Technical Support Document:

Chapter 34
Intended Round 3 Area Designation for the 2010 1-Hour SO_2 Primary National Ambient Air Quality Standard for Oregon

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_2) primary national ambient air quality standard (NAAQS) (2010 SO_2 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_2 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_2 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[1]. An unclassifiable area is defined by the 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_2 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.

This technical support document (TSD) addresses the designation for all of Oregon for the 2010 SO_2 NAAQS. In previous final actions, the EPA has issued designations for the 2010 SO_2

[1] 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.

NAAQS for selected areas of the country.[2] These previous actions have not included any areas in Oregon. The EPA is under a December 31, 2017, deadline to designate all of Oregon as required by the U.S. District Court for the Northern District of California.[3] 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_2 NAAQS. After the Round 3 designations are completed, the only remaining undesignated areas will be those where a state has installed and timely begun operating a new SO_2 monitoring network meeting EPA specifications referenced in the EPA's SO_2 Data Requirements Rule (DRR) (80 FR 51052). The EPA is required to designate those remaining undesignated areas by December 31, 2020. There are no areas in Oregon where the state has begun operation of such a new monitoring network.

Oregon submitted its first recommendation regarding designations for the 2010 1-hour SO_2 NAAQS on July 21, 2011, and recommended all of Oregon as Unclassifiable. The state submitted its updated air quality analysis and updated recommendations on February 3, 2017, and recommended Morrow County as Unclassifiable/attainment and the rest of the state as Unclassifiable. Oregon submitted an addendum to their original modeling on June 18, 2017, to re-address certain aspects of its modeling in response to EPA suggestions. 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 Oregon that are part of the Round 3 designations process, Table 1 identifies the EPA's intended designation of all of Oregon as one unclassifiable/attainment area. It also lists Oregon's current recommendations. The EPA's final designation for Oregon 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.

[2] A total of 94 areas throughout the U.S. were previously designated in actions signed by the EPA Administrator and published on August 5, 2013 (78 FR 47191), July 12, 2016 (81 FR 45039), and December 13, 2016 (81 FR 89870).
[3] *Sierra Club v. McCarthy*, No. 3-13-cv-3953 (SI) (N.D. Cal. Mar. 2, 2015).

Table 1. Summary of the EPA's Intended Designation and the Designation Recommendations by Oregon

Area/County	Oregon's Recommended Area Definition	Oregon's Recommended Designation	EPA's Intended Area Definition	EPA's Intended Designation
Morrow County	Full County	Unclassifiable/ Attainment	The Entire State of Oregon, as One Designated Area	Unclassifiable/ Attainment
Remaining Areas in Oregon	Remaining Counties[a]	Unclassifiable	The Entire State of Oregon, as One Designated Area	Unclassifiable/ Attainment

[a] The state's recommendation letters were not explicit as to whether the state's intention at the time was that each remaining county be a separate designated area, or that they be combined into a single designated area. The EPA has since verified over the phone that Oregon now prefers that if the EPA designates all portions of Oregon as unclassifiable/attainment, the entire state should be one designated area. The EPA intends to designate the remaining undesignated counties in Oregon 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 areas 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 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.

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_2 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_2 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_2, the EPA released its most recent version of a draft document titled, "SO_2 NAAQS Designations Modeling Technical Assistance Document" (Modeling TAD) in August 2016.[4]

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_2 Primary National Ambient Air Quality Standard) and Chapter 2 (Intended Round 3 Area Designations for the 2010 1-Hour SO_2 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_2 monitoring network meeting EPA specifications referenced in EPA's" DRR (80 FR 51052). 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 areas associated with sources meeting DRR emissions criteria that states have chosen to be characterized using air dispersion modeling (including one source in Oregon – Portland General Electric Company's Boardman Power Plant), areas associated with sources for which air agencies imposed emissions limitations on sources to restrict their SO_2 emissions to less than 2,000 tpy (none of which are in Oregon), sources that met the DRR requirements by demonstrating shut down of the source (none of which are in Oregon), areas for which the states chose monitoring for the DRR but did not timely meet the approval and operating deadline (none of which are in Oregon), and other areas not specifically required to be characterized by the DRR (including the remainder of Oregon).

Section 3 of this TSD addresses Morrow County, in which the Boardman Power Plant is located and for which modeling information is available. The remaining to-be-designated counties in Oregon are then addressed together in section 4. While addressed in separate sections, the EPA's intention is to designate the entire state of Oregon as a single unclassifiable/attainment area.

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_2 NAAQS – The primary NAAQS for SO_2 promulgated in 2010. This NAAQS is 75 ppb, based on the 3-year average of the 99^{th} percentile of the annual distribution of daily maximum 1-hour average concentrations. See 40 CFR 50.17.

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[2] https://www.epa.gov/sites/production/files/2016-06/documents/so2modelingtad.pdf. In addition to this modeling TAD, the EPA also has released a technical assistance document addressing SO_2 monitoring network design, to advise states that have elected to install and begin operation of a new SO_2 monitoring network. See Draft SO_2 NAAQS Designations Source-Oriented Monitoring Technical Assistance Document, February 2016, https://www.epa.gov/sites/production/files/2016-06/documents/so2monitoringtad.pdf.

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_2NAAQS, 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_2 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]
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_2 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_2 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.

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[5] 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.

3. Technical Analysis for the Morrow County Area

3.1. Introduction

The EPA must designate the Morrow County area by December 31, 2017, because the area has not been previously designated and Oregon has not installed and begun timely operation of a new, approved SO_2 monitoring network to characterize air quality in the vicinity of any source in Morrow County.

3.2. Air Quality Monitoring Data for the Morrow County Area

There are no SO_2 monitoring stations in operation in Morrow County.

