

# Technical Support Document:

## Chapter 26

### Intended Round 3 Area Designations for the 2010 1-Hour SO<sub>2</sub> Primary National Ambient Air Quality Standard for Nevada

#### 1. Summary

Pursuant to section 107(d) of the Clean Air Act (CAA), the U.S. Environmental Protection Agency (the EPA, we, or us) must designate areas as either “nonattainment,” “attainment,” or “unclassifiable” for the 2010 1-hour sulfur dioxide (SO<sub>2</sub>) primary national ambient air quality standard (NAAQS) (2010 SO<sub>2</sub> NAAQS). The CAA defines a nonattainment area as an area that does not meet the NAAQS or that contributes to a nearby area that does not meet the NAAQS. An attainment area is defined by the CAA as any area that meets the NAAQS and does not contribute to a nearby area that does not meet the NAAQS. Unclassifiable areas are defined by the CAA as those that cannot be classified on the basis of available information as meeting or not meeting the NAAQS. In this action, the EPA has defined a nonattainment area as an area that the EPA has determined violates the 2010 SO<sub>2</sub> NAAQS or contributes to a violation in a nearby area, based on the most recent 3 years of air quality monitoring data, appropriate dispersion modeling analysis, and any other relevant information. An unclassifiable/attainment area is defined by the EPA as an area that either: (1) based on available information including (but not limited to) appropriate modeling analyses and/or monitoring data, the EPA has determined (i) meets the 2010 SO<sub>2</sub> NAAQS, and (ii) does not contribute to ambient air quality in a nearby area that does not meet the NAAQS; or (2) was not required to be characterized under 40 CFR 51.1203(c) or (d) and the EPA does not have available information including (but not limited to) appropriate modeling analyses and/or monitoring data that suggests that the area may (i) not be meeting the NAAQS, or (ii) contribute to ambient air quality in a nearby area that does not meet the NAAQS<sup>1</sup>. An unclassifiable area is defined by EPA as an area that either: (1) was required to be characterized by the state under 40 CFR 51.1203(c) or (d), has not been previously designated, and on the basis of available information cannot be classified as either: (i) meeting or not meeting the 2010 SO<sub>2</sub> NAAQS, or (ii) contributing or not contributing to ambient air quality in a nearby area that does not meet the NAAQS; or (2) was not required to be characterized under 40 CFR 51.1203(c) or (d) and EPA does have available information including (but not limited to) appropriate modeling analyses and/or monitoring data that suggests that the area may (i) not be meeting the NAAQS, or (ii) contribute to ambient air quality in a nearby area that does not meet the NAAQS.

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<sup>1</sup> The term “designated attainment area” is not used in this document because the EPA uses that term only to refer to a previous nonattainment area that has been redesignated to attainment as a result of the EPA’s approval of a state-submitted maintenance plan.

This technical support document (TSD) addresses designations for all undesignated areas in Nevada for the 2010 SO<sub>2</sub> NAAQS. In previous final actions, the EPA has issued designations for the 2010 SO<sub>2</sub> NAAQS for selected areas of the country.<sup>2</sup> The EPA is under a December 31, 2017, deadline to designate the areas addressed in this TSD as required by the U.S. District Court for the Northern District of California.<sup>3</sup> We are referring to the set of designations being finalized by the December 31, 2017, deadline as “Round 3” of the designations process for the 2010 SO<sub>2</sub> NAAQS. After the Round 3 designations are completed, the only remaining undesignated areas will be those where a state has installed and begun timely operating a new SO<sub>2</sub> monitoring network meeting EPA specifications referenced in EPA’s SO<sub>2</sub> Data Requirements Rule (DRR) (80 FR 51052). The EPA is required to designate those remaining undesignated areas by December 31, 2020.

Nevada submitted its first recommendation regarding designations for the 2010 1-hour SO<sub>2</sub> NAAQS on May 3, 2011.<sup>4</sup> In particular, Nevada recommended that each hydrographic area in the state be designated as a distinct unclassifiable area. The state submitted a list of facilities emitting SO<sub>2</sub> in excess of 2,000 tons per year on January 13, 2016, for listing under the SO<sub>2</sub> DRR.<sup>5</sup> On June 24, 2016, Nevada notified the EPA that it would meet SO<sub>2</sub> initial requirements to characterize SO<sub>2</sub> concentrations around the North Valmy Generating Station (North Valmy) using air quality modeling, and submitted a modeling protocol with this notification.<sup>6</sup> Nevada submitted its modeling report for North Valmy, and associated documentation, on January 4, 2017.<sup>7</sup> In its submittal letter, Nevada affirmed its recommendation that Hydrographic Area 64 (HA 64), where North Valmy is located, be designated unclassifiable. In our intended designations, we have considered all the submissions from the state, except where a recommendation in a later submission regarding a particular area indicates that it replaces an earlier recommendation for that area we have considered the recommendation in the later submission.

For the areas in Nevada that are part of the Round 3 designations process, Table 1 identifies the EPA’s intended designations and the areas to which they would apply. It also lists Nevada’s current recommendations. The EPA’s final designation for these areas will be based on an assessment and characterization of air quality through ambient air quality data, air dispersion modeling, other evidence and supporting information, or a combination of the above.

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<sup>2</sup> A total of 94 areas throughout the U.S. were previously designated in actions published on August 5, 2013 (78 FR 47191), July 12, 2016 (81 FR 45039), and December 13, 2016 (81 FR 89870).

<sup>3</sup> *Sierra Club v. McCarthy*, No. 3-13-cv-3953 (SI) (N.D. Cal. Mar. 2, 2015).

<sup>4</sup> See letter dated May 3, 2011 from Colleen Cripps, Nevada Department of Environmental Protection, to Jared Blumenfeld, EPA Region IX.

<sup>5</sup> See letter dated January 13, 2016 from David Emme, Nevada Department of Environmental Protection, to Jared Blumenfeld, EPA Region IX.

<sup>6</sup> See letter dated June 24, 2016, from David Emme, Nevada Department of Environmental Protection, to Alexis Strauss, EPA Region IX.

<sup>7</sup> See letter dated January 4, 2017, from David Emme, Nevada Department of Environmental Protection, to Alexis Strauss, EPA Region IX.

**Table 1. Summary of the EPA’s Intended Designations and the Designation Recommendations by Nevada**

<b>Area/County</b>	<b>Nevada’s Recommended Area Definition</b>	<b>Nevada’s Recommended Designation</b>	<b>EPA’s Intended Area Definition<sup>#</sup></b>	<b>EPA’s Intended Designation</b>
Hydrographic Area 64	Hydrographic Area 64 consisting of Humboldt County (p), Elko County (p), and Lander County (p)	Unclassifiable	Same as State’s Recommendation	Unclassifiable/Attainment
Each remaining hydrographic area in the rest of the State <sup>*, &amp;</sup>	Each remaining hydrographic area in the rest of the State	Unclassifiable	Each remaining hydrographic area in the rest of the State	Unclassifiable/Attainment

<sup>#</sup> EPA is not determining the boundaries of any area of Indian country in this document, including any area of Indian country located in the larger designation area. The inclusion of any Indian country in the designation area is not a determination that the state has regulatory authority under the Clean Air Act for such Indian country.

<sup>\*</sup> The EPA intends to designate each remaining hydrographic area in Nevada as “unclassifiable/attainment” as these areas were not required to be characterized by the state under the DRR and the EPA does not have available information including (but not limited to) appropriate modeling analyses and/or monitoring data that suggests that the area may (i) not be meeting the NAAQS, or (ii) contribute to ambient air quality in a nearby area that does not meet the NAAQS. The areas that we intend to designate as unclassifiable/attainment (those to which this row of this table is applicable) are identified more specifically in section 4 of this TSD.

<sup>&</sup> Rest of State refers to hydrographic areas as shown on the State of Nevada Division of Water Resources map titled “Water resources and Inter-basin Flows” (September 1971), as revised to include a division of Carson Desert (area 101) into two areas, a smaller area 101 and area 101A, and a division of Boulder Flat (area 61) into an Upper Unit 61 and a Lower Unit 61, and excluding Hydrographic Area 64. *See also* 67 FR 12474 (March 19, 2002).

For states that elected to install and begin operation of a new, approved SO<sub>2</sub> monitoring network, the EPA is required to designate these areas, pursuant to a court ordered schedule, by December 31, 2020. Nevada did not elect to install a new SO<sub>2</sub> monitoring network. Also, no source in another state near Nevada’s borders has installed a new SO<sub>2</sub> monitoring network.

Areas that the EPA previously designated unclassifiable in Round 1 (*see* 78 FR 47191) and Round 2 (*see* 81 FR 45039 and 81 FR 89870) are not affected by the designations in Round 3 unless otherwise noted. No areas in Nevada were previously designated in Rounds 1 or 2.

## 2. General Approach and Schedule

Updated designations guidance documents were issued by the EPA through a July 22, 2016, memorandum and a March 20, 2015, memorandum from Stephen D. Page, Director, U.S. EPA, Office of Air Quality Planning and Standards, to Air Division Directors, U.S. EPA Regions I-X. These memoranda supersede earlier designation guidance for the 2010 SO<sub>2</sub> NAAQS, issued on March 24, 2011, and identify factors that the EPA intends to evaluate in determining whether areas are in violation of the 2010 SO<sub>2</sub> NAAQS. The documents also contain the factors that the EPA intends to evaluate in determining the boundaries for designated areas. These factors include: 1) air quality characterization via ambient monitoring or dispersion modeling results; 2) emissions-related data; 3) meteorology; 4) geography and topography; and 5) jurisdictional boundaries.

To assist states and other interested parties in their efforts to characterize air quality through air dispersion modeling for sources that emit SO<sub>2</sub>, the EPA released its most recent version of a draft document titled, “SO<sub>2</sub> NAAQS Designations Modeling Technical Assistance Document” (Modeling TAD) in August 2016.<sup>8</sup>

Readers of this chapter of this TSD should refer to the additional general information for the EPA’s Round 3 area designations in Chapter 1 (Background and History of the Intended Round 3 Area Designations for the 2010 1-Hour SO<sub>2</sub> Primary National Ambient Air Quality Standard) and Chapter 2 (Intended Round 3 Area Designations for the 2010 1-Hour SO<sub>2</sub> Primary National Ambient Air Quality Standard for States with Sources Not Required to be Characterized).

As specified by the March 2, 2015, court order, the EPA is required to designate by December 31, 2017, all “remaining undesignated areas in which, by January 1, 2017, states have not installed and begun operating a new SO<sub>2</sub> monitoring network meeting EPA specifications referenced in the EPA’s” SO<sub>2</sub> DRR. The EPA will therefore designate by December 31, 2017, areas of the country that are not, pursuant to the DRR, timely operating EPA-approved and valid monitoring networks. The areas to be designated by December 31, 2017, include the area associated with the one source in Nevada meeting DRR emissions criteria that the State has chosen to be characterized using air dispersion modeling, and other areas not specifically required to be characterized by the DRR.

