missouri. Regional modeling and other findings indicate that these Class I Areas will meet the established Rate of Progress goals by 2018 based on the existing and proposed controls through both state and federal requirements. Therefore, it is the intent of Arkansas and Missouri to proceed with the development and submittal of a Regional Haze Plan.

Both Missouri and Arkansas believe that the consultations conducted to date have satisfied the consultation process requirements described in the rule. These consultations were completed so that the each state's plan can be submitted for separate review with the Federal Land Managers and Environmental Protection Agency. If necessary, future consultations will be conducted to address any issues that are identified in the review of those draft plans or if changes occur in the contributions associated with regional haze transport.

Arkansas and Missouri are committed to continue on-going assessments of progress in meeting visibility improvement goals. However, the ability to conduct

AIR DIVISION
8001 NATIONAL DRIVE / POST OFFICE BOX 8913 / LITTLE ROCK, ARKANSAS 72219-8913 / TELEPHONE 501-682-0739 / FAX 501-682-0753
www.adeq.state.ar.us

any substantive future planning activities of this nature are made difficult by the lack of federal funding for these efforts. The next review is scheduled for completion in 2013, as dictated by Long Term Strategy Planning on a five-year cycle.

Furthermore, to document that these initial consultations have been made, we are asking that recipients of this letter respond to provide a record that these consultations have taken place to the satisfaction of your state or tribe. Since federal recipients of this letter have a separate administrative process for review, we are not asking for your reply at this time.

Thank you for your participation and contributions in this consultation process. Your time and efforts are appreciated. If you require additional information regarding this matter, please contact Mr. Calvin Ku, Missouri Department of Natural Resources at (573) 751-8406 or, Mr. Mark McCorkle, Arkansas Department of Environmental Quality at (501) 682-0736.

Sincerely,

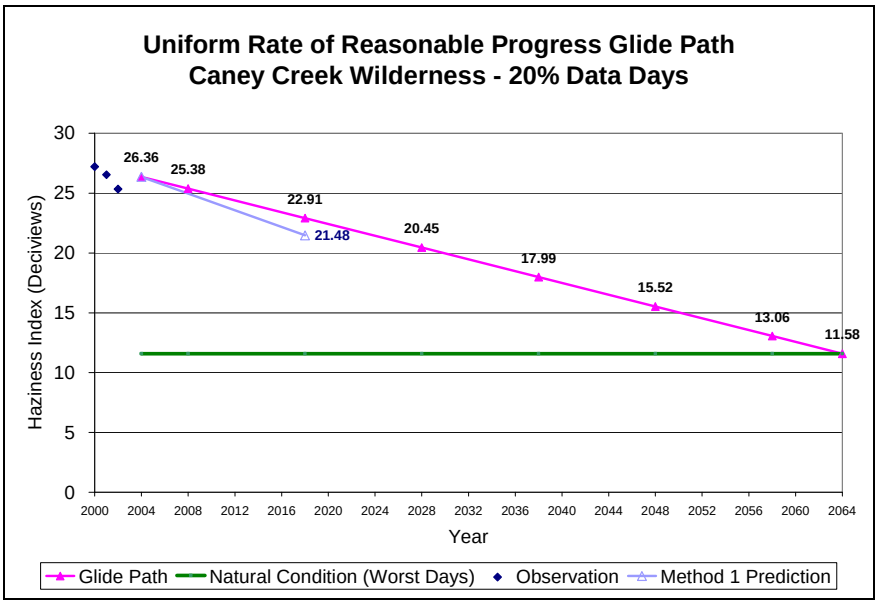
ARKANSAS DEPARTMENT OF ENVIRONMENTAL QUALITY

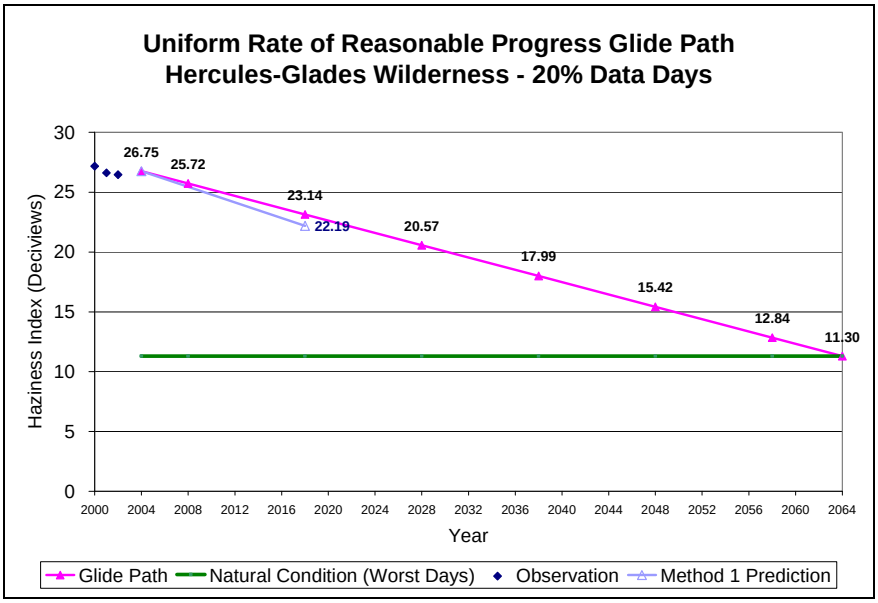
Mike Bates, Chief
Air Division
Arkansas Department of Environmental Quality

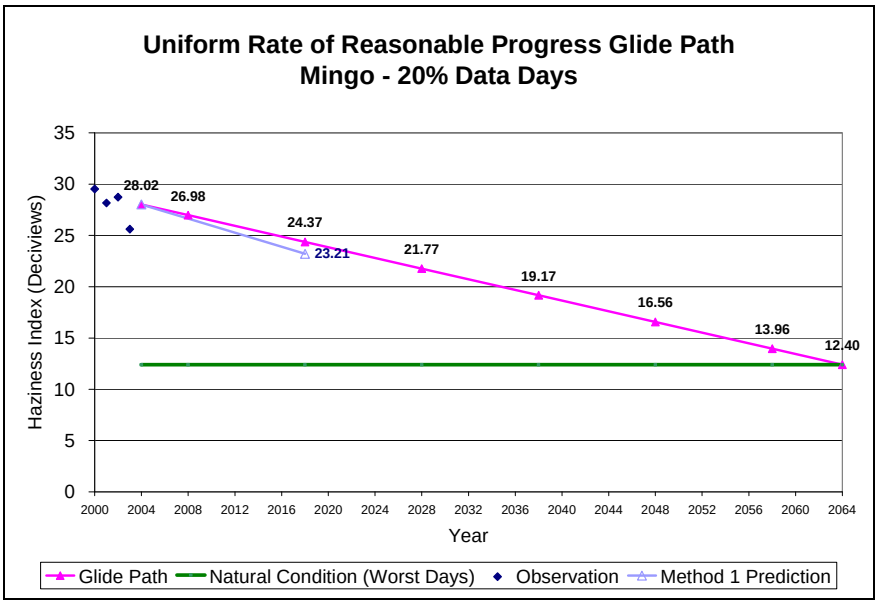
MISSOURI DEPARTMENT OF NATURAL RESOURCES

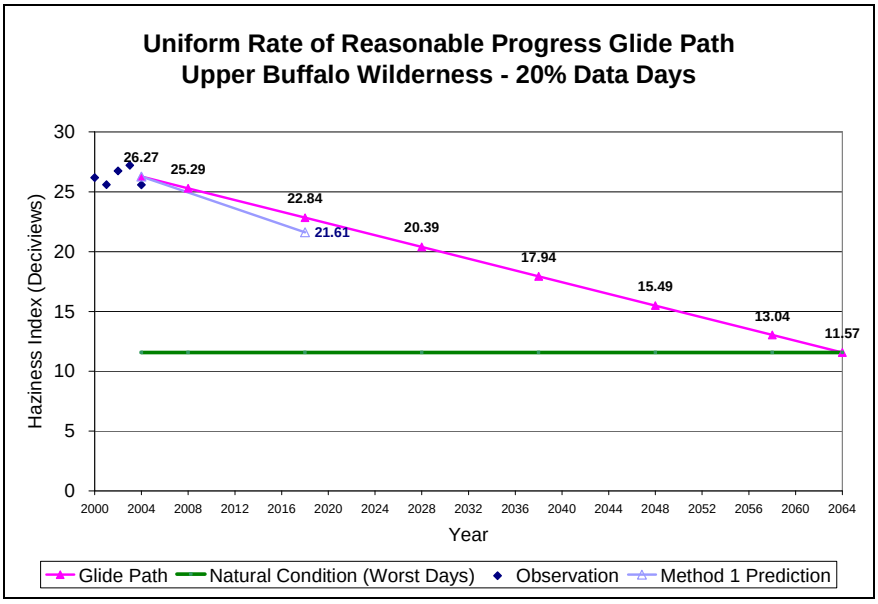
James L. Kavanaugh, Director
Air Pollution Control Program
Missouri Department of Natural Resources

Glidepaths generated by CENRAP showing that the long term strategy developed by the states meets reasonable progress goals for 2018.





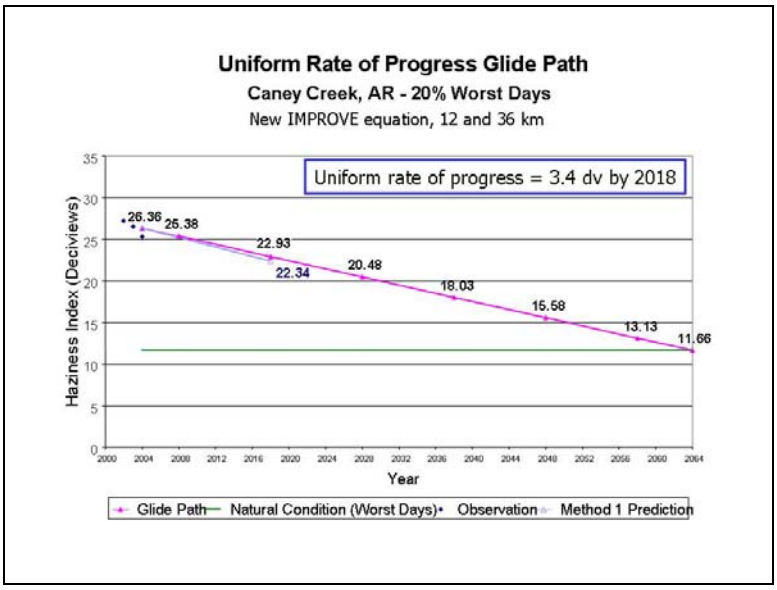


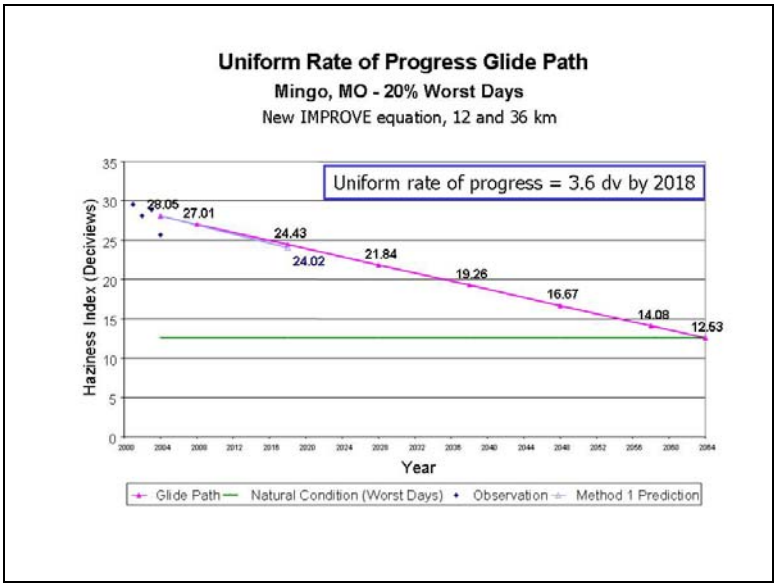


VISTAS Analysis

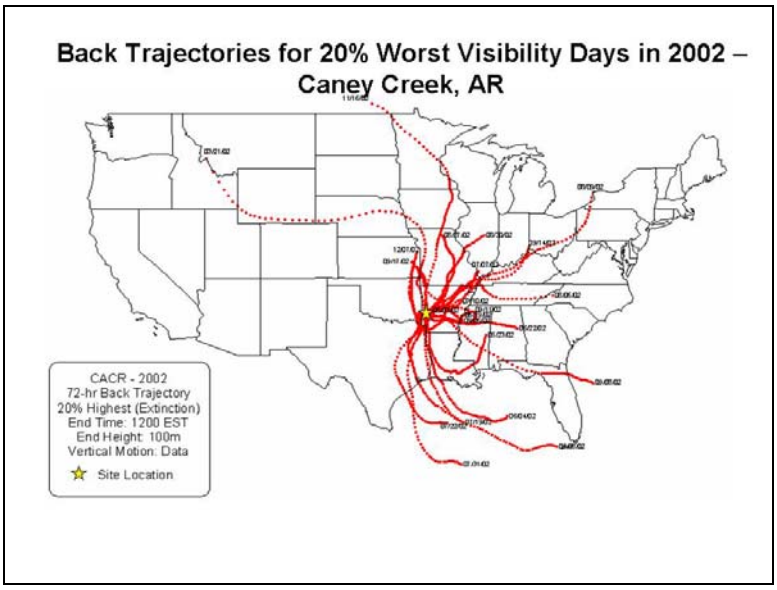
In developing information to support long term strategies for its member states, VISTAS examined their impacts upon the Missouri and Arkansas Class 1 areas. Impacts from midwestern states were also included in these analyses. Again in this case, the focus of reduction strategies is for SO_2.

