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NEVADA DIVISION OF ENVIRONMENTAL PROTECTION
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STATE OF NEVADA
Department of Conservation & Natural Resources
DIVISION OF ENVIRONMENTAL PROTECTION

Brian Sandoval, Governor
Leo M. Drozdoff, P.E., Director
Colleen Cripps, Ph.D., Administrator

June 3, 2013

Jared Blumenfeld, Regional Administrator
ORA-1, USEPA Region 9
75 Hawthorne Street
San Francisco CA 94105

RE: The Nevada State Implementation Plan for the 2010 Sulfur Dioxide Primary NAAQS

Dear Mr. Blumenfeld:

On behalf of Governor Sandoval, as his appointed designee, this letter transmits to you one hard copy and one exact duplicate of the hard copy in electronic form of *The Nevada State Implementation Plan for the 2010 Sulfur Dioxide Primary NAAQS*. This "infrastructure" SIP is submitted pursuant to Clean Air Act (CAA) sections 110 (a)(1) and (2) and embodies Nevada's plan for meeting the CAA requirements for implementing, maintaining and enforcing the 2010 sulfur dioxide (SO_2) primary NAAQS. The Nevada Division of Environmental Protection (NDEP) requests approval of the enclosed SO_2 infrastructure SIP into the applicable Nevada state implementation plan.

The following documents comprise the SIP:

- *The Nevada Division of Environmental Protection Portion of the Nevada State Implementation Plan for the 2010 Sulfur Dioxide Primary NAAQS* and appendices.
- May 29, 2013 letter from the Clark County Department of Air Quality transmitting their 2010 sulfur dioxide NAAQS infrastructure SIP to the NDEP.
- *State Implementation Plan Revision to Meet the Sulfur Dioxide Infrastructure SIP Requirements of the Clean Air Act Section 110(a)(2)* and attachments. Clark County, Nevada.
- May 24, 2013 letter from the Washoe County Health District-Air Quality Management Division transmitting their 2010 sulfur dioxide NAAQS infrastructure SIP to the NDEP.
- *The Washoe County Portion of the Nevada State Implementation Plan to Meet the Sulfur Dioxide Infrastructure SIP Requirements of Clean Air Act Section 110(a)(2)* and attachments.

The enclosed demonstrations from each of the three Nevada air agencies are organized in table format and list each CAA section 110(a)(2) element and the existing Nevada SIP provisions that satisfy the requirement in each element. In the absence of guidance from the U.S. Environmental Protection Agency (USEPA) for the 2010 sulfur dioxide infrastructure SIP, Nevada followed USEPA's October 14, 2011 guidance for lead infrastructure SIPs (USEPA, Memorandum to Regional Air Division Directors, *Guidance on Infrastructure State Implementation Plan Elements Required Under Sections 110(a)(1) and (2) for the 2008 Lead (Pb) National Ambient Air Quality Standards (NAAQS).* S. Page, OAQPS). Nevada's SO_2 infrastructure SIP selects those regulatory and statutory provisions from the Nevada applicable SIP that address sulfur

dioxide specifically. This should not be interpreted as an intent to exclude other more general provisions from the applicable SIP from applying to SO_2 sources in Nevada. Although some of the SIP provisions cited in the NDEP table may not be in state regulation, nonetheless, those provisions support the NDEP's authority to implement, maintain and enforce the 2010 SO_2 NAAQS because they are incorporated into the NDEP's Title V operating permits and are federally enforceable.

We certify that this submittal was properly noticed; evidence of public participation for each portion of Nevada's SO_2 infrastructure SIP is included with the respective submittals. For the NDEP portion of the SIP, the Administrator of the NDEP has the authority to adopt and submit state implementation plans to USEPA (see Appendix D). The NDEP portion of the SO_2 infrastructure SIP was public-noticed from April 19 through May 20, 2013, and adopted by the NDEP Administrator as of the date of this submittal. The Clark County portion of the SO_2 infrastructure SIP was adopted by the Clark County Board of Commissioners on May 7, 2013, after a 30-day public notice period. The Washoe County sulfur dioxide infrastructure SIP was adopted by the Washoe County District Board of Health on March 28, 2013, after a 30-day public notice period.

With the exception of those elements or sub-elements that depend on a SIP-based PSD program, the NDEP requests that the USEPA propose approval of the enclosed plan to implement, maintain and enforce the 2010 SO_2 primary NAAQS. The NDEP further requests that as provisions in Nevada's applicable SIP are replaced or removed through subsequent approvals by USEPA of SIP revisions submitted by the NDEP, USEPA update the affected provisions in all of Nevada's CAA 110(a)(2) SIPs accordingly.

If you should have any questions about this submittal or require additional clarification, you may contact Jasmine Mehta, Chief, Bureau of Air Quality Planning at (775) 687-9495.

Sincerely,

Colleen Cripps, Ph.D.
Administrator

Enclosures

cc w/o enclosures:
Cory Hunt, Policy Analyst, Office of the Governor
Amy Zimpfer, Associate Director, Air Division, USEPA Region IX (AIR-1)
Doris Lo, Acting Chief, Planning Office, USEPA Region IX (AIR-2)
Kevin Dick, Director, Air Quality Management Division, Washoe County Health District
Lewis Wallenmeyer, Director, Department of Air Quality & Environmental Management, Clark County
ec w/o enclosures
Leo Drozdoff, Director, Nevada Department of Conservation and Natural Resources
Michael Elges, Deputy Administrator, NDEP
Jasmine Mehta, Chief, Bureau of Air Quality Planning, NDEP
Rob Bamford, Chief, Bureau of Air Pollution Control, NDEP

Certified Mail No. 9171 9690 0935 0011 8844 98

The Nevada Division of Environmental Protection Portion of the Nevada State Implementation Plan for the 2010 Sulfur Dioxide Primary NAAQS

June 3, 2013

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Acronyms and Abbreviations

BART	Best available retrofit technology
CAA	Clean Air Act
CFR	Code of Federal Regulations
FIP	Federal implementation plan
FR	Federal Register
NAAQS	National ambient air quality standard
NDEP	Nevada Division of Environmental Protection
NAC	Nevada Administrative Code
NRS	Nevada Revised Statute
NSR	New source review
$PM_{2.5}$	Particulate matter less than or equal to a nominal 2.5 microns in aerodynamic diameter
PM_{10}	Particulate matter less than or equal to a nominal 10 microns in aerodynamic diameter
PSD	Prevention of significant deterioration
RH	Regional haze
SIP	State implementation plan
SO_2	Sulfur dioxide
US EPA	U.S. Environmental Protection Agency

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Introduction and Background

Sections 110(a)(1) and 110(a)(2), which are generally called the "infrastructure" state implementation plan (SIP) requirements of the Clean Air Act (CAA), require states to submit a plan to the U.S. Environmental Protection Agency (US EPA) demonstrating their ability and authority to implement, maintain, and enforce each newly promulgated or revised national ambient air quality standard (NAAQS). Section 110(a)(1) addresses the timing requirement for the submission of infrastructure SIPs. States are required to submit a statewide infrastructure SIP to the US EPA not later than 3 years after promulgation of a new or revised NAAQS.

Section 110(a)(2) lists the elements, (A) through (M), that generally must be addressed in an infrastructure SIP. Many of the section 110(a)(2) elements relate to the general information and authorities that constitute the infrastructure of a state's air quality management program. The required elements include: enforceable emission limitations, an ambient air monitoring program, an enforcement program, air quality modeling capabilities, and confirmation of adequate personnel, resources and legal authority.

The federally enforceable applicable SIP for Nevada is compiled in 40 CFR Part 52 Subpart DD. This infrastructure SIP addresses the Nevada Division of Environmental Protection's (NDEP) authority to implement, maintain and enforce the 2010 primary sulfur dioxide (SO_2) NAAQS for the NDEP's jurisdiction. The following table demonstrates how the NDEP, through its SIP and state programs, addresses each of the applicable requirements of section 110(a)(2). Although some of the SIP provisions cited may not be in state regulation, they are incorporated into title V operating permits and are federally enforceable.

Per US EPA direction, the NDEP has developed the table in accordance with US EPA's October 14, 2011 guidance for the 2008 lead NAAQS (US EPA, Memorandum to Regional Air Division Directors, 10/14/11. *Guidance on Infrastructure State Implementation Plan (SIP) Elements Required Under Sections 110(a)(1) and 110(a)(2) for the 2008 Lead (Pb) National Ambient Air Quality Standards (NAAQS).* Stephen D. Page). The description of each required element is taken from the guidance. We have also relied on US EPA's recent action on Nevada's ozone and fine particulate matter infrastructure SIPs (77 FR 64737). The statutory and regulatory provisions of the applicable SIP referenced in the table were previously submitted to US EPA with Nevada's nitrogen dioxide infrastructure SIP (January 18, 2013).

The following support documents are appended:

APPENDIX A:	Non-SIP Provisions Cited in Elements A and J
APPENDIX B:	Ambient Air Monitoring Network Plan 2012
APPENDIX C:	Interstate Transport Analysis for the 2010 SO_2 Primary NAAQS
APPENDIX D:	May 30, 2007 Letter to the US EPA Region 9 Administrator
APPENDIX E:	Evidence of Public Participation

Nevada Applicable State Implementation Plan Provisions for the 2010 SO_2 Primary NAAQS: Nevada Division of Environmental Protection Jurisdiction

SECTION 110(a)(2) ELEMENT	CURRENT PROGRAMS AND PROVISIONS IN THE NEVADA APPLICABLE SIP[1]
(A)	Emission limits and other control measures: Each such plan shall [. . .] include enforceable emission limitations and other control measures, means, or techniques (including economic incentives such as fees, marketable permits, and auctions of emissions rights), as well as schedules and timetables for compliance, as may be necessary or appropriate to meet the applicable requirements of this chapter.

The dominant source sector for sulfur dioxide (SO_2) emissions is fossil fuel combustion at power plants and other industrial facilities. Smaller sources of SO_2 emissions include industrial processes such as extracting metal from ore as well as the burning of high sulfur containing fuels by locomotives, large ships, and nonroad equipment. The Nevada applicable SIP includes enforceable emission limits and other control measures, means, or techniques, as well as schedules for compliance to support element (A) in Nevada Administrative Code (NAC):

- *Article 8.2.1 "No person shall cause, suffer, allow or permit the emission of sulfur compounds cause by the combustion of fuel in excess of...."*
- *Article 8.2.2 "For the purpose of Article 8, "sulfur emission" means the sulfur portion of the sulfur compounds emitted."*
- *445B.2204 "Sulfur emission" defined.*
- *445B.22043 Sulfur emissions: Calculation of total feed sulfur.*
- *445B.22047 Sulfur emissions: Fuel-burning equipment.*
- *445B. 2205 Sulfur emissions: Other processes which emit sulfur.*
- *445B.22067 Open burning.*
- *445B.2207 Incinerator burning.*
- *445B. 22083 Construction, major modification or relocation of plants to generate electricity using steam produced by burning of fossil fuels.*
- *445B.22095 Emission limitation for BART.*
- *445B.22096 Control measures constituting BART; limitations on emissions.*
- *445B.22097 Standards of quality for ambient air.*

[1] The NDEP requests that as provisions in Nevada's current applicable SIP are replaced or removed through subsequent approvals by US EPA of updated provisions submitted by the NDEP, US EPA also replace or remove those provisions in this SO_2 infrastructure SIP.

SECTION 110(a)(2) ELEMENT	CURRENT PROGRAMS AND PROVISIONS IN THE NEVADA APPLICABLE SIP[1]
	• *445B.308 Prerequisites and conditions for issuance of certain operating permits; compliance with applicable state implementation plan.* • *445B.310 Environmental evaluation: Applicable sources and other subjects; exemption.* • *445B.311 Environmental evaluation: Contents; consideration of good engineering practice stack height.* *The following provisions have not been submitted as part of Nevada's SIP, but are in the NAC and further support this element requirement (see Appendix A):* • *445B.22057 Allowable emissions of sulfur from specific sources: Units Numbers 1, 2 and 3 of Reid Gardner Power Station.* • *445B.2206 Allowable emissions of sulfur from specific sources: Unit Number 4 of Reid Gardner Power Station.* • *445B.22063 Allowable emissions of sulfur from specific sources: North Valmy Power Station.* • *445B.2208 Emission of hydrogen sulfide from certain facilities for generating electricity from geothermal brine).* • *445B.221 Adoption by reference and applicability of certain provisions of federal law and regulations.* *Finally, the NDEP does not have a SIP-based program to prevent significant deterioration of air quality; however, pursuant to 40 CFR 52.21(u), the US EPA has delegated its responsibility for implementation of the federal prevention significant deterioration (PSD) program to the NDEP as it existed on July 20, 2011. The PSD program provides a permitting review system to assure that the best controls available are selected before construction of a new major stationary source or modification of an existing major stationary source.*
(B)	Ambient air quality monitoring/data system: Each such plan shall [. . .] provide for establishment and operation of appropriate devices, methods, systems, and procedures necessary to (i) monitor, compile, and analyze data on ambient air quality, and (ii) upon request, make such data available to the Administrator.
	The NDEP commits to an ambient air quality monitoring program in its CAA section 105 grant work plan. The NDEP operates an air quality monitoring network that collects ambient air quality data that are compiled, analyzed, and reported to US EPA in accordance with 40 CFR 58. The network comprises federally-approved monitors that measure PM_{10}, $PM_{2.5}$ and ozone. The NDEP submitted its 2012 Annual Monitoring Network Plan to US EPA on June 30, 2012 (Appendix B). US EPA indicated in a February 28, 2013 letter to the NDEP that the details of the NDEP's monitoring network, except for five items that they did not act on, meet the requirements set forth under 40 CFR Part 58.10.

SECTION 110(a)(2) ELEMENT	CURRENT PROGRAMS AND PROVISIONS IN THE NEVADA APPLICABLE SIP[1]
US EPA's new monitoring requirements for SO_2 (75 FR 35520, June 22, 2010) do not require monitoring for SO_2 within the NDEP's jurisdiction, as no areas within NDEP's jurisdiction meet the requirements for monitors to be placed in Core Based Statistical Areas based on a population weighted emissions index for the areas.	
(C)	Programs for enforcement, PSD, and NSR: Each such plan shall [. . .] include a program to provide for the enforcement of the measures described in subparagraph [element] (A), and regulation of the modification and construction of any stationary source within the areas covered by the plan as necessary to assure that national ambient air quality standards are achieved, including a permit program as required in parts C and D of this subchapter.
The Nevada applicable SIP contains the following provisions that provide enforcement authority. *NRS:* • *445B.210 Powers of Commission.* • *445B.230 Powers and duties of Department.* • *445B.450 Notice and order by Director; hearing; alternative procedures.* • *445B.460 Injunctive relief.* • *445B.640 Levy and disposition of administrative fines; additional remedies available; penalty.* *NAC:* • *445B.225 Prohibited conduct: Concealment of emissions.* • *445B.227 Prohibited conduct: Operation of source without required equipment; removal or modification of required equipment; modification of required procedure.* • *445B.229 Hazardous emissions: Order for reduction of emissions.* • *445.667 Excess emissions: Scheduled maintenance; testing; malfunctions.* • *445B.250 Notification of planned construction or reconstruction.* • *445B.252 Testing and sampling.* • *445.694 Emission discharge information.* • *445B.275 Violations: Acts constituting; notice.* • *445B.277 Stop orders.* • *445B.308 Prerequisites and conditions for issuance of certain operating permits; compliance with applicable state implementation plan.*	

SECTION 110(a)(2) ELEMENT	CURRENT PROGRAMS AND PROVISIONS IN THE NEVADA APPLICABLE SIP[1]
	• *445B.310 Environmental evaluation: Applicable sources and other subjects; exemption.* • *445B.311 Environmental evaluation: Contents; consideration of good engineering practice stack height.* • *Article 13 General Provisions for the Review of New Sources.* *In addition, the NDEP has full delegation from the US EPA of the federal PSD program as it existed on July 20, 2011 at 40 CFR 52.21.*
(D)(i)	<u>Interstate transport provisions</u>: Each such plan shall […] contain adequate provisions: (i) prohibiting, consistent with the provisions of this subchapter, any source or other type of emissions activity within the State from emitting any air pollutant in amounts which will, (I) contribute significantly to nonattainment in, or interfere with maintenance by, any other State with respect to any such national primary or secondary ambient air quality standard, or (II) interfere with measures required to be included in the applicable implementation plan for any other State under part C of this subchapter to prevent significant deterioration of air quality or to protect visibility.
	<u>(D)(i)(I)</u> *Gina McCarthy, Assistant Administrator of the US EPA issued a memo on November 19, 2012 to EPA Air Division Directors, Regions 1-10, regarding states' and US EPA's obligations with respect to the requirements of (D)(i)(I). Ms. McCarthy notes:* *"I would also like to note that the recent CSAPR decision made certain holdings regarding the requirement for states to submit SIPs addressing the provisions of Clean Air Act section 110(a)(2)(D)(i)(I), the good neighbor provision that addresses upwind emissions linked to NAAQS attainment problems in downwind states. The decision states that a SIP cannot be deemed deficient for failing to meet the good neighbor obligation before the EPA quantifies that obligation. Although we have filed a petition for rehearing of the Court's decision, including this element of the decision, and although the mandate for that decision has not yet been issued, we intend to act in accordance with the decision during the pendency of the appeal. Therefore, at this time the EPA does not intend to make findings that states failed to submit SIPs to comply with section 110(a)(2)(D)(i)(I). To the extent that states may inquire about their obligations to submit SIPs addressing this provision, we believe it would be appropriate to convey that at this time we do not intend to make such findings with respect to section 110(a)(2)(D)(i)(I)."* *Because US EPA has not informed Nevada of its contribution to any SO_2 NAAQS attainment problem in downwind states, the NDEP concludes that it is not obligated to address this requirement at this time. Nevertheless, the NDEP did conduct an interstate transport analysis, which is presented in Appendix C. Based on this analysis, the State of Nevada concludes that sulfur dioxide*

SECTION 110(a)(2) ELEMENT	CURRENT PROGRAMS AND PROVISIONS IN THE NEVADA APPLICABLE SIP[1]
emissions from Nevada do not contribute to nonattainment or interfere with maintenance of the 2010 SO_2 standard or the previous SO_2 standards in any other state. Nevada commits to continue to review new air quality information as it becomes available to ensure that this negative declaration is still supported by such information. *(D)(i)(II)* *New major sources and major modifications in Nevada are subject to PSD. The NDEP does not have a SIP-based program to prevent significant deterioration of air quality; however, pursuant to 40 CFR 52.21(u), the US EPA has delegated its responsibility for implementation of the federal PSD program to the NDEP as it existed on July 20, 2011 thus meeting the requirements of (D)(i)(II). The visibility requirements of subsection (D)(i)(II) are addressed by the "Nevada Regional Haze State Implementation Plan." US EPA finalized approval of most of the Nevada regional haze SIP on March 26, 2012 (77 FR 17334). US EPA approved in part and disapproved in part the remaining portion of the regional haze SIP on August 23, 2012 (77 FR 50936). In the same action, US EPA promulgated a FIP replacing the disapproved provisions of the State plan.*	
(D)(ii)	Interstate and international transport provisions: Each such plan shall [. . .] contain adequate provisions: (ii) insuring compliance with the applicable requirements of CAA sections 115 or 126 that involve SO_2 emissions (relating to interstate and international pollution abatement).
CAA section 115 *The requirements of section 115 do not apply, because there are no actions pending against Nevada.* *CAA section 126* *The following provisions (NAC) of the Nevada applicable SIP address the CAA section 126(a) requirements regarding notification to affected nearby states of major proposed new or modified sources. [see also elements (J) and (M)]:* • *445B.325 Operating permits: Termination, reopening and revision, revision, or revocation and reissuance.* • *445B.3364 Operating permit to construct: Action by Director on application; notice; public comment and hearing.* • *445B.3395 Action by Director on application; notice; public comment and hearing; objection by Administrator; expiration of permit.* • *445B.3425 Minor revision of permit.* • *445B.344 Significant revision of permit.* • *445B.3441 Administrative revision of permit to incorporate conditions of certain permits to construct.* • *445B.3457 Action by Director on application; notice; public comment and hearing; expiration of permit.*	

SECTION 110(a)(2) ELEMENT	CURRENT PROGRAMS AND PROVISIONS IN THE NEVADA APPLICABLE SIP[1]
	In addition, although the NDEP does not have a SIP-based program to prevent significant deterioration of air quality, pursuant to 40 CFR 52.21(u), the US EPA has delegated its responsibility for implementation of the federal prevention significant deterioration (PSD) program to the NDEP as it existed on July 20, 2011. The federal PSD program also addresses the section 126(a) notification requirements. *The requirements of section 126 (b) and (c) do not apply, because there are no petitions pending against Nevada.*
(E)	Adequate personnel, funding and authority: Each such plan shall [. . .] provide: (i) necessary assurances that the state (or, except where the Administrator deems inappropriate, the general purpose local government or governments, or a regional agency designated by the state or general purpose local governments for such purpose) will have adequate personnel, funding, and authority under state (and, as appropriate, local) law to carry out such implementation plan (and is not prohibited by any provision of federal or state law from carrying out such implementation plan or portion thereof), (ii) requirements that the state comply with the requirements respecting state boards under section 128, (See section 40 CFR 52.1182, http://edocket.access.gpo.gov/cfr_2004/julqtr/pdf/40cfr52.1180.pdf (iii) necessary assurances that, where the state has relied on a local or regional government, agency, or instrumentality for the implementation of any plan provision, the state has responsibility for ensuring adequate implementation of such plan provision.
	NRS 445B.205, "Department designated as State Air Pollution Control Agency," designates the Department of Conservation and Natural Resources as the air pollution control agency for the State of Nevada for the purposes of the CAA insofar as it pertains to state programs. Within the Department, pursuant to NAC 445B.053 ("Director" defined), the Director has assigned the NDEP responsibility to manage air quality planning and air pollution control programs for the State and to act on his behalf for the purposes of adoption, revision and submittal of state plans (see Appendix D). *The specific statutes in the Nevada applicable SIP that deal with personnel, funding, authority to support SIP requirements, CAA section 128 requirements, and state responsibility for implementing the SIP include NRS:* • *232A.020 Residency requirement for appointment; terms of members; vacancies; qualification of member appointed as representative of general public; gubernatorial appointee prohibited from serving on more than one board, commission or similar body.*

SECTION 110(a)(2) ELEMENT	CURRENT PROGRAMS AND PROVISIONS IN THE NEVADA APPLICABLE SIP[1]
	• *281A.150 "Public employee" defined.* • *281A.160 "Public officer" defined.* • *281A.400 General requirements: exceptions.* • *281A.410 Limitations on representing or counseling private persons before public agencies; disclosure required by certain public officers.* • *281A.420 Requirements regarding disclosure of conflicts of interest and abstention from voting because of certain types of conflicts; effect of abstention on quorum and voting requirements; exceptions. 445B.200 Creation and composition; Chairman; quorum; compensation of members and employees; disqualification; technical support.* • *445B.210 Powers of Commission.* • *445B.220 Additional powers of Commission.* • *445B.225 Power of Commission to require testing of sources.* • *445B.230 Powers and duties of Department.* • *445B.235 Additional powers of Department.* • *445B.240 Power of representatives of Department to enter and inspect premises.* • *445B.245 Power of Department to perform or require test of emissions from stacks.* • *445B.300 Operating permit for source of air contaminant; notice and approval of proposed construction; administrative fees; failure of Commission or Department to act.* • *445B.450 Notice and order by Director; hearing; alternative procedures.* • *445B.460 Injunctive relief.* • *445B.500 Establishment and administration of program; contents of program; designation of air pollution control agency of county for purposes of federal act; powers and duties of local air pollution control board; notice of public hearings; delegation of authority to determine violations and levy administrative penalties; cities and smaller counties; regulation of certain electric plants prohibited.* • *445B.510 Commission may require program for designated area.* • *445B.520 Commission may establish or supersede county program.* • *445B.530 Commission may assume jurisdiction over specific classes of air contaminants.* • *445B.540 Restoration of superseded local program; continuation of existing local program.* • *445B.560 Plan or procedure for emergency.*

SECTION 110(a)(2) ELEMENT	CURRENT PROGRAMS AND PROVISIONS IN THE NEVADA APPLICABLE SIP[1]
	• *445B.570 Confidentiality and use of information obtained by Department; penalty.* • *445B.580 Officer of Department may inspect or search premises; search warrant.* • *445B.640 Levy and disposition of administrative fines; additional remedies available; penalty for failure to pay administrative fine.* *Further, Section 12 ("Resources") of the Nevada applicable SIP, updated effective October 23, 2012 (77 FR 64737), provides information concerning funding and personnel supporting the functions of the three air pollution control agencies administering CAA programs in Nevada: the NDEP, Clark County Department of Air Quality, and Washoe County Health District Air Quality Management Division.* *The Nevada Legislature approves the NDEP air programs' funding and personnel resources requests every two years. The air programs receive funding from fees paid by regulated businesses, motor vehicle registration fees, and federal grants. The NDEP's State Fiscal Year 2012 budget is in excess of $7 million with 54 approved full-time equivalent staff positions in the air programs.*
(F)	Stationary source monitoring and reporting: Each such plan shall [. . .] require, as may be prescribed by the Administrator: (i) the installation, maintenance, and replacement of equipment, and the implementation of other necessary steps, by owners or operators of stationary sources to monitor emissions from such sources, (ii) periodic reports on the nature and amounts of emissions and emissions-related data from such source, and (iii) correlation of such reports by the state agency with any emission limitations or standards established pursuant to this chapter, which reports shall be available at reasonable times for public inspection.
	Nevada's applicable SIP provides a system for monitoring emissions from stationary sources and the submittal of periodic emission reports in NAC: • *445B.063 "Excess emissions" defined.* • *445B.252 Testing and sampling.* • *445B.256 Monitoring systems: Calibration, operation, and maintenance of equipment.* • *445B.257 Monitoring systems: Location.* • *445B.258 Monitoring systems: Verification of operational status.* • *445B.259 Monitoring systems: Performance evaluations.* • *445B.260 Monitoring systems: Components contracted for before September 11, 1974.*

SECTION 110(a)(2) ELEMENT	CURRENT PROGRAMS AND PROVISIONS IN THE NEVADA APPLICABLE SIP[1]
	• *445B.261 Monitoring systems: Adjustments.* • *445B.262 Monitoring systems: Measurement of opacity.* • *445B.263 Monitoring systems: Frequency of operation.* • *445B.264 Monitoring systems: Recordation of data.* • *445B.265 Monitoring systems: Records; reports.* • *445B.267 Alternative monitoring procedures or requirements.* • *445B.275 Violations: Acts constituting; notice.* • *445B.308 Prerequisites and conditions for issuance of certain operating permits; compliance with applicable state implementation plan. [See paragraph (a) of subsection (7).]* • *445B.315(3) Contents of operating permits: Exception for operating permits to construct; required conditions.* • *445B.3368 Additional requirements for application; exception.* • *445B.346 Required contents of permit.* *NRS 445B.570 is also supportive of the portion of the CAA section 110(a)(2)(F)(iii) requirement pertaining to the public availability of reports.* *Ambient air quality monitoring data and trends are reported annually in the Nevada Air Quality Trend Report. This report indirectly correlates stationary source emissions with the NAAQS. It is available for public inspection on the NDEP's web site at http://ndep.nv.gov/baqp/monitoring/docs/trend.pdf. Additionally, the state submits stationary source emissions data to US EPA for publication in the annual National Emission Inventory, which is also available for public inspection.*
(G)	Emergency episodes: Each such plan shall provide for authority comparable to that in section 303 of this title and adequate contingency plans to implement such authority.
	Emergency powers are provided in Nevada's current SIP in: • *NRS 445B.560 Plan or procedure for emergency.* • *NAC 445B.229 Hazardous emissions: Order for reduction or discontinuance.* • *NAC 445B.230 Plan for reduction of emissions.* *The provisions cited above are adequate to constrain any sources of SO_2 emissions, as necessary, in an emergency situation.*

SECTION 110(a)(2) ELEMENT	CURRENT PROGRAMS AND PROVISIONS IN THE NEVADA APPLICABLE SIP[1]
	40 CFR 52.1471 lists the classification of air quality control regions for certain criteria pollutants. The NDEP has jurisdiction over four of the five counties in the "Northwest Nevada Intrastate" region, which is classified as a priority III area for SO_2. Priority III areas are not required to prepare emergency episode plans (51.152(c)). The NDEP also has jurisdiction over the "Nevada Intrastate" region, which is classified as a priority IA area. Priority IA means an area that has exceeded the ambient air concentration threshold for episode plans because of a single point source. In this case, the point source that caused the exceedances was the Kennecott copper smelter in McGill, Nevada. Kennecott was located in the Steptoe Valley in White Pine County. The smelter caused violations of the NAAQS between 1975 and 1977; it ceased operation in 1983 and was completely demolished by 1993.The area was redesignated attainment on April 12, 2002 (67 FR 17939). *Because the SO_2 source responsible for the priority IA classification no longer exists and because the single nonattainment area in the Nevada Intrastate region was redesignated attainment, the NDEP requests that USEPA change the classification of the Nevada Intrastate air quality control region to priority III. Lacking that action by USEPA, the NDEP requests pursuant to 40 CFR 51.152(d) that the USEPA exempt the Nevada Intrastate region from the requirement to develop an emergency episode plan.* *The NDEP further requests that USEPA remove paragraphs (a) and (b) of section 1475 of 40 CFR 52, "Control strategy and regulations: Sulfur oxides." Section 1475 was added to the CFR in 1975 ". . . to promulgate substitute regulations for the control of SO_2 at the Kennecott Copper Corporation Smelter, McGill, Nevada . . ." because Nevada's SIP to control of emissions of sulfur oxides from the Kennecott smelter was disapproved (40 CFR 5508). Section 1475 no longer applies since the Kennecott smelter is nonexistent and the area was redesignated attainment.*
(H)	Future SIP revisions: Each such plan shall [. . .] provide for revision of such plan— (i) from time to time as may be necessary to take account of revisions of such national primary or secondary ambient air quality standard or the availability of improved or more expeditious methods of attaining such standard, and (ii) except as provided in paragraph (3)(C), whenever the Administrator finds on the basis of information available to the Administrator that the plan is substantially inadequate to attain the national ambient air quality standard which it implements or to otherwise comply with any additional requirements established under this chapter (CAA).
NRS 445B.205, "Department designated as State Air Pollution Control Agency," designates the Department of Conservation and Natural Resources as the air pollution control agency for the State of Nevada for the purposes of the CAA insofar as it pertains to state programs. Within the Department, pursuant to NAC 445B.053 ("Director" defined), the Director has assigned the NDEP	

SECTION 110(a)(2) ELEMENT	CURRENT PROGRAMS AND PROVISIONS IN THE NEVADA APPLICABLE SIP[1]
Administrator responsibility to manage air quality planning and air pollution control programs for the State and to act on his behalf for the purposes of adoption, revision and submittal of state plans (see Appendix D). The NDEP commits to submit appropriate SIP revisions in response to changes in the NAAQS, availability of improved methods for attaining the NAAQS, or in response to a US EPA finding that the SIP is substantially inadequate. *Other NRS that may provide support for this element include:* • *445B.135 "Federal Act" defined.* • *445B.210 Powers of Commission.* • *445B.220 Additional powers of Commission.* • *445B.500 Establishment and administration of program; contents of program; designation of air pollution control agency of county for purposes of federal act; powers and duties of local air pollution control board; notice of public hearings; delegation of authority to determine violations and levy administrative penalties; cities and smaller counties; regulation of certain electric plants prohibited.*	
(I)	Nonattainment area plan or plan revision under Part D: Each such plan shall [. . .] in the case of a plan or plan revision for an area designated as a nonattainment area, meet the applicable requirements of part D of this subchapter (relating to nonattainment areas).
US EPA considers this element of 110(a)(2) to be outside the scope of infrastructure SIP actions because it pertains to plan requirements for nonattainment areas. Therefore, US EPA does not expect infrastructure SIP submissions to address this element (US EPA, Memorandum to Regional Air Division Directors, 10/14/11. Guidance on SIP Elements Required Under Sections 110(a)(1) and (2) for the 2008 Lead (Pb) National Ambient Air Quality Standards (NAAQS). S. Page).	
(J)	Consultation with government officials, public notification, PSD and visibility protection: Each such plan shall [. . .] meet the applicable requirements of section 121 of this title (relating to consultation), section 127 of this title (relating to public notification), and part C of this subchapter (relating to prevention of significant deterioration of air quality and visibility protection).
CAA Section 121 *Section 11 of the Nevada applicable SIP, "Intergovernmental Relations," describes the process for consultation among the three air pollution control agencies administering CAA programs in Nevada: NDEP, Clark County Department of Air Quality, and Washoe County Health District's Air Quality Management Division, as well as for regional planning and transportation agencies that also have certain air-quality-planning-related responsibilities. It identifies the applicable state and local provisions governing*	

SECTION 110(a)(2) ELEMENT	CURRENT PROGRAMS AND PROVISIONS IN THE NEVADA APPLICABLE SIP[1]

consultation; describes provisions relevant to consultation in permitting new or modified stationary sources; and, for Clark County, Washoe County and the Lake Tahoe Basin, addresses consultation's role in transportation planning and conformity to the Nevada applicable SIP.

Together with Section 11, the following SIP provisions fulfill the requirements of CAA section 121.

NRS:

- *445B.220 Additional powers of Commission.*
- *445B.235 Additional powers of Department.*
- *445B.500 Establishment and administration of program; contents of program; designation of air pollution control agency of county for purposes of federal act; powers and duties of local air pollution control board; notice of public hearings; delegation of authority to determine violations and levy administrative penalties; cities and small counties; regulation of certain electric plants provided.*
- *445B.503 Local air pollution control board in county whose population is 400,000 or more: Cooperation with regional planning coalition and regional transportation commission; prerequisites to adoption or amendment of plan, policy or program.*
- *445B.510 Commission may require program for designated areas.*

NAC:

- *445B.325 Operating permits: Termination, reopening and revision, revision, or revocation and reissuance.*
- *445B.3364 Operating permit to construct: Action by Director on application; notice; public comment and hearing.*
- *445B.3395 Action by Director on application; notice; public comment and hearing; objection by Administrator; expiration of permit.*
- *445B.3425 Minor revision of permit.*
- *445B.344 Significant revision of permit.*
- *445B.3441 Administrative revision of permit to incorporate conditions of certain permits to construct.*
- *445B.3447 Class I general permit.*
- *445B.3457 Action by Director on application; notice; public comment and hearing; expiration of permit.*

The following provisions have not been submitted as part of Nevada's SIP, but are in state law or regulation and further support

SECTION 110(a)(2) ELEMENT	CURRENT PROGRAMS AND PROVISIONS IN THE NEVADA APPLICABLE SIP[1]

this element requirement (see Appendix A).

NRS Chapter 445B, Air Pollution:

- *445B.100 Declaration of public policy.*

NRS Chapter 233B, Nevada Administrative Procedure Act, requires notification and provision of comment opportunities to all parties affected by proposed regulations:

- *233B.060 Notice of adoption, amendment or repeal of permanent or temporary regulation; adoption of permanent regulation after adoption of temporary regulation.*
- *233B.0603 Contents and form of notice of intent to adopt, amend or repeal permanent or temporary regulation; solicitation of comments from public or affected businesses.*
- *233B.061 Proposed permanent or temporary regulation: Public comment; workshop; public hearing; applicability of Open Meeting Law.*

Additionally, NAC 445B.221, "Adoption by reference and applicability of certain provisions of federal law and regulations," adopts the federal PSD requirements by reference and thereby includes requirements to consult with affected land managers on PSD-related actions.

Section 127

The NDEP maintains a web site, http://ndep.nv.gov/, which describes the state's air quality planning and air pollution control programs and includes public information pages with public notices and news releases. The Nevada Air Quality Trend Report (http://ndep.nv.gov/baqp/monitoring/docs/trend.pdf) is published annually and includes a discussion of air quality trends with respect to the NAAQS. Furthermore, the NDEP continues to be in compliance with US EPA monitoring requirements for the SO_2 NAAQS; no ambient air quality monitoring is required in the NDEP jurisdiction. The single nonattainment area in the NDEP's jurisdiction was designated in 1978 in the Steptoe Valley in White Pine County. The Steptoe Valley was redesignated attainment in two separate actions: the northern and southern portions on May 14, 1982 (47 FR 20773) and the central valley on April 12, 2002 (67 FR 17939). The copper smelter that caused violations of the NAAQS between 1975 and 1977 ceased operation in 1983 and was completely demolished by 1993.

Part C

The NDEP does not have a SIP-based program to prevent significant deterioration of air quality; however, pursuant to 40 CFR 52.21(u), the US EPA has delegated its responsibility for implementation of the federal prevention significant deterioration (PSD)

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program to the NDEP as it existed on July 20, 2011. With respect to visibility protection, according to the US EPA's interpretation of the CAA, this sub-element of element (J) does not need to be addressed (US EPA Memorandum 10/14/11, Guidance on SIP Elements Required Under Sections 110(a)(1) and (2) for the 2008 Lead (Pb) National Ambient Air Quality Standards (NAAQS). S. Page). For informational purposes, the NDEP submitted a regional haze SIP to US EPA on November 18, 2009. US EPA approved the entire RH SIP, with the exception of certain requirements for BART for nitrogen oxides at NV Energy's Reid Gardner Generating Station (77 FR 17334). On August 23, 2012, US EPA approved in part and disapproved in part the remaining portion of the regional haze SIP (77 FR 50936). In the same action, US EPA promulgated a FIP replacing the disapproved provisions of the State plan.	
(K)	Air quality modeling/data: Each such plan shall [. . .] provide for— (i) the performance of such air quality modeling as the Administrator may prescribe for the purpose of predicting the effect on ambient air quality of any emissions of any air pollutant for which the Administrator has established a national ambient air quality standard, and (ii) the submission, upon request, of data related to such air quality modeling to the Administrator.
Nevada's applicable SIP provides provisions for the environmental evaluation of stationary sources in: • *NAC 445B.308 Prerequisites and conditions for issuance of certain operating permits; compliance with applicable state implementation plan.* • *NAC 445B.310 Environmental evaluation: Applicable sources and other subjects; exemption.* • *NAC 445B.311 Environmental evaluation: Contents; consideration of good engineering practice stack height.* • *Article 13 General Provisions for the Review of New Sources.* *Additionally, the NDEP does not have a SIP-based program to prevent significant deterioration of air quality; however, pursuant to 40 CFR 52.21(u), the US EPA has delegated its responsibility for implementation of the federal prevention significant deterioration (PSD) program to the NDEP as it existed on July 20, 2011.*	
(L)	Permitting fees: Each such plan shall require the owner or operator of each major stationary source to pay to the permitting authority, as a condition of any permit required under this chapter, a fee sufficient to cover— (i) the reasonable costs of reviewing and acting upon any application for such a permit, and (ii) if the owner or operator receives a permit for such source, the reasonable costs of implementing and enforcing the

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	terms and conditions of any such permit (not including any court costs or other costs associated with any enforcement action), until such fee requirement is superseded with respect to such sources by the Administrator's approval of a fee program under subchapter (title) V of this chapter.
US EPA approved the NDEP's permitting fee program under title V of the CAA (66 FR 63188, December 5, 2001. Thus, a separate program to satisfy element (L) is not required.	
(M)	Consultation/participation by affected local entities: Each such plan shall [. . .] provide for consultation and participation by local political subdivisions affected by the plan.
The following applicable SIP provisions provide a framework for consultation in the development of SIPs or SIP revisions. *NRS:* • *445B.210 Powers of Commission.* • *445B.220 Additional powers of Commission.* • *445B.235 Additional powers of Department; deposit of money collected from sale of emission credits or allocations; Department to develop regulations concerning public participation in determination of amount of emission credits or allocations available for sale.* *Section 11 of the Nevada applicable SIP, "Intergovernmental Relations," describes the process for consultation among the three air pollution control agencies administering CAA programs in Nevada: NDEP, Clark County Department of Air Quality, and Washoe County Health District's Air Quality Management Division, as well as for regional planning and transportation agencies that also have certain air-quality-planning-related responsibilities. For each area, SIP Section 11 identifies the applicable state and local provisions governing consultation and notification to affected entities, including for those parts of the SIP related to permitting new and modified major sources and transportation planning, as appropriate. By the very nature of delegating air program responsibilities to Clark County and Washoe County, and cooperating with the Tahoe Regional Planning Agency, while retaining SIP revision authority at the state level, Nevada has instilled a process for developing, implementing, and enforcing the SIP that relies upon the involvement of such local political subdivisions.* *The Nevada applicable SIP further provides authority and functionality to the primary agencies in Clark and Washoe counties to engage local political subdivisions in air quality planning. It also includes provisions to supersede a county program, if such program is found inadequate by the State Environmental Commission. These authorities are found in NRS:* • *445B.500 Establishment and administration of program; contents of program; designation of air pollution control agency of*	

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	county for purposes of federal act; powers and duties of local air pollution control board; notice of public hearings; delegation of authority to determine violations and levy administrative penalties; cities and smaller counties; regulation of certain electric plants prohibited. • *445B.503 Local air pollution control board in county whose population is 700,000 or more: Cooperation with regional planning coalition and regional transportation commission; prerequisites to adoption or amendment of plan, policy or program.* • *445B.510 Commission may require program for designated area.* • *445B.520 Commission may establish or supersede county program.*

APPENDIX A

Non-SIP Provisions Cited in Elements A and J

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APPENDIX A

Non-SIP Provisions Cited in Elements A and J

Nevada Administrative Code

Chapter 445B, Air Controls (August 2012 codification):

NAC 445B.22057 Allowable emissions of sulfur from specific sources: Units Numbers 1, 2 and 3 of Reid Gardner Power Station. (NRS 445B.210) The allowable emission of sulfur from fossil fuel-fired power generating units Numbers 1, 2 and 3 of NV Energy's Reid Gardner Station, located in Air Quality Control Region 13, Basin 218, California Wash, must not be greater than 0.275 pounds per million Btu's (0.495 kilograms per million kg-cal).

[Environmental Comm'n, Air Quality Reg. § 8.2.1.3 + § 16.1.3.5, eff. 1-1-83]—(NAC A 9-19-90; R065-03, 10-30-2003; R096-05, 10-31-2005)

NAC 445B.2206 Allowable emissions of sulfur from specific sources: Unit Number 4 of Reid Gardner Power Station. (NRS 445B.210) The allowable emission of sulfur from fossil fuel-fired power generating unit Number 4 of NV Energy's Reid Gardner Station, located in Air Quality Control Region 13, Basin 218, California Wash, must not be greater than 0.145 pounds per million Btu's (0.261 kilograms per million kg-cal). The efficiency of the capture of sulfur must be maintained at a minimum of 85 percent, based on a 30-day rolling average.

(Added to NAC by Environmental Comm'n, eff. 8-22-86; A by R096-05, 10-31-2005)

NAC 445B.22063 Allowable emissions of sulfur from specific sources: North Valmy Power Station. (NRS 445B.210) The allowable emission of sulfur from fossil fuel-fired power generating unit Number 2 NV Energy's North Valmy Station, located in Air Quality Control Region 147, Basin 64, Clovers Area, must not be greater than 0.3 pounds per million Btu's (0.540 kilograms per million kg-cal). The efficiency of the capture of sulfur must be maintained at a minimum of 70 percent, based on a 30-day rolling average.