3.3. Air Quality Modeling Analysis for the Morrow County Area Addressing Boardman Power Plant

3.3.1. Introduction

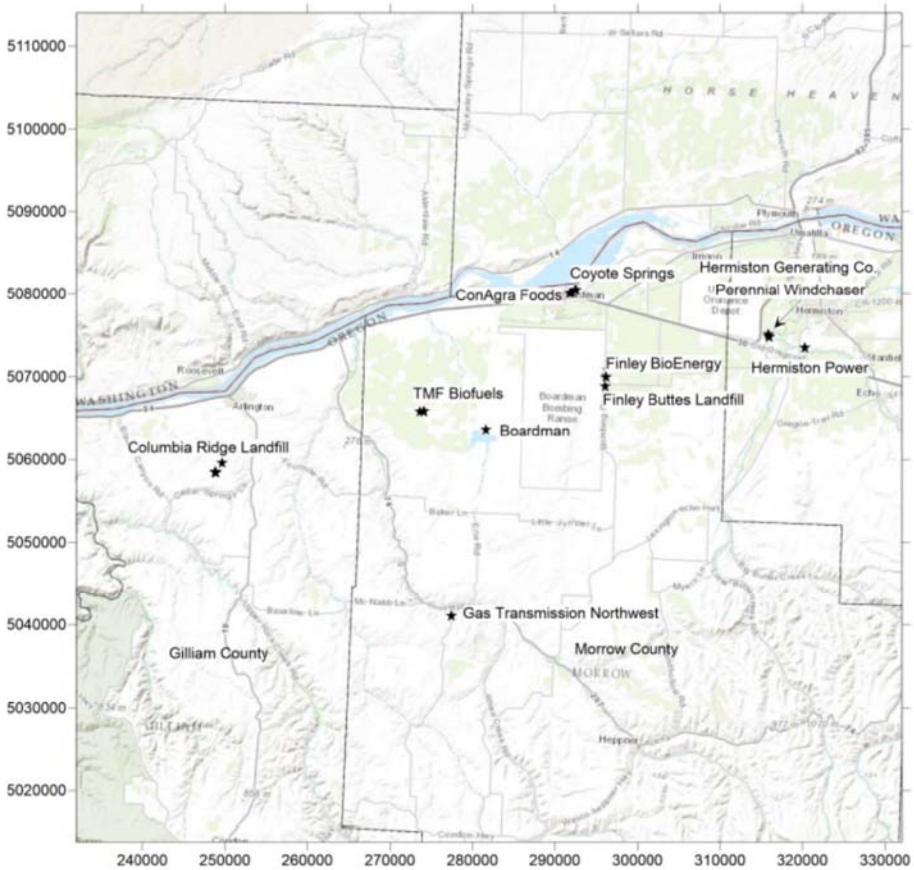
This section 3.3 presents all the available air quality modeling information for a portion of Morrow County that contains Portland General Electric Company's (PGE) Boardman Power Plant (Boardman). (This portion of Morrow County will often be referred to as "the Morrow County area" within this section 3.3). This area contains the following SO_2 source, which Oregon is required by the DRR to characterize SO_2 air quality, or alternatively to establish an SO_2 emissions limitation of less than 2,000 tons per year:

- The PGE Boardman facility emits 2,000 tons or more annually. Specifically, PGE Boardman emitted 7,439 tons of SO_2 in 2014. This source meets the DRR criteria and thus is on the SO_2 DRR Source list, and Oregon has chosen to characterize it via modeling. The facility consists of a 575 MW coal-fired power plant.

In its submission, Oregon recommended that an area that includes the area surrounding the PGE Boardman Facility, specifically the entirety of Morrow County, be designated as unclassifiable/attainment based in part on an assessment and characterization of air quality impacts from this facility. This assessment and characterization was performed using air dispersion modeling software, i.e., AERMOD, analyzing allowable emissions. After careful review of the state's assessment, supporting documentation, and all available data, the EPA agrees with the state's recommendation for the area, and intends to designate the area as unclassifiable/attainment. Our reasoning for this conclusion is explained in a later section of this TSD, after all the available information is presented.

Figure 1 below, shows the location of the PGE Boardman facility within Morrow county.

Figure 1. Map of the Morrow County Area Addressing PGE Boardman

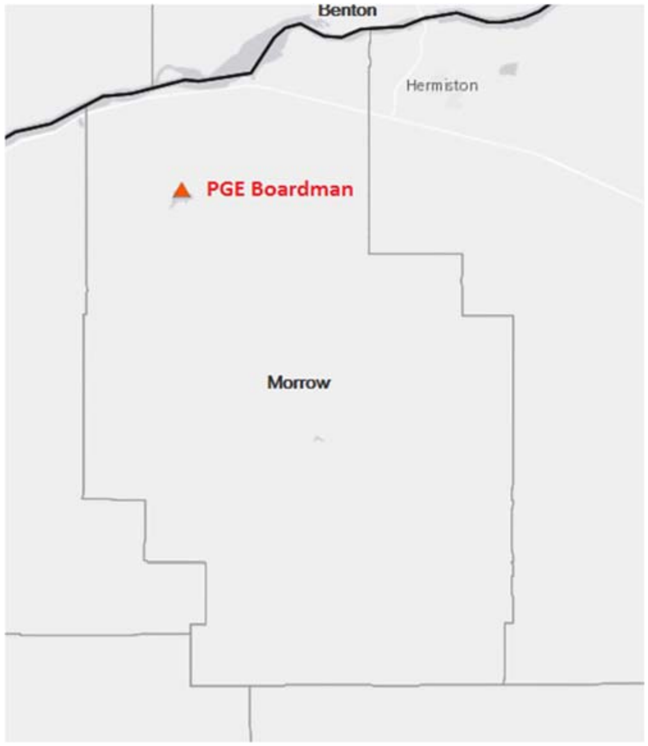


Also included in the figure are other nearby emitters of SO_2.[6] These are ConAgra Foods Lamb Weston, Inc., TMF Biofuels, LLC, Finley Buttes Landfill Company, Oregon Potato Company, Gas Transmission Northwest LLC, Finley BioEnergy LLC, Perennial-Windchaser LLC, Hermiston Generating Company, Hermiston Power LLC, and Columbia Ridge Landfill.