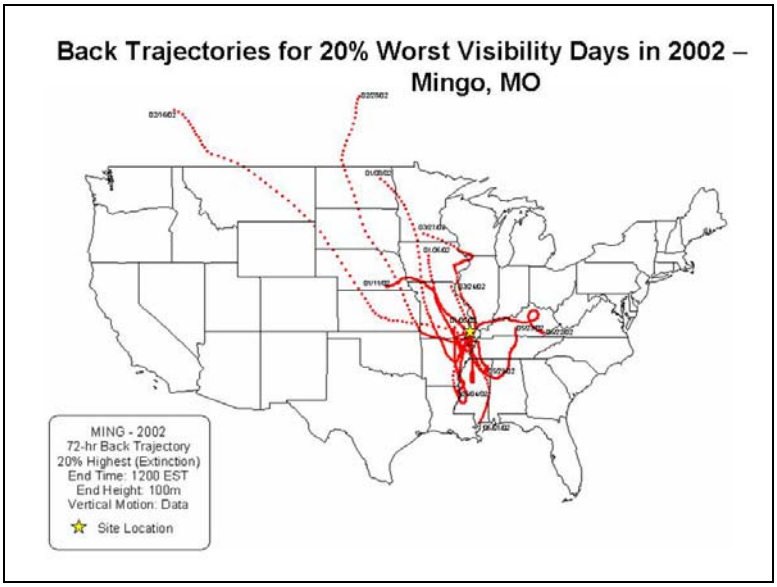
Results from these strategies produced results similar to CENRAP. Below are the glidepaths generated for two of the Class 1 areas, for comparison to those above.



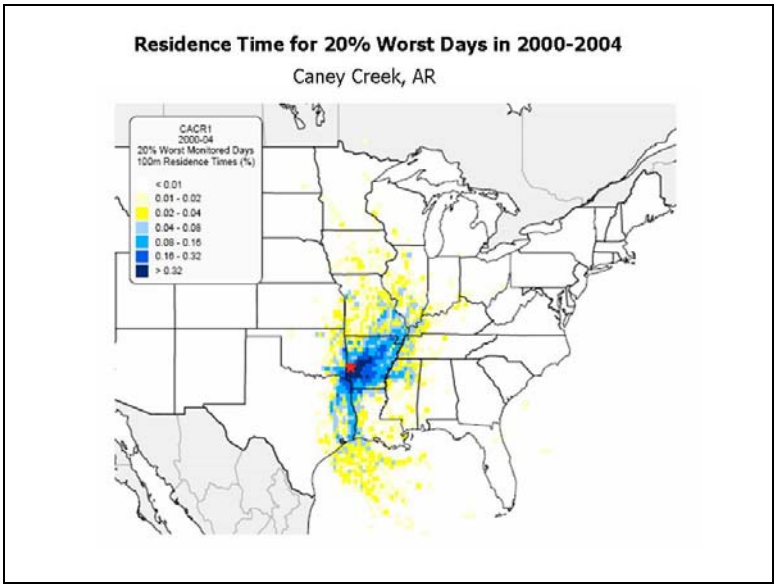


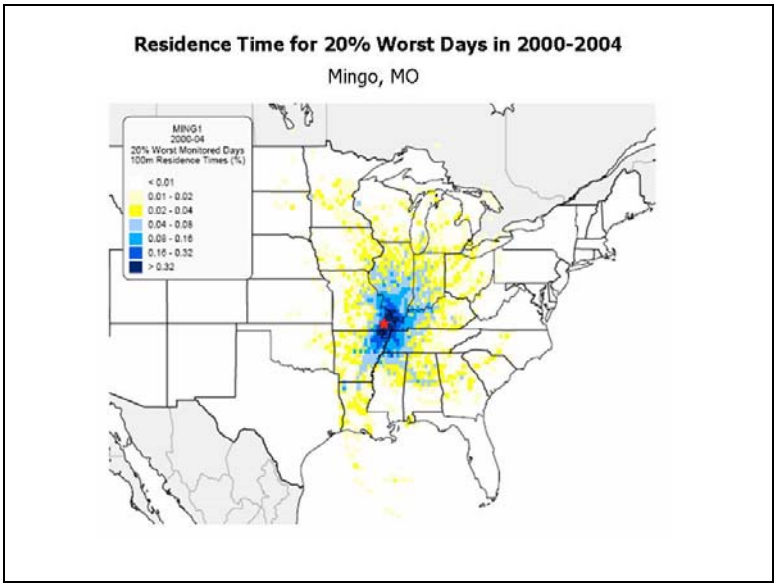
The following plots show the back trajectories for 20% worst days for 2002 for two sites. Neither appear to be heavily impacted by Indiana sources in these plots.



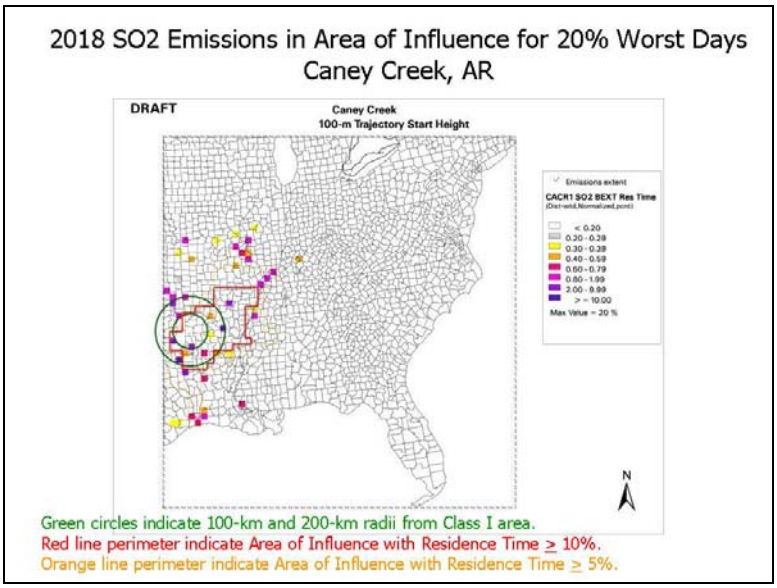


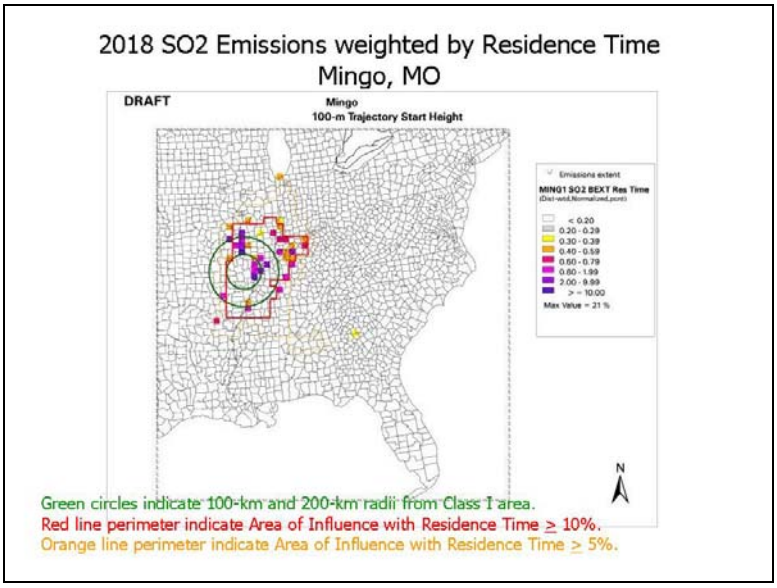
The next two plots show residence time for the 20% worst days from 2000-2004. The plot for Mingo Cave shows a greater impact from Indiana sources, although the greatest impacts are from sources closer to the Class 1 area.



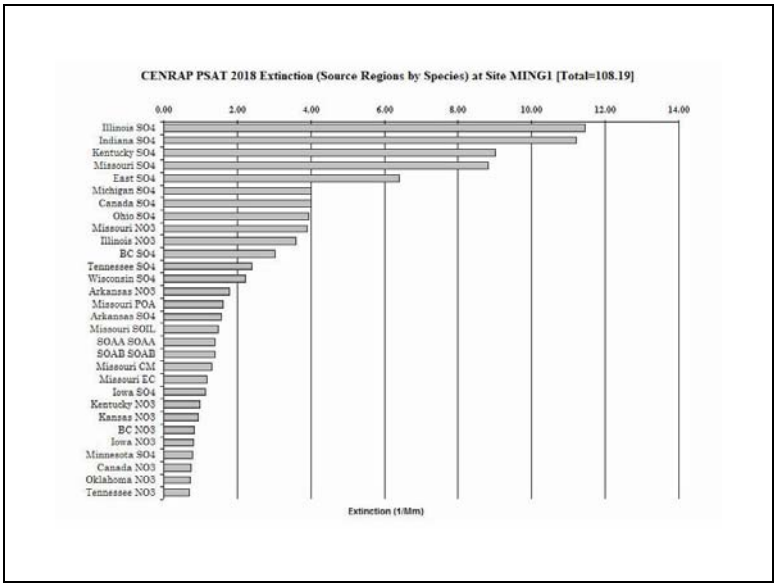


The last two plots show SO_2 emissions weighted by residence time for 2018 for the two Class 1 areas. Indiana is on the edge of the Area of Influence for Mingo Cave.





The bar graph below further illustrates the projected impact of Indiana sources of SO_2 on Mingo Cave in 2018. Because of this impact, a further examination of the SO_2 control devices on EGUs in southwestern Indiana was performed.



The EGUs in this area of the state are listed by unit in the following table. Many of these units did not have controls in the 2002 baseyear inventory. The IPM projections used for future years may also not have reflected current or future control projects.

Plant	Unit	Emissions in 2002	SO_2 control in 2002	SO_2 controls planned
A.B. Brown	1	6004	FGD existing	
A.B. Brown	2	1868	FGD existing	
Cayuga	1	29,379		FGD 2008
Cayuga	2	26,237		FGD 2008
Edwardsport	8	2742		current plans to
Edwardsport	7*1	2688		replace facility with
Edwardsport	7*2	2742		IGCC prior to 2018
F.B. Culley	1	2993		
F.B. Culley	2	730	FGD existing	
F.B. Culley	3	3396	FGD existing	
Frank E. Ratts	1SG1	7907		
Frank E. Ratts	2SG1	10,148		
Gibson	1	34,698		FGD 2007
Gibson	2	37,162		FGD 2007
Gibson	3	28,477		FGD 2007
Gibson	4	9196	FGD existing	
Gibson	5	17969	FGD existing	
Merom	1SG1	5835	FGD existing	
Merom	2SG1	7011	FGD existing	
Petersburg	1	2093	FGD existing	
Petersburg	2	3535	FGD existing	

Plant	Unit	Emissions in 2002	Existing SO_2 control	SO_2 controls planned
Petersburg	3	20,936	FGD existing	
Petersburg	4	20,614	FGD existing	
Rockport	MB1	25,943		FGD planned 2017
Rockport	MB2	25,602		FGD planned 2019
Wabash	2	7912		
Wabash	3	6999		
Wabash	4	7131		
Wabash	5	9380		
Wabash	6	25,602		FGD planned
ALCOA-Warrick	1	18,459		FGD in 2008
ALCOA-Warrick	2	19,258		FGD in 2008
ALCOA-Warrick	3	16,012		FGD in 2008
SIGECO-Warrick	4	40,476		FGD in 2008

While Indiana was not included in any requests for controls from this Class 1 area, it can be seen that the vast majority of SO_2 emitting units will have scrubbers installed by 2018, which should help further improve the visibility in those areas.

App. 3 - 7. Isle Royale National Park and Seney Wilderness Area, MI

Indiana sources have shown an impact on these Class 1 areas through modeling studies. Indiana and the other midwestern states participated extensively in the MRPO modeling and data analysis efforts for fine particulates, ozone, and haze in these areas. Michigan determined that existing and on-the-books controls, combined with reductions necessary to meet the new 24-hour fine particulates standard and the new ozone standard will be sufficient to meet their reasonable progress goals.

The letter from the Michigan Department of Environmental Quality, below, contains their conclusions. Indiana concurs that this is the best approach for addressing visibility impairment at Isle Royale National Park and Seney Wilderness Area Class 1 areas at this time. Therefore, no further analysis for this SIP is necessary. Indiana will continue to work with Michigan and the other MRPO states through LADCO to evaluate the progress and the Class 1 areas.

Letter from Michigan regarding conclusion of consultation process.

Ken

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
LANSING

JENNIFER M. GRANHOLM
GOVERNOR

STEVEN E. CHESTER
DIRECTOR

October 26, 2007

TO: Northern Class I Area Consultation Participants Listed on Attachment

We are writing this letter to those parties that have participated in the Regional Haze consultation process with the Michigan Department of Environmental Quality (MDEQ), Air Quality Division (AQD), over the last several months. This letter explains the AQD's response to the Regional Haze Rule.

As you know, the federal rule requires states with Class I areas to consult with other states that may be contributing to visibility impairment within the Class I areas. Michigan's two haze Class I areas are Isle Royale National Park and the Seney Wilderness Area. The dialog over the last few months with you and the other participants (see attached list) has helped the AQD decide on the best approach for complying with the reasonable progress requirements of the rule.

The AQD is relying primarily on the study by EC/R, Inc. to evaluate the costs and impacts on visibility through additional controls in the region. A key finding of the report is that "beyond CAIR" reductions from EGUs in a three-state (Michigan, Wisconsin and Minnesota) or nine-state (Michigan, Wisconsin, Minnesota, Indiana, Illinois, Missouri, Iowa, North Dakota and South Dakota) region would provide the most significant visibility improvement in Michigan's Class I areas. While the AQD would likely support a federal "beyond CAIR" program, we do not intend to promulgate a state rule for the purpose of improving visibility.