(Added to NAC by Environmental Comm'n, eff. 8-22-86; A 9-25-87; R096-05, 10-31-2005)

NAC 445B.2208 Emission of hydrogen sulfide from certain facilities for generating electricity from geothermal brine. (NRS 445B.210) The emission of hydrogen sulfide from the facilities for generating electricity from geothermal brine at the Oxbow Geothermal Corporation's geothermal power plant in Air Quality Control Region 147, Basin 128, Dixie Valley, may not exceed 249 short tons (225.9 metric tons) per year.

(Added to NAC by Environmental Comm'n, eff. 10-18-88)—(Substituted in revision for NAC 445B.387)

NAC 445B.221 Adoption by reference and applicability of certain provisions of federal law and regulations. (NRS 445B.210)

1. Title 40 C.F.R. §§ 51.100(s), 51.100(nn) and 51.301 and Appendix S of 40 C.F.R. Part 51 are hereby adopted by reference as they existed on July 1, 2010.
2. Title 40 C.F.R. § 51.165 is hereby adopted by reference as it existed on July 1, 2002.
3. Appendices M and W of 40 C.F.R. Part 51 are hereby adopted by reference as they existed on July 1, 2010.
4. Title 40 C.F.R. § 52.21 is hereby adopted by reference as it existed on July 18, 2011.
5. Appendix E of 40 C.F.R. Part 52 is hereby adopted by reference as it existed on July 1, 2011.
6. The following subparts of 40 C.F.R. Part 60 are hereby adopted by reference:

(a) Subpart A, except §§ 60.4, 60.8(b)(2), 60.8(b)(3), 60.8(g) and 60.11(e), as it existed on July 1, 2011;

(b) Section 60.21 of Subpart B, as it existed on July 1, 2011;

(c) Subparts C, Cb, Cc, Cd, Ce, D, Da, Db, Dc, E, Ea, Eb, Ec, F, G, H, I, J, K, Ka, Kb, L, M, N, Na, O, P, Q, R, S, T, U, V, W, X, Y, Z, AA, AAa, BB, CC, DD, EE, GG, HH, KK, LL, MM, NN, PP, QQ, RR, SS, TT, UU, VV,

VVa, WW, XX, BBB, DDD, FFF, GGG, GGGa, HHH, III, JJJ, KKK, LLL, NNN, OOO, PPP, QQQ, RRR, SSS, TTT, UUU, VVV, WWW, AAAA, CCCC, DDDD, EEEE, FFFF and KKKK as they existed on July 1, 2011;

(d) Subpart HHHH, except §§ 60.4105(b)(2), 60.4106, 60.4120 to 60.4142, inclusive, 60.4153(a) and (b) and 60.4176, as it existed on June 9, 2006; and

(e) Subparts IIII and JJJJ as they existed on August 29, 2011.

7. Appendices A, B and F of 40 C.F.R. Part 60 are hereby adopted by reference:

(a) Appendix A as it existed on July 1, 2010; and

(b) Appendices B and F as they existed on July 1, 2011.

8. Subparts A, C, D, E, F, H, I, J, K, L, N, O, P, Q, R, T, V, W, Y, BB and FF of 40 C.F.R. Part 61 are hereby adopted by reference as they existed on July 1, 2010.

9. Appendix B of 40 C.F.R. Part 61 is hereby adopted by reference as it existed on July 1, 2010.

10. The following subparts of 40 C.F.R. Part 63 are hereby adopted by reference:

(a) Subpart A as it existed on July 1, 2010;

(b) Subparts B, C, F, G, H, I, J, L, M, N, O, Q, R, S, T, U, W, X, Y, AA, BB, CC, DD, EE, GG, HH, II, JJ, KK, LL, MM, OO, PP, QQ, RR, SS, TT, UU, VV, WW, XX, YY, CCC, DDD, EEE, GGG, HHH, III, JJJ, LLL, MMM, NNN, OOO, PPP, QQQ, RRR, TTT, UUU, VVV, XXX, AAAA, CCCC, DDDD, EEEE, FFFF, GGGG, HHHH, IIII, JJJJ, KKKK, MMMM, NNNN, OOOO, PPPP, QQQQ, RRRR, SSSS, TTTT, UUUU, VVVV, WWWW, XXXX, YYYY, ZZZZ, AAAAA, BBBBB, CCCCC, DDDDD, EEEEE, FFFFF, GGGGG, HHHHH, JJJJJ, KKKKK, LLLLL, MMMMM, NNNNN, PPPPP, QQQQQ, SSSSS, WWWWW, YYYYY, ZZZZZ, BBBBBB, CCCCCC, DDDDDD, EEEEEE, FFFFFF, GGGGGG, HHHHHH, JJJJJJ, LLLLLL, MMMMMM, NNNNNN, OOOOOO, PPPPPP, QQQQQQ, RRRRRR, SSSSSS, TTTTTT, VVVVVV, XXXXXX, ZZZZZZ, AAAAAAA, BBBBBBB, CCCCCCC and EEEEEEE, as they existed on July 1, 2011; and

(c) Subpart WWWWWW as it existed on October 19, 2011.

11. Appendix A of 40 C.F.R. Part 63 is hereby adopted by reference as it existed on July 1, 2011.

12. Title 40 C.F.R. Part 72 is hereby adopted by reference as it existed on July 1, 2011. If the provisions of 40 C.F.R. Part 72 conflict with or are not included in NAC 445B.001 to 445B.3689, inclusive, the provisions of 40 C.F.R. Part 72 apply.

13. Title 40 C.F.R. Part 76 is hereby adopted by reference as it existed on July 1, 2011. If the provisions of 40 C.F.R. Part 76 conflict with or are not included in NAC 445B.001 to 445B.3689, inclusive, the provisions of 40 C.F.R. Part 76 apply.

14. Title 42 of the United States Code, section 7412(b), List of Hazardous Air Pollutants, is hereby adopted by reference as it existed on October 1, 1993.

15. The *Standard Industrial Classification Manual*, 1987 edition, published by the United States Office of Management and Budget, is hereby adopted by reference. A copy of the manual may be obtained, free of charge, from the United States Department of Labor at the Internet address **http://www.dol.gov**.

16. A copy of the publications which contain the provisions adopted by reference in subsections 1 to 14, inclusive, may be obtained from the:

(a) Division of State Library and Archives of the Department of Administration for 10 cents per page.

(b) Government Printing Office, free of charge, at the Internet address **http://www.gpoaccess.gov/nara/index.html**.

17. The following standards of ASTM International are hereby adopted by reference:

(a) ASTM D5504, "Standard Test Method for Determination of Sulfur Compounds in Natural Gas and Gaseous Fuels by Gas Chromatography and Chemiluminescence," set forth in Volume 05.06 of the *2008 Annual Book of ASTM Standards*. A copy of ASTM D5504 is available by mail from ASTM International, 100 Barr Harbor Drive, West Conshohocken, Pennsylvania 19428-2959, by telephone at (610) 832-9585 or at the Internet address **http://www.astm.org**, for the price of $40.

(b) ASTM D2234 and D2234M, "Standard Practice for Collection of a Gross Sample of Coal," set forth in Volume 05.06 of the *2008 Annual Book of ASTM Standards*. A copy of ASTM D2234 and D2234M is available by mail from ASTM International, 100 Barr Harbor Drive, West Conshohocken, Pennsylvania 19428-2959, by telephone at (610) 832-9585 or at the Internet address **http://www.astm.org**, for the price of $40.

(c) ASTM D2013, "Standard Practice for Preparing Coal Samples for Analysis," set forth in Volume 05.06 of the *2008 Annual Book of ASTM Standards*. A copy of ASTM D2013 is available by mail from ASTM International, 100 Barr Harbor Drive, West Conshohocken, Pennsylvania 19428-2959, by telephone at (610) 832-9585 or at the Internet address **http://www.astm.org**, for the price of $46.

(d) ASTM D6784, "Standard Test Method for Elemental, Oxidized, Particle-Bound and Total Mercury in Flue Gas Generated from Coal-Fired Stationary Sources (Ontario Hydro Method)," set forth in Volume 11.07 of the *2008 Annual Book of ASTM Standards*. A copy of ASTM D6784 is available by mail from ASTM International, 100 Barr Harbor Drive, West Conshohocken, Pennsylvania 19428-2959, by telephone at (610) 832-9585 or at the Internet address **http://www.astm.org**, for the price of $46.

(e) ASTM D2015, "Standard Test Method for Gross Calorific Value of Coal and Coke by the Adiabatic Bomb Calorimeter," dated April 10, 2000. A copy of ASTM D2015 is available for purchase at the IHS Standards Store, 15 Inverness Way East, M/S A110B, Englewood, Colorado 80112, or at the Internet address **http://global.ihs.com**, for the price of $56.

(f) ASTM D3286, "Standard Test Method for Gross Calorific Value of Coal and Coke by the Isoperibol Bomb Calorimeter," dated July 10, 1996. A copy of ASTM D3286 is available for purchase at the IHS Standards Store, 15 Inverness Way East, M/S A110B, Englewood, Colorado 80112, or at the Internet address **http://global.ihs.com**, for the price of $56.

(g) ASTM D1989, "Standard Test Method for Gross Calorific Value of Coal and Coke by Microprocessor Controlled Isoperibol Calorimeters," dated July 10, 1997. A copy of ASTM D1989 is available for purchase at the IHS Standards Store, 15 Inverness Way East, M/S A110B, Englewood, Colorado 80112, or at the Internet address **http://global.ihs.com**, for the price of $56.

18. For the purposes of the provisions of 40 C.F.R. Parts 60, 61 and 63, adopted by reference pursuant to this section, the Director may not approve alternate or equivalent test methods or alternative standards or work practices.

19. Except as otherwise provided in subsections 12 and 13, the provisions adopted by reference in this section supersede the requirements of NAC 445B.001 to 445B.3689, inclusive, for all stationary sources subject to the provisions adopted by reference only if those requirements adopted by reference are more stringent.

20. For the purposes of this section, "administrator" as used in the provisions of 40 C.F.R. Part 60, except Subpart B § 60.21 and Subpart HHHH §§ 60.4101 to 60.4105, inclusive, 60.4107 to 60.4114, inclusive, 60.4151 to 60.4173, inclusive, and 60.4175, and Parts 61 and 63, adopted by reference pursuant to this section, means the Director.

(Added to NAC by Environmental Comm'n, eff. 10-19-83; A 12-5-84; 10-15-85; 8-22-86; 10-22-87; 10-18-88; 9-19-90; 9-4-92; 10-29-93; 12-13-93; 3-29-94; 10-30-95; R105-97, 3-5-98; R126-98, 11-2-98; R022-99, 9-27-99; R103-02, 12-17-2002; R198-03, 4-26-2004; R125-04, 9-24-2004; R037-05, 10-31-2005; R189-05 & R206-05, 5-4-2006; R151-06 & R162-06, 9-18-2006; R057-07, 10-31-2007; R143-07, 1-30-2008; R076-08, 8-26-2008; R190-08, 4-23-2009; R088-09, 11-25-2009; R040-10, 7-22-2010; R014-11 & R015-11, 10-26-2011; R129-11, 5-30-2012)

Nevada Revised Statutes

Title 18 Chapter 233B, Nevada Administrative Procedure Act:

NRS 233B.060 Notice of adoption, amendment or repeal of permanent or temporary regulation; adoption of permanent regulation after adoption of temporary regulation.

1. Except as otherwise provided in subsection 2 and NRS 233B.061, before adopting, amending or repealing:

(a) A permanent regulation, the agency must, after receiving the approved or revised text of the proposed regulation prepared by the Legislative Counsel pursuant to NRS 233B.063, give at least 30 days' notice of its intended action, unless a shorter period of notice is specifically permitted by statute.

(b) A temporary regulation, the agency must give at least 30 days' notice of its intended action, unless a shorter period of notice is specifically permitted by statute.

2. Except as otherwise provided in subsection 3, if an agency has adopted a temporary regulation after notice and the opportunity for a hearing as provided in this chapter, it may adopt, after providing a second notice and the opportunity for a hearing, a permanent regulation, but the language of the permanent regulation must first be approved or revised by the Legislative Counsel and the adopted regulation must be approved by the Legislative Commission or the Subcommittee to Review Regulations appointed pursuant to subsection 6 of NRS 233B.067.

3. If the Public Utilities Commission of Nevada has adopted a temporary regulation after notice and the opportunity for a hearing as provided in this chapter, it may adopt a substantively equivalent permanent regulation without further notice or hearing, but the language of the permanent regulation must first be approved or revised by

the Legislative Counsel and the adopted regulation must be approved by the Legislative Commission or the Subcommittee to Review Regulations.

(Added to NRS by 1965, 964; A 1973, 621; 1975, 1157, 1413; 1977, 1386, 1547, 1549; 1981, 186; 1983, 1123, 1244; 1995, 130; 1997, 1973; 2007, 871; 2009, 2284)

NRS 233B.0603 Contents and form of notice of intent to adopt, amend or repeal permanent or temporary regulation; solicitation of comments from public or affected businesses.

1. The notice of intent to act upon a regulation required pursuant to NRS 233B.060 must:

(a) Include:

(1) A statement of the need for and purpose of the proposed regulation.

(2) If the proposed regulation is a temporary regulation, either the terms or substance of the proposed regulation or a description of the subjects and issues involved.

(3) If the proposed regulation is a permanent regulation, a statement explaining how to obtain the approved or revised text of the proposed regulation prepared by the Legislative Counsel pursuant to NRS 233B.063.

(4) A statement of the estimated economic effect of the regulation on the business which it is to regulate and on the public. These must be stated separately and in each case must include:

(I) Both adverse and beneficial effects; and

(II) Both immediate and long-term effects.

(5) A statement identifying the methods used by the agency in determining the impact on a small business prepared pursuant to subsection 3 of NRS 233B.0608.

(6) The estimated cost to the agency for enforcement of the proposed regulation.

(7) A description of any regulations of other state or local governmental agencies which the proposed regulation overlaps or duplicates and a statement explaining why the duplication or overlapping is necessary. If the regulation overlaps or duplicates a federal regulation, the notice must include the name of the regulating federal agency.

(8) If the regulation is required pursuant to federal law, a citation and description of the federal law.

(9) If the regulation includes provisions which are more stringent than a federal regulation that regulates the same activity, a summary of such provisions.

(10) The time when, the place where and the manner in which interested persons may present their views regarding the proposed regulation.

(b) If the proposed regulation is a temporary regulation, state each address at which the text of the proposed regulation may be inspected and copied.

(c) Include an exact copy of the provisions of subsection 2 of NRS 233B.064.

(d) Include a statement indicating whether the regulation establishes a new fee or increases an existing fee.

(e) Be mailed to all persons who have requested in writing that they be placed upon a mailing list, which must be kept by the agency for that purpose.

(f) Be submitted to the Legislative Counsel Bureau for inclusion in the Register of Administrative Regulations created pursuant to NRS 233B.0653. The publication of a notice of intent to act upon a regulation in the Register does not satisfy the requirements for notice set forth in paragraph (e).

2. The Attorney General may by regulation prescribe the form of notice to be used.

3. In addition to distributing the notice to each recipient of the agency's regulations, the agency shall also solicit comment generally from the public and from businesses to be affected by the proposed regulation.

(Added to NRS by 1983, 1124; A 1995, 130, 239; 1997, 184, 1390; 2005, 1479; 2007, 872)

NRS 233B.061 Proposed permanent or temporary regulation: Public comment; workshop; public hearing; applicability of Open Meeting Law.

1. All interested persons must be afforded a reasonable opportunity to submit data, views or arguments upon a proposed regulation, orally or in writing.

2. Before holding the public hearing required pursuant to subsection 3, an agency shall conduct at least one workshop to solicit comments from interested persons on one or more general topics to be addressed in a proposed regulation. Not less than 15 days before the workshop, the agency shall provide notice of the time and place set for the workshop:

(a) In writing to each person who has requested to be placed on a mailing list; and

(b) In any other manner reasonably calculated to provide such notice to the general public and any business that may be affected by a proposed regulation which addresses the general topics to be considered at the workshop.

3. With respect to substantive regulations, the agency shall set a time and place for an oral public hearing, but if no one appears who will be directly affected by the proposed regulation and requests an oral hearing, the agency may proceed immediately to act upon any written submissions. The agency shall consider fully all written and oral submissions respecting the proposed regulation.

4. An agency shall not hold the public hearing required pursuant to subsection 3 on the same day that the agency holds the workshop required pursuant to subsection 2.

5. Each workshop and public hearing required pursuant to subsections 2 and 3 must be conducted in accordance with the provisions of chapter 241 of NRS.

(Added to NRS by 1983, 1125; A 1989, 571; 1997, 185; 2005, 1407; 2007, 873; 2009, 2284)

Title 40 Chapter 445B, Air Pollution:

NRS 445B.100 Declaration of public policy.

1. It is the public policy of the State of Nevada and the purpose of NRS 445B.100 to 445B.640, inclusive, to achieve and maintain levels of air quality which will protect human health and safety, prevent injury to plant and animal life, prevent damage to property, and preserve visibility and scenic, esthetic and historic values of the State.

2. It is the intent of NRS 445B.100 to 445B.640, inclusive, to:

(a) Require the use of reasonably available methods to prevent, reduce or control air pollution throughout the State of Nevada;

(b) Maintain cooperative programs between the State and its local governments; and

(c) Facilitate cooperation across jurisdictional lines in dealing with problems of air pollution not confined within a single jurisdiction.

3. The quality of air is declared to be affected with the public interest, and NRS 445B.100 to 445B.640, inclusive, are enacted in the exercise of the police power of this State to protect the health, peace, safety and general welfare of its people.

4. It is also the public policy of this State:

(a) To provide for the integration of all programs for the prevention of accidents in this State involving chemicals, including, without limitation, accidents involving hazardous air pollutants, highly hazardous chemicals, highly hazardous substances and extremely hazardous substances; and

(b) Periodically to retire a portion of the emission credits or allocations specified in NRS 445B.235 that may otherwise be available for banking or for sale pursuant to that section.

(Added to NRS by 1971, 1191; A 1993, 2851; 2007, 1023, 3311)

APPENDIX B

Ambient Air Monitoring Network Plan
2012

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AMBIENT AIR MONITORING NETWORK PLAN

2012

STATE OF NEVADA
DIVISION OF ENVIRONMENTAL PROTECTION
BUREAU OF AIR QUALITY PLANNING

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Acronyms and Abbreviations

CAA:	Clean Air Act
AQS:	Air Quality System
BAQP:	Bureau of Air Quality Planning
BAM:	Beta Attenuation Monitor
CFR:	Code of Federal Regulations
CO:	Carbon Monoxide
DCNR:	Department of Conservation and Natural Resources
FEM:	Federal Equivalent Method
FRM:	Federal Reference Method
IMPROVE:	Interagency Monitoring of Protected Visual Environments
NAAQS:	National Ambient Air Quality Standard
NAC:	Nevada Administrative Code
NDEP:	Nevada Division of Environmental Protection
O_3:	Ozone
PM:	Particulate Matter (2.5 or 10 microns)
SLAMS:	State and Local Air Monitoring Station
SPMS:	Special Purpose Monitoring Station
USEPA:	United States Environmental Protection Agency

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Overview

The monitoring program of the Nevada Division of Environmental Protection (NDEP) operates an ambient air quality monitoring network of gaseous and particulate pollutant monitors. The monitors are located in small communities throughout rural Nevada. In the metropolitan areas of Reno and Las Vegas; the Washoe County District Health Department, Air Quality Management Division and the Clark County Department of Air Quality and Environmental Management operate and maintain their respective monitoring networks separate from NDEP and submit their Network Plan independently to the United States Environmental Protection Agency (USEPA).

NDEP regulates air quality to protect public health and the environment. Monitoring data is a crucial component of regulations used to determine compliance with the USEPA primary and secondary air quality standards. Other important uses of these monitors include: support and issuance of air quality forecasts, support of long-term health assessments, and tracking long-term air quality both to gauge effectiveness of emission control and abatement strategies and to quantify accuracy of ambient pollutant monitoring.

Goals

NDEP created an ambient air quality monitoring program to provide useful and accurate information on air quality, which is used to evaluate the success of the State's air quality programs. The Clean Air Act of 1970, and subsequent amendments, defines air quality standards for various air pollutants necessary to protect the public from injurious pollution concentrations. Air pollution concentrations that exceed the National Ambient Air Quality Standard (NAAQS) can cause a public health hazard, nuisance, annoyance, or damage to flora, fauna and personal property.

The NAAQS, published by the USEPA, can be found in 40 Code of Federal Regulations (CFR) Part 50, which defines the levels of air quality necessary to protect human health and welfare. An area is considered to be in nonattainment for a pollutant if it has violated the NAAQS for that pollutant. The CFR includes procedures for evaluating measured air quality

against the NAAQS. State air quality standards can be found in Nevada Administrative Code (NAC) 445B.22097.

Background

The State of Nevada has three jurisdictions which independently manage their own air programs as designated by statute: Department of Conservation and Natural Resources (DCNR), Division of Environmental Protection (NDEP), Bureau of Air Quality Planning (BAQP); Washoe County District Health Department, Air Quality Management Division; and Clark County Department of Air Quality and Environmental Management.

State agencies that conduct ambient air monitoring using State and Local Air Monitoring Stations (SLAMS) or Special Purpose Monitoring Stations (SPMS), must use Federal Reference Methods (FRM) or Federal Equivalent Methods (FEM) that comply with federal quality assurance requirements listed in 40 CFR 58, Appendix A. In conjunction with the Network Plan, a BAQP quality assurance plan was developed to form the framework for planning, implementing, assessing and reporting work performed by the BAQP and for implementing quality assurance and quality control protocols.

The Ambient Air Monitoring Program Quality Assurance Project Plan (QAPP) was developed to address quality management as well as quality assurance. The QAPP defines the policies, procedures, specifications, standards, and documentation necessary to: 1) provide data of adequate quality to meet monitoring objectives, and 2) minimize loss of air quality data due to malfunctions or out-of-control conditions. As part of the QAPP, the Quality Management Plan (QMP) describes the organizational structure, functional responsibilities of management and staff, lines of authority, and required interfaces between planning, implementing, assessing and reporting activities involving environmental data operations.

Additionally, the BAQP has developed ambient monitoring guidelines in order to ensure that ambient air quality data collected, at regulated facilities in the State, are of the highest quality and conform to federal requirements for quality assurance listed under 40 CFR 58.

Ambient air quality monitoring data must be certified on an annual basis as accurate and complete. The certification process begins with the complete submittal of all SLAMS data to the federal Air Quality System (AQS) for the calendar year. Submittal of data into AQS for 2010 has been accomplished. BAQP is planning on completing the entry of 2011 data into AQS by the May 1, 2012, deadline. Precision and accuracy reports and certification of that data should also be submitted within that time frame.

Network Design

There are currently nine ambient air quality monitoring stations in Nevada under the jurisdiction of NDEP. Air quality monitoring is represented entirely by SLAMS. The ozone monitoring conducted by NDEP is done on a seasonal basis from April 1 to October 31 of each year. The EPA's approval of a seasonal ozone monitoring schedule for NDEP is documented in Appendix A. There are two meteorological stations, one in Carson City and the other in Pahrump. These are used to confirm the local meteorological data from the monitoring stations.

In addition to these three independent monitoring networks, air quality monitoring is conducted through the Interagency Monitoring of Protected Visual Environments (IMPROVE) network by the federal land management agencies. There are two IMPROVE monitoring sites in Nevada, at the Jarbidge Wilderness area and Great Basin National Park, Lehman Caves.

The following table shows the locations and types of monitors operated by NDEP.

Table 1: NDEP'S Ambient Air Monitoring Network

Location	Ozone	Carbon Monoxide	PM10
Elko			1 (SLAMS)
Fallon	1 (SLAMS)		
Stateline- Harvey's		1 (SLAMS)	
Fernley	1 (SLAMS)		
Carson City-5th Street	1(SLAMS)		
Pahrump-Church Site			1 (SLAMS)
Pahrump-Manse Elementary			1 (SLAMS)
Pahrump-Glen Oaks			1 (SLAMS)
Pahrump-Linda Street			1 (SLAMS)
Total	3	1	5

SLAMS – State and Local Air Monitoring Station

Minimum Monitoring Requirements

The USEPA provides minimum site requirements for ozone and particulate matter based on metropolitan statistical area (MSA) population. The NDEP's air monitoring network meets or, in most cases, exceeds the minimum network requirements. The monitors currently required in the NDEP monitoring network by the USEPA are located in Stateline (CO), Carson City (O_3), Fallon (O_3), Fernley (O_3) and Pahrump (PM_{10}). The Stateline monitoring site is a continuation of a highest concentration site started by the California Air Resources Board (CARB). Through a Maintenance Plan with USEPA, monitoring and maintenance of this site was assumed by NDEP in August 2006. The four PM_{10} monitoring sites in Pahrump are required through a Memorandum of Understanding (MOU) between NDEP, USEPA, Nye County and the Town of Pahrump. Otherwise, according to 40 CFR Part 58 Appendix D: Tables D-4 and D-5; sections 4.2, 4.3.2, 4.3.3, 4.4.2 and 4.5, additional monitoring for criteria pollutants is not presently required. The following table outlines the minimum required monitors within the NDEP ambient air monitoring network.

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Table 2: Minimum Monitoring Requirements by Pollutant

Pollutant	Minimum # of Monitors Required	# of Monitors Active	# of Monitors needed	Location	MSA/CSA	County(ies)	County Pop. (2009)	Design Values
Ozone	3	3	0	Carson City	Carson City MSA	Carson City	55,176	66 ppb (2009-2011)
				Fallon	Fallon MSA	Churchill	24,897	59 ppb (2009-2011)
				Fernley	Rural	Lyon	52, 641	64 ppb (2009-2011)
CO	1	1	0	South Lake Tahoe	Sacramento-Arden-Truckee CSA	Douglas	45, 464	3.1 ppm (2010-2011)
Lead*	0	0	0	N/A	N/A	N/A	N/A	N/A
SO2*	0	0	0	N/A	N/A	N/A	N/A	N/A
NO2*	0	0	0	N/A	N/A	N/A	N/A	N/A
PM10	4	5	0	Elko (1)	Elko MSA	Elko	47,896	0.8 (2009-2011)
				Pahrump (4)	Pahrump MSA/Las Vegas-Paradise-Pahrump CSA	Nye	44,324	Manse = 2.5 Church = 0.0 Glen Oaks = N/A Linda Street = 0.0 (2009-2011)
Total	8	9	0					

*Based on 40 CFR Part 58 Appendix D: Tables D-4 and D-5; sections 4.2, 4.3.2, 4.3.3, 4.4.2 and 4.5, additional monitoring for criteria pollutants is not presently required. Additionally, based on the 2008 Lead NAAQS Final Rule, 2010 SO_2 NAAQS Final Rule and the 2010 NO_2 NAAQS Final Rule, NDEP is not required to monitor for these criteria pollutants.

Changes in Monitoring Network

Over the next 12 months, two significant changes will occur throughout the monitoring network that will impact data submittal for the 2012 year. NDEP will be relocating the ozone monitor currently located at the Carson City Maintenance Yard, to a comparable location 2.5 miles west at a vacant lot with access from Carson Street. This move is necessitated by the city of Carson City re-purposing use of this location. Currently, there are plans and agreements for NDEP to begin moving equipment to this new site with objective to gain 9 months of collocated data until March 2013, which is the approximate date that the NDEP must move from the Carson City Maintenance Yard. The USEPA will be notified when data collection and submittal at the new monitoring site is commenced. The second change will be the removal of the Stateline CO monitor. The NDEP plans to discontinue CO monitoring

at Stateline (located at Harvey's Resort and Hotel on Hwy 50) by June 30, 2012. The NDEP concludes that 33 years of clean data, all of it under 80 percent of the NAAQS and most recently at 34 percent, with on-going downward trends is sufficient evidence of continued attainment through 2024 and satisfies 40 CFR 58.14 requirements for discontinuance.

In 2011, NDEP was informed that we had to relocate our PM_{10} monitor located at the Manse School in Pahrump due to the school closing. In February 2011, NDEP submitted a letter to the EPA requesting approval to relocate the monitor. In March of 2011, NDEP received approval to move the existing monitor to the Nye County School District building. However, the Pahrump School District found a new use for the school allowing NDEP to remain at the existing site. At this time, NDEP will continue to monitor at the Manse School. If needed, NDEP has access to the Nye County School District building for our back-up site.

For the next year, NDEP will be evaluating the need to establish a $PM_{2.5}$ monitoring network. Over the next five years, through 2017, NDEP will evaluate our current network to determine if any new sites or monitors need to be added to the existing monitoring network.

Purpose of Monitors

The purpose of the Nevada Air Monitoring Network is to provide useful and accurate information on air quality, which is used to evaluate the success of the State's air quality programs. To accomplish this task, the NAAQS is used to identify the criteria pollutants: CO (Carbon Monoxide), Pb (Lead), NO_2 (Nitrogen Dioxide), O_3 (Ozone), particulate matter (PM_{10} and $PM_{2.5}$), and SO_2 (Sulfur Dioxide). Measuring pollutant concentrations in outdoor air and comparing the measured concentrations to corresponding standards help to classify ambient air quality status of an area as either attainment or nonattainment. The NAAQS is broken down into primary and secondary standards. Primary standards are those established to protect public health. Secondary standards are those established to protect the public welfare from adverse pollution effects on soils, water, vegetation, man-made materials, animals, weather, visibility, climate, property, and the economy. The scientific criteria upon which the standards are based are reviewed periodically by the USEPA, who may reestablish or change the standards according to its findings.

A pollutant measurement that is greater than the ambient air quality standard for its specific averaging time is called an exceedance. This is not necessarily a synonym for a violation; for each pollutant there are specific rules about how many exceedances are allowed in a given time period before a pattern of exceedances is considered to be a violation of the NAAQS. A violation may result in regulatory action to clean-up the area's air. Exceptions are made to allow for certain limited exceedances of the standard that may occur, for example, during an unusual weather pattern or wildfire (exceptional events). Regulatory action is typically reserved for cases where the exceedances are too large or too frequent.

Historically, ambient air quality monitoring by BAQP has looked at trends in air quality to aid in the local planning process. Traffic, wood burning stoves, and growth related activities have prompted air quality monitoring in specific areas around the State. Data from these sites has led to public education and outreach to communities identifying the potential health effects caused by air pollutants in the environment. Ordinances controlling surface area disturbances and other related activities that produce dust have also been implemented with the help of the monitoring sites.

Overview of Monitored Parameters

Carbon Monoxide (CO)

CO is a poisonous gas that, when introduced into the bloodstream, inhibits the delivery of oxygen to body tissue. The health risk is greatest for individuals with cardiovascular disease.

Ozone (O_3)

Ground-level ozone, or photochemical smog, is not emitted into the atmosphere as ozone, but rather is formed by the reactions of other pollutants. The primary pollutants entering into this reaction, VOCs and oxides of nitrogen, create ozone in the presence of sunlight. Ozone is a strong irritant of the upper respiratory system and also causes damage to crops.

Particulate Matter (PM_{10})

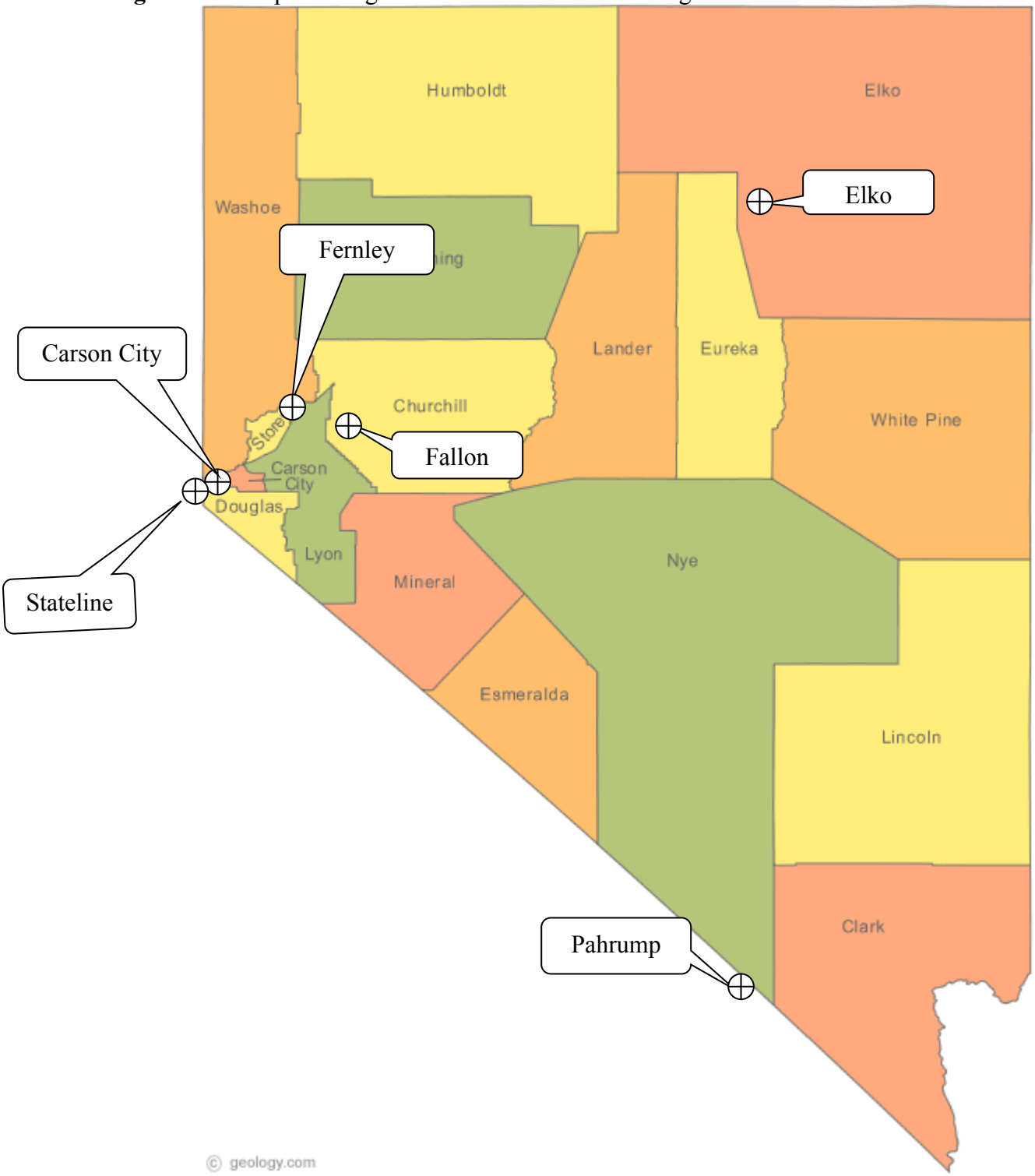
Particulate matter with an aerodynamic diameter of 10 microns or less is emitted from transportation and industrial sources. Exposure to particle pollution is linked to a variety of significant health problems ranging from aggravated asthma to premature death in people with heart and lung disease.

Fine Particulate Matter ($PM_{2.5}$)

Fine particulate matter with a diameter of 2.5 microns or less is created primarily from industrial processes and fuel combustion. These particles are breathed deeply into the lungs. Exposure to particle pollution is linked to a variety of significant health problems ranging from aggravated asthma to premature death in people with heart and lung disease.

Site Map

Figure 1: A map showing the locations of the monitoring stations maintained in NDEP's network.



[1] Map template from:
http://geology.com/state-map/maps/nevada-county-map.gif

Elko: Detailed Site Information

Prior to 1992 the location for this sampler was the fire station at 723 Railroad Street (ID #32-007-003) in a commercial area. In November of 1992 this continuous PM_{10} monitoring site was relocated to the roof of the State offices at 850 Elm Street in a predominantly residential area. The monitoring objective was to determine typical concentration/population oriented. The manual sampler was replaced with a continuous (TEOM) PM_{10} monitor in December 1998. In September 2008, the TEOM monitor was closed and a new BAM 1020 monitor was sited at the Elko Grammar School #2.

Site Name	**Elko**
AQS ID	**32-007-0005**
GIS Coordinates	**Lat +40.838350** **Long -115.766029**
Location	**Elko Grammar School #2**
Address	**1055 7th Street**
County	**Elko**
Distance to Road	**18 Meters**
Traffic Count	**1400 AADT (2009) Station #0070203**
Groundcover	**Asphalt**
Representative Area	**Elko MSA**

Pollutant	**PM10 /81102**
Monitor Objective	**Typ. Conc./Population Oriented**
Spatial Scale	**Neighborhood**
Sampling Method	**Met One BAM-1020**
Analysis Method	**EQPM-0798-122**
Start Date	**09/25/2008**
Operation Schedule	**Continuous**
Sampling Season	**All Year**
Probe Height	**2.6 Meters**
Dist. fm. supporting structure	**Vertical Distance =1.2 meters**
Dist. fm. obstructions on roof	**N/A**
Distance fm. trees	**27 Meters**
Distance to furnace or incinerator flue	**N/A**
Unrestricted airflow	**360 degrees**
Probe material	**N/A**
Residence time	**N/A**
Changes in the next 18 months?	**No**
Suitable for PM 2.5 comparison?	**N/A**
Frequency of flow rate verification	**Monthly**
Frequency of one point QC check (gaseous)	**N/A**
Last Annual Performance Evaluation (Gaseous)	**N/A**
Last two semi-annual flow rate audits for PM	**12/12/11** **05/02/2012**

Figure 2: Elko Grammar School #2, 1055 7th Street, Elko, NV. PM 10 Monitor

Fallon: Detailed Site Information

The ozone monitoring site at 280 South Russell Street is at the West End Elementary School in a residential neighborhood that may be affected by agricultural operations surrounding the City of Fallon. The monitoring objective is to determine typical concentration/population orientation. PM_{10} sampling commenced at this site in May 1993 and was discontinued at the end of June 1998. Monitoring for ozone began in October 1999 as an ozone transport site downwind of Reno and Fernley

Site Name	**Fallon**
AQS ID	**32-001-0002**
GIS Coordinates	**Lat +39.472471** **Long -118.783624**
Location	**West End of Elementary School**
Address	**280 South Russell Street**
County	**Churchill**
Distance to Road	**65 Meters**
Traffic Count	**410 AADT (2009) Station #0010135**
Groundcover	**Dirt and Gravel**
Representative Area	**Fallon MSA**

Pollutant	**O3/44201**
Monitor Objective	**Typ. Conc./Population Oriented**
Spatial Scale	**Neighborhood**
Sampling Method	**Teledyne API Model 400E**
Analysis Method	**EQOA-0992-087**
Start Date	**10/01/1999**
Operation Schedule	**Seasonal**
Sampling Season	**April thru October**
Probe Height	**3.2 Meters**
Dist. fm. supporting structure	**1 meter from wall**
Dist. fm. obstructions on roof	**N/A**
Distance fm. Trees	**Greater than 10 meters**
Distance to furnace or incinerator flue	**N/A**
Unrestricted airflow	**180 Degrees**
Probe material	**Teflon**
Residence time	**10 seconds**
Changes in the next 18 months?	**No**
Suitable for PM 2.5 comparison?	**N/A**
Frequency of flow rate verification	**N/A**
Frequency of one point QC check (gaseous)	**Semi-monthly**
Last Annual Performance Evaluation (Gaseous)	**09/22/2011**
Last two semi-annual flow rate audits for PM	**N/A**

Figure 3: West End Elementary School, 280 S. Russell Street, Fallon, NV. Ozone Monitor

Harvey's Casino and Resort: Detailed Site Information

This is a "micro-scale" monitoring site for carbon monoxide in the core of the Stateline casino hotel area at Lake Tahoe. The site is designed to monitor the highest CO concentrations at Lake Tahoe, and is, taken to be representative of the California and Nevada sides of the south shore casino district. Monitoring at this site began in October 1999 and was previously conducted by the California Air Resources Board by multi-agency cooperative agreement. Starting in July of 2006, NDEP took over the monitoring responsibility for this site under a maintenance agreement with EPA.

Site Name	**Harvey's Casino and Resort**
AQS ID	**32-005-0009**
GIS Coordinates	**Lat +38.960579** **Long -119.941351**
Location	**1st Level of parking garage facing HWY**
Address	**Stateline NV 89449**
County	**Douglas**
Distance to Road	**9 Meters**
Traffic Count	**24,000 AADT (2009) Station # 0050044**
Groundcover	**Paved, asphalt and grass**
Representative Area	**Sacramento-Arden Arcade-Truckee CSA or rural MSA**

Pollutant	**CO/42101**
Monitor Objective	**Highest Concentration**
Spatial Scale	**Micro**
Sampling Method	**API Teledyne 300M**
Analysis Method	**N/A**
Start Date	**10/01/1999**
Operation Schedule	**Continuous**
Sampling Season	**All Year**
Probe Height	**2.5 Meters**
Dist. fm. supporting structure	**1 Meter Horizontally**
Dist. fm. obstructions on roof	**N/A**
Distance fm. trees	**4 Meters**
Distance to furnace or incinerator flue	**N/A**
Unrestricted airflow	**180 Degrees**
Probe material	**Teflon**
Residence time	**5 Seconds**
Changes in the next 18 months?	**Yes (Discontinuation)**
Suitable for PM 2.5 comparison?	**N/A**
Frequency of flow rate verification	**N/A**
Frequency of one point QC check (gaseous)	**Semi-monthly**
Last Annual Performance Evaluation (Gaseous)	**03/26/2012**
Last two semi-annual flow rate audits for PM	**N/A**

Figure 4: Harvey's Casino and Resort Lake Tahoe NV. CO Monitor

Fernley Intermediate School: Detailed Site Information

Ozone monitoring is done at the Fernley Intermediate School which is located at 320 Hardie Lane. This is an area of mainly residential and agricultural use. There has recently been a large growth of industry both upwind and downwind of this site. Monitoring for PM_{10} at this site commenced on May 1995, to determine the agricultural and industrial source impacts and population exposure. PM_{10} sampling was discontinued in November 1998. Ozone monitoring began at this site July 2007. However, ozone monitoring (SPMS) was previously conducted at the Fernley Volunteer Fire Department starting in October 1997 and discontinued on October 2003.

