

Regional Haze State Implementation Plan

May 2011

Regional Haze Rule

- The visual range in National Parks and Wilderness areas has decreased from 140 miles in the late 1800's to 90 miles on average today
- The Regional Haze Rule requires states to return visibility in Class I areas back to "natural conditions" by 2064.

What is Haze?

- Haze is caused when light is absorbed or scattered by air pollution.
- Pollutants causing haze include sulfates, nitrates, carbon, soot, and dust.
- Pollution sources include mobile sources, forest fires, wind blown dust and industrial sources.

Types of Visibility Impairment



Layered Haze



Plume

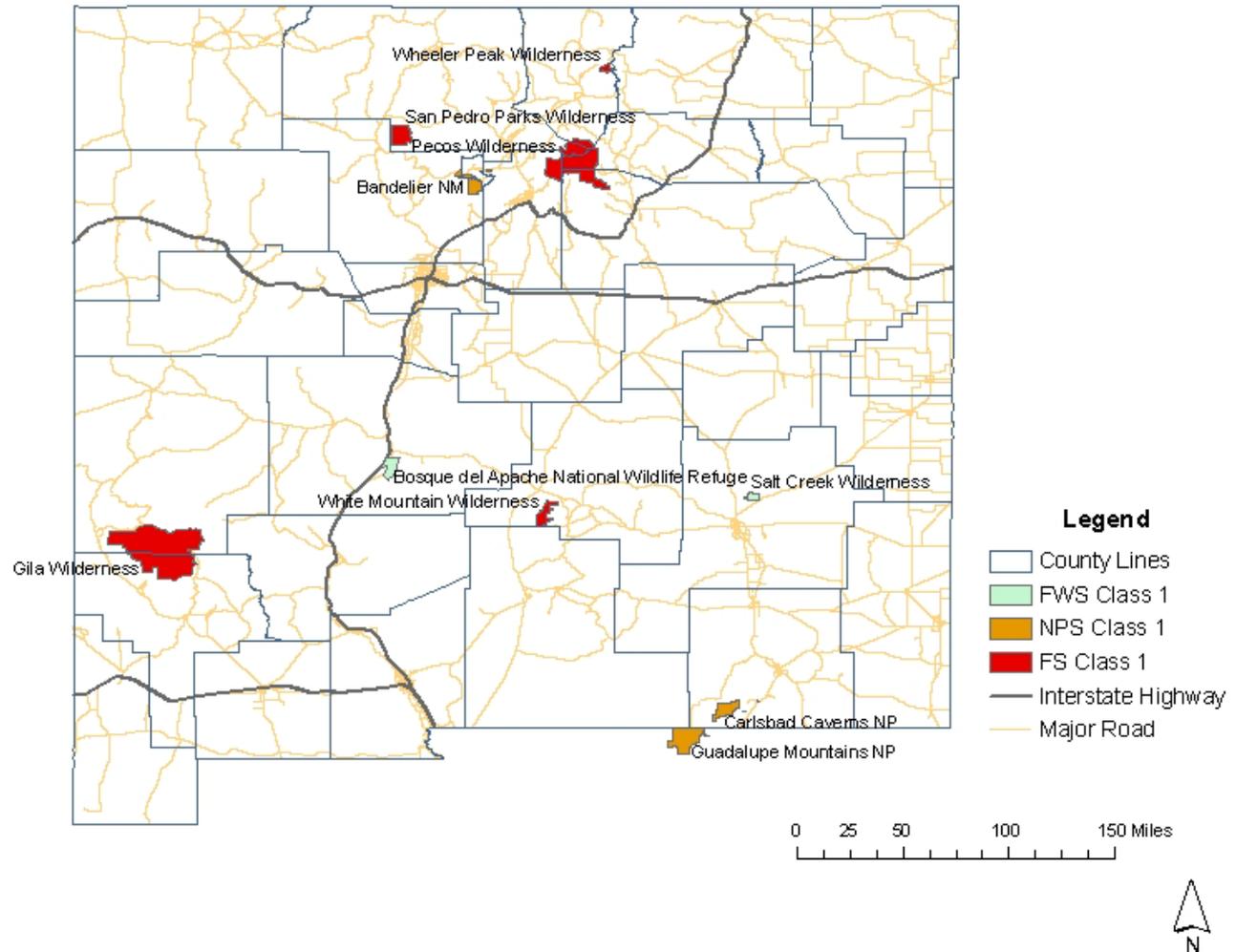


Uniform Haze

What is a Class I area?