Because many of the intended designations have been informed by available modeling analyses, this preliminary TSD is structured based on the availability of such modeling information. There is a section for the area for which modeling information is available. The remaining to-be-designated areas are then addressed together in section 4, below.

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<sup>7</sup> <https://www.epa.gov/sites/production/files/2016-06/documents/so2modelingtad.pdf>. In addition to this TAD on modeling, the EPA also has released a technical assistance document addressing SO<sub>2</sub> monitoring network design, to advise states that have elected to install and begin operation of a new SO<sub>2</sub> monitoring network. See Draft SO<sub>2</sub> NAAQS Designations Source-Oriented Monitoring Technical Assistance Document, February 2016, <https://www.epa.gov/sites/production/files/2016-06/documents/so2monitoringtad.pdf>.

The EPA does not plan to revise this TSD after consideration of state and public comment on our intended designation. A separate TSD will be prepared as necessary to document how we have addressed such comments in the final designations.

The following are definitions of important terms used in this document:

- 1) 2010 SO<sub>2</sub> NAAQS – The primary NAAQS for SO<sub>2</sub> promulgated in 2010. This NAAQS is 75 ppb, based on the 3-year average of the 99<sup>th</sup> percentile of the annual distribution of daily maximum 1-hour average concentrations. See 40 CFR 50.17.
- 2) Design Value - a statistic computed according to the data handling procedures of the NAAQS (in 40 CFR part 50 Appendix T) that, by comparison to the level of the NAAQS, indicates whether the area is violating the NAAQS.
- 3) Designated nonattainment area – an area that, based on available information including (but not limited to) appropriate modeling analyses and/or monitoring data, the EPA has determined either: (1) does not meet the 2010 SO<sub>2</sub> NAAQS, or (2) contributes to ambient air quality in a nearby area that does not meet the NAAQS.
- 4) Designated unclassifiable/attainment area – an area that either: (1) based on available information including (but not limited to) appropriate modeling analyses and/or monitoring data, the EPA has determined (i) meets the 2010 SO<sub>2</sub> NAAQS, and (ii) does not contribute to ambient air quality in a nearby area that does not meet the NAAQS; or (2) was not required to be characterized under 40 CFR 51.1203(c) or (d) and the EPA does not have available information including (but not limited to) appropriate modeling analyses and/or monitoring data that suggests that the area may (i) not be meeting the NAAQS, or (ii) contribute to ambient air quality in a nearby area that does not meet the NAAQS.
- 5) Designated unclassifiable area – an area that either: (1) was required to be characterized by the state under 40 CFR 51.1203(c) or (d), has not been previously designated, and on the basis of available information cannot be classified as either: (i) meeting or not meeting the 2010 SO<sub>2</sub> NAAQS, or (ii) contributing or not contributing to ambient air quality in a nearby area that does not meet the NAAQS; or (2) was not required to be characterized under 40 CFR 51.1203(c) or (d) and the EPA does have available information including (but not limited to) appropriate modeling analyses and/or monitoring data that suggests that the area may (i) not be meeting the NAAQS, or (ii) contribute to ambient air quality in a nearby area that does not meet the NAAQS.
- 6) Modeled violation – a violation of the SO<sub>2</sub> NAAQS demonstrated by air dispersion modeling.
- 7) Recommended attainment area – an area that a state, territory, or tribe has recommended that the EPA designate as attainment.
- 8) Recommended nonattainment area – an area that a state, territory, or tribe has recommended that the EPA designate as nonattainment.
- 9) Recommended unclassifiable area – an area that a state, territory, or tribe has recommended that the EPA designate as unclassifiable.
- 10) Recommended unclassifiable/attainment area – an area that a state, territory, or tribe has recommended that the EPA designate as unclassifiable/attainment.
- 11) Violating monitor – an ambient air monitor meeting 40 CFR parts 50, 53, and 58 requirements whose valid design value exceeds 75 ppb, based on data analysis conducted in accordance with Appendix T of 40 CFR part 50.

12) We, our, and us – these refer to the EPA.

### 3. Technical Analysis for the Area Surrounding North Valmy, Nevada

#### 3.1. Introduction

The EPA must designate the area around North Valmy Generating Station by December 31, 2017, because the area has not been previously designated and Nevada has not installed and begun timely operating a new, approved SO<sub>2</sub> monitoring network meeting EPA specifications referenced in the EPA's DRR to characterize air quality in the area surrounding North Valmy.

#### 3.2. Air Quality Monitoring Data for the Area Surrounding North Valmy, Addressing North Valmy Generating Station

There are no regulatory ambient air quality SO<sub>2</sub> monitors in the area surrounding North Valmy.

#### 3.3. Air Quality Modeling Analysis Addressing North Valmy Generating Station

##### 3.3.1. Introduction

This section 3.3 presents all the available air quality modeling information for the area around North Valmy. This area contains the following SO<sub>2</sub> source, which is the source around which Nevada is required by the DRR to characterize SO<sub>2</sub> air quality, or alternatively to establish an SO<sub>2</sub> emissions limitation of less than 2,000 tons per year (tpy):

- North Valmy Generating Station is a coal-fired power plant owned by NV Energy that emits 2,000 tons or more annually. Specifically, North Valmy emitted 7,429.9 tons of SO<sub>2</sub> in 2014. This source meets the DRR criteria and thus is on the SO<sub>2</sub> DRR Source list, and Nevada has chosen to characterize it with modeling.

In its submission, Nevada recommended that an area surrounding North Valmy, specifically HA 64, be designated unclassifiable based in part on an assessment and characterization of air quality impacts from this facility, and consistent with Nevada's position that air quality modeling is not an appropriate substitute for monitoring for designating areas for the NAAQS.

Nevada's assessment and characterization was performed using air dispersion modeling software, *i.e.*, AERMOD, analyzing actual emissions. The area that the State has assessed via air quality modeling is located in Humboldt, Lander, and Elko counties in Nevada, in hydrographic areas 61, 64, 65, 66, 70, and 131, centered on North Valmy. After careful review of the state's assessment, supporting documentation, and all available data, the EPA intends to designate HA 64 unclassifiable/attainment. Our reasoning for this conclusion is explained in a later section of this TSD, after all the available information is presented.

As shown in Figure 1 below, North Valmy is located in HA 64, approximately four miles north of US Interstate Highway 80 between Winnemucca and Battle Mountain, in Humboldt County, Nevada, at 40.8797N, 117.1538W.

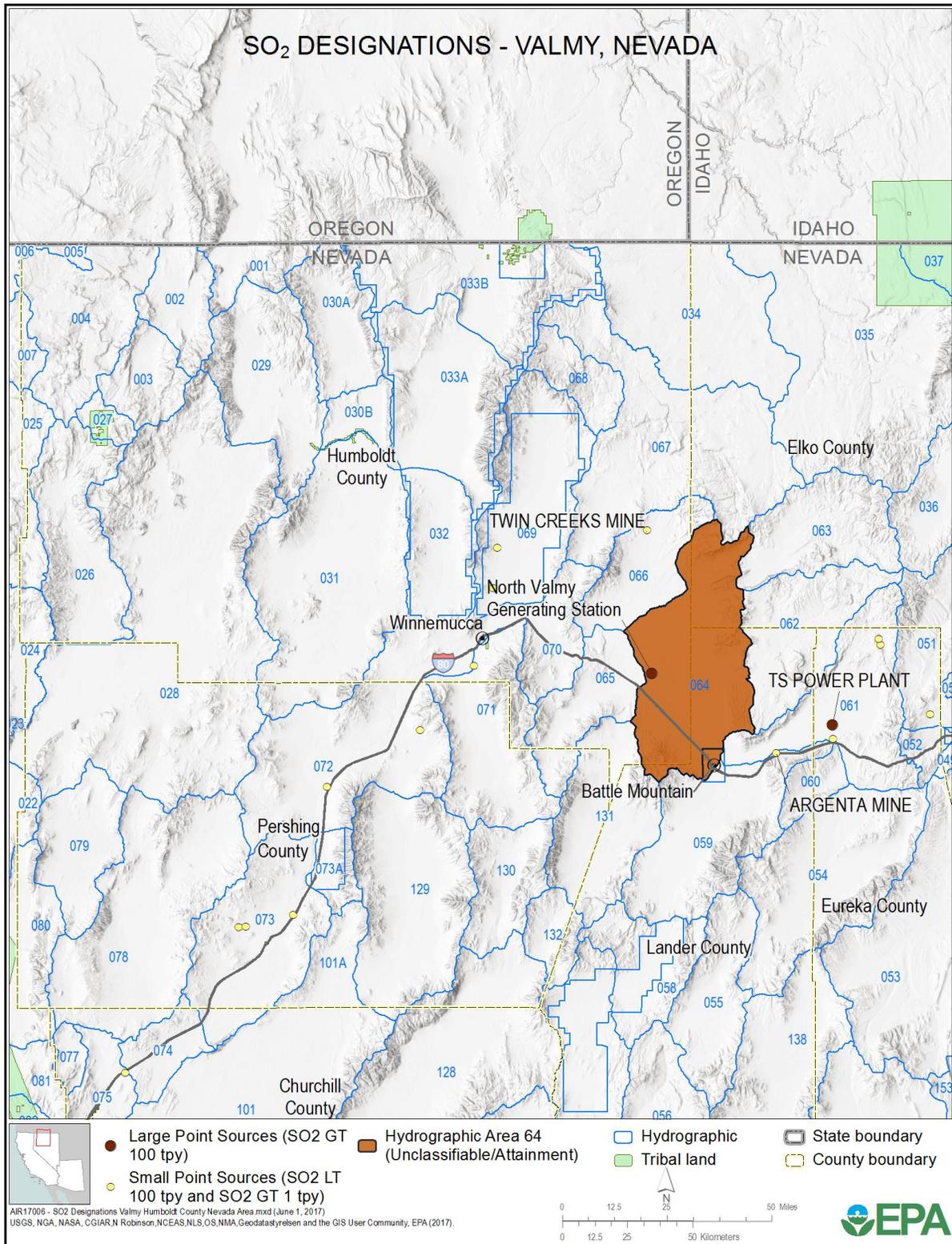
Figure 1 also includes other nearby emitters of SO<sub>2</sub>.<sup>9</sup> There are two sources that emit more than 1 tpy of SO<sub>2</sub> located within 50 kilometers (km) of North Valmy. The Newmont Mining Corporation's Twin Creek Mine (located within HA 66) emitted 6.45 tpy SO<sub>2</sub> in 2014 and is located 42 km to the north of North Valmy. The Argenta Mine (located in HA 59) emitted 3.72 tpy SO<sub>2</sub> in 2014 and is located approximately 42 km to the southeast of North Valmy. The TS Power Plant (located in HA 61) is located 53 km from North Valmy and emitted 234 tpy SO<sub>2</sub> in 2014.

