



Implementation Workgroup

Proposed Language for Regional Haze Implementation Plans: Commitments to Long-term Strategies for monitoring, emissions inventories, and ongoing Regional Planning Organization technical analysis support

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Background

The Regional Haze Rule¹ (RHR) requires each state to prepare a long-term monitoring strategy and commit to the periodic collection, reporting, and analysis of monitoring and emissions inventory data. These requirements are found at §51.308(d)(4). Four states in the WRAP region are submitting plans under §51.309 and are not subject to this requirement in the first 2008-18 planning period of the RHR. By virtue of the fact that §308 and §309 plans are being submitted at the same time, all these plans are based on common regional technical analyses and databases, and the WRAP has built web-based data support systems to provide support for the implementation of the RHR - it is logical and prudent to have the same or similar language addressing §308(d)(4) in each regional haze implementation plan in the WRAP region. The proposed language below for the haze plans also more than sufficiently addresses any §309 and §309(g) requirements for a long-term monitoring strategy and commitment to the periodic collection, reporting, and analysis of monitoring and emissions inventory data.

There are regional planning participation requirements found in §51.308(c)(1)(i, ii, iii), which include sharing technical data and analytical results for haze planning. Proposed language addressing those requirements will be prepared separately by IWG for use in haze plans.

Using this document

The citation from the RHR is reproduced below, with the draft suggested language shown in *italics* following each subsection of §308(d)(4). Once reviewed and agreed upon by IWG, the italicized sections can then be inserted into each RHR implementation plan. This document would then become the reference for the language in each plan. Beyond the discussion and comments at the time the RHR was adopted (Appendix A), context for the language adopted for each subsection can be added as necessary.

RHR Requirements and Proposed Language for RHR Implementation Plans

§51.308(d)(2)(ii) Calculations of baseline and natural visibility conditions.

For an implementation plan that is submitted by 2003, the period for establishing baseline visibility conditions for the period of the first long-term strategy is the most recent 5-year period for which visibility monitoring data are available for the mandatory Class I Federal areas addressed by the plan. For mandatory Class I Federal areas without onsite monitoring data, the State must establish baseline values using the most representative available monitoring data, in consultation with the Administrator or his or her designee;

No longer applicable in WRAP region.

§51.308(d)(4) Monitoring strategy and other implementation plan requirements

¹ http://www.epa.gov/ttn/oarpg/t1/fr_notices/rhfedreg.pdf

The State must submit with the implementation plan a monitoring strategy for measuring, characterizing, and reporting of regional haze visibility impairment that is representative of all mandatory Class I Federal areas within the State. This monitoring strategy must be coordinated with the monitoring strategy required in §51.305 for reasonably attributable visibility impairment. Compliance with this requirement may be met through participation in the Interagency Monitoring of Protected Visual Environments network. The implementation plan must also provide for the following:

The state of _____ will depend on the Inter-Agency Monitoring of PROtected Visual Environments (IMPROVE) monitoring program² to collect and report aerosol monitoring data for long-term reasonable progress tracking as specified in the Regional Haze Rule (RHR). Because the RHR is a long-term tracking program with an implementation period nominally set for 60 years, the state expects that the IMPROVE program will provide data based on the following goals:

- 1) *Maintain a stable configuration of the individual monitors and sampling sites, and stability in network operations for the purpose of continuity in tracking reasonable progress trends;*
- 2) *Assure sufficient data capture at each site of all visibility-impairing species;*
- 3) *Comply with EPA quality control and assurance requirements; and*
- 4) *Prepare and disseminate periodic reports on IMPROVE program operations.*

The state of _____ is relying on the IMPROVE program to meet these monitoring operation and data collection goals, with the fundamental assumption that network data collection operations will not change, or if changed, will remain directly comparable to those operated by the IMPROVE program during the 2000-04 RHR baseline period. Technical analyses and reasonable progress goals in this implementation plan for Regional Haze are based on data from these sites. As such, the state asks that the IMPROVE program identify potential issues affecting RHR implementation trends and/or notify the state before changes in the IMPROVE program affecting a RHR tracking site are made.

Further, the state of _____ notes that the human resources to operate these monitors are provided by Federal Land Management agencies. Beyond that in-kind contribution, the sufficient funding of sampling analysis resources for a complete and representative monitoring network of these long-term reasonable progress tracking sites by the IMPROVE program are wholly a responsibility of EPA - as such, the state has no plans to provide resources for these long-term reasonable progress tracking sites.

- (i) The establishment of any additional monitoring sites or equipment needed to assess whether reasonable progress goals to address regional haze for all mandatory Class I Federal areas within the State are being achieved.