Site Name	**Fernley**
AQS ID	**32-019-0006**
GIS Coordinates	**Lat +39.602787** **Long -119.247741**
Location	**Fernley Intermediate School**
Address	**320 Hardie Lane**
County	**Lyon**
Distance to Road	**119 Meters**
Traffic Count	**1300 AADT (2009) Station # 0190119**
Groundcover	**Paved, cement, gravel and dirt**
Representative Area	**Rural (Micropolitan Statistical Area)**

Pollutant	**O3/44201**
Monitor Objective	**Typ. Conc./Population Oriented**
Spatial Scale	**Urban**
Sampling Method	**Teledyne API Model 400E**
Analysis Method	**EQOA-0992-087**
Start Date	**07/06/2007**
Operation Schedule	**Continuous**
Sampling Season	**April to October**
Probe Height	**7 Meters**
Dist. fm. supporting structure	**Vertical Distance above 2.1 Meters**
Dist. fm. obstructions on roof	**N/A**
Distance fm. trees	**15 Meters**
Distance to furnace or incinerator flue	**N/A**
Unrestricted airflow	**360 Degrees**
Probe material	**Teflon**
Residence time	**4 Seconds**
Changes in the next 18 months?	**No**
Suitable for PM 2.5 comparison?	**N/A**
Frequency of flow rate verification	**N/A**
Frequency of one point QC check (gaseous)	**Semi-monthly**
Last Annual Performance Evaluation (Gaseous)	**09/22/2011**
Last two semi-annual flow rate audits for PM	**N/A**

Figure 5: Fernley Intermediate School, 320Hardie Lane Fernley NV PM 2.5/Ozone Monitor

3300 E. 5th Street: Detailed Site Information

This site is located at 3300 East Fifth Street near the Carson City Public Works Department maintenance yard in a transition area, adjacent to wetlands, the City yard, sewage treatment plant, residential neighborhood and the new highway extension of US 395. The pollutants monitored included carbon monoxide and ozone (through 1989) and PM_{10} (March 1991- February 1997). The monitoring objective is to determine typical concentration/population oriented. In 2007, an existing meteorological station was restarted, and as previously stated, the ozone monitor from Long Street site was relocated to East Fifth Street. At the end of 2009, the $PM_{2.5}$was relocated to this monitoring site.

Site Name	**East 5th. Street**
AQS ID	**32-510-0002**
GIS Coordinates	**Lat +39.167247** **Long -119.731702**
Location	**Carson City**
Address	**3300 East 5th Street**
County	**Carson**
Distance to Road	**10 Meters**
Traffic Count	**3,500 AADT (2009) Station #0250116**
Groundcover	**Dirt – Asphalt Parking Lot**
Representative Area	**Carson City MSA**

Pollutant	**Ozone/44201**
Monitor Objective	**Typ. Conc./ Population Oriented**
Spatial Scale	**Neighborhood**
Sampling Method	**Teledyne API Model 400E**
Analysis Method	**EQOA-0992-087**
Start Date	**1/1/1989**
Operation Schedule	**April – October**
Sampling Season	**Seasonal**
Probe Height	**10 Meters**
Dist. fm. supporting structure	**Vertical distance above 7 meters**
Dist. fm. obstructions on roof	**N/A**
Distance fm. trees	**N/A**
Distance to furnace or incinerator flue	**N/A**
Unrestricted airflow	**360 Degrees**
Probe material	**Teflon**
Residence time	**6 Seconds**
Changes in the next 18 months?	**Yes**
Suitable for PM 2.5 comparison?	**N/A**
Frequency of flow rate verification	**N/A**
Frequency of one point QC check (gaseous)	**Semi-monthly**
Last Annual Performance Evaluation (Gaseous)	**9/28/2011**
Last two semi-annual flow rate audits for PM	**N/A**

Figure 6: 3300 E. Fifth Street Carson City, NV Ozone/Met Site

Church: Detailed Site Information

The Church Site began operation in 2004 to complement the existing three other sites in the Pahrump monitoring network. Monitoring is accomplished with a continuous beta attenuated monitor located in the southeast corner of the Catholic Church. This site represents the southern-most monitoring in Pahrump Valley. The monitoring objective of this site is a significant source of PM_{10}. The surrounding area represents residential with little commercial, some native desert with a mix of dirt and paved roads.

Site Name	**Church**
AQS ID	**32-023-0013**
GIS Coordinates	**Lat + 36.159639** **Long -115.996263**
Location	**Pahrump**
Address	**781 E. Gamebird**
County	**Nye**
Distance to Road	**100 Meters**
Traffic Count	**1,100 AADT (2009) Station #0230010**
Groundcover	**Desert**
Representative Area	**Pahrump MSA; Las Vegas – Paradise – Pahrump MSA**

Pollutant	**PM10/81102**
Monitor Objective	**Significant Sources – Dry lake bed 6 miles to the south**
Spatial Scale	**Urban**
Sampling Method	**Met One BAM 1020**
Analysis Method	**EQPM-0798-122**
Start Date	**2/14/2004**
Operation Schedule	**Continuous**
Sampling Season	**All Year**
Probe Height	**4 Meters**
Dist. fm. supporting structure	**Vertical distance above 2 meters**
Dist. fm. obstructions on roof	**N/A**
Distance fm. trees	**50Meters**
Distance to furnace or incinerator flue	**N/A**
Unrestricted airflow	**360 Degrees**
Probe material	**Aluminum**
Residence time	**N/A**
Changes in the next 18 months?	**No**
Suitable for PM 2.5 comparison?	**N/A**
Frequency of flow rate verification	**Monthly**
Frequency of one point QC check (gaseous)	**N/A**
Last Annual Performance Evaluation (Gaseous)	**N/A**
Last two semi-annual flow rate audits for PM	**11/3/2011** **5/7/2012**

Figure 7: Church Site, 781 E. Gamebird Pahrump, NV PM 10 Monitor

Manse Elementary: Site Detailed Information

The Manse site represents the monitoring objective for highest concentrations of PM_{10} in Pahrump. This site replaces the Community Pool site, which at the time it was operating, represented the highest concentrations of PM_{10} in Pahrump. Located at 1020 E. Wilson Road, the Manse Elementary site is located on the roof of the school and monitors for PM_{10} using the continuous beta attenuation monitor. The area adjacent to this site represents mostly commercial, some residential, and is adjacent to the busiest activity area of Pahrump. This site is located downwind from residential construction developments that have cleared large parcels of ground for building, as well as agricultural areas that cultivate large areas of farm-ground and raise livestock. Roads surrounding this site are both paved and dirt.

Site Name	**Manse Elementary**
AQS ID	**32-023-0014-81102-1**
GIS Coordinates	**Lat +36.212787** **Long -115.994802**
Location	**Pahrump**
Address	**1020 E. Wilson Road**
County	**Nye**
Distance to Road	**50 Meters**
Traffic Count	**11,000 AADT (2006) Station #0230006**
Groundcover	**Gravel Schoolyard**
Representative Area	**Pahrump MSA; Las Vegas – Paradise – Pahrump MSA**

Pollutant	**PM10/81102**
Monitor Objective	**Highest Concentrations**
Spatial Scale	**Neighborhood**
Sampling Method	**Met One BAM 1020**
Analysis Method	**EQPM-0798-122**
Start Date	**11/17/2005**
Operation Schedule	**Continuous**
Sampling Season	**All Year**
Probe Height	**3.0 Meters**
Dist. fm. supporting structure	**Vertical distance above 1 meter**
Dist. fm. obstructions on roof	**N/A**
Distance fm. trees	**10 Meters**
Distance to furnace or incinerator flue	**N/A**
Unrestricted airflow	**360 Degrees**
Probe material	**Aluminum**
Residence time	**N/A**
Changes in the next 18 months?	**No**
Suitable for PM 2.5 comparison?	**N/A**
Frequency of flow rate verification	**Monthly**
Frequency of one point QC check (gaseous)	**N/A**
Last Annual Performance Evaluation (Gaseous)	**N/A**
Last two semi-annual flow rate audits for PM	**11/3/2011** **5/7/2012**

Figure 8: Manse Elementary, 1020 E. Wilson Road Pahrump, NV PM 10 Monitor

Glen Oaks: Site Detailed Information

The Willow Creek site was started in 2003 and was located at 1500 Red Butte on the roof of a building in which irrigation equipment for the golf course is housed. The monitoring objective of this site was to measure typical concentrations/population oriented of PM_{10} using the beta attenuated monitor. The surrounding area adjacent to this site is fairway/golf course and residential structures. Due to closure of the golf course, the Willow Creek site was relocated to the Glen Oaks sewer treatment plant in 2009. The Glen Oaks site is a short distance away from the existing golf course site and the monitoring objective did not change.

Site Name	**Glen Oaks**
AQS ID	**32-023-0012**
GIS Coordinates	**Lat +36.193469** **Long -116.007584**
Location	**Pahrump**
Address	**145 Glen Oaks St.**
County	**Nye**
Distance to Road	**200 Meters**
Traffic Count	**1,100 AADT (2009) Station #0230010**
Groundcover	**Grass/Gravel**
Representative Area	**Pahrump MSA; Las Vegas – Paradise – Pahrump MSA**

Pollutant	**PM10/81102**
Monitor Objective	**Typ. Conc./ Population Oriented**
Spatial Scale	**Neighborhood**
Sampling Method	**Met One BAM 1020**
Analysis Method	**EQPM-0798-122**
Start Date	**11/20/2003**
Operation Schedule	**Continuous**
Sampling Season	**All Year**
Probe Height	**6.0 Meters**
Dist. fm. supporting structure	**Vertical distance above 2 meters**
Dist. fm. obstructions on roof	**N/A**
Distance fm. trees	**12 Meters**
Distance to furnace or incinerator flue	**N/A**
Unrestricted airflow	**360 Degrees**
Probe material	**Aluminum**
Residence time	**N/A**
Changes in the next 18 months?	**No**
Suitable for PM 2.5 comparison?	**N/A**
Frequency of flow rate verification	**Monthly**
Frequency of one point QC check (gaseous)	**N/A**
Last Annual Performance Evaluation (Gaseous)	**N/A**
Last two semi-annual flow rate audits for PM	**11/3/2011** **5/7/2012**

Figure 9: 145 Glen Oaks St., Pahrump, NV PM10 Monitor

Linda Street: Site Detailed Information

The Linda Street site was started in 2003 and is located at 8825 North Linda Street. The beta attenuated monitor is located on the roof of an old railroad box car and represents not only the northern-most site in the Pahrump monitoring network, but the most rural area. There is some residential surrounding this site, but mainly native desert vegetation with little or no surface disturbances. The monitoring objective for this site is general background levels of PM_{10} in Pahrump.

Site Name	**Linda Street**
AQS ID	**32-023-0011-81102-1**
GIS Coordinates	**Lat +36.349408** **Long -116.031976**
Location	**Pahrump**
Address	**8825 N. Linda**
County	**Nye**
Distance to Road	**20 Meters**
Traffic Count	**2,200 AADT (2008) Station #0230008**
Groundcover	**Desert**
Representative Area	**Pahrump MSA; Las Vegas – Paradise – Pahrump MSA**

Pollutant	**PM10/81102**
Monitor Objective	**General Background**
Spatial Scale	**Urban**
Sampling Method	**Met One BAM 1020**
Analysis Method	**EQPM-0798-122**
Start Date	**5/3/2003**
Operation Schedule	**Continuous**
Sampling Season	**All Year**
Probe Height	**6.7 Meters**
Dist. fm. supporting structure	**Vertical distance above roof 3 meters**
Dist. fm. obstructions on roof	**N/A**
Distance fm. trees	**10 Meters**
Distance to furnace or incinerator flue	**N/A**
Unrestricted airflow	**360 Degrees**
Probe material	**Aluminum**
Residence time	**N/A**
Changes in the next 18 months?	**No**
Suitable for PM 2.5 comparison?	**N/A**
Frequency of flow rate verification	**Monthly**
Frequency of one point QC check (gaseous)	**N/A**
Last Annual Performance Evaluation (Gaseous)	**N/A**
Last two semi-annual flow rate audits for PM	**11/3/2011** **5/7/2012**

Figure 10: 8825 N. Linda Pahrump, NV PM 10 Monitor

Appendix A.
Ozone Seasonality Approval Letter

STEVE

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

FEBRUARY 6, 2002

Mr. Chester Sergent, Supervisor
Ambient Air Monitoring Branch
Bureau of Air Quality Planning
Division of Environmental Protection
Department of Conservation and Natural Resources
333 W. Nye Lane, Room 138
Carson City, NV 89706

Dear Mr. ~~Sergent~~ Chet:

I have received your letter of January 29, 2002 requesting permission to adjust the ozone monitoring season from year round to April 1 through October 31. We have reviewed the information you provided and approve your request to reduce the ozone monitoring season.

One issue that needs to be addressed is ensuring that EPA's AIRS database is updated to reflect this change in the ozone monitoring season. Failure to do so will result in AIRS showing incomplete ozone data capture rates for the Carson City, Fernley and Fallon monitoring sites. Please have your staff contact our AIRS database manager, Jim Forrest, at (415) 947-4135 to discuss the appropriate procedure for making this change. Please feel free to contact me at (415) 947-4128 if you have any questions.

Sincerely,

Robert S. Pallarino
Technical Support Office
Air Division

cc: Colleen Cripps, DCNR/DEP
Jim Forrest, US EPA

Appendix B.
Manse PM10 Monitor Relocation Approval

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

MAR 22 2011

Nevada
Environmental Protection

MAR 25 2011

BAPC/BAQP

RECEIVED
MAR 25 2011
ENVIRONMENTAL PROTECTION

Mr. Daren Winkelman, Supervisor
Ambient Air Quality Monitoring Program
Bureau of Air Quality Planning
Nevada Division of Environmental Protection
901 South Stewart Street, Suite 4001
Carson City, NV 89701

RE: Response to discontinuation and relocation request of Manse Elementary SLAMS PM_{10} monitor (AQS ID: 32-023-0014-81102-1)

Dear Mr. ~~Winkelman~~ Daren:

On February 24, 2011 we received your official request for the discontinuation of the PM_{10} monitor at Manse Elementary School (AQS ID: 32-023-0014-81102-1) and the subsequent relocation of the PM_{10} monitor to the nearby Nye County School District office.

After a visit to the proposed relocation site and upon our review of the documentation you have provided, pursuant to 40 CFR 58.14, we approve your selection of the Nye School District building for replacement of the current Manse Elementary School site. Specifically, we have determined that your request meets the provisions under 40 CFR 58.14(c)(6), namely that logistical problems beyond NDEP's control make it impossible to continue operation at the current site and that the replacement site is a nearby location with the same scale of representation. We request that you list the official site address as 208 Dahlia Street, Pahrump, NV 89048 with GPS coordinates (in decimal degrees): 36.212989, -115.996875.

Thank you for your cooperation throughout this process and please feel free to contact Elfego Felix (415) 947-4141 from my staff or myself (415) 972-3851 with any questions or concerns in regards to this matter.

Sincerely,

Matthew Lakin, Manager
Air Quality Analysis Office

Appendix C.
Comment Submittal Information

The proposed 2012 Ambient Air Monitoring Network Plan is posted on the NDEP website for review and comment for thirty (30) days.

Comments may be emailed to
Daren Winkelman (dwinkelman@ndep.nv.gov)
or mailed to,
Daren Winkelman
Ambient Monitoring Program
Bureau of Air Quality Planning
901 S. Stewart Street, Suite 4001
Carson City, Nevada89701

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105

February 28, 2013

Mr. Rob Bamford, Chief
Bureau of Air Quality Planning
Nevada Division of Environmental Protection
901 S. Stewart, Suite 4001
Carson City, NV 89701

Dear Mr. Bamford:

Thank you for your submission of the State of Nevada, Division of Environmental Protection, Bureau of Air Quality Planning's 2012 Ambient Air Monitoring Network Plan in July 2012. Based on the information provided in the Plan, EPA approves NDEP's 2012 Plan, except for the five specific items listed in Attachment B where we are not taking action. On December 11, 2012 EPA also approved and provided a separate notification for the relocation of State and Local Air Monitoring Station (SLAMS) ozone monitoring at 3300 E. 5th Street (Site ID: 32-510-0002) to 2601 S. Carson Street in Carson City, NV.

Annual network plans are important documents for regulatory purposes (e.g., State Implementation Plans, designations and redesignations) and public information, in addition to the myriad uses by the air districts. EPA is revising the review process for annual network plans to specifically check and document the comprehensive set of items that are required to be included in the annual network plans per 40 CFR 58.10 in a consistent manner. We have created a checklist that lists all these items and have included it as Attachment A. While the items in the checklist are required by EPA regulations, we acknowledge that we have not specifically requested some of this information in previous annual network plan reviews. We recognize that your plan may not have all the items that we have currently identified and hope to work with you on the inclusion of these items in future plans. To facilitate these changes, EPA has provided detailed feedback in the checklist where information should be included or revised in next year's plan.

Please note that we cannot approve portions of the annual network plan for which the information in the plan is insufficient to judge whether the requirement has been met, or for which the information, as described, does not meet the requirements as specified in 40 CFR 58.10 and the associated appendices. Accordingly, we are not acting on the specific portions of your agency's annual network plan listed in Attachment B.

In addition to the checklist and list of specific plan elements where EPA Region 9 is not taking action, enclosed are additional detailed comments on the plan (Attachment C). All of the comments in Attachments A, B, and C should be addressed in next year's network plan.

EPA also received the comments provided on NDEP's plan by Mr. John Mosley, Environmental Director of the Pyramid Lake Paiute Tribe. EPA supports Mr. Mosley's suggestion that in NDEP's evaluation of their $PM_{2.5}$ network, it would be a good idea to examine concentrations from nearby monitoring that has recently been conducted. Although this suggestion does not require a change to NDEP's current network plan, we recommend addressing the recommendation as part of NDEP's next 5-year network assessment.

If you have any questions regarding this letter or the enclosed comments, please feel free to contact me at (415) 972-3851 or Elfego Felix at (415) 947-4141.

Sincerely,

/s/

Matthew Lakin, Manager
Air Quality Analysis Office

Enclosures:

A. Annual Air Monitoring Network Plan Checklist
B. Elements where EPA is Not Taking Action
C. Additional Detailed Comments

cc: Daren Winkelman, NDEP
Mike Elges, NDEP

Attachment A: Annual Air Monitoring Network Plan Checklist

Year: 2012
Agency: Nevada Division of Environmental Protection: Bureau of Air Quality Planning

40 CFR 58.10(a)(1) requires that each Annual Network Plan (ANP) include information regarding the following types of monitors: SLAMS monitoring stations including FRM, FEM, and ARM monitors that are part of SLAMS, NCore stations, STN stations, State speciation stations, SPM stations, and/or, in serious, severe and extreme ozone nonattainment areas, PAMS stations, and SPM monitoring stations.

40 CFR 58.10(a)(1) further directs that, "The plan shall include a statement of purposes for each monitor and evidence that siting and operation of each monitor meets the requirements of appendices A, C, D, and E of this part, where applicable." On this basis, review of the ANPs is based on the requirements listed in 58.10 along with those in Appendices A, C, D, and E.

Please note that this checklist summarizes many of the requirements of 40 CFR Part 58, but does not substitute for those requirements, nor do its contents provide a binding determination of compliance with those requirements. The checklist is subject to revision in the future and we welcome comments on its contents and structure.

Key:
White = meets the requirement
Grey = Requirement not applicable for this year's plan
Yellow = does not meet or cannot judge the requirement – action requested in next year's plan or outside the ANP process
Green = meets the requirement but action requested to improve next year's plan

	ANP requirement	Citation within 40 CFR 58	Was the info submitted?[1] If yes, page #s. Flag if incorrect[2]?	Does the information provided[3] meet the req?[4]	Notes
1.	Submit plan by July 1st	58.10 (a)(1)	Yes	Yes.	Electronic plan submitted on July 2, please aim to submit by or prior to July 1.
2.	Statement of purpose for each monitor	58.10 (a)(1)	Yes, p.10-26	Yes	
3.	30-day public comment / inspection period	58.10 (a)(1), 58.10 (a)(2)	Yes, cover letter & p.30	Yes	
4.	Modifications to SLAMS network – case when we are not approving actual system modifications (i.e., we will do it outside the ANP process[5])	58.10 (a)(2) 58.10(e)	Yes, p.5-6	Yes	-At this time, EPA is not acting on the approval of the Harvey's Stateline CO monitor closure because it is the last monitor in the maintenance area and under 40 CFR 58.14(c)(3), a SIP with a specific reproducible approach to monitoring must first be approved. -EPA approves the Carson City site relocation from 3300 East 5th Street to 2601 S. Carson Street. A separate letter documenting this approval was emailed on 12/12/2012 and should be referenced in next year's plan.
5.	Modifications to SLAMS network – case when we are approving actual system modifications per 58.14(c)	58.10 (a)(2) 58.10 (b)(5) 58.10(e) 58.14 (c)	N/A	N/A- no such modifications were found in EPA's review.	
6.	Does plan include documentation (e.g., attached approval letter) for system modifications that have been approved since last ANP approval?		Yes, p.29	Yes	
7.	NCore plan submitted to Admin. by 7/1/2009	58.10 (a)(3)	N/A		
8.	NCore site operational by 1/1/2011	58.10 (a)(3)	N/A	N/A- NDEP does not operate an NCore site.	
9.	Pb plan for ≥1.0 tpy sources submitted by 7/1/2009	58.10 (a)(4)	N/A		

[1] Response options: N/A (Not Applicable), Yes, No, Incomplete, Incorrect. The responses "Incomplete" and "Incorrect" assume that some information has been provided.
[2] To the best of our knowledge.
[3] Assuming the information is correct
[4] Response options: N/A (Not Applicable) – [reason], Yes, No, Insufficient to Judge.
[5] See 58.14(c)

	ANP requirement	Citation within 40 CFR 58	Was the info submitted?[1] If yes, page #s. Flag if incorrect[2]?	Does the information provided[3] meet the req?[4]	Notes
10.	Pb site for ≥1.0 tpy sources operational by 1/1/2010	58.10 (a)(4)	N/A		
11.	Pb plan for 0.5-1.0 tpy submitted by 7/1/2011	58.10 (a)(4)	N/A		
12.	Pb site for 0.5-1.0 tpy sources operational by 12/27/2011	58.10 (a)(4)	N/A	N/A- no Pb monitoring requirement.	
13.	NO2 plan for area-wide and RA40 sites submitted by 7/1/2012	58.10 (a)(5)	N/A	N/A- no requirement for NO2 monitoring.	
14.	NO2 area-wide and RA40 sites operational by 1/1/2013	58.10 (a)(5)	N/A		
15.	NO2 plan for near-road sites submitted by 7/1/2012	58.10 (a)(5)	N/A	N/A- no requirement for NO2 monitoring.	
16.	NO2 near-road sites operational by ? (N/A until 2013 or 2014 plans)	58.10 (a)(5)	N/A		
17.	SO2 plan for PWEI sites submitted by 2011	58.10 (a)(6)	N/A		
18.	SO2 sites operational by 1/1/2013	58.10 (a)(6) and 58.13(d)	N/A		
19.	CO plan for 2015 near-road sites submitted by 7/1/2014	58.10 (a)(7) and 58.13(e)(1)	N/A		
20.	CO sites for first phase of CO monitors operational by 1/1/2015	58.10 (a)(7) and 58.13(e)(1)	N/A		
21.	CO plan for 2017 near-road sites by 7/1/2016	58.10 (a)(7) and 58.13(e)(2)	N/A		
22.	CO sites for first phase of CO monitors operational by 1/1/2017	58.10 (a)(7) and 58.13(e)(2)	N/A		
23.	AQS site identification number for each site	58.10 (b)(1)	Yes, p.10-26	Yes	
24.	Location of each site: street address and geographic coordinates	58.10 (b)(2)	Yes, p.10-26	Yes	Please include a street address for Harvey's Casino and Resort site on p.14.
25.	Sampling and analysis method(s) for each measured parameter	58.10 (b)(3)	Yes, p.10-26	Yes	The CO SLAMS monitor at Harvey's Casino listed on p.14 does not appear to report an accurate FRM or FEM instrument code. Upon follow-up

	ANP requirement	Citation within 40 CFR 58	Was the info submitted?[1] If yes, page #s. Flag if incorrect[2]?	Does the information provided[3] meet the req?[4]	Notes
					clarification with the agency, EPA has verified that a typo was reported for the CO monitor and that it is indeed a designated FRM or FEM. Please ensure this typo is corrected in next year's plan.
26.	Operating schedule for each monitor (see items 62-66)	58.10 (b)(4)	Yes	Yes	(see items 62-66)
27.	Any proposals to remove or move a monitoring station within a period of 18 months following plan submittal	58.10 (b)(5)	Yes	Yes	
28.	Scale of representativeness for each monitor as defined in Appendix D	58.10(b)(6); App D	Yes, p.10-26	Yes	
29.	Identification of sites suitable and sites not suitable for comparison to the annual PM2.5 NAAQS as described in Part 58.30	58.10 (b)(7)	N/A	N/A- No $PM_{2.5}$ monitors identified.	
30.	MSA, CBSA, CSA or other area represented by the monitor	58.10 (b)(8)	Yes, 10-26	Yes	-For Elko and Fallon, please clarify that MSA stands for Micropolitan Statistical Area (p.10 & 12) -For Harvey's Casino and Resort, please modify "rural MSA" to read "Gardnerville Ranchos Micropolitan Statistical Area"(p.14) -Fernley should be Reno-Sparks-Fernley CSA and Fernley Micropolitan Statistical Area (p.16) -For the Carson City site, please clarify the MSA stands for Metropolitan Statistical Area (p.18) -For Pahrump sites, please clarify that Pahrump is a Micropolitan Statistical Area and that Las Vegas-Paradise-Pahrump is a CSA (p.20-26)
31.	Designation of any Pb monitors as either source-oriented or non-source-oriented	58.10 (b)(9)	N/A	N/A- no current requirement	
32.	Any source-oriented Pb site for which a waiver has been granted by EPA RA	58.10 (b)(10)	N/A	N/A- no current requirement	
33.	Any Pb monitor for which a waiver has been requested or granted by EPA RA for us of Pb-PM10 in lieu of Pb-TSP	58.10 (b)(11)	N/A	N/A- no current requirement	
34.	Identification of required NO2 monitors as either near-road or area-wide	58.10 (b)(12)	N/A		
35.	Document how states and local agencies provide for	58.10 (c)	N/A	N/A- No $PM_{2.5}$	

	ANP requirement	Citation within 40 CFR 58	Was the info submitted?[1] If yes, page #s. Flag if incorrect[2]?	Does the information provided[3] meet the req?[4]	Notes
	the review of changes to a PM2.5 monitoring network that impact the location of a violating PM2.5 monitor.[6]			monitors identified.	
36.	Plan to modify the network that complies with findings of the 5-year network assessment. [Note: recommended to be submitted on year of network assessment or year after.]	58.10 (e) 58.14 (a)	N/A- Only applies to year of or after 5-year network assessment		
37.	Precision/Accuracy reports submitted to AQS	58.16(a); App A, 1.3 and 5.1.1	Yes, p.3	Yes	NDEP states that they intend to submit this information for the 2011 data year by May 1, 2012.
38.	Annual data certification submitted	58.15 App. A 1.3	Yes, p.3	Yes	
39.	Frequency of flow rate verification for manual PM samplers audit	App A 3.3.2	N/A	N/A- No $PM_{2.5}$ monitors identified.	All PM10 monitoring done with continuous instruments.
40.	Frequency of flow rate verification for automated PM analyzers audit	App A 3.2.3	Yes, p.10, 20, 22, 24, 26	Yes	
41.	Frequency of one-point flow rate verification for Pb samplers audit	App A 3.3.4.1	N/A		
42.	Frequency of one-point QC check (gaseous)	App. A 3.2.1	Yes, p.12, 14, 16, 18.	Yes	EPA found all gaseous sites are listed as having semi-monthly one-point QC checks. Checks are required at least once every two weeks unless agencies have been approved for an alternative schedule. Upon further follow-up with NDEP, the agency has clarified that these checks do occur at least once every two weeks. Please adjust next's year's plan to report the accurate schedule.
43.	Date of last Annual Performance Evaluation (gaseous)	App. A 3.2.2	Yes, p.12, 14, 16, 18	Yes	
44.	Dates of last two semi-annual flow rate audits for PM monitors	App A, 3.2.4 and 3.3.3	Yes, p.10, 20, 22, 24, 26	Yes	
45.	Dates of last two semi-annual flow rate audits for Pb	App A	N/A	N/A- no current	

[6] The affected state or local agency must document the process for obtaining public comment and include any comments received through the public notification process within their submitted plan.

	ANP requirement	Citation within 40 CFR 58	Was the info submitted?[1] If yes, page #s. Flag if incorrect[2]?	Does the information provided[3] meet the req?[4]	Notes
	monitors	3.3.4.1		requirement	
46.	PM2.5 co-location	App A 3.2.5	N/A	N/A- No $PM_{2.5}$ monitors identified.	
47.	Distance between co-located monitors	App. A 3.2.5.6	N/A	N/A- No collocated monitors identified.	
48.	Manual PM10 method co-location met? (note: continuous PM10 does not have this requirement)	App A 3.3.1	N/A	N/A- no current requirement	NDEP currently operates all continuous instruments
49.	Pb co-location	App A 3.3.4.3	N/A	N/A- no current requirement	
50.	PM10-2.5 co-location (note: only applies to Fresno and Phoenix NCore sites)	App A 3.3.6	N/A	N/A- no current requirement	
51.	Required # of PM2.5 PEP audits	App A 3.2.7	N/A	Yes - EPA requirement[7]	
52.	Required # of Pb PEP audits	App A 3.3.4.4	N/A	Yes - EPA requirement[8]	
53.	Required # of NPAP audits (or approved equivalent)	App A 2.4		Yes - EPA requirement[9]	
54.	Instrument/monitoring method code for each monitor: is it reported properly? Is it reported correctly (i.e., appropriate method code for regulatory monitors)?	App C 2.4.1.2	Yes, p.10-26	Yes	Method codes lists for FEM & FRM instruments are published on EPA AMTIC website available at: http://www.epa.gov/ttnamti1/files/ambient/criteria/reference-equivalent-methods-list.pdf
55.	Placeholder for: Optional request to have PM2.5 continuous instruments treated as non-FEMs and therefore not comparable to NAAQS?	Proposed rule and memo			
56.	Start date for each monitor	Required to determine if other req. (e.g., min # and co-lo) are met	Yes, p.10-22	Yes	
57.	Instrument monitor type for each monitor	Required to	Yes, p.4	Yes	

[7] EPA has reviewed EPA documentation to confirm that these requirements have been met for the area in question.
[8] EPA has reviewed EPA documentation to confirm that these requirements have been met for the area in question.
[9] EPA has reviewed EPA documentation to confirm that these requirements have been met for the area in question.

	ANP requirement	Citation within 40 CFR 58	Was the info submitted?[1] If yes, page #s. Flag if incorrect[2]?	Does the information provided[3] meet the req?[4]	Notes
		determine if other req. (e.g., min # and co-lo) are met			
58.	Monitoring objective for each instrument	App D 1.1 58.10 (b)(6)	Incorrect, p.10-26	Insufficient to judge.	The current "Monitor Objective" rows should be changed to "Site Type." Monitor Objective refers to one or more of three basic monitoring objectives: (1) provide air pollution data to the general public in a timely manner, (2) support compliance with ambient air quality standards and emissions strategy development, and (3) support air pollution research studies. See attachment D of the 2012 Annual Monitoring Network Plan memo sent by EPA R9 for further guidance. Please add correct monitor objective for each monitor in next year's plan.
59.	Site type for each instrument	App D 1.1.1	Yes, p.10-26	Yes	-Information was submitted as "Monitor Objective." Please change row name to "Site Type." -Church site on p.20 should be changed to "Source Oriented" site type if the purpose of the monitor is targeted to capture the dry lake bed source described in the plan. -See related check#58 above.
60.	Instrument parameter code for each instrument	Required to determine if other req. (e.g., min # and co-lo) are met	Yes, p.10-26	Yes	Recommend modifying "Pollutant" row name to read "Pollutant/Parameter Code" in order to clarify that the Parameter code is also being reported.
61.	Instrument parameter occurrence code for each instrument	Required to determine if other req. (e.g., min # and co-lo) are met	N/A	N/A- NDEP operates one parameter at each site.	EPA recommends the reporting of Parameter Occurrence Code (POC) as separate line in the detailed site information tables. This will be especially useful for any collocations that may be established in the future.

	ANP requirement	Citation within 40 CFR 58	Was the info submitted?[1] If yes, page #s. Flag if incorrect[2]?	Does the information provided[3] meet the req?[4]	Notes
					See Attachment C of the 2012 Annual Monitoring Network Plan memo sent by EPA R9 for suggested format to report POC.
62.	Sampling season for ozone (note: date of waiver approval must be included if the sampling season deviates from requirement)	App D, 4.1(i)	Yes, p.12, 16, 18, 28	Yes	"Operation Schedule" row should be adjusted to "continuous" for current ozone monitors. "Sampling Season" row should be adjusted to "April 1 – October 31" for current ozone monitors at Carson City, Fernley, and Fallon.
63.	Sampling schedule for PM2.5 - applies to year-round and seasonal sampling schedules (note: date of waiver approval must be included if the sampling season deviates from requirement)	58.12(d) App D 4.7	N/A	N/A- No $PM_{2.5}$ monitors identified.	
64.	Sampling schedule for PM10	58.12(e) App D 4.6	Yes, p.10, 20, 22, 24, 26	Yes	
65.	Sampling schedule for Pb	58.12(b) App D 4.5	N/A	N/A- no current requirement	
66.	Sampling schedule for PM10-2.5	58.12(f) App D 4.8	N/A	N/A- no current requirement	
67.	Minimum # of monitors for O3[Note: should be supported by MSA ID, MSA population, DV, # monitors, and # required monitors]	App D, 4.1(a) and Table D-2	Yes, p.5	Yes	
68.	Identification of max. conc. O3 monitor(s)	App D 4.1 (b)	Yes, p.5	Yes	Ozone design values are reported for each of the sites in NDEP's network, however a site capturing maximum ozone concentration for the Carson City MSA is not currently specified. Please label the site with the highest design value as the maximum concentration in next year's plan. For this year's plan for example, that site would be the Carson City 5th Street site.
69.	Minimum monitoring requirements met for near-road NO2	App D 4.3.2	N/A		
70.	Minimum monitoring requirements met for area-wide NO2	App D 4.3.3	N/A		
71.	Minimum monitoring requirements met for RA-40 NO2	App D 4.3.4	N/A		
72.	Minimum monitoring requirements met for SO2	App D 4.4	N/A	N/A- no current	

	ANP requirement	Citation within 40 CFR 58	Was the info submitted?[1] If yes, page #s. Flag if incorrect[2]?	Does the information provided[3] meet the req?[4]	Notes
				requirement	
73.	Minimum monitoring requirements met for CO	App D 4.2	N/A		
74.	Minimum monitoring requirements met for Pb	App D 4.5 58.13(a)	N/A	N/A- no current requirement	
75.	Minimum # of monitors for PM2.5 [Note: should be supported by MSA ID, MSA population, DV, # monitors, and # required monitors]	App D, 4.7.1(a) and Table D-5	No	Insufficient to judge	-PM2.5 minimum monitoring requirements are not specified. The Carson City Metropolitan Statistical Area is above the 50,000 population threshold and may require a SLAMS site. Please specify PM2.5 minimum monitoring requirements and include supporting information in next year's plan. -Please also include detailed site information for any SPM PM2.5 monitoring.
76.	Required PM2.5 sites represent community-wide air quality at neighborhood or urban scale	App D 4.7.1(b)	N/A	N/A- No $PM_{2.5}$ monitors identified.	
77.	For PM2.5, is at least one site in a population-oriented area of expected maximum concentration	App D 4.7.1(b)(1)	N/A	N/A- No $PM_{2.5}$ monitors identified.	
78.	If >1 SLAMS PM2.5 required, is there a site in an area of poor air quality	App D 4.7.1(b)(2)	N/A	N/A- No $PM_{2.5}$ monitors identified.	
79.	Minimum monitoring requirements for continuous PM2.5	App D 4.7.2	N/A	N/A- No $PM_{2.5}$ monitors identified.	
80.	Requirements for PM2.5 background and transport sites	App D 4.7.3	No	Insufficient to judge	-This requirement may be met by sites operated by other agencies in Nevada or outside of the state if comparable. Please clarify how this requirement is being met in next year's plan.
81.	Are PM2.5 Chemical Speciation requirements met for official STN sites?	App D 4.7.4	N/A	N/A- no current requirement	
82.	Spatial Averaging for comparison to Annual NAAQS: are intended CMZs defined and met criteria in 40 CFR 50 App N?	App D 4.7.5	N/A		
83.	Minimum # of monitors for PM10	App D, 4.6 (a) and Table D-4	Yes, p.5	Yes	
84.	Minimum monitoring requirements met for PM10-2.5 mass	App D 4.8	N/A	N/A- no current requirement	
85.	Distance of site from nearest road	App E 6	Yes, p.10-26	Yes	
86.	Traffic count of nearest road	App E	Yes, p.10-26	Yes	

	ANP requirement	Citation within 40 CFR 58	Was the info submitted?[1] If yes, page #s. Flag if incorrect[2]?	Does the information provided[3] meet the req?[4]	Notes
87.	Groundcover	App E 3(a)	Yes, p.10-26	Yes	
88.	Probe height	App E 2	Yes, p.10-26	Yes	
89.	Distance from supporting structure	App E 2	Yes, p.10-26	Yes	
90.	Distance from obstructions on roof	App E 4(b)	Yes, p.10-26	Yes	For future obstructions that may exist, please include distance and height of obstruction.
91.	Distance from obstructions not on roof	App E 4(a)	No	Insufficient to judge	Please include in next year's network plan information on any potential obstructions not on roof. Please ensure that distance and height for any potential obstruction is specified.
92.	Distance from trees	App E 5	Yes, p.10-26	No for CO monitor at Harvey's. Yes- all others	90% of the monitoring path must be at least 10 meters or further from the drip line of trees. The trees at Harvey's are only 4 meters away. Per 40 CFR 58, App.E 5(c) please clarify whether any trees or shrubs are located between the probe and the roadway.
93.	Distance to furnace or incinerator flue	App E 3(b)	Yes, p.10-26	Yes	
94.	Unrestricted airflow	App E, 4(a) and 4(b)	Yes, p.10-26	Yes	
95.	Probe material (if applicable)	App E 9	Yes, p.10-26	Yes	
96.	Residence time (if applicable)	App E 9	Yes, p.10-26	Yes	

Public Comments on Annual Network Plan

Were comments submitted to the S/L/T agency during the public comment period?
Yes. John Mosley, Environmental Director, Pyramid Lake Paiute Tribe

Were any of the comments substantive?
No, with respect to the annual network plan, however EPA believes Pyramid Lake raises a good suggestion to NDEP with their #3 listed comment. In NDEP's evaluation of their PM2.5 monitoring network, as part of the next 5-year network assessment, it would be a good idea to examine concentrations from nearby monitoring.

Attachment B: **Annual Air Monitoring Network Plan Items where EPA is Not Taking Action**

We are not acting on the portions of annual network plans where either EPA Region 9 lacks the authority to approve specific items of the plan, or EPA has determined that a requirement is either not met or information in the plan is insufficient to judge whether the requirement has been met.

- System modifications (e.g., site closures or moves) are subject to approval per 40 CFR 58.14(c). Information provided in the plan was insufficient for EPA to approve the following system modification listed in the plan per the applicable requirement: discontinuation of the Stateline CO monitor (page 5-6). Therefore, we are not taking action on this item as part of this year's annual network plan.

- EPA identified items in you agency's annual network plan where a requirement was not being met or information in the plan was insufficient to judge whether the requirement was being met based on 40 CFR 58.10 and the associated appendices. Therefore, we are not acting on of the following items:

Item	Checklist Row (Attachment A)	Issue
Minimum # of monitors for PM2.5	75	Insufficient information to judge
Requirements for PM2.5 background and transport sites	80	Insufficient information to judge
Monitoring objective for each instrument	58	Insufficient information to judge
Distance from obstructions not on roof	91	Insufficient information to judge
Distance from trees	92	Not meeting requirement in one instance

Additional information for each of these items is in included in Attachment A.

Attachment C: **Additional Detailed Comments**

- [Item 24] A numbered street address was not specified for the Harvey's monitor. EPA suggests providing the address of the building the monitor resides on top of.

- [Item 25] Please correct the typo for the sampling and analysis method reported for the CO monitor at Harvey's (p.14) in order to clarify that the instrument is of FRM or FEM designation.

- [Item 30] Please clarify when MSA stands for Micropolitan Statistical Area versus Metropolitan Statistical Area. Please also include relevant CSA when appropriate.

- [Item 42] Please adjust next year's one-point gaseous instrument QC checks to reflect the accurate schedule that should be listed as at least once every two weeks. Currently, the schedule is reported as semi-monthly.

- [Item 59] Although information describing site type is provided in the plan, this is mislabeled as "Monitor Objective." Please re-label these rows in next year's plan to read Site Type. For further guidance on the monitoring objective versus site type, please refer to Attachment D of the Annual Network Plan Memo sent by EPA Region 9 in May 2012.

- [Item 60] In order to clarify that both the pollutant and parameter code are reported in the detailed site tables (p.10-26), EPA recommends that the rows labeled "Pollutant" get re-labeled to read "Pollutant/Parameter code." A separate row to report only the parameter code may also be an option.

- [Item 61] It is suggested that the parameter occurrence code for each instrument at each monitoring site is specified in next year's plan.

- [Item 62] The rows labeled as "Operation Schedule" for the ozone monitoring sites should be adjusted from "seasonal" to read "continuous." The rows labeled "Sampling Season" should specify the days of the sampling season (i.e. April 1st – October 31st).

- [Item 68] NDEP's plan reports ozone design values for each of their SLAMS ozone sites in operation (see page 5). Based on the design values reported, the Carson City 5th Street site should be labeled as the maximum concentration site in the network. Please ensure future plans specify the maximum concentration site for ozone. This maximum/highest concentration designation should be reported as the Site Type.

- [Items 90 & 91] For future plans, as necessary, report any obstructions (on and off the roof) by providing a distance from the probe/inlet, as well as height of the obstruction.

- [General] EPA recommends that NDEP report detailed information for meteorology tower parameters operated by the agency and incorporate the details into the site tables found on pages 10-26. Examples of helpful detailed site information to provide include:

instrument manufacturer and model, start date, siting, and QA/QC information, as applicable.

APPENDIX C

Interstate Transport Analysis for the 2010 Sulfur Dioxide Primary National Ambient Air Quality Standard

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APPENDIX C

Interstate Transport Analysis for the 2010 Sulfur Dioxide Primary National Ambient Air Quality Standard

C.1 INTRODUCTION

Section 110(a)(2)(D)(i)(I) of the Clean Air Act (CAA) requires each state to prohibit emissions that contribute significantly to nonattainment in, or interfere with maintenance by, any other state with respect to any primary or secondary national ambient air quality standard (NAAQS). The Nevada Division of Environmental Protection (NDEP) evaluated the impact of transport of sulfur dioxide (SO_2) emissions from Nevada sources to sensitive receptor areas in nearby states, other western states and eastern states. The NDEP used the U.S. Environmental Protection Agency (USEPA) map of preliminary nonattainment areas for the 2012 SO_2 NAAQS (http://www.epa.gov/airquality/sulfurdioxide/designations/prelimmap.html) and the USEPA 2011 Design Value Report for Sulfur Dioxide (http://www.epa.gov/airtrends/values.html) to identify receptor areas, i.e., air quality planning areas that are nonattainment or maintenance for the 2010 or previous SO_2 NAAQS or areas that have monitored values approaching the NAAQS.