Additional measures were analyzed in the EC/R report focusing on ICI boilers, reciprocating engines and turbines, agricultural sources and mobile sources. While controls for ICI boilers and reciprocating engines may be cost-effective, they appear to have little effect on visibility. Agricultural (ammonia) sources appear to have a larger impact and may be cost-effective, but the ammonia inventory is still inaccurate. Mobile source controls are generally expensive and have very little impact on visibility. Due to the small effects on visibility from these sources, the AQD does not intend to pursue such category-specific controls for regional haze.

The AQD is completing its Best Available Retrofit Technology (BART) analysis of the six facilities that have been shown to impact one or more of Michigan's Class I areas and will develop consent orders or rules to implement BART controls on these facilities. The AQD is also developing a state implementation plan for PM2.5 and expects there will be additional areas of nonattainment resulting from the new PM2.5 24-hour standard and possibly for the revised National Ambient Air Quality Standard for ozone.

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Additional controls will probably be needed in order to meet these standards, and such controls are likely to contribute to a reduction in regional haze in the 2018 time frame.

Since the AQD is not planning new controls at this time, specifically for the regional haze program, we are not asking other states to reduce emissions for the regional haze rule. However, we do support Minnesota's plan to reduce emissions to improve visibility at their two Class I areas and their request to impacting states to do likewise. Any such emission reductions will have some beneficial impacts on Michigan's Class I areas.

We would like to thank you for your participation in the consultation process. It was an opportunity for a fruitful discussion and sharing of data relative to Michigan's regional haze areas. If you have any questions regarding this letter or the consultation process, please contact Ms. Cindy Hodges, AQD, at 517-335-1059, or you may contact me.

Sincerely,

ACTING

G. Vinson Hellwig, Chief
Air Quality Division
517-373-7069

Attachment
cc: Mr. Jim Sygo, Deputy Director, MDEQ
Mr. Robert Irvine, MDEQ
Ms. Cindy Hodges, MDEQ

Participants in the Northern Class I Consultation

States and Provinces
Illinois Environmental Protection Agency
Indiana Department of Environmental Management
Iowa Department of Natural Resources
Michigan Department of Environmental Quality
Minnesota Pollution Control Agency
Missouri Department of Natural Resources
North Dakota Department of Health
Wisconsin Department of Natural Resources
Ontario Ministry of the Environment

Tribes
Leech Lake Band of Ojibwe
Fond du Lac Band of Lake Superior Chippewa
Mille Lacs Band of Ojibwe
Upper and Lower Sioux Community
Red Lake Band of Chippewa
Grand Portage Band of Chippewa
Nottawaseppi Huron Band of Potawatomi

Regional Planning Organizations
Midwest Regional Planning Organization
Central Regional Air Planning Association

Federal Government
USDA Forest Service
U.S. Fish and Wildlife Service
National Park Service
USDA Forest Service
Environmental Protection Agency, Region 5

App. 3 - 8. Acadia National Park, ME; Moosehorn Wilderness Area, ME; Great Gulf Wilderness Area, NH; Brigantine Wilderness Area, NJ; and Lye Brook Wilderness, VT (MANE-VU)

Indiana sources have shown an impact on these Class 1 areas through LADCO and MANE-VU modeling projects. Indiana, along with the other MRPO states, has participated in consultations with MANE-VU.

MANE-VU released "Assessment of Reasonable Progress for Regional Haze in MANE-VU Class 1 Areas - Methodology for Source Selection, Evaluation of Control Options, and Four Factor Analysis, July 2007" which supported requests of states outside that area to examine controls for specific types of sources. This assessment is a large document and is not included in this submittal. It is available online at the MANE-VU website, http://www.manevu.org, under "Consultations - Projects and Work Products." The resulting request is referred to as the "MANE-VU Ask."

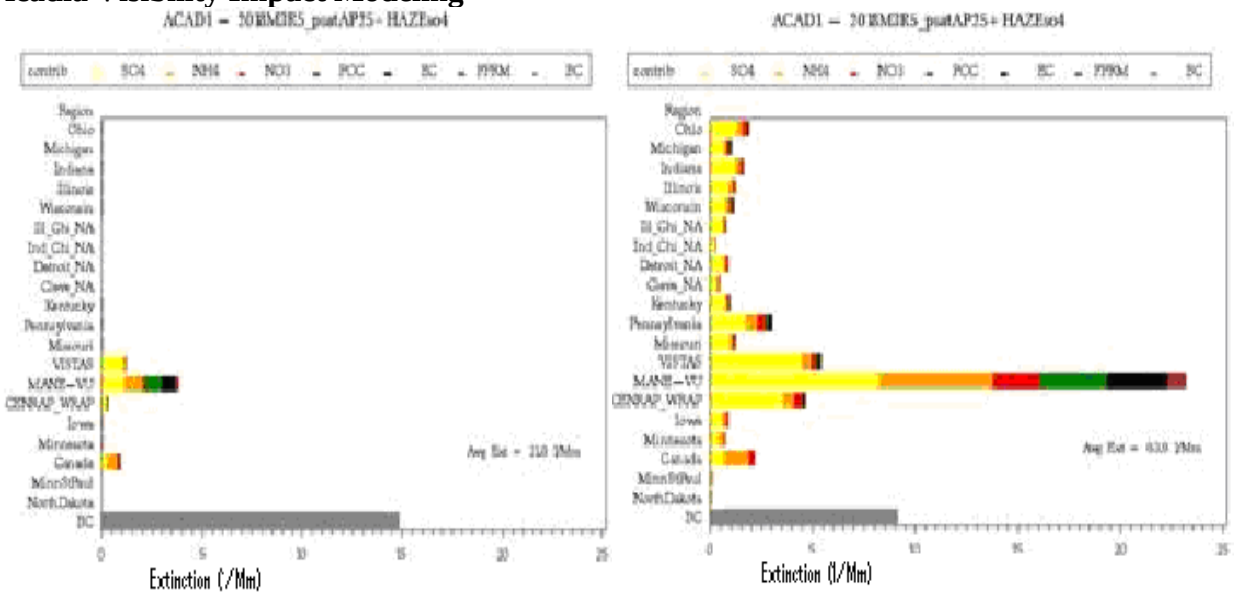
MANE-VU Ask: In its "Statement of the Mid-Atlantic/Northeast Visibility Union (MANE-VU) Concerning a Request for a Course of Action by States Outside of MANE-VU Toward Assuring Reasonable Progress" (June 20, 2007), pages 63 and 64 of this appendix, MANE-VU suggested that several control strategies should be pursued for adoption and implementation, including:

- Application of Best Available Retrofit Technology
- 90% (or greater) reduction in SO_2 emissions from each of the EGU stacks on MANE-VU's list of 167 stacks (located in 19 states), which reflect those stacks determined to be reasonably anticipated to cause or contribute to visibility impairment in the MANE-VU Class 1 areas
- 28% reduction in non-EGU (point, area, on-road, and off-road) SO_2 emissions relative to on-the-books, on-the-way 2018 projections
- Continued evaluation of other measures, including measures to reduce SO_2 and NOx emissions from coal-burning facilities and promulgation of new source performance standards for wood combustion
- Further reduction in power plant SO_2 (and NOx) emissions beyond the current Clean Air Interstate Rule program

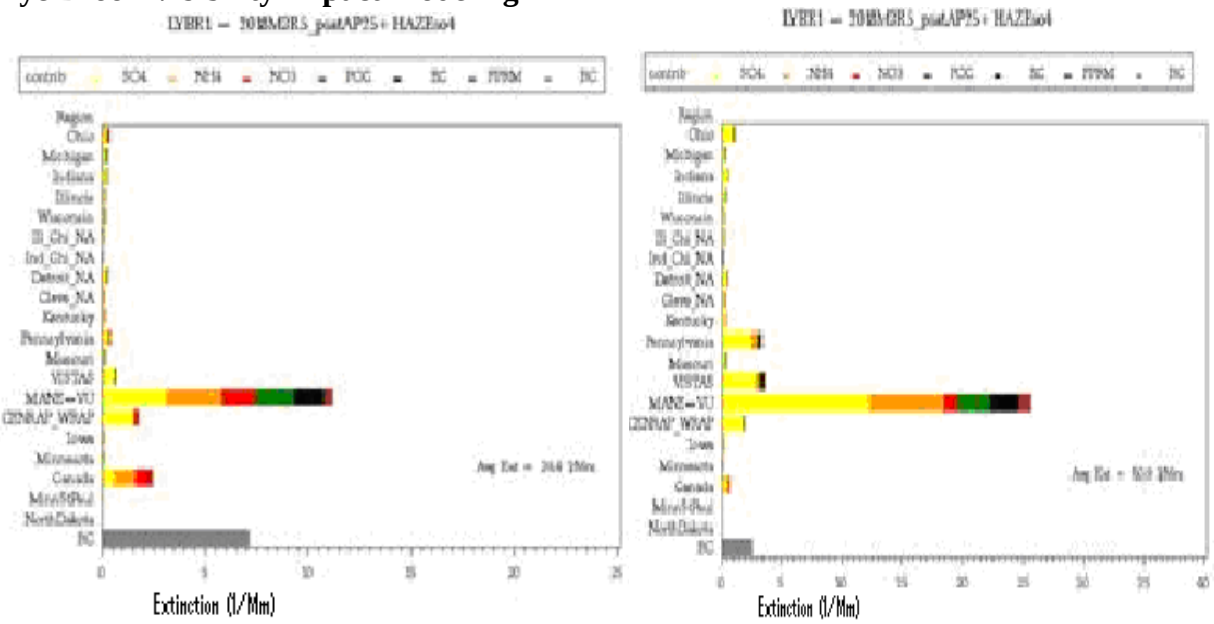
Of the 167 stacks, 15 are from 9 sources in Indiana, page 62 of this section. Most of these stacks have or will have post-combustion emission controls (i.e., scrubbers), see the table at the end of this section.

The two sets of charts from MRPO "Round 5" modeling show the culpability of geographic areas to visibility conditions in two Class 1 areas in the northeast. The left charts are the best days, the right charts are the worst days.

Acadia Visibility Impact Modeling



Lye Brook Visibility Impact Modeling



The following tables further detail the impact Indiana sources have on the northeastern Class 1 areas. Impacts are calculated in terms of light extinction.

MANE-VU (worst days)			
Site ID	**Lye Brook**	**Acadia**	**Brigantine**
Total - Light Extinction (1/Mm)	41.27821	52.91908	71.23547
Indiana Contribution (1/Mm)	0.65769	1.62771	1.28582
Indiana/Chicago Non-Attainment Area (1/Mm)	0.10376	0.28095	0.1648
Indiana Contribution (%)	1.6%	3.1%	1.8%
Indiana/Chicago Non-Attainment Area (%)	0.3%	0.5%	0.2%
Total Indiana/Chicago Non-Attainment Area (%)	1.8%	3.6%	2.0%

MANE-VU (best days)			
Site ID	**Lye Brook**	**Acadia**	**Brigantine**
Total - Light Extinction (1/Mm)	18.9041	6.69923	19.35866
Indiana Contribution (1/Mm)	0.28827	0.0313	0.15311
Indiana/Chicago Non-Attainment Area (1/Mm)	0.03538	0.00681	0.03268
Indiana Contribution (%)	1.5%	0.5%	0.8%
Indiana/Chicago Non-Attainment Area (%)	0.2%	0.1%	0.2%
Total Indiana/Chicago Non-Attainment Area (%)	1.7%	0.6%	1.0%

It can be seen that Indiana sources have insignificant impacts on these areas.

The MRPO has conducted modeling to evaluate the various levels of controls in place or planned between 2008 and 2018. From this "Round 5" modeling the following table was produced for MANE-VU Class 1 areas.

MRPO Round 5 Modeling Results (dV)

Best 20%	**Baseline**	**2018**	**2009**	**2009**	**2012**	**2018**	**2018**
Site	**2000-2004**	**URP Value**	**Base**	**Will Do**	**Base**	**Base**	**Will Do**
Brigantine	14.33	14.33	14.15	14.16	14.08	13.92	13.92
Lye Brook	6.37	6.37	6.25	6.28	6.23	6.14	6.15
Acadia	8.78	8.78	8.86	8.88	8.86	**8.82**	**8.82**
Worst 20%	**Baseline**	**2018**	**2009**	**2009**	**2012**	**2018**	**2018**
Site	**2000-2004**	**URP Value**	**Base**	**Will Do**	**Base**	**Base**	**Will Do**
Brigantine	29.01	25.05	25.79	25.83	25.72	**25.21**	**25.22**
Lye Brook	24.45	21.48	22.04	22.08	21.86	21.14	21.14
Acadia	22.89	20.45	21.72	21.75	21.72	**21.49**	**21.49**

These results show that for the northeastern Class 1 areas, controls already implemented and on-the-books controls may or may not result in achievement of reasonable progress goals. However, Indiana, along with the other MRPO states has committed to continue consultation with MANE-VU. Specifically, Indiana has agreed to support additional work and discussion to accomplish the following:

- Establish a clear understanding of the MANE-VU “Ask” by agreeing on base emissions inventories and control assumptions;
- Draft language on a national "Ask" based on the multi-pollutant needs of the states, including potential controls for EGUs and Industrial, Commercial, and Institutional boilers; and
- Reconvene the MANE-VU/MRPO Industrial, Commercial, and Institutional boiler workgroup (with participation by the Southeastern States and U.S. EPA) to re-examine the workgroup’s January 2007 straw proposal, and receive a workgroup recommendation by the end of the year.