- Section 162 of the Clean Air Act established mandatory Class I areas as these areas that were in existence before August 7, 1977:
 - International parks
 - National wilderness areas exceeding 5,000 acres
 - National memorial parks exceeding 5,000 acres
 - National parks exceeding 6,000 acres

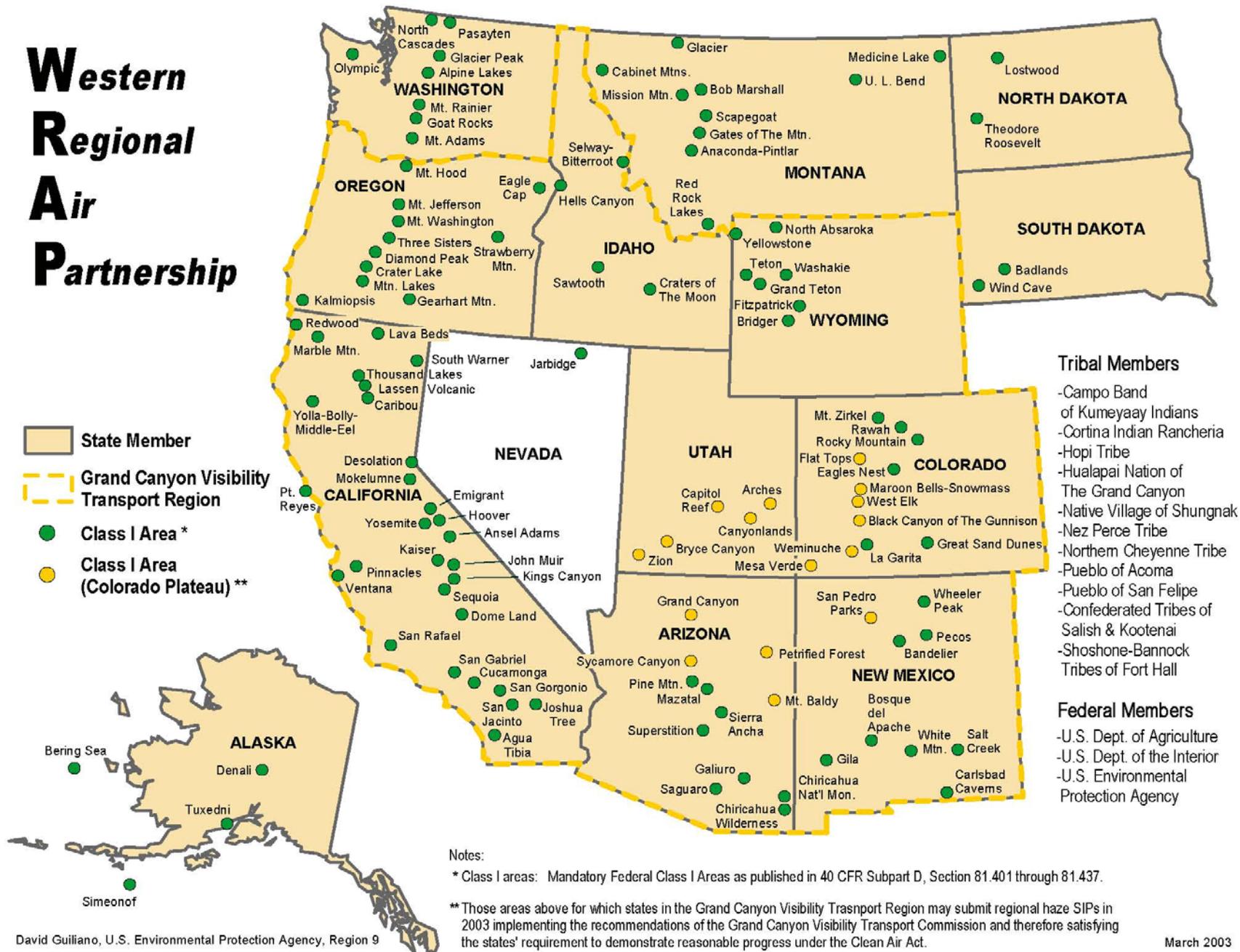
Class 1 Areas within New Mexico





Collaboration of western states, tribes,
and federal agencies to develop
technical and policy tools needed by
western states and tribes to comply
with the Regional Haze Rule

Western Regional Air Partnership



- State Member
- Grand Canyon Visibility Transport Region
- Class I Area *
- Class I Area (Colorado Plateau) **

- ### Tribal Members
- Campo Band of Kumeyaay Indians
 - Cortina Indian Rancheria
 - Hopi Tribe
 - Hualapai Nation of The Grand Canyon
 - Native Village of Shungnak
 - Nez Perce Tribe
 - Northern Cheyenne Tribe
 - Pueblo of Acoma
 - Pueblo of San Felipe
 - Confederated Tribes of Salish & Kootenai
 - Shoshone-Bannock Tribes of Fort Hall
- ### Federal Members
- U.S. Dept. of Agriculture
 - U.S. Dept. of the Interior
 - U.S. Environmental Protection Agency

Notes:
 * Class I areas: Mandatory Federal Class I Areas as published in 40 CFR Subpart D, Section 81.401 through 81.437.
 ** Those areas above for which states in the Grand Canyon Visibility Transport Region may submit regional haze SIPs in 2003 implementing the recommendations of the Grand Canyon Visibility Transport Commission and therefore satisfying the states' requirement to demonstrate reasonable progress under the Clean Air Act.

Federal Statutory Authority for Visibility & Haze

- Clean Air Act (U.S. Congress)
 - Section 169A – Reasonably Attributable Visibility Impairment (RAVI) (1977)
 - “Congress hereby declares as a national goal the prevention of any future, and the remedying of any existing, impairment of visibility in mandatory class I Federal areas which impairment results from manmade air pollution.”
 - Section 169B – Regional Haze (1990)
 - Established visibility transport commissions, and specifically established the Grand Canyon Visibility Transport Commission

Federal Regulatory Authority for Visibility & Haze

- Regional Haze Rule (U.S. EPA) (1999)
 - 40 CFR 51.308
 - Establishes requirements for state SIPs
 - Requires improvements in visibility in 156 Class I areas (NM has 9)
 - Best Available Retrofit Technology (BART)
 - 40 CFR 51.309
 - Nine western states are allowed to follow GCVTC recommendations, including NM
 - Three states are “309 States” (NM, Utah & Wyoming and the City of Albuquerque)
 - Allows alternative to BART for SO₂ (trading program)