Figure 1 does not show the entirety of Morrow County. Figure 2 does show the entirety of the county. The state has officially recommended that Morrow County be the area for an unclassifiable/attainment area. This recommendation was made in the context of the state's expectation at the time that the remainder of the state would be designated unclassifiable, and so a boundary between two separate designated areas needed to be established. Consistent with more recent information on the state's preference, the EPA intends to combine Morrow County with the remainder of the state, addressed in section 4, into one designated unclassifiable/attainment area.

[6] All other SO_2 emitters of 2 tpy or more in the vicinity of Boardman (based on information in the Oregon modeling analysis submittal) are shown in Figure 1.

Figure 2. Map of the Morrow County Area Addressing PGE Boardman



The discussion and analysis that follows below will reference the Modeling TAD and the factors for evaluation contained in the EPA's July 22, 2016, guidance and March 20, 2015, guidance, as appropriate.

3.3.2. Modeling Analysis Provided by the State

The state contracted with SLR Consultants to conduct the modeling and provide a report detailing the methodology and results. The modeling report was submitted to the EPA pursuant to the state's DRR requirements.

3.3.2.1. Model Selection and Modeling Components

The EPA's Modeling TAD notes that for area designations under the 2010 SO_2 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
- BPIPPRM: 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. Regulatory default options were used. The ADJ_U* module was not used in the modeling. On January 17, 2017, EPA published its revision to Appendix W – Guideline to Air Quality Models.7 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_2 modeling, the urban/rural determination is important because AERMOD invokes a 4-hour half-life for urban SO_2 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 source is located in a sparsely-populated agricultural area about 30 miles west-southwest of Hermiston, Oregon (population 18,000) in north-central Oregon.

The EPA agrees with the conclusion that it was most appropriate to run the model in rural mode, based on the rural nature of the area surrounding the source and the source being located in a sparsely-populated agricultural area about 30 miles west-southwest of Hermiston, Oregon (population 18,000) in north-central Oregon. The nearest city is Boardman, Oregon (population 3,200) located about 10 miles northeast of the Boardman facility. The land surrounding the facility is arid to its east and south and agricultural to its west and north. The population density is very low and the area is undeveloped. The need for an extensive analysis of rural/urban settings for AERMOD was not needed based on the obvious rural nature of the area.

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

The Modeling Technical Assistance Document (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 TAD include but are not limited to: the location of the SO_2 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_2 concentrations.

The source of SO_2 emissions subject to the DRR in this area are described in the introduction to this section. For the Morrow County area, the state has included 11 other emitters of SO_2 within a 50 kilometers (km) radius of PGE Boardman. The state determined that this was the appropriate distance to adequately characterize air quality through modeling to include the potential extent of any SO_2 NAAQS exceedances in the area of analysis and any potential impact on SO_2 air quality from other sources in nearby areas. In addition to PGE Boardman, the other emitters of SO_2 included in the area of analysis include ConAgra Foods Lamb Weston, Inc., TMF Biofuels LLC, Finley Buttes Landfill Company, Oregon Potato Company, Gas Transmission Northwest LLC, Finley BioEnergy LLC, Perennial-Windchaser LLC, Hermiston Generating Company, Hermiston Power LLC, and Columbia Ridge Landfill. Emissions from PGE's 450 MW Carty Generating Station, located less than a kilometer northeast from PGE Boardman, were also included in the modeling. This generating station began operation in July 2016. The Carty facility is a combined-cycle gas-fired plant configured with three natural-gas fired turbines. No other sources within the 50 km radius were determined by the state to have the potential to cause concentration gradient impacts within the area of analysis.

The grid receptor spacing for the area of analysis chosen by the state is as follows:
In the air dispersion modeling analysis, ground-level concentrations were calculated within five discrete receptor grids of varying density. These five grids cover a region extending up to 50 km from the Boardman facility. The grids were defined as follows:

1) a "fine" grid: receptors spaced every 50 m extending 1 km from the facility
2) a "medium" grid: receptors spaced every 100 m extending from 1 km to 2 km
3) a "large" grid: receptors spaced every 250 m extending from 2 km to 5 km
4) a "x-large" grid: receptors spaced every 500 m extending from 5 km to 20 km
5) a "coarse" grid: receptors spaced every 1,000 m extending from 20 km to 35 km
6) a "coarsest" grid: receptors spaced every 2,000 m extending from 35 km to 50 km.

Concentrations were modeled at the Boardman facility fenceline using discrete receptors at 50 meter intervals.

Figure 3 and Figure 4, included in the state's recommendation, show the state's chosen area of analysis surrounding PGE Boardman, as well as the receptor grid for the area of analysis.

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 had the option of excluding receptors in locations described in Section 4.2 of the Modeling TAD as not being feasible locations for placing a monitor, such as areas over water. However, the state opted to not exclude receptors. Maximum concentrations occurred over land that could feasibly accommodate a monitor. A substantial portion of the Boardman site is delineated by chain link fence or barbed wire. A gate limits access on an unnamed road that is southeast of the site. In addition, the Carty Reservoir provides a natural barrier to the south of the site. This information was incorporated into the dispersion modeling analysis.

Since public access is essentially prevented to the site property, no receptors were located within the Boardman facility fenceline and since the maximum concentration predicted value occurred about 2 km east-southeast of the source, the modeling likely includes the maximum concentration in ambient air.

