

## **Appendix E**

### **Central Class I Areas Consultation Plan**

# **UNITED STATES**

## **Central Class I Areas Consultation Plan**

### **Scope**

This consultation plan establishes the objectives, activities, and timelines to facilitate stakeholder input for meeting visibility requirements in the federal Regional Haze Rule for the following federal Class I areas:

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

### **Background**

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, tribes, and the Federal Land Managers (FLM) for managing Class I areas. Since regional haze often results from pollution emitted across broad regions, this multi-state planning effort will help in developing the most cost-effective controls for regional haze. This consultation process will provide a coordinated effort to achieve the federal visibility requirements and aid in developing regional strategies for meeting progress goals.

### **Plan Objectives**

This consultation plan provides state air quality agencies with technical information including emission sources, modeling analysis, and source apportionment for Missouri and Arkansas' Class I areas. These state agencies are being given the opportunity to review this analysis and to participate in consultation to develop plans for meeting regional haze reduction requirements for these Class I areas. Regional Planning Organizations (RPOs), FLMs, and the EPA will also be contacted with the opportunity to participate in the development of actions and control strategies for meeting the federal Regional Haze Rule requirements. This plan includes:

1. Consultation Process
2. Technical Analyses
3. Agency Roles/Responsibilities

#### **1. Consultation Process**

Consultation discussion will focus on the primary reasonable progress issues including:

- Source area identifications
- State contribution apportionment
- Emission management strategies

The consultation process will be initiated in early 2007. Draft and final documents will be circulated via email to participating consulting agencies. After the initial kick-off, most consultation discussions will occur through conference calls. However, there will be some instances where a meeting may be desirable (e.g. unresolved issues, complex technical discussions, etc.).

The Missouri Department of Natural Resources' Air Pollution Control Program will work with the Arkansas Department of Environmental Quality and the Central States Regional Air Partnership (CENRAP) to set up conference calls/meetings for the consultation process. Technical documents will be provided for discussion before conference calls or meetings.

Draft and final documents will include supporting materials that describe analytical methods, assumptions, and conclusions that were relied upon in developing the documents. Comments on any draft documents will be requested from the consultation group members.

All consultation activities will be documented, including who participated in consultation discussions and on what dates, outcomes of consultation discussions (issues agreed, disagreed, resolutions) and justification for long term strategy. Each contributing state will be requested to share documentation confirming implementation of emission controls being relied on to meet regional haze Uniform Reasonable Progress (URP) goals.

Documents and consultation logs will be posted on the Missouri Department of Natural Resources' Air Pollution Control Program website for public viewing. All conference call/meeting minutes will also be posted on the agency website. When new documents are posted on the website, the Missouri Department of Natural Resources' Air Pollution Control Program will email all consultation participants to inform them that new information has been posted.

MDNR/ADEQ will work with the FLMs and EPA for consultation through conference calls/meeting. This will include an opportunity for consultation with FLMs in person and at least 60 days prior to holding any public hearing on a state implementation plan as required by federal rule.

### ***Action Items***

Participate in kick-off  
Comment on the draft consultation plan

Confirm emissions inventory and planned control activities  
Develop/share individual state timelines for control implementation  
Develop/share control progress  
Other actions as needed

### ***Reconciliation of Unresolved Issues***

If a contributing state/tribe cannot agree with the lead agency establishing the reasonable progress goal, then certain actions will be taken to resolve the disagreement. These actions are as follows:

- Discuss position and supporting documentation
- If still unresolved, elevate to necessary decision makers
- If still unresolved, document disagreement by describing issue(s) in a letter to the EPA, including regional offices and the Office of Air Quality Planning and Standards

All issues must be addressed and incorporated into the long-term strategy. These outreach efforts will also be documented in the state implementation plan.

### ***Contact Information***

Contact information is provided in Attachment A.

### ***Continued Consultation***

Consultation between the States and the FLMs will continue as the federal Regional Haze program progresses. The consultation will continue in a similar manner via participation in an RPO. This effort will include development and review of SIP revisions and 5-year progress reports. It will also provide for consideration of any other programs that are implemented and have the potential to contribute to impairment of visibility in Class I areas.

### ***Consultation Timeline***

Below, in Table 1, is the consultation process timeline that will be used to achieve milestones for consultation on the federal Regional Haze program.

## **2. Technical Analyses**

In assisting the states/tribes in developing regional haze control strategies for Class I areas within CENRAP states and tribes, CENRAP has contracted Environ/Alpine to conduct the modeling and other technical analyses. Alpine assembled available information that was useful in quantifying the reduction in individual fine particulate aerosol species concentrations needed to

satisfy the URP goals. Pertinent “attribution of haze” documents were evaluated. These documents include CENRAP Comprehensive Air Quality Model with extensions (CAMx)/Community Multiscale Air Quality (CMAQ) modeling system visibility modeling results, fine particulate modeling results for the central US, and other technical reports, papers, and analyses bearing directly on the quantification of emissions-source/visibility-receptor impacts at the ten CENRAP Class I and twelve adjoining areas.