MANE-VU has performed their own modeling. A recent status update, "Recent MANE-VU Projections of Visibility for 2018", MANE-VU Stakeholder Briefing, April 4, 2008, states, "The Uniform Rate is achieved and exceeded at all MANE-VU Class I sites." This presentation is available on the MANE-VU website, http://www.manevu.org.

Therefore, Indiana does not believe at this time that it can commit to any particular course of action until it is determined, through the above work and further discussions, what actions may be appropriate to meet reasonable progress goals given Indiana's marginal impact on those areas.

Sources listed in MANE-VU "Ask". Not all units within a source were listed in the Ask, but this is a complete listing of SO_2 emitting units from those sources to provide a more complete view of control projects at these locations.

Plant	Unit	Emissions in 2002	SO_2 control in 2002	SO_2 controls planned
Cayuga	1	29,379		FGD 2008
Cayuga	2	26,237		FGD 2008
Cayuga	1	29,379		FGD 2008
Cayuga	2	26,237		FGD 2008
Clifty Creek	1	6642		FGD Scheduled 2010
Clifty Creek	2	6712		FGD Scheduled 2010
Clifty Creek	3	6662		FGD Scheduled 2010
Clifty Creek	4	5846		FGD Scheduled 2010
Clifty Creek	5	5433		FGD Scheduled 2010
Clifty Creek	6	6902		FGD Scheduled 2010
Harding Street Station (Stout)	50	7895		
Harding Street Station (Stout)	60	7919		
Harding Street Station (Stout)	70	29,907		FGD 2007
Gibson	1	34,698		FGD 2007
Gibson	2	37,162		FGD 2007
Gibson	3	28,477		FGD 2007
Gibson	4	9196	FGD existing	
Gibson	5	17969	FGD existing	
R. Gallagher	1	11,743		
R. Gallagher	2	12,252		
R. Gallagher	3	23,773		
R. Gallagher	4	11,161		
Rockport	MB1	25,943		FGD planned 2017
Rockport	MB2	25,602		FGD planned 2019
Tanners Creek	1	4941		
Tanners Creek	2	4779		
Tanners Creek	3	6269		
Tanners Creek	4	48,450		
Wabash	2	7912		
Wabash	3	6999		
Wabash	4	7131		
Wabash	5	9380		
Wabash	6	25,602		FGD planned
ALCOA-Warrick	1	18,459		FGD in 2008
ALCOA-Warrick	2	19,258		FGD in 2008
ALCOA-Warrick	3	16,012		FGD in 2008
SIGECO-Warrick	4	40,476		FGD in 2008

STATEMENT OF THE MID-ATLANTIC/NORTHEAST VISIBILITY UNION (MANE-VU) CONCERNING A COURSE OF ACTION WITHIN MANE-VU TOWARD ASSURING REASONABLE PROGRESS

The federal Clean Air Act and Regional Haze rule require States that are reasonably anticipated to cause or contribute to impairment of visibility in mandatory Class I Federal areas to implement reasonable measures to reduce visibility impairment within the national parks and wilderness areas designated as mandatory Class I Federal areas. Most pollutants that affect visibility also cause unhealthy concentrations of ozone and fine particles. In order to assure protection of public health and the environment, any additional air pollutant emission reduction measures necessary to meet the 2018 reasonable progress goal for regional haze should be implemented as soon as practicable .

To address the impact on mandatory Class I Federal areas within the MANE-VU region, the Mid-Atlantic and Northeast States will pursue a coordinated course of action designed to assure reasonable progress toward preventing any future, and remedying any existing impairment of visibility in mandatory Class I Federal areas and to leverage the multi-pollutant benefits that such measures may provide for the protection of public health and the environment. This course of action includes pursuing the adoption and implementation of the following "emission management" strategies, as appropriate and necessary:

- timely implementation of BART requirements; and
- a low sulfur fuel oil strategy in the inner zone States (New Jersey, New York, Delaware and Pennsylvania, or portions thereof) to reduce the sulfur content of: distillate oil to 0.05% sulfur by weight (500 ppm) by no later than 2012, of #4 residual oil to 0.25% sulfur by weight by no later than 2012, of #6 residual oil to 0.3 – 0.5% sulfur by weight by no later than 2012, and to further reduce the sulfur content of distillate oil to 15 ppm by 2016; and
- a low sulfur fuel oil strategy in the outer zone States (the remainder of the MANE-VU region) to reduce the sulfur content of distillate oil to 0.05% sulfur by weight (500 ppm) by no later than 2014, of #4 residual oil to 0.25 – 0.5% sulfur by weight by no later than 2018, and of #6 residual oil to no greater than 0.5 % sulfur by weight by no later than

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2018, and to further reduce the sulfur content of distillate oil to 15 ppm by 2018, depending on supply availability; and

- A 90% or greater reduction in sulfur dioxide (SO_2) emissions from each of the electric generating unit (EGU) stacks identified by MANE-VU (Attachment 1- comprising a total of 167 stacks – dated June 20, 2007) as reasonably anticipated to cause or contribute to impairment of visibility in each mandatory Class I Federal area in the MANE-VU region. If it is infeasible to achieve that level of reduction from a unit, alternative measures will be pursued in such State; and

- continued evaluation of other control measures including energy efficiency, alternative clean fuels, and other measures to reduce SO_2 and nitrogen oxide (NOx) emissions from all coal-burning facilities by 2018 and new source performance standards for wood combustion. These measures and other measures identified will be evaluated during the consultation process to determine if they are reasonable and cost-effective.

This long-term strategy to reduce and prevent regional haze will allow each state up to 10 years to pursue adoption and implementation of reasonable and cost-effective NOx and SO_2 control measures.

Adopted by the MANE-VU States and Tribes on 20 June 2007

David Littell, Commissioner – Maine Dept. of Environmental Protection
Chair

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
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November 15, 2007

Anna Garcia
Acting Executive Director
Ozone Transport Commission
Hall of the States
444 North Capitol Street, Suite 638
Washington, DC 20001

Dear Ms. Garcia:

The purpose of this letter is to respond to your letter dated July 30, 2007 and the MANE-VU States' initial request for a course of action by states outside of the MANE-VU region toward assuming reasonable progress at the Class I areas within your region (i.e., the MANE-VU "ask").

I would like to first express my appreciation to the MANE-VU States and their representatives for traveling to Chicago on August 6 for the initial consultation meeting. This was a productive meeting and sets the stage for further constructive dialogue.

At the August 6 meeting, the following action items were identified:

1. Define next steps for multi-pollutant approach to reduce regional haze, PM 2.5, and ozone.
2. Discuss crafting a national ask among interested MANE-VU and MRPO states regarding national action on Electric Generating Units (EGUs), including potential multi-pollutant control levels for CAIR Phase III with emission rates and output-based options.
3. Pursue discussions on options for reducing SO_2 (and NO_x) emissions from ICI boilers, including:
   - Reconvening the MANE-VU/MRPO ICI boiler workgroup to re-examine the workgroup's January 2007 straw proposal;
   - Developing a process for sharing information on SO_2 RACT for ICI boilers, and examining potential SO_2 control measures;
   - Contacting NACAA regarding expansion of the Boiler MACT model rule work to address SO_2 and NO_x; and
   - Discuss crafting a revised national ask among interested MANE-VU and MRPO states regarding needs for national action on ICI boilers.

4. Discuss crafting a national ask regarding low sulfur fuel for all off-road sources, and share information on biodiesel.
5. Gather information on pending federal controls for locomotives and commercial marine vessels.
6. Continue to share emissions data and modeling analyses, and continue dialogue between MANE-VU and MRPO states regarding SIP submittals. (Note, clarification of the MANE-VU "ask" is still needed.)
7. Develop list of controls for units that will be scrubbed, not just MANE-VU's list of 167 stacks.

I support this additional work and discussion. Within the next few months, I would, especially, like to accomplish the following:

- Establish a clear understanding of the MANE-VU "ask" by agreeing on base emissions inventories and control assumptions;
- Draft language on a national ask based on the multi-pollutant needs of the states, including potential controls for EGUs and ICI boilers; and
- Reconvene the MANE-VU/MRPO ICI boiler workgroup (with participation by the Southeastern States and USEPA) to re-examine the workgroup's January 2007 straw proposal, and receive a workgroup recommendation by the end of the year.

It appears that, based on our review of the Round 5 Midwest RPO modeling for 2018 and U.S. EPA modeling for 2015, reasonable further progress is essentially meeting or exceeding reasonable further progress interim goals in each of the MANE-VU Class I areas. It is apparent that significant regional emission reduction programs are achieving health and interim visibility goals across the majority of the eastern United States. With the current goals achieved, the focus should be on the development of the next tier of cost-effective controls, looking at the need for reductions to achieve the revised ambient air quality standards and considering a future regional haze interim milestone date. CAIR Phase 3, ICI controls and regional programs for fuels, etc. should be the focus for making continued progress towards the 2064 ultimate regional haze goals.

Finally, I believe it is premature to respond to the MANE-VU "ask" for additional reductions in SO_2 emissions from EGU and non-EGU sources. The work and discussion noted above are needed before we can determine what actions are appropriate. While I am unable to commit to any particular course of action at this time, I am looking forward to further discussions which consider our mutual air quality interests.

Sincerely,

Thomas W. Easterly
Commissioner

KNR
Cc: Daniel Murray

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Appendix 4 - SIP Checklist

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Y / N or N/A	SIP Submittal Checklist for Regional Haze SIPs Submitted under 40 CFR 51.308			
	Regulation Citation	**Regulation Summary (not verbatim)**	**Location in SIP**	**References**
	Administrative Requirements from Appendix V to Part 51			
	2.1(a)	Has a letter of submittal from the governor / designee, requesting EPA approval of the SIP been received?	Not Available	
	2.1(b)	Has the State provided evidence it has adopted the legally enforceable portions of the plan in the State code or body of regulations; or issued the necessary permits, orders, consent agreements in final form?	Not Available	
	2.1(c)	Has the State provided evidence it has the necessary legal authority under State law to adopt and implement the plan?	Not Available	
	2.1(d)	Has the official State regulation /document been signed/stamped/dated by the appropriate State official indicating that it is fully enforceable by the State?	Not Available	
	2.1(e)	Has the State provided evidence it followed all of the procedural requirements of the State's laws and constitution in the adoption/issuance of the plan?	Not Available	
	2.1(f)	Has the State provided evidence that public notice was given of the proposed change consistent with procedures approved by EPA, including the date of publication of such notice?	Not Available	
	2.1(g)	Has the State provided a certification that public hearings(s) were held in accordance with the information provided in the public notice and the State's laws and constitution, if applicable?	Not Available	
	2.1(h)	Has the State provided a compilation of public comments and the State's response thereto?	Not Available	
	Technical Requirements from 40 CFR 51.308			
	(b)	Was the SIP submitted no later than December 17, 2007?	No	
	(d)	Did the State provide a table identifying each mandatory Class I Federal area located within the State and in each mandatory Class I Federal area located outside the State affected by emissions from within the State?	Section 4.2	Visibility Monitoring Guidance

Y / N or N/A		SIP Submittal Checklist for Regional Haze SIPs Submitted under 40 CFR 51.308			
		Regulation Citation	**Regulation Summary (not verbatim)**	**Location in SIP**	**References**
	*	(d)(1)	Did the State establish RPGs for each Class I area that provide for an improvement in visibility for the most impaired days over the period of the SIP, and ensure no degradation in visibility for the least impaired days over the same period?	Section 4.2	p. 35730 of the 1999 RHR p. 1-6 of the Tracking Guidance Attainment Guidance draft RPG Guidance
	*	(d)(1)(i)(A)	In establishing RPGs for each Class I area, did the State consider the costs of compliance, the time necessary for compliance, the energy and non-air quality environmental impacts of compliance, and the remaining useful life of any potentially affected sources, and include a demonstration showing how these factors were taken into consideration in selecting the goal?	Section 4.2	p. 35731-33 of the 1999 RHR draft RPG Guidance
	*	(d)(1)(i)(B)	Did the State submit the glidepath (i.e., rate of progress needed to attain natural visibility conditions by 2064) for each Class I area?	Section 4.2	p. 35727-33, 35 of the 1999 RHR Natural Visibility Guidance p. 39124, 39143 of the 2005 BART rule The Baseline Memo
	*	(d)(1)(i)(B)	In establishing the RPG for each Class I area, did the State calculate the uniform rate of improvement in visibility and the emission reduction measures needed to achieve it for the period covered by the SIP?	Section 4.2	p. 35732 of the 1999 RHR draft RPG Guidance
	*	(d)(1)(ii)	If the State establishes a RPG < the glidepath, has it demonstrated, based on the factors in (d)(1)(i)(A), the rate of progress for the SIP to attain natural conditions by 2064 is not reasonable, and its RPG is reasonable?	Section 4.2	p. 35732 of the 1999 RHR

Y / N or N/A		SIP Submittal Checklist for Regional Haze SIPs Submitted under 40 CFR 51.308			
		Regulation Citation	**Regulation Summary (not verbatim)**	**Location in SIP**	**References**
	*	(d)(1)(ii)	If the State establishes a RPG < the glidepath, did it provide to the public for review as part of its SIP, an assessment of the number of years it would take to attain natural conditions using its RPG?	Section Section 4.2	p. 35732 of the 1999 RHR
		(d)(1)(iv)	In developing its RPG, has the State consulted with those States that may reasonably be anticipated to cause or contribute to visibility impairment in the Class I areas?	Section Section 4.3	p. 35735 of the 1999 RHR
		(d)(1)(iv)	If the State cannot agree with another State(s) that a goal provides for reasonable progress, has the State described in its submittal the actions taken to resolve the disagreement?	Section 7.9	p. 35732 of the 1999 RHR
	*	(d)(1)(vi)	Has the State adopted RPGs that represents at least the visibility improvement expected from implementation of other CAA programs during the applicable planning period?	Not Applicable	p. 35733 of the 1999 RHR
	*	(d)(2)(i)	Has the State calculated baseline visibility conditions for each Class I area for the most impaired and least impaired days using 2000 to 2004 monitoring data?	Section 6	p. 35728-30 of the 1999 RHR Natural Visibility Guidance Attainment Guidance Tracking Guidance
	*	(d)(2)(i)	In calculating the baseline visibility conditions, did the State estimate the average degree of visibility impairment for the most and least impaired days for each calendar year from 2000 to 2004, and then determine the average of these annual values?	Section 6	
	*	(d)(2)(i)	If the State has Class I areas without onsite monitoring data for 2000 - 2004, did the State use the most representative available monitoring data for 2000 - 2004 to establish baseline values, in consultation with the EPA Regional Office?	Not Applicable	p. 35728-29 of the 1999 RHR Visibility Monitoring Guidance