In evaluating the possible impact of SO_2 transport from Nevada sources, the NDEP reviewed other states' state implementation plan (SIP) submittals, 2010 SO_2 NAAQS designation requests and responses and associated technical support documents, wind rose plots, 2008 National Emissions Inventory (NEI) data, and Clean Air Status and Trends Network (CASTNET, http://epa.gov/castnet/javaweb/index.html) monitoring data. CASTNET sites are located in areas where urban influences are minimal; they are considered representative of regional background SO_2 levels. The NDEP reviewed five years (2007-2012) of CASTNET data collected at six national parks and one national monument: Nevada (Great Basin National Park), Utah (Canyonlands National Park), Montana (Glacier National Park), Colorado (Mesa Verde National Park), and Arizona (Grand Canyon National Park, Petrified Forest National Park, Chiricahua National Monument) (http://java.epa.gov/castnet/clearsession.do). The SO_2 data for each of the seven CASTNET monitoring sites examined show low background SO_2 levels throughout the year. Both average weekly and seasonal SO_2 concentrations from the CASTNET sites were low, below 2 ppb, indicating that the regional SO_2 background concentrations are relatively low, which in turn implies that the bulk of the SO_2 in the urban receptor areas is locally generated and not a regional or transport phenomenon.

C.2 TRANSPORT TO NONATTAINMENT RECEPTORS IN NEARBY STATES

The NDEP identified nonattainment receptors in two adjacent states: Arizona and Utah.

C.2.1 Arizona

The nearest nonattainment receptors to Nevada are the Hayden and Miami SO_2 planning areas located in portions of Gila and Pinal Counties, Arizona. USEPA indicated in its February 6, 2013 120-day letter to the Governor of Arizona that it intends to designate Hayden and Miami nonattainment for the 2010 SO_2 standard, in accordance with the Governor's recommendation. In

the *2002 Hayden SO_2 Nonattainment Area State Implementation and Maintenance Plan* Arizona states, "Emissions inventories from all sources in the Hayden nonattainment area indicate that although there are other sources of SO_2 emissions, the ASARCO smelter is the primary source for SO_2 emissions and comprises more than 99 percent of total SO_2 emissions in the area." (http://www.azdeq.gov/environ/air/plan/download/haydensip.pdf, p.27). Similarly, the *2002 Miami SO_2 Nonattainment Area State Implementation and Maintenance Plan* notes, "Emissions inventories from all sources in the Miami nonattainment area indicate that although there are other sources of SO_2 emissions, the Miami smelter is the primary source for SO_2 emissions and comprises more than 99 percent of total SO_2 emissions in the area." (http://www.azdeq.gov/environ/air/plan/download/miamisip.pdf, p.25). The emissions inventories for Hayden and Miami support the position that the elevated SO_2 levels in Hayden and Miami are predominantly caused by local emission sources and not transport.

The Hayden SO_2 planning area is situated in part of Gila and Pinal Counties, while the Miami SO_2 planning area is located within Gila County. These air quality planning areas are less than 50 kilometers apart. USEPA's 2008 National Emission Inventory shows emissions from the Gila and Pinal Counties total 29,470 tons (http://www.epa.gov/air/emissions/index.htm). The closest SO_2 source in Nevada to the Hayden/Miami area is the Reid Gardner Generating Station (RGGS) in Las Vegas. RGGS is approximately 330 miles from Hayden and 305 miles away from Miami and emitted 940.69 tons of SO_2 in 2008 or about three percent of the emissions from the receptor areas.

Meteorological data at the McCarran International Airport in Las Vegas for 2003 through 2011 indicate that the prevailing winds in Las Vegas are from the south-southwest (Figure C.1). We can assume that winds leaving the Las Vegas area would blow mainly north-northeast, and not toward the Hayden/Miami area, which lies southeast of Las Vegas. Wind data from the Phoenix Sky Harbor International Airport for 2003 through 2011 show that the prevailing winds in Phoenix come mainly from the east and to a lesser degree from the west (Figure C.2). Thus, it is reasonable to conclude that locations southeast of the Phoenix area such as Hayden and Miami are not significantly influenced by winds from Nevada.

With respect to Arizona, the NDEP finds that emissions from Nevada do not significantly contribute to nonattainment of the 2010 SO_2 NAAQS, based on the following evidence: (1) technical information indicating that elevated SO_2 levels in Hayden/Miami were predominantly cause by local emission sources, (2) insignificant SO_2 emissions from RGGS compared to local sources, (3) CASTNET data indicating that regional background levels of SO_2 are generally low, and (4) meteorological data showing that the prevailing winds do not blow from Nevada toward the Hayden and Miami receptors.

FIGURE C.1

LAS VEGAS, NEVADA WIND ROSE PLOT, 2003-2011

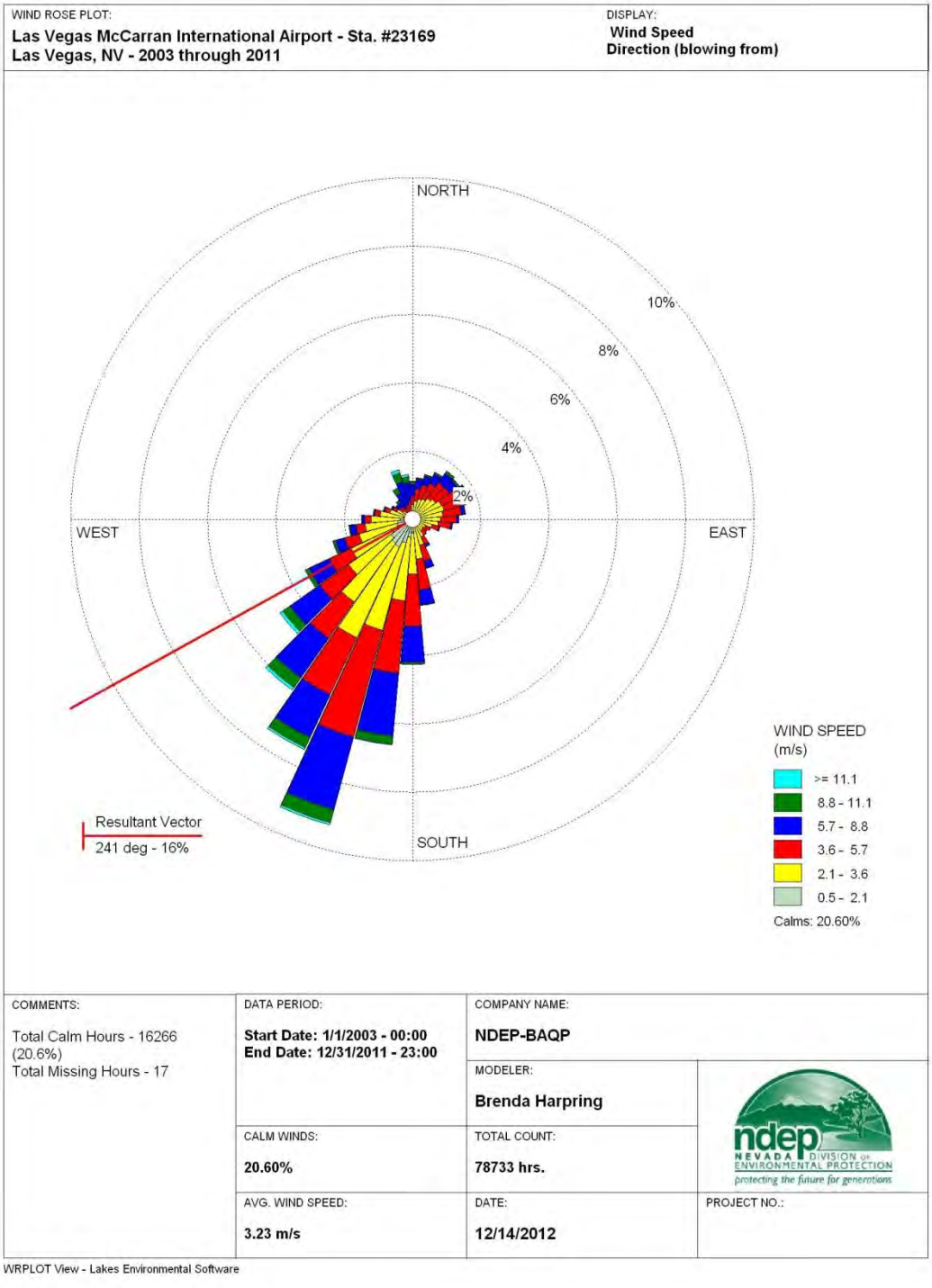
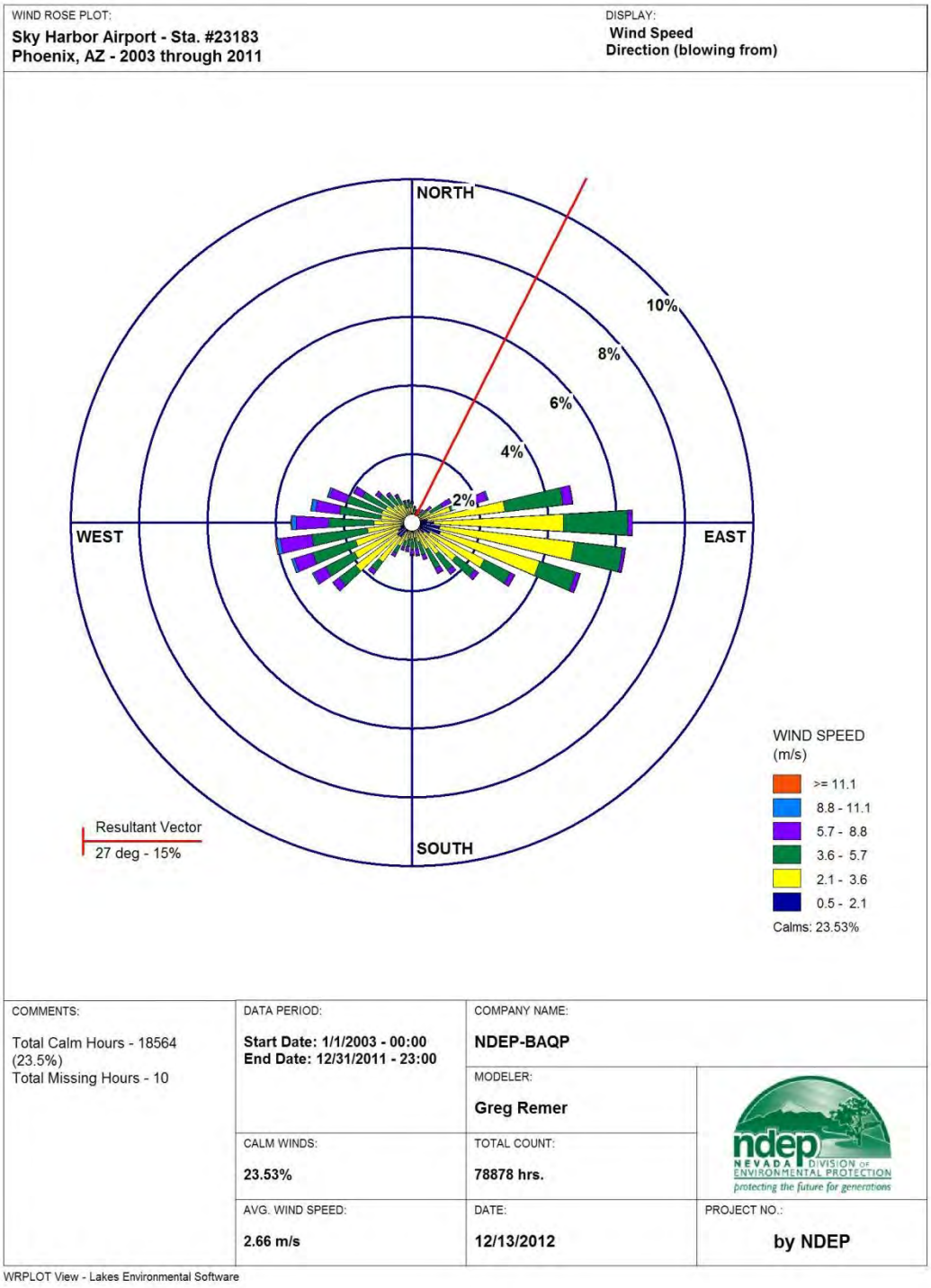


FIGURE C.2

PHOENIX, ARIZONA WIND ROSE PLOT, 2003-2011



C.2.1 Utah

Although Salt Lake County and Tooele County, Utah are still designated nonattainment for the 24-hour and annual 1971 SO_2 standard, there have been no recorded violations of the SO_2 NAAQS since 1981 (http://www.airquality.utah.gov/Planning/SIP/SIPPDF/Secixb6.pdf). Utah's October 25, 2011 letter to USEPA with area designation recommendations for the 2010 SO_2 NAAQS confirms Utah's long history of clean data: "Because Salt Lake County remains a nonattainment area for the initial 1971 SO_2 NAAQS, Utah has a long-standing and robust SO_2 monitoring network in Salt Lake County, extending into neighboring Davis County. For the past 29 years, at none of those monitoring stations has the ambient SO_2 concentration ever violated either the initial or revised standard." (http://www.epa.gov/so2designations/recletters/R8_UT_rev_rec.pdf). USEPA's 120-day letter to Utah regarding responding to the Governor's letter confirms continued clean data throughout Utah through 2011 (http://www.epa.gov/so2designations/eparesp/08_UT_resp.pd). The NDEP concludes that no areas in Utah are in danger of exceeding the 2010 SO_2 NAAQS.

The NDEP concludes that emissions from Nevada do not significantly contribute to nonattainment of the 2010 SO_2 NAAQS in Utah, based on the following evidence: (1) monitoring data indicating that elevated SO_2 levels in the Salt Lake-Tooele Counties nonattainment area ceased decades ago, and (2) CASTNET data demonstrating that regional background levels of SO_2 are even lower than the low SO_2 levels at identified receptors.

C.3 TRANSPORT TO NONATTAINMENT RECEPTORS IN WESTERN STATES

The NDEP identified two nonattainment receptors in one distant western state: Montana.

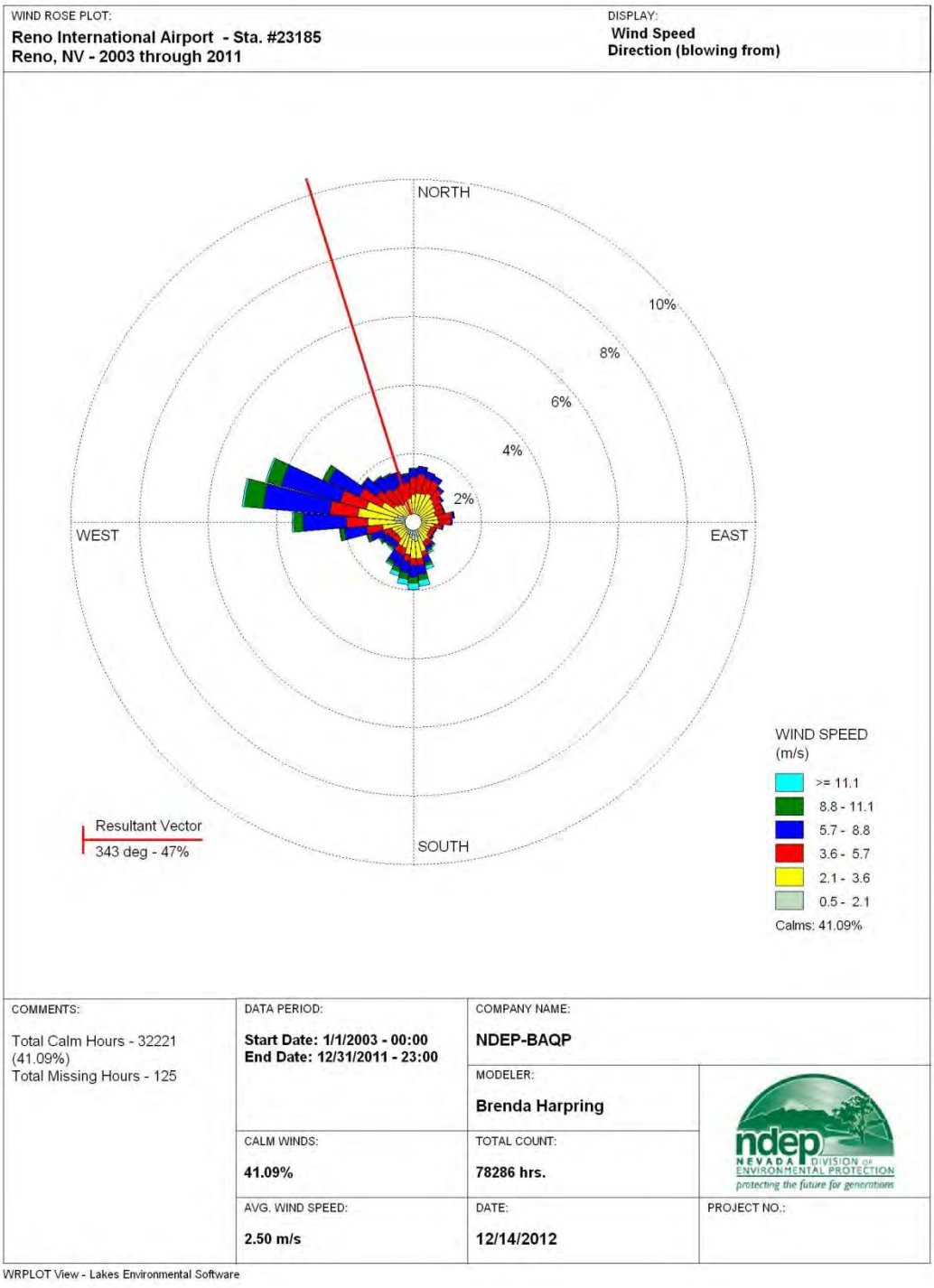
C.3.1 Billings and Laurel Area, Montana

In its February 6, 2013 120-day letter, the USEPA notified the Governor of Montana of its intent to designate Yellowstone County nonattainment for the 2010 SO_2 NAAQS. Within Yellowstone County, all of the facilities that emit SO_2 are located in the Billings and Laurel areas. Billings and Laurel are 15 miles apart. There are seven industrial point sources that are significant emitters of SO_2 in the Billings/Laurel area: three petroleum refineries; a sugar beet processing plant; a coal-fired electrical generating station; a sulfur recovery plant; and a petroleum coke-fired electrical/steam co-generation facility. Total emissions from these seven sources averaged about 8000 tpy during 2008, 2009 and 2010. (http://www.epa.gov/airquality/sulfurdioxide/designations/recletters/R8_MT_rec.pdf)

The closest SO_2 source in Nevada to the Billings/Laurel receptor area is the North Valmy Generating Station, which is jointly owned by NV Energy and Idaho Power. Valmy is over 540 miles from the receptor area. In 2008, Valmy emitted 8130 tons of SO_2. The NDEP reviewed meteorological data for Reno International Airport from 2003 through 2011 to indicate the prevailing wind direction for potential transport to the Montana nonattainment receptors (Figure C.3). The data indicate that the prevailing winds at Reno are mainly from the west-northwest. We can assume winds leaving the Reno area would blow east or southeast, not toward the Montana SO_2 nonattainment receptors which lie northeast of Reno and Valmy.

FIGURE C.3

RENO, NEVADA WIND ROSE PLOT, 2003-2011



Nevada relies on the following evidence to support a finding that emissions from Nevada do not significantly contribute to nonattainment of the 2010 SO_2 NAAQS at the Billings/Laurel receptor area: (1) the overwhelming contribution of seven significant local emission sources to high SO_2

levels in the Billings/Laurel area, (2) CASTNET data indicating that regional background levels of SO_2 are generally low during the time periods of elevated SO_2 at the receptors, (3) the significant distance from the state of Nevada to the nonattainment receptors in Montana, and (4) the prevailing winds at Nevada emission sources not blowing toward the receptor area.

C.3.2 East Helena, Montana

In 1978, East Helena (in Lewis and Clark County), Montana was designated nonattainment for the 1971 SO_2 standard. In 1995, USEPA approved Montana's SO_2 attainment demonstration SIP for East Helena. The SIP was developed in consultation with the ASARCO primary lead smelter, the only significant source of SO_2 emissions in the East Helena nonattainment area (60 FR 5313, January 27, 1995). The ASARCO smelter shut down in 2001. According to the 2008 NEI, Lewis and Clark County emitted only 28 tons of SO_2 from all source sectors combined in 2008 (http://www.epa.gov/air/emissions/index.htm). USEPA has not proposed to designate East Helena nonattainment for the 2010 SO_2 standard.

Nevada's closest significant source to the receptor area is the North Valmy Generation Station, which is approximately 480 miles away. Valmy emitted 8130 tons of SO_2 in 2008. The NDEP reviewed meteorological data for Reno International Airport from 2003 through 2011 as a general indication of the prevailing wind direction for potential transport to the East Helena receptor (Figure C.3). The data indicate that the prevailing winds at Reno are mainly from the west-northwest. We can assume winds leaving the Reno area would blow east or southeast, not toward East Helena, which is northeast of Reno and Valmy.

Nevada relies on the following evidence to support a finding that emissions from Nevada do not significantly contribute to nonattainment or maintenance of the SO_2 NAAQS in East Helena: (1) information indicating that SO_2 levels were predominantly caused by a local emission source that has since been shut down, (2) CASTNET data indicating that regional background levels of SO_2 are even lower than concentrations currently monitored in Helena, Montana, (3) the significant distance from the state of Nevada to the nonattainment receptor in Montana, and (4) the prevailing winds at Nevada emission sources not blowing toward the receptor area.

C.4 TRANSPORT TO MAINTENANCE RECEPTORS IN NEARBY STATES

The NDEP identified maintenance receptors in one adjacent state: Arizona.

C.4.1 Arizona

There are four maintenance areas for the 1971 SO_2 NAAQS in Arizona: the Ajo, Douglas, Morenci, and San Manuel SO_2 planning areas. In 2001-2002, Arizona submitted redesignation requests and maintenance plans for all four areas. The emission inventories in those plans show that nearly all of the SO_2 emissions in those areas came from the various copper smelters located these maintenance areas (http://www.azdeq.gov/environ/air/plan/). Only one smelter remains operational and is located in the San Manuel SO_2 planning area. There have been no recorded monitoring violations of the SO_2 NAAQS in any of these areas since the mid-1980s. Furthermore, USEPA has not proposed to designate San Manuel nonattainment for the 2010 SO_2 standard.

The RGGS in Las Vegas is the closest SO_2 source in Nevada to the receptor areas. RGGS is approximately 300 miles from Arizona's nearest maintenance receptor. Meteorological data at the McCarran International Airport in Las Vegas for 2003 through 2011 indicate that the prevailing winds in Las Vegas are from the south-southwest (Figure C.1). We can assume that winds leaving the Las Vegas area would blow mainly north-northeast, and not toward the maintenance areas, which lie south-southeast of Las Vegas. Meteorological data from the Phoenix Sky Harbor International Airport for 2003 through 2011 show that the prevailing winds in Phoenix come mainly from the east and to a lesser degree from the west (Figure C.2). Thus, it is reasonable to conclude that the maintenance areas southeast of the Phoenix area are not significantly influenced by emissions from Nevada.

Based on the following evidence, the NDEP concludes that emissions from Nevada do not significantly interfere with the maintenance of the SO_2 NAAQS in Ajo, Douglas, Morenci, or San Manuel: (1) technical information indicating that elevated SO_2 levels in the maintenance areas were predominantly caused by local emission sources, (2) CASTNET data indicating that regional background levels of SO_2 are generally low, (3) the significant distance from the state of Nevada to the receptors, and (4) meteorological data showing that the prevailing winds do not blow from Nevada toward the maintenance receptors.

C.5 TRANSPORT TO MAINTENANCE RECEPTORS IN WESTERN STATES

The NDEP identified maintenance receptors in one distant western state: New Mexico.

C.5.1 New Mexico

Grant County, New Mexico was designated nonattainment in 1978 and redesignated attainment in 2003. There have been no monitored violations of the SO_2 NAAQS since 1975. New Mexico attributes past violations to the Hurley smelter located directly outside the town of Hurley (http://www.nmenv.state.nm.us/aqb/Control_Strat/sip/Grant_Text.pdf). As a consequence of emission controls placed on the smelter, Grant County had only 18 tons of SO_2 emissions in 2008 (http://www.epa.gov/air/emissions/index.htm). USEPA has not proposed to designate Grant County nonattainment for the 2010 SO_2 standard (http://www.epa.gov/so2designations/eparesp/06_NM_resp.pdf).

The RGGS in Las Vegas is the closest SO_2 source in Nevada to the Grant County maintenance area, approximately 570 miles away. RGGS emitted 940.69 tons of SO_2 in 2008. Meteorological data at the McCarran International Airport in Las Vegas indicate that the prevailing winds in Las Vegas are from the south-southwest (Figure C.1). We can assume that winds leaving the Las Vegas area would blow mainly north-northeast and not southeasterly toward Grant County.

Absent CASTNET data for New Mexico, the NDEP reviewed five years (2007-2012) of data from four national parks between Nevada and New Mexico to determine SO_2 background in New Mexico. These sites include the Mesa Verde National Park in Colorado, and the Grand Canyon National Park, Petrified Forest National Park, and Chiricahua National Monument in Arizona. Both average weekly and seasonal SO_2 concentrations from these National Park Service sites were low, below 2 ppb, indicating that the regional SO_2 background concentrations are relatively

low, which in turn implies that the bulk of the SO_2 in the urban receptor areas is locally generated and not a regional or transport phenomenon.

Nevada relies on the following evidence to support a finding that emissions from Nevada do not significantly interfere with the maintenance of the 2010 SO_2 NAAQS in Grant County, New Mexico: (1) technical information indicating that elevated SO_2 levels in maintenance area were predominantly caused by the Hurley smelter, (2) the significant distance from the state of Nevada to the receptor area, and (3) representative air quality data indicating that regional background levels of SO_2 are generally low.

C.6 TRANSPORT TO NONATTAINMENT/MAINTENANCE RECEPTORS IN EASTERN STATES

The NDEP also considered potential SO_2 transport from Nevada emission sources to the nearest nonattainment or maintenance receptors located in the eastern, midwestern, and southern states. The nonattainment receptor nearest to Nevada is Jackson County, Missouri. The USEPA has proposed to designate Jackson County, Missouri nonattainment for the 2010 SO_2 NAAQS (http://www.epa.gov/airquality/sulfurdioxide/designations/eparesp/07_MO_resp.pdf). Jackson County is over 1000 miles away from the border of Nevada.

The NDEP evaluated the relative magnitude of SO_2 emissions in Nevada to SO_2 emissions in Missouri. The 2008 NEI indicates that SO_2 emissions in Nevada are less than 5 percent of the SO_2 emissions in Missouri (http://www.epa.gov/air/emissions/index.htm). Specifically, the 2008 NEI shows 16,813 tons of SO_2 from Nevada sources, compared to 415,204 tons of SO_2 from Missouri sources (34,693 tons SO_2 in Jackson County).

The NDEP believes the following factors support a finding that emissions from Nevada do not significantly contribute to nonattainment of the 2010 SO_2 NAAQS at the Jackson County receptor: (1) the relatively small magnitude of the emissions inventory of SO_2 in Nevada compared to Missouri, combined with (2) the relatively long distance of the state of Nevada from the receptor. These factors also support a qualitative conclusion that emissions from Nevada sources do not significantly contribute to nonattainment or interfere with the maintenance of these NAAQS at any of the other receptors farther east.

C.7 CONCLUSION

The preceding analysis indicates that sulfur dioxide nonattainment (current, and impending for the 2010 NAAQS) and maintenance areas in adjacent and nearby states, as well as other western and eastern states are generally the result of documented local emission sources, which in some cases have ceased operation since the time of designation. Furthermore, the receptor areas the NDEP identified for the 2010 SO_2 NAAQS are a considerable distance from Nevada sources. Based on these factors and the above evaluation, the State of Nevada concludes that sulfur dioxide emissions from Nevada do not contribute to nonattainment or interfere with maintenance of the 2010 SO_2 standard or the previous SO_2 standards in any other state. Nevada commits to continue to review new air quality information as it becomes available to ensure that this negative declaration is still supported by such information.

APPENDIX D

May 30, 2007 Letter to the US EPA Region 9 Administrator

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ALLEN BIAGGI
Director

JIM GIBBONS
Governor

KAY SCHERER
Deputy Director

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Division of Conservation Districts
Division of Environmental Protection
Division of Forestry
Division of State Lands
Division of State Parks
Division of Water Resources
Natural Heritage Program
Wild Horse Program

STATE OF NEVADA
Department of Conservation and Natural Resources
OFFICE OF THE DIRECTOR

May 30, 2007

Wayne Nastri
Regional Administrator
ORA-1, USEPA Region 9
75 Hawthorne Street
San Francisco CA 94105

Dear Mr. Nastri:

Nevada Revised Statutes 445B.205 designates the Department of Conservation and Natural Resources (Department) as the air pollution control agency for the State of Nevada for the purposes of the Clean Air Act insofar as it pertains to State programs. Within the Department, the Division of Environmental Protection has responsibility to manage the air quality planning and air pollution control programs for the State of Nevada. Therefore, pursuant to Nevada Administrative Code 445B.053, I am hereby assigning the Administrator of the Nevada Division of Environmental Protection, or the Deputy Administrator acting on his behalf, to be my official designee for the purposes of the Clean Air Act, including, but not limited to, adoption, revision and submittal of state plans and state implementation plans.

Sincerely,

Allen Biaggi
Director

cc Michael Dayton, Chief of Staff, Office of the Governor
Jodi Stephens, Deputy Chief of Staff, Office of the Governor
Leo Drozdoff, Administrator, NDEP
Colleen Cripps, Deputy Administrator, NDEP
Tom Porta, Deputy Administrator, NDEP
Deborah Jordan, Director, EPA Air Division, Region IX
Jefferson Wehling, ORC, EPA Region IX

APPENDIX E

EVIDENCE OF PUBLIC PARTICIPATION; PUBLIC COMMENTS AND NEVADA'S RESPONSES

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NOTICE OF PUBLIC COMMENT PERIOD BEGINNING APRIL 19, 2013
AND A PUBLIC HEARING ON MAY 20, 2013, IF REQUESTED

Conducted by the
Nevada Division of Environmental Protection, Bureau of Air Quality Planning

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May 20, 2013
11:00 a.m. to 1:00 p.m.
Great Basin Conference Room, 4th Floor
901 South Stewart Street
Carson City, Nevada

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STATE OF NEVADA)
COUNTY OF CLARK) SS:

Stacey M. Lewis, being 1st duly sworn, deposes and says: That she is the Legal Clerk for the Las Vegas Review-Journal and the Las Vegas Sun, daily newspapers regularly issued, published and circulated in the City of Las Vegas, County of Clark, State of Nevada, and that the advertisement, a true copy attached for,

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was continuously published in said Las Vegas Review-Journal and / or Las Vegas Sun in 1 edition(s) of said newspaper issued from 04/20/2013 to 04/20/2013, on the following days:

04/20/2013

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BEGINNING APRIL 19, 2013 AND A PUBLIC HEARING ON MAY 20, 2013, IF REQUESTED

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PUB: April 20, 2013
LV Review-Journal

Nevada
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MARY A. LEE
Notary Public State of Nevada
No. 09-8941-1
My Appt. Exp. Nov. 13, 2016

Signed: Stacey M Lewis

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Being first duly sworn, deposes and says: That as the legal clerk of the Reno Gazette-Journal, a daily newspaper of general circulation published in Reno, Washoe County, State of Nevada, that the notice referenced below has published in each regular and entire issue of said newspaper between the dates: **04/19/2013 - 04/19/2013**, for exact publication dates please see last line of Proof of Publication below.

Subscribed and sworn to before me

Signed: _____

APR 1 9 2013

GINA BRILES
Notary Public - State of Nevada
Appointment Recorded in Washoe County
No: 11-6185-2 - Expires October 10, 2015

Proof of Publication

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No. 3241 Apr 19, 2013

STATE OF NEVADA
Department of Conservation & Natural Resources
DIVISION OF ENVIRONMENTAL PROTECTION
Brian Sandoval, Governor
Leo M. Drozdoff, P.E., Director
Colleen Cripps, Ph.D., Administrator
ndep NEVADA DIVISION OF ENVIRONMENTAL PROTECTION
protecting the future for generations

NOTICE OF CANCELLATION OF PUBLIC HEARING ON May 20, 2013

Nevada Division of Environmental Protection
Bureau of Air Quality Planning

Pursuant to the public hearing provisions in Title 40 of the Code of Federal Regulations Part 51 section 102, the Nevada Division of Environmental Protection (NDEP) is cancelling the following public hearing because no request for a hearing was received:

May 20, 2013
11:00 a.m. to 1:00 p.m.
Great Basin Conference Room, 4th Floor
901 South Stewart Street
Carson City, Nevada

The NDEP's draft Sulfur Dioxide Infrastructure State Implementation Plan (SIP) and related materials are available on the NDEP website at http://ndep.nv.gov/admin/public.htm, click on "Air Quality Planning." Persons may also check on the status of Nevada's Sulfur Dioxide Infrastructure SIP revision by telephone at (775) 687-9543.

Public Comments and Nevada's Responses

(Only one comment was received)

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Tony Roberts
Nevada Division of Environmental Protection
901 S. Stewart Street, Suite 4001
Carson City, NV 89701
aroberts@ndep.nv.gov

May 17, 2013

VIA ELECTRONIC MAIL AND U.S. MAIL

Re: Comments Concerning Nevada's Section 110(a) Infrastructure State Implementation Plan (SIP) Submittal for 2010 Sulfur Dioxide NAAQS

Dear Mr. Roberts:

On behalf of the Sierra Club and its more than 4,409 members in Nevada and others who are adversely impacted by the state's sources of sulfur dioxide ("SO_2") pollution, we submit the following comments on Nevada's proposed infrastructure provisions addressing the requirements for the 2010 Sulfur Dioxide National Ambient Air Quality Standards ("NAAQS"), required by Section 110(a)(1) and (2) of the federal Clean Air Act ("FCAA" or "Act"). 42 U.S.C. § 7410(a)(1), (2). As explained in detail below, neither the Nevada SIP, nor permitted emission limits for plants like the North Valmy station currently ensure that counties in Nevada will achieve and maintain the new one-hour SO_2 NAAQS.

The Clean Air Act states that the primary NAAQS define the levels of air quality necessary to protect public health with an adequate margin of safety. *See* 42 U.S.C. § 7409(b)(1); NEV. ADMIN. CODE § 445B.22097, Note E (2012). Indeed, the new one-hour SO_2 standard is necessary to protect public health from the serious threats posed by short-term exposure to sulfur compounds, including decreased lung function, increased respiratory symptoms such as chest tightness, wheezing, and shortness of breath, and other serious indicators of respiratory illness, especially in asthmatics, children, and the elderly. *See Primary National Ambient Air Quality Standard for Sulfur Dioxide; Final Rule*, 75 Fed. Reg. 35,520, 35,550 (June 20, 2010) (hereinafter "Final SO_2 Rule"). The health data relied upon by the United States Environmental Protection Agency ("EPA") in promulgating the new standard overwhelmingly indicated that

increased asthma attacks and hospital visits are attributable to short-term concentrations of sulfur compounds in the air. Due to these and other serious impairments caused by short-term SO_2 exposure, the Nevada Division of Environmental Protection ("NDEP") must properly implement the one-hour SO_2 NAAQS to protect its people's health.

I. NEVADA MUST INCLUDE THE NEW NAAQS IN ITS SIP.

The 2010 SO_2 NAAQS imposes a new one-hour standard at a level of 196 micrograms per cubic meter ("µg/m3") or 75 parts per billion ("ppb") based on the 3-year average of the 99th percentile of the annual distribution of daily maximum one-hour average concentrations. 40 C.F.R. § 50.17(a)-(b).

Despite this new NAAQS, neither Nevada's SIP nor its state regulations reflect the new standards for SO_2. Nevada's Ambient Air Quality Standards are found in Title 17, Chapter 8, Subchapter 2 which provides that the SO_2 ambient air quality standards are 0.030 parts per million ("ppm"), based on an annual arithmetic mean, 0.14 ppm based on a 24-hour averaging time, and 0.5 ppm based on a 3-hour averaging time. NEV. ADMIN. CODE § 445B.22097 (2012). None of these standards reflect the new one-hour NAAQS for SO_2. The SIP is meant to implement, maintain, and enforce the NAAQS and therefore must include "enforceable emission limitations" to ensure its effectiveness. 42 U.S.C. § 7410(a)(2)(A). Nevada's current SIP and regulations are wholly inadequate. This defect in NAC 445B.22097 also renders NAC 445B.308 inadequate to protect the new one-hour SO_2 NAAQS. Therefore, Nevada must amend NAC 446.22097 to include the new one-hour SO_2 NAAQS in its infrastructure SIP.

II. THE INFRASTRUCTURE SIP MUST INCLUDE ENFORCEABLE ONE-HOUR SO_2 EMISSION LIMITATIONS TO ENSURE ATTAINMENT AND MAINTENANCE OF THE NAAQS.

Section 110(a)(1) of the Act, 42 U.S.C. § 7410(a)(1), provides that each state shall "adopt and submit to the Administrator . . . a plan which provides for implementation, maintenance, and enforcement of such primary [NAAQS]." Section 110(a)(2)(A) requires that these plans, known as Infrastructure SIPs, "include enforceable emission limitations . . . as well as schedules and timetables for compliance, as may be necessary or appropriate to meet the applicable requirements" of the Clean Air Act, including the requirement to maintain the NAAQS. 42 U.S.C. § 7410(a)(2)(A).

The Nevada proposed infrastructure provisions are insufficient to comply with the Act. Even though the 2010 NAAQS represents a new and tighter standard for ambient SO_2, NDEP has not proposed any changes to its current regulations to reflect the new standard and has failed to impose restrictions on major SO_2 sources to ensure that they will maintain the NAAQS.

A. *Nevada must include enforceable one-hour SO_2 emission limits for sources currently permitted to violate the NAAQS, including the North Valmy power plant.*

NDEP fails to include adequate enforceable emission limitations to ensure that large sources of SO_2 cannot cause or contribute to violations of the 2010 SO_2 NAAQS, specifically the North Valmy Generating Station, a coal-fired power plant located in Humboldt County, Nevada. Although NDEP cites in Appendix A to its SIP submission state regulations which impose tighter emission restrictions on plants such as North Valmy, these regulations are insufficient to ensure compliance with the 2010 SO_2 NAAQS. *See* NDEP, *Portion of the Nevada State Implementation Plan for the 2010 Sulfur Dioxide Primary NAAQS: Demonstration of Adequacy, Public Comment Draft* at 3 (April 19, 2013), (hereinafter "NV I-SIP Submission") (citing NEV. ADMIN. CODE § 445B.22063 (2012) which "has not been submitted as part of Nevada's SIP. . . ."). This regulation states:

> The allowable emission of sulfur from fossil fuel-fired power generating unit Number 2 NV Energy's North Valmy Station . . . must not be greater than 0.3 pounds per million Btu's . . . . The efficiency of the capture of sulfur must be maintained at a minimum of 70 percent, based on a 30-day rolling average.

NEV. ADMIN. CODE § 445B.22063 (2012). This non-SIP provision is inadequate to demonstrate compliance with 110(a)(2)(A) for three reasons: (1) the regulation is not found in the SIP and therefore is not federally enforceable; (2) even if it was included in the SIP, the regulation does not include proper averaging times to ensure compliance; and (3) the regulation does not apply to the entire facility, only Unit 2, and air dispersion modeling demonstrates that the *entire* North Valmy station must be subject to more stringent limitations in order to ensure compliance with the SO_2 NAAQS. Each of these will be discussed in turn below.

First, because the regulations are not contained in the SIP, they are not enforceable by EPA or by citizens under the CAA. *See* 42 U.S.C. §7413(a)(1)-(2) (granting EPA the authority to assess violations of SIPs against "any person . . . in violation of any requirement or prohibition of an applicable implementation plan" and against states for failure to enforce a SIP); 42 U.S.C. § 7604(f)(4) (granting citizen suit jurisdiction in federal district courts for violation of "any applicable State implementation plan approved by the Administrator"). Without these enforcement mechanisms in place, these regulations cannot ensure proper enforcement of the NAAQS and therefore Nevada has failed to comply with 110(a)(2)(A). More fundamentally, Nevada cannot claim that a SIP is adequate based on a regulations that are not in the SIP.

Second, even if this regulation was included in the SIP, it is inadequate to ensure compliance with the one-hour SO_2 NAAQS, as it includes an improper averaging period of 30 days for the efficiency rate of the sulfur capture. NEV. ADMIN. CODE § 445B.22063 (2012). In the Final SO_2 Rule, EPA specifically discussed the need for a one-hour averaging period to protect short-term exposure to SO_2. As EPA discussed, longer averaging periods tend to result in lower reported emissions, however dangerous hourly spikes still occur. 75 Fed. Reg. at 35,524. EPA specifically adopted a one-hour averaging period to protect against these spikes which cause decrements in lung function and respiratory symptoms in at-risk populations. 75 Fed. Reg. at

35,537-38. An emission limitation which contains a longer averaging period cannot ensure compliance with a one-hour standard.[1]

Finally, and most importantly, this state regulation cannot ensure North Valmy's compliance with the one-hour SO_2 NAAQS because it does not prevent violations from the plant as a whole, as it only restricts Unit 2, and not Unit 1. Consistent with EPA's long held position that modeling should be the primary method to determine NAAQS violations for SO_2, the Sierra Club retained expert modeler Steven Klafka to conduct air dispersion modeling for the North Valmy to determine whether the plant causes exceedances of the new one-hour SO_2 standard. *See* Steven Klafka, *North Valmy Generating Station Valmy, Nevada Sierra Club's Evaluation of Compliance with 1-hour SO_2 NAAQS* (May 16, 2013) (hereinafter the "Modeling Report"), attached hereto as Exhibit 1.[2]

Mr. Klafka prepared an air dispersion modeling analysis for North Valmy to compare modeled ambient air concentrations from the plant's emissions with the one-hour SO_2 NAAQS. The Modeling Report used EPA's AERMOD program to measure the plant's allowable (based on the plant's most stringent federally-enforceable emission limitations found in its current Title V Permit) and actual (based on maximum hourly emissions obtained from EPA's Clean Air Markets Data and Maps database) emissions to determine whether the plant can cause violations of the one-hour SO_2 NAAQS. Modeling Report at 9. The modeling protocol employed is consistent with the EPA's March 2011 guidance for implementing the one-hour SO_2 NAAQS and used the most recent version of AERMOD available at the time of the study.[3] Modeling Report at 2. After determining the plant's individual impact, Mr. Klafka added a background concentration of 14.4 $\mu g/m^3$ to determine the total impact to the ambient air. Modeling Report at 4, 10. However, removing the background values does not change the results of the analysis, as North Valmy's emissions alone are capable of causing violations of the one-hour SO_2 emissions. Where any assumptions had to be made in the running of the model, Mr. Klafka used conservative inputs which favor the prediction of *lower impacts* from the plant so that the results actually *understate* the plant's SO_2 emission impacts. Modeling Report at 3. The Modeling Report details these conservative assumptions and the protocol used.