Figure 1 also shows the boundaries of HA 64, the state's recommended area for the unclassifiable designation. The EPA's intended designation boundary relying on HA 64 is consistent with the State's recommended boundary.

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<sup>9</sup> All SO<sub>2</sub> emitters of 1 tpy or more (based on information in the 2014 NEI) are shown in Figure 1.

**Figure 1. Map of the Area Surrounding North Valmy, Addressing North Valmy Generating Station**



The discussion and analysis that follows below will reference the Modeling Technical Assistance Document (TAD) and the factors for evaluation contained in the EPA's guidance documents, dated July 22, 2016, and March 20, 2015.

For this area, the EPA received and considered one modeling assessment from the state. The EPA did not receive any other modeling assessments.

### *3.3.2. Modeling Analysis Provided by the State*

#### *3.3.2.1. Model Selection and Modeling Components*

The EPA's Modeling TAD notes that for area designations under the 2010 SO<sub>2</sub> NAAQS, the AERMOD modeling system should be used, unless use of an alternative model can be justified. The AERMOD modeling system contains the following components:

- AERMOD: the dispersion model
- AERMAP: the terrain processor for AERMOD
- AERMET: the meteorological data processor for AERMOD
- BPIPFRM: the building input processor
- AERMINUTE: a pre-processor to AERMET incorporating 1-minute automated surface observation system (ASOS) wind data
- AERSURFACE: the surface characteristics processor for AERMET
- AERSCREEN: a screening version of AERMOD

The State used AERMOD version 15181, the most up to date version at the time of the state's submittal, using all regulatory default options. On January 17, 2017, EPA published its revision to Appendix W – Guideline to Air Quality Models. Since the publication of Appendix W, AERMOD version 16216r has since become the regulatory model version. There were no updates from 15181 to 16216r that would significantly affect the concentrations predicted here. A discussion of the state's approach to the individual components is provided in the corresponding discussion that follows, as appropriate.

#### *3.3.2.2. Modeling Parameter: Rural or Urban Dispersion*

For any dispersion modeling exercise, the "urban" or "rural" determination of a source is important in determining the boundary layer characteristics that affect the model's prediction of downwind concentrations. For SO<sub>2</sub> modeling, the urban/rural determination is important because AERMOD invokes a 4-hour half-life for urban SO<sub>2</sub> sources. Section 6.3 of the Modeling TAD details the procedures used to determine if a source is urban or rural based on land use or population density.

For the purpose of performing the modeling for the area of analysis, the state determined that it was most appropriate to run the model in rural mode. The state used the land use method outlined in Appendix W, Section 7.2.3c, where land use within a 3-km radius of the source is analyzed using the meteorological land use scheme described by Auer (1978). Land use land cover data was obtained from the United States Geological Survey at 30-meter (m) resolution under 21 land cover classes. The dominant land type within a 3-km radius of North Valmy is mixed rangeland (84 percent) and non-forested wetlands (13 percent). The primary land type is considered type A3 (undeveloped), per the Auer classification, and therefore considered rural. The state's analysis conforms with the procedures outlined in the TAD; we therefore agree with the state's determination that the facility should be modeled as a rural source.

3.3.2.3. *Modeling Parameter: Area of Analysis (Receptor Grid)*

The TAD recommends that the first step towards characterization of air quality in the area around a source or group of sources is to determine the extent of the area of analysis and the spacing of the receptor grid. Considerations presented in the Modeling TAD include but are not limited to: the location of the SO<sub>2</sub> emission sources or facilities considered for modeling; the extent of significant concentration gradients due to the influence of nearby sources; and sufficient receptor coverage and density to adequately capture and resolve the model predicted maximum SO<sub>2</sub> concentrations.

The source of SO<sub>2</sub> emissions subject to the DRR in this area, North Valmy, is described in the introduction to this Section 3. The State determined that a distance of approximately 20 km in any direction is the appropriate distance to adequately characterize air quality in this area through modeling. The two nearest sources with emissions of 1 tpy or more are both 42 km from North Valmy – the Twin Creek Mine to the north emitting 6.45 tpy and the Argenta Mine to the southeast emitting 3.72 tpy. All other sources are over 50 km away. The nearest source with emissions over 100 tpy is the TS Power Plant, with emissions of 234 tpy, at a distance of about 53 km southeast from North Valmy. Therefore, no sources other than North Valmy were determined by the State to have the potential to cause concentration gradient impacts within the area of analysis. Given the low emissions and large distance of these sources from North Valmy, we agree with the State's conclusions that these sources would not cause a significant concentration gradient and do not need to be explicitly modeled.

The grid receptor spacing for the area of analysis chosen by the State is as follows:

- 25 m spacing along the facility fence line
- 50 m spacing from the fence line to approximately 500 m in the east-west direction and 750 m in the north-south direction
- 100 m spacing from 0.5 km/0.75 km to 1.3 km from the source
- 500 m spacing from 1.3 km to 5 km from the source
- 1,000 m spacing from 5 km to approximately 20 km from the facility

The spacing forms a regular 43 km x 43 km rectangular area, with a midpoint that is 93 m east and 368 m north of North Valmy boiler #1. Four additional receptor grids, two in the northwest, one in the southwest, and one in the south were included at 500 m spacing. The rectangle containing all receptors is 47.7 by 52.3 km (east-west by north-south), with a midpoint that is 2.3 km west and 0.4 km north of North Valmy boiler #1.

The receptor network contained 9,633 receptors, and the network covered portions of Humboldt, Lander, and Elko counties and portions of hydrographic areas 61, 64, 65, 66, 70, and 131 in Nevada.

Figures 2a and 2b show the state's chosen area of analysis surrounding the North Valmy, as well as the receptor grid for the area of analysis.

**Figure 2a. Map of the Receptor Grids**

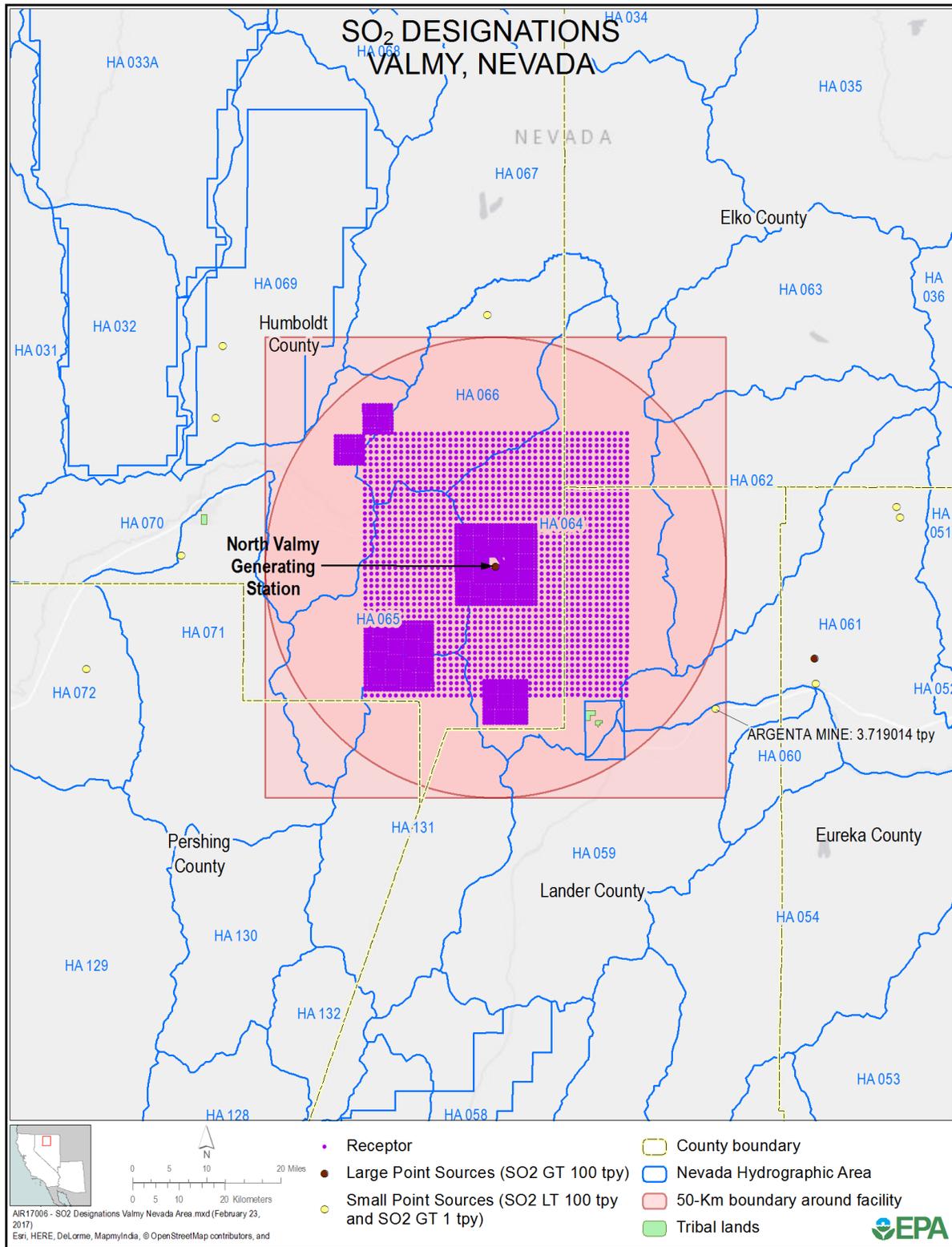
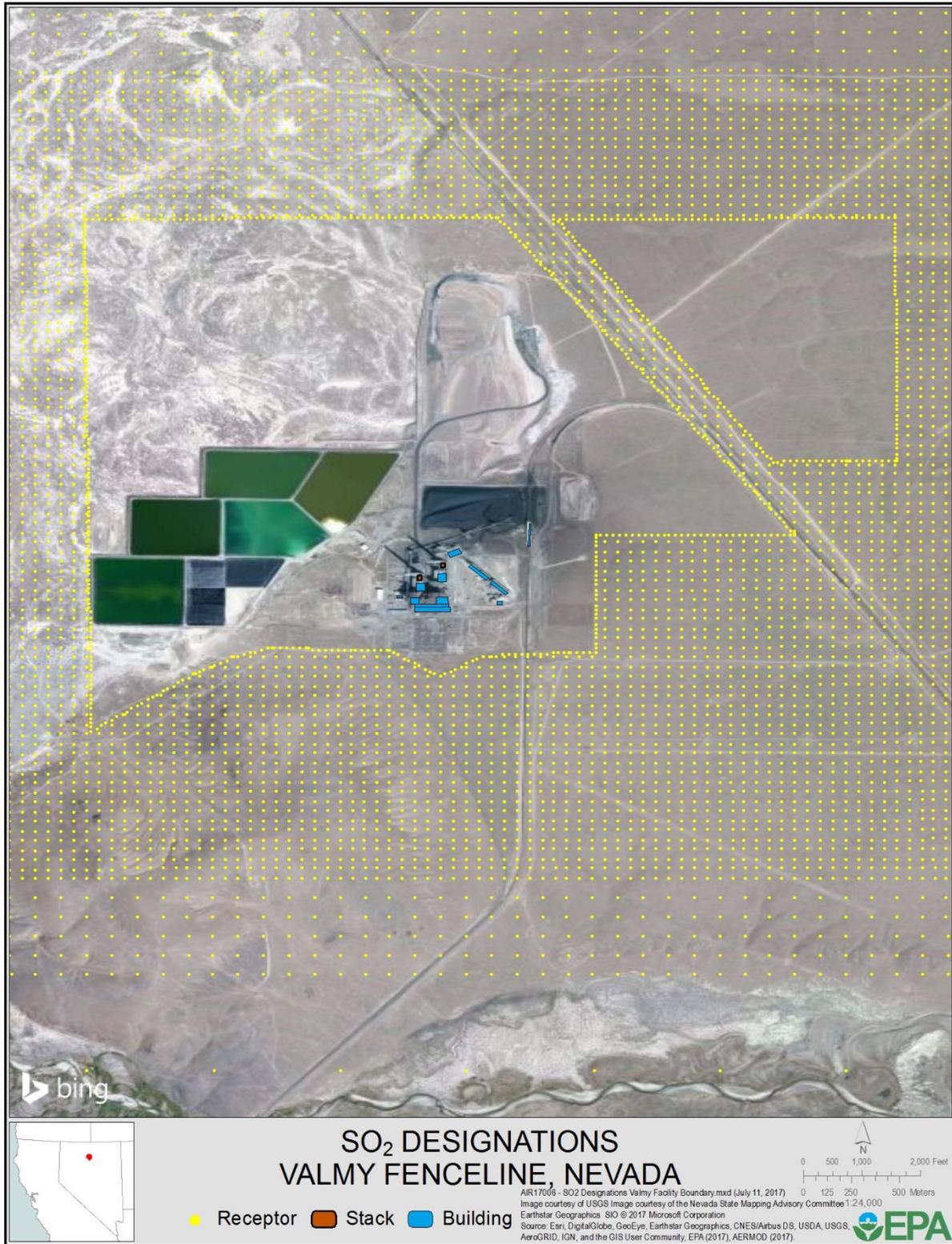


