

# United States Department of the Interior

## NATIONAL PARK SERVICE

Air Resources Division

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N3615 (2350)

October 25, 2013

Memorandum

To: Rita Bates, New Mexico Air Quality Branch

From: Pat Brewer, NPS Air Resources Division



Subject: NPS Comments NM Five Year Progress Report

Thank you for the opportunity to review and comment on New Mexico's Regional Haze Progress Report. I believe that New Mexico Air Quality Board (AQB) has met the periodic reporting requirements of 40 CFR 51.308(g) and (h) and 40 CFR 51.309(d)(10). AQB has effectively used the Western Regional Partnership (WRAP) Regional Haze Reasonable Progress Summary Report<sup>1</sup> to demonstrate that visibility is improving on the 20% best and 20% worst days at all Class I areas in New Mexico. AQB has demonstrated that ammonium sulfate, particulate organic matter, and coarse mass are the largest contributors to visibility impairment on the 20% worst and 20% best visibility days at Class I areas in New Mexico. AQB has demonstrated that anthropogenic emissions of sulfur dioxide and nitrogen oxides have decreased. AQB asserts that all emissions control measures used by New Mexico to set 2018 reasonable progress goals are being implemented and that New Mexico is not impeding other states from meeting their 2018 reasonable progress goals. The only exception is that the final determination of Best Available Retrofit Technology (BART) for San Juan Generating Station is still pending.

New Mexico is the first of the western states to prepare a regional haze progress report. The following recommendations would improve AQB's submittal to EPA:

- Section 1. Introduction briefly discusses BART for San Juan Generating Station. Please update this discussion to report the BART decision by the New Mexico Environmental Improvement Board in September 2013. EPA review of this decision is still pending. Please also discuss BART in more detail in Section 3.5 Emissions Inventory including final permitted BART emission limits for sulfur dioxide and nitrogen oxides, assumed

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<sup>1</sup> [http://www.wrapair2.org/documents/Full%20Report/WRAP\\_RHRPR\\_Full\\_Report\\_without\\_Appendices.PDF](http://www.wrapair2.org/documents/Full%20Report/WRAP_RHRPR_Full_Report_without_Appendices.PDF)

capacity and annual generation for each unit (mw), and assumed annual emission totals.

- Section 3.2 Control Measures: AQB states that NM is implementing the long-term strategies in the State’s 309 and 309(g) State Implementation Plans. Please summarize major control measures.
- Section 3.4.1, Current Visibility, cites EPA 2003 guidance that specifies using successive 5-year periods (e.g. 2000-2004, 2005-2009) to review visibility progress. Please also reference EPA 2013 guidance that recommended using rolling five year averages<sup>2</sup>. The rolling average has the advantage of considering the most currently available IMPROVE monitoring data. It also reduces the importance of any single year on the overall visibility trend.

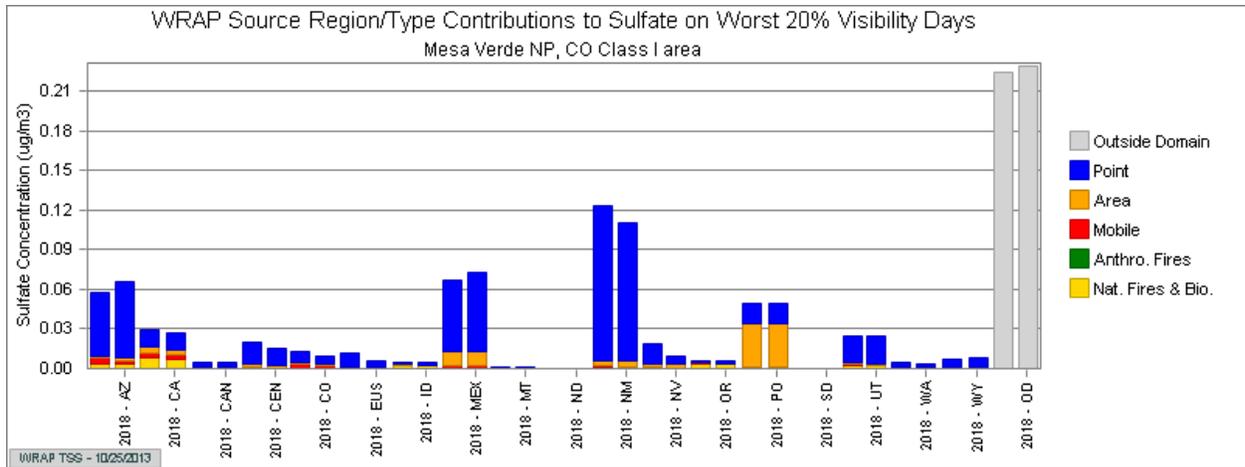
In addition to the detailed technical analyses in the WRAP reasonable progress report, WRAP also provided trends for deciview and species-specific extinction for each Class I area for the 20% worst and 20% best visibility days in 2000-2004, 2005-2009, 2006-2010, and 2007-2011<sup>3</sup>. As an example, the table below reports visibility trends at Bandalier National Park for the 20% worst visibility days. Please add these tables to supplement the detailed WRAP reasonable progress analyses in the NM report.