Y / N or N/A		SIP Submittal Checklist for Regional Haze SIPs Submitted under 40 CFR 51.308			
		Regulation Citation	**Regulation Summary (not verbatim)**	**Location in SIP**	**References**
	*	(d)(2)(iii)	Did the State calculate natural visibility conditions for the most impaired and least impaired days by estimating the degree of impairment based on available monitoring information and appropriate data analysis techniques?	Section 6	p. 35764, 35729-30 of the 1999 RHR Natural Visibility Guidance
	*	(d)(2)(iv)A	Did the State calculate the number of deciviews by which baseline conditions exceed natural visibility conditions for the most impaired and least impaired days for the first planning period?	Section 6	p. 35732 of the 1999 RHR
		(d)(3)	Did the State submit a LTS that addresses visibility impairment for each Class I area, inside and outside the State, which may be affected by the State's emissions?	Section 9	p. 35734-35 of the 1999 RHR
		(d)(3)	Does the LTS include enforceable emissions limitations, compliance schedules, and other measures as necessary to achieve the RPGs established by States having Class I areas?	Section 9	p. 35734-35 of the 1999 RHR
		(d)(3)(i)	In establishing its LTS, did the State consult with other State(s) to develop coordinated emission management strategies for cases in which it has emissions that are reasonably anticipated to contribute to visibility impairment in any Class I area located in those State(s)?	Section 9	p. 35735 of the 1999 RHR
		(d)(3)(i)	In establishing its LTS, did the State consult with other State(s) to develop coordinated emission management strategies for cases in which those State(s) have emissions that are reasonably anticipated to contribute to visibility impairment in any Class I area located within the State?	Section 9	
		(d)(3)(ii)	In establishing its LTS, where multiple State(s) cause or contribute to impairment of the same Class I area, did the State include all measures necessary to obtain its share of the emission reductions needed to meet the RPG for the area?	Section 9	p. 35735 of the 1999 RHR
		(d)(3)(ii)	In addressing (d)(3)(ii), above, if the State participated in a RPO, did it ensure it included all measures needed to achieve its apportionment of emission reduction obligations agreed upon through that process?	Section 2	p. 35735 of the 1999 RHR

Y / N or N/A	SIP Submittal Checklist for Regional Haze SIPs Submitted under 40 CFR 51.308			
	Regulation Citation	**Regulation Summary (not verbatim)**	**Location in SIP**	**References**
	(d)(3)(iii)	In establishing its LTS, did the State document the technical basis, including modeling, monitoring and emissions information, on which it is relying to determine its apportionment of emission reduction obligations necessary for achieving reasonable progress in each Class I area it affects?	Section 7	p. 35735 of the 1999 RHR EI Guidance
	(d)(3)(iii)	In addressing (d)(3)(iii), above, did the State identify the baseline emissions inventory on which its strategies are based?	Section 5	p. 35728 of the 1999 RHR Baseline Memo EI Guidance
	(d)(3)(iv)	Did the State identify all anthropogenic sources of visibility impairment considered by it in developing its LTS, including consideration of major and minor stationary sources, mobile sources, and area sources?	Section 5	p. 35735 of the 1999 RHR EI Guidance
	(d)(3)(v)(A)	In developing its LTS, did the State consider the emission reductions due to ongoing air pollution control programs, including measures to address RAVI?	Section 5	p. 35737 of the 1999 RHR
	(d)(3)(v)(B)	In developing its LTS, did the State consider measures to mitigate the impacts of construction activities?	Section 9	p. 35737 of the 1999 RHR
	(d)(3)(v)(C)	In developing its LTS, did the State consider emissions limitations and schedules for compliance to achieve the reasonable progress goal?	Section 5	p. 35737 of the 1999 RHR
	(d)(3)(v)(D)	In developing its LTS, did the State consider source retirement and replacement schedules?	Section 5	p. 35737 of the 1999 RHR

Y / N or N/A		SIP Submittal Checklist for Regional Haze SIPs Submitted under 40 CFR 51.308			
		Regulation Citation	**Regulation Summary (not verbatim)**	**Location in SIP**	**References**
		(d)(3)(v)(E)	In developing its LTS, did the State consider smoke management techniques for agricultural and forestry management purposes, including plans as currently exist within the State for these purposes?	Section 9.2	p. 35736 of the 1999 RHR Interim Fire Policy
		(d)(3)(v)(F)	In developing its LTS, did the State consider enforceability of emissions limitations and control measures?	Section 9.3	p. 35737 of the 1999 RHR
		(d)(3)(v)(G)	In developing its LTS, did the State consider the anticipated net effect on visibility due to projected changes in point, area, and mobile source emissions over the period addressed by the LTS?	Section 6	p. 35737 of the 1999 RHR
	*	(d)(4)	Did the State submit with the SIP a monitoring strategy for measuring, characterizing, and reporting of regional haze visibility impairment representative of all Class I areas within the State?	Not Applicable	p. 35744 of the 1999 RHR Attainment Guidance Tracking Guidance Visibility Monitoring Guidance
	*	(d)(4)	Did the State coordinate the above monitoring strategy with the RAVI monitoring strategy in § 51.305?	Not Applicable	p. 35717, 37, of the 1999 RHR
	*	(d)(4)(i)	Did the SIP provide for the establishment of any additional monitoring sites or equipment needed to assess whether RPGs to address regional haze for all Class I areas within the State are being achieved?	Not Applicable	p. 35744 of the 1999 RHR Attainment Guidance Tracking Guidance Visibility Monitoring Guidance

Y / N or N/A		SIP Submittal Checklist for Regional Haze SIPs Submitted under 40 CFR 51.308			
		Regulation Citation	**Regulation Summary (not verbatim)**	**Location in SIP**	**References**
	*	(d)(4)(ii)	Did the SIP establish procedures by which monitoring data and other information are used in determining the contribution of emissions from within the State to regional haze visibility impairment at Class I areas both within and outside the State?	Section 9	p. 35744 of the 1999 RHR Attainment Guidance Tracking Guidance Visibility Monitoring Guidance
		(d)(4)(iii)	For a State with no Class I areas, did the SIP establish procedures by which monitoring data and other information are used in determining the contribution of emissions from within the State to regional haze visibility impairment at Class I areas in other States?	Section 9	p. 35744 of the 1999 RHR Attainment Guidance Tracking Guidance Visibility Monitoring Guidance
	*	(d)(4)(iv)	Did the SIP provide for the reporting of all visibility monitoring data to EPA at least annually for each Class I area in the State?	Not Applicable	p. 35744-45 of the 1999 RHR Visibility Monitoring Guidance
		(d)(4)(v)	Did the SIP include a statewide EI of pollutants that are reasonably anticipated to cause or contribute to visibility impairment in any Class I area?	Section 5	Attainment Guidance
		(d)(4)(v)	Did the EI include emissions for a baseline year, emissions for the most recent year for which data are available, and estimates of future projected emissions?	Section 5	p. 35728-29 of the 1999 RHR Visibility Monitoring Guidance Attainment Guidance

Y / N or N/A	SIP Submittal Checklist for Regional Haze SIPs Submitted under 40 CFR 51.308			
	Regulation Citation	**Regulation Summary (not verbatim)**	**Location in SIP**	**References**
	(d)(4)(v)	Did the SIP include a commitment to update the EI periodically?	Section 5	EI Guidance
	(d)(4)(vi)	Did the SIP include other elements necessary to assess and report on visibility (e.g., reporting, recordkeeping, etc.)?	Not Applicable	
	(e)	Did the State submit a SIP containing emission limitations representing BART, and schedules for compliance with BART, for each BART eligible source that may reasonably be anticipated to cause or contribute to any impairment of visibility in any Class I area?	Section 8	BART Guidelines
	(e)(1)(i)	Did the SIP include a list of all BART-eligible sources within the State with supporting documentation?	Section 8	BART Guidelines
	(e)(1)(ii)	Did the SIP include a determination of BART for each BART-eligible source in the State that emits any air pollutant which may reasonably be anticipated to cause or contribute to any impairment of visibility in any Class I area?	Section 8	BART Guidelines
	(e)(1)(ii)(A)	Did the SIP include a determination of BART based on an analysis of the best system of continuous emission control technology available, and associated emission reductions achievable for each source subject to BART within the State?	Section 8	BART Guidelines
	(e)(1)(ii)(A)	In the BART analysis, did the State take into consideration the technology available, the costs of compliance, the energy and nonair quality environmental impacts of compliance, any pollution control equipment in use at the source, the remaining useful life of the source, and the degree of improvement in visibility which may reasonably be anticipated to result from the use of such technology?	Section 8	BART Guidelines p 39107, 127 of the 2005 BART Rule
	(e)(1)(ii)(B)	Did the State determine BART for fossil-fuel fired power plants > 750 megawatts pursuant to the BART guidelines?	Section 8	BART Guidelines p 39108 of the 2005 BART Rule

Y / N or N/A	SIP Submittal Checklist for Regional Haze SIPs Submitted under 40 CFR 51.308			
	Regulation Citation	**Regulation Summary (not verbatim)**	**Location in SIP**	**References**
	(e)(1)(iii)	If the State has determined that technological or economic limitations on the applicability of measurement methodology to a particular source would make the imposition of an emission standard infeasible, has the State prescribed a design, equipment, work practice, or other operational standard, to require the application of BART, as an alternative to a BART emission standard?	Section 8	BART Guidelines
	(e)(1)(iii)	If the State adopted a design, equipment, work practice, or other operational standard alternative to BART, did the State, to the degree possible, set forth the emission reduction to be achieved, and provide for compliance by means which achieve equivalent results?	Section 8	BART Guidelines p 39172 of the 2005 BART Rule
	(e)(1)(iv)	Has the State required each source subject to BART to install and operate BART as expeditiously as practicable, but no later than 5 years after approval of the SIP?	Section 8	p 39158, 70, 72 of the 2005 BART Rule
	(e)(1)(v)	Has the State required each BART source to maintain the required control equipment and establish procedures to ensure such equipment is properly operated and maintained?	Section **Error! Reference source not found.**	p 39172 of the 2005 BART Rule
	(e)(4)	If the State is using its participation in CAIR to exempt BART-eligible EGU's from BART, has it included supporting documentation?	Section 8	p 39136-42 of the 2005 BART Rule
	(e)(4)	If the State is using its participation in CAIR to exempt BART-eligible EGU's from BART, did it include provisions for a geographic enhancement to the program to address RAVI BART under § 51.302(c)?	Section 8	p 39143, 57 of the 2005 BART Rule
	(e)(6)	If a facility is seeking an exemption under §51.303(a)(2)–(h) for any of its BART-eligible emission units, has the appropriate documentation been included in the SIP?	Section 8	§51.303(a)(2)–(h)

Y / N or N/A	SIP Submittal Checklist for Regional Haze SIPs Submitted under 40 CFR 51.308			
	Regulation Citation	**Regulation Summary (not verbatim)**	**Location in SIP**	**References**
	(f)	Has the State included a commitment it will submit its SIP revision, as specified in 51.308(f), by July 31, 2018, and every ten years thereafter?	Section 9.3	p 35745 of the 1999 RHR Section 110(a)(2)(H) of the CAA
	(g)	Has the State included a commitment it will submit its SIP report, as specified in 51.308(g), by an exact date named, that is within 5 years from submittal of the initial SIP?	Section 9	p 35745 of the 1999 RHR Section 110(a)(2)(F) of the CAA
	(h)	Has the State included a commitment it will, at the time of the submission of the SIP report, also submit a determination of the adequacy of that SIP report, as specified in 51.308(h)?	Section 9	p 35745 of the 1999 RHR Section 110(a)(2)(F) of the CAA
	(i)(1)(i)-(ii)	Did the State, by November 29, 1999, identify in writing to the FLMs the title of the official to which any FLM can submit recommendations on the implementation 51.308 including, (i) identification of impairment of visibility in any Class I area(s); and (ii) identification of elements for inclusion in the visibility monitoring strategy required by §51.305 and 51.308?	Not Applicable	p. 35747-48 of the 1999 RHR
	(i)(2)	Did the State provide the FLM an opportunity for consultation, in person and at least 60 days prior to holding any public hearing on the SIP (or its revision)?	Not Applicable	p. 35747-48 of the 1999 RHR
	(i)(2)(i)-(ii)	Did the above consultation include the opportunity for the FLMs to discuss their: (i) assessment of impairment of visibility in any Class I area; and, (ii) recommendations on the development of the RPG and on the development and implementation of strategies to address visibility impairment?	Not Applicable	p. 35747-48 of the 1999 RHR
	(i)(3)	Did the State include in the SIP a description of how it addressed any comments provided by the FLMs?	Section 3	p. 35747-48 of the 1999 RHR