Figure 2b. Map of Facility Fence line



Consistent with the Modeling TAD, the state placed receptors for the purposes of this designation effort in locations that would be considered ambient air relative to each modeled facility, including other facilities' property. The State excluded receptors inside the fence line of North Valmy and confirmed that physical barriers (fences or cattle fences) exist around the perimeter of the facility.<sup>10</sup> The receptors were placed along the facility fence line and outward as described above and shown in Figure 2b.

We conclude that the state adequately characterized the area of analysis and appropriately placed model receptors.

#### 3.3.2.4. *Modeling Parameter: Source Characterization*

Section 6 of the Modeling TAD offers recommendations on source characterization including source types, use of accurate stack parameters, inclusion of building dimensions for building downwash (if warranted), and the use of actual stack heights with actual emissions or following GEP policy with allowable emissions.

The state modeled emissions from North Valmy and did not include additional sources explicitly. Only two sources above 1 tpy SO<sub>2</sub> are located within 50 km of the facility, as described above, and no other sources (beyond 50 km) were determined by the state to have the potential to cause concentration gradient impacts within the area of analysis.

The state characterized this source within the area of analysis in accordance with the best practices outlined in the Modeling TAD. Specifically, the state used actual stack heights in conjunction with actual emissions. The State also adequately characterized the source's building layout and location, as well as the stack parameters, *e.g.*, exit temperature, exit velocity, location, and diameter. The AERMOD component BPIPFRM was used to assist in addressing building downwash. Figure 2b shows the source locations and the buildings that were included as inputs to BPIPFRM

We conclude that the state adequately characterized emission sources and building downwash in its modeling.

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<sup>10</sup> See electronic mail from Brenda Harpring, NDEP, to Scott Bohning, EPA Region IX, dated June 20, 2017.

3.3.2.5. *Modeling Parameter: Emissions*

The EPA’s Modeling TAD notes that for the purpose of modeling to characterize air quality for use in designations, the recommended approach is to use the most recent 3 years of actual emissions data and concurrent meteorological data. However, the TAD also indicates that it would be acceptable to use allowable emissions in the form of the most recently permitted (referred to as PTE or allowable) emissions rate that is federally enforceable and effective.

The EPA believes that continuous emissions monitoring systems (CEMS) data provide acceptable historical emissions information, when they are available. These data are available for many electric generating units. In the absence of CEMS data, the EPA’s Modeling TAD highly encourages the use of AERMOD’s hourly varying emissions keyword HOUREMIS, or through the use of AERMOD’s variable emissions factors keyword EMISFACT. When choosing one of these methods, the EPA recommends using detailed throughput, operating schedules, and emissions information from the impacted source(s).

In certain instances, states and other interested parties may find that it is more advantageous or simpler to use PTE rates as part of their modeling runs. For example, a facility that has recently adopted a new federally enforceable emissions limit or implemented other federally enforceable mechanisms and control technologies to limit SO<sub>2</sub> emissions to a level that indicates compliance with the NAAQS might choose to model PTE rates. These new limits or conditions may be used in the application of AERMOD for the purposes of modeling for designations, even if the source has not been subject to these limits for the entirety of the most recent 3 calendar years. In these cases, the Modeling TAD notes that a state should be able to find the necessary emissions information for designations-related modeling in the existing SO<sub>2</sub> emissions inventories used for permitting or SIP planning demonstrations. In the event that these short-term emissions are not readily available, they may be calculated using the methodology in Table 8-1 of Appendix W to 40 CFR Part 51 titled, “Guideline on Air Quality Models.”

As previously noted, the state included North Valmy and no other emitters of SO<sub>2</sub> in the analysis. The state has chosen to model this facility using actual emissions. North Valmy’s annual actual SO<sub>2</sub> emissions between 2013 and 2015 are summarized below.

For North Valmy, the State provided annual actual SO<sub>2</sub> emissions between 2013 and 2015. This information is summarized in Table 2. A description of how the state obtained hourly emission rates is given below this table.

**Table 2. Actual SO<sub>2</sub> Emissions Between 2013 – 2015 from North Valmy in Hydrographic Area 64**

Facility Name	SO <sub>2</sub> Emissions (tpy) <sup>11</sup>		
	2013	2014	2015
North Valmy Generating Station	6,359	7,430	4,883

<sup>11</sup> SO<sub>2</sub> emissions are summed from model emission input file, provided with the submittal. The value of 7,430 tpy for 2014 matches the value in the 2014 NEI.

SO<sub>2</sub> emissions from the two boilers at North Valmy were obtained from the continuous emission monitoring systems (CEMS) installed on the two boilers. Hourly emissions were unavailable for smaller, non-boiler sources of SO<sub>2</sub> emissions at North Valmy (totaling approximately 0.08 tpy). Allowable emissions were used for these sources.

We conclude the State adequately characterized emissions for the facility consistent with the TAD.

3.3.2.6. *Modeling Parameter: Meteorology and Surface Characteristics*

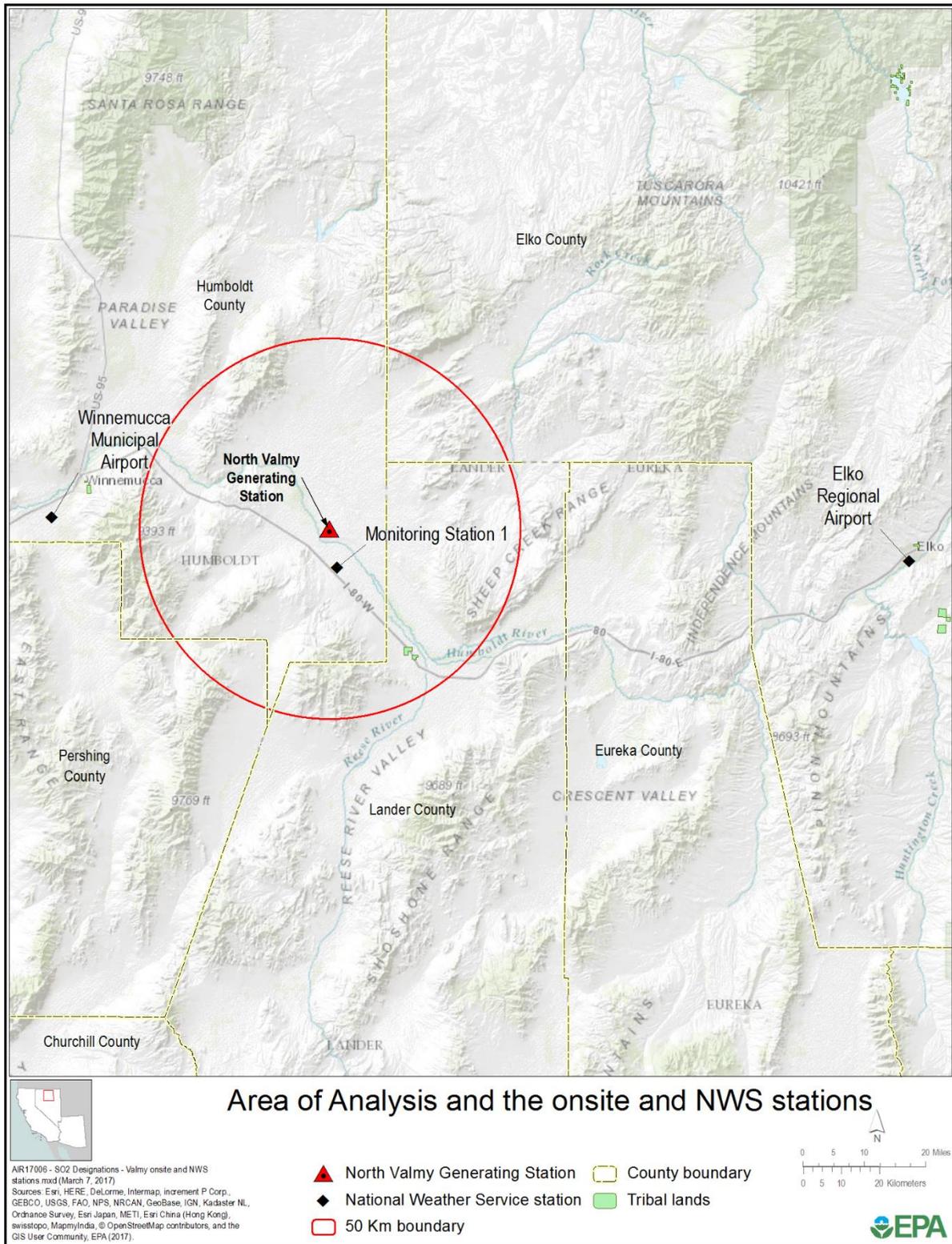
As noted in the Modeling TAD, the most recent 3 years of meteorological data (concurrent with the most recent 3 years of emissions data) should be used in designations efforts. The selection of data should be based on spatial and climatological (temporal) representativeness. The representativeness of the data is determined based on: 1) the proximity of the meteorological monitoring site to the area under consideration, 2) the complexity of terrain, 3) the exposure of the meteorological site, and 4) the period of time during which data are collected. Sources of meteorological data include National Weather Service (NWS) stations, site-specific or onsite data, and other sources such as universities, Federal Aviation Administration (FAA), and military stations.

