



Regional Haze Monitoring Strategy for 2007 Regional Haze Implementation Plans

Monitoring/Data Analysis Discussion Group

June 10, 2005

RHR Monitoring Strategy Implementation Plan Requirements

- **Monitoring Strategy**

- **Requirement for States to develop a monitoring strategy.**
- **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**
 - **Necessary for long-term strategy development.**
 - **Review of these data with time, is necessary to understand whether the long-term strategies are effective.**
 - **Monitoring strategy due with December 2007 implementation plans, with periodic updates.**
 - **Requirements for visibility monitoring are authorized under CAA 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.”**

RHR IMPROVE Network Purpose

- **Representative monitoring data collected from this network will be used to:**
 - **Establish baseline conditions (for the 2000-2004 period) for each Class I area; and**
 - **To track progress toward goals established in the 2007 SIPs.**
- **Table 1-1 shows that 101 (or 92%) of the 110 sites are expected to have at least 4 complete years of data for the purpose of determining baseline conditions. Only 9 sites are expected to use 3**

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Table 1-1 Deployment of IMPROVE Sites, 1999-2001

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Year	Number of IMPROVE Sites Deployed	Number of Years of Data for Calculating Baseline Conditions (2000-2004)
1999	60	5
2000	41	4
2001	9	3
TOTAL	110	

Example of State Regional Haze Monitoring Strategy

- *“Visibility Monitoring Networks in National Parks and Wilderness Areas”*
- **The intent of the Arizona Class I visibility monitoring program is to characterize long-term trends as completely as possible using ambient visibility measurements within constraints of an area’s size, terrain or logistics for each of the 12 federally protected Class I areas in Arizona.**
- **The visibility monitoring network plan is designed to serve as the long-term monitoring strategy, to track short-term and long-term trends in Arizona Class I areas, to assist in identifying any reasonably attributable visibility impairment affects and to provide monitoring data if necessary for new or major modifications of categorical major sources.**
- **Arizona continues to participate in the Interagency Monitoring of Protected Visual Environments (IMPROVE) Program as part of the overall national visibility monitoring effort. IMPROVE is a cooperative measurement effort between EPA, federal land management agencies and state air agencies.**
- **The objectives of IMPROVE are:**
 - **To establish current visibility and aerosol conditions in mandatory Class I areas**
 - **To identify chemical species and emission sources responsible for existing man-made visibility impairment**
 - **To document long-term trends for assessing progress towards the national visibility goal**
 - **With the enactment of the regional haze rule, to provide regional haze monitoring representing all visibility-protected federal Class I areas**

Arizona Class I visibility network

- **The Arizona Class I visibility network consists of a combination of visibility monitoring sites established by ADEQ and those established by the IMPROVE committee.**
- **Monitoring was conducted at the following sites:**
 - **Grand Canyon National Park, Hance**
 - **Grand Canyon National Park, Indian Gardens**
 - **Petrified Forest National Park**
 - **Mt. Baldy Wilderness, Greer Water Treatment Plant**
 - **Sycamore Canyon Wilderness, Camp Raymond**
 - **Mazatzal Wilderness, Humboldt Mountain**
 - **Mazatzal/Pine Mountain Wildernesses, Ike's Backbone**
 - **Sierra Ancha Wilderness, Pleasant Valley Ranger Station**
 - **Superstition Wilderness, Tonto National Monument**
 - **Superstition Wilderness, Queen Valley**
 - **Saguaro National Park, West Unit**
 - **Saguaro National Park, East Unit**
 - **Chiricahua National Monument, Entrance Station**
 - **Galiuro Wilderness, Muleshoe Ranch**
 - **Chiricahua Wilderness, Rucker Canyon**
- **Each IMPROVE site includes PM_{2.5} sampling with subsequent analysis for the fine particle mass and major aerosol species, as well as PM₁₀ sampling and mass analysis. Many of the sites also include optical monitoring with nephelometers or a transmissometer and color photography to document scenic appearance.**

Considerations for Implementation Plans

- **Ongoing support from EPA through IMPROVE**
 - Coverage of network for regional trends and local issues
 - Data completeness and representativeness
 - Operational issues
 - Alternative/additional data needs
 - Others?