Current Regional Haze modeling continues to indicate visibility shortfalls to reaching the necessary URP goals for deciview increments for some of the Central Class I areas in CENRAP. A deciview is a haze index used to quantify incremental changes in visibility perception, where higher deciview values indicate greater levels of visibility impairment. In some of the areas,

**Table 1: Consultation Process Timeline**

2006 Fall	2006 Winter	2007 Early Spring	2007 Spring	2007 Late Spring	2007 Summer
Develop Baseline and URP Goals	Develop a Consultation Plan	Initiate Collaboration with States	Develop Long Term Strategy (LTS)	Negotiate Changes to LTS	Document Consultation
Back trajectory & Factor analysis	Identify issues for discussion	Consultation log	Follow consultation plan	Emission reduction requirements/ strategies	Who met and when (FLM, RPO, EPA) and discussion
Identify probable area of influence	Review baseline, URP goals, and emissions reduction targets	Discuss URP Goals & contributions assessment	Discuss emissions reduction strategies	Emission budget discrepancies	Consultation outcome Issues agreed, disagreed, resolutions
Apportion state contributions	Develop Action items	Follow consultation plan	Consult with FLM & EPA	Tribal Impacts	Justification of LTS
Develop initial emission cuts to meet 2018 URP Goals	Issues for FLM & EPA input	Consult with FLM & EPA (thru RPO?)	Note areas of irreconcilable disagreement	Additional control strategies	
	Timetable for resolution	Evaluate and identify sources upwind (BART, non-BART, CAMR, other)			

URP goals are expected to be met based on modeling results, but consultation may be necessary to ensure that the emission reductions used in the modeling are actually planned to occur.

***Individual Class I Area Characteristics***

The Central Class I areas each have individual characteristics. Individual examination of each area elicits a greater understanding of how the Regional Haze problem affects each, and what aspects are of greatest significance.

### *Hercules Glades*

Situated in extreme southwest Missouri, Taney County, Hercules Glades is managed by the United States Department of Agriculture (USDA) Forest Service. The area is 12,315 acres and in some of the most rugged hills of the Missouri Ozarks. The closest urban area is the Springfield/Branson metropolitan statistical area, 40 miles to the west/northwest.

### *Mingo National Wildlife Refuge*

The Mingo National Wildlife Refuge is managed by the federal Fish and Wildlife Service. The Refuge is situated in the Mississippi Flyway. Only part of it is a Class I area (7,730 acres). Memphis to the south and St. Louis to the north are some of the largest urban areas nearby, although there are a few smaller population centers mostly to the east. Proximity to sources in the Ohio River Valley is a consideration.

### *Upper Buffalo National Area*

The Upper Buffalo Class I area (2,200 acres) is managed by the National Park Service in conjunction with overseeing the Buffalo National River. This area in north central Arkansas is south of Springfield, Missouri and east of Fayetteville and Fort Smith. It is an area of low mountains and largely forested, with bisecting streams.

### *Caney Creek Class I Area*

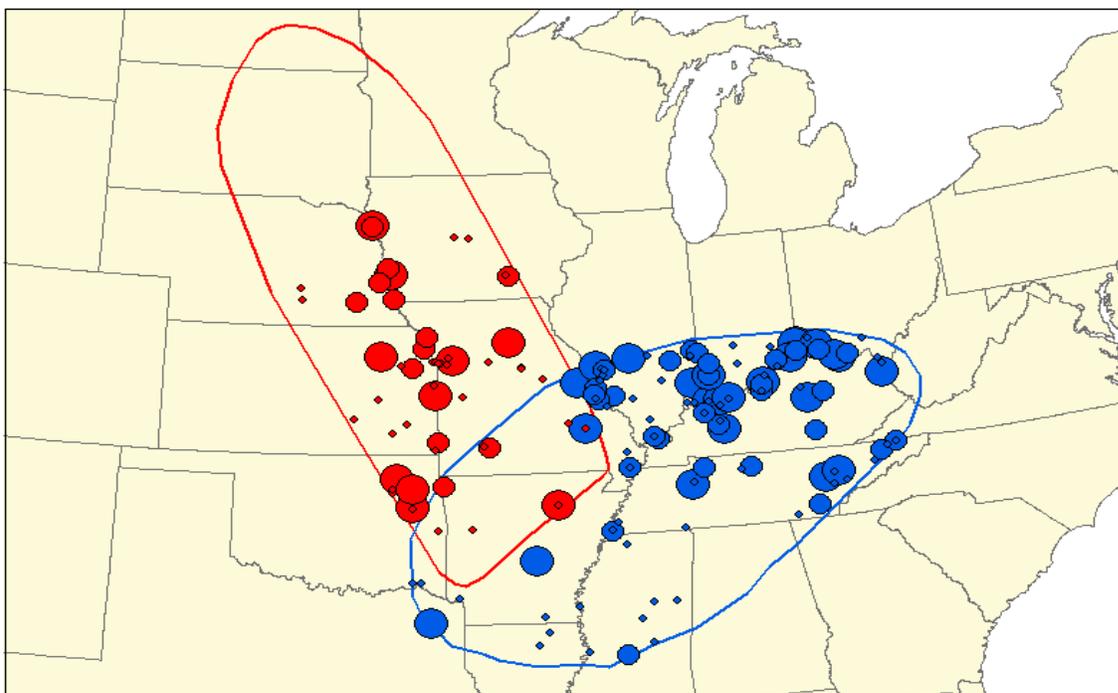
Caney Creek is a 14,460 acre area in the Oachita Mountains of west-southwest Arkansas, the tallest mountain range between the Appalachians and the Rockies. It is south of Fort Smith and west of Little Rock. The area is managed by the USDA Forest Service.