Table of sites with links to site locations – select state of interest at:
<http://vista.cira.colostate.edu/TSS/Results/HazePlanning.aspx>

The state of _____ depends on the following IMPROVE program-operated monitors at the following sites for tracking RHR reasonable progress:

Example: New Mexico table – IMPROVE Class I sites only

IMPROVE Monitoring Sites	BAND1, BOAPI, GICL1, SAAN1, SACR1, SAPE1, WHIT1, WHPE1
Class I Areas	Class I Area - Bandelier NM, NM; Class I Area - Bosque del Apache NWRW, NM; Class I Area - Gila W, NM; Class I Area - Salt Creek NWRW, NM; Class I Area - San Pedro Parks W, NM; Class I Area - White Mountain W, NM; Class I Areas - Pecos W, NM; Wheeler Peak W, NM

[Optional] The state of _____ will also operate additional IMPROVE monitors, beyond the reasonable progress tracking sites listed above, following the IMPROVE program protocols.

² <http://vista.cira.colostate.edu/improve/>

[Optional] Table of sites with links to site locations and monitors

Arizona's table would include IMPROVE Class I sites + additional State IMPROVE Protocol sites

[Optional] The state of _____ will also operate additional non-IMPROVE monitors that may be used in the evaluation of Class I area visibility. These may include PM_{2.5} speciation or Federal Reference Methods, and/or more portable monitoring systems than IMPROVE (DRUM samplers).

[Optional] Table of sites with links to site locations and monitors

Tables for other states could include sites of their choosing which may be related to regional haze, but were established for other purposes.

- (ii) 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 mandatory Class I Federal areas both within and outside the State.

The state of _____ will use data reported by the IMPROVE program as part of the regional technical support analysis tools found at the Visibility Information Exchange Web System (VIEWS)³ and the Technical Support System (TSS)⁴, as well as other analysis tools and efforts sponsored by the Western Regional Air Partnership (WRAP)⁵. The state will participate in the regional analysis activities of the WRAP to collectively assess and verify the progress toward reasonable progress goals, also supporting interstate consultation as the RHR is implemented. The state may conduct additional analyses as needed.

- (iii) For a State with no mandatory Class I Federal areas, 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 mandatory Class I Federal areas in other States.

Not applicable in WRAP region.

- (iv) The implementation plan must provide for the reporting of all visibility monitoring data to the Administrator at least annually for each mandatory Class I Federal area in the State. To the extent possible, the State should report visibility monitoring data electronically.

The state of _____ will depend on the routine timely reporting of monitoring data by the IMPROVE program for the reasonable progress tracking sites to VIEWS and TSS. The state notes that the resources to ensure data reporting is from these long-term tracking monitoring sites is wholly a responsibility of EPA - as such, the state has no plans to provide resources for this effort.

- (v) A statewide inventory of emissions of pollutants that are reasonably anticipated to cause or contribute to visibility impairment in any mandatory Class I Federal area. The inventory must include emissions for a baseline year, emissions for the most recent year for which data are available, and estimates of future projected emissions. The State must also include a commitment to update the inventory periodically.

The state of _____ has prepared a statewide inventory of emissions that can reasonably be expected to cause or contribute to visibility impairment in Federal Class I Areas. Section ____ of this plan summarizes the emissions by pollutant and source category.

The state of _____ commits to updating statewide emissions periodically. The updates will be used for state tracking of emission changes, trends, and input into WRAP's evaluation of whether reasonable progress goals

³ <http://vista.cira.colostate.edu/views/>

⁴ <http://vista.cira.colostate.edu/tss/>

⁵ <http://www.wrapair.org/>

are being achieved and other regional analyses. The inventories will be updated every three years on the same schedule as the every three-year reporting required by EPA's Consolidated Emissions Reporting Rule (CERR).

The state will continue to use the WRAP-sponsored Emissions Data Management System (EDMS)⁶ and Fire Emissions Tracking System (FETS)⁷ to store and access emissions data. The state will also depend upon and participate in additional periodic collective emissions inventory efforts by the WRAP. Further, the state will continue to depend on and use the capabilities of the WRAP-sponsored Regional Modeling Center (RMC)⁸ to simulate the air quality impacts of emissions for haze planning purposes. The state notes that the resources to ensure data preparation, storage, and analysis by the state and WRAP require adequate ongoing resources – a responsibility of EPA.

(vi) Other elements, including reporting, recordkeeping, and other measures, necessary to assess and report on visibility.

The state of _____ will track data related to RHR haze plan implementation for sources for which the state has regulatory authority, and will depend on the IMPROVE program and WRAP-sponsored collection and analysis efforts and data support systems for monitoring and emissions inventory data, respectively.