For the area of analysis around North Valmy, the State selected the surface meteorology from Monitoring Station 1, located in Section 21, T34N, R43E, MDB&M (40.8077N, 117.1399W). The station is located approximately 4.8 miles south-southeast of the facility and is the closest and most well-equipped of three onsite monitoring stations owned by NV Energy and managed by a third-party contractor. The meteorological monitoring equipment used as well as the data collection, quality assurance, and quality control follow the EPA and the Nevada Division of Environmental Protection (NDEP) meteorological monitoring requirements. Upper air observations were taken from Elko Regional Airport (USAF 725825, WBAN 24121) located 115 km east of North Valmy. These stations were chosen as best representative of meteorological conditions within the area of analysis. The NWS station at Winnemucca Municipal Airport (USAF 725830, WBAN 24128), located approximately 55 km west of North Valmy, was used to integrate missing wind and temperature data from the onsite observations.

The state used AERSURFACE version 13016 using data from Monitoring Station 1 and Winnemucca Municipal Airport to estimate the surface characteristics (albedo, Bowen ratio, and surface roughness ( $z_o$ )) of the area of analysis. Albedo is the fraction of solar energy reflected from the earth back into space, the Bowen ratio is the method generally used to calculate heat lost or heat gained in a substance, and the surface roughness is sometimes referred to as “ $z_o$ .” The state estimated surface roughness values for 12 spatial sectors out to 1 km at default seasonal temporal resolution. The state used the arid region option and set surface moisture to wet, dry, and average for 2012, 2013, and 2014, respectively.

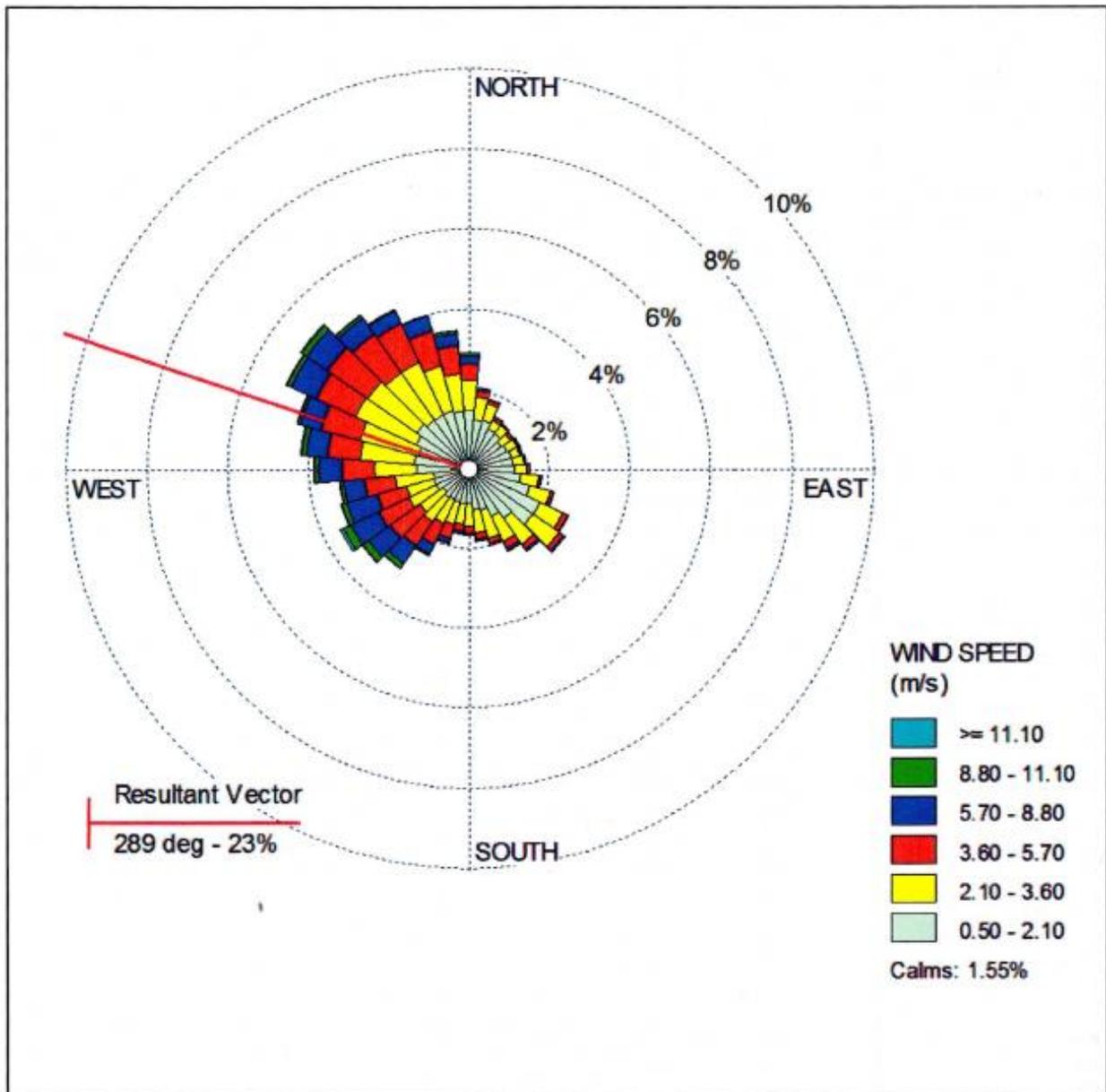
In the EPA-generated Figure 3 below, the locations of the onsite and NWS stations used in this analysis are shown relative to the area of analysis.

**Figure 3. Area of Analysis and the Onsite and NWS Stations in the Area Surrounding North Valmy**



As part of its recommendation, the state provided the 3-year surface wind rose for Monitoring Station 1. In Figure 4, the frequency and magnitude of wind speed and direction are defined in terms of from where the wind is blowing. Dominant wind directions are from the northwest and southwest. The state reports wind speeds were between 1.6-2.1 meters per second (m/s) 45 percent of the time, between 2.1-3.6 m/s 27 percent of the time, and calm conditions (< 0.5 m/s) occur 1.6 percent of the time.

**Figure 4. Monitoring Station 1, Located in HA 64, Cumulative Annual Wind Rose for Years 2012 – 2014**



Meteorological data from the above onsite and NWS surface and NWS upper air stations were used in generating AERMOD-ready files with the AERMET processor. The output meteorological data created by the AERMET processor is suitable for being applied with AERMOD input files for AERMOD modeling runs. The State followed the methodology and settings presented in the modeling protocol submitted by the State in the processing of the raw meteorological data into an AERMOD-ready format, and used AERSURFACE to best represent surface characteristics.

Hourly surface meteorological data records are read by AERMET, and include all the necessary elements for data processing. AERMINUTE was used to process the ASOS data from the Winnemucca Municipal Airport NWS station. The Bulk Richardson Number approach and the measured temperature difference between 10 m and 2 m were used to derive atmospheric turbulence characteristics during stable boundary layer conditions at Monitoring Station 1.

The state selected meteorological sites, processed meteorological data, and estimated surface characteristics consistent with the procedures outlined in the TAD.

*3.3.2.7. Modeling Parameter: Geography, Topography (Mountain Ranges or Other Air Basin Boundaries) and Terrain*

North Valmy is located at an elevation of 4,400 feet above mean sea level and is located on the valley floor of a large intermountain basin. The terrain in the area of analysis is best described as moderately complex. To account for terrain changes, the AERMAP terrain program within AERMOD was used to specify terrain elevations for all the receptors. The source of the elevation data incorporated into the model is from the USGS National Elevation Database.

We conclude the State appropriately accounted for topography in its modeling.

*3.3.2.8. Modeling Parameter: Background Concentrations of SO<sub>2</sub>*

The Modeling TAD offers two mechanisms for characterizing background concentrations of SO<sub>2</sub> that are ultimately added to the modeled design values: 1) a “tier 1” approach, based on a monitored design value, or 2) a temporally varying “tier 2” approach, based on the 99<sup>th</sup> percentile monitored concentrations by hour of day and season or month. For this area of analysis, the State used a “tier 2” approach using data from three monitors, owned by NV Energy and managed by a third party contractor, located near the facility: Monitoring Station 1 (located in Section 21, T34N, R43E, MDB&M at 40.8077N, 117.1399W) located 4.8 miles south-southeast of the facility, Monitoring Station 2 (located in Section 31, T34N, R43E at 40.7786N, 117.178W) located ~7.5 miles south-southwest of the facility, and Monitoring Station 3 (located in Section 22, T34N, R4SE at 40.8076N, 116.8931W) located 14 miles east-southeast of the facility. The data completeness for the three stations ranged from 96% to 99% in 2012-2014. These monitors are not run in accordance with the EPA’s monitoring requirements contained in 40 CFR 50, 53, and 58 and associated appendices, and are therefore not discussed in Section 3.2 above.