Y / N or N/A	SIP Submittal Checklist for Regional Haze SIPs Submitted under 40 CFR 51.308			
	Regulation Citation	**Regulation Summary (not verbatim)**	**Location in SIP**	**References**
	(i)(4)	Does the SIP provide procedures for continuing consultation between the State and FLMs on the implementation of 51.308, including development and review of SIP revisions and 5-year progress reports, and on the implementation of other programs having the potential to contribute to impairment of visibility in Class I areas?	Sections 3 and 9	p. 35747-48 of the 1999 RHR

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Appendix 5 - BART Eligible Units

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Indiana's Non-EGUs

Facility	Emission Unit ID	Emission Unit Description	Stack ID
AGC-ALCOA and	Boiler #2	Dry Bottom, pulverized coal-fired boiler	241-242
ALCOA-Warrick	Boiler #3	Dry Bottom pulverized coal-fired boiler	242
	105m.1, 10	POTLINE #3. ROOMS 105 AND 106 gtc	105M
	107M, 108M	POTLINE #4. ROOMS 107 AND 108 GTC	107M
	109M,110M	POTLINE #5, ROOMS 109 AND 110, A-398	109M
	111M,112M,	POTLINE #6	
	130m.1,104	potline #2, Rooms 103 and 104, A-398	103m.1
	134.63	HDC FURNACE COMLEXES	1EH
	134.71	OFFLINES #2	134.71
BP-Whiting	120-05	Process HEATER	001
	13002	PROCESS HEATER	002
	13004	PROCESS HEATERS	003
	16201	INCINERATOR	004
	16203	FLARE	005
	22401	PROCESS HEATER	008
	22402	PROCESS HEATER	009
	22403	PROCESS HEATERS	010
	22404	PROCESS HEATER	011
	22405	PROCESS HEATERS	012
	22406	FLARE	006
	250	PROCESS HEATER	007
	51001	INCINERATOR	013
	ASP HEAT	ASPHALT HEATER	015
	HEATER	MARINE DOCK	017
	PARK HEATE	PROCESS HEATER	016
Carmeuse	EU-1	ROTARY LIME KILN	S1
	EU-2	ROTARY LIME KILN	S2
	EU-3	ROTARY LIME KILN 3	S3
	EU-4	ROTARY KILN 4	S4
	EU-5	ROTARY LIME KILN 5	S5
Eli Lilly-Clinton	006	LIQUID WASTE INCINERATOR	PVC9
	BLR01	Natural Gas /#2 Oil Fired Boiler	pvc21blri
	BLR01	Coal Fired Boiler	pvc31esp
	BLR02	Natural Gas/#2 Oil Fired Boiler	pvc21
	BLR03	NATURAL GAS/#2 OIL FIRED BOILER	pvc21
	BLR04	NATURAL GAS/#2 OIL FIRED BOILER	pvc21
	20	EVAPORATOR	PVC45
	21	TRANSFER BAGHOUSE	PVC47
	Ash Tank	Ash Tank for Coal Fired Boiler	pvc31
	TK05	VIBRATING BIN	PVC44A
	TKF	FERMENTER	PVC41
ESSROC-5 (Logansport)	Kiln #1	Kiln #1	
	Kiln #2	Kiln #2	
ESSROC-8 (Speed)	EU20	Kiln #1	EU20
	EU21	Kiln #2	EU21

Indiana's Non-EGUs

Facility	Emission Unit ID	Emission Unit Description	Stack ID
GE Plastics	08-706	CO AND ORGANIC SULFIDE STREAM FROM PHOSGENE FED	08-706 707
	09-001	B&W NATURAL GAS AND OIL FIRED BOILER	09-001
	09-001	LASKER BOILER	12-001
	12-001	ERIE BOILER	
	09-002	Riley Boiler	09-002
	09-002	Hot Oil Heater	09-002
ISG-Burns Harbor	460-01	#7 Boiler	4
	46002	#8 Boiler	5
	460-03	#9 Boiler	6
	460-04	#10 Boiler	7
	460-05	Boiler #11	8
	460-06	#12 Boiler	9
	512-06	#1 COKE BATTERY PUSHING	11
	512-08	#1 Coke Battery Underfire	13
	512-14	#2 COKE BATTERY PUSHING	12
	512-16	#2 COKE BATTERY UNDERFIRE STACK	14
	520	BLAST FURNACE FUGITIVES	
	520-04	SINTER WINDBOX STACK	25
	520-18	BLAST FURNACE D CASTHOUSE EMISSIONS	33
	520-18	C BLAST FURNACE STOVES	31
	520-19	BLAST FURNACE D STOVES	34
	520-19	BLAST FURNACE C CASTHOUSE	33
	534	STEELMAKING FUGITIVES	
	534-01	STEELMAKING HMD STATION #1	57
	534-02	STEELMAKING HMD #2	59
	534-10	STEELMAKING VESSELS #1 & #2	62
	534-11	STEELMAKING VESSELS	64
	534-23	STEELMAKING FM BOILER	65
	595-24	CASTER #1	80
	670-05	HOT STRIP FURNACE #1	90
	670-07	HOT STRIP #3 FURNACE	92
	670-07	HOT STRIP	91
	673-14	160" OKATE MILL FURNACE #1	112
	673-15	160" PLATE MILL FURNACE #2	113
	673-16.17	160" PLATE MILL FURNACES 4&5	110
	673-18.19	160" PLATE MILL FURNACES 6&7	111
	673-20	160" PLATE MILL FURNACE #8	114
	674.26,27	110" PLATE MILL FURNACES #1	122
ISG-Indiana Harbor		no. 4 Blast Furnace	
		84 INCH HOT STRIL MILL	10
		BASIC OXYGEN FURNACE (BOF)	22
		NO. 2 SHEET MILL	17
		NO. 3 SHEET MILL	
		NO. 8 BOILER	9
		NO. 12 BOILER	9
Ispat Inland	110	80" HOT STRIP MILL: CONDITIONING DOCK	268

Indiana's Non-EGUs

Facility	Emission Unit ID	Emission Unit Description	Stack ID
	113	NO. 3 COLD MILL: NO 6 ANNEAL	
	134	NO. 5 BOILER HOUSE	134
	141	NO. 1 ELECTRIC FURNACE	141
	142	NO. 1 ELECTRIC FURNACE: ROOF MONITOR	142
	144	NO. 1 ELECTRIC FURNACE	144
	147	NO. 2 BOF: #10 FCE OFF GAS FLARE STACK IGNITOR	147
	149	NO.2 BOF SECONDARY VENT	149
	152	NO.2 BOF CHARGE AISLE:RELADLE & DESULFURIZATION	
	153	NO.2 BOF ROOF MONITOR	
	155	NO. 2 BOF CONTINUOUS CASTER TUNDISH PREHEAT	
	157	NO. 2 BOF LADLE PREHEAT & DRYING	
	165	NO. 7 BLAST FURNACE CASTHOUSE SLAG PITS	
	166	NO. 7 BLAST FURNACE: CASTHOUSE BAGHOUSE #2	166
	170	NO. 7 BLAST FURNACE STOVES	170
	171	NO. 7 BLAST FURNACE CASTHOUSE FUGITIVES	
	182	NO. 3 COLD MILL : NO 5 GALVANIZE LINE	182
	193	1 & 2 BOILERS RESEARCH BUILDING	193
	195	NO. 7 BLAST FURNACE BFG FLARE	195
	26	NO.4 BOF HOT METAL PIT: RELADLE & DESULFURIZATION	26
	27	no. 4 bof hot metal pit reladle & desulfurization	27
	29	NO4 BOF ROOF MONITOR	29
	31	NO. 4 BOF TUNDISH PREHEAT & TORCH CUT	
	36	NO. 4 BOF LADLE PREHEAT	36
	37	NO. 4 BOF:SECONDARY VENT SYSTEM	37
	38	NO. 4 BOF STEELMAKING OFFGAS	38
	45	NO. 1 LIME PLANT : NO. KILN	45
	49	NO. 1 LIME PLANT: NO. 2 KILN	49
	86	12" BAR MILL: BAR ANNEALING FURNACE	86
	89	12" BAR MILL: REHEAT FURNACE	89
	150	NO. 2 BOF ADDITIVE HADLING: LADLE ADDITIVE TRUCK D	150
	151	NO. 2 BOF FLUX STORAGE:FLUX STORAGE TRANSFER	151
	158	NO.2 BOF CONTINUOUS CASTER:ROOF MONITOR NON-LEADED	158
	172	STOCKHOUSE COKE HANDLING	172
	176	NO. 3 COLD MILL:PICKLE LINE	176
	28	NO.4 BOF: ADDITIVES TRANSFER HOUSE NO.2 BIN LOADIN	28
	35	TRANSFER HOUSE NO.1	35
	46	NO. 1 LIME PLANT: DUST STORAGE	46
	47	NO. 1 LIME PLANT: STORAGE SILOS	47
	48	NO. 1 LIME PLANT: TRUCK LOADOUT	48
	87	12" BAR MILL GRINDERS	87
Lehigh Cement	EU17	KILN #3	SKP2
	EU01	PRIMARY CRUSHER	SQDC2
	EU02	QUARRY SURGE BIN	SQDC3
	EU03	SECONDARY CRUSHER	SQDC4
	EU05	NORTH SCREEN HOUSE	SQDC5
	EU06	SOUTH SCREEN HOUSE	SQDC6

Indiana's Non-EGUs

Facility	Emission Unit ID	Emission Unit Description	Stack ID
	EU07	BELT #718 CONVEYOR TRANSFER POINT	SQDC7
	EU08	BELT #8/9 CONVEYOR TRANSFER POINT	SQDC8
	EU22	KILN FEED BIN #3	SKDC5
	EU23	CLINKER COOLER #3	SKDC6
	EU25	SOUTH STORAGE DRAG	SFDC1
	EU27	SOUTH CLINKER TOWER	SFDC3
	EU35	FINISH MILL #4	SFDC12
	F01	QUARY DRILLING/BLASTING/STORAGE	
	F02	BELT #9/10 CONVEYOR TRANSFER POINT	
LoneStar	401B	Preheater/Kiln - Stack #2	2
Purdue	Boiler 2	One (1) spreader stoker coal fired boiler	2
	Boiler 2	One (1) spreader stoker coal fired boiler	2
	Boiler 3	1 natural gas and distillate fuel oil fired boiler	
U.S. Steel	#14 FURN	NO. 14 BLAST FURNACE STOVES	ID6184
	3 Pre Carb	No. 3 Coke Battery Precarbonization Facility	CH6028
	CP2B0079	No. 2 Coke Battery Underfiring System	CP6040
	CP30086	NO. 3 COKE BATTERY UNDERFIRING SYSTEM	CP6045
	CP3B0086	NO. 3 COKE BATTERY PUSHING	
	IDBF0369	NO. 14 BLAST FURNACE CASTHOUSE	ID3185
	NO. 4 BLAS	NO. 4 BLAST FURNACE STOVES	IA6160
	NO. 4 FURN	NO. 4 BLAST FURNACE CASTHOUSE	
	O4B30461	BOILER HOUSE NO. 4 BOILER NO. 3	O46270
	OTB60467	TURBOBLOWER BOILER HOUSE NO. 6	OT6276
	Pre Carb	No. 2 Coke Battery Precarbonization Facility	CH6034
	SSDS0201	Number 1 BOP shop No. 1 and No. 2 Desulfurization	SS6100

Indiana's Non-EGUs				NOx (tons/yr)		SOx (tons/yr)		PM10 (tons/yr)	
Facility	**Emission Unit ID**	**Emission Unit Description**	**Stack ID**	**Potential**	**Peak24Hour**	**Potential**	**Peak24Hour**	**Potential**	**Peak24Hour**
AGC-ALCOA and	Boiler #2	Dry Bottom, pulverized coal-fired boiler	241-242	5131.1	5133.1	39310.4	39333.5	16.733	16.758
ALCOA-Warrick	Boiler #3	Dry Bottom pulverized coal-fired boiler	242	5131.1	5133.1	39310.4	39333.5	16.733	16.758
	105m.1, 10	POTLINE #3. ROOMS 105 AND 106 gtc	105M	7.6	N/A	950.4	N/A	1.385	N/A
	107M, 108M	POTLINE #4. ROOMS 107 AND 108 GTC	107M	7.6	N/A	950.4	N/A	1.505	N/A
	109M,110M	POTLINE #5, ROOMS 109 AND 110, A-398	109M	7.6	N/A	950.4	N/A	4.172	N/A
	111M,112M,	POTLINE #6		7.6	N/A	950.2	N/A	4.318	N/A
	130m.1,104	potline #2, Rooms 103 and 104, A-398	103m.1	7.6	N/A	950.2	N/A	4.259	N/A
	134.63	HDC FURNACE COMLEXES	1EH	138.9	N/A	0.9	N/A	3.604	N/A
	134.71	OFFLINES #2	134.71	30.8	N/A	0.1	N/A	0.653	N/A
BP-Whiting	120-05	Process HEATER	001	300.1	300.2	36.1	36.1		
	13002	PROCESS HEATER	002	144.3	144.4	17.3	17.4		
	13004	PROCESS HEATERS	003	177.0	177.9	59.3	59.3		
	16201	INCINERATOR	004	16.3	16.4	5.5	5.5		
	16203	FLARE	005	205.0	205.1	20.9	21.0		
	22401	PROCESS HEATER	008	196.0	196.2	9.8	57.0		
	22402	PROCESS HEATER	009	233.4	233.5	41.3	41.4		
	22403	PROCESS HEATERS	010	291.0	291.2	35.0	35.0		
	22404	PROCESS HEATER	011	164.8	164.9	19.8	41.2		
	22405	PROCESS HEATERS	012	22.3	22.4	7.5	7.5		
	22406	FLARE	006	4468.5	4471.2	274.9	275.1		
	250	PROCESS HEATER	007	15.0	15.0	5.2	5.2		
	51001	INCINERATOR	013	125.0	125.1	7.8	7.8		
	ASP HEAT	ASPHALT HEATER	015	5.2	5.2	1.7	1.9		
	HEATER	MARINE DOCK	017	1.4	1.4	0.0	0.0		
	PARK HEATE	PROCESS HEATER	016	12.0	12.1	4.1	3.9		
Carmeuse	EU-1	ROTARY LIME KILN	S1	N/A	N/A	336.1	350.7	1.21	1.25
	EU-2	ROTARY LIME KILN	S2	N/A	N/A	336.1	350.7	1.21	1.25
	EU-3	ROTARY LIME KILN 3	S3	N/A	N/A	336.1	350.7	1.21	1.25
	EU-4	ROTARY KILN 4	S4	N/A	N/A	336.1	350.7	1.21	1.25
	EU-5	ROTARY LIME KILN 5	S5	N/A	N/A	336.1	350.7	1.21	1.25
Eli Lilly-Clinton	006	LIQUID WASTE INCINERATOR	PVC9	46.0	46.0	200.0	200.2	2.550	2.552
	BLR01	Natural Gas /#2 Oil Fired Boiler	pvc21blri	59.2	59.2	125.4	125.5	0.143	0.143