Appendix A - Federal Register Discussion of Monitoring Strategy and Other Implementation Plan Requirements

Final July 1999 Regional Haze Rule (http://www.epa.gov/ttn/oarpg/t1/fr_notices/rhfedreg.pdf)

I. Monitoring Strategy and Other Implementation Plan Requirements

Monitoring Strategy

Proposed rule. In the proposed rule, we included a requirement for States to develop a monitoring strategy. We believe that actual monitoring data are a critical component of any air quality management approach to visibility impairment. Data on individual components of PM (nitrates, sulfates, elemental carbon, organic carbon, crustal material) are crucial to understanding the causes of visibility impairment at a given location, and accordingly are necessary for long-term strategy development. Reviewing these data with time, and additional data provided by monitoring sites, are necessary to understand whether the long-term strategies are effective. Under the proposed rule, an initial monitoring strategy was due 12 months after promulgation, with periodic updates every 3 years thereafter. Requirements for visibility monitoring are authorized under section 110(a)(2)(B), requiring SIPs to provide for the monitoring of ambient air quality, and under section 169A(b)(2), which authorizes EPA to establish regulations requiring SIPs to address “other measures as may be necessary.”

Four separate provisions were included in the monitoring strategy requirement:

- (1) a requirement for States to provide for additional that is monitoring “representative of all Class I areas,”
- (2) a requirement for States with Class I areas to assess the relative contributions of sources within and outside the State to any Class I area within the State,
- (3) requirements for States without Class I areas to include a procedure by which monitoring data will be used to determine the contribution of emissions from within the State to Class I areas outside the State, and
- (4) a requirement to report all visibility monitoring data to EPA at least annually, in accordance with EPA guidance.

⁶ <http://www.wrapedms.org/>

⁷ <http://www.wrapfets.org/>

⁸ <http://pah.cert.ucr.edu/aqm/308/>

Comments received. Commenters on this requirement raised a number of concerns. One concern raised by State and local agencies was that the costs of monitoring could be substantial and urged EPA to provide funding. Other commenters urged EPA to exercise flexibility in determining the degree to which monitors in one Class I area could be considered representative of other nearby areas. Other commenters raised concerns about the feasibility of monitoring in remote areas and for areas with difficulty in gaining access to monitors during the winter. Commenters also expressed concerns over the timetable for the monitoring plan and the requirement for updating the strategy.

Final rule. Section 51.308(d)(4) of the final rule includes the requirement for a monitoring strategy. Under the final rule, this monitoring strategy is due with the first regional haze SIP, and it must be reviewed every 5 years.

Additional sites. Since the 1980's, EPA has cooperatively managed and funded the IMPROVE network with FLMs and States. Today, the IMPROVE network of 30 Class I sites (and an additional network of about 40 sites that use the IMPROVE methods) collects data on fine particle concentrations and on individual particle species. These individual species (sulfates, nitrates, elemental carbon, organic carbon, crustal material) are important for understanding causes and trends of visibility impairment at a given location. The network also employs optical monitoring methods for the direct measurement of light extinction, and scene monitoring methods using 35 millimeter photography. The EPA is funding the deployment of several hundred PM_{2.5} monitors by the end of calendar year 1999. In order to meet the requirements for some monitors to characterize background conditions and transport patterns, as well as to more broadly characterize visibility impairment in Class I areas for implementation of the regional haze program, EPA is funding the deployment of an additional 78 IMPROVE sites for Class I areas by the end of 1999. As a result of this anticipated network expansion, we expect that few, if any, State-funded monitors will be needed in implementing today's final rule. The IMPROVE Steering Committee is coordinating closely with the States on the selection of sites for the expanded network to help ensure that the new sites will meet States' needs for SIP development. The EPA expects that as a result of the IMPROVE Steering Committee process, the expanded network should provide for data that can be considered representative of most if not all Class I areas. The monitoring strategy must, however, provide for additional monitoring sites if the IMPROVE network is not sufficient to determine whether reasonable progress goals will be met. This provision requires States with Class I areas to work with EPA and the FLMs to ensure that monitoring networks provide monitoring data that are representative of visibility conditions in each affected Class I area within the State. We want to clarify that this provision does not require a monitor in each Class I area, only that a monitor be representative of a Class I area. Accordingly, a monitor in or adjacent to one Class I area can be representative of one or more other Class I areas, based on certain criteria. Additionally, EPA agrees with commenters that a few Class I areas may have severe accessibility problems for which monitoring may not be feasible.