Three years of observations, 2012-2014, were used for the analysis. As indicated by comparing the wind rose in Figure 4 with the monitoring station locations in Figure 5, the monitoring stations are often downwind of the source. For each station, the state removed hourly records taken when the average wind direction was within 90° of the angle sector centered along the direction of the facility. Then, all remaining observations from the three monitoring sites were merged into a single dataset and sorted by hour of the day and season. Finally, the 99<sup>th</sup> percentile for each hour and season was averaged across the 3 years of observations, resulting in a matrix of 24 background concentrations for each of the 4 seasons. The background concentrations for this area of analysis were determined by the state to vary from 5.2 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ), equivalent to 2.0 ppb when expressed in two significant figures,<sup>12</sup> to 24  $\mu\text{g}/\text{m}^3$  (9.3 ppb), with an average value of 12  $\mu\text{g}/\text{m}^3$  (4.6 ppb).

The closest monitor run in accordance with the EPA's monitoring requirements contained in 40 CFR 50, 53, and 50 and associated appendices is located in Reno, Nevada, approximately 170 miles southwest of the facility. The Reno3 monitor (AQS ID: 32-031-0016) is operated by Washoe County Health District. SO<sub>2</sub> data collected at this monitor between 2012 and 2016 is available in AQS, is certified, and meets completeness requirements outlined in 40 CFR 50 Appendix T. The 2012-2014 and 2013-2015 design values at this site were both 16  $\mu\text{g}/\text{m}^3$  (6.1 ppb). The 2014-2016 design value was 13  $\mu\text{g}/\text{m}^3$  (5.0 ppb). This site is located within the city of Reno, surrounded by various anthropogenic sources. In contrast, North Valmy is located in a rural area without as much anthropogenic activities. As described above, the State used background values that vary hourly and seasonally, ranging from 2.0 to 9.3 ppb, in the range of Reno3's 2014, 2015, and 2016 design values.

The maximum predicted concentration with background as modeled by the state is 166.2  $\mu\text{g}/\text{m}^3$  (63.4 ppb), well below the level of the NAAQS. If the Reno3 monitor had instead been used for the background concentration, the largest the effect of the change could possibly be is the difference between the Reno3 16  $\mu\text{g}/\text{m}^3$  design value (for 2012-2014 and 2013-2014) and the smallest background value actually used in the modeling, 5.2  $\mu\text{g}/\text{m}^3$ ; this difference is 10.8  $\mu\text{g}/\text{m}^3$ . Thus, using Reno3's design value in place of the State's background approach would still lead to an attaining design value. We therefore conclude that while the State inappropriately relied on monitors that do not meet the EPA's monitoring requirements to calculate background concentrations of SO<sub>2</sub>, the use of concentrations from an appropriate monitor (*i.e.*, Reno3) would not change the determination that the North Valmy area is meeting the NAAQS.

#### 3.3.2.9. *Summary of Modeling Inputs and Results*

The AERMOD modeling input parameters for the area of analysis are summarized below in Table 3.

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<sup>12</sup> The SO<sub>2</sub> NAAQS level is expressed in ppb but AERMOD gives results in  $\mu\text{g}/\text{m}^3$ . The conversion factor for SO<sub>2</sub> (at the standard conditions applied in the ambient SO<sub>2</sub> reference method) is 1ppb = approximately 2.619  $\mu\text{g}/\text{m}^3$ .

**Table 3: Summary of AERMOD Modeling Input Parameters for the Area of Analysis for the Area Surrounding North Valmy**

<b>Input Parameter</b>	<b>Value</b>
AERMOD Version	15181 (regulatory default options)
Dispersion Characteristics	Rural
Modeled Sources	1
Modeled Stacks	2
Modeled Structures	16
Modeled Fence lines	2
Total receptors	9,633
Emissions Type	Actual
Emissions Years	2013-2015
Meteorology Years	2012-2014
Onsite Station for Surface Meteorology (NWS Station used for missing data)	Monitoring Site 1 (Winnemucca Municipal Airport)
NWS Station Upper Air Meteorology	Elko Regional Airport
Onsite Station for Surface Meteorology (NWS Station used for missing data)	Monitoring Site 1 (Winnemucca Municipal Airport)
Methodology for Calculating Background SO <sub>2</sub> Concentration	Tier 2, hourly and seasonally varying background, with hours affected by the facility's emissions removed
Calculated Background SO <sub>2</sub> Concentration	2-9.3 ppb

The results presented below in Table 4 show the magnitude and geographic location of the highest predicted modeled concentration based on the input parameters.

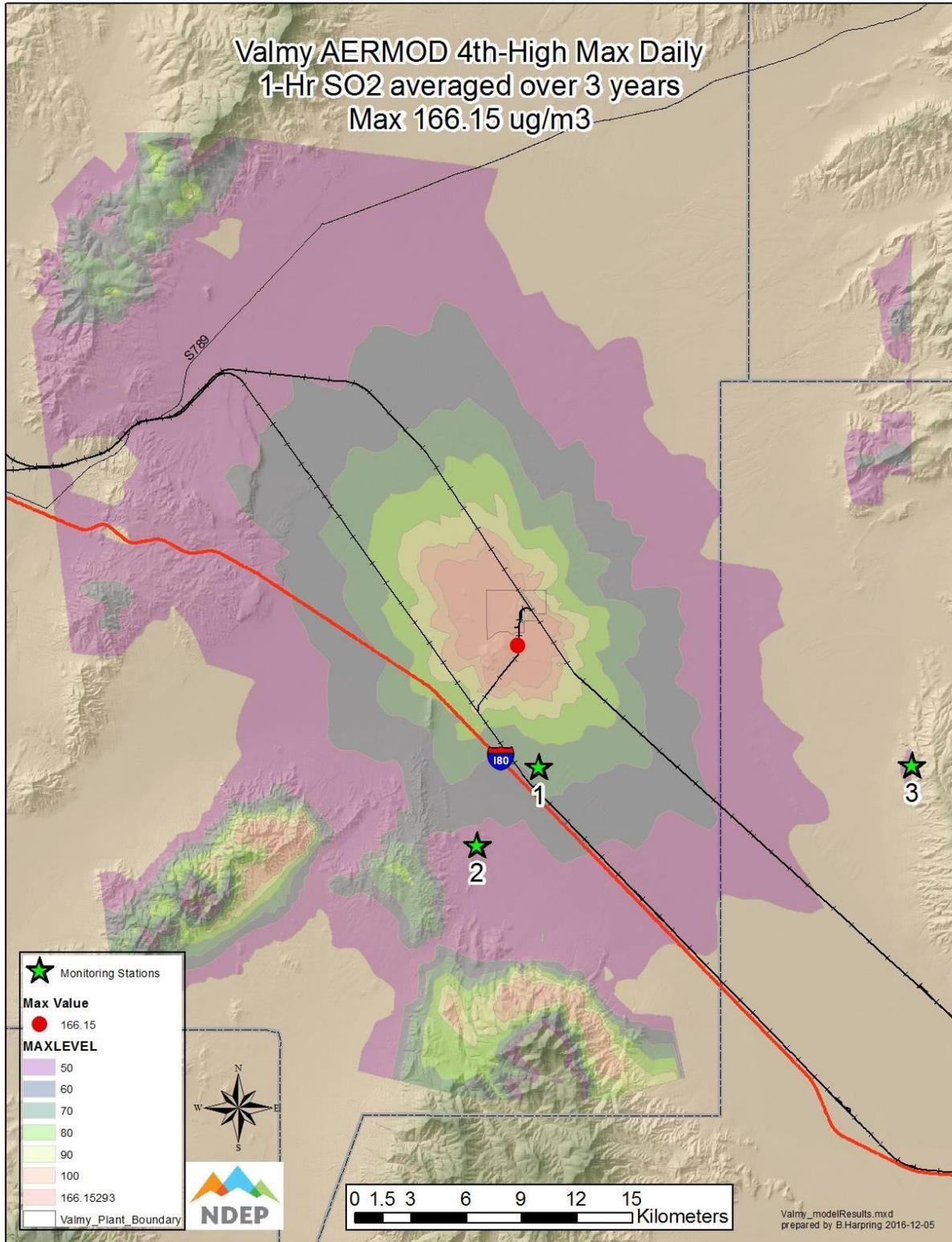
**Table 4. Maximum Predicted 99th Percentile Daily Maximum 1-Hour SO<sub>2</sub> Concentrations Averaged Over Three Years for the Area of Analysis for the Area Surrounding North Valmy**

<b>Averaging Period</b>	<b>Data Period</b>	<b>Receptor Location [UTM zone 11]</b>		<b>99<sup>th</sup> percentile daily maximum 1-hour SO<sub>2</sub> Concentration (µg/m<sup>3</sup>)</b>	
		<b>UTM/Latitude</b>	<b>UTM/Longitude</b>	<b>Modeled concentration (including background)</b>	<b>NAAQS Level</b>
99th Percentile 1-Hour Average	2013-2015	4524479/40.87N,	487509/117.15W	166.2	196.4*

\* Equivalent to the 2010 SO<sub>2</sub> NAAQS of 75 ppb using a 2.619 µg/m<sup>3</sup> conversion factor

The state's modeling indicates that the highest predicted 99<sup>th</sup> percentile daily maximum 1-hour concentration within the chosen modeling domain is 166.2  $\mu\text{g}/\text{m}^3$ , equivalent to 63.4 ppb. This modeled concentration included the background concentrations of  $\text{SO}_2$ , and is based on actual emissions from the facility. Figure 5 below was included as part of the state's recommendation, and indicates that the highest predicted value occurred approximately 700 m south of the plant boundary. The facility boundary and three monitoring sites used in the calculation of the background concentration are also shown in Figure 5.

**Figure 5: Predicted 99<sup>th</sup> Percentile Daily Maximum 1-Hour SO<sub>2</sub> Concentrations Averaged Over Three Years for the Area of Analysis for the Area Surrounding North Valmy**



The modeling submitted by the state does not indicate that the 1-hour SO<sub>2</sub> NAAQS is violated at the receptor with the highest modeled concentration.

*3.3.2.10. The EPA's Assessment of the Modeling Information Provided by the State*  
The state performed modeling for an area around North Valmy, using AERMOD version 15181, the most up-to-date version at the time of submittal, using all regulatory default options. AERMOD version 16216r has since become the regulatory model version.

There were no updates from 15181 to 16216r that would affect the concentrations predicted here. Based on the information provided by the state and summarized in Section 3.3, we conclude that the state adequately examined and characterized sources within the area of analysis and appropriately placed receptors in the modeling domain; appropriately initialized and accounted for modeled emission sources and building downwash; correctly selected meteorological sites and properly processed the data; and adequately estimated surface characteristics. Although the State inappropriately relied on monitors that do not meet the EPA's monitoring requirements to calculate background concentrations of SO<sub>2</sub>, the use of concentrations from an appropriate monitor (*i.e.*, Reno3) would not change the determination that the North Valmy area is meeting the NAAQS. . Based on this assessment, we conclude the modeling provided by the State adequately characterizes air quality in the area of analysis.