State Statutory and Regulatory Authority for Haze

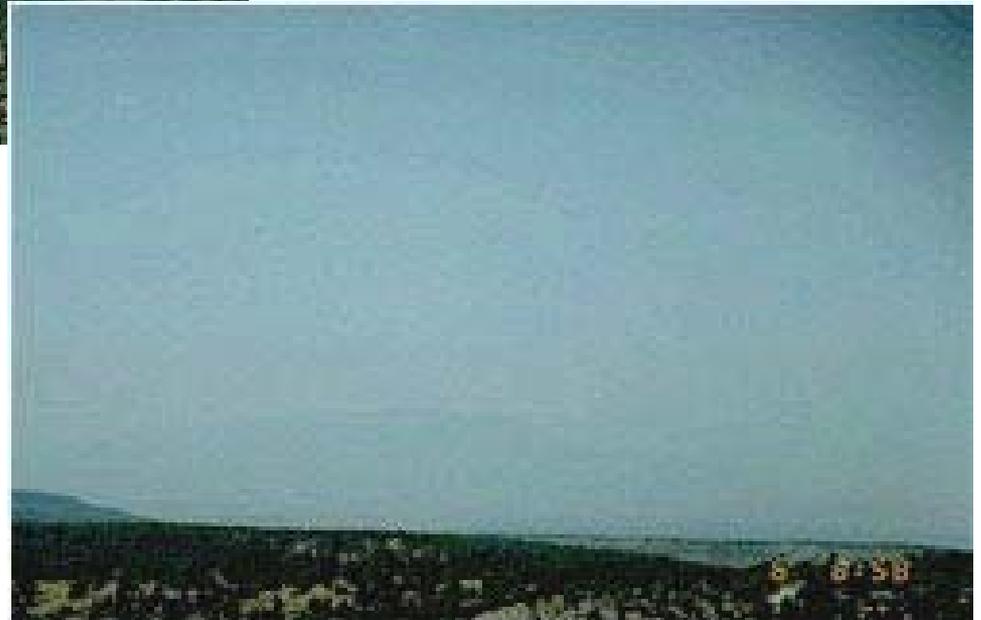
- New Mexico Air Quality Requirements
 - Air Quality Control Act (74-2-5 C(1))
 - Requires NM to be no more but at least as stringent as federal requirements for visibility protection
 - New Mexico Administrative Code (NMAC)
 - 20.2.73 – SO₂ Emission Inventory Requirements
 - 20.2.81 – Western Backstop SO₂ Trading Program
 - New Mexico's Air Quality State Implementation Plan (SIP)
 - Phase I & Phase II (RAVI SIP) (submitted 1986 & 1992, approved 2006)
 - Regional Haze SIP effective 12/31/2003
 - Current proposal to revise 2003 SIP