Use of Monitoring Data to Understand Contributions to Class I Areas. States with Class I areas are required to include in the regional haze SIP a monitoring strategy that is tailored to a given representative site. The strategy must identify the ways that the visibility monitoring and chemical composition analysis will be used to understand the emission sources that contribute to visibility impairment at a given monitoring site. Additionally, the monitoring strategy should identify the procedures for reviewing monitoring data and coordinating with other technical experts. We believe that continued coordination of visibility monitoring and chemical composition analysis among States, FLMs, and EPA will be important for future regional planning activities. Analysis of trends in emissions of those constituents can assist States in the development of longterm strategies for making reasonable progress. The rule also requires monitoring strategies for States without Class I areas. We believe it is equally important for those States to understand and describe the implications of monitoring data. First, it is important for those States to review monitoring information, including data on the chemical composition of individual species concentrations, to help understand the relative contribution of emissions from their State to Class I areas in other States. Second, it is important for these States to understand and describe how they will use the monitoring data to review progress and trends.

Periodic Updates to Strategy. The rule requires an initial monitoring strategy and periodic updates. The initial monitoring strategy is due with a State's first SIP submission. Additionally, the rule requires that the monitoring strategy be reviewed every 5 years. We believe that when progress is reviewed and control strategies are updated, it will be important to review the monitoring strategy. For the periodic updates, States should review the existing monitoring strategy with the FLMs and other participating agencies to assess the need for additional monitoring sites or modifications to existing sites, as well as the need for updated guidance on monitoring protocols.

Monitoring Guidance. The EPA plans to issue a visibility monitoring guidance document soon after promulgating this rule that will be designed to assist the States in developing monitoring strategies. The document will include technical criteria and procedures for conducting aerosol, optical, and scene monitoring of visibility conditions in Class I areas. The protocols of the IMPROVE network will be included in this guidance.

Reporting of Monitoring Data

Proposed Rule. The proposed rule required States to report all visibility monitoring at least annually for each Class I area having such monitoring. We proposed that States report data in accordance with EPA guidance and through electronic data transfer techniques to the extent possible. There were no adverse comments on this reporting requirement.

Final Rule. We have retained a general requirement in section 51.308(d)(4) that States submit as part of the SIP a monitoring strategy that addresses the reporting of visibility monitoring data to EPA. As noted above, EPA expects that few, if any, additional State-funded sites will be necessary to fully implement the regional haze rule. Where States do choose to fund additional sites, however, EPA believes it is important for the States to make data from these sites available to EPA and other agencies. For monitoring sites in the IMPROVE network, the IMPROVE Steering Committee oversees network contractors who quality assure and consolidate data from chemical composition analysis of filter samples. Such data are made available to all interested parties through various electronic formats and online websites. Assuming this practice continues with the IMPROVE Steering Committee, States will experience little or no burden in meeting this requirement for reporting to EPA. Annual consolidation of these data will serve several purposes. First, a central data base will allow the States and other interested parties to track progress over time in relation to reasonable progress goals. It will also assist the States in understanding current visibility conditions as well as past trends. Consolidation of the data will assist EPA, the State, other agencies, and the public in reviewing the effectiveness of the State's long-term strategy for regional haze. Additionally, consolidation of the data will enable EPA to better characterize national and regional visibility trends in its annual air quality trends report. Finally, a centralized data base will provide for the integration of monitoring data from the new PM_{2.5} monitoring network and the visibility monitoring network, both of which will include PM_{2.5} and PM₁₀ mass, as well as compositional analysis by aerosol species. Class I area particle mass and chemical composition data can fill important data gaps in defining regional concentrations for air quality modeling analyses.

Requirements Under Section 110(a)(2) of the CAA. Visibility SIP submittals must document certain program infrastructure capabilities consistent with the requirements of section 169B(e)(2) and section 110(a)(2) of the CAA. Section 169B(e)(2) requires States to revise their section 110 SIPs to "contain such emission limits, schedules of compliance, and other measures as may be necessary" to carry out regulations promulgated pursuant to this section. The EPA believes that this language authorizes EPA to ensure that States review their existing program infrastructures to ensure that the types of elements required by section 110(a)(2) for programs addressing the NAAQS are also sufficient for adoption and implementation of SIP measures for regional haze. The final rule does not include specific provisions addressing all elements of section 110(a)(2). However, section 51.308(d)(4)(iv) of the final rule requires the State to maintain and update periodically a statewide inventory of emissions of pollutants that contribute to visibility impairment. Where a State is also revising its SIP to incorporate changes to address the PM_{2.5} NAAQS, many of these revisions may be sufficient to address both PM_{2.5} and regional haze. The EPA encourages States to consider the needs of both programs when updating the provisions required by section 110 of the CAA to minimize any administrative burdens.