#### 3.4. Emissions and Emissions-Related Data, Meteorology, Geography, and Topography for the Area Surrounding North Valmy

Meteorology, geography, topography, and emissions from North Valmy have been incorporated into the air quality modeling efforts and results discussed above. The EPA is giving consideration to these factors by considering whether they were properly incorporated and by considering the air quality concentrations predicted by the modeling.

In considering boundaries for a designated area around North Valmy, we included emission-related information for other sources located within HA 64 and the full counties in which HA 64 is located. Emissions of SO<sub>2</sub> shown in Table 5 are based on the National Emissions Inventory (NEI) for 2014.

As shown in Figure 1 and Table 5, North Valmy is the only point source of SO<sub>2</sub> emissions within HA 64. County-level SO<sub>2</sub> emissions shown in Table 5 include emissions from the following source categories: point, nonpoint, on-road, non-road, and event.<sup>13</sup> Within Humboldt County, in addition to North Valmy, there are four other point sources of SO<sub>2</sub> emissions; however, none of the additional sources emitted SO<sub>2</sub> in excess of 10 tpy in 2014. Emissions of SO<sub>2</sub> from North Valmy represent over 99 percent of total county-level emissions in Humboldt County. Four additional point sources of SO<sub>2</sub> are located in Lander and Elko counties, however none are located within HA 64. Within Humboldt, Lander, and Elko counties, emissions of SO<sub>2</sub> from

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<sup>13</sup> Event emissions in the NEI include wildfires and prescribed burns. See <https://www.epa.gov/air-emissions-inventories/national-emissions-inventory-nei>.

North Valmy represent approximately 98 percent of total county-level emissions from the three counties combined.

**Table 5. Emissions and Point Sources in Counties Partially Included in Hydrographic Area 64**

<b>County (County-level Emissions)</b>	<b>Point Source in County (&gt; 1 tpy SO<sub>2</sub>)</b>	<b>Facility Location</b>	<b>Located in HA 64?</b>	<b>2014 SO<sub>2</sub> Emissions (tpy)</b>
Humboldt (7,467 tpy)	North Valmy	Valmy	Yes	7,429
	Twin Creeks Mine	Golconda	No	6
	Stationary Replacement for COLA 2373	Sparks	No	2
	HWY 95 Pit Road Facility	Winnemucca	No	2
	Winnemucca Station	Winnemucca	No	2
Lander (12 tpy)	Argenta Mine	Battle Mountain	No	4
Elko (123 tpy)	Wieland Flat Compressor Station	Elko	No	1
	Aggregate/Asphalt Plant	Elko	No	1
	Elko Regional Airport	Elko	No	2

### 3.5. Jurisdictional Boundaries in the Area Surrounding North Valmy

Existing jurisdictional boundaries are considered for the purpose of informing the EPA’s designation action. Our goal is to base designations on clearly defined legal boundaries, and to have these boundaries align with existing administrative boundaries when reasonable.

Based on its modeling analysis for the DRR to characterize air quality surrounding North Valmy, Nevada recommended that HA 64 is the appropriate boundary for the area. HA 64 spans portions of Humboldt, Elko, and Lander counties in Nevada. NDEP administers air quality programs for all counties in Nevada, except for Washoe and Clark Counties. Washoe and Clark counties administer air quality programs within each of their respective jurisdictions. All of HA 64, as well as all of Humboldt, Elko, and Lander counties are within the jurisdiction of NDEP.

The State of Nevada is divided into 14 hydrographic basins, which the State describes as a geographic area drained by a single major stream or an area consisting of a drainage system comprised of streams and often natural or man-made lakes (also referred to as a watershed). Within the 14 hydrographic basins, the State is divided into 232 hydrographic areas for water planning and management purposes.<sup>14</sup> Although related to water management, the State and the EPA have relied on hydrographic area boundaries for the purposes of previous air quality designations.

<sup>14</sup> <http://water.nv.gov/mapping/hydrographic.cfm>.

Hydrographic Area 64 is located in the Humboldt River Basin (Hydrographic Basin 4) and is 460,800 acres in size.<sup>15</sup> As shown in Figure 1, the area of HA 64 is smaller than the area of Humboldt County.

### 3.6. Other Information Relevant to the Designations for Hydrographic Area 64

Previous designations in Nevada have used hydrographic areas as boundaries for designating areas (*e.g.*, carbon monoxide NAAQS, PM<sub>10</sub> NAAQS) or have used counties as boundaries (*e.g.*, 1-hour ozone NAAQS), or a combination of hydrographic area and county boundaries (*e.g.*, 1997 8-hour ozone NAAQS).<sup>16</sup>

### 3.7. The EPA's Assessment of the Available Information for the Area Surrounding North Valmy

The modeling analysis submitted by Nevada to characterize air quality in the area surrounding North Valmy, located in Humboldt County, indicates no violations of the 2010 SO<sub>2</sub> NAAQS. As discussed above, we conclude the modeling provided by the state adequately characterizes air quality in the area of analysis and that North Valmy is not modeled to cause or contribute to violations of the 2010 SO<sub>2</sub> NAAQS. The maximum modeled concentration of SO<sub>2</sub> resulting from North Valmy was 166.15 µg/m<sup>3</sup> (63 ppb), which is approximately 85 percent of the level of the 2010 SO<sub>2</sub> NAAQS of 196.4 µg/m<sup>3</sup> (75 ppb). If an appropriate background concentration had been used, the conclusion would still be that there is no NAAQS violation. Therefore, the EPA intends to designate HA 64 as unclassifiable/attainment.

Nevada recommended an unclassifiable designation and recommended HA 64 as the appropriate boundary for this unclassifiable area. As noted elsewhere, the modeling submitted by Nevada indicated that the North Valmy area does not cause or contribute to violations of the 2010 SO<sub>2</sub> NAAQS. However, the State noted in its submittal letter to the EPA that it believes that modeling is not an appropriate substitute for monitoring for designation purposes, and therefore the State recommended that HA 64 be designated as unclassifiable.

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<sup>15</sup> Id.

<sup>16</sup> 40 CFR 81.329 Nevada.

As discussed in the final DRR and the preamble to the final 2010 SO<sub>2</sub> NAAQS, there is a long history of using dispersion modeling information to inform area designations for SO<sub>2</sub> NAAQS.<sup>17</sup> The EPA's use of modeling to support determinations of SO<sub>2</sub> NAAQS attainment status has been affirmed when challenged in court. Moreover, as modeling tools have become refined over time, they have become more accurate in predicting ambient SO<sub>2</sub> concentrations. Therefore, the EPA continues to consider the use of air quality modeling as appropriate for designations for the 2010 SO<sub>2</sub> NAAQS. Based on the modeling analysis for North Valmy submitted by Nevada, the EPA intends to designate HA 64 unclassifiable/attainment.

The state recommended HA 64 as the appropriate boundary for this area. As shown in Figure 1, North Valmy is located within the Humboldt County portions of HA 64. This hydrographic area encompasses portions of Humboldt, Lander, and Elko counties. Emissions from North Valmy represent 100 percent of SO<sub>2</sub> emissions in HA 64, and over 99 percent of emissions from Humboldt, Lander, and Elko counties. Because no other sources of SO<sub>2</sub> that emit more than 1 tpy of SO<sub>2</sub> are located within HA 64, and because sources located near HA 64 are small (*i.e.*, emit less than 10 tpy), the EPA considers the State's recommendation to rely on HA 64 as the boundary for the unclassifiable/attainment area encompassing North Valmy to be reasonable.

As discussed in Section 4 below, the EPA intends to designate the areas surrounding HA 64, as well as the rest of Nevada, as unclassifiable/attainment for the 2010 SO<sub>2</sub> NAAQS because these counties were not required to be characterized under 40 CFR 51.1203(c) or (d) and the EPA does not have available information including (but not limited to) appropriate modeling analyses and/or monitoring data that suggests that the area may (i) not be meeting the NAAQS, or (ii) contribute to ambient air quality in a nearby area that does not meet the NAAQS.

The intended designations of unclassifiable/attainment for HA 64 and the rest of state, encompass all of Nevada. There would be no remaining undesignated areas in Nevada following the completion of Round 3 designations, and no areas in Nevada will be addressed in a separate action by December 31, 2020.

The EPA believes that our intended unclassifiable/attainment area, bounded by HA 64, has clearly defined legal boundaries, and we intend to find these boundaries to be a suitable basis for defining the intended unclassifiable/attainment area.

### 3.8. Summary of Our Intended Designation for the Area Surrounding North Valmy

After careful evaluation of the state's recommendation and supporting information, as well as all available relevant information, the EPA intends to modify the state's unclassifiable recommendation and designate portions of Humboldt, Elko, and Lander counties as unclassifiable/attainment for the 2010 SO<sub>2</sub> NAAQS. Specifically, the boundaries are comprised of the boundaries of HA 64.

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<sup>17</sup> See 80 FR 51052 (August 21, 2015), and 75 FR 35551 (June 22, 2010).

Figure 1 above shows the boundary of this intended designated area. The EPA also intends to designate the remaining portions of Humboldt, Lander, and Elko counties as unclassifiable/attainment (see Figure 6 in Section 4.1). The boundaries of the unclassifiable/attainment areas are consistent with the recommendation by the state to rely on hydrographic areas for designation purposes.

## 4. Technical Analysis for the Rest of Nevada

### 4.1. Introduction

The state has not installed and begun timely operation of a new, approved SO<sub>2</sub> monitoring network meeting specifications referenced in the EPA’s SO<sub>2</sub> DRR for any sources of SO<sub>2</sub> emissions in the counties and portions of counties identified in Table 6. Accordingly, the EPA must designate these counties by December 31, 2017. At this time, there are no air quality modeling results available to the EPA for these counties and portions of counties. In addition, there is no air quality monitoring data that indicate any violation of the 1-hour SO<sub>2</sub> NAAQS. The EPA intends to designate the counties and portions of counties in Table 6 in the state as “unclassifiable/attainment” since these counties were not required to be characterized under 40 CFR 51.1203(c) or (d) and the EPA does not have available information including (but not limited to) appropriate modeling analyses and/or monitoring data that suggests that the area may (i) not be meeting the NAAQS, or (ii) contribute to ambient air quality in a nearby area that does not meet the NAAQS.