The Modeling Report demonstrates that SO_2 emissions from the North Valmy station allowed under the existing SIP cause ambient impacts that exceed the new one-hour SO_2 NAAQS. Modeling Report at 2, 4. The violations, based on permitted emission limits and actual emissions, are impacting Humboldt, Lander, and Elko counties, resulting in nonattainment levels of SO_2. Modeling Report at Figure 1-2. Despite these impacts, Nevada has not proposed to designate any of these counties as nonattainment areas. *See* Letter from Colleen Cripps, Administrator, Nevada Division of Environmental Protection to Jared Blumenfeld, Regional

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[1] Nevada state regulations also include non-SIP emission limitations for the Reid Gardner Power Station. *See* NEV. ADMIN. CODE §§ 445B.22057, 445B.2206, 445B.22063 (2012). While the Sierra Club did not evaluate these numeric emission limitations through air dispersion modeling, these regulations also fail to ensure proper enforcement of the NAAQS, as they are similarly not included in the SIP and include improper averaging periods for efficiency rates.

[2] The supporting files to this modeling report have been provided on a CD with this submission; they are also available electronically at https://www.box.com/s/5s2hiqtfxnb211k3g97d.

[3] The Modeling Report used AERMOD version 12060.

Administrator, U.S. EPA Region 9 (May 3, 2011), *available at* http://www.epa.gov/airquality/sulfurdioxide/designations/recletters/R9_NV_rec.pdf.

The Modeling Report's findings are summarized in the table below.

Emission Rates	**Facility Impact** ($\mu g/m^3$)	**Background** ($\mu g/m^3$)	**Total Impact** Facility Impact plus Background ($\mu g/m^3$)	**SO_2 NAAQS** ($\mu g/m^3$)	**Counties Impacted by SO_2 Emissions**	**NDEP Designation of Impacted County**
Allowable	480.6	14.4	495.0	196.2	Humboldt, Lander, Elko	Unclassifiable
Maximum	303.9	14.4	318.3	196.2		

Modeling Report at 4.

In order to ensure compliance with the one-hour SO_2 NAAQS, the Modeling Report recommends a *total* facility emission rate of 1,814.6 lbs/hr of SO_2 or 0.33 lbs/mmBtu, representing a 62.2% reduction in *total* emissions. Modeling Report at 4. This would therefore require both Units 1 and 2 comply with a 0.33 lbs/mmBtu emission limitation for SO_2, not just Unit 2, and not for the emission of sulfur, as Nevada's state regulations currently require. Furthermore, this emission limitation may not be stringent enough to ensure compliance, as the Modeling Report was based on conservative assumptions which likely underestimated the plant's impacts. Modeling Report at 3.

Therefore, because the Nevada SIP does not ensure compliance with the one-hour SO_2 NAAQS, specifically for large sources such as the North Valmy station, it must be amended to include proper emission limitations and averaging times which apply to every source that is currently permitted to violate the standard.

In addition, the Nevada SIP must require monitoring of these SO_2 emission limits on a continuous basis using a continuous emission monitor system or systems. Monitoring performed pursuant to the New Source Performance Standard (NSPS) requirements in 40 C.F.R. Part 60 are not adequate because they do not require monitoring during every hour of operation yet the emission limits need to apply and be monitored for during every hour in order to protect the one-hour SO_2 NAAQS.

B. *Sierra Club's modeling is appropriate to use for evaluating the adequacy of Infrastructure SIPs*

As outlined by EPA in the Final SO_2 NAAQS Rule, 75 Fed. Reg. at 35,551, air dispersion modeling is the best method for evaluating the short-term impacts of large sources of SO_2 and EPA has historically used air dispersion modeling for attainment designations and SIP revisions. A state agency may not ignore information put in front of them. *See generally Motor*

Vehicle Mfrs. Ass'n v. State Farm Mut. Auto Ins. Co., 463 U.S. 29, 43 (1983) (arbitrary and capricious for agency to ignore important aspect of an issue); *Grand Canyon Trust v. FAA*, 290 F.3d 339, 346 (D.C. Cir. 2002). Therefore, even though EPA has indicated that states no longer have to submit modeling to show attainment of the standard in unclassifiable areas, *see e.g.* EPA Letter to States Re SO_2 NAAQS Implementation (April 12, 2012), *available at* http://www.dnr.mo.gov/env/apcp/docs/epa-missouri-so2.pdf, this does not apply to citizen groups such as the Sierra Club. Here, the Sierra Club is providing the State with modeling demonstrating that existing regulations allow for violation of the NAAQS in areas that are currently designated attainment. EPA continues to consider modeling a valid tool in this context, as in the April 12, 2012 letter, EPA states: "If your state has begun modeling, however, and wishes to continue that work, we will be glad to work with you."

EPA does not need to issue a rulemaking to use modeling to advance the initial implementation of the SO_2 NAAQS. As an initial matter, Appendix W and EPA guidance documents explain the AERMOD modeling methodology required to determine source specific compliance with the SO_2 NAAQS. With AERMOD, EPA and/or the states can evaluate a specific source's compliance with the SO_2 NAAQS, taking into account the background values in the relevant areas and then determine the percent reduction in SO_2 emissions required to ensure that the NAAQS are not violated on an individual, source by source basis. This is the same approach taken by the Sierra Club's modelers in the attached report.

NDEP has long been on notice that EPA considers modeling data an important source of information for achieving and maintaining the NAAQS. EPA has historically used modeling in determining attainment for the SO_2 standard. *See e.g.*, U.S. EPA, *Implementation of the 1-Hour SO_2 NAAQS Draft White Paper for Discussion* at 3, fn. 1, (hereinafter "EPA White Paper"), *available at* http://www.epa.gov/airquality/sulfurdioxide/pdfs/20120522whitepaper.pdf; *see also* Respondent's Opposition to Motion of the State of North Dakota for a Stay of EPA's 1-Hour SO_2 Ambient Standard Rule at 3, National Environmental Development Association's Clean Air Project v. EPA (D.C. Cir. 2010) (No. 10-1252), attached hereto as Exhibit 2 ("the Agency has historically relied on modeling to make designations for sulfur dioxide"). For example, in EPA's 1994 SO_2 Guideline Document, EPA noted that "for SO_2 attainment demonstrations, monitoring data alone will generally not be adequate," and that "[a]ttainment determinations for SO_2 will generally not rely on ambient monitoring data alone, but instead will be supported by an acceptable modeling analysis which quantifies that the SIP strategy is sound and that enforceable emission limits are responsible for attainment." U.S. EPA, 1994 SO_2 Guideline Document, (hereinafter "1994 SO_2 Guideline Document"), *available at* http://www.epa.gov/ttn/oarpg/t1/memoranda/so2_guide_092109.pdf, at 2-1; *see also id.* at 2-5 ("For SO_2 attainment demonstrations, monitoring data alone will generally not be adequate."). The 1994 Guideline Document goes on to note that monitoring alone is likely to be inadequate: "[f]or SO_2, dispersion modeling will generally be necessary to evaluate comprehensively a source's impacts and to determine the areas of expected high concentrations based upon current conditions." *Id.* at 2-3.

EPA's acceptance of modeling for making attainment designations stretches back decades, and is equally applicable to determining the adequacy of an infrastructure SIP. In

1983, the Office of Air Quality Planning and Standards ("OAQPS") issued a Section 107 Designation Policy Summary. *See* Sheldon Meyers Memorandum re Section 107 Designation Policy Summary (April 21, 1983), attached hereto as Exhibit 3. OAQPS explained that "air quality modeling emissions data[] should be used to determine if the monitoring data accurately characterize the worst case air quality in the area." *Id.* at 1. Of course, if there is no monitoring data for an area, it does not accurately characterize the worst case air quality in an area. EPA acknowledged that some nonattainment designations were "based solely on modeling[.]" *Id.* at 2. In fact, reliance on modeling for nonattainment designations stretches back to the Carter Administration. In 1978, EPA designated Laurel, Montana as nonattainment "due to measured and modeled violations of the primary SO_2 standard." *Montana Sulphur & Chemical Co. v. EPA*, 666 F.3d 1174, 1181 (9th Cir. 2012) (citing 43 Fed. Reg. 8,962 (Mar. 3, 1978)).

As such, EPA's final 2010 SO_2 NAAQS rule simply continues and builds upon EPA's historical practice of using modeling to determine attainment and nonattainment status for SO_2 NAAQS. In doing so, EPA properly recognized the "strong source-oriented nature of SO_2 ambient impacts," 75 Fed. Reg. at 35,370, and concluded that the appropriate methodology for purposes of determining compliance, attainment, and nonattainment with the new NAAQS is modeling. *See* 75 Fed. Reg. at 35,551 (describing dispersion modeling as "the most technically appropriate, efficient and readily available method for assessing short-term ambient SO_2 concentrations in areas with large point sources."). Accordingly, in promulgating the new SO_2 NAAQS, EPA explained that, for the one-hour standard, "it is more appropriate and efficient to principally use modeling to assess compliance for medium to larger sources . . . ." *Id.* at 35,570. Similarly, EPA then explained in the white paper that using modeling to determine attainment for the SO_2 standard "could better address several potentially problematic issues than would the narrower monitoring-focused approach discussed in the proposal for the SO_2 NAAQS, including the unique source-specific impacts of SO_2 emissions and the special challenges SO_2 emissions have historically presented in terms of monitoring short-term SO_2 levels for comparison with the NAAQS in many situations (75 FR 35550)." EPA White Paper at 3-4.

Moreover, EPA's use of modeling has been upheld by the courts. For example, in *Montana Sulphur*, the company challenged a SIP Call, a SIP disapproval and a FIP promulgation because they were all premised on a modeling analysis that showed the Billings/Laurel, Montana area was in nonattainment for SO_2. 666 F.3d at 1184. The court rejected Montana Sulphur's argument and held that EPA's reliance on modeling was not arbitrary and capricious or otherwise unlawful. *Id.* at 1185; *see also Sierra Club v. Costle*, 657 F.2d 298, 332 (D.C. Cir. 1981) ("Realistically, computer modeling is a useful and often essential tool for performing the Herculean labors Congress imposed on EPA in the Clean Air Act"); *Republic Steel Corp. v. Costle*, 621 F.2d 797, 805 (6th Cir. 1980) (approving use of modeling to predict future violations and incorporating "worst-case" assumptions regarding weather and full-capacity operations of pollutant sources).

EPA uses modeling because the agency is well aware that modeling produces reliable results. For example, as John C. Vimont, EPA Region 9's Regional Meteorologist, has stated under oath:

> EPA does recognize the usefulness of ambient measurements for information on background concentrations, provided reliable monitoring techniques are available. EPA does not recommend, however, that ambient measurements be used as the sole basis of setting emission limitations or determining the ambient concentrations resulting from emissions from an industrial source. These should be based on an appropriate modeling analysis.

Declaration of John C. Vimont at 1, 11 (emphasis added), attached hereto as Exhibit 4.

Similarly, Roger Brode is currently a physical scientist in EPA's Air Quality Modeling Group and co-chairs the AMS/EPA Regulatory Model Improvement Committee (AERMIC) and the AERMOD Implementation Workgroup. Declaration of Roger W. Brode at 1, 2, attached hereto as Exhibit 5. Mr. Brode has stated under oath that AERMOD is "readily capable of accurately predicting whether the revised primary SO_2 NAAQS is attained and whether individual sources cause or contribute to a violation of the SO_2 NAAQS." *Id.* at 2. Mr. Brode has explained:

> As part of the basis for EPA adopting the AERMOD model as the preferred model for nearfield applications in the *Guideline on Air Quality Models*, Appendix W to 40 CFR Part 51, the performance of the AERMOD model was extensively evaluated based on a total of 17 field study data bases (AERMOD: Latest Features and Evaluation Results. EPA-454/R-03-003. U.S. Environmental Protection Agency, Research Triangle Park (2003), portions of which are attached to this affidavit) ("EPA 2003"). The scope of the model evaluations conducted for AERMOD far exceeds the scope of evaluations conducted on any other model that has been adopted in Appendix W to Part 51. These evaluations demonstrate the overall good performance of the AERMOD model based on technically sound model evaluation procedures, and also illustrate the significant advancement in the science of dispersion modeling represented by the AERMOD model as compared to other models that have been used in the past. In particular, adoption of the AERMOD model has significantly reduced the potential for overestimation of ambient impacts from elevated sources in complex terrain compared to other-models.

Id. at 3-4 (emphasis added). The power plants discussed in these comments are clearly elevated sources.

EPA's practice in a number of other contexts also demonstrates that modeling is a technically superior approach for ascertaining impacts on NAAQS, and the history of EPA's preference for modeling to evaluate compliance rather than monitoring. For example, all NO_2, $PM_{2.5}$, and SO_2 NAAQS and PSD increment compliance verification analyses are performed with air dispersion modeling, such as running AERMOD in a manner consistent with the Guideline on Air Quality Models. 40 C.F.R. § 52.21(l)(1). Indeed, in order to ensure consistency in how air impacts are determined, both existing sources and newly permitted sources should be assessed using the same methods. AERMOD modeling performs particularly well in evaluating emission sources with one or a handful of large emission points. The stacks

are well-characterized in terms of location, dimensions and exhaust parameters, and have high release heights. In addition many plants have SO_2 continuous emission monitoring system ("CEMS") data. AERMOD accurately models medium-to-large SO_2 sources—even with conditions of low wind speed, the use of off-site meteorological data, and variable weather conditions. For example, AERMOD has been tested and performs very well during conditions of low wind speeds:

> AERMOD's evaluation analyses included a number of site-specific meteorological data sets that incorporate low wind speed conditions. For example, the Tracy evaluation included meteorological data with wind speeds as low as 0.39 meter/second (m/s); the Westvaco evaluation included wind speeds as low as 0.31 m/s; the Kincaid SO_2 evaluation included wind speeds as low as 0.37 m/s; and the Lovett evaluation included wind speeds as low as 0.30 m/s. Concerns . . . regarding AERMOD's ability to model low wind speed conditions seem to neglect the data used in actual AERMOD evaluations.

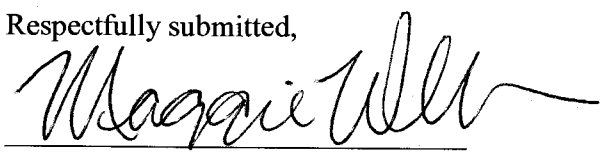
Comments of Camille Sears, attached hereto as Exhibit 6 (citing AERMOD evaluations and modeled meteorological data, *available at* http://www.epa.gov/ttn/scram/dispersion_prefrec.htm). EPA has noted as much for years: "[a]mbient monitoring data and air quality modeling data for a particular area can sometimes appear to conflict. This is primarily due to the fact-that modeling results may predict maximum SO_2 concentrations at receptors where no monitors are located." 1994 Guideline Document at 2-6.

In sum, neither the Nevada SIP, nor permitted emission limits for plants like the North Valmy station currently ensure that counties in Nevada will achieve and maintain the new one-hour SO_2 NAAQS. To satisfy the Act's obligations, NDEP must include adequate emissions limits in the SIP, with one-hour averaging periods. EPA has acknowledged that, for the one-hour SO_2 NAAQS, modeling is the most accurate means of determining attainment with the NAAQS. 75 Fed. Reg. at 35,551, 35,570. Accordingly, NDEP should include source-specific SO_2 emission limits in the SIP that, when modeled, show no exceedances of the NAAQS.

III. CONCLUSION

The Nevada SIP is currently inadequate to achieve and maintain compliance with the one-hour SO_2 NAAQS, as described above. NDEP must adopt new provisions into the SIP to protect the public health and comply with the Act's requirements. The Sierra Club would be happy to provide any other information that might assist NDEP in evaluating the impacts of these sources and developing a SIP in full compliance with the Act.

Respectfully submitted,



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On behalf of Sierra Club

North Valmy Generating Station

Valmy, Nevada

Sierra Club Evaluation of Compliance with 1-hour SO_2 NAAQS

May 16, 2013

Conducted by:

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Wingra Engineering, S.C.

Madison, Wisconsin

1. Introduction

The Sierra Club prepared an air modeling impact analysis to help USEPA, state and local air agencies identify facilities that are likely causing violations of the 1-hour sulfur dioxide (SO_2) national ambient air quality standard (NAAQS). This document describes the results and procedures for an evaluation conducted for the North Valmy Generating Station located in Valmy, Nevada.

The dispersion modeling analysis predicted ambient air concentrations for comparison with the one hour SO_2 NAAQS. The modeling was performed using the most recent version of AERMOD, AERMET, and AERMINUTE, with data provided to the Sierra Club by regulatory air agencies and through other publicly-available sources as documented below. The analysis was conducted in adherence to all available USEPA guidance for evaluating source impacts on attainment of the 1-hour SO_2 NAAQS via aerial dispersion modeling, including the AERMOD Implementation Guide; USEPA's Applicability of Appendix W Modeling Guidance for the 1-hour SO_2 National Ambient Air Quality Standard, August 23, 2010; modeling guidance promulgated by USEPA in Appendix W to 40 CFR Part 51; and, USEPA's March 2011 Modeling Guidance for SO_2 NAAQS Designations, available at http://www.epa.gov/ttn/scram/SO2%20Designations%20Guidance%202011.pdf.

2. Compliance with the 1-hour SO_2 NAAQS

2.1 1-hour SO_2 NAAQS

The 1-hour SO_2 NAAQS takes the form of a three-year average of the 99th-percentile of the annual distribution of daily maximum 1-hour concentrations, which cannot exceed 75 ppb.[1] Compliance with this standard was verified using USEPA's AERMOD air dispersion model, which produces air concentrations in units of µg/m^3. The 1-hour SO_2 NAAQS of 75 ppb equals 196.2 µg/m^3, and this is the value used for determining whether modeled impacts exceed the NAAQS.[2] The 99th-percentile of the annual distribution of daily maximum 1-hour concentrations corresponds to the fourth-highest value at each receptor for a given year.

2.2 Modeling Results

Modeling results for North Valmy Generating Station are summarized in Table 1. It was determined that based on either currently permitted emissions or measured actual emissions, the North Valmy Generating Station is estimated to create downwind SO_2 concentrations which exceed the 1-hour NAAQS.

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[1] USEPA, Applicability of Appendix W Modeling Guidance for the 1-hour SO_2 National Ambient Air Quality Standard, August 23, 2010.
[2] The ppb to µg/m^3 conversion is found in the source code to AERMOD v. 12325, subroutine Modules. The conversion calculation is 75/0.3823 = 196.2 µg/m^3.

The currently permitted emissions and measured actual emissions used for the modeling analysis are summarized in Table 2. Based on the modeling results, emission reductions from current rates considered necessary to achieve compliance with the 1-hour NAAQS were calculated and presented in Table 3.

Predicted exceedences of the 1-hour NAAQS for SO_2 extend throughout the region to a maximum distance of 40 kilometers.

Figure 1 shows the extent of NAAQS violations throughout the entire 50 kilometer modeling domain.

Figure 2 provides a close-up local view of NAAQS violations.

Air quality impacts in Nevada are based on a background concentration of 14.4 µg/m^3. This is the 2008-10 design value for Washoe County, Nevada - the lowest measured background concentration in the state. This is the most recently available design value.

2.3 Conservative Modeling Assumptions

A dispersion modeling analysis requires the selection of numerous parameters which affect the predicted concentrations. For the enclosed analysis, several parameters were selected which under-predict facility impacts.

Assumptions used in this modeling analysis which likely under-estimate concentrations include the following:

- Allowable emissions are based on a limitation with an averaging period which is greater than the 1-hour average used for the SO_2 air quality standard. Emissions and impacts during any 1-hour period may be higher than assumed for the modeling analysis.
- No consideration of facility operation at less than 100% load. Stack parameters such as exit flow rate and temperature are typically lower at less than full load, reducing pollutant dispersion and increasing predicted air quality impacts.
- No consideration of building or structure downwash. These downwash effects typically increase predicted concentrations near the facility.
- No consideration of off-site sources. These other sources of SO_2 will increase the predicted impacts.

Table 1 - SO_2 Modeling Results for North Valmy Generating Station Modeling Analysis

Emission Rates	Averaging Period	99th Percentile 1-hour Daily Maximum (µg/m^3)				Complies with NAAQS?
		Impact	Background	Total	NAAQS	
Allowable	1-hour	480.6	14.4	495.0	196.2	No
Maximum	1-hour	303.9	14.4	318.3	196.2	No

Table 2 - Modeled SO_2 Emissions from North Valmy Generating Station [3,4]

Stack ID	Unit ID	Allowable Emissions 3-hour Average (lbs/hr)	Maximum Emissions 1-hour Average (lbs/hr)
S01	Unit 1	3,072.0	1,083
S02	Unit 2	1,728.6	1,672
Stack Total	All Units	4,800.6	2,755

Table 3 - Required Emission Reductions for Compliance with 1-hour SO_2 NAAQS

Acceptable Impact (NAAQS - Background) 99th Percentile 1-hour Daily Max (µg/m^3)	Required Total Facility Reduction Based on Allowable Emissions (%)	Required Total Facility Emission Rate (lbs/hr)	Required Total Facility Emission Rate (lbs/mmbtu)
181.8	62.2%	1,814.6	0.33

[3] Nevada Department of Conservation and Natural Resources, Bureau of Air Pollution Control, Class I Air Quality Operating Permit No. AP4911-0457.01, June 23, 2009.
[4] Maximum emissions are measured hourly rates reported for 2011 in USEPA, Clean Air Markets - Data and Maps.

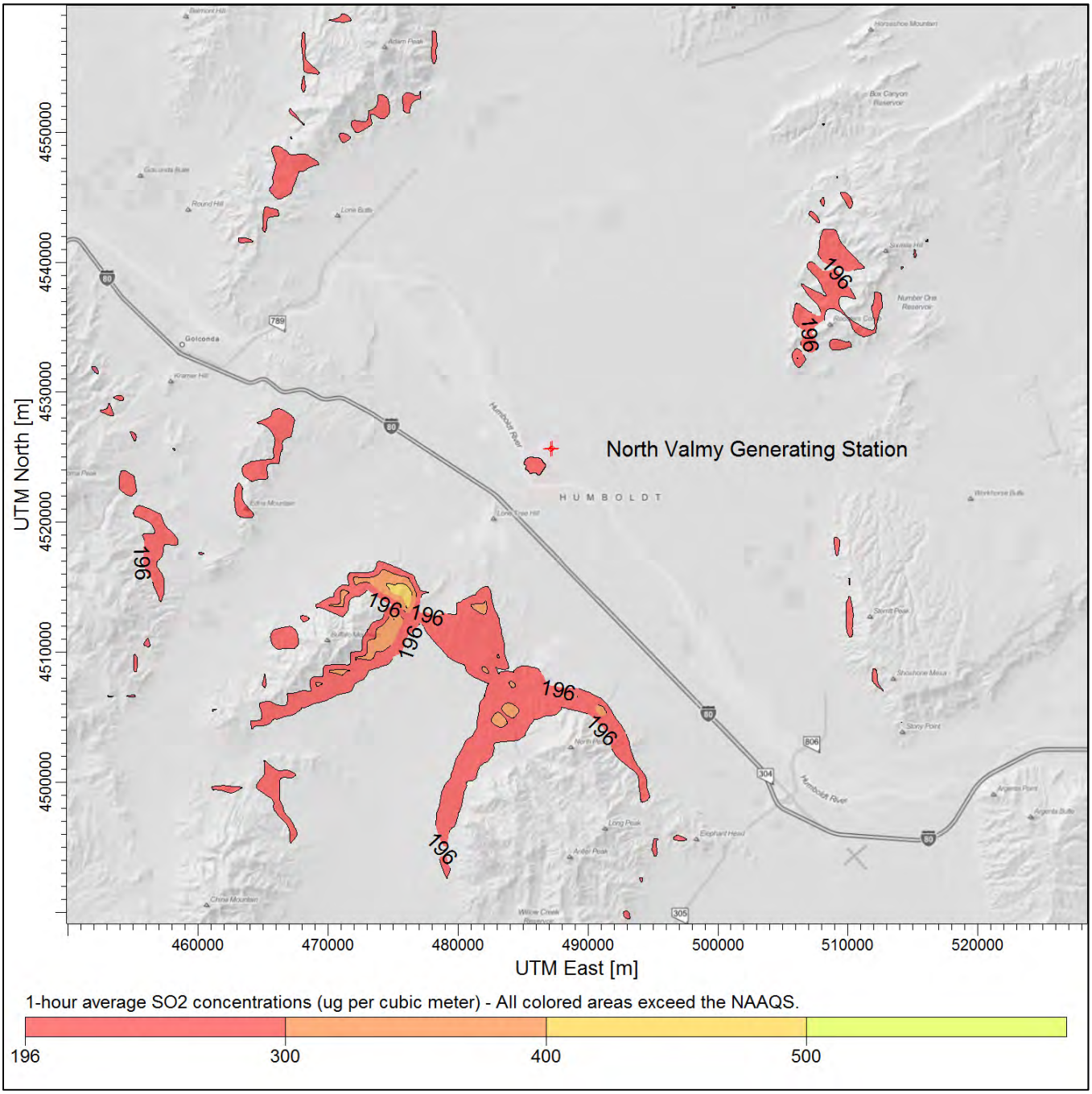

Figure 1 - Regional View - North Valmy Generating Station - Based on Allowable Emissions

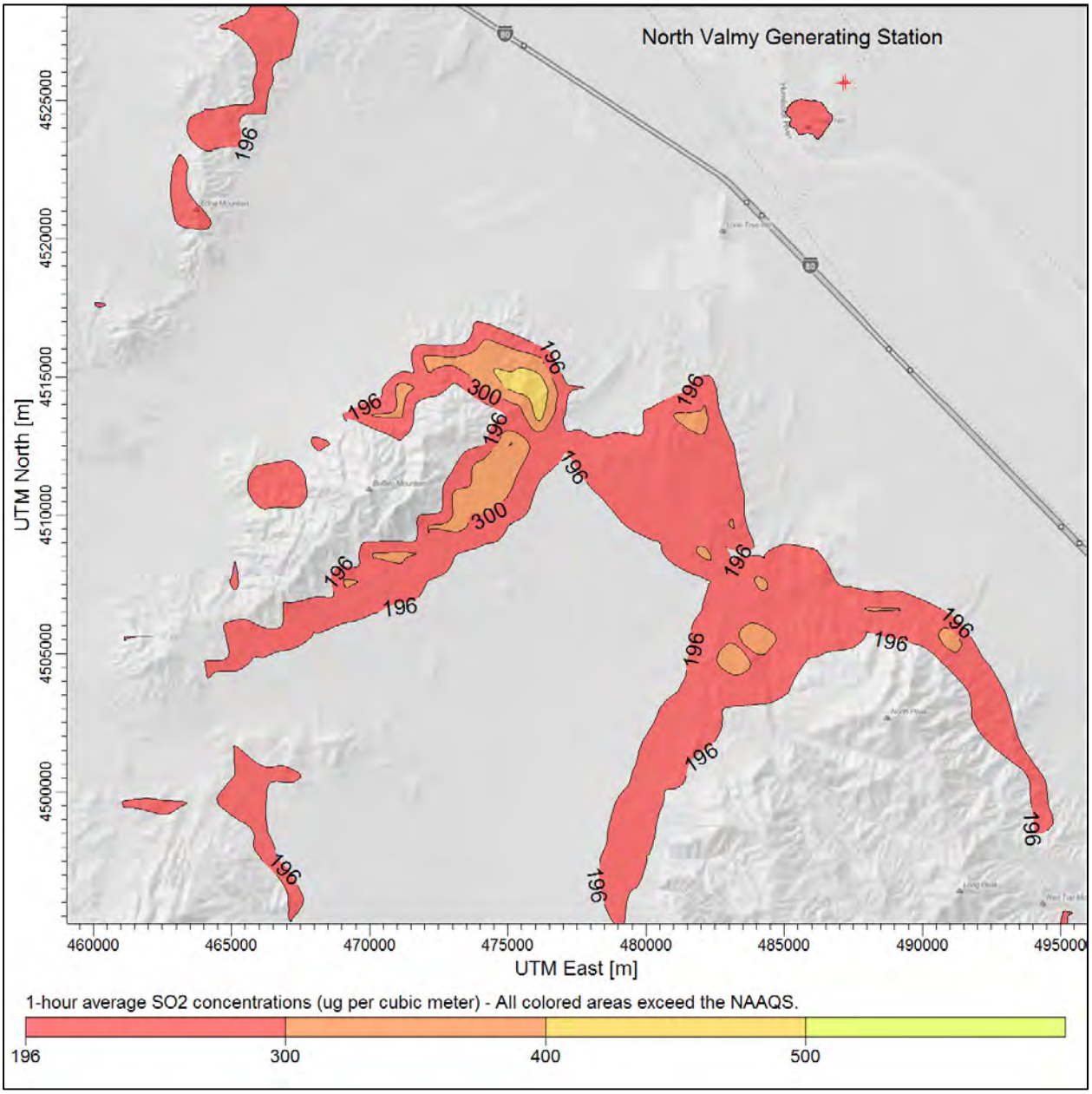

Figure 2 – Local View - North Valmy Generating Station - Based on Allowable Emissions

3. Modeling Methodology

3.1 Air Dispersion Model

The modeling analysis used USEPA's AERMOD program, version 12345. AERMOD, as available from the Support Center for Regulatory Atmospheric Modeling (SCRAM) website, was used in conjunction with a third-party modeling software program, *AERMOD View*, sold by Lakes Environmental Software.

3.2 Control Options

The AERMOD model was run with the following control options:

- 1-hour average air concentrations
- Regulatory defaults
- Flagpole receptors

To reflect a representative inhalation level, a flagpole height of 1.5 meters was used for all modeled receptors. This parameter was added to the receptor file when running AERMAP, as described in Section 4.4.

An evaluation was conducted to determine if the modeled facility was located in a rural or urban setting using USEPA's methodology outlined in Section 7.2.3 of the Guideline on Air Quality Models.[5] For urban sources, the URBANOPT option is used in conjunction with the urban population from an appropriate nearby city and a default surface roughness of 1.0 meter. Methods described in Section 4.1 to determine whether rural or urban dispersion coefficients were used.

3.3 Output Options

The AERMOD analysis was based on five years of recent meteorological data. The modeling analyses used one run with five years of sequential meteorological data from 2007-2011. Consistent with USEPA's Modeling Guidance for SO_2 NAAQS Designations, AERMOD provided a table of fourth-high 1-hour SO_2 impacts concentrations consistent with the form of the 1-hour SO_2 NAAQS.[6]

Please refer to Table 1 for the modeling results.

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[5] USEPA, Revision to the Guideline on Air Quality Models: Adoption of a Preferred General Purpose (Flat and Complex Terrain) Dispersion Model and Other Revisions, Appendix W to 40 CFR Part 51, November 9, 2005.
[6] USEPA, Area Designations for the 2010 Revised Primary Sulfur Dioxide National Ambient Air Quality Standards, Attachment 3, March 24, 2011, pp. 24-26.

4. Model Inputs

4.1 Geographical Inputs

The "ground floor" of all air dispersion modeling analyses is establishing a coordinate system for identifying the geographical location of emission sources and receptors. These geographical locations are used to determine local characteristics (such as land use and elevation), and also to ascertain source to receptor distances and relationships.

The Universal Transverse Mercator (UTM) NAD83 coordinate system was used for identifying the easting (x) and northing (y) coordinates of the modeled sources and receptors. Stack locations were obtained from facility permits and prior modeling files provided by the state regulatory agency. The stack locations were then verified using aerial photographs.

The facility was evaluated to determine if it should be modeled using the rural or urban dispersion coefficient option in AERMOD. A GIS was used to determine whether rural or urban dispersion coefficients apply to a site. Land use within a three-kilometer radius circle surrounding the facility was considered. USEPA guidance states that urban dispersion coefficients are used if more than 50% of the area within 3 kilometers has urban land uses. Otherwise, rural dispersion coefficients are appropriate.[7]

USEPA's AERSURACE model Version 08009 was used to develop the meteorological data for the modeling analysis. This model was also used to evaluate surrounding land use within 3 kilometers. Based on the output from the AERSURFACE, approximately 1.9% of surrounding land use around the airport was of urban land use types including: 21 – Low Intensity Residential, 22 – High Intensity Residential, and 23 - Commercial/Industrial/Transportation.

This is less than the 50% value considered appropriate for the use of urban dispersion coefficients. Based on the AERSURFACE analysis, it was concluded that the rural option would be used for the modeling summarized in this report. Please refer to Section 4.5.3 for a discussion of the AERSURFACE analysis.

[7] USEPA, Revision to the Guideline on Air Quality Models: Adoption of a Preferred General Purpose (Flat and Complex Terrain) Dispersion Model and Other Revisions, Appendix W to 40 CFR Part 51, November 9, 2005, Section 7.2.3.

4.2 Emission Rates and Source Parameters

The modeling analyses only considered SO_2 emissions from the facility. Off-site sources were not considered. Concentrations were predicted for two scenarios shown in Table 2:

1) approved or allowable emissions based on permits issued by the regulatory agency, and

2) measured actual hourly SO_2 emissions obtained from USEPA's Clean Air Markets Database. To assure realistic emission rates were used, emissions from all units at the facility were combined and the hour with the maximum total facility emissions was used to determine the actual emissions.

Stack parameters and emissions used for the modeling analysis are summarized in Table 4.

Table 4 – Facility Stack Parameters and Emissions [8]

Stack	S01	S02
Description	Unit 1	Unit 2
X Coord. [m]	487131.86	487214.26
Y Coord. [m]	4525611.27	4525674.1
Base Elevation [m]	1357.97	1358
Release Height [m]	153.89	137.22
Gas Exit Temperature [°K]	413.817	368.15
Gas Exit Velocity [m/s]	20.133	20.734
Inside Diameter [m]	5.621	5.182
Allowable Emission Rate [g/s]	387.1	217.8
Maximum Emission Rate [g/s]	136.5	210.7

The above stack parameters and emissions were obtained from regulatory agency documents and databases identified in Section 2.3. The analysis was conducted based on 100% operating load using maximum exhaust flow rates and emission rates. Operation at less than full capacity loads was not considered. This assumption tends to under-predict impacts since stack parameters such as exit flow rate and temperature are typically lower at less than full load, reducing pollutant dispersion and increasing predicted air quality impacts. Stack location, height and diameter were verified using aerial photographs, and flue gas flow rate and temperature were verified using combustion calculations.

[8] Nevada Department of Conservation and Natural Resources, Bureau of Air Pollution Control, Class I Air Quality Operating Permit No. AP4911-0457.01, August 17, 2005.

4.3 Building Dimensions and GEP

No building dimensions or prior downwash evaluations were available. Therefore this modeling analysis did not address the effects of downwash which may increase predicted concentrations.

4.4 Receptors

For North Valmy Generating Station, three receptor grids were employed:

1. A 100-meter Cartesian receptor grid centered on North Valmy Generating Station and extending out 5 kilometers.
2. A 500-meter Cartesian receptor grid centered on North Valmy Generating Station and extending out 10 kilometers.
3. A 1,000-meter Cartesian receptor grid centered on North Valmy Generating Station and extending out 50 kilometers. 50 kilometers is the maximum distance accepted by USEPA for the use of the AERMOD dispersion model.[9]

A flagpole height of 1.5 meters was used for all these receptors.

Elevations from stacks and receptors were obtained from National Elevation Dataset (NED) GeoTiff data. GeoTiff is a binary file that includes data descriptors and geo-referencing information necessary for extracting terrain elevations. These elevations were extracted from 1 arc-second (30 meter) resolution NED files. The USEPA software program AERMAP v. 11103 is used for these tasks.

4.5 Meteorological Data

To improve the accuracy of the modeling analysis, recent meteorological data for the 2007 to 2011 period were prepared using the USEPA's program AERMET which creates the model-ready surface and profile data files required by AERMOD. Required data inputs to AERMET included surface meteorological measurements, twice-daily soundings of upper air measurements, and the micrometeorological parameters surface roughness, albedo, and Bowen ratio. One-minute ASOS data were available so USEPA methods were used to reduce calm and missing hours.[10] The USEPA software program AERMINUTE v. 11325 is used for these tasks.

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[9] USEPA, Revision to the Guideline on Air Quality Models: Adoption of a Preferred General Purpose (Flat and Complex Terrain) Dispersion Model and Other Revisions, Appendix W to 40 CFR Part 51, Section A.1.(1), November 9, 2005.

[10] USEPA, Area Designations for the 2010 Revised Primary Sulfur Dioxide National Ambient Air Quality Standards, Attachment 3, March 24, 2011, p. 19.

This section discusses how the meteorological data was prepared for use in the 1-hour SO_2 NAAQS modeling analyses. The USEPA software program AERMET v. 11059 is used for these tasks.

4.5.1 Surface Meteorology

Surface meteorology was obtained for Winnemucca Municipal Airport located near the North Valmy Generating Station. Integrated Surface Hourly (ISH) data for the 2007 to 2011 period were obtained from the National Climatic Data Center (NCDC). The ISH surface data was processed through AERMET Stage 1, which performs data extraction and quality control checks.

4.5.2 Upper Air Data

Upper-air data are collected by a "weather balloon" that is released twice per day at selected locations. As the balloon is released, it rises through the atmosphere, and radios the data back to the surface. The measuring and transmitting device is known as either a radiosonde, or rawindsonde. Data collected and radioed back include: air pressure, height, temperature, dew point, wind speed, and wind direction. The upper air data were processed through AERMET Stage 1, which performs data extraction and quality control checks.

For North Valmy Generating Station, the concurrent 2007 through 2011 upper air data from twice-daily radiosonde measurements obtained at the most representative location were used. This location was the Elko, Nevada measurement station. These data are in Forecast Systems Laboratory (FSL) format and were downloaded in ASCII text format from NOAA's FSL website.[11] All reporting levels were downloaded and processed with AERMET.

4.5.3 AERSURFACE

AERSURFACE is a non-guideline program that extracts surface roughness, albedo, and daytime Bowen ratio for an area surrounding a given location. AERSURFACE uses land use and land cover (LULC) data in the U.S. Geological Survey's 1992 National Land Cover Dataset to extract the necessary micrometeorological data. LULC data was used for processing meteorological data sets used as input to AERMOD.

AERSURFACE v. 08009 was used to develop surface roughness, albedo, and daytime Bowen ratio values in a region surrounding the meteorological data collection site. AERSURFACE was used to develop surface roughness in a one kilometer radius surrounding the data collection site. Bowen ratio and albedo was developed for a 10 kilometer by 10 kilometer area centered on the meteorological data collection site. These micrometeorological data were processed for seasonal

[11] Available at: http://esrl.noaa.gov/raobs/

periods using 30-degree sectors. Seasonal moisture conditions were considered average with no months with continuous snow cover.

4.5.4 Data Review

Missing meteorological data were not filled as the data file met USEPA's 90% data completeness requirement.[12] The AERMOD output file shows there were 4.2% missing data.

The representativeness of airport meteorological data is a potential concern in modeling industrial source sites.[13] The surface characteristics of the airport data collection site and the modeled source location were compared. Since the Winnemucca Municipal Airport is located close to North Valmy Generating Station, this meteorological data set was considered appropriate for this modeling analysis.

5. Background SO_2 Concentrations

Background concentrations were determined consistent with USEPA's Modeling Guidance for SO_2 NAAQS Designations.[14] To preserve the form of the 1-hour SO_2 standard, based on the 99th percentile of the annual distribution of daily maximum 1-hour concentrations averaged across the number of years modeled, the background fourth-highest daily maximum 1-hour SO_2 concentration was added to the modeled fourth-highest daily maximum 1-hour SO_2 concentration.[15]

Background concentrations were based on the 2008-10 design value measured by the ambient monitors located in Nevada.[16]

6. Reporting

All files from the programs used for this modeling analysis are available to regulatory agencies. These include analyses prepared with AERSURFACE, AERMET, AERMAP, and AERMOD.

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[12] USEPA, Meteorological Monitoring Guidance for Regulatory Modeling Applications, EPA-454/R-99-05, February 2000, Section 5.3.2, pp. 5-4 to 5-5.
[13] USEPA, AERMOD Implementation Guide, March 19, 2009, pp. 3-4.
[14] USEPA, Area Designations for the 2010 Revised Primary Sulfur Dioxide National Ambient Air Quality Standards, Attachment 3, March 24, 2011, pp. 20-23.
[15] USEPA, Applicability of Appendix W Modeling Guidance for the 1-hour SO_2 National Ambient Air Quality Standard, August 23, 2010, p. 3.
[16] http://www.epa.gov/airtrends/values.html

ORAL ARGUMENT NOT YET SCHEDULED

UNITED STATES COURT OF APPEALS FOR
THE DISTRICT OF COLUMBIA CIRCUIT

NATIONAL ENVIRONMENTAL DEVELOPMENT ASSOCIATION'S CLEAN AIR PROJECT, Petitioner, v. UNITED STATES ENVIRONMENTAL PROTECTION AGENCY, Respondent.	)	Docket No. 10-1252 (and consolidated cases)

RESPONDENT'S OPPOSITION TO MOTION OF THE STATE OF NORTH DAKOTA FOR A STAY OF EPA'S 1-HOUR SULFUR DIOXIDE AMBIENT STANDARD RULE

Respondent United States Environmental Protection Agency ("EPA") submits this Opposition to the Motion of the State of North Dakota for a Stay of EPA's 1-Hour Sulfur Dioxide Ambient Standard Rule ("Stay Motion"). In its Stay Motion, North Dakota seeks a stay of the rule in its entirety or, in the alternative, a stay of the statutory directive that States submit any recommendations for attainment/nonattainment designations no later than June 3, 2011. The motion should be denied because North Dakota has not satisfied the stringent requirements

for obtaining a stay of agency action. The motion fails to address any of the elements for obtaining a stay with regard to any of the promulgated elements of the rule, i.e., the revised sulfur dioxide ("SO_2") standard itself and the promulgated revisions to the SO_2 monitoring network. Rather, the motion is addressed solely to an advisory discussion in the final rule preamble regarding EPA's anticipated approach to implementing the revised NAAQS. Thus, the motion provides no basis to stay the rule as a whole.

The motion must also be denied with regard to the alternative relief requested. First, North Dakota has not demonstrated a substantial likelihood of success on the merits. It challenges only advisory statements in the final rule preamble concerning EPA's contemplated approach for making initial attainment designations by the June 2012 statutory deadline, an approach the Agency will be addressing in future actions. As the preamble makes clear, EPA has taken no final action nor promulgated any regulatory requirements regarding designations, and, in particular, has taken no final action on its approach to making attainment determinations. To the contrary, the preamble specifically preserves EPA's ability to make those decisions solely on the basis of monitoring data. 75 Fed. Reg. 35,520, 35,552 n.22 (June 22, 2010). Because these preamble statements are not final agency action, the Court lacks jurisdiction to review them, and North Dakota has no substantial likelihood of prevailing on the merits.

Moreover, even if the challenged preamble statements could be read as final agency action, the Agency has historically relied on modeling to make designations for sulfur dioxide. To the extent the proposal preamble reflected a possible change to that practice, it clearly left open the possibility that the Agency would choose not to adopt the proposed change. Interested parties should have known that EPA might retain its past practice, and had ample opportunity to comment on that possibility. Thus, North Dakota cannot demonstrate a likelihood of success on its claim that it lacked an opportunity to comment on the approach to initial designations discussed in the preamble.

