

NEVADA REGIONAL HAZE 5-YEAR PROGRESS REPORT

To Satisfy
Sections 308(g), (h) and (i)
of the Regional Haze Rule
(40 CFR § 51.308)



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NOTE TO READERS

Nevada's Regional Haze 5-Year Progress Report was developed for submittal to the U.S. Environmental Protection Agency under Section 308 of the Regional Haze Rule (40 CFR § 51.308) as a revision to the applicable Nevada state implementation plan (SIP). 40 CFR § 51.308(g) requires periodic reports every five years after the initial regional haze SIP was submitted. This report satisfies the first 5-year progress report requirement. The report is based on data that existed as of March 1, 2014.

Nevada's Regional Haze 5-Year Progress Report and related documents can be found on the following website: <http://ndep.nv.gov/baqp/planmodeling/rhaze.html>. Western Regional Air Partnership (WRAP) reports and documents can be found on the following websites: <http://www.wrapair2.org/> or at the WRAP TSS website: <http://vista.cira.colostate.edu/tss/>.

Nevada has chosen to link to websites on the internet for many references cited in this report. We have backed up these links by putting electronic copies of reference documents on the Nevada Division of Environmental Protection's (NDEP) server. If any of the links in this document do not work for you, you may contact the NDEP Bureau of Air Quality Planning at 901 South Stewart Street, Suite 4001, Carson City, Nevada 89701 or by telephone at 775-687-9349 for assistance.

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The supporting technical information in this plan was assembled with the assistance of the WRAP and their consultants.

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EXECUTIVE SUMMARY

In 1977, Congress amended the Clean Air Act (CAA) to establish a national goal to protect visibility in Class I federal areas – national parks, forests and wilderness areas. The amendments called for 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.” CAA § 169A. In Nevada, one area was designated: the Jarbidge Wilderness Area (Jarbidge WA) in the northeast corner of the state.

On July 1, 1999, the U.S. Environmental Protection Agency (USEPA) adopted the Regional Haze Rule (RHR). The RHR requires each affected state to develop and adopt an implementation plan that will improve the haziest days and protect the clearest days at each mandatory Class I area in the state with a goal of returning to natural visibility conditions by the year 2064. Each plan must provide a comprehensive analysis of natural and man-made sources of haze in each mandatory Class I area in the state and contain strategies to control anthropogenic emissions that contribute to haze. The plan must also address the transport of haze across state boundaries. The *Nevada Regional Haze State Implementation Plan* (2009 RH SIP), which addressed the initial planning period in the federal rule (2008 to 2018), was submitted to the USEPA on November 18, 2009. A comprehensive SIP revision is due on July 1, 2018 and every ten years thereafter.

USEPA’s regional haze regulations also include provisions for 5-year progress reports. These progress reports must provide an assessment of whether the approved SIP is being implemented appropriately and whether reasonable visibility progress is being achieved consistent with the projected visibility improvement in the SIP. The requirements for these reports are found in Title 40 of the Code of Federal Regulations (CFR) Part 51 Sections 308 (g) and (h). Requirements for state and federal land manager (FLM) coordination are found in Part 51 Section 308 (i).

As discussed in the introductory chapter of this report, in Nevada nearly three-quarters of the visibility-impairing pollutants come from natural sources. Emission inventory data for the baseline period show that sulfur dioxide, oxides of nitrogen and coarse mass (dust) are the predominant anthropogenic pollutants in Nevada. For sulfur dioxide, 97 percent of the emissions statewide came from anthropogenic sources; for oxides of nitrogen, 86 percent were anthropogenic; and for coarse mass, 38 percent were anthropogenic. Nevada’s long-term strategy for the first planning period focused on sulfur dioxide and nitrogen dioxide because they were the predominant anthropogenic pollutants and because of the controllable nature of these emissions. This report, therefore, focuses on the status of sulfur dioxide and nitrogen dioxide control measures and progress toward Nevada’s 2018 visibility improvement goal.

Nevada continues to reduce emissions of the key visibility impairing pollutants. Point source emissions of sulfur dioxide alone decreased by 78 percent from the baseline inventory to the

2008 progress period inventory. Point source emissions of oxides of nitrogen decreased by over 50 percent between the baseline and progress period inventories.

Although natural wildfire smoke and windblown dust persist as the strongest drivers of reduced visibility on worst days at the Jarbidge WA, Nevada's strategies for reducing sulfur dioxide and oxides of nitrogen have lowered sulfate and nitrate particle concentrations at the Jarbidge WA. Monitored light extinction¹ due to both sulfate and nitrate has decreased between the baseline and progress periods for both the worst days and the best days. Trend analyses of the period 2000 to 2012 for the Jarbidge WA show that visibility impairment due to sulfate and nitrate extinction is decreasing through time for both the worst and best days. Thus, the long-term strategy embraced in the 2009 SIP is working to reduce emissions to reach the reasonable progress goals for 2018, as required. In the comprehensive 2018 SIP revision, Nevada will evaluate sources of visibility impairment at Jarbidge WA and revise its long-term strategy for the 2018-2028 planning period, as appropriate.