**Table 6. Counties and Portions of Counties that the EPA Intends to Designate Unclassifiable/Attainment**

County or Partial County (p)	Nevada’s Recommended Area Definitions	Nevada’s Recommended Designation	EPA’s Intended Area Definitions*	EPA’s Intended Designations
Rest of State <sup>+</sup> comprised of: <ul style="list-style-type: none"> <li>• Washoe County</li> <li>• Humboldt County (p)</li> <li>• Elko County (p)</li> <li>• Pershing County</li> <li>• Lander County (p)</li> <li>• Eureka County</li> <li>• White Pine County</li> <li>• Storey County</li> <li>• Lyon County</li> <li>• Churchill County</li> <li>• Carson City County</li> <li>• Douglas County</li> </ul>	Each hydrographic area	Unclassifiable	Each hydrographic area in Rest of State <sup>+</sup> by hydrographic area	Unclassifiable/Attainment

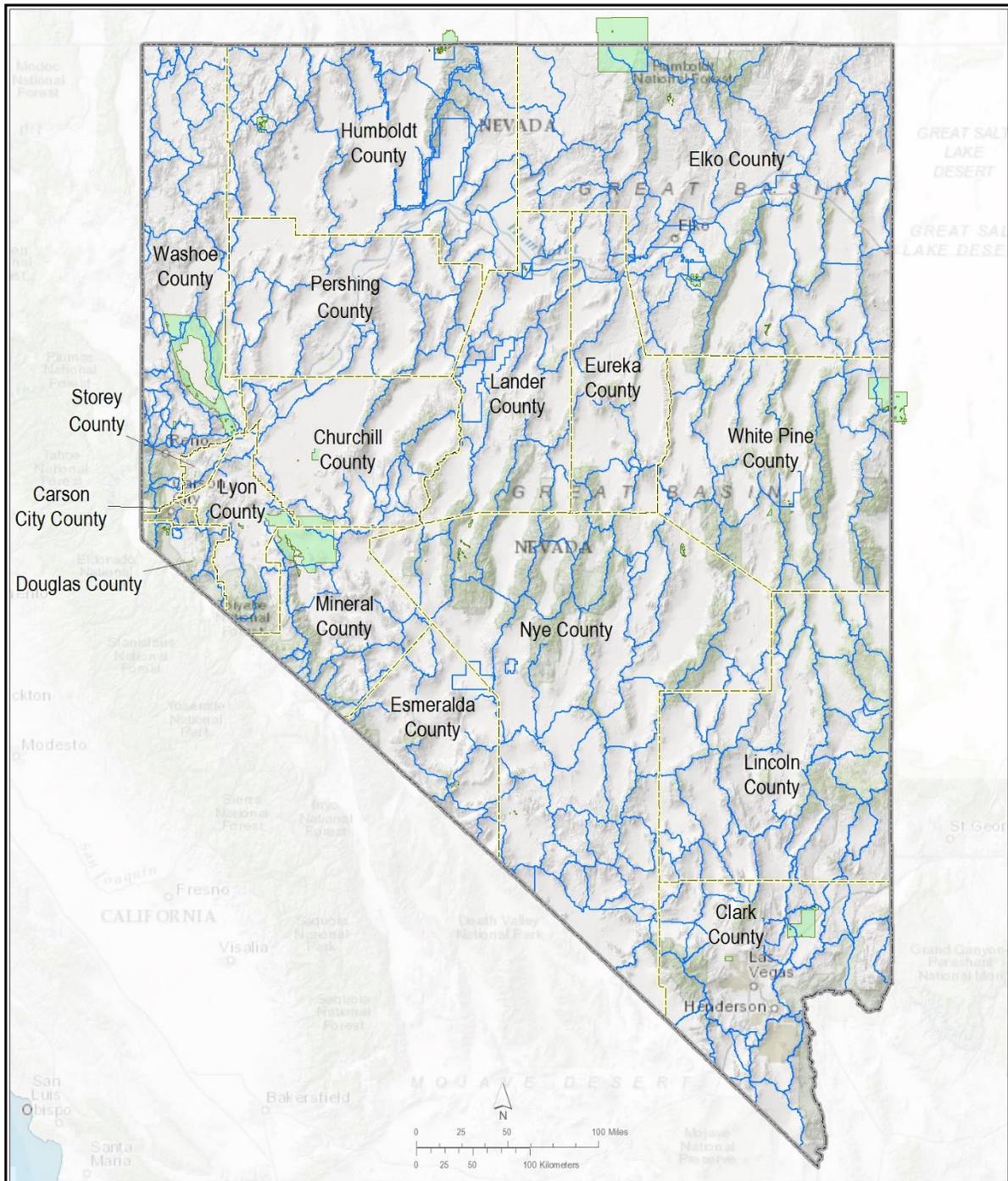
County or Partial County (p)	Nevada's Recommended Area Definitions	Nevada's Recommended Designation	EPA's Intended Area Definitions*	EPA's Intended Designations
<ul style="list-style-type: none"> <li>• Mineral County</li> <li>• Esmeralda County</li> <li>• Nye County</li> <li>• Lincoln County</li> <li>• Clark County</li> </ul>				

\*EPA is not determining the boundaries of any area of Indian country in this document, including any area of Indian country located in the larger designation area. The inclusion of any Indian country in the designation area is not a determination that the state has regulatory authority under the Clean Air Act for such Indian country.

+ Rest of State refers to hydrographic areas as shown on the State of Nevada Division of Water Resources' map titled Water Resources and Inter-basin Flows (September 1971), as revised to include a division of Carson Desert (area 101) into two areas, a smaller area 101 and area 101A, and a division of Boulder Flat (area 61) into an Upper Unit 61 and a Lower Unit 61 and excluding Hydrographic Area 64. *See also* 67 FR 12474 (March 19, 2002).

Table 6 also summarizes Nevada's recommendations for these areas. Specifically, the state recommended that each hydrographic area in the entire state be designated as a separate unclassifiable area based on the lack of monitoring data. After careful review of the state's assessment, supporting documentation, and all available data, aside from our intended unclassifiable/attainment designation for HA 64, the EPA intends to modify the state's recommendation of unclassifiable for these areas, and intends to designate each hydrographic area as a separate unclassifiable/attainment area. Figure 6 shows the locations of these areas within Nevada.

**Figure 6. The EPA’s Intended Unclassifiable/Attainment Designations for Individual Hydrographic Areas in Nevada**



**SO<sub>2</sub> Designations for all of Nevada:  
Unclassifiable/Attainment by Hydrographic Area**

- Hydrographic Area
- Tribal land
- Nevada state boundary
- County boundary

AIR17006 - SO<sub>2</sub> Designations HA64 and Nevada.mxd (June 1, 2017)  
 Sources: Esri, HERE, DeLorme, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey,  
 Esri Japan, METI, Esri China (Hong Kong), swisstopo, MapmyIndia, © OpenStreetMap contributors, and the GIS User Community, EPA (2017)



#### 4.2. Air Quality Monitoring Data for the Rest of Nevada

SO<sub>2</sub> data collected between 2014 and 2016 for the monitors listed in Table 7 below are available in AQS, are certified, and meet data completeness requirements outlined in 40 CFR 50 Appendix T. The Clark County monitor is located in Las Vegas, Nevada, and the Washoe County monitor is located in Reno, Nevada. These two monitors are the only regulatory SO<sub>2</sub> monitors within the state. Design values for this period at these sites were well below the NAAQS, as shown in Table 7. These data were available to the EPA for consideration in the designations process; however, since it is unclear if these monitors are located in areas of maximum concentration, it is unclear if the data are representative of the area's actual air quality.

**Table 7. Air Quality Data in the Rest of Nevada**

State	County	AQS ID	Address	2014-2016 Design Value (parts per billion)
NV	Clark	32-003-0540	4250 Karen Ave, Las Vegas, NV 89121	7
NV	Washoe	32-031-0016	301 A State Street, Reno, NV 89502	5

#### 4.3. Jurisdictional Boundaries in the Rest of Nevada

Existing jurisdictional boundaries are considered for the purpose of informing the EPA's designation action for the rest of Nevada. Our goal is to base designations on clearly defined legal boundaries, and to have these boundaries align with existing administrative boundaries when reasonable.

The state recommended that all hydrographic areas in Nevada be designated unclassifiable. Nevada is divided into three jurisdictions for managing air quality: The Air Quality Management Division of the Washoe County District Health Department, the Department of Air Quality and Environmental Management in Clark County, and the Nevada Division of Environmental Protection. Although these jurisdictions tend to be based on county-level boundaries, the state also noted that for Prevention of Significant Deterioration (PSD) baseline and increment tracking purposes, the term "state of Nevada" used in existing designations refers collectively to all individual hydrographic areas in Nevada. *See also* 67 FR 12474 (March 19, 2002).

#### 4.4. Other Information Relevant to the Designations for the Rest of Nevada

Previous designations in Nevada have used hydrographic areas as boundaries for designated areas (*e.g.*, carbon monoxide NAAQS, PM<sub>10</sub> NAAQS) or have used counties as boundaries (*e.g.*, 1-hour ozone NAAQS), or a combination of hydrographic area and county boundaries (*e.g.*, 1997 8-hour ozone NAAQS).<sup>18</sup>

#### 4.5. The EPA's Assessment of the Available Information for the Rest of Nevada

These areas were not required to be characterized under 40 CFR 51.1203(c) or (d) and the EPA does not have available information including (but not limited to) appropriate modeling analyses and/or monitoring data that suggests that the area may (i) not be meeting the NAAQS, or (ii) contribute to ambient air quality in a nearby area that does not meet the NAAQS. These counties therefore meet the definition of an "unclassifiable/attainment" area in this action.

Our intended unclassifiable/attainment areas have clearly defined legal boundaries, and we intend to find these boundaries to be suitable bases for defining our intended unclassifiable/attainment areas.

Although county-level boundaries have been used in some previous designations and the jurisdictions of the three agencies for managing air quality in Nevada tend to be based on county-level boundaries, the state recommended that hydrographic areas be used as the boundaries for designating areas. The use of hydrographic areas to define boundaries for the 2010 SO<sub>2</sub> designations is consistent with designations for some other NAAQS as well. Therefore, the EPA intends to designate all remaining hydrographic areas in Nevada as separate unclassifiable/attainment areas for the 2010 SO<sub>2</sub> NAAQS. Because the EPA did not receive designation recommendations from tribes geographically located in the areas listed in Table 6, consistent with our tribal designation policy, the EPA intends to designate the areas of Indian country with the surrounding hydrographic areas.

#### 4.6. Summary of Our Intended Designations for the Rest of Nevada

After careful evaluation of the state's recommendation and supporting information, as well as all available relevant information, the EPA intends to modify the state's recommendations and to designate the hydrographic areas identified in the above Table 6 as separate unclassifiable/attainment areas for the 2010 SO<sub>2</sub> NAAQS.

Figure 6 above shows the location of the intended unclassifiable/attainment areas within Nevada.

Following the completion of these Round 3 designations, there will be no remaining undesignated areas in Nevada to be addressed.

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<sup>18</sup> 40 CFR 81.329 Nevada. *See also* 67 FR 12474 (March 19, 2002).