Second, North Dakota cannot demonstrate that it will suffer irreparable harm from the statutory directive that it submit designation recommendations to EPA by June 2011. North Dakota claims harm from an alleged bar to the use of monitoring data as the sole basis for its designation recommendations. But, nothing in the SO_2 Rule prevents North Dakota from basing its recommendations solely on monitoring data, and thus the Rule does not cause the harm North Dakota claims. Id. Furthermore, designation recommendations have no independent legal effect. An area is not designated until EPA promulgates the designation, which EPA is required to do by June 2012[1/] (a requirement that would not be affected by a stay of

[1/] The date can be extended to June 2013 if EPA lacks sufficient information to act in 2012. 42 U.S.C. § 7407(d)(1)(B)(i).

the 2011 recommendation submission date). Moreover, EPA is not bound by the State's recommendations and must promulgate a designation for an area even if the State submits no recommendation at all.

Finally, a stay of the SO_2 Rule will cause harm to other parties and is contrary to the public interest. The rule under review revises the primary ambient air quality standard for sulfur dioxide based on findings by EPA that the prior standards were not requisite to protect human health with an adequate margin of safety. A stay of the rule's regulatory provisions promulgating the new standard would delay implementation of the measures needed to achieve attainment with the new standard, including requirements associated with the permitting of new and modified major stationary sources which became effective on the effective date of the standard. A stay of the Rule would thus prolong the time during which existing air quality causes adverse impacts to public health. A stay of the 2011 deadline for States to submit recommendations to EPA would not alter EPA's obligation to promulgate designations by 2012, but would increase the burden on EPA to develop the designations.

BACKGROUND

The consolidated petitions in this case seek review of an EPA regulation revising the primary National Ambient Air Quality Standards ("NAAQS") and associated regulatory requirements for oxides of sulfur as measured by SO_2

pursuant to section 109 of the Clean Air Act, 42 U.S.C. § 7409. 75 Fed. Reg. 35,520 (June 22, 2010) ("SO_2 Rule"). Those regulatory requirements took effect on August 23, 2010, and are currently being implemented. The NAAQS provisions of the Clean Air Act establish a comprehensive scheme to protect public health and welfare from ubiquitous air pollutants. 42 U.S.C. § 7409. Primary standards must be set at levels that, in the judgment of the Administrator, are requisite to protect public health with an adequate margin of safety. Id. § 7409(b)(1). The Act requires periodic review of the NAAQS. Id. § 7409(d). See generally American Lung Ass'n v. EPA, 134 F.3d 388, 388-89 (D.C. Cir. 1998).

EPA first promulgated a primary NAAQS for sulfur dioxide in 1971. 36 Fed. Reg. 8187 (April 30, 1971). In May 1996, after a lengthy review, EPA announced a final decision not to revise the NAAQS. 61 Fed. Reg. 25,566 (May 22, 1996). Petitions for review of that decision were filed in this Court, and the Court held that EPA had failed to adequately explain the basis for its conclusion that short-term SO_2 exposures to asthmatics do not constitute a public health problem. American Lung Ass'n v. EPA, 134 F.3d 388. In the rule under review here EPA has addressed that issue by replacing the prior 24-hour and annual primary standards with a new 1-hour primary standard. The new standard is now in effect, and is being implemented in EPA's prevention of significant deterioration

permitting program for new and modified major stationary sources. See 57 Fed. Reg. at 35,580/1.

Within one year after promulgation of a new or revised NAAQS (or sooner if required by EPA) States are directed to submit to EPA a list of all areas that the State recommends be designated by EPA as attainment, nonattainment, or unclassifiable for the new or revised NAAQS. 42 U.S.C. § 7407(d)(1)(A). In the case of the revised SO_2 standards, such designations are due by June 3, 2011, one year after EPA promulgated the revised NAAQS by signing and publicly disseminating the notice of final rulemaking. Within two years of promulgation (or three years if EPA lacks sufficient information), the Act requires EPA to promulgate designations. Id. § 7407(d)(1)(B)(i). EPA may modify any submitted list of designations provided by a State if it gives the State 120 days notice, and must promulgate designations as EPA deems appropriate for any area for which no designation recommendation is provided by a State. Id. § 7407(d)(1)(B)(ii). Thus, EPA's statutory obligation to promulgate designations is independent of whether a State submits recommendations.

The SO_2 Rule, like its predecessors, includes regulatory provisions that establish the NAAQS itself, as well as regulations governing the installation and use of monitors utilized to measure ambient concentrations of SO_2. See, e.g., 40 C.F.R. §§ 50.4(e); 50.14(c)(2)(vi); 50.17; part 50 Appendices A-1 and T; part 53,

and part 58. Historically, to determine if an area is in attainment with the SO_2 NAAQS, EPA has used a combination of results from regulation-required monitors and air quality modeling, even though in the NAAQS regulations themselves EPA has not promulgated requirements that States or sources conduct modeling. Instead, at 40 C.F.R. part 51, Appendix W, EPA has promulgated guidelines on air quality models, to be used for regulatory purposes such as State Implementation Plan ("SIP") development and new source review and prevention-of-significant-deterioration permitting actions. See, e.g., 40 C.F.R. part 51, Appendix W, § 1.0. In the current rule EPA has revised the regulatory requirements for the minimum number and placement of monitors and adopted a new reference method for detecting ambient SO_2, but did not promulgate or revise any requirements regarding modeling.

In the preamble to the proposed SO_2 Rule, EPA discussed the revisions to the monitoring network proposed to account for the revision of the standard, i.e., the change from the 24-hour and annual standards to a single one-hour standard. 74 Fed. Reg. 64,810, 64,846-55 (Dec. 8, 2009). In the proposal EPA did not discuss its historic and current uses of modeling in implementing the then-effective annual and 24-hour SO_2 standards. In public comments on the proposal, numerous parties suggested that the proposed monitoring network was both inadequate in scope and overly burdensome to administer, and some commenters suggested that

modeling should be used to relieve the administrative burden that a more extensive monitoring regime would otherwise impose. 75 Fed. Reg. at 35,551/1.

In the preamble to the final rule, EPA explained in response to comments that the Agency anticipated in subsequent actions to continue its historic practice of relying on both modeling and monitoring for determining whether an area is in attainment with the SO_2 NAAQS and adopted rules for a smaller monitoring network than initially proposed. 75 Fed. Reg. at 35,550-51. However, the preamble makes clear that, except for the promulgated requirements relating to the scope of the monitoring network and detection method, the Agency is still developing its policy for such future actions as designations and SIP approvals/disapprovals and intends to issue further guidance in the future through a notice-and-comment process. Id. The preamble also states EPA's expectation that any decisions about whether to base an attainment designation or determination on monitoring alone, without reliance on modeling, would be made on a case-by-case basis. Id. at 35,552 n.22.

Following promulgation of the rule, numerous parties filed petitions for review with this Court, and each of those parties also submitted to EPA administrative petitions for reconsideration of the rule under section 307(d)(7)(B) of the Act, 42 U.S.C. § 7607(d)(7)(B). The petitions for reconsideration objected to EPA's final rulemaking preamble discussion explaining EPA's anticipated

approaches in future designations and SIP actions. In addition, each requested that EPA administratively stay the final rule pending such reconsideration. EPA is currently evaluating the petitions for reconsideration and has not yet formally responded to them, but, as the Agency stated in its pending motion filed with the Court seeking a short-term abeyance of the instant litigation, EPA intends to provide initial responses to the petitions for reconsideration, including the requests for a stay of the rule, by January 8, 2011.

STANDARD OF REVIEW

A stay is a disfavored remedy. "On a motion for stay, it is the movant's obligation to justify the court's exercise of such an extraordinary remedy." Cuomo v. United States Nuclear Regulatory Comm'n, 772 F.2d 972, 978 (D.C. Cir. 1985). The factors for determining whether a stay is warranted are: (1) whether the movant has demonstrated a substantial likelihood that it will prevail on the merits; (2) the prospect of irreparable injury to the moving party if relief is withheld; (3) the possibility of harm to other parties if relief is granted; and (4) the public interest. Nken v. Holder, 129 S. Ct. 1749, 1761 (2009). These four prongs of the stay standard are to be applied stringently. Aberdeen & Rockfish R.R. Co. v. Students Challenging Regulatory Agency Procedures, 409 U.S. 1207, 1218 (1972). "A stay is not a matter of right, even if irreparable injury might otherwise result." Nken, 129 S. Ct. at 1760 (citation omitted).

To demonstrate a substantial likelihood of success on the merits, a petitioner must show that it is likely to persuade this Court that EPA's action is "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law." 42 U.S.C. § 7607(d)(9)(A). This narrow, deferential standard prohibits a court from substituting its judgment for that of the agency and presumes the validity of agency actions. Motor Vehicle Mfrs. Ass'n v. State Farm Mut. Auto. Ins. Co., 463 U.S. 29, 43-44 (1983). Judicial deference also typically extends to an agency's interpretation of a statute it administers, United States v. Mead Corp., 533 U.S. 218, 227-31 (2001); Chevron, U.S.A., Inc. v. Natural Res. Def. Council, Inc., 467 U.S. 837, 842-45 (1984), and of its own regulations. Auer v. Robbins, 519 U.S. 452, 457 (1997).

To establish irreparable harm, a petitioner must demonstrate an injury that is "both certain and great; it must be actual and not theoretical." Wisconsin Gas Co. v. FERC, 758 F.2d 669, 674 (D.C. Cir. 1985). A movant for injunctive relief must show that "[t]he injury complained of [is] of such imminence that there is a clear and present need for equitable relief to prevent irreparable harm." Id. (citation omitted). The movant must "substantiate the claim that irreparable injury is 'likely' to occur," and "show that the alleged harm will directly result from the action which the movant seeks to enjoin." Id; see also Nken, 129 S. Ct. at 1761 (more than a "mere possibility" of success on the merits is required, and the standard for

irreparable harm is more than showing the "possibility" of harm); Winter v. NRDC, 129 S. Ct. 365, 375-76 (2008) (holding that in a preliminary injunction case, plaintiffs must demonstrate that irreparable injury is "likely," not just "possible").

ARGUMENT

I. THE MOTION IS PREMATURE

Fed. R. App. Proc. 18(a) requires that a petitioner must ordinarily move first before the agency for a stay of its order before seeking a stay in the Court of Appeals, or else show that moving before the agency would be impracticable. In this case, although North Dakota (and other Petitioners) have sought a stay of the SO_2 Rule from EPA, EPA has not yet acted on that request, and North Dakota has not demonstrated that it is impracticable to wait for EPA to act on those requests before seeking a stay from this Court. As described in EPA's Motion to Hold Case in Abeyance, EPA intends to act on the pending administrative petitions for reconsideration by January 8, 2011. At that time EPA will also act on the included requests for a stay, as the Agency previously informed Petitioners. Implicit in Rule 18's requirements is that a petitioner must receive a response to its request for a stay from the agency before seeking a judicial stay. North Dakota has neither waited for that response, nor demonstrated why doing so would be impracticable for submitting a recommendation that is not due until June 2011. Because North

Dakota's request for a stay is still pending before the Agency and the Agency has committed to responding in a timely fashion, North Dakota's motion for stay in this Court is premature and should be denied.

II. NORTH DAKOTA HAS PRESENTED NO BASIS FOR STAYING THE ENTIRE SO_2 RULE

In its motion, North Dakota asks the Court to stay the SO_2 Rule in its entirety (including the standard itself and the associated monitoring provisions) or, in the alternative, to stay the June 3, 2011 statutory deadline by which States may submit recommended designations to EPA. North Dakota, however, identifies no grounds for staying the entire rule. With regard to the merits, North Dakota advances no objection to the promulgated standard or the promulgated requirements related to monitoring. Nor does it present any claim that it will suffer irreparable harm from either the revised standard or the revised requirements related to monitoring. In fact, North Dakota does not address any aspect of the Rule except the non-binding preamble discussion concerning how EPA expects to use modeling in future area designations and SIP actions. Thus, North Dakota has not met the stringent standard for obtaining a stay of the Rule as a whole, and that request must be denied.

III. NORTH DAKOTA CANNOT DEMONSTRATE A SUBSTANTIAL LIKELIHOOD OF SUCCESS ON THE MERITS

The sole claim on the merits presented in the Stay Motion is that the preamble of the final rule allegedly requires the use of air quality modeling for determining whether an area is in attainment with the revised SO_2 NAAQS, that this approach differs from the approach discussed in the preamble to the proposal, and that the public did not have an opportunity to comment on the approach discussed in the final rule. This claim lacks merit for two reasons.

First, North Dakota is not challenging any provision of the promulgated regulations, but rather a discussion in the preamble, i.e., 75 Fed. Reg. at 35,550-54. Although some preamble discussions may constitute final agency action, it is clear that this particular discussion does not. Rather, the challenged discussion regarding the potential use of modeling is, at most, non-binding guidance that the Court lacks jurisdiction to review. The preamble specifically states:

> In many respects, both the overview discussion below and the subsequent more detailed discussions explain our **expected and intended future action** in implementing the 1-hour NAAQS – in other words, they constitute guidance, rather than final agency action – and it is possible that our approaches may continue to evolve as we, States, and other stakeholders proceed with actual implementation. In other respects, such as in the final regulatory provisions regarding the promulgated monitoring network, we are explaining EPA's final conclusions regarding what is required by this rule. We expect to issue further guidance regarding implementation . . . . EPA intends to solicit public comment prior to finalizing this guidance.

Id. at 35,550/3 (emphasis added).

Moreover, nowhere in the preamble (much less in any promulgated regulation) does EPA state that modeling must be used for designating areas as attainment, nonattainment or unclassifiable. Thus, the alleged requirement North Dakota seeks to challenge does not exist. Rather, the preamble states: "We expect that EPA's final area designation decisions in 2012 would be based principally on data reported from SO_2 monitors currently in place today, and any refined modeling the State chooses to conduct specifically for initial designations." Id. at 35,552/1 (emphasis added). The preamble then goes on to say "EPA anticipates making the determination of when monitoring alone is 'appropriate' for a specific area on a case-by-case basis, informed by the area's factual record, as part of the designation process." Id. at 35,552 n.22.

In short, EPA has simply not taken the final agency action alleged by North Dakota and there is no such action for the Court to review or to stay. To the contrary, the preamble states that EPA believes that its historic approach to SO_2 designations continues to appear to be appropriate, while at the same time giving States the flexibility to recommend the appropriate mix of data to rely on, including the possibility of relying entirely on monitoring if supportable.

Second, even if the preamble could be construed as final agency action, North Dakota's claim that the public lacked notice of the possibility that EPA might continue to use modeling when making designations is without merit. As

EPA has frequently explained, because of the nature of SO_2 pollution, EPA has historically relied on air quality modeling (in addition to any required monitoring) to determine whether an area is violating the SO_2 NAAQS. 75 Fed. Reg. at 35,551/2-3, 35,559/2-3; see SO_2 Guideline Document (available at www.epa.gov/ttn/oarpg/t1/memoranda/so2_guide_092109.pdf) at 2-5 ("For SO_2 attainment demonstrations, monitoring data alone will generally not be adequate.") and at 2-1 ("Attainment determinations for SO_2 will generally not rely on ambient monitoring data alone, but instead will be supported by an acceptable modeling analysis which quantifies that the SIP strategy is sound and that enforceable emission limits are responsible for attainment.") As a State responsible for recommending whether an area should be designated attainment or nonattainment, North Dakota certainly should have been aware of the Agency's historical approach.

Thus, to the extent the approach to designations described in the proposal preamble was limited to monitoring, in de-emphasizing the role modeling has long played in SO_2 implementation it represented a departure from the Agency's prior practice. In such circumstances, affected parties are surely aware that not adopting the proposed change is a possibility. American Iron & Steel Inst. v. EPA, 886 F.2d 390, 400 (D.C. Cir. 1989) ("One logical outgrowth of a proposal is surely, as EPA says, to refrain from taking the proposed step.") In fact, the Agency did receive

comments urging the Agency to retain its historic approach. 75 Fed. Reg. at 35,551/1. Accordingly, there is no basis for North Dakota's claim that it lacked notice that the Agency might choose not to adopt a more monitoring-focused approach as discussed in the proposal preamble, but instead to expect to retain its historic approach in which modeling is generally, though not always, utilized.

IV. NORTH DAKOTA CANNOT DEMONSTRATE AN IMMINENT THREAT OF IRREPARABLE HARM

There is no merit to North Dakota's claim that it will suffer irreparable harm if the SO_2 Rule or the statutory deadline to submit designation recommendations is not stayed. North Dakota first claims that it will be harmed because the SO_2 Rule "casts a cloud" over its ability to use its monitoring data and "deprive[s] the state of its right to manage its air resources." Stay Motion at 17. As demonstrated above, there is no factual basis for this claim because neither the SO_2 Rule itself nor the preamble discussion prohibits North Dakota from basing its recommended designations on its monitoring data alone. 75 Fed. Reg. at 35,552 n.22. Nor does anything in the Rule or preamble prohibit EPA from basing its designations for North Dakota on monitoring data alone if EPA determines that the monitoring data is sufficient to determine North Dakota's attainment status.[2/]

[2/] If EPA were to determine that the monitoring data was not sufficient to determine an area's attainment status, and thus that the area would have to be categorized as unclassifiable until sufficient monitoring data or modeling results were available,

(continued...)

Moreover, the State's recommended designations, which are due June 3, 2011, have no legal effect on sources. Not until EPA promulgates the actual designations, which the statute requires it do by June 3, 2012 (or 2013 if extended), will there be a designation in place that has legal effect. Thus, North Dakota can suffer no actual harm from submitting its recommended designations.

North Dakota's second claim of harm, that the use of modeling will result in more areas being designated as nonattainment because modeling is more "conservative," Stay Motion at 17-18, is purely speculative. North Dakota presents no evidence at all to support its assertion that modeling will necessarily result in areas of the State being designated as nonattainment inappropriately, and thus there is no basis on which the Court could find that North Dakota could suffer injury.[3/] Furthermore, as the preamble states, the modeling guidance that EPA intends to

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[2/](...continued)
that designation would be result of the insufficiencies in the data, not of anything that EPA has done in the Rule.

[3/] While it might seem at first blush as if actual monitoring should be inherently more accurate than modeling, this is not necessarily the case. In fact, "[i]n the past, EPA used a combination of modeling and monitoring for SO_2 during permitting, designations and re-designations in recognition of the fact that a single monitoring site is generally not adequate to fully characterize ambient concentrations, including the maximum ground level concentrations, which exist around stationary SO_2 sources." 75 Fed. Reg. at 35,559. This is especially important because "[t]he 1-hour NAAQS is intended to provide protection against short-term (5 minute to 24 hour) peak exposures". Id. See American Lung Ass'n v. EPA, 134 F. 3d at 392-93 (remanding EPA's determination that such exposures do not constitute a threat to public health) and 75 Fed. Reg. at 35,536 (5-10 minute SO_2 exposures can result in adverse health effects to asthmatics).

provide States for use in determining attainment of the revised SO_2 standard is still under development. 75 Fed. Reg. at 35,552-54. Thus, any statements about how the use of modeling affects the designation process for the revised SO_2 standard are necessarily speculative.

Finally, the actual designations will be made by EPA, an action that EPA expects to take by June 3, 2012. States have an opportunity under the Act to provide input on the designations before they are made, and EPA's designations are subject to judicial review. Any claim that modeling is inappropriately used by EPA for a particular designation can and should be raised in that process.

V. A STAY WOULD HARM THIRD PARTIES AND IS CONTRARY TO THE PUBLIC INTEREST

A stay of the SO_2 Rule, whether in whole or in part, would cause harm to third parties and is contrary to the public interest because it would delay achievement of the public health benefits of the revised standard, which is now in effect and being used for the Act's New Source Review and Prevention of Significant Deterioration permitting programs. After an exhaustive review of the existing data, EPA determined that the prior SO_2 standard was not adequately protective of human health and required revision, a conclusion amply supported by the record. EPA's statutorily mandated science review committee, the Clean Air Scientific Advisory Committee, recommended unanimously that the current standard be revised because the current standards are not adequate to protect the

public health, and that EPA should adopt a one-hour standard in their place. 75 Fed. Reg. at 35,530, 35,538. Short-term exposure to SO_2 results in adverse respiratory effects such as bronchoconstriction (narrowing of the airways) and increased asthma symptoms. Id. at 35,525-26. Studies also show an association between short-term SO_2 exposure and increased emergency department visits and hospital admissions for respiratory illness, particularly among children, the elderly, and asthmatics. Id. at 35,547.

Importantly, the data demonstrate that these adverse health effects can occur at concentration levels that are allowed by the prior SO_2 NAAQS. Id. at 35,535-36. Thus, implementation of the revised standard is necessary to reduce the adverse health effects associated with these exposures. North Dakota's motion does not address this issue at all, and thus fails to address two of the elements needed for a stay of agency action.

A stay of the SO_2 Rule, either in whole or in part, is likely to delay attainment of the revised standard. A delay of the SO_2 Rule as a whole will delay States' implementation of the control measures needed to achieve compliance with the revised standard and the requirement for new or modified major stationary sources to implement necessary controls pursuant to the Clean Air Act's New Source Review and Prevention of Significant Deterioration permit requirements.

A stay of the date for States to recommend designations for areas as attainment, nonattainment, or unclassifiable will not delay EPA's independent obligation to promulgate designations. However, it could complicate the process of establishing area designations and impose additional burdens on EPA if States do not submit designation recommendations because EPA would not have the States' recommended designations as a starting point. Thus, a stay of the SO_2 Rule will harm third parties and be adverse to the public interest by delaying the public health benefits of the revised standard.

CONCLUSION

For the reasons stated above, North Dakota's motion for a stay of the SO_2 Rule should be denied.

Respectfully submitted,

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November 8, 2010

CERTIFICATE OF SERVICE

I hereby certify that on this 8th day of November, 2010, I caused a copy of the foregoing document to be served by the Court's CM/ECF system on:

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PN 107-83-04-21-C

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C 20460

APR 21 1983

OFFICE OF
AIR, NOISE, AND RADIATION

MEMORANDUM

SUBJECT: Section 107 Designation Policy Summary

FROM: Sheldon Meyers
Sheldon Meyers, Director
Office of Air Quality Planning and Standards (ANR-443)

TO: Director, Air and Waste Management Division
Regions II-IV, VI-VIII, X

Director, Air Management Division
Regions I, V, IX

On February 3, 1983, the Agency published a Federal Register notice regarding the status of all areas designated nonattainment under Part D of the Clean Air Act. This notice indicated that for a significant number of nonattainment areas States are anticipated to be able to demonstrate attainment of the primary national ambient air quality standards. Accordingly, for those areas, States have been encouraged to update their Section 107 designations. In addition, a number of nonattainment areas were identified in the February 3, 1983, notice as "unlikely to attain standards." The Federal Register also stated that the basic existing policy will generally be continued for redesignation. This memorandum summarizes and clarifies existing policy for reviewing designations and provides new guidance on processing these actions.

Policy For Reviewing 107 Designations

1. Data: In general, all available information relative to the attainment status of the area should be reviewed. These data should include the most recent eight (8) consecutive quarters of quality assured, representative ambient air quality data plus evidence of an implemented control strategy that EPA had fully approved. Supplemental information, including air quality modeling emissions data, etc., should be used to determine if the monitoring data accurately characterize the worst case air quality in the area. Also, the following items can be considered in special situations.

An attainment designation can be made using only the most recent four (4) quarters of ambient data if an acceptable state of the art modeling analysis (such as city-specific EKMA for ozone) is provided showing that the basic SIP strategy is sound and that actual, enforceable emission reductions are responsible for the recent air quality improvement.

For nonattainment designations which were originally based solely on modeling, redesignation to attainment is possible even if less than four (4) quarters of ambient data are available provided that a reference modeling analysis considering the sources' legal emission limits shows attainment of the standards. Information must also be presented showing that the sources causing the problem are in compliance with the enforceable SIP measures.

Although the current ozone standard implies the need for three years of data for attainment designations, two years of data with no exceedances is an acceptable surrogate. As discussed previously, this should be accompanied by evidence of an implemented control strategy that EPA had fully approved.

2. Projected Future Violations: Projections of future violations can provide the basis for continuing nonattainment designations. This concept is particularly important because of the current economic downturn. Information submitted to support attainment redesignations must adequately and accurately reflect anticipated operating rates. Areas should remain nonattainment where such projections reveal air quality violations.

3. Modeling: In most SO_2 cases, monitoring data alone will not be sufficient for areas dominated by point sources. A small number of ambient monitors usually is not representative of the air quality for the entire area. Dispersion modeling employing the legally enforceable SO_2 SIP limits will generally be necessary to evaluate comprehensively the sources' impacts as well as to identify the areas of highest concentrations. If either the modeling or monitoring indicates that SO_2 air quality standards are being violated, the area should remain nonattainment.

4. Boundaries: Current policies on appropriate boundaries for designation of nonattainment areas by EPA remain in effect, i.e., generally political boundaries such as city or county for TSP and SO_2, county as a minimum for rural ozone, entire urbanized area and fringe areas of development for urban ozone, and urban core area for CO. When States redesignate, EPA will continue to accept reasonable boundaries which are supported by appropriate data, such as specific new monitoring and/or modeling data or evidence of improvement due to control strategy implementation. Nonattainment areas for ozone should include the significant VOC sources.

5. Dispersion Techniques: Areas which are projected to attain the TSP or SO_2 standards because of the use of unauthorized dispersion techniques should continue to be designated as nonattainment.

Policy for Processing 107 Redesignations

1. SIP Review Actions: Section 107 designations have generally been classified as minor actions, with only a few of the more significant ones being processed as moderate. In the future, redesignations of Tier II nonattainment areas should be classified as major actions so that they can receive a comprehensive review to help ensure regional consistency. Redesignation of Tier I nonattainment areas should continue to be handled as minor or moderate actions, as appropriate.

2. "Unclassifiable" Areas: Since EPA and the States have had nearly five years to resolve discrepancies for nonattainment designations, it is now inappropriate to redesignate any area from nonattainment to unclassifiable. There has been ample time since the first designations were made in 1978 to thoroughly study each nonattainment area. Sufficient data should now exist to either make a redesignation to attainment or to keep the nonattainment designation.

If you have any questions, please contact Tom Helms at (FTS) 629-5525.

cc: Regional Administrator, Regions I-X
Chief, Air Programs Branch, Regions I-X

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SUPERIOR COURT OF THE STATE OF CALIFORNIA

COUNTY OF SANTA BARBARA

PEOPLE OF THE STATE OF CALIFORNIA ex. rel. JOHN K. VAN DE KAMP, Attorney General of the State of California, Plaintiffs, v. SANTA MARIA CHILI, INC. Defendant.	No. SM 64010 (Case transferred to South County, 2/26/90) **DECLARATION OF JOHN C. VIMONT** DATE: Dec. 14, 1990 TIME: 9:00 a.m. Dept: To Be Assigned

I, John C. Vimont, declare:

1. I am currently employed by the United States Environmental Protection Agency (hereafter "EPA"), Region IX (hereafter the "Region" or "Regional Office") as the Regional Meteorologist. I have been employed in this position since June 1987.

a. As the Regional Meteorologist I serve as the Region's expert on air quality modeling, meteorological information and ambient air impact analyses. My position is

within the Air and Toxics Division of the Regional Office. I provide support to that division; to the other divisions within the Region, such as the Hazardous Waste Division; and to state and local agencies within Region IX. One of the primary duties of my position is to ensure that appropriate air quality modeling techniques are used by this and other agencies when conducting ambient air quality impact analyses.

b. There are a variety of "air quality models." These include conceptual models, qualitative descriptions of the behavior of pollutants in the atmosphere; physical models, scaled models of pollution sources and their surroundings studied in a controlled environment, such as a wind tunnel; statistical models, which encompass statistically based descriptions of source-receptor relationships; and mathematical models, which are mathematical representations of the physical processes which lead to transport and dispersion of pollutants in the atmosphere. The focus of the remaining discussion is on mathematical models; hereafter any reference to an air quality model is implicitly meant to refer to a mathematical air quality model.

c. I perform, review and oversee air quality modeling for a variety of different sources and source types. These include stationary sources with emissions emanating from a stack, including stack sources with aerodynamic downwash induced by nearby buildings; stationary sources with emissions emanating from a broad area, commonly called area sources; mobile sources, emissions from automobiles, trucks, busses, aircraft, etc.; and urban and regional scale modeling, which encompasses modeling all

of the above processes together on the scale of an entire urban area or over a number of urban areas together.

d. The pollutants modeled include both inert pollutants, those which remain chemically stable for long periods of time in the atmosphere, and chemically reactive pollutants, those which undergo relatively rapid chemical transformation and those which are not directly emitted, but rather form through a series of chemical reactions within the atmosphere.

2. Previous to my employment at EPA, I worked from March 1982 to June 1987 as an Environmental Engineering Specialist in the Air Quality Bureau of the State of New Mexico. My primary responsibilities there were very similar to my current position at EPA. I performed ambient impact analyses of various air pollution sources and conducted engineering analyses of the sources to determine emission characteristics. The primary focus of the analyses was on inert pollutants from stationary sources.

a. From August 1978 to March 1982 I worked for the Atmospheric Science Department at Colorado State University (CSU) as a Research Assistant. I worked on a variety of basic scientific research projects dealing with cloud physics. My primary area of research dealt with the uptake of acidic pollutants in snow.

b. From November 1977 to August 1978 I worked as a Physical Science Aide for the Pacific Marine Environmental Laboratory of the National Oceanographic and Atmospheric Administration. My duties there involved writing a

climatological summary of Puget Sound and analyzing the affects of winds on oil spill transport in Puget Sound.

3. I received a Bachelor of Science Degree in Atmospheric Sciences from the University of Washington in 1978 and a Master of Science Degree in Atmospheric Science from Colorado State University.

4. As the Regional Meteorologist, I routinely evaluate the adequacy of air quality modeling on a technical basis and with respect to its acceptability in the regulatory framework. Acceptable air quality modeling and analysis procedures are outlined in The Guideline on Air Quality Models (Revised) (EPA 450/2-78-027R, July 1986, Supplement A, July 1987) (hereafter the "Guideline"). The Guideline was first published in April 1978 to satisfy the requirements of §320 of the 1977 amendments to the Clean Air Act. The Guideline specifies appropriate models to use and provides guidance on their appropriate application. The Guideline provides a common basis for estimating the air quality concentrations used in assessing control strategies and developing emission limits. The modeling techniques embodied in the Guideline are subjected to public, scientific review in accordance with §320 of the CAA.

a. EPA has four primary, on-going activities to provide direct input for consistency in implementation and for revisions to the Guideline. The first is a series of annual EPA workshops conducted for the purpose of ensuring consistency and providing clarification in the application of models. The second activity, directed toward the improvement of modeling procedures,

is the cooperative agreement that EPA has with the scientific community represented by the American Meteorological Society. This agreement provides scientific assessment of procedures and proposed techniques and sponsors workshops on key technical issues. The third activity is the solicitation and review of new models from the technical and user community. In the March 27, 1980 Federal Register, a procedure was outlined for the submittal to EPA of privately developed models. After extensive evaluation and scientific review, these models, as well as those made available by EPA, are considered for recognition in the Guideline. The fourth activity is the extensive, on-going research efforts by EPA and others in air quality and meteorological modeling.

b. From the aforementioned process a number of models were selected as being refined models, suitable for regulatory application. Each refined model underwent intensive evaluation. The evaluation exercises include statistical measures of model performance in comparison with measured air quality data and, where possible, peer scientific reviews.

c. After a model has been selected as a refined model for a particular type of application, EPA considers the model appropriate for general use for that type of application without undergoing case-by-case evaluation, provided that the application follows the EPA recommendations specified in the Guideline.

5. The Industrial Source Complex models (hereafter ISC), have been deemed refined models by EPA for application to industrial complexes. The ISC models consist of a short term

model (ISCST) and a long term model (ISCLT). Long term models, such as ISCLT, are only appropriate for calculating ambient concentrations for averaging periods of months to a year. Short term models, such as ISCST, can be used for averaging times from one hour up to a year. (Hereafter my comments referring to ISC apply to both ISCST and ISCLT, unless otherwise specified.) The ISC model is appropriate for simulating the emissions of a variety of industrial air emissions. These would include emissions from free standing stacks and vents; stacks and vents which are influenced by the aerodynamic effects of nearby structures; emissions from area sources, such as storage piles or evaporative emissions from open tanks; line sources, such as roadways; and volume sources, such as large openings in buildings from which emissions emanate. The model is appropriate for simulating the ambient impacts of relatively inert pollutants, such as ethylene oxide, which do not undergo rapid chemical transformation in the atmosphere. The model will calculate the ambient concentrations at a number of user-specified "receptor" locations.

a. For simulating a stack-type source, ISC requires the input of the location, emission rate, physical stack height, stack gas exit velocity, stack inside diameter, and stack gas temperature. If the source is affected by the aerodynamic effects of buildings then inputs would also include information about the building dimensions.

b. The ISC model also requires meteorological data as input. These data include the wind speed, wind direction,

temperature, stability class and mixing height. The meteorological data must be representative of the geographic area being modeled to be accepted for a refined regulatory application.

c. The ISC model has gone through a number of performance evaluation studies, as outlined above. The following are several references of evaluation studies involving ISC:

(1) Bowers, J. F., and A. J. Anderson, 1981. An Evaluation Study for the Industrial Source Complex (ISC) Dispersion Model, EPA Publication No. EPA-450/4-81-002. U. S. Environmental Protection Agency, Research Triangle Park, NC.

(2) Bowers, J. F., A. J. Anderson, and W. R. Hargraves, 1982. Tests of the Industrial Source Complex (ISC) Dispersion Model at the Armco Middle-town, Ohio Steel Mill, EPA Publication No. EPA-450/4-82-006. U. S. Environmental Protection Agency, Research Triangle Park, NC.

(3) Scire, J. S., and L. L. Schulman, 1981. Evaluation of the BLP and ISC Models with SF_6 Tracer Data and SO_2 Measurements at Aluminum Reduction Plants. Air Pollution Control Association Specialty Conference on Dispersion Modeling for Complex Sources, St. Louis, MO.

(4) Schulman, L. L. and S. R. Hanna, 1986. Evaluation of Downwash Modifications to the Industrial Source Complex Model. Journal of the Air Pollution Control Association, 36:258-264.

d. In my experience of conducting and reviewing air quality modeling analyses, I have found that of the EPA approved

models, the ISC model is the most widely used model for determining the ambient concentrations of emissions from industrial sources. This is primarily due to its ability to simulate almost any type of industrial configuration and its status as a refined model under EPA guidelines. EPA considers it appropriate for use without undergoing case by case performance evaluation.

6. When EPA has a refined model appropriate for a specific type of application, such as the ISC model, the modeling results, based on the appropriate input data, are generally preferred by EPA over ambient monitoring data for determining emission limitations for both new and existing sources. Normally, EPA does not accept monitoring data as the sole basis for determining an emission limitation. When a refined model is available, EPA generally considers the model results alone (including background concentrations) sufficient for determining ambient concentrations of emissions from industrial sources and setting appropriate emission limitations.

a. Monitoring data suffers from a number of limitations. One of the primary limitations is that any given monitor can only measure what is happening at the location where the monitor is physically located and at the time it is operating. In order to adequately detect the maximum impact of any particular source, many monitors would have to be run over a number of years. A monitoring program designed to adequately detect a maximum concentration and to adequately characterize the concentration field would be very expensive. A number of years

of data would be necessary to collect enough samples to cover all possible meteorological situations in combination with the different operating conditions of the facility. A monitoring program with only one or two monitors or of a very short duration would be inadequate to ensure that maximum ambient impacts would be detected.

b. The usual intent of conducting an ambient impact analysis of an air pollution source is to determine if the emissions are likely to affect human health or affect the environment. The ambient concentrations are compared against health or environmental affects data. Rather than helping to resolve a problem, a prolonged ambient monitoring study allows continued air quality degradation, which in turn affects the health or environmental quality which was to be protected. For a new source being proposed, it is impossible to measure its impacts, since it is not yet built.

c. The method of analysis preferred by EPA for determining the ambient concentrations resulting from emissions into the atmosphere of industrial sources, including toxic air emissions, is modeling. As discussed above, before EPA determines a model, such as ISC, to be a refined model, appropriate for general use, the model undergoes rigorous evaluation and is determined to yield accurate estimates of the ambient air concentrations resulting from emission sources under a variety of conditions. With a model, the source can be simulated under the full range of its potential operating and emission conditions, rather than being limited to the specific

operating conditions occurring during the period of a limited monitoring study. The model can also yield ambient concentration data at any number of receptor locations, rather than only at the limited number of locations where a monitor is physically located. Also, an air quality model provides the only practical method of estimating the ambient impacts of a new source. A model provides flexibility in an analysis and can be run relatively quickly, at relatively little expense.

d. Modeling also allows source contributions to a particular ambient concentration to be ascertained. If two sources each emit the same pollutant, it is impossible to tell from an ambient measurement of the specific pollutant, the relative contributions to the measured ambient concentration, unless there is some unique surrogate being emitted from one of the facilities. Also, there is the uncertainty of whether a heretofore unknown source of the pollutant of concern has contributed to the measurement. Modeling, allows the impact of each source to be calculated separately and in combination.

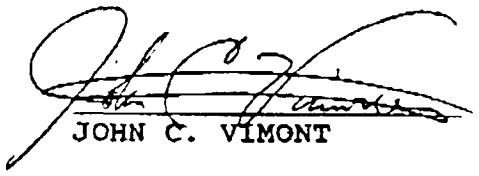
e. The use of monitoring data also pre-supposes that there are acceptable and reliable monitoring techniques available for the pollutant of interest. In the past, this has generally been the case. EPA has established acceptable and reliable methods of measuring a number of pollutants which were regulated under the Clean Air Act. Recently, however, the issue of toxic air contaminants has arisen. Ambient measurement techniques, which can adequately and accurately detect a specific toxic air contaminant, are not necessarily available. The transport and

dispersion of buoyant or neutral plumes of gaseous pollutants, which are relatively inert in the atmosphere, is the same, regardless of the specific chemical constituents of the gas. Therefore, modeling provides a useful technique for detecting levels of pollutants in the air if reliable ambient measurement techniques are not available.

f. EPA does recognize the usefulness of ambient measurements for information on background concentrations, provided reliable monitoring techniques are available. EPA does not recommend, however, that ambient measurements be used as the sole basis of setting emission limitations or determining the ambient concentrations resulting from emissions from an industrial source. These should be based on an appropriate modeling analysis.

I declare under penalty of perjury that the foregoing is true and correct.

DATED: November 30, 1990



JOHN C. VIMONT

ORAL ARGUMENT NOT YET SCHEDULED

UNITED STATES COURT OF APPEALS

FOR THE DISTRICT OF COLUMBIA CIRCUIT

NATIONAL ENVIRONMENTAL DEVELOPMENT ASSOCIATION'S CLEAN AIR PROJECT,	)	
Petitioner,	)	
v.	)	Docket No. 10-1252
	)	(and consolidated cases)
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY,	)	
Respondent.	)	

DECLARATION OF ROGER W. BRODE

1. My name is Roger W. Brode. I hold B.S. and M.S. degrees in Atmospheric Sciences and I am currently assigned as a physical scientist in the Air Quality Modeling Group within the Air Quality Assessment Division of the Office of Air and Radiation's Office of Air Quality Planning and Standards at the U.S. Environmental Protection Agency ("EPA"), where my

responsibilities include the development, evaluation and application of air quality dispersion models and the development of guidance associated with application of such models in support of EPA regulations governing the Prevention of Significant Deterioration ("PSD")_permitting program. I have been involved in the development, evaluation, testing, and documentation of the American Meteorological Society EPA Regulatory Model ("AERMOD") throughout its history. I currently serve as co-chair of the AMS/EPA Regulatory Model Improvement Committee (AERMIC) consisting of atmospheric scientists and dispersion model experts overseeing the further technical development of the model, and as co-chair of the AERMOD Implementation Workgroup consisting of EPA Regional Office and State dispersion modelers whose charge has been to indentify and assess potential issues with implementation of the AERMOD model as EPA's preferred model under Appendix W of Part 51 of the Code of Federal Regulations.

2. The revised primary national ambient air quality standard for oxides of sulfur ("SO2 NAAQS") requires that the three year average of the annual 99th percentile of the daily maximum 1-hour average concentrations of SO2 be less than or equal to 75 parts per billion. In addition, owners and operators of a new major stationary source or a major source undergoing a major modification located in areas not designated "nonattainment" for the SO2 NAAQS must obtain a PSD permit, and to do so must demonstrate (among other things) that the emissions increases from the new or modified source will not cause or contribute to a violation of the revised SO2 NAAQS. Existing air quality models, including AERMOD, are readily capable of accurately predicting whether the revised primary SO2 NAAQS is attained and whether individual sources cause or contribute to a violation of the SO2 NAAQS. Specifically, dispersion models that are used to demonstrate compliance with the SO2 (and

other) NAAQS, including under PSD permitting programs, use sequential hourly meteorological data as the basis for estimating ambient concentration levels. These data are combined with other inputs (chiefly source emission information, background emissions, and receptor information) to predict transport and dispersion of emitted pollutant plumes. Since the key varying inputs to these models are input on an hourly basis, all applications of these models under the guidance in Appendix W (40 CFR Part 51) are predicated upon the models' ability to predict hourly ambient concentrations. These models thus generate one-hour air quality distributions from which the three year average of the annual 99th percentile of daily maximum 1-hour average concentration of SO2 can be readily calculated or otherwise reasonably approximated.

3. As part of the basis for EPA adopting the AERMOD model as the preferred model for near-field applications in the *Guideline on Air Quality Models*, Appendix W to 40 CFR Part 51, the performance of the AERMOD model was extensively evaluated based on a total of 17 field study data bases (AERMOD: Latest Features and Evaluation Results. EPA-454/R-03-003. U.S. Environmental Protection Agency, Research Triangle Park (2003), portions of which are attached to this affidavit) ("EPA 2003"). The scope of the model evaluations conducted for AERMOD far exceeds the scope of evaluations conducted on any other model that has been adopted in Appendix W to Part 51. These evaluations demonstrate the overall good performance of the AERMOD model based on technically sound model evaluation procedures, and also illustrate the significant advancement in the science of dispersion modeling represented by the AERMOD model as compared to other models that have been used in the past. In particular, adoption of the AERMOD model has significantly reduced the

potential for overestimation of ambient impacts from elevated sources in complex terrain compared to other models.