Indiana's Non-EGUs				NOx (tons/yr)		SOx (tons/yr)		PM10 (tons/yr)	
Facility	**Emission Unit ID**	**Emission Unit Description**	**Stack ID**	**Potential**	**Peak24Hour**	**Potential**	**Peak24Hour**	**Potential**	**Peak24Hour**
	BLR01	Coal Fired Boiler	pvc31esp	N/A	1030.6	4718.0	4720.8	10.404	10.410
	BLR02	Natural Gas/#2 Oil Fired Boiler	pvc21	59.2	59.2	125.4	125.5	0.143	0.143
	BLR03	NATURAL GAS/#2 OIL FIRED BOILER	pvc21	59.2	59.2	125.0	125.5	0.143	0.143
	BLR04	NATURAL GAS/#2 OIL FIRED BOILER	pvc21	104.7	104.8	221.2	221.9	0.253	0.253
	20	EVAPORATOR	PVC45						
	21	TRANSFER BAGHOUSE	PVC47					0.082	0.082
	Ash Tank	Ash Tank for Coal Fired Boiler	pvc31					0.360	0.360
	TK05	VIBRATING BIN	PVC44A					0.114	0.113
	TKF	FERMENTER	PVC41					0.166	0.166
ESSROC-5 (Logansport)		Kiln #1		1958.6		1938.0			
		Kiln #2		2108.5		1225.6			
ESSROC-8 (Speed)	EU20	Kiln #1	EU20	1563.6	N/A	2071.2	N/A	133.7	N/A
	EU21	Kiln #2	EU21	1590.4	N/A	1167.3	N/A	185.4	N/A
GE Plastics	08-706	CO AND ORGANIC SULFIDE STREAM FROM PHOSGENE FED	08-706 707	4.8	4.8	1689.7	1690.7	N/A	0.006
	09-001	B&W NATURAL GAS AND OIL FIRED BOILER	09-001	784.2	784.7	574.5	574.9	1.531	1.532
	09-001	LASKER BOILER	12-001	372.5	372.7	1689.7	1690.7	10.317	10.323
	12-001	ERIE BOILER		776.1	776.5	1689.7	1690.7	21.494	21.506
	09-002	Riley Boiler	09-002	460.0	460.2	1689.7	1690.7	N/A	0.006
	09-002	Hot Oil Heater	09-002	15.8	15.8	0.1	0.1	N/A	N/A
ISG-Burns Harbor	460-01	#7 Boiler	4	N/A	118.4	N/A	911.8		
	46002	#8 Boiler	5	N/A	162.2	N/A	1030.1		
	460-03	#9 Boiler	6	N/A	166.6	N/A	1315.1		
	460-04	#10 Boiler	7	N/A	153.4	N/A	1056.4		
	460-05	Boiler #11	8	N/A	184.1	N/A	1367.7		
	460-06	#12 Boiler	9	N/A	144.7	N/A	1179.2		
	512-06	#1 COKE BATTERY PUSHING	11	N/A	12.8	1700.4	1700.8		
	512-08	#1 Coke Battery Underfire	13	N/A	219.2	N/A	1985.7		
	512-14	#2 COKE BATTERY PUSHING	12	13.2	13.2	1698.4	1700.8		
	512-16	#2 COKE BATTERY UNDERFIRE STACK	14	N/A	236.7	N/A	2090.9		
	520	BLAST FURNACE FUGITIVES		N/A	0.8	N/A	N/A		
	520-04	SINTER WINDBOX STACK	25	N/A	1547.4	N/A	1753.4		
	520-18	BLAST FURNACE D CASTHOUSE EMISSIONS	33	N/A	455.9	N/A	N/A		

Indiana's Non-EGUs				NOx (tons/yr)		SOx (tons/yr)		PM10 (tons/yr)	
Facility	**Emission Unit ID**	**Emission Unit Description**	**Stack ID**	**Potential**	**Peak24Hour**	**Potential**	**Peak24Hour**	**Potential**	**Peak24Hour**
	520-18	C BLAST FURNACE STOVES	31	N/A	604.9	N/A	1139.7		
	520-19	BLAST FURNACE D STOVES	34	N/A	455.9	N/A	1801.6		
	520-19	BLAST FURNACE C CASTHOUSE	33	N/A	37.9	N/A	N/A		
	534	STEELMAKING FUGITIVES		N/A	10.0	N/A	0.0		
	534-01	STEELMAKING HMD STATION #1	57	N/A	2.0	N/A	10.1		
	534-02	STEELMAKING HMD #2	59	N/A	1.2	N/A	10.0		
	534-10	STEELMAKING VESSELS #1 & #2	62	N/A	83.4	N/A	N/A		
	534-11	STEELMAKING VESSELS	64	N/A	46.4	N/A	N/A		
	534-23	STEELMAKING FM BOILER	65	N/A	21.4	N/A	0.1		
	595-24	CASTER #1	80	N/A	46.5	N/A	N/A		
	670-05	HOT STRIP FURNACE #1	90	N/A	482.2	N/A	186.3		
	670-07	HOT STRIP #3 FURNACE	92	N/A	462.5	N/A	188.1		
	670-07	HOT STRIP	91	N/A	482.2	N/A	172.1		
	673-14	160" OKATE MILL FURNACE #1	112	N/A	97.1	N/A	105.8		
	673-15	160" PLATE MILL FURNACE #2	113	N/A	100.2	N/A	97.0		
	673-16.17	160" PLATE MILL FURNACES 4&5	110	N/A	45.2	N/A	928.0		
	673-18.19	160" PLATE MILL FURNACES 6&7	111	N/A	21.3	N/A	0.0		
	673-20	160" PLATE MILL FURNACE #8	114	N/A	28.7	N/A	32.6		
	674.26,27	110" PLATE MILL FURNACES #1	122	N/A	245.3	N/A	278.2		
ISG-Indiana Harbor		no. 4 Blast Furnace		26.1	28.6	N/A	30.5		
		84 INCH HOT STRIL MILL	10	N/A	458.7	N/A	0.9		
		BASIC OXYGEN FURNACE (BOF)	22	N/A	36.3	N/A	N/A		
		NO. 2 SHEET MILL	17	N/A	5.0	N/A	0.0		
		NO. 3 SHEET MILL		N/A	3.0	N/A	0.0		
		NO. 8 BOILER	9	N/A	259.4	N/A	429.3		
		NO. 12 BOILER	9	N/A	259.4	N/A	429.3		
Ispat Inland	110	80" HOT STRIP MILL: CONDITIONING DOCK	268	N/A	N/A	N/A	0.1		
	113	NO. 3 COLD MILL: NO 6 ANNEAL		N/A	64.5	N/A	0.3	N/A	0.025
	134	NO. 5 BOILER HOUSE	134	N/A	337.2	N/A	511.6	N/A	0.402
	141	NO. 1 ELECTRIC FURNACE	141	N/A	83.9	N/A	306.1	N/A	1.508
	142	NO. 1 ELECTRIC FURNACE: ROOF MONITOR	142	N/A	0.1	N/A	0.4	N/A	0.101
	144	NO. 1 ELECTRIC FURNACE	144	N/A	2.0	N/A	0.0	N/A	0.030

Indiana's Non-EGUs				NOx (tons/yr)		SOx (tons/yr)		PM10 (tons/yr)	
Facility	**Emission Unit ID**	**Emission Unit Description**	**Stack ID**	**Potential**	**Peak24Hour**	**Potential**	**Peak24Hour**	**Potential**	**Peak24Hour**
	147	NO. 2 BOF: #10 FCE OFF GAS FLARE STACK IGNITOR	147	N/A	181.4	N/A	90.2	N/A	1.941
	149	NO.2 BOF SECONDARY VENT	149	N/A	25.8	N/A	18.0	N/A	0.884
	152	NO.2 BOF CHARGE AISLE:RELADLE & DESULFURIZATION		N/A	2.6	N/A	10.3	N/A	0.292
	153	NO.2 BOF ROOF MONITOR		N/A	0.8	N/A	0.5	N/A	1.767
	155	NO. 2 BOF CONTINUOUS CASTER TUNDISH PREHEAT		N/A	2.6	N/A	0.0	N/A	0.001
	157	NO. 2 BOF LADLE PREHEAT & DRYING		N/A	20.0	N/A	0.1	N/A	0.010
	165	NO. 7 BLAST FURNACE CASTHOUSE SLAG PITS		N/A	15.3	N/A	355.5	N/A	5.657
	166	NO. 7 BLAST FURNACE: CASTHOUSE BAGHOUSE #2	166	N/A	23.6	N/A	169.0	N/A	0.496
	170	NO. 7 BLAST FURNACE STOVES	170	N/A	708.4	N/A	247.6	N/A	0.231
	171	NO. 7 BLAST FURNACE CASTHOUSE FUGITIVES		N/A	2.3	N/A	19.1	N/A	0.849
	182	NO. 3 COLD MILL : NO 5 GALVANIZE LINE	182	N/A	71.1	N/A	0.1	N/A	0.012
	193	1 & 2 BOILERS RESEARCH BUILDING	193	N/A	0.1	N/A	N/A		
	195	NO. 7 BLAST FURNACE BFG FLARE	195	N/A	407.8	N/A	166.1	N/A	0.119
	26	NO.4 BOF HOT METAL PIT: RELADLE & DESULFURIZATION	26	N/A	1.7	N/A	6.8	N/A	0.097
	27	no. 4 bof hot metal pit reladle & desulfurization	27	N/A	1.7	N/A	6.8	N/A	0.097
	29	NO4 BOF ROOF MONITOR	29	N/A	1.1	N/A	0.1	N/A	2.136
	31	NO. 4 BOF TUNDISH PREHEAT & TORCH CUT		N/A	1.5	N/A	0.0	N/A	0.070
	36	NO. 4 BOF LADLE PREHEAT	36	N/A	22.0	N/A	0.1	N/A	0.012
	37	NO. 4 BOF:SECONDARY VENT SYSTEM	37	N/A	32.1	N/A	1.6	N/A	1.727
	38	NO. 4 BOF STEELMAKING OFFGAS	38	N/A	49.6	N/A	46.1	N/A	7.864
	45	NO. 1 LIME PLANT : NO. KILN	45	N/A	267.0	N/A	20.2	N/A	0.292
	49	NO. 1 LIME PLANT: NO. 2 KILN	49	N/A	267.0	N/A	20.2	N/A	0.292
	86	12" BAR MILL: BAR ANNEALING FURNACE	86	N/A	1.9	N/A	0.0	N/A	0.093
	89	12" BAR MILL: REHEAT FURNACE	89	N/A	379.7	N/A	0.4	N/A	0.038
	150	NO. 2 BOF ADDITIVE HADLING: LADLE ADDITIVE TRUCK D	150					N/A	0.028
	151	NO. 2 BOF FLUX STORAGE:FLUX STORAGE TRANSFER	151					N/A	0.019
	158	NO.2 BOF CONTINUOUS CASTER:ROOF MONITOR NON-LEADED	158					N/A	0.122
	172	STOCKHOUSE COKE HANDLING	172					N/A	0.017
	176	NO. 3 COLD MILL:PICKLE LINE	176					N/A	0.073
	28	NO.4 BOF: ADDITIVES TRANSFER HOUSE NO.2 BIN LOADIN	28					N/A	0.004
	35	TRANSFER HOUSE NO.1	35					N/A	0.028
	46	NO. 1 LIME PLANT: DUST STORAGE	46					N/A	0.036