Figure 3: Raw NED Terrain Data and Extents of Receptor Grids

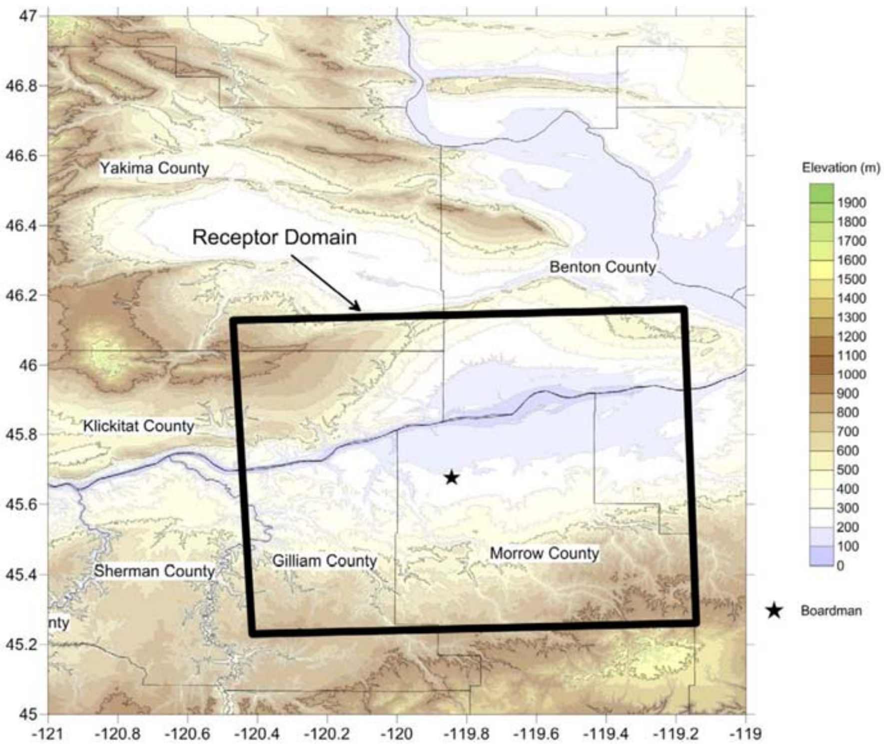
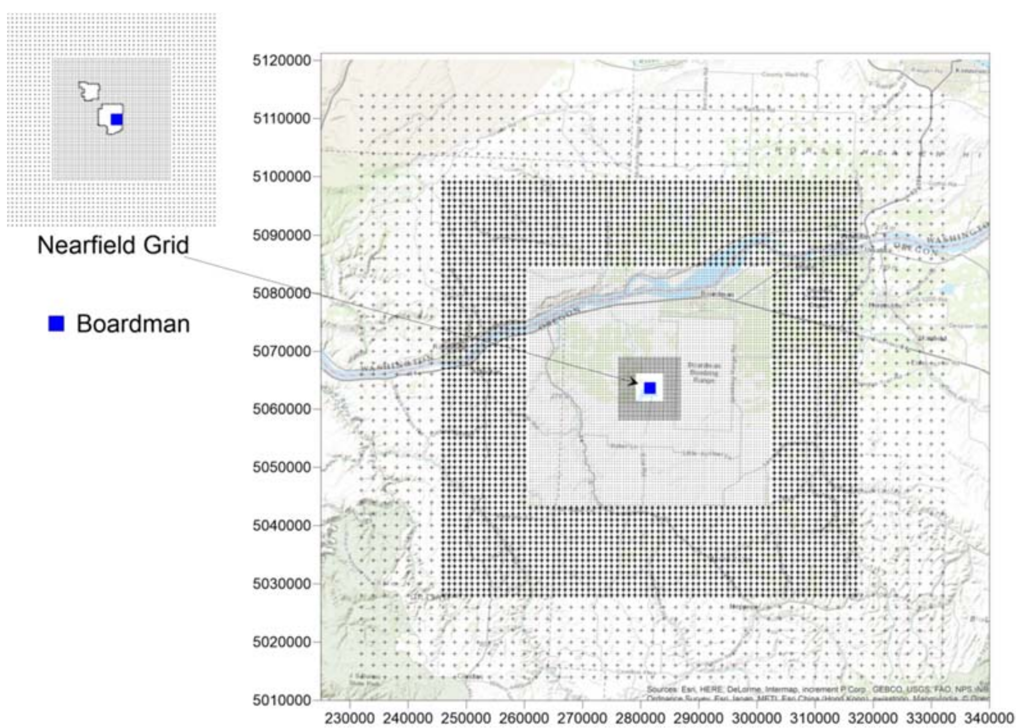


Figure 4: Receptor Grids surrounding the Boardman PGE facility



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 PGE Boardman facility was modeled in AERMOD, assessing dispersion of emissions from the 200-meter (m) tall plant stack and incorporating downwash from facility buildings. 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 GEP stack heights in conjunction with allowable 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. Where appropriate, the AERMOD component BPIPPRM was used to assist in addressing building downwash.

The PGE Boardman facility emits SO_2 from a single 200 m tall stack of 6.7 m diameter. The maximum SO_2 emission rate is capped under a Best Available Retrofit Technology (BART) federally enforceable emission limit of 0.4 lbs of SO_2/MMBtu. This emission limit became effective on July 1, 2014. The Modeling TAD specifies GEP stack height should be used in the modeling if allowable emissions are applied. 40 CFR § 51.100(ii) defines GEP stack height as the greater of 65 meters or a height determined from the dimension of nearby structures. For stacks in existence on January 12, 1979, the GEP height is determined as 2.5 times the height of nearby structure. For all other stacks, the GEP height is "H + 1.5L", where H is the height of the nearby structure and L is the lesser of height or projected width of the nearby structure. The BPIPPRM model provides a calculation of the GEP stack height based on the latter equation (for stacks built after January 12, 1979).

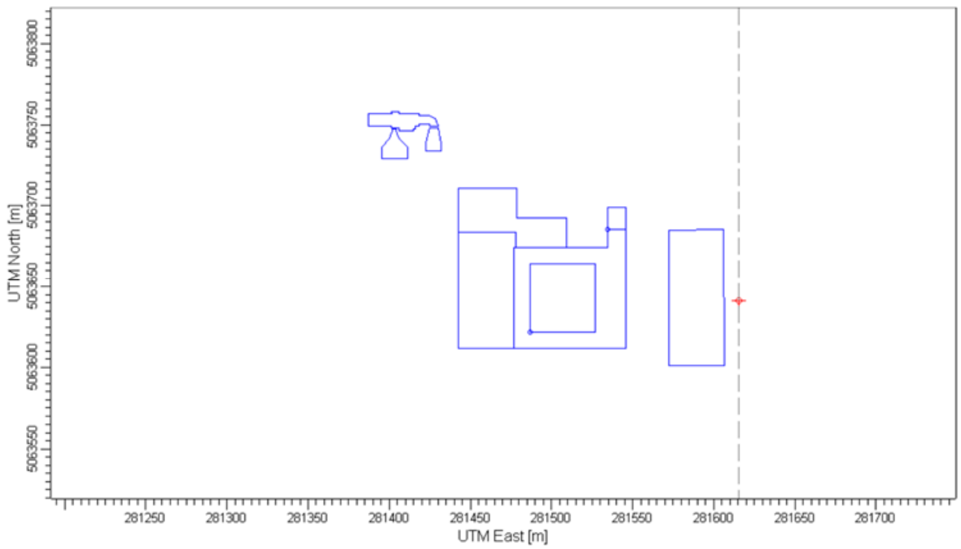
The EPA issued PGE a determination on May 15, 1975, stating "PGE has 'entered into a binding agreement or contractual obligation to undertake and complete, within a reasonable time frame, a continuous program of construction or modification.'" A continuous program of on-site construction began on January 26, 1976. Given these facts, the stack was clearly in existence on January 12, 1979. Based on this history, GEP is the higher of 65 m or 2.5H. "H" is defined as the height of nearby structures which, in this case, would be the height of the adjacent Power Block structure (82.3 m). Therefore, the GEP stack height is 2.5 * 82.3 m = 206 m.