4. Some of the field studies used to evaluate AERMOD model performance involved ambient sampling of SO2 for a period of one year or more at several (typically about 10) monitors sited around operating power plants. Other field studies involved sampling of controlled releases of non-reactive tracers, typically SF6, generally over a shorter duration than the operational studies, but with more robust sampling to facilitate more detailed diagnosis of model performance. Although the long-term field studies associated with operating power plants included assessments of 3-hour, 24-hour and even annual average impacts from the model, evaluation results for 1-hour averages were routinely included for all of the field studies. As shown in Tables 2 and 3 of EPA 2003, modeling and monitored results for 1-hour averages are in excellent correlation in these studies, with the ratio of predicted to observed performance approaching 1:1 in most instances. Thus, in my opinion, the performance of the AERMOD model for estimating 1-hour ambient concentrations is well-documented and the form of the new 1-hour SO2 standard raises no questions or concerns regarding the appropriateness of AERMOD.
5. The SO2 NAAQS Coalition states that the revised SO2 NAAQS is a "probabilistic" standard and asserts that this makes modeling more problematic, especially as compared to the previous "deterministic" standard. (Coalition p. 5.) The terms "probabilistic" and "deterministic" do not have an ordinarily understood meaning in this context, but it appears that the assertion is that predictive models like AERMOD are not suitable for a standard which includes a percentile-based form (where the relevant comparison is to a percentile of air quality from an air quality distribution), as opposed to an expected exceedance form

(whereby a standard may exceeded on a given number of days and compliance is assessed based on air quality on the designated day once the allowed exceedance days are removed from the distribution). I know of no reason that AERMOD and other similar types of models is suitable for one type of form and not the other. As just stated in paragraph 2, the models readily generate air quality distributions from which either percentiles (for the revised SO2 NAAQS, the 99th percentile) or exceeding days can be determined. In fact, the percentile form of the 1-hour SO2 NAAQS is a more "stable" metric than a standard based on the 1st-highest or 2nd-highest concentrations, since the potential impact of "outliers" in the distribution is mitigated, especially when the multi-year average aspect of the SO2 NAAQS is accounted for.

6. Both the SO2 NAAQS Coalition and their affiant Mr. Paine raise a number of points regarding the issue of whether allowable or actual source emissions should be modeled, stating that use of allowable emissions overstates sources' impacts. See, e.g. Paine Decl. at ¶ ¶ 11-14. This issue is independent of the predictive accuracy of AERMOD or other models.
7. EPA's rules and guidance provide significant flexibility in the choice of which models to use in determining if sources cause of contribute to NAAQS violations for purposes of PSD permitting. EPA's rules specify that "where an air quality model specified in Appendix W of this part ... is inappropriate, the model may be modified or another model substituted" with written approval from EPA. 40 C.F.R. §51. 166 (l)(2). The rules therefore allow flexibility, subject to appropriate requirements, for alternative modeling techniques to be applied on a case-by-case basis subject to approval by appropriate reviewing authority.
8. The declaration of Michael E. Long voices concerns regarding the use of the AERMOD dispersion model to support implementation of the 1-hour SO2 standard, and asserts that

"AERMOD significantly over predicts the actual one-hour ambient concentrations in our area when the available information is used in the model as directed by EPA." Long Decl. at ¶ 8. This assertion is based on a comparison of model-predicted ambient concentrations to ambient SO2 concentrations reported for 2008 at local EPA monitoring stations in the vicinity of the ArcelorMittal facilities being modeled. Mr. Long reports that the "AERMOD model predicted one-hour concentrations that were higher than the monitored values 90% of the time and the predicted values were as much as 373,131 times higher than the actual monitored values." Id. Lacking any additional details regarding the model-to-monitor comparisons cited by Mr. Long, the response here is necessarily limited to a general discussion of issues involved in such comparisons. A number of factors can affect the comparison of a modeled concentration with a monitored concentration, including the accuracy of the emission rate and other source characteristics input to the model, the representativeness of the meteorological data input to the model, and the influence of local geographical features and land use characteristics on the transport and dispersion of the plume. Another key factor that affects comparisons of modeled vs. monitored concentrations, paired in time and space, is the potential error or uncertainty in the wind direction input to the model for that hour since the wind direction will determine the transport direction of the plume. Slight errors in the transport wind direction may account for significant differences in modeled vs. monitored concentrations for a specific hour, especially for elevated plumes under stable atmospheric conditions where the lateral spread of the plume can be very limited for relatively long transport distances, and errors of a few degrees in wind direction can be the difference in the plume directly impacting the monitor for a particular hour or the plume missing the monitor completely. In such cases, a factor of

373,131 difference between modeled and monitored concentrations could easily be attributable to error or uncertainty in the wind direction. Note that wind directions reported from routine meteorological monitoring stations located at airports, the most common source of meteorological data used in air quality modeling applications, are reported to the nearest 10 degrees. In addition, the comparison may reflect issues related to use of allowable versus actual emissions, which is irrelevant for purposes of determining whether the AERMOD model itself is biased.

9. The declaration of Robert J. Paine addresses practical issues in applying the AERMOD model that allegedly arise due to the form of the 1-hour SO2 standard, as well as concerns regarding the conservatism of the assumptions on source emissions based on Appendix W guidance in relation to the 1-hour SO2 standard. Responses to these issues are summarized below, numbered according to Mr. Paine's declaration, with some responses applying to multiple comments:

   (a)

Paine Decl. ¶ 9. : The AERMOD model "does not yet provide results that allow permit applicants to follow EPA's guidance for determining whether they comply with the 1-hour SO2 NAAQS because of the unique statistical form of that NAAQS."

Paine Decl. ¶ 10. : "The form of the 1-hour SO2 NAAQS requires the applicable guideline dispersion model to compute the highest 1-hour concentration for each day at each modeled receptor point, and to keep track of this daily 1-hour maximum concentration statistic for each of the 365 days for each year modeled independently at each location modeled.

Paine Decl. ¶ 11. : "In the case for which a cumulative modeling analysis is required, this same procedure must be applied to the combined contributions of the individual source being permitted, nearby sources and regional background."

Response: As stated in paragraph 2 above, all of these metrics are readily obtainable from model outputs. Although the existing version of AERMOD does not contain an algorithm from which these metrics emerge automatically as model outputs, this does not change the result that all of these metrics are obtainable. In fact, we are aware that Mr. Paine, along with other private sector parties, developed post-processing tools to compute the 1-hour SO2 design value based on the form of the revised SO2 NAAQS utilizing model output options available at the time.

(b)

Paine Decl. ¶ 11. : "Furthermore, EPA in most cases requires a conservatively high regional background concentration to be added for all hours modeled, rather than the actual values measured during each hour of the modeling simulation."

Response: EPA issued guidance on a range of issues related to the new 1-hour SO2 standard on August 23, 2010, including a recommendation that the overall highest 1-hour monitored SO2 concentration from a representative monitor could be used to account for the monitored background component in a cumulative impact assessment "without further justification." We recognize that use of the overall highest 1-hour monitored value may entail a degree of conservatism that could prevent a source from demonstrating compliance with NAAQS; however, that conservatism forms the basis for allowing the approach to be used without further justification. The August 23 memorandum further stated that "Additional refinements to this 'first tier' approach based on some level of temporal pairing of modeled and monitored values

may be considered on a case-by-case basis, subject to approval by the reviewing authority, with adequate justification and documentation." However, we also note that Appendix W explicitly makes "no attempt" to "comprehensively define" the criteria involved in determining which nearby sources to include in an analysis "owing to both the uniqueness of each modeling situation and the large number of variables involved in identifying nearby sources." See Appendix W section 8.2.3.b.

(c)

Paine Decl. ¶ 12. : "Following EPA's regulatory requirements for PSD modeling, the modeled predictions of hourly concentrations of a probabilistic standard such as the 99th percentile daily maximum hourly SO2 concentrations produced by a single source for which a permit is sought can be much higher than concentrations that actually occur in the ambient air."

Response: As noted in paragraph 6 above, the issue of allowable versus actual emissions is independent to the question of the accuracy of AERMOD or other models. Also, as stated in paragraph 5 above, there is no reason that AERMOD (or other similar models) is not equally accurate in predicting percentile air quality distributions or expected exceedances on a given day. The underlying data which are input to the model generate air quality distributions which are equally suitable for either type of form.

(d)

Paine Decl. ¶ 12. : "Modeling of peak SO2 emissions as if they occur continuously is a distortion of reality and will overestimate the ambient air concentrations. This is especially true for 1-hour averages, since the variation of emissions for such a short averaging period is

potentially much higher than that for the other SO2 NAAQS averaging periods. This makes the assumption of constant peak emissions a critical issue for this new standard."

Response: The purpose of dispersion modeling in the context of the PSD permitting program is to demonstrate that the proposed new or modified emissions will not cause or contribute to violations of the standard if the permit is granted. This is inherently a predictive exercise since it entails an assessment of proposed future emissions. EPA's guidance for conducting such analyses is dictated by and consistent with that purpose. Mr. Paine's statement that 1-hour averages are more variable than longer averaging periods again does not relate to potential model bias and in any case makes a sweeping generalization for situations that differ case-by-case. The statement that peak SO2 emissions should not be modeled is a restatement of the dispute as to use of allowable or actual emissions, and does not relate to the issue of model bias.

(e)

Paine Decl. ¶ 13. : "The model overprediction tendency is even more likely to be a problem in a cumulative impact analysis because numerous sources (i.e., the source being permitted and potentially thousands of other nearby sources) are all modeled at peak emissions at all times and added to a regional background level of SO2. . . leading to unrealistic predictions that the 1-hour SO2 NAAQS will be exceeded."

Response: As noted, the issue of allowable versus actual emissions is independent of the issue of models' predictive accuracy. However, EPA's August 23, 2010 clarification memo regarding the applicability of Appendix W guidance for the 1-hour SO2 NAAQS cautioned "against the literal and uncritical application of very prescriptive procedures for identifying which background sources should be included in the modeled emission inventory for NAAQS

compliance demonstrations, including those described in Chapter C, Section IV.C.1 of the draft New Source Review Workshop Manual (EPA, 1990), noting [again] that Appendix W emphasizes the importance of professional judgment in this process." One motivation for that caution was a concern that application of such procedures could lead to an overly conservative result by including too many background sources in the cumulative impact assessment. As noted elsewhere, Section 8.2.3.b of Appendix W suggests that "the number of such sources is expected to be small except in unusual situations."

(f)

Paine Decl. ¶ 13. : "Moreover, since the nearby sources will be modeled individually (but their emissions are already accounted for in the regional monitoring), there will inevitably be double-counting of the background impacts between the components of the "nearby sources" and the "regional background", especially for the common situation of the state requiring a single peak regional background value to be used for all modeled hours."

Response: As noted in several responses above, there are many application-specific factors that need to be considered in determining how to conduct an adequate assessment of cumulative impacts, accounting for contributions from nearby background sources explicitly in the model as well as a monitored contribution, while avoiding or minimizing the potential for double-counting of modeled and monitored impacts.

(g)

Paine Decl. ¶ 14. : "The distribution of total peak daily emissions over the three-year period of 2000-2002 [from major SO2 sources in central North Dakota] was found to overpredict the second-highest monitored 24-hour concentrations by roughly a factor of 2 because the emissions

on average are lower than peak values assumed in the modeling. For the probabilistic 1-hour standard . . . and for closer receptors, the overprediction ratio would likely be even higher than for a 24-hour average, causing extensive areas of fictitious modeled NAAQS violations."

Response: The first statement in this comment merely confirms what was indicated in an earlier response, namely that modeled impacts based on maximum allowable emissions should not be expected to accurately predict ambient monitored concentrations in most cases, since monitored concentrations can only reflect impacts from actual emissions. Overprediction by a factor of 2 does not suggest a significant degree of conservatism given that modeled emissions reflected peak emissions. No rationale is offered to support the assertion that the overprediction ratio would likely be even higher for the 1-hour standard, and we see no reason to expect that necessarily to be the case.

(h)

Paine Decl. ¶ 14. : "Based on my experience with modeling the 1-hour NAAQS for nitrogen dioxide – a NAAQS that is similar in form to the 1-hour SO2 NAAQS – this overprediction ratio could approach a factor of 10 in areas with numerous sources modeled together."

Response: Although the form of the 1-hour NO2 standard is very similar to the form of the 1-hour SO2 standard, the role of NOx chemistry in modeling ambient NO2 impacts associated with NOx emissions makes it difficult to draw comparisons between the two standards in terms of the potential for the model to overestimate ambient impacts as compared to monitored concentrations. The comment does not indicate what assumptions were made in the NO2 modeling analyses regarding the conversion of NO emissions to ambient NO2. An overly conservative assumption in relation to that conversion could introduce a significant bias in the

modeled concentrations relative to monitored concentrations of NO2 that would have no relevance to modeling 1-hour SO2 impacts.

(i)

Paine Decl. ¶ 15. : "If a cumulative modeling assessment shows violations of the NAAQS, then the PSD permit applicant can still obtain a permit for its source by showing that the proposed source does not contribute significantly to the modeled violation. EPA, however, has not yet defined a procedure for determining whether a proposed source that conducts a cumulative modeling analysis and finds modeled violations due to other sources is by itself causing or contributing to these predicted (and possibly false) 1-hour SO2 NAAQS violations. This "safety valve" thus does not yet exist for applicants trying to demonstrate that their proposed SO2-emitting sources will not cause or contribute to any modeled violations of the 1-hour SO2 NAAQS."

Response: Recognizing the importance of the significant contribution test within the PSD permitting program, EPA recommended an interim Significant Impact Level (SIL) in its August 23 guidance memorandum regarding the 1-hour SO2 NAAQS. This interim SIL provides the "safety valve" that may allow a permit applicant to obtain a permit in cases where the cumulative impact assessment shows modeled violations of the 1-hour SO2 NAAQS, if it can be demonstrated that the proposed emission increases do not contribute significantly to those modeled violations, paired in time and space. Although the form of the 1-hour SO2 standard may complicate the "bookkeeping" needed to make such a demonstration, the principle of the significant contribution test based on the SIL has not changed under the 1-hour SO2 NAAQS.

Pursuant to 28 U.S.C. § 1746, and under penalty of perjury, I declare the foregoing is true and correct to the best of my knowledge.

01/18/2011

Date

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June 28, 2012

EPA Docket Center
1301 Constitution Ave., NW., Room 3334
Washington DC 20004

Re: Docket#: EPA-HQ-OAR-2010-1059
Comments on USEPA's Guidance for One-Hour SO_2 NAAQS SIP Submissions

Thank you for the opportunity to comment on USEPA's guidance for one-hour SO_2 NAAQS SIP submissions. In the 9/22/2011 public draft of their guidance, USEPA summarizes their planned program elements as follows:

> In addition to this guidance document, EPA is also planning a rulemaking to address some of the 1-hour SO_2 NAAQS implementation program elements. These elements include: (1) establishing that compliance with the 1-hour SO_2 NAAQS is appropriately based on the results of both air quality modeling and monitoring; (2) establishing the modeling requirements necessary to determine compliance with the 1-hour SO_2 NAAQS; (3) establishing the minimum scope of analysis required to demonstrate attainment and maintenance of the 1-hour SO_2 NAAQS to comply with the SIP requirements in CAA section 110(a)(1); (4) establishing a reasonable time period for sources to comply with any new emissions limitations states need to establish in the 110(a)(1) SIPs to demonstrate attainment and maintenance of the 1-hour SO_2 NAAQS; (5) to set an attainment date for areas designated as unclassifiable; and (6) establishing the criteria for redesignating areas from "unclassifiable" to "attainment."[1]

This document goes on to say:

> EPA will also propose a rulemaking that would codify the hybrid modeling and monitoring implementation approach in order to ensure compliance with the 1-hour SO_2 NAAQS in a timely manner.[2]

In summary, I believe that air dispersion modeling should be the preferred method for determining one-hour SO_2 impacts from existing sources. Monitoring should be used only in specific cases to supplement modeled impacts, and the monitored data, which cannot cover all ambient air locations, should not be given more weight than the modeled concentrations. In

[1] USEPA, Guidance for One-Hour SO_2 NAAQS SIP Submissions, Public Review Draft, September 22, 2011, pp. iii-iv. (http://www.epa.gov/airquality/sulfurdioxide/pdfs/DraftSO2Guidance_9-22-11.pdf)
[2] Id., p. iv.

essence, USEPA's proposed hybrid modeling and monitoring implementation approach should be heavily weighted towards modeling.

Air dispersion modeling has been used for decades to assess ambient air impacts from proposed and existing sources, and for SO_2 NAAQS SIP purposes, monitoring alone (or a program based predominantly on monitoring) is not a viable alternative. I recently submitted a subset of these comments to USEPA's 10th Conference on Air Quality Modeling docket.

I specialize in atmospheric dispersion modeling, which uses regulatory-approved computer programs to estimate chemical concentrations in the air and deposition fluxes to the ground. In the past 30 years I have prepared over 1,000 air dispersion modeling analyses. I hold B.S. (1978) and M.S. (1980) degrees in Atmospheric Science from the University of California at Davis. A copy of my curriculum vitae is attached.

My comments on this docket concentrate on the issue of modeling vs. monitoring for verifying compliance with the one-hour SO_2 NAAQS (attainment determinations). My comments are in response to USEPA's "key questions" presented in their *Implementation of the 2010 Primary 1-Hour SO_2 NAAQS: Draft White Paper for Discussion*. I address key questions a. and b. on monitoring and key questions a., b., c., and d. on modeling.

Monitoring key questions:

a. Are the conceptual monitoring networks described above sufficient to determine whether ambient SO_2 levels meet the NAAQS and are protective of public health without the need for additional modeling? If not, then what enhancements should be made to them? In what situations should meteorological data collection also be required?

b. What is an appropriate number of monitors to site around a source to assess air quality?

I am providing a combined response to the above questions.

I do not believe that it is feasible for monitoring alone to verify compliance with the one-hour SO_2 NAAQS. A suitable monitoring program would require many monitors and data would need to be collected for at least several years. The number of required monitors would be prohibitively expensive and the duration of the monitoring program, while compounding the expense, also delays the implementation needed to protect public health from any unhealthy SO_2 exposures.

The question of modeling or monitoring was discussed in a California Proposition 65 enforcement declaration by John Vimont, when he was USEPA's Region IX Regional Meteorologist:

> Monitoring data suffers from a number of limitations. One of the primary limitations is that any given monitor can only measure what is happening at the location where the monitor is physically located and at the time it is operating. In order to adequately detect the maximum impact of any particular source, many monitors would have to be run over a number of years. A monitoring program designed to adequately detect a maximum concentration and to adequately characterize the concentration field would be very expensive. A number of years of data would be necessary to collect enough samples to cover all possible meteorological situations in combination with the different operating conditions of the facility. A monitoring program with only one or two monitors or of a very short duration would be inadequate to ensure that maximum ambient impacts would be detected.[3]

Mr. Vimont also declared:

> EPA does recognize the usefulness of ambient measurements for information on background concentrations, provided reliable monitoring techniques are available. EPA does not recommend, however, that ambient measurements be used as the sole basis of setting emission limitations or determining the ambient concentrations resulting from emissions from an industrial source. These should be based on an appropriate modeling analysis.[4]

I agree with Mr. Vimont on the disadvantages of relying on air monitoring to verify compliance with ambient air quality standards. This sentiment is also expressed by the State of California, in their Air Toxics Hot Spots Health Risk Assessment (HRA) guidelines:

> Pollutant concentrations are required in HRA calculations to estimate the potential cancer risk or hazard indices associated with the emissions of any given facility. Although monitoring of a pollutant provides excellent characterization of its concentrations, it is time consuming, costly, and typically limited to a few receptor locations and snapshots in time. Air dispersion modeling has the advantage of being relatively inexpensive and is less time consuming, provided that all the model inputs are available. In addition, air dispersion modeling provides greater flexibility for placement of receptors, assessment of individual

[3] Vimont, John, People of the State of California v. Santa Maria Chili, Declaration, November 30, 1990. (see attached file: Vimont-John-Declaration.pdf)
[4] Id.

> and cumulative source contributions, and characterization of concentration over greater spatial extents.[5]

In addition, it is not always possible to place monitors where maximum project or cumulative impacts may be occurring. I have first-hand experience with the problem of siting monitors to ensure that maximum project impacts are being measured. While I was an employee with the Santa Barbara County Air Pollution Control District, I sited over 30 pre- and post-construction air quality PSD monitoring systems. These monitors were required by permit conditions for various oil and gas processing facilities, and several monitors were to be sited for each project. Using air dispersion modeling, we determined where the peak project impacts were likely to occur and then attempted to place the air quality monitoring systems at those locations. In virtually every case, it was not possible to place the air quality monitor in the desired location. Impediments to siting the monitors where we wanted to place them included: power or communication constraints, lack of security, denial of landowner permission, lack of access, and terrain and vegetation restrictions. In other words, it's one thing to have an adequate number of monitors; it's quite another thing to place them where they are needed.

Part of the problem is that there are relatively few existing monitors that can be used for SO_2 NAAQS attainment determinations. There are not nearly enough SO_2 monitors in place to determine attainment status of the existing major SO_2 emission sources. Moreover, very few, if any, of these monitors are "well-placed" for measuring the maximum ambient air impacts from these existing SO_2 sources. This situation dictates that in virtually every instance, a monitoring program needs to be started from scratch, or air dispersion modeling must be used as the method for determining SO_2 ambient air concentrations and resulting attainment status.

The lack of existing major source-specific SO_2 monitoring is partly due to a failure of State air agencies requiring pre-and post-construction air quality monitoring. In the past few years I have reviewed and commented on major SO_2 emission source PSD permit applications in Texas, Louisiana, Oklahoma, Nevada, Kentucky, North Carolina, South Carolina, Missouri, Kansas, South Dakota, Illinois, and Arkansas. With the exception of Nevada, the State air agencies have not required pre- or post-construction air quality monitoring, even though the PSD significant monitoring concentrations were exceeded. This is the norm for these major sources, and it is one of the key reasons that there is a paucity of ambient air quality monitoring data that could be used to help determine attainment status surrounding these facilities. It is self-serving if a facility that could (should) have been collecting ambient air quality data now argues that SO_2 NAAQS attainment determinations must be based on monitoring, not modeling.

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[5] California Office of Environmental Health Hazard Assessment, Air Toxics Hot Spots Program Risk Assessment Guidelines: The Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments, August 2003, p. 4-1. (http://www.oehha.org/air/hot_spots/pdf/HRAguidefinal.pdf)

This same issue applies to pre-construction monitoring for meteorological data. On many occasions I have commented that States should require major source facilities, as part of their PSD permit analysis, to collect site-specific meteorological data rather than rely on National Weather Service (NWS) airport data. On every occasion, my comments were disregarded, even though the PSD significant monitoring concentrations were exceeded for the proposed project. The State's response and comment denial followed a common theme, summarized as follows: site-specific meteorological data monitoring is unnecessary for modeling purposes and that NWS airport data are appropriate for permit application analyses. Although it's water under the bridge, site-specific data could have been collected during these application processes without causing time delays to permit issuance.

USEPA asked the question "*In what situations should meteorological data collection also be required?"* I believe the time has passed when these data could or should have been collected. Of course it would be ideal to have additional site-specific meteorological data for modeling major SO_2 emissions sources. But such a monitoring system will take at least two years to implement, and then the modeling will still have to be performed. The data collection itself will take a minimum of one year. It will take at least another year for developing the data collection protocol, review and approval of the protocol, siting of the system, installation, and afterwards post-processing of the data for modeling. Starting a site-specific meteorological data collection effort from scratch contributes to an unreasonable delay of the measures that may be needed to protect ambient air from any excessive SO_2 exposures.

While I feel that site-specific meteorological data are preferable to NWS airport data, USEPA's AERMINUTE program allows significant improvements to the NWS data in that calms and variable wind hours that were previously unusable by AERMOD can now be recaptured. In lieu of requiring new site-specific data collection efforts, modeling of SO_2 emissions for NAAQS SIP submissions should be performed using NWS data prepared with AERMET, in conjunction with AERMINUTE. The use of one-minute ASOS data should be a requirement, not a recommendation. If available high-quality site-specific meteorological data already exist, then I believe they should be used in preference to NWS airport data.

Based on my experience, site-specific meteorological data tends to result in higher modeled impacts than NWS airport data, even when the NWS data is processed with AERMINUTE and one-minute ASOS data. For example, I modeled the Homer City, PA power station with three different meteorological data sets: One year of site-specific data from the Manor monitoring station; 2006 through 2010 NWS data from Johnstown PA, including one-minute ASOS data processed with AERMINUTE (KJST); and 2006 through 2010 NWS data from Pittsburgh PA, including one-minute ASOS data processed with AERMINUTE (KAGC). All three data sets

used Pittsburgh upper air soundings. The peak receptor grid ambient air impacts from AERMOD modeling using Manor site-specific data were about twice as high as the KJST or KAGC results. And even at specific receptor locations, such as Homer City High School, the Manor site-specific data resulted in significantly higher impacts than the NWS/AERMINUTE data sets.

In other words, using available NWS airport data, processed with AERMINUTE, will not likely over-predict modeled impacts, as suggested by some stakeholders. Moreover, these data have the advantage of being readily available on NCDC data DVDs for years 2007 through 2011, thus meeting The Guideline on Air Quality Modeling requirements of at least five years of consecutive data from the most recent, readily available five-year period. [6]

Modeling key questions:

a. Should some criteria (e.g., the PWEI concept) be used to identify priority sources to be modeled in an area where there is no nearby monitor?

I do not believe that a population weighted emissions index (PWEI) should be used to identify priority sources. The NAAQS, by definition, apply to ambient air, or "… that portion of the atmosphere, external to buildings, to which the general public has access."[7] Ambient air is the defining criteria, and it is not based on the number of people who are exposed, but whether anyone could have access to given locations. This includes waterways and unpopulated areas of all sorts, so long as someone in the public has access.

b. How should the modeling be performed – i.e., what changes to the March 24, 2011 guidance should be made, such as the use of size cut-offs and use of actual emissions?

Some stakeholders have suggested that one-hour SO_2 modeling analyses used for nonattainment SIP modeling should use actual emissions, and not the potential to emit. I understand that using allowable emissions may result in higher impacts than the facility's actual emissions. I have modeled many coal-fired EGUs where I analyzed both allowable and actual emissions obtained from USEPA's Clean Air Markets Database (CAMD). The facility permitted emissions are often, though not always, greater than the reported actual emissions. This is because the permitted allowable emissions are often based on 30-day averaging periods and peak hourly emission limits were not set by the State agency in question. Also, startup, shutdown, and upset conditions are included in the CAMD that may represent quite high actual emission rates.

[6] USEPA, Revision to the Guideline on Air Quality Models: Adoption of a Preferred General Purpose (Flat and Complex Terrain) Dispersion Model and Other Revisions, Appendix W to 40 CFR Part 51, November 9, 2005. (http://www.epa.gov/ttn/scram/guidance/guide/appw_05.pdf)

[7] 40 CFR Part 50.1 (e) (http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&rgn=div5&view=text&node=40:2.0.1.1.1&idno=40#40:2.0.1.1.1.0.1.1)

If actual emissions are used for nonattainment SIP modeling, a condition must be added to the facility's permit requiring that emissions must not be greater than the level used in the modeling analysis. In other words, a facility that wants to use actual emissions in their modeling analysis must agree to an enforceable permit condition limiting their emissions, by unit, to that quantity modeled. Also, actual emissions cannot be modeled using full load stack parameters. Stack gas exit velocity and temperature will be reduced under less than full load conditions, affecting plume rise and resulting modeled impacts. Any AERMOD modeling using actual emission levels must use corresponding actual stack gas exit velocity and temperature. I suggest that USEPA should develop a method for calculating stack gas exit velocity and temperature as a function of load, for use in cases where these data are not directly measured and reported.

I believe that any emission limits based on actual operating conditions must be rather straight-forward and enforceable. For example, the actual emission rates could be based on the maximum hourly emissions, by stack, for the latest calendar year (or perhaps the maximum for the past three years). Maximum actual emissions could also be for shorter time periods (by season, for example), but emission limits by portion of the year may be more difficult to enforce, or the facility may not wish to be restricted by this condition. And while it is possible to model hour-by-hour actual emissions (using HOUREMIS in AERMOD) coupled with contemporaneous meteorological data, this analysis does not ensure that the one-hour SO_2 NAAQS will be protected in the future. This is because combinations of meteorology and facility emissions that result in peak impacts are virtually unenforceable.

I believe that USEPA should be very careful in considering emission rate cut-off levels. Without modeling, it is very difficult to determine the combined effects that emission rate, stack height, source-to-receptor distance and elevation differences, building downwash, background air quality, and plume rise will have on ambient air concentrations and NAAQS compliance. Obviously not every source will require modeling, but any cut-off criteria should consider all parameters that affect air concentration, not simply emission rate.

c. Are there situations where modeling is preferable to monitoring? If so, then what are these situations? Should EPA require modeling in certain situations, or is monitoring alone always a sufficient option for areas of concern?

As discussed above, modeling is preferable to monitoring for determining ambient air concentrations and for verifying compliance with the one-hour SO_2 NAAQS. I cannot envision a feasible air monitoring network that would verify compliance for a major SO_2 emission source – too many monitors would be needed and the delay in attainment demonstration and resulting controls would be unacceptably long.

I think it is beneficial to consider how California's Air Toxics Hot Spots program, also known as AB 2588, determined ambient air concentrations of air toxics. This program required thousands of facilities in California to quantify emissions of scores of hazardous air pollutants, when virtually no inventory of these pollutants previously existed. AB 2588 also required at least 1,000 facilities state-wide to prepare health risk assessments, which are based on ambient air concentrations of the air toxics in question. In all instances, these facilities used air modeling as the basis for determining ambient air concentrations. This is based not only on State of California guidance (see the Air Toxics Hot Spots program citation in the air monitoring comments above), but on the practicality of actually quantifying air concentrations in a reasonable fashion.

I believe that the AB 2588 program required as much or more modeling work than will be needed for the one-hour SO_2 NAAQS SIP determinations. For example, in Santa Barbara County, where I was the Air Toxics Program Coordinator, we prepared air dispersion modeling analyses for up to 50 facilities per year. Many of these facilities were very complicated and involved numerous toxic air pollutants. Plus, we calculated excess cancer risk and non-carcinogenic health effects from inhalation and all other pathways of exposure. In other words, I think State air agencies should be able to handle the effort required in modeling the major SO_2 emission sources within their jurisdiction.

Some stakeholders have expressed concern that AERMOD will over-predict air impacts, compared to monitoring results. While this may be true in some circumstances, e.g., at one location at a given time, the true value in modeling is the ability to calculate air concentrations at many more places and under many physical conditions that cannot be handled by air monitoring. On the other hand, there are likely many situations where AERMOD underpredicts air concentrations compared to monitoring data.

USEPA should rely on the detailed AERMOD evaluations that were performed during the model development phase. I agree with Roger Brode's 10th Modeling Conference presentation, where he concluded: "AERMOD model performance has been extensively evaluated and shown to provide generally unbiased estimates of 1-hr SO_2 concentrations across a wide range of scenarios."[8]

[8] Roger Brode, USEPA/OAQPS, AERMOD Evaluations Under the 1-hour NO_2 and SO_2 NAAQS, 10th Conference on Air Quality Modeling. (http://www.epa.gov/ttn/scram/10thmodconf/presentations/2-8-Brode_10thMC_AERMOD_Evals_1hr-NO2-SO2_NAAQS_Final_3-25.pdf)

I believe that the concerns about AERMOD over-predicting air concentrations are, on the whole, without merit. At the 2012 RSL Modelers' Workshop, George Bridgers and Roger Brode presented a summary of AERMOD's performance evaluation results. They document that AERMOD provided better model predictions than ISCST3, ISC-Prime, and CTDMPLUS. In addition, they point out that the average ratio of predicted to observed one-hour and three-hour robust highest concentration values across all field studies for AERMOD was 0.995.[9] This is clearly an unbiased estimate of AERMOD's predictive performance.

It is also evident that most of the large SO_2 emission sources have tall stacks, which were rigorously evaluated during AERMOD's development process. From USEPA's Compendium of Reports from the Peer review Process for AERMOD:

> Concerning the model evaluation, we reiterate that AERMOD has been evaluated against 10 substantial data bases, including: 1) four data sets for tall stack buoyant plumes in flat terrain (Kincaid SO2, Kincaid SF6, Baldwin, and Clifty Creek), 2) four data sets for tall stacks in complex terrain or near elevated terrain (Lovett, Martins Creek, Tracy, and Westvaco), 3) a buoyant elevated release in an urban environment (Indianapolis), and 4) a nonbuoyant surface release (Prairie Grass). We agree that more evaluation would be desirable (as always) especially for downwash conditions, urban sources, and surface releases. However, there is a key question to the AERMOD development process: Has there been enough evaluation already to justify replacing ISC3 by AERMOD? AERMIC believes that there has been.[10]

Thus, any argument that AERMOD is not applicable to tall stack emission sources should be dismissed based on the studies used for developing AERMOD. In particular, AERMOD has been extensively evaluated for power plant emissions:

> It is worth noting in this regard that all of the AERMOD evaluation data bases (except for Prairie Grass) involved tall, non-downwashed, highly buoyant power plant stacks (the shortest stack in the group was 84 meters in Indianapolis).[11]

AERMOD's evaluation process ultimately comprised 17 separate data sets. I believe that any concerns from stakeholders that AERMOD over-predicts power plant impacts, or over-predicts impacts from other source types represented in the evaluation databases, should be dismissed.

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[9] George Bridgers and Roger Brode, USEPA/OAQPS, Challenges in Modeling Compliance for New NAAQS: 1-hour NO_2 & SO_2 and $PM_{2.5}$, 2012 RSL Modelers' Workshop. (http://www.cleanairinfo.com/regionalstatelocalmodelingworkshop/archive/2012/presentations/Tues/3-1_2012RSL_ModelingChallenges_Bridges.pdf)

[10] USEPA OAQPS, Compendium of Reports from the Peer review Process for AERMOD, February 2002, pdf page 38/69. (http://www.epa.gov/scram001/7thconf/aermod/dockrpt.pdf)

[11] Id., pdf page 49/69.

I would also add that AERMOD's evaluation analyses included a number of site-specific meteorological data sets that incorporate low wind speed conditions. For example, the Tracy evaluation included meteorological data with wind speeds as low as 0.39 meter/second (m/s); the Westvaco evaluation included wind speeds as low as 0.31 m/s; the Kincaid SO_2 evaluation included wind speeds as low as 0.37 m/s; and the Lovett evaluation included wind speeds as low as 0.30 m/s.[12] Concerns raised by stakeholders regarding AERMOD's ability to model low wind speed conditions seem to neglect the data used in actual AERMOD evaluations.

Some stakeholders are concerned that AERMOD is inaccurate in areas with extreme topography, such as complex river valleys and steep hillsides. This concern has already been addressed by USEPA in their response to the New Jersey Department of Environmental Protection (NJDEP) section 126 petition for SO_2 emissions from the Portland Generating Station. In their review of NJDEP's petition, USEPA found that AERMOD is the most appropriate model for determining air impacts in the complex terrain and complex wind fields surrounding the Portland facility.[13] USEPA also recognizes that "the performance of the AERMOD model for estimating impacts associated with tall stacks in complex terrain settings has been extensively evaluated and documented in peer-review journals… and has consistently been shown to perform better than competing models."[14]

Air monitoring of SO_2 is not a feasible alternative to modeling for steep hillsides and other complex terrain conditions. Proper air quality monitor siting is extremely difficult in these settings, and any siting would depend on prior air dispersion modeling in the first place.

While I have used CALPUFF to model emissions in complex river valleys, I was able to do so only because there were multiple site-specific meteorological monitors to provide the needed data to develop the CALMET wind fields. For facilities where adequate meteorological data exist to run CALPUFF, I believe this is a possible alternative to running AERMOD. Otherwise, AERMOD should be used due to the problems associated with siting and operating an adequate monitoring network in these complex terrain environments.

[12] The AERMOD evaluations and modeled meteorological data are at: http://www.epa.gov/ttn/scram/dispersion_prefrec.htm
[13] USEPA, Air Quality Modeling Technical Support Document: NJ 126 Petition of September 17, 2010, April 2011, p. 12 of 63. (http://www.epa.gov/ttn/scram/reports/EPA-HQ-OAR-2011-0081-0026.pdf)
[14] Id., p.11 of 63.

d. Are there situations where monitoring is preferable to modeling? If so, then what are these situations? Should EPA require monitoring in certain situations, or is modeling alone always a sufficient option for areas of concern?

As discussed above, I believe that modeling alone is sufficient for verifying compliance with the one-hour SO_2 NAAQS. If monitoring is used, as in USEPA's proposed hybrid modeling and monitoring approach, it should be only as a supplement to modeling and the modeling and monitoring results should be given equal weight.

I think it is important to remember that all NO_2, $PM_{2.5}$, and SO_2 NAAQS and PSD increment permit application analyses are performed with air dispersion modeling, such as running AERMOD in a manner consistent with the Guideline on Air Quality Models. In order to ensure consistency in how air impacts are determined, both existing sources and newly permitted sources should be assessed using the same methods. From the Guideline on Air Quality Models:

> The *Guideline* is used by EPA, States, and industry to prepare and review new source permits and State Implementation Plan revisions. The *Guideline* is intended to ensure consistent air quality analyses for activities regulated at 40 CFR 51.112, 51.117, 51.150, 51.160, 51.166, and 52.21.[15]

Allowing existing sources to use monitoring (assuming adequate monitoring even exists or could exist), results in a lower standard of compliance verification than that being used for new permit applicants.

Concluding Remarks

Using AERMOD for one-hour SO_2 NAAQS SIP submissions is reasonable and reliable. AERMOD has undergone rigorous model evaluations, was subjected to numerous peer-reviewed studies, and has already been used in hundreds, if not thousands, of air quality impact analyses of major emission sources. USEPA must not exchange their existing guideline model for an ambient air monitoring program which will never be able to verify compliance with the one-hour SO_2 NAAQS.

Based on my experience with both modeling and monitoring, I believe that air modeling, using AERMOD, is the best available method for verifying compliance with the one-hour SO_2 NAAQS. I suggest that USEPA's proposed hybrid modeling and monitoring implementation

[15] USEPA, Revision to the Guideline on Air Quality Models: Adoption of a Preferred General Purpose (Flat and Complex Terrain) Dispersion Model and Other Revisions, Appendix W to 40 CFR Part 51, November 9, 2005, Section II. (http://www.epa.gov/ttn/scram/guidance/guide/appw_05.pdf)

approach for one-hour SO_2 NAAQS SIP submissions should be heavily weighted towards modeling.

Thank you for the opportunity to submit these comments on USEPA's guidance for one-hour SO_2 NAAQS SIP submissions.

Sincerely,

Camille Sears

Camille Sears

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Summary

I have over 30 years of regulatory and private-sector experience in air quality impact analyses, health risk assessments, meteorological monitoring, and geographic information systems. I specialize in litigation support; I have successfully provided testimony in numerous cases, both as an individual consultant and as part of a team of experts.

Education

- M.S., Atmospheric Science, University of California, Davis, 1980.
- B.S., Atmospheric Science, University of California, Davis, 1978.

Air Dispersion Modeling

- I am experienced in applying many different air dispersion models, including programs still in the development phase. I have prepared well over 1,000 air dispersion modeling analyses requiring the use of on-site or site-specific meteorological data. These runs were made with the USEPA ISC, OCD, MESOPUFF, INPUFF, CALPUFF, ISC-PRIME, AERMOD, COMPLEX-I, MPTER, and other air dispersion models.
- I prepared and submitted technical comments to the USEPA on beta-testing versions of AERMOD; these comments are being addressed and will be incorporated into the model and instructions when it is ready for regulatory application.
- I am experienced in performing air dispersion modeling for virtually every emission source type imaginable. I have modeled:
  Refineries and associated activities;
  Mobile sources, including cars, trains, airplanes, trucks, and ships;
  Power plants, including natural gas and coal-fired;
  Smelting operations;
  Area sources, such as housing tracts, biocides from agricultural operations, landfills, highways, fugitive dust sources, airports, oil and gas seeps, and ponds;
  Volume sources, including fugitive emissions from buildings and diesel construction combustion emissions;
  Small sources, including dry cleaners, gas stations, surface coating operations, plating facilities, medical device manufacturers, coffee roasters, ethylene oxide sterilizers, degreasing operations, foundries, and printing companies;
  Cooling towers and gas compressors;
  Diatomaceous earth, rock and gravel plants, and other mining operations;
  Offshore oil platforms, drilling rigs, and processing activities;
  Onshore oil and gas exploration, storage, processing, and transport facilities;
  Fugitive dust emissions from roads, wind erosion, and farming activities;
  Radionuclide emissions from actual and potential releases.
- I have extensive experience in modeling plume depletion and deposition from air releases of particulate emissions.
- As a senior scientist, I developed the Santa Barbara County Air Pollution Control District (SBAPCD) protocol on air quality modeling. I developed extensive modeling capabilities for the SBAPCD on VAX 8600 and Intel I-860 computer systems; I acted as systems analyst for the SBAPCD air quality modeling system; I served as director of air quality analyses for numerous major energy projects; I performed air quality impact analyses using inert and photochemical models, including EPA, ARB and private-sector models; I performed technical review and evaluating air quality and wind field models; I developed software to prepare model inputs consistent with the SBAPCD protocol on air quality modeling for OCD, OCDCPM, MPTER, COMPLEX-I/II and ISC.
- I provided detailed review and comments on the development of the Minerals Management Service OCD model. I developed the technical requirements for and

supervised the development of the OCDCPM model, a hybrid of the OCD, COMPLEX-I and MPTER models.

- I prepared the "Modeling Exposures of Hazardous Materials Released During Transportation Incidents" report for the California Office of Environmental Health Hazard Assessment (OEHHA). This report examines and rates the ADAM, ALOHA, ARCHIE, CASRAM, DEGADIS, HGSYSTEM, SLAB, and TSCREEN models for transportation accident consequence analyses of a priority list of 50 chemicals chosen by OEHHA. The report includes a model selection guide for adequacy of assessing priority chemicals, averaging time capabilities, isopleth generating capabilities, model limitations and concerns, and model advantages.
- I am experienced in assessing uncertainty in emission rate calculations, source release, and dispersion modeling. I have developed numerous probability distributions for input to Monte Carlo simulations, and I was a member of the External Advisory Group for the California EPA *Air Toxics Hot Spots Program Risk Assessment Guidelines, Part IV, Technical Support Document for Exposure Assessment and Stochastic Analysis*.

Health Risk Assessment

- I have prepared more than 300 health risk assessments of major air toxics sources. These assessments were prepared for AB 2588 (the Air Toxics "Hot Spots" Information and Assessment Act of 1987), Proposition 65, and other exposure analysis activities. More than 120 of these exposure assessments were prepared for Proposition 65 compliance verification in a litigation support setting.
- I reviewed approximately 300 other health risk assessments of toxic air pollution sources in California. The regulatory programs in this review include AB 2588, Proposition 65, the California Environmental Quality Act, and other exposure analysis activities. My clients include the California Attorney General's Office, the Los Angeles County District Attorney's Office, the SBAPCD, the South Coast Air Quality Management District, numerous environmental and community groups, and several plaintiff law firms.
- I am experienced in assessing public health risk from continuous, intermittent, and accidental releases of toxic emissions. I am experienced in generating graphical presentations of risk results, and characterizing risks from carcinogenic and acute and chronic noncarcinogenic pollutants.
- I am experienced in communicating adverse health risks discovered through the Proposition 65 and AB 2588 processes. I have presented risk assessment results in many public settings -- to industry, media, and the affected public.
- For four years, I was the Air Toxics Program Coordinator for the SBAPCD. My duties included: developing and managing the District air toxics program; supervising District staff assigned to the air toxics program; developing District air toxics rules, regulations, policies and procedures; management of all District air toxics efforts, including AB 2588, Proposition 65, and federal activities; developing and tracking the SBAPCD air toxics budget.
- I have prepared numerous calculations of exposures from indoor air pollutants. A few examples include: diesel PM_{10} inside school buses, formaldehyde inside temporary school buildings, lead from disturbed paint, phenyl mercuric acetate from water-based paints and drywall mud, and tetrachloroethene from recently dry-cleaned clothes.