## ***Identification of Source Areas (Areas of Influence)***

Source areas must be determined in order to focus the consultation process. That is, locations of significant sources that are likely to affect each Class I area must be identified, and sources within those areas considered for control. Alpine, under its contract to CENRAP, identified Areas of Influence (AOIs), using a variety of data and analyses. In combining the AOI information with emission inventories for the areas, we are able to identify a number of large sources which are of interest.

Figure 1 indicates two Level I AOI's for the Central Class I Areas, one for nitrate (NO<sub>3</sub>), and a second grouped collectively for sulfate (SO<sub>4</sub>), elemental carbon (EC), organic carbon (OC), coarse mass, and fine soil, along with indicators for sources contained in those areas.

Figure 1 – Alpine AOI's for Central Class I Areas



 **SO4 AOI Level 1**  
 **NO3 AOI Level 1**

**NO<sub>x</sub> Emissions (TPD)**

-  ≤ 10
-  10 - 30
-  > 30

**SO<sub>2</sub> Emissions (TPD)**

-  ≤ 25
-  25 - 100
-  > 100

Attachment B identifies total emissions reductions necessary for level 1 AOI's based on control of sulfate and nitrate species across all four Class I areas. Attachment B also includes inventory tables developed listing possible sources where emissions can be reduced in each state to meet the goals. These emissions provide an overall frame of reference for any reductions in those species.

### **Contributing States**

Source apportionments have recently been conducted on modeling (using Particulate Matter Source Apportionment Technology; PSAT, a source apportionment tool implemented in CAMx) and monitoring data (using positive matrix factorization; PMF/Trajectories) for all four Class I Areas. Attachment C provides both model and monitoring data source apportionment results. Attachment D provides a list of results for Q/D (emissions/distance) used as a third analysis measure. All these, along with Alpine sulfate AOI's described above have been analyzed in tables in attachment E to determine a list of contributing states for each Class I area.

### ***Methodology***

Table 2 and 3 (for illustration) below indicate the overall (average) significant contributing states to decreased visibility due to sulfate and nitrate precursor emissions at the Mingo Site. A decision on whether a given state was a contributor was based on the combined analysis results of the four approaches, i.e., PMF/Trajectories, AOI, PSAT, and Q/D. If a state is found to be a major contributor in at least 3 of the 4 approaches, it is believed that inclusion of this state is appropriate. All states in red/bold in the Average row are determined to have sources that are significant contributors to decreased visibility.

Specific to each analysis type, inclusion of a state under the PMF/Trajectories approach depended on the level of probability that an air mass originated from the state during the days of high contribution by sulfate or nitrate sources where the emission impact potential was significant. A state with a high potential of emission impact would be considered a significant contributor.

States were included in the AOI listing if they were part of the level 1 group as determined by Alpine Geophysics. This AOI was based primarily on residence time of air masses, along with evaluation of source emissions of, in this case, nitrate and sulfate.

PSAT analysis was determined based on the 2018 Modeled sulfate and nitrate contribution to average extinction for the 20% worst days. Any state with the contribution of 2.0 deciview or higher was identified as a candidate.

Lastly, Q/D was determined by dividing total SO<sub>2</sub> and NO<sub>2</sub> precursor emissions for the state by distance from a state geographic centroid. If totals were less than 200, the state was not indicated as a significant contributor under Q/D.