Since the GEP stack height is greater than the actual stack height, the actual stack height of 200 m is the appropriate stack height for use in air quality compliance demonstrations. However, the State decided to conduct modeling using the height of 159 m, determined from the "H + 1.5L" equation, as used in the BPIPPRM model. This stack height is expected to overstate potential impacts as compared to what would be modeled using the actual stack height.

In addition to the facility, nearby sources were included in the modeling. Oregon's source inventory was analyzed and 11 sources were identified for inclusion in the modeling based on their significant emission rates (SERs) and distance from the Boardman facility, listed in Section 3.3.2.3. Based on the information available, it appears all SO_2 sources expected to cause a concentration gradient in the vicinity of the source of interest were sufficiently accounted for in the modeling. The stack parameters for each additional source included in the modeling were extracted directly from the state's source database.

Downwash was accounted for using building dimension estimates provided by PGE Boardman. Images of the buildings provided to BPIPPRM are shown in Figure 5. Building downwash was not used for the additional sources. Given the distance of the additional sources from PGE Boardman and the location of maximum modeled concentrations, downwash modeling of the additional sources is not necessary because downwash influence does not extend far from the source.

Figure 5. PGE Boardman facility buildings used for BPIPPRM downwash calculations;



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 Modeling 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 effective and enforceable.

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.

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, where a facility has recently adopted a new federally enforceable emissions limit or implemented other federally enforceable mechanisms and control technologies to limit SO_2 emissions to a level that indicates compliance with the NAAQS, the state may 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_2 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," (hereafter referred to Appendix W).

As previously noted, the state included PGE Boardman and 11 other emitters of SO_2 within 50 km in the area of analysis. The state has chosen to model these facilities using the most recent federally enforceable PTE limits for SO_2 emissions. The facilities in the state's modeling analysis and their associated PTE rates are summarized below.

For PGE Boardman and the 11 offsite sources, the state provided PTE values. This information is summarized in Table 2. A description of how the state obtained hourly emission rates is given below this table.

Table 2: SO_2 Emissions based on PTE from Facilities in the Morrow County Area

Facility Name	SO_2 Emissions (tpy, based on PTE)
PGE Boardman Coal-fired power plant	11,213
Columbia Ridge Landfill	88.3
PGE Boardman Carty Plant	39.4
ConAgra Foods Lamb Weston, Inc.	38.8
TMF Biofuels, LLC	21.1
Hermiston Power LLC	11.8
Hermiston Generating Company	10.0
Perennial-Windchaser LLC	5.2
Oregon Potato Company	4.3
Finley BioEnergy LLC	3.3
Gas Transmission Northwest LLC	2.5
Finley Buttes Landfill	2.0
Total Emissions from All Modeled Facilities in the Area of Analysis	11,440

The PTE in tons per year for PGE Boardman was determined by the state based on the federally enforceable SO_2 emission rate of 0.4 lbs/MMBtu. This rate is specified as a maximum 30-day rolling average SO_2 emission rate under Condition 26.b.i of the Title V operating permit.[7] This limit was enacted as part of the April 20, 2011, modification to the Title V permit for compliance with the EPA's Regional Haze Rule. The condition was added to incorporate Best Available Retrofit Technology (BART) emission rates. In July 2014 a dry sorbent injection (DSI) system became operational at the plant to reduce SO_2 emissions and comply with the BART requirements. The Title V permit requires that Boardman implement a phased reduction of operation and cease coal-fired operation by December 31, 2020. Emissions were assumed to be the same in each modeled year.

The PGE Boardman SO_2 federally enforceable emission limit is 0.4 lbs/MMBtu on a 30-day rolling average basis. This corresponds to an emission rate of 2,560 lbs/hr assuming the maximum boiler heat input of 6,400 MMBtu/hr (determined from 1997-2008 CEMS data[8]). The nominal capacity of the boiler is assumed to be 5,793 MMBtu/hr based on a capacity of 350 tons of coal per hour, as specified in the emission calculations and support documents provided on the ODEQ website.[6]

To determine an appropriate hourly emission rate to use for the modeling, Oregon contacted the EPA Region 10 Office of Air and Waste for technical assistance. EPA referred the state to the 2014 Guidance for 1-hour SO_2 nonattainment area SIP submissions[9] (the "nonattainment guidance") as a resource for this effort. This guidance provided methods to determine an appropriate 30-day rolling average emission limit based on 1-hour average critical values, where the critical value is the threshold emission rate determined by modeling to prevent violations of air quality standards. The approach to selecting hourly values of allowable emissions for the Boardman facility does not follow the cited SIP guidance from the EPA step-by-step, because the situation being addressed in the modeling is different (reversed) from the situation addressed in the SIP guidance. However, the EPA believes it to be a reasonable conceptual approach for the purposes of this intended designation action. In supporting the state's recommendation of U/A, we have compared actual emissions over the July 30, 2014, through December 31, 2016, period when the control device was fully operational. The average actual emissions are well below what the state modeled for determining a potential critical emission value. We are confident that no exceedances of the NAAQs have occurred when considering past actual emissions compared to the modeled emission rate and therefore agree with the state's recommendation. For further explanation on EPA's evaluation of the emission rate that Oregon used in its modeling, see the memo to the docket titled 'Proposed method to derive a representative hourly SO2 emission rate for the Portland General Electric Boardman (PGE) Power Plan for 1-hour SO2 DRR modeling.[10]