Regional Haze

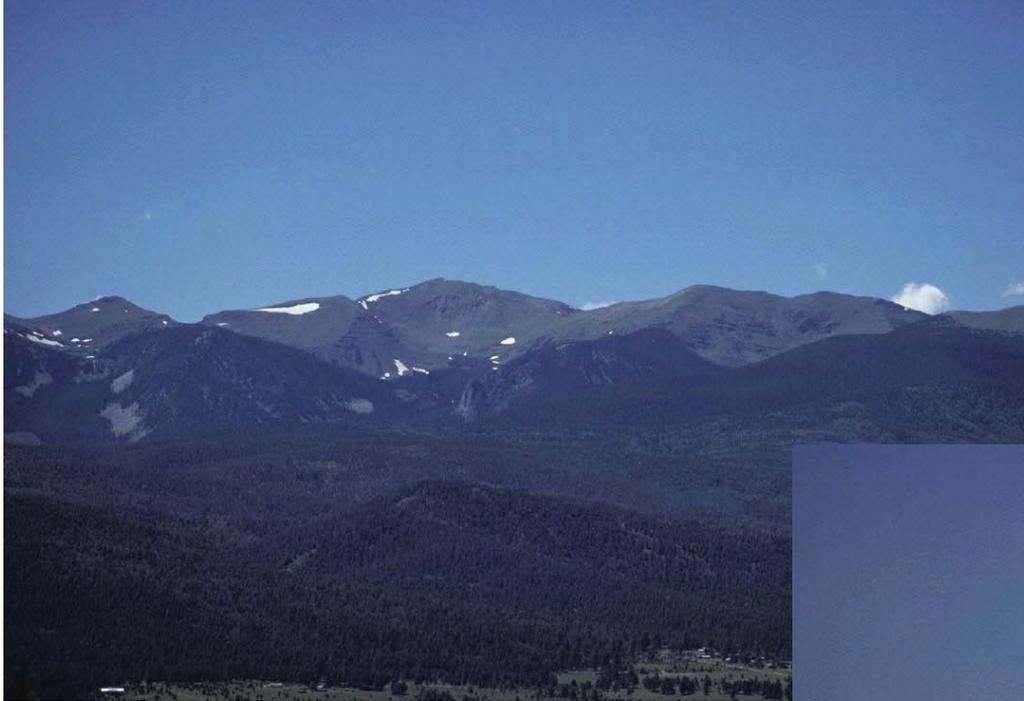


The Sandias as seen from
Bandelier on a clear day

The Sandias as seen from
Bandelier on a hazy day



Regional Haze



Wheeler Peak on a clear day

Wheeler Peak on a hazy day



Regional Haze



Mesa Verde on a clear day

Mesa Verde on a hazy day



San Juan Generating Station BART Determination

- NMED proposed BART determination for San Juan Generating Station
 - Selective Non-Catalytic Reduction (SNCR)
 - Post-combustion controls