Litigation Support

- I have prepared numerous analyses in support of litigation, both in Federal and State Courts. I am experienced in preparing F.R.C.P. Rule 26(a)(2) expert reports and providing deposition and trial testimony (I have prepared eight Rule 26 reports). Much of my work is focused on human dose and risk reconstruction resulting from multiple air emission sources (lifetime and specific events).

- I am experienced in preparing declarations (many dozens) and providing expert testimony in depositions and trials (see my testimony history).
- I am experienced in providing support for legal staff. I have assisted in preparing numerous interrogatories, questions for depositions, deposition reviews, various briefs and motions, and general consulting.
- Recent examples of my work include:
  DTSC v. Interstate Non-Ferrous; United States District Court, Eastern District of California (2002).
  In this case I performed air dispersion modeling, downwind soil deposition calculations, and resultant soil concentrations of dioxins (TCDD TEQ) from historical fires at a smelting facility. I prepared several Rule 26 Reports in my role of assisting the California Attorney General's Office in trying this matter.
  Akee v. Dow et al.; United States District Court, District of Hawaii (2003-2004).
  In this case I performed air dispersion modeling used to quantify air concentrations and reconstruct intake, dose, excess cancer risk, and noncancer chronic hazard indices resulting from soil fumigation activities on the island of Oahu, Hawaii. I modeled 319 separate AREAPOLY pineapple fields for the following chemicals: DBCP, EDB, 1,3-trichloropropene, 1,2-dichloropropane, and epichlorohydrin. I calculated chemical flux rates and modeled the emissions from these fumigants for years 1946 through 2001 (56 years) for 34 test plaintiffs and 97 distinct home, school, and work addresses. I prepared a Rule 26 Expert Report, successfully defended against Daubert challenges, and testified in trial.
  Lawrence O'Connor v. Boeing North America, Inc., United States District Court, Central District of California, Western Division (2004-2005).
  In this case I performed air dispersion modeling, quantified air concentrations, and reconstructed individual intake, dose, and excess cancer risks resulting from approximately 150 air toxics sources in Los Angeles and Ventura Counties, California. I prepared these analyses for years 1950 through 2000 (51 years) for 173 plaintiffs and 741 distinct home, school, and work addresses. I prepared several Rule 26 Reports, and the case settled on the eve of trial in September, 2005. Defendants did not attempt a Daubert challenge of my work.
- I have prepared hundreds of individual and region-wide health risk assessments in support of litigation. These analyses include specific sub-tasks, including: calculating emission rates, choosing proper meteorological data inputs, performing air dispersion modeling, and quantifying intake, dose, excess cancer risk, and acute/chronic noncancer health effects.
- I have prepared over 120 exposure assessments for Proposition 65 litigation support. In these analyses, my tasks include: reviewing AB 2588 risk assessments and other documents to assist in verifying compliance with Proposition 65; preparing exposure assessments consistent with Proposition 65 Regulations for carcinogens and reproductive toxicants; using a geographic information system (Atlas GIS) to prepare exposure maps that display areas of required warnings; calculating the number of residents and workers exposed to levels of risk requiring warnings (using the GIS); preparing declarations, providing staff support, and other expert services as required. I have also reviewed scores of other assessments for verifying compliance with Proposition 65. My proposition 65 litigation clients include the California Attorney General's Office, the Los Angeles County District Attorney's Office, As You Sow, California Community Health Advocates, Center for Environmental Health, California Earth Corps, Communities for a Better Environment, Environmental Defense Fund, Environmental Law Foundation, and People United for a Better Oakland.

Geographic Information Systems

- ArcGIS: I am experienced in preparing presentation and testimony maps using ArcView versions 3 through 9.3. I developed methods to convert AutoCAD DXF files to ArcView polygon theme shape files for use in map overlays.

- I have created many presentation maps with ArcView using MrSID DOQQ and other aerial photos as a base and then overlaying exposure regions. This provides a detailed view (down to the house level) of where air concentrations and health risks are projected to occur.
- Using ArcView, I have created numerous presentations using USGS Topographic maps (as TIFF files) as the base on to which exposure regions are overlaid.
- MapInfo for Windows: I prepared numerous presentation maps including exposure isopleths, streets and highways, and sensitive receptors, labels. I developed procedures for importing Surfer isopleths in AutoCAD DXF format as a layer into MapInfo.
- Atlas GIS: I am experienced in preparing presentation maps with both the Windows and DOS versions of Atlas GIS. In addition to preparing maps, I use Atlas GIS to aggregate census data (at the block group level) within exposure isopleths to determine the number of individuals living and working within exposure zones. I am also experienced in geocoding large numbers of addresses and performing statistical analyses of exposed populations.
- I am experienced in preparing large-scale graphical displays, both in hard-copy and for PowerPoint presentations. These displays are used in trial testimony, public meetings, and other litigation support.
- I developed a Fortran program to modify AutoCAD DXF files, including batch-mode coordinate shifting for aligning overlays to different base maps.

Ozone and Long-Range Transport

- I developed emission reduction strategies and identified appropriate offset sources to mitigate project emissions liability. For VOC offsets, I developed and implemented procedures to account for reactivity of organic compound species for ozone impact mitigation. I wrote Fortran programs and developed a chemical database to calculate ozone formation potential using hydroxyl radical rate constants and an alkane/non-alkane reactive organic compound method.
- I provided technical support to the Joint Interagency Modeling Study and South Central Coast Cooperative Aerometric Monitoring Program. With the SBAPCD, I provided technical comments on analyses performed with the EKMA, AIRSHED, and PARIS models. I was responsible for developing emissions inventory for input into regional air quality planning models.
- I was the project manager for the Santa Barbara County Air Quality Attainment Plan Environmental Impact Report (EIR). My duties included: preparing initial study; preparation and release of the EIR Notice of Preparation; conducting public scoping hearings to obtain comments on the initial study; managing contractor efforts to prepare the draft EIR.
- I modified, tested, and compiled the Fortran code to the MESOPUFF model (the precursor to CALPUFF) to incorporate critical dividing streamline height algorithms. The model was then applied as part of a PSD analysis for a large copper-smelting facility.
- I am experienced in developing and analyzing wind fields for use in long-range transport and dispersion modeling.
- I have run CALPUFF numerous times. I use CALPUFF to assess visibility effects and both near-field and mesoscale air concentrations from various emission sources, including power plants.

Emission Rate Calculations

- I developed methods to estimate and verify source emission rates using air pollution measurements collected downwind of the emitting facility, local meteorological data, and dispersion models. This technique is useful in determining whether reported source emission rates are reasonable, and based on monitored and modeled air concentrations, revised emission rates can be created.

- I am experienced in developing emission inventories of hundreds of criteria and toxic air pollutant sources. I developed procedures and programs for quantifying emissions from many air emission sources, including: landfills, diesel exhaust sources, natural gas combustion activities, fugitive hydrocarbons from oil and gas facilities, dry cleaners, auto body shops, and ethylene oxide sterilizers.
- I have calculated flux rates (and modeled air concentrations) from hundreds of biocide applications to agricultural fields. Emission sources include aerial spraying, boom applications, and soil injection of fumigants.
- I am experienced in calculating emission rates using emission factors, source-test results, mass-balance equations, and other emission estimating techniques.

Software Development

- I am skilled in computer operation and programming, with an emphasis on Fortran 95.
- I am experienced with numerous USEPA dispersion models, modifying them for system-specific input and output, and compiling the code for personal use and distribution. I own and am experienced in using the following Fortran compilers: Lahey Fortran 95, Lahey Fortran 90 DOS-Extended; Lahey F77L-EM32 DOS-Extended; Microsoft PowerStation 32-bit DOS-Extended; and Microsoft 16-bit.
- I configured and operated an Intel I-860 based workstation for the SBAPCD toxics program. I created control files and recoded programs to run dispersion models and risk assessments in the 64-bit I-860 environment (using Portland Group Fortran).
- Using Microsoft Fortran PowerStation, I wrote programs to extract terrain elevations from both 10-meter and 30-meter USGS DEM files. Using a file of discrete x,y coordinates, these programs extract elevations within a user-chosen distance for each x,y pair. The code I wrote can be run in steps or batch mode, allowing numerous DEM files to be processed at once.
- I have written many hundreds of utilities to facilitate data processing, entry, and quality assurance. These utility programs are a “tool chest” from which I can draw upon to expedite my work.
- While at the SBAPCD, I designed the ACE2588 model - the first public domain multi-source, multi-pathway, multi-pollutant risk assessment model. I co-developed the structure of the ACE2588 input and output files, supervised the coding of the model, tested the model for quality assurance, and for over 10 years I provided technical support to about 200 users of the model. I was responsible for updating the model each year and ensuring that it is consistent with California Air Pollution Control Officer’s Association (CAPCOA) Risk Assessment Guidelines.
- I developed and coded the ISC2ACE and ACE2 programs for distribution by CAPCOA. These programs were widely used in California for preparing AB 2588 and other program health risk assessments. ISC2ACE and ACE2 contain "compression" algorithms to reduce the hard drive and RAM requirements compared to ISCST2/ACE2588. I also developed ISC3ACE/ACE3 to incorporate the revised ISCST3 dispersion model requirements.
- I developed and coded the "HotSpot" system - a series of Fortran programs to expedite the review of air toxics emissions data, to prepare air quality modeling and risk assessment inputs, and to prepare graphical risk presentations.
- I customized ACE2588 and developed a mapping system for the SBAPCD. I modified the ACE2588 Fortran code to run on an Intel I-860 RISC workstation; I updated programs that allow SBAPCD staff to continue to use the "HotSpot" system – a series of programs that streamline preparing AB 2588 risk assessments; I developed a risk assessment mapping system based on MapInfo for Windows which linked the MapInfo mapping package to the "HotSpot" system.
- I developed software for electronic submittal of all AB 2588 reporting requirements for the SBAPCD. As an update to the "HotSpot" system software, I created software that allows facilities to submit all AB 2588 reporting data, including that needed for risk prioritization, exposure assessment, and presentation mapping. The data submitted

by the facility is then reformatted to both ATDIF and ATEDS formats for transmittal to the California Air Resources Board.
- I developed and coded Fortran programs for AB 2588 risk prioritization; both batch and interactive versions of the program were created. These programs were used by several air pollution control districts in California.

Air Quality and Meteorological Monitoring
- I was responsible for the design, review, and evaluation of an offshore source tracer gas study. This project used both inert tracer gas and a visible release to track the onshore trajectory and terrain impaction of offshore-released buoyant plumes.
- I developed the technical requirements for the Santa Barbara County Air Quality/Meteorological Monitoring Protocol. I developed and implemented the protocol for siting pre- and post-construction air quality and meteorological PSD monitoring systems. I determined the instrumentation requirements, and designed and sited over 30 such PSD monitoring systems. Meteorological parameters measured included ambient temperature, wind speed, wind direction, sigma-theta (standard deviation of horizontal wind direction fluctuations), sigma-phi (standard deviation of vertical wind direction fluctuations), sigma-v (standard deviation of horizontal wind speed fluctuations), and sigma-w (standard deviation of vertical wind speed fluctuations). Air pollutants measured included PM_{10}, SO_2, NO, NO_x, NO_2, CO, O_3, and H_2S.
- I was responsible for data acquisition and quality assurance for an offshore meteorological monitoring station. Parameters measured included ambient temperature (and delta-T), wind speed, wind direction, and sigma-theta.
- In coordination with consultants performing air monitoring for verifying compliance with Proposition 65 and other regulatory programs, I wrote software to convert raw meteorological data to hourly-averaged values formatted for dispersion modeling input.
- Assisting the Ventura Unified School District, I collected air, soil, and surface samples and had them analyzed for chlorpyrifos contamination (caused by spray drift from a nearby citrus orchard). I also coordinated the analysis of the samples, and presented the results in a public meeting.
- Using summa canisters, I collected numerous VOC samples to characterize background and initial conditions for use in Santa Barbara County ozone attainment modeling. I also collected samples of air toxics (such as xylenes downwind of a medical device manufacturer) to assist in enforcement actions.
- For the California Attorney General's Office, I purchased, calibrated, and operated a carbon monoxide monitoring system. I measured and reported CO air concentrations resulting from numerous types of candles, gas appliances, and charcoal briquettes.

Support, Training, and Instruction
- For 10 years, I provided ACE2588 risk assessment model support for CAPCOA. My tasks included: updating the ACE2588 risk assessment model Fortran code to increase user efficiency and to maintain consistency with the CAPCOA Risk Assessment Guidelines; modifying the Fortran code to the EPA ISC model to interface with ACE2588; writing utility programs to assist ACE2588 users; updating toxicity data files to maintain consistency with the CAPCOA Risk Assessment Guidelines; developing the distribution and installation package for ACE2588 and associated programs; providing technical support for all users of ACE2588.
- I instructed approximately 20 University Professors through the National Science Foundation Faculty Enhancement Program. Instruction topics included: dispersion modeling, meteorological data, environmental fate analysis, toxicology of air pollutants, and air toxics risk assessment; professors were also trained on the use of the ISC2ACE dispersion model and the ACE2 exposure assessment model.
- I was the instructor of the Air Pollution and Toxic Chemicals course for the University of California, Santa Barbara, Extension certificate program in Hazardous Materials Management. Topics covered in this course include: detailed review of criteria and

noncriteria air pollutants; air toxics legislation and regulations; quantifying toxic air contaminant emissions; criteria and noncriteria pollutant monitoring; air quality modeling; health risk assessment procedures; health risk management; control/mitigating air pollutants; characteristics and modeling of spills and other short-term releases of air pollutants; acid deposition, precipitation and fog; indoor/occupational air pollution; the effect of chlorofluorocarbons on the stratospheric ozone layer. I taught this course for five years.

- I have trained numerous regulatory staff on the mechanics of dispersion modeling, health risk assessments, emission rate calculations, and presentation mapping. I provided detailed training to SBAPCD staff in using the HARP program, and in comparing and contrasting ACE2588 analyses to HARP.
- Through UCSB Extension, I taught a three-day course on dispersion modeling, preparing health risk assessments, and presentation mapping with Atlas GIS and MapInfo.
- I hold a lifetime California Community College Instructor Credential (Certificate No. 14571); Subject Matter Area: Physics.
- I have presented numerous guest lectures – at universities, public libraries, farm groups, and business organizations.

Indoor Air Quality

- I prepared mercury exposure assessments caused by applying indoor latex paints containing phenylmercuric acetate as a biocide.
- Using a carbon monoxide monitor, I examined CO concentrations inside rooms of varying sizes and with a range of ventilation rates. Indoor sources of CO emissions included gas appliances and candles. I also examined CO concentrations within parking garages.
- I calculated air concentrations of tetrachloroethene inside homes and cars from offgassing dry-cleaned clothes.
- I examined air concentrations of formaldehyde inside manufactured homes and school buildings. I also calculated formaldehyde exposures from carpet emissions within homes.
- I assessed lead air exposures and surface deposition from deteriorating lead-based paint applications within apartments. I also calculated lead air concentrations and associated exposures resulting from milling of brass pipes and fittings.
- While employed by the SBAPCD, I assisted with exposure assessment and awareness activities for Santa Barbara County high-exposure radon areas.
- I calculated BTEX air concentrations and health risks inside homes from leaking underground fuel tanks and resultant contaminated soil plumes. I also assessed indoor VOC exposures and remediation options with the AERIS model.
- I have assessed indoor air concentrations from numerous volatile organic compound sources, including printing operations, microprocessor manufacturing, and solvent degreasing activities.
- I calculated indoor emission flux rates and air concentrations of elemental mercury for plaintiff litigation support purposes. This analysis included an exposure reconstruction (home, school, workplace, outside, and other locations) for 16 plaintiffs who had collected spilled mercury in their village. The study required room volume calculations, air exchange rates, exposure history reconstruction, mercury quantity and droplet size estimation, elemental mercury flux rate calculations (including decay with time), and resultant air concentration calculations. I calculated both peak acute (two-hour) and 24-hour average concentrations.
- I calculated emission rates of lead from disturbed paint surfaces. I then calculated indoor air concentrations of lead for plaintiff litigation support purposes.

Publications

- To establish a legal record and to assist in environmental review, I prepared and submitted dozens of detailed comment letters to regulatory and decision-making bodies.
- I have contributed to over 100 Environmental Impact Statements/Reports and other technical documents required for regulatory decision-making.
- I prepared two software review columns for the *Journal of the Air and Waste Management Association*.
- Correlations of total, diffuse, and direct solar radiation with the percentage of possible sunshine for Davis, California. Solar Energy, 27(4):357-360 (1981).

Employment History

• Self-Employed Air Quality Consultant	1992 to 2012
• Santa Barbara County APCD, Senior Scientist	1988 to 1992
• URS Consultants, Senior Scientist	1987 to 1988
• Santa Barbara County APCD, Air Quality Engineer	1983 to 1987
• Dames and Moore, Meteorologist	1982 to 1983
• UC Davis, Research Associate	1980 to 1981

Testimony History

- People of the State of California v. McGhan Medical, Inc.
  Deposition: Two dates: June - July 1990
- People of the State of California v. Santa Maria Chili
  Deposition: Two dates: August 1990
- California Earth Corps v. Johnson Controls, Inc.
  Deposition: October 26, 1995
- Larry Dale Anderson v. Pacific Gas & Electric
  Deposition: January 4, 1996
  Arbitration: January 17, 1996
- Adams v. Shell Oil Company
  Deposition: July 3, 1996
  Trial: August 21, 1996
  Trial: August 22, 1996
- California Earth Corps v. Teledyne Battery Products
  Deposition: January 17, 1997
- Marlene Hook v. Lockheed Martin Corporation
  Deposition: December 15, 1997
- Lawrence O'Connor v. Boeing North America, Inc.
  Deposition: May 8, 1998
- Bristow v. Tri Cal
  Deposition: June 15, 1998
- Abeyta v. Pacific Refining Co.
  Deposition: January 16, 1999
  Arbitration: January 25, 1999
- Danny Aguayo v. Betz Laboratories, Inc.
  Deposition: July 10, 2000
  Deposition: July 11, 2000
- Marlene Hook v. Lockheed Martin Corporation
  Deposition: September 18, 2000
  Deposition: September 19, 2000
- Tressa Haddad v. Texaco
  Deposition: March 9, 2001

- California DTSC v. Interstate Non-Ferrous
  United States District Court, Eastern District of California,
  Case No. CV-F-97 50160 OWW LJO
    Deposition: April 18, 2002
- Akee v. Dow et al.
  United States District Court, District of Hawaii,
  Case No. CV 00 00382 BMK
    Deposition: April 16, 2003
    Deposition: April 17, 2003
    Deposition: January 7, 2004
    Trial: January 17, 2004
    Trial: January 20, 2004
- Center for Environmental Health v. Virginia Cleaners
  Superior Court of the State of California
  County of Alameda, Case No. 2002 07 6091
    Deposition: March 4, 2004
- Application for Certification for Small Power Plant Exemption – Riverside Energy Resource Center. Docket No. 04-SPPE-01.
    Evidentiary Hearing Testimony before the California Energy Resource Conservation And Development Commission: August 31, 2004
- Lawrence O'Connor v. Boeing North America, Inc.
  United States District Court, Central District of California,
  Western Division. Case No. CV 97-1554 DT (RCx)
    Deposition: March 1, 2005
    Deposition: March 2, 2005
    Deposition: March 3, 2005
    Deposition: March 15, 2005
    Deposition: April 25, 2005
- Clemente Alvarez, et al, v. Western Farm Service, Inc.
  Superior Court of the State of California
  County of Kern, Metropolitan Division. Case No. 250 621 AEW
    Deposition: April 11, 2005
- Gary June et al. v. Union Carbide Corporation & UMETCO Minerals Corporation
  United States District Court, District of Colorado,
  Case No. 04-CV-00123 MSK-MJW
    Deposition: January 9, 2007
- Alberto Achas Castillo, et al. v. Newmont Mining Corporation, et al.
  District Court, Denver County, Colorado,
  Case No. 01-CV-4453
    Deposition: February 19, 2007
    Deposition: February 20, 2007
    Arbitration: March 6, 2007
    Arbitration: March 7, 2007
- Jacobs Farm/Del Cabo Inc. v. Western Farm Service, Inc.
  Superior Court of the State of California
  County of Santa Cruz, Case No. CV 157041
    Deposition: May 8, 2008
    Deposition: August 26, 2008
    Trial: September 18, 2008
    Trial: September 24, 2008

- Environmental Law Foundation et al. v. Laidlaw Transit Inc. et al.
  Superior Court of the State of California
  County of San Francisco, Case No. CGC-06-451832
  Deposition: July 8, 2008
- Application of NRG Texas Power, LLC for State Air Quality Permit No. 79188 and Prevention of Significant Deterioration Air Quality Permit PSD-TX-1072.
  State Office of Administrative Hearings Docket No. 582-08-0861;
  TCEQ Docket No. 2007-1820-AIR.
  Deposition: February 12, 2009
  Hearing: February 24, 2009
- Application of IPA Coleto Creek, LLC for State Air Quality Permit No. 83778 and Prevention of Significant Deterioration Air Quality Permit PSD-TX-1118 and for Hazardous Air Pollutant Major Source [FCAA § 112(G)] Permit HAP-14.
  State Office of Administrative Hearings Docket No. 582-09-2045;
  TCEQ Docket No. 2009-0032-AIR.
  Deposition: September 21, 2009
  Hearing: October 16, 2009
- Application of Las Brisas Energy Center, LLC for State Air Quality Permit No. 85013 and Prevention of Significant Deterioration Air Quality Permit PSD-TX-1138 and for Hazardous Air Pollutant Major Source [FCAA § 112(G)] Permit HAP-48 and Plantwide Applicability Permit PAL41.
  State Office of Administrative Hearings Docket No. 582-09-2005;
  TCEQ Docket No. 2009-0033-AIR.
  Deposition: October 9, 2009
  Hearing: November 5, 2009
  Hearing: November 6, 2009
- Abarca, Raul Valencia, et al. v. Merck & Co., Inc., et al.
  United States District Court, Eastern District of California,
  Case No. 1:07-CV-00388-OWW-DLB
  Deposition: April 13, 2010
  Daubert Hearing: October 7, 2010
  Daubert Hearing: October 13, 2010
  Daubert Hearing: October 14, 2010
  Rule 706 Expert Hearing: December 2, 2010
  Trial: February 10, 2011
- Commonwealth of Kentucky, Energy and Environment Cabinet, File No. DAQ-41109-048. Sierra Club, Kentucky Environmental Foundation, and Kentuckians for the Commonwealth v. Energy and Environment Cabinet, Division for Air Quality, and East Kentucky Power Cooperative, Inc.
  Deposition: August 31, 2010

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SUPERIOR COURT OF THE STATE OF CALIFORNIA

COUNTY OF SANTA BARBARA

PEOPLE OF THE STATE OF CALIFORNIA ex. rel. JOHN K. VAN DE KAMP, Attorney General of the State of California, Plaintiffs, v. SANTA MARIA CHILI, INC. Defendant.	No. SM 64010 (Case transferred to South County, 2/26/90) **DECLARATION OF JOHN C. VIMONT** DATE: Dec. 14, 1990 TIME: 9:00 a.m. Dept: To Be Assigned

I, John C. Vimont, declare:

1. I am currently employed by the United States Environmental Protection Agency (hereafter "EPA"), Region IX (hereafter the "Region" or "Regional Office") as the Regional Meteorologist. I have been employed in this position since June 1987.

a. As the Regional Meteorologist I serve as the Region's expert on air quality modeling, meteorological information and ambient air impact analyses. My position is

within the Air and Toxics Division of the Regional Office. I provide support to that division; to the other divisions within the Region, such as the Hazardous Waste Division; and to state and local agencies within Region IX. One of the primary duties of my position is to ensure that appropriate air quality modeling techniques are used by this and other agencies when conducting ambient air quality impact analyses.

b. There are a variety of "air quality models." These include conceptual models, qualitative descriptions of the behavior of pollutants in the atmosphere; physical models, scaled models of pollution sources and their surroundings studied in a controlled environment, such as a wind tunnel; statistical models, which encompass statistically based descriptions of source-receptor relationships; and mathematical models, which are mathematical representations of the physical processes which lead to transport and dispersion of pollutants in the atmosphere. The focus of the remaining discussion is on mathematical models; hereafter any reference to an air quality model is implicitly meant to refer to a mathematical air quality model.

c. I perform, review and oversee air quality modeling for a variety of different sources and source types. These include stationary sources with emissions emanating from a stack, including stack sources with aerodynamic downwash induced by nearby buildings; stationary sources with emissions emanating from a broad area, commonly called area sources; mobile sources, emissions from automobiles, trucks, busses, aircraft, etc.; and urban and regional scale modeling, which encompasses modeling all

of the above processes together on the scale of an entire urban area or over a number of urban areas together.

d. The pollutants modeled include both inert pollutants, those which remain chemically stable for long periods of time in the atmosphere, and chemically reactive pollutants, those which undergo relatively rapid chemical transformation and those which are not directly emitted, but rather form through a series of chemical reactions within the atmosphere.

2. Previous to my employment at EPA, I worked from March 1982 to June 1987 as an Environmental Engineering Specialist in the Air Quality Bureau of the State of New Mexico. My primary responsibilities there were very similar to my current position at EPA. I performed ambient impact analyses of various air pollution sources and conducted engineering analyses of the sources to determine emission characteristics. The primary focus of the analyses was on inert pollutants from stationary sources.

a. From August 1978 to March 1982 I worked for the Atmospheric Science Department at Colorado State University (CSU) as a Research Assistant. I worked on a variety of basic scientific research projects dealing with cloud physics. My primary area of research dealt with the uptake of acidic pollutants in snow.

b. From November 1977 to August 1978 I worked as a Physical Science Aide for the Pacific Marine Environmental Laboratory of the National Oceanographic and Atmospheric Administration. My duties there involved writing a

climatological summary of Puget Sound and analyzing the affects of winds on oil spill transport in Puget Sound.

3. I received a Bachelor of Science Degree in Atmospheric Sciences from the University of Washington in 1978 and a Master of Science Degree in Atmospheric Science from Colorado State University.

4. As the Regional Meteorologist, I routinely evaluate the adequacy of air quality modeling on a technical basis and with respect to its acceptability in the regulatory framework. Acceptable air quality modeling and analysis procedures are outlined in The Guideline on Air Quality Models (Revised) (EPA 450/2-78-027R, July 1986, Supplement A, July 1987) (hereafter the "Guideline"). The Guideline was first published in April 1978 to satisfy the requirements of §320 of the 1977 amendments to the Clean Air Act. The Guideline specifies appropriate models to use and provides guidance on their appropriate application. The Guideline provides a common basis for estimating the air quality concentrations used in assessing control strategies and developing emission limits. The modeling techniques embodied in the Guideline are subjected to public, scientific review in accordance with §320 of the CAA.

a. EPA has four primary, on-going activities to provide direct input for consistency in implementation and for revisions to the Guideline. The first is a series of annual EPA workshops conducted for the purpose of ensuring consistency and providing clarification in the application of models. The second activity, directed toward the improvement of modeling procedures,

is the cooperative agreement that EPA has with the scientific community represented by the American Meteorological Society. This agreement provides scientific assessment of procedures and proposed techniques and sponsors workshops on key technical issues. The third activity is the solicitation and review of new models from the technical and user community. In the March 27, 1980 Federal Register, a procedure was outlined for the submittal to EPA of privately developed models. After extensive evaluation and scientific review, these models, as well as those made available by EPA, are considered for recognition in the Guideline. The fourth activity is the extensive, on-going research efforts by EPA and others in air quality and meteorological modeling.

b. From the aforementioned process a number of models were selected as being refined models, suitable for regulatory application. Each refined model underwent intensive evaluation. The evaluation exercises include statistical measures of model performance in comparison with measured air quality data and, where possible, peer scientific reviews.

c. After a model has been selected as a refined model for a particular type of application, EPA considers the model appropriate for general use for that type of application without undergoing case-by-case evaluation, provided that the application follows the EPA recommendations specified in the Guideline.

5. The Industrial Source Complex models (hereafter ISC), have been deemed refined models by EPA for application to industrial complexes. The ISC models consist of a short term

model (ISCST) and a long term model (ISCLT). Long term models, such as ISCLT, are only appropriate for calculating ambient concentrations for averaging periods of months to a year. Short term models, such as ISCST, can be used for averaging times from one hour up to a year. (Hereafter my comments referring to ISC apply to both ISCST and ISCLT, unless otherwise specified.) The ISC model is appropriate for simulating the emissions of a variety of industrial air emissions. These would include emissions from free standing stacks and vents; stacks and vents which are influenced by the aerodynamic effects of nearby structures; emissions from area sources, such as storage piles or evaporative emissions from open tanks; line sources, such as roadways; and volume sources, such as large openings in buildings from which emissions emanate. The model is appropriate for simulating the ambient impacts of relatively inert pollutants, such as ethylene oxide, which do not undergo rapid chemical transformation in the atmosphere. The model will calculate the ambient concentrations at a number of user-specified "receptor" locations.

a. For simulating a stack-type source, ISC requires the input of the location, emission rate, physical stack height, stack gas exit velocity, stack inside diameter, and stack gas temperature. If the source is affected by the aerodynamic effects of buildings then inputs would also include information about the building dimensions.

b. The ISC model also requires meteorological data as input. These data include the wind speed, wind direction,

temperature, stability class and mixing height. The meteorological data must be representative of the geographic area being modeled to be accepted for a refined regulatory application.

c. The ISC model has gone through a number of performance evaluation studies, as outlined above. The following are several references of evaluation studies involving ISC:

(1) Bowers, J. F., and A. J. Anderson, 1981. An Evaluation Study for the Industrial Source Complex (ISC) Dispersion Model, EPA Publication No. EPA-450/4-81-002. U. S. Environmental Protection Agency, Research Triangle Park, NC.

(2) Bowers, J. F., A. J. Anderson, and W. R. Hargraves, 1982. Tests of the Industrial Source Complex (ISC) Dispersion Model at the Armco Middle-town, Ohio Steel Mill, EPA Publication No. EPA-450/4-82-006. U. S. Environmental Protection Agency, Research Triangle Park, NC.

(3) Scire, J. S., and L. L. Schulman, 1981. Evaluation of the BLP and ISC Models with SF_6 Tracer Data and SO_2 Measurements at Aluminum Reduction Plants. Air Pollution Control Association Specialty Conference on Dispersion Modeling for Complex Sources, St. Louis, MO.

(4) Schulman, L. L. and S. R. Hanna, 1986. Evaluation of Downwash Modifications to the Industrial Source Complex Model. Journal of the Air Pollution Control Association, 36:258-264.

d. In my experience of conducting and reviewing air quality modeling analyses, I have found that of the EPA approved

models, the ISC model is the most widely used model for determining the ambient concentrations of emissions from industrial sources. This is primarily due to its ability to simulate almost any type of industrial configuration and its status as a refined model under EPA guidelines. EPA considers it appropriate for use without undergoing case by case performance evaluation.

6. When EPA has a refined model appropriate for a specific type of application, such as the ISC model, the modeling results, based on the appropriate input data, are generally preferred by EPA over ambient monitoring data for determining emission limitations for both new and existing sources. Normally, EPA does not accept monitoring data as the sole basis for determining an emission limitation. When a refined model is available, EPA generally considers the model results alone (including background concentrations) sufficient for determining ambient concentrations of emissions from industrial sources and setting appropriate emission limitations.

a. Monitoring data suffers from a number of limitations. One of the primary limitations is that any given monitor can only measure what is happening at the location where the monitor is physically located and at the time it is operating. In order to adequately detect the maximum impact of any particular source, many monitors would have to be run over a number of years. A monitoring program designed to adequately detect a maximum concentration and to adequately characterize the concentration field would be very expensive. A number of years

of data would be necessary to collect enough samples to cover all possible meteorological situations in combination with the different operating conditions of the facility. A monitoring program with only one or two monitors or of a very short duration would be inadequate to ensure that maximum ambient impacts would be detected.

b. The usual intent of conducting an ambient impact analysis of an air pollution source is to determine if the emissions are likely to affect human health or affect the environment. The ambient concentrations are compared against health or environmental affects data. Rather than helping to resolve a problem, a prolonged ambient monitoring study allows continued air quality degradation, which in turn affects the health or environmental quality which was to be protected. For a new source being proposed, it is impossible to measure its impacts, since it is not yet built.

c. The method of analysis preferred by EPA for determining the ambient concentrations resulting from emissions into the atmosphere of industrial sources, including toxic air emissions, is modeling. As discussed above, before EPA determines a model, such as ISC, to be a refined model, appropriate for general use, the model undergoes rigorous evaluation and is determined to yield accurate estimates of the ambient air concentrations resulting from emission sources under a variety of conditions. With a model, the source can be simulated under the full range of its potential operating and emission conditions, rather than being limited to the specific

operating conditions occurring during the period of a limited monitoring study. The model can also yield ambient concentration data at any number of receptor locations, rather than only at the limited number of locations where a monitor is physically located. Also, an air quality model provides the only practical method of estimating the ambient impacts of a new source. A model provides flexibility in an analysis and can be run relatively quickly, at relatively little expense.

d. Modeling also allows source contributions to a particular ambient concentration to be ascertained. If two sources each emit the same pollutant, it is impossible to tell from an ambient measurement of the specific pollutant, the relative contributions to the measured ambient concentration, unless there is some unique surrogate being emitted from one of the facilities. Also, there is the uncertainty of whether a heretofore unknown source of the pollutant of concern has contributed to the measurement. Modeling, allows the impact of each source to be calculated separately and in combination.

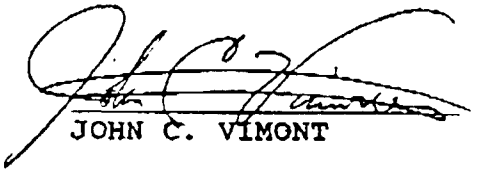
e. The use of monitoring data also pre-supposes that there are acceptable and reliable monitoring techniques available for the pollutant of interest. In the past, this has generally been the case. EPA has established acceptable and reliable methods of measuring a number of pollutants which were regulated under the Clean Air Act. Recently, however, the issue of toxic air contaminants has arisen. Ambient measurement techniques, which can adequately and accurately detect a specific toxic air contaminant, are not necessarily available. The transport and

dispersion of buoyant or neutral plumes of gaseous pollutants, which are relatively inert in the atmosphere, is the same, regardless of the specific chemical constituents of the gas. Therefore, modeling provides a useful technique for detecting levels of pollutants in the air if reliable ambient measurement techniques are not available.

f. EPA does recognize the usefulness of ambient measurements for information on background concentrations, provided reliable monitoring techniques are available. EPA does not recommend, however, that ambient measurements be used as the sole basis of setting emission limitations or determining the ambient concentrations resulting from emissions from an industrial source. These should be based on an appropriate modeling analysis.

I declare under penalty of perjury that the foregoing is true and correct.

DATED: November 30, 1990



JOHN C. VIMONT

ndep
NEVADA DIVISION OF ENVIRONMENTAL PROTECTION
protecting the future for generations

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RE: Comments on the Nevada Division of Environmental Protection Portion of the Nevada Infrastructure State Implementation Plan for the 2010 Sulfur Dioxide Primary NAAQS

Dear Ms. Wendler and Messrs. Ritchie and Ukeiley:

The Nevada Division of Environmental Protection (NDEP) received the Sierra Club's comments on *The NDEP Portion of the Nevada State Implementation Plan for the 2010 Sulfur Dioxide Primary NAAQS* on May 20, 2013. The NDEP addresses the Sierra Club's comments below.

The Sierra Club makes the following general points:

1. The Sierra Club contends that the 2010 SO_2 national ambient air quality standard (NAAQS) must be included in the Nevada SIP. The Sierra Club notes that neither the state implementation plan (SIP) nor the state regulations reflect the new standard.

NDEP's response:

Clean Air Act (CAA) section 110 does not require that the new standard be adopted into the SIP or state regulation. Rather, it requires that the state's implementation plan "provides for the implementation, maintenance and enforcement" of the new or revised NAAQS. 110(a)(1). Section 110(a)(2)(A) requires "*necessary or appropriate*" emission limits, measures, means, or techniques for ensuring compliance with the new standard.

(Emphasis added.) As long as the plan is protective and allows the state to take action as needed to maintain the NAAQS, the NAAQS itself need not be in the SIP.

2. The Sierra Club states that its modeling is appropriate to use for evaluating the adequacy of infrastructure SIPs and modeling has been used historically by the U.S. Environmental Protection Agency (USEPA) in making area designations. Sierra Club contends that its modeling of the North Valmy Generating Station (Valmy) shows violation of the NAAQS. Even though USEPA has said states do not have to submit modeling to show attainment in unclassifiable areas, the state can't ignore information put in front of it.

NDEP's response:

The NDEP notes that modeling results are highly dependent on the assumptions made. The NDEP depends, instead, on other evidence that Nevada's SIP is protective of the 2010 SO_2 NAAQS, including on-site monitoring. (See #s 3 and 4 below.) The USEPA is still developing guidance on the use of monitoring and modeling in implementing the 2010 SO_2 NAAQS. Until there is consensus on the appropriate use of modeling and USEPA promulgates area designations for Nevada, the NDEP maintains that the existing applicable Nevada SIP is adequate to implement, maintain and enforce the 2010 SO_2 NAAQS.

3. The Sierra Club contends that its own modeling to compare Valmy's potential to emit with its actual emissions as reported in USEPA's Clean Air Markets Division (CAMD) database show Valmy's emissions are capable of causing exceedances of the 1-hour standard. The Sierra Club comments that its modeling analysis shows nonattainment, yet Nevada has not proposed to designate Humboldt, Lander, or Elko counties as nonattainment.

NDEP's response:

While designation is a separate process, the NDEP followed all requirements for determining designation status. All data support the unclassifiable designation that the NDEP proposed to EPA.

Although the Sierra Club's modeling may show exceedances of the SO_2 NAAQS, monitoring values at Valmy do not. There are two monitoring sites at Valmy that now monitor SO_2. Since the new SO_2 NAAQS were promulgated, the highest monthly maximum 1-hour concentration was 23 ppb at Site 2 and 18 ppb at Site 3. These concentrations are well below the 75 ppb standard.

With respect to modeling, the Sierra Club claims to have used conservative assumptions in its modeling to show nonattainment at Valmy. The NDEP has not had sufficient time to assess the modeling. A cursory review, however, raises questions about the Sierra Club's claim. For example, it appears that the Sierra Club chose the highest hourly

emission rate from USEPA's CAMD database to use in the modeling, which will clearly overestimate model results. The NDEP conducted its own preliminary modeling for Valmy using actual hour-by-hour emissions for the years 2009 and 2010 and compared the results to monitored values. Even this modeling overestimated SO_2 concentrations when compared to observed monitor values.

4. The Sierra Club comments that the SIP must include enforceable 1-hour emission limitations to ensure implementation and maintenance of the NAAQS. It must include enforceable 1-hour limits on existing sources that are currently violating the standard. It says that the Valmy is violating the standard. The Sierra Club says that the emission limit on Valmy found in NAC 445B.22063 is inadequate because (1) it is not in the SIP; (2) it is not the proper averaging time; and (3) it only applies to unit 2. The SIP must include proper emission limits, averaging times, and CEMS on every source that is "currently permitted to violate the standard."

NDEP's response:

First, CAA section 110 requires a SIP to include "enforceable emission limitations and other control measures, means, or techniques . . . *as may be necessary or appropriate* to meet the applicable requirements of this chapter." 110(a)(2)(A) (emphasis added). The SIP need not contain 1-hour emission limits that mirror the form of the NAAQS. It must have provisions that provide for implementation and maintenance of the NAAQS. Emission limits on a specific source are not required, as long as the SIP contains provisions in its permitting program that assure compliance with the NAAQS and allow the State to implement and maintain the NAAQS through permitting, enforcement, or otherwise. The NDEP's SO_2 infrastructure SIP contains such provisions as listed in elements (A) and (C).

Second, source-specific emission limits need not be included in the SIP. They are more appropriately included in the source's permit. In the case of Valmy, the permit is a federally enforceable Title V permit, which both the USEPA and other stakeholders such as the Sierra Club have had – and will have – the opportunity to address upon modification and/or renewal, and to enforce if they believe the State is failing to do so.

Third, the available evidence demonstrates that the Nevada SIP is protective of the NAAQS. The NDEP required Valmy to install two SO_2 monitoring sites at Valmy that monitor 1-hour SO_2. Monitoring data from Valmy show no violations of the 2010 SO_2 NAAQS since the NAAQS were promulgated. Valmy's quarterly monitoring reports to the NDEP, as required by its permit, demonstrate that since June 2010, the highest monthly maximum 1-hour concentration was 23 ppb at Site 2 and 18 ppb at Site 3. These concentrations are well below the 75 ppb standard.

Finally, the NDEP acknowledges that it is difficult to craft the SO_2 infrastructure SIP because the State is operating without the benefit of USEPA's designations of the areas within the State as in attainment, nonattainment, or unclassifiable. USEPA's proposal to defer acting on area designations has complicated the normal infrastructure SIP process. It is difficult to craft a SIP that is protective of the NAAQS without knowing whether the USEPA considers Nevada to be in attainment or not.

5. The Sierra Club contends that because NAC 445B.22063 (Valmy's emission limits) is not in the SIP, citizens and USEPA are unable to take an enforcement action.

NDEP's response:

Citizens and the USEPA are not deprived of the ability to take an enforcement action on Valmy's permit. The permit was one issued under the Prevention of Significant Deterioration (PSD) program, which program is delegated by USEPA to the State and subject to federal oversight. Pursuant to 42 U.S.C. § 7477, USEPA "shall . . . take such measures, including issuance of an order, or seeking injunctive relief, as necessary to prevent the construction or modification of a major emitting facility which does not conform to the requirements of this part . . . ." Citizens may also bring civil enforcement actions based on the violation of the PSD permit. 42 U.S.C. § 7604(a). Valmy's current permit is one issued under Title V of the Clean Air Act, and both the USEPA and citizens may take enforcement actions on a Title V permit. *Id.;* 40 CFR § 70.6(b)(1) ("All terms and conditions in a part 70 permit, including any provisions designed to limit a source's potential to emit, are enforceable by the Administrator and citizens under the Act."). Additionally, citizens have an opportunity to demonstrate any non-compliance when the permit is up for renewal. The permit application is subject to public notice and comment and can be challenged through the State administrative process at that time.

The NDEP appreciates the Sierra Club's comments.

Sincerely,

Jasmine K Mehta

Jasmine Mehta, Chief
Bureau of Air Quality Planning

ec: Michael Elges, Deputy Administrator, NDEP
Rob Bamford, Chief, Bureau of Air Pollution Control, NDEP
Adele Malone, Supervisor, Planning and Modeling Branch