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[7] ODEC Operating Permit #25-0016-TV-01 and related materials available online at https://www.oregon.gov/deq/Programs/Pages/PGE-Boardman.aspx

[8] Reported in PGE Boardman Best Available Retrofit Technology (BART) Reasonable Progress Analysis, Revision 3: Boardman 2020 Alternative. Aug. 27, 2010 report by Black & Veatch and SLR, available at: http://www.deq.state.or.us/aq/haze/docs/pge/augustPGEalternative.pdf

[9] Page, Stephen D. April 23, 2014 memorandum. Guidance for 1-Hour SO_2 Nonattainment Area SIP Submissions.

[10] McAlpine, Jay. June 22, 2017 memorandum. Proposed method to derive a representative hourly SO_2 emission rate for the Portland General Electric Boardman (PGE) Power Plant for the 1-hour SO_2 DRR modeling. Available in Docket # EPA-OAR-2017-0003.

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. When allowable emissions are used, use of a single year of PSD-quality site-specific meteorological data is allowed. 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 for the Morrow County area, the state selected the surface meteorology from a site-specific PSD-quality dataset collected approximately 3.4 km from the PGE Boardman facility, and coincident upper air observations from the Spokane International Airport (KGEG: 47.62 lat, -117.50 long.), located approximately 280 km northeast of the source.

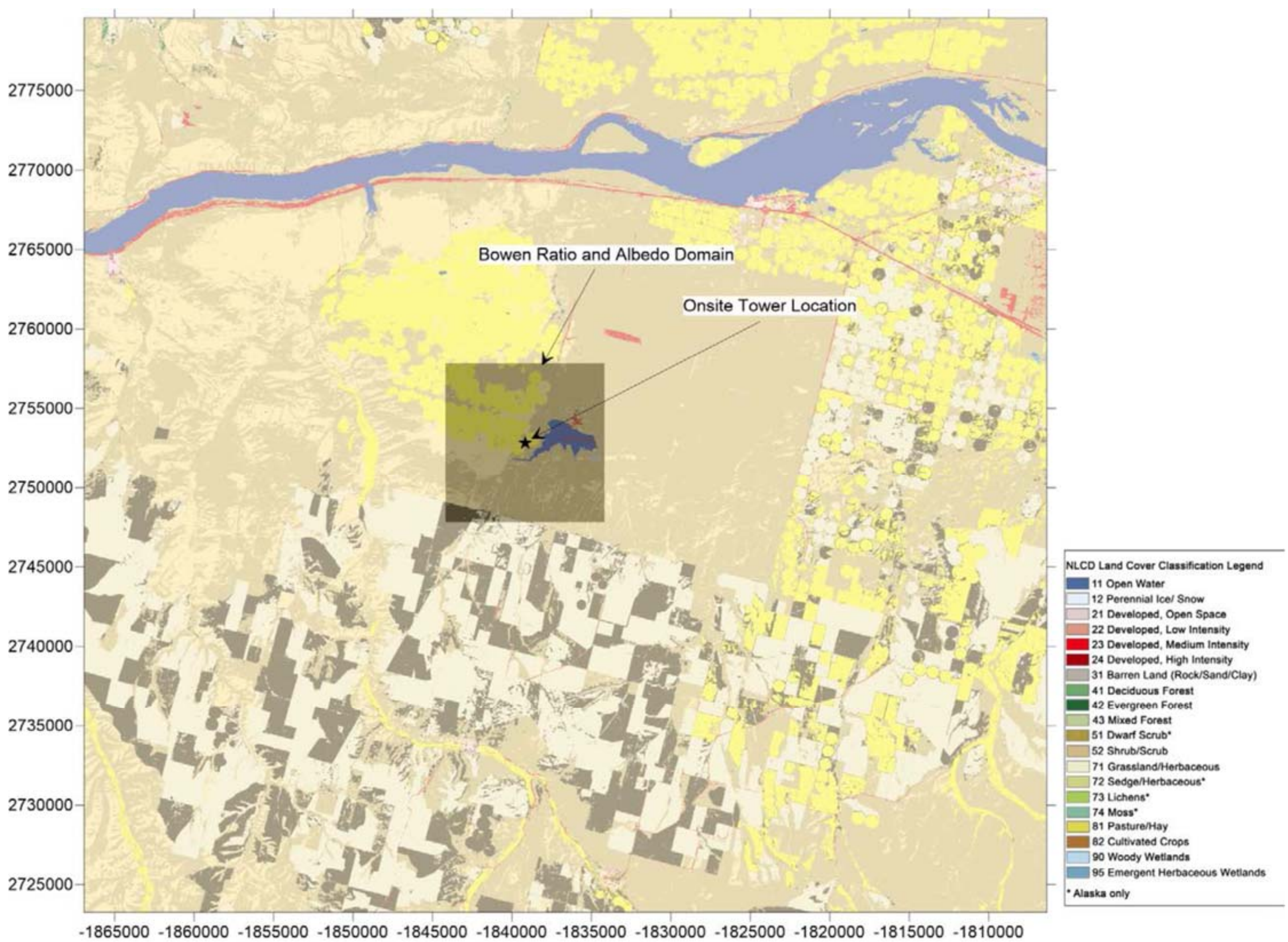
The site-specific dataset consisted of one year of PSD-quality meteorological data collected at a 70-meter tower from April 1, 2012 to March 31, 2013. The station was operated according to an approved QAPP and satisfied data completeness and quality assurance requirements. The state submitted all of the quality control documents as Appendix C of the modeling report. The nearest ASOS meteorological dataset was collected at the Hermiston airport, located approximately 45 km from the Boardman. Although both meteorological sites are located in the Columbia River Valley and expected to have similar climatology, local scale influences on important meteorological parameters such as wind speed and wind direction can be important, especially on a 1-hour basis. Thus, the site-specific meteorological data is considered representative and was used as the primary source of meteorological data for the analysis. Periods of missing data (32 hours in total) were supplemented with 1-minute wind data from Hermiston Airport (KHRI), located approximately 45 km east-northeast of the source.