 - Less cost to rate-payers than Selective Catalytic Reduction (SCR)
 - Meets U.S. EPA guidance for emission rate

San Juan Generating Station

BART Determination

Cost Comparison of Control Technology

¹NMED's Recommendation for BART

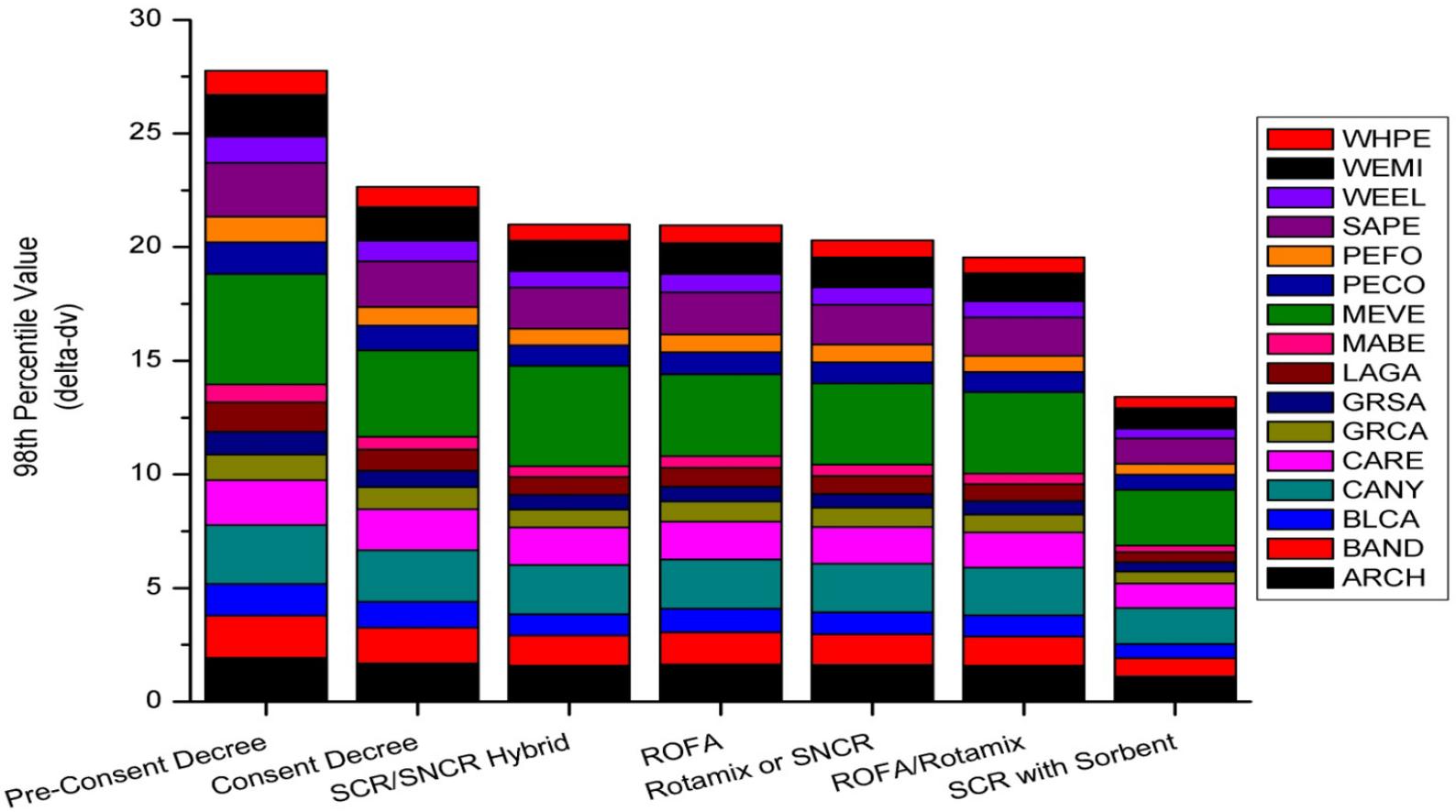
Control Technology	Cost of Control (\$/ton of pollutant removed)	Control Effectiveness (% control)
ROFA	6,302	13
Rotamix (SNCR)	3,544	23
Generic SNCR ¹	3,494	23
ROFA/Rotamix	4,817	33
SCR/SNCR Hybrid	10,306	40
SCR + sorbent	6,617	77