	<b>Bandalier, NM Reasonable Progress Summary: Visibility Conditions: Worst 20% Days</b>			
	2000-04 Baseline Conditions (Mm-1)	2005-09 Progress Period (Mm-1)	2006-10 Progress Period (Mm-1)	2007-11 Progress Period (Mm-1)
Sulfate	5.3	6.2	5.7	5.6
Nitrate	1.6	1.4	1.4	1.4
Organic Carbon	8.4	4.7	4.4	6.6
Elemental Carbon	2.2	1.6	1.5	1.8
Fine Soil	1.7	1.1	1.1	1.2
Coarse Material	2.8	2.1	2.2	2.6
Sea Salt	0.5	0.1	0.1	0.1
Total Light Extinction	31.4	26.2	25.4	28.2
Deciview	10.4	9.1	8.8	9.6

<sup>2</sup>General Principles for the 5-Year Regional Haze Progress Reports for the Initial Regional Haze State Implementation Plans (Intended to Assist States and EPA Regional Offices in Development and Review of the Progress Reports), April 2013, U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, Research Triangle Park, North Carolina

<sup>3</sup> WRAP Technical Support System website (<http://vista.cira.colostate.edu/tss/Results/HazePlanning.aspx>).

- Section 3.4.2, Visibility Change: Table 3.3 demonstrates that visibility improved on the 20% worst days between the base period 2000-2004 and 2005-2009. The table above shows that visibility on the 20% worst days also improved in 2006-2010 and 2007-2011. The contributions of the primary contributors, ammonium sulfate (primarily anthropogenic) and particulate organic matter and coarse mass (primarily biogenic and more episodic in occurrence), varies year to year. In years with high influence from wildfires, particulate organic matter dominates the 20% worst visibility days, and ammonium sulfate has a lower contribution. Conversely, in years with low fire activity, particulate organic matter was lower and ammonium sulfate had a comparatively higher contribution on the 20% worst days. Please discuss this interdependency between pollutants to account for what otherwise would appear to be an increase in ammonium sulfate contributions since the 2000-2004 baseline. The dominant role of fire also points to the difficulty in predicting future visibility trends using the 20% worst days as the indicator of progress.
- Section 3.4.3 Annual Average Visibility Trend: AQB demonstrated that annual average visibility impairment decreased for all pollutant species, including ammonium sulfate over the 2000-2009 period (Table 3.5). Annual average trends are less responsive to episodic impacts from wildfire and are appropriate to report as weight of evidence, in addition to trends for the 20% worst and 20% best days. I am not asking that annual average trends be updated beyond 2009.
- Section 3.5 Emissions Inventory: Tables 3.7 and 3.8 demonstrate that anthropogenic sulfur dioxide (SO<sub>2</sub>) emissions have been reduced by 43% and anthropogenic nitrogen oxide (NO<sub>x</sub>) emissions have been reduced by 28% between the 2002 WRAP inventory and the 2008 WESTJUMP inventory. Figure 3.20 indicates additional SO<sub>2</sub> and NO<sub>x</sub> emissions reductions in 2009-2010 from Electric Generating Units (EGU). Please discuss the controls that were implemented for specific EGU to accomplish these SO<sub>2</sub> and NO<sub>x</sub> emission reductions. EPA's Clean Air Markets Division EGU data tracks emissions and controls by unit, facility, and state. Will additional SO<sub>2</sub> and NO<sub>x</sub> controls (beyond continued implementation of federal requirements for mobile and area sources and BART for San Juan Generating) be implemented before 2018? Figure 4.5 shows that in 2010 SO<sub>2</sub> emissions in New Mexico, Utah, and Wyoming were below 309 milestones. Are additional SO<sub>2</sub> reductions expected in New Mexico?
- WRAP provided the western states with particulate source apportionment analyses using the CAMx regional air quality model for 2002 and 2018 inventories. An example plot for Mesa Verde, Colorado, is copied from the WRAP Technical Support System to illustrate that SO<sub>2</sub> emission reductions from NM by 2018 are expected to significantly reduce NM's contribution to ammonium sulfate to that Class I area. Please add at least a few of these plots for neighboring Class I areas to support AQB's conclusion that NM is not impeding other states meeting their reasonable progress goals.



We appreciate the opportunity to work closely with AQB to improve visibility in our Class I national park and wilderness areas.