The PSD-quality meteorological dataset consisted of winds measured at 10 m, 28 m, and 70 m height. Wind data from all three heights were used in the AERMET processing. AERMET used the 10 m wind data to produce data for the surface (SFC) meteorological input file for AERMOD. AERMET provided the 28 m and 70 m wind data in the upper-air (PFL) meteorological input file for AERMOD.

The state used AERSURFACE version 13016 using data from the 1992 NLCD database to estimate the surface characteristics of the area of analysis. The state estimated values for 12 spatial sectors out to 1.0 km at a seasonal temporal resolution for dry conditions (a sensitivity study was conducted, at the request of EPA Region 10, to compare AERMOD modeling results using both dry and average conditions; results using dry conditions were found to be more conservative). The state also estimated values for albedo (the fraction of solar energy reflected from the earth back into space), the Bowen ratio (the method generally used to calculate heat lost or heat gained in a substance), and the surface roughness (sometimes referred to as "Zo").

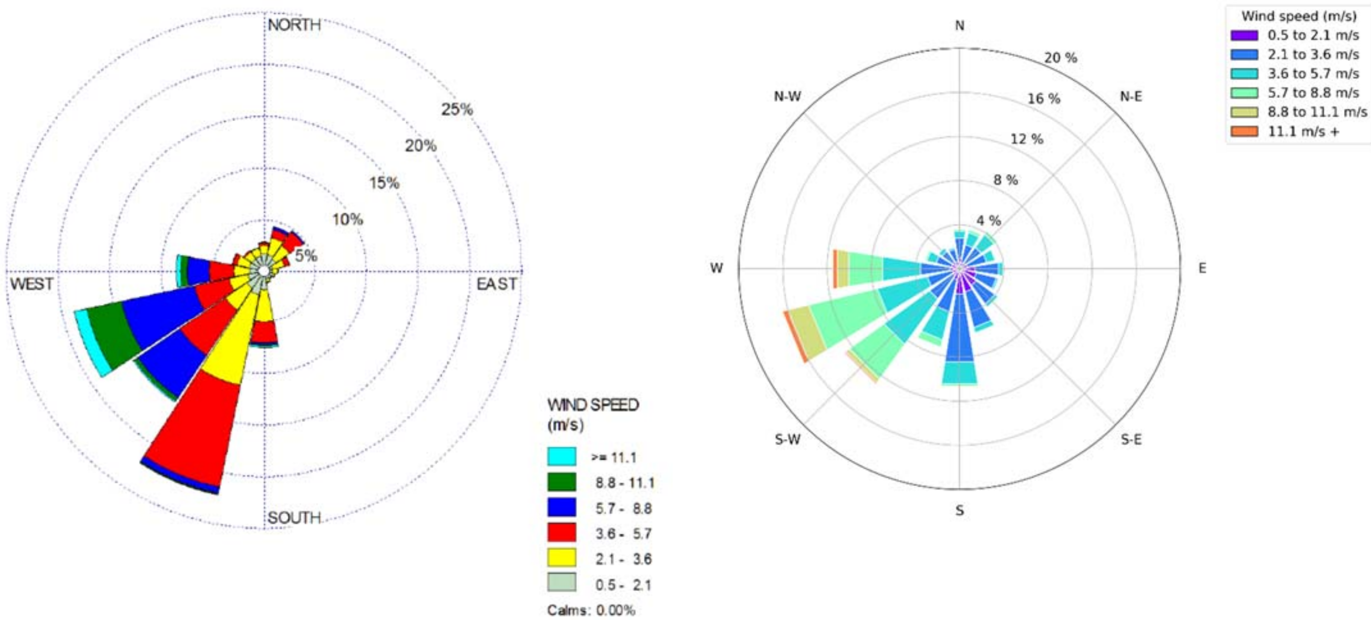
In Figure 6 below, included in the state's recommendation (included in the modeling report), the land-use distribution and the location of this NWS station is shown relative to the area of analysis.

Figure 6. AERSURFACE Processing for Site-Specific Meteorological Tower.



As part of its recommendation, the state provided the 1-year surface wind rose for the onsite meteorological station. In Figure 7, the wind roses for the 2012-2013 site-specific dataset and the 2012-2016 Hermiston airport ASOS dataset are plotted.

Figure 7. Wind roses (10 m winds) for the 2012-2013 site-specific 70-m tower (left) provided by the state and for 2012-2016 Hermiston airport ASOS station (right, developed by EPA Region 10).



Meteorological data from the above surface ASOS, site-specific, and 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 AERMET User's Guide Addendum[11] in the processing of the raw site-specific meteorological data into an AERMOD-ready format, and used AERSURFACE to best represent surface characteristics.

The EPA has reviewed the quality assurance documentation for the site-specific tower provided by the state and analyzed the representativeness of the wind climate indicated by the wind rose. The wind rose was compared to a five-year (2012-2016) dataset from the Hermiston airport (refer to Figure 3). The wind rose comparison demonstrates the 1-year site-specific dataset contains similar wind climate patterns including a dominant mode of stronger west-southwest winds, secondary mode of weak southerly winds, and tertiary mode of lighter northeast winds. It was the conclusion of the EPA that the 1-year PSD-quality site-specific dataset is of sufficient quality and representativeness for use in regulatory modeling. The upper-level wind measurements are unique and likely improve the predictability of AERMOD compared to that of a standard single-height meteorological dataset.

[11] USEPA, 2015: User's Guide for the AERMOD Meteorological Preprocessor (AERMET) [Addendum]. Office of Air Quality Planning and Standards, Research Triangle Park, North Carolina, EPA-454/B-03-002.