Indiana's Non-EGUs				NOx (tons/yr)		SOx (tons/yr)		PM10 (tons/yr)	
Facility	**Emission Unit ID**	**Emission Unit Description**	**Stack ID**	**Potential**	**Peak24Hour**	**Potential**	**Peak24Hour**	**Potential**	**Peak24Hour**
	47	NO. 1 LIME PLANT: STORAGE SILOS	47					N/A	0.036
	48	NO. 1 LIME PLANT: TRUCK LOADOUT	48					N/A	0.011
	87	12" BAR MILL GRINDERS	87					N/A	0.093
Lehigh Cement	EU17	KILN #3	SKP2	1469.4	1563.2	1039.9	1040.5	12.1	12.1
	EU01	PRIMARY CRUSHER	SQDC2					0.024	0.086
	EU02	QUARRY SURGE BIN	SQDC3					0.018	0.063
	EU03	SECONDARY CRUSHER	SQDC4					0.026	0.091
	EU05	NORTH SCREEN HOUSE	SQDC5					0.006	0.023
	EU06	SOUTH SCREEN HOUSE	SQDC6					0.028	0.100
	EU07	BELT #718 CONVEYOR TRANSFER POINT	SQDC7					0.016	0.055
	EU08	BELT #8/9 CONVEYOR TRANSFER POINT	SQDC8					0.016	0.055
	EU22	KILN FEED BIN #3	SKDC5					0.003	0.003
	EU23	CLINKER COOLER #3	SKDC6					0.009	0.009
	EU25	SOUTH STORAGE DRAG	SFDC1					0.059	0.059
	EU27	SOUTH CLINKER TOWER	SFDC3					0.212	0.212
	EU35	FINISH MILL #4	SFDC12					0.412	0.412
	F01	QUARY DRILLING/BLASTING/STORAGE						7.796	10.949
	F02	BELT #9/10 CONVEYOR TRANSFER POINT						0.004	0.006
LoneStar	401B	Preheater/Kiln - Stack #2	2	2700.6	3033.4	1170.2	1095.9	5.1	5.7
Purdue	Boiler 2	One (1) spreader stoker coal fired boiler	2	720.2	720.7	6518.0	6521.9	0.7	0.7
	Boiler 2	One (1) spreader stoker coal fired boiler	2	720.2	720.7	6518.0	6521.9		
	Boiler 3	1 natural gas and distillate fuel oil fired boiler		375.9	376.1	17.3	17.4	0.3	0.3
U.S. Steel	#14 FURN	NO. 14 BLAST FURNACE STOVES	ID6184	63.9	6.4	75.5	7.5	1.1	0.1
	3 Pre Carb	No. 3 Coke Battery Precarbonization Facility	CH6028	64.6	6.4	9.5	0.9	4.2	0.4
	CP2B0079	No. 2 Coke Battery Underfiring System	CP6040	988.7	98.9	266.2	26.6	12.3	1.2
	CP30086	NO. 3 COKE BATTERY UNDERFIRING SYSTEM	CP6045	988.7	98.9	266.2	26.6	12.3	1.2
	CP3B0086	NO. 3 COKE BATTERY PUSHING		18.1	1.8	34.2	3.4	1.5	0.2
	IDBF0369	NO. 14 BLAST FURNACE CASTHOUSE	ID3185	10.5	1.1	210.3	21.0	0.2	0.0
	NO. 4 BLAS	NO. 4 BLAST FURNACE STOVES	IA6160	38.7	3.9	45.8	4.6	0.7	0.1
	NO. 4 FURN	NO. 4 BLAST FURNACE CASTHOUSE		26.3	2.6	13.6	21.0	1.5	0.2
	O4B30461	BOILER HOUSE NO. 4 BOILER NO. 3	O46270	72.6	7.2	114.5	11.4	3.3	14.5
	OTB60467	TURBOBLOWER BOILER HOUSE NO. 6	OT6276	103.1	10.3	162.5	16.2	2.4	0.2

Indiana's Non-EGUs				NOx (tons/yr)		SOx (tons/yr)		PM10 (tons/yr)	
Facility	**Emission Unit ID**	**Emission Unit Description**	**Stack ID**	**Potential**	**Peak24Hour**	**Potential**	**Peak24Hour**	**Potential**	**Peak24Hour**
	Pre Carb	No. 2 Coke Battery Precarbonization Facility	CH6034	64.3	6.4	9.5	0.9	7.1	0.7
	SSDS0201	Number 1 BOP shop No. 1 and No. 2 Desulfurization	SS6100	159.8	16.0	99.9	10.0	1.5	0.2

Indiana's EGU				NOx (tons/yr)		SOx (tons/yr)		PM10 (tons/yr)	
Facility	**Emission Unit ID**	**Emission Unit Description**	**Stack ID**	**Potential**	**Peak24Hour**	**Potential**	**Peak24Hour**	**Potential**	**Allowable**
AEP - Tanners Creek	Unit 4	Tanners Creek Unit 4	TC4	26416.1	26431.8	114550.8	114619.1	1420.5	1421.3
AES/IPALCO Petersburg	002	UNIT 2	2-1S	1725.4	12329.0	11305.4	226228.7	290.1	28987.4
ALCOA - Warrick Power Plt	Boiler #4	Dry Bottom, pulverized coal-fired boiler	243	10691.3	10695.8	66219.1	66257.2	9635.0	9639.4
Citizen's Thermal	EU17	Oil-fired Boiler #17	CS001	171.2	N/A	299.7	N/A	N/A	15.0
	EU18	Oil Fired Boiler #18	CS001	171.2	N/A	299.6	N/A	N/A	15.0
Crawfordsville E.L.&P.	4911	Unit 6	1	402.1	403.3	2376.5	2378.1	75.0	74.5
Hoosier Energy - Merom	Unit #2	One pulverized coal-fired dry bottom boiler	SV2	11145.1	11151.7	26748.2	26764.1	2229.0	2230.3
	Unit#1	One pulverized coal-fired dry bottom boiler	SV1	11145.1	11151.7	26748.2	26764.1	2229.0	2230.3
Hoosier Energy - Ratts	Boiler #1	PULVERIZED COAL FIRED DRY BOTTOM BOILER	1	2295.5	2296.8	30491.3	30509.4	1778.7	1779.7
	BOILER #2	PULVERIZED COAL FIRED DRY BOTTOM BOILER	2	2295.5	2296.8	30491.3	30509.4	1778.7	1779.7
IPALCO - Harding St.	Unit 70	COMBUSTION ENGINEERING BOILER #70	0013	4100.0	74213.8	21755.8	417621.0	830.9	1807.3
	UNIT GT1	DISTILLATE OIL FIRED STATIONARY GAS TURBINE GTI	0014	263.1	15.3	0.0	397.1	0.3	17.1
Logansport Municipal L&P	4911	Unit 6	2	628.1	N/A	3712.8	3715.1	2.0	N/A
NIPSCO - Schahfer		No survey received							
NIPSCO - Mitchell		No survey received							
NIPSCO - Michigan City		No survey received							
NIPSCO - Bailley		No survey received							
PSI - Cayuga	Boiler 1	Dry Bottom Pulverized coal-fired boiler	stack 1	6742.4	6746.4	92563.7	92619.8	1079.2	1079.9
	boiler 2	Dry Bottom pulverized coal fired boiler	stack 2	6742.4	6746.4	92563.7	92619.8	1079.2	1079.9
PSI - Gibson	boiler #2	Dry Bottom Pulverized Coal-Fired Boiler	Stack A	13109.8	13117.6	82104.4	82153.3	710.2	710.6
	Boiler No.	Dry Bottom Pulverized Coal-Fired Boiler	Stack A	13109.8	13117.6	82104.4	82153.3	710.2	710.6
PSI - Wabash River	UNIT 6	TANGENTIAL FIRED COAL ELECTRIC UTILITY BOILER	STACK A	9844.1	19699.6	51326.9	51344.4	391.1	391.3
Richmond P&L	A.2(b)	Unit #2	CS12	1439.3	3892.6	12632.7	23026.7	474.1	391.3
SIGECO - A.B.Brown		No survey received							
SIGECO - F.B.Culley		No survey received							

Average Stack Parameters for BART eligible non-EGU and EGU sources

Non-EGUs			Base Elevation	Stack Height	Stack Diameter	Stack Gas Temperature	Velocity
Facility	**X**	**Y**	**m**	**m**	**m**	**K**	**m/sec**
AGC-ALCOA #2-#3	844.09	-185.30	121.40	132.07	5	425	19.00
BP-Whiting	787.83	225.64	177.00	50.18	2.03	849.86	6.69
Carmeuse	817.00	225.95	177.00	26	2	471.8	3.4
Eli Lilly-Clinton	817.40	13.77	185.41	26.82	1.30	425.00	19.00
ESSROC-5	886.17	132.63	204.22	63.4	4.766	405.22	7.11
ESSROC-8 (revised)	974.63	-114.71	137.50	50.76	2.71	467.88	19.24
GE Plastics (revised)	793.80	-187.17	116.37	45.23	1.76	574.17	23.52
ISG-Burns Harbor	816.60	225.21	177.00	46.75	4.21	597.55	11.90
ISG-Indiana Harbor	790.14	225.8	177.00	53.96	6.15	626	10.36
Ispat Inland (Mittal East)	791.56	225.83	177.00	36.87	3.25	560.54	15.29
Lehigh Cement	909.58	-86.8	210.24	30.48	1.68	430.78	20.36
LoneStar	862.23	5.67	230.01	68.58	3.51	458	30.48
Purdue	850.05	93.32	195.72	76.17	2.59	430.78	22.40
U.S. Steel (revised)	803.96	220.28	177.00	48.9	3.1	402.3	10.1

EGUs			Base Elevation	Stack Height	Stack Diameter	Stack Gas Temp	Velocity
Facility	**X**	**Y**	**m**	**m**	**m**	**K**	**m/sec**
AEP - Tanners Creek	1041.62	-31.84	150.62	121.92	7.16	408.3	16.34
ALCOA	843.99	-185.31	120.40	152.4	4.42	434	21.3
PSI - Gibson	801.18	-138.90	124.36	152.40	9.75	415.22	14.42
IPALCO - Harding St.	919.31	22.72	208.00	172.00	6.00	415.00	23.00
Hoosier Energy - Ratts	842.19	-118.45	132.58	91.44	3.35	411.88	24.38
AES/IPALCO Petersburg	843.78	-117.26	132.30	189.30	6.28	324.10	23.87
Hoosier Energy - Merom	815.14	-59.89	150.57	214.57	5.79	327.44	31.39
PSI - Cayuga	812.42	34.58	150.27	152.4	5.94	416.33	27.53
PSI - Wabash River	812.59	34.60	145.08	137.16	7.62	410.78	28.42
Richmond P&L	1028.04	46.82	306.31	99.06	3.58	421.89	18.30
Logansport Municipal L&P	891	136.03	183	45.72	2.13	447	13.40
Crawfordsville E.L.&P.	855.01	52.96	223	60.4	2.4	472.00	7.70
Citizen's Thermal	921.81	29.47	213.4	82.91	4.42	566.00	4.62
NIPSCO - Schahfer							
NIPSCO - Mitchell							
NIPSCO - Michigan City							
NIPSCO - Bailley							
SIGECO - A.B.Brown							
SIGECO - F.B.Culley							

Non-EGUs	Number of Days above 0.5 DV			Maximum DV			Number of Days above 0.5 DV			Maximum DV		
	NOx/SO_2 modeling			NOx/ SO_2 modeling			PM modeling			PM modeling		
Facility	**2002**	**2003**	**2004**	**2002**	**2003**	**2004**	**2002**	**2003**	**2004**	**2002**	**2003**	**2004**
AGC-ALCOA	**244**	**319**	**286**	**6.698**	**7.932**	**7.808**		0			0.406	
BP-Whiting	0	2	4	0.465	**0.95**	**1.062**		Not Modeled				
Carmeuse	0	0	0	0.161	0.253	0.297		0			0.013	
Eli Lilly-Clinton	0	1	3	0.48	**0.982**	**0.817**		0			0.022	
ESSROC-5 (Logansport)	1	1	1	**0.589**	**0.504**	**0.577**		Not Modeled				
ESSROC-8 (Speed)	**10**	**8**	7	**0.793**	**1.091**	**1.254**		Not Modeled				
GE Plastics	**9**	**12**	7	**1.617**	**1.077**	**1.058**		0			0.158	
ISG-Burns Harbor	**37**	**41**	**44**	**1.521**	**1.978**	**2.36**		Not Modeled				
ISG-Indiana Harbor	0	0	0	0.115	0.198	0.207		Not Modeled				
Ispat Inland	0	2	1	0.41	**0.518**	**0.661**		0			0.059	
Lehigh Cement	1	0	0	**0.656**	0.319	0.465		0			0.115	
LoneStar	0	1	0	0.224	**0.725**	0.343		0			0.009	
Purdue	1	1	2	**0.565**	**0.958**	**0.674**		0			0.001	
U.S. Steel	0	0	1	0.278	0.437	**0.552**		0			0.083	
EGUs	**Number of Days above 0.5 DV**			**Maximum DV**			**Number of Days above 0.5 DV**			**Maximum DV**		
	NOx/ SO_2 modeling			**NOx/ SO_2 modeling**			**PM modeling**			**PM modeling**		
Facility	**2002**	**2003**	**2004**	**2002**	**2003**	**2004**	**2002**	**2003**	**2004**	**2002**	**2003**	**2004**
AEP - Tanners Creek		**64**			**2.937**			0			0.072	
ALCOA		**288**			**7.173**			**9**			**0.952**	
PSI - Gibson		**321**			**8.5**			0			0.039	
IPALCO - Harding St.		**39**			**3.685**			0			0.067	
Hoosier Energy - Ratts		**96**			**3.48**			0			0.219	
AES/IPALCO Petersburg		**16**			**7.67**			0			0.015	
Hoosier Energy - Merom		**102**			**4.225**			0			0.161	
PSI - Cayuga		**317**			**7.596**			0			0.097	
PSI - Wabash River		**199**			**5.2**			0			0.017	
Richmond P&L		**58**			**2.969**			0			0.019	
Logansport Municipal L&P	0	0	0	0.293	0.292	0.284		0			0.001	
Crawfordsville E.L.&P.	0	0	0	0.187	0.327	0.233		0			0.003	
Citizen's Thermal	0	0	0	0.11	0.148	0.052						
NIPSCO - Schahfer		Not Modeled						Not Modeled				
NIPSCO - Mitchell		Not Modeled						Not Modeled				
NIPSCO - Michigan City		Not Modeled						Not Modeled				
NIPSCO - Bailley		Not Modeled						Not Modeled				
SIGECO - A.B.Brown		Not Modeled						Not Modeled				
SIGECO - F.B.Culley		Not Modeled						Not Modeled				

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