Since the development of the 2018 emissions inventory for the 2009 RH SIP submittal, additional State and federal regulations and actions have been imposed on various source sectors. These additional mandates will help ensure that reasonable progress goals are attained on or before 2018. In addition, the 2018 emissions projections included a coal-fired power plant that has since ceased operations and been decommissioned, and three proposed power plants whose permit applications have been withdrawn. These actions have led to substantial reductions in the actual and projected emissions of anthropogenic visibility-impairing pollutants from Nevada sources and will further ensure that reasonable progress goals are attained on or before 2018. Finally, as discussed in Chapter Two, all of the facilities in Nevada that are subject to best available retrofit technology (BART) requirements are on schedule to meet those requirements by the State or federal implementation plan compliance dates.

Reducing haze is a regional effort and Nevada continues to work with the other western states and the federal land managers to plan for the required 2018 revision of its RH SIP. The states are focusing on strategies for continued reduction of controllable emissions. Quantification of the impacts of wildfire smoke and other sources beyond State regulatory jurisdiction will continue for the purposes of defining the burden these sources place on achieving visibility goals.

As evidenced by reductions in all of the controllable anthropogenic point source emissions that contribute to haze in Nevada and the concurrent downward trend of sulfate and nitrate light extinction at the Jarbidge WA monitor, Nevada determines the current regional haze plan strategies are adequate for Nevada to meet its 2018 visibility improvement goals. Based on an analysis of Nevada's contribution to visibility impairment at nearby Class I areas, discussed in Chapters One and Six, and consultation with neighboring states, Nevada further concludes that

¹Light extinction, or the impairment of visibility, occurs due to particles and gases that reflect and absorb light. For a more complete description, see Chapter One of the 2009 RH SIP.

emissions from Nevada sources are not impeding progress at any out-of-state Class I areas. Therefore, no further controls are necessary. In accordance with the requirements of the RHR, the Nevada Division of Environmental Protection (NDEP) hereby submits a negative declaration that no further substantive revision of the 2009 RH SIP is warranted at this time in order to achieve the 2018 reasonable progress goals for visibility improvement and emissions reductions.

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REFERENCES

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APPENDIX B: Supporting Documentation

1. Letters and News Releases
2. NDEP Findings and Orders
3. Public Utilities Commission of Nevada (PUCN)

APPENDIX C: Federal Land Management Agency Comments and Nevada's Responses

APPENDIX D: Evidence of Public Participation; Public Comments and Nevada's Responses

Acronyms, Abbreviations and Terms

2009 RH SIP	Nevada Regional Haze State Implementation Plan, October 2009
BART	Best available retrofit technology
Bext	Light-extinction coefficient, expressed in units of Mm^{-1}
Boardman	PGE Boardman Power Plant (Oregon)
CAA	Clean Air Act
CAMD	Clean Air Market Division
CFR	Code of Federal Regulations
CM	Coarse mass
DEASCO3	Deterministic and Empirical Assessment of Smoke's Contribution to Ozone
dv	deciview
EC	Elemental carbon
EGU	Electrical generating unit
ERG	Eastern Research Group
FWS	Fish and Wildlife Service
g/bhp-hr	Gram per brake horsepower-hour
IMPROVE	Interagency Monitoring of Protected Environments
Jarbidge WA	Jarbidge Wilderness Area
LNB	Low NO_x burners
Mm^{-1}	Inverse megameters
MM5	Meteorological Mesoscale 5
MW	Mega watts
NAAQS	National ambient air quality standards
NDEP	Nevada Division of Environmental Protection
NEI	National Emission Inventory
NH_3	Ammonia
Nitrate(s)	Ammonium nitrate(s)
NO_2	Nitrogen dioxide
NO_x	Oxides of nitrogen
NPS	National Park Service
PM	Particulate matter
POA	Primary organic aerosol
POM	Particulate organic matter
ppb	Parts per billion
ppm	Parts per million
Reid Gardner	Reid Gardner Generating Station
RH	Regional Haze
RH SIP	Regional Haze State Implementation Plan
RHR	Regional Haze Rule
RPG	Reasonable progress goal
RPOs	Regional planning organization
SIP	State Implementation Plan
SO_2	Sulfur dioxide
SO_x	Sulfur oxides

Sulfate(s)	Ammonium sulfate(s)
tpy	Tons per year
TSD	Technical Support Document
TSS	WRAP Technical Support System
USDOI	U.S. Department of the Interior
USEPA	U.S. Environmental Protection Agency
USFS	U.S. Forest Service
VIEWS	Visibility Information Exchange Web System
VOC	Volatile organic carbon
VMT	Vehicle miles traveled
WRAP	Western Regional Air Partnership
WRAP TSD	Western Regional Air Partnership Regional Haze Rule Reasonable Progress Summary Report, June 2013

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