San Juan Generating Station BART Determination Comparison of Facility-Wide Visibility Improvement at Mesa Verde National Park

¹NMED's Recommendation for BART

Control Technology	Visibility Improvement (deciview²)
ROFA	0.21
Rotamix (SNCR)	0.21
Generic SNCR ¹	0.22
ROFA/Rotamix	0.22
SCR/SNCR Hybrid	0.96
SCR + sorbent	1.34

²A deciview is a unit of visibility proportional to the logarithm of the atmospheric extinction. Under many circumstances a change in one deciview will be perceived to be the same on clear and hazy days.



San Juan Generating Station - Impacts of BART Alternatives

SO₂ Milestone & Backstop Trading Program

- Establishes regional milestones for reduction of sulfur dioxide (SO₂) to meet long term visibility goals for the Colorado Plateau
- Establishes emissions tracking requirements for major industrial sources of sulfur dioxide (> 100 tons per year)

Western Backstop SO₂ Trading Program Rule (20.2.81 NMAC)

- Implemented only if regional SO₂ milestones are exceeded
- Does not waive requirements for major sources under other programs including:
 - New Source Review Programs
 - Title V Programs
 - Prevention of Significant Deterioration
- Establishes the procedures and compliance requirements for sources in the trading program

Revisions to 20.2.73 NMAC – Emission Inventory

- Proposed revisions to Emission Inventory requirements
- Meets requirements to track SO₂ emissions for compliance with milestones

Projection of Visibility Improvement

- For 2000 through 2018, the WRAP modeled visibility improvement for Class I areas in the WRAP region
- These projections help us to know how much haze will be eradicated by 2018

Summary of Best and Worst Visibility Days for New Mexico Class I Areas

New Mexico Class I Area	20% Worst Days Visibility			20% Best Days Visibility		
	Worst Days Baseline (dv)	2018 URP Goal (dv)	2018 Projected Visibility (dv)	Best Days Baseline (dv)	2018 Projected Visibility (dv)	2018 Projection less than Baseline?
Bandelier W	12.22	10.83	11.90	4.95	4.89	Y
Bosque del Apache NWR	13.80	12.15	13.59	6.28	6.10	Y
Carlsbad Caverns NP	17.19	14.73	16.93	5.95	6.14	N
Gila W	13.11	11.61	12.99	3.31	3.20	Y
Pecos W, Wheeler Peak W	10.41	9.40	10.23	1.22	1.13	Y
Salt Creek W	18.03	15.41	17.33	7.84	7.43	Y
San Pedro Parks W	10.17	9.13	9.94	1.45	1.24	Y
White Mountain W	13.70	12.09	13.27	3.55	3.42	Y

Other SIP Elements

- Mobile sources
- Smoke from fires
- Paved and unpaved road dust
- Renewable energy strategies
- Geographic enhancement
- Long-term strategies
- Periodic revisions
- Regional Coordination

Timeline

- Environmental Improvement Board Hearing
 - June 1-3, 2011
 - June 1 in Santa Fe
 - June 2-3 in Farmington
- Notices of Intent to Present Technical Testimony are due May 17
- EIB will hear comments & testimony, and can make a decision after the hearing

For more information:

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