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

The terrain in the area of analysis is best described as moderately complex. The source is located in the arid Columbia River Valley region of north-central Oregon. The area north and west of the source is generally flat agricultural land. South of the source the land consists of low arid hills. To account for these 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 National Elevation Dataset (NED) 1/3 arcsecond scale (about 10 m resolution).

The EPA reviewed the NED data and AERMAP processing methodologies used and determined the approach was more than sufficient. The high-resolution 1/3 arcsecond NED data provides a high level of detail.

3.3.2.8. Modeling Parameter: Background Concentrations of SO_2

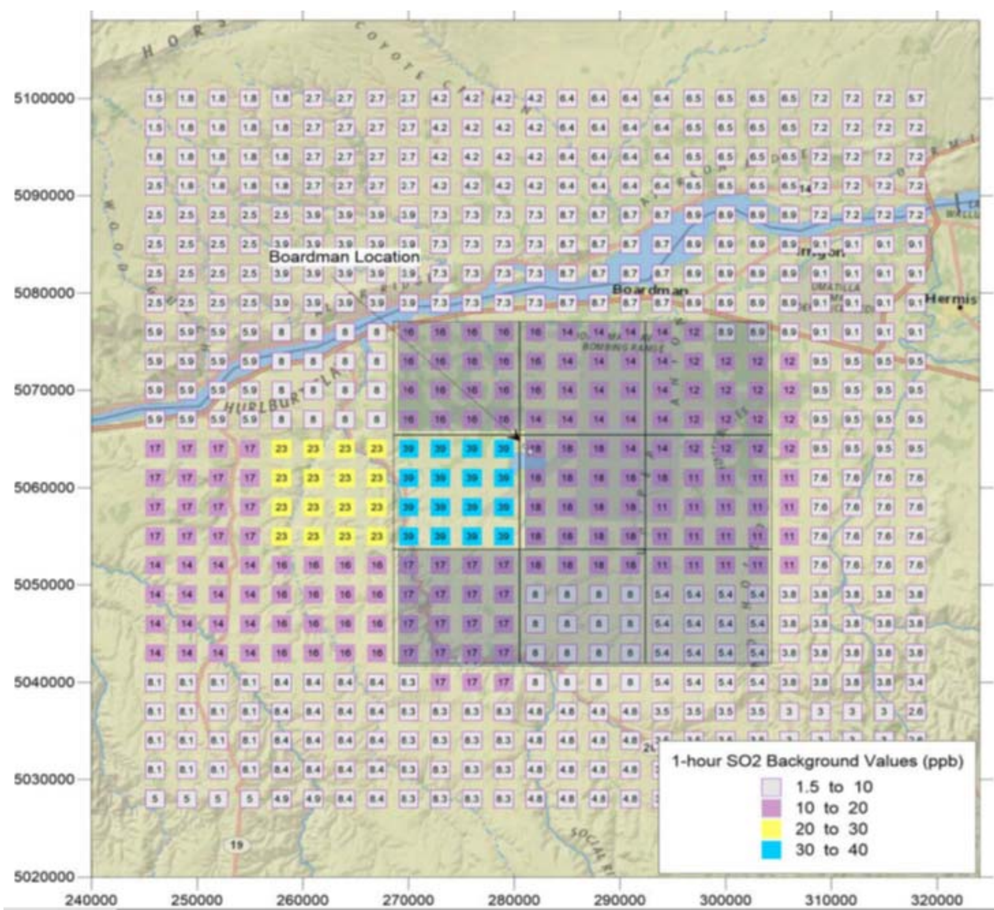
The Modeling TAD offers two mechanisms for characterizing background concentrations of SO_2 that are ultimately added to the modeled design values: 1) a "tier 1" approach, based on a monitored design value, or 2) a temporally varying "tier 2" approach, based on the 99th percentile monitored concentrations by hour of day and season or month. For this area of analysis, the state opted to use the tier 1 design value extracted from the Northwest AIRQUEST 2011 design value lookup tool.[12] The design value tool is a product of the Northwest International Air Quality Environmental Science and Technology Consortium's NW AEST project. The background design values provided by this tool are commonly accepted as representative values by state and local air permitting authorities in Washington, Oregon, and Idaho. The tool calculates design values using archived CMAQ model data from the 3-state daily air quality forecast model AIRPACT3. The tool provides an estimated design value for a given location (user input is source latitude and longitude; background values are calculated on a grid of 3 km resolution) using spatially interpolated model and monitor data (more detail on the methodology available at http://lar.wsu.edu/nw-airquest/docs/3state_bg_conc_maps_methodology.pdf).

The AIRQUEST design values near the source are heavily influenced by the source emissions since the Boardman facility is the only source of SO_2 emissions above 2,000 tons per year in the area. To compensate for this influence, the background was determined using the eight AIRQUEST grid cells surrounding the cell the source is located in. The background values from the surrounding cells are also likely to have influence from the source. Therefore, the background value used is considered to be conservative (it is a higher value than would be observed without the influence from the Boardman facility).

[12] Northwest International Air Quality Environmental Science and Technology Consortium, NW AIRQUEST model and design value tool: http://lar.wsu.edu/nw-airquest/lookup.html

Background values were obtained for an area that extends 36 km from Boardman at a resolution of 3 km. The average of the background values from the cell containing Boardman and seven surrounding AIRQUEST grid cells was determined (each grid cell is 12 km by 12 km, and contains 16 background value cells at a resolution of 3 km). The value of the cell that is most influenced by the Boardman facility (which is the blue-shaded west-central cell; while Boardman is located near the northwest corner of the central cell) was not considered in the calculation of the background. Since each grid cell was defined by 16 values and the values within each grid cell were not always uniform, the maximum of the 16 values from each grid cell was used to represent the background value for that grid cell. Figure 8 illustrates the process and values calculated by the AIRQUEST tool. The values shown in Figure 8 suggest Boardman has the greatest influence on the two cells immediately west of the facility instead of the central cell in which Boardman is located (an initial proposal to use the eight surrounding cells, subsequently abandoned, was based on the assumption concentrations would be most influenced by the source in the center cell).

Figure 8. Background design value processing using AIRQUEST tool (cells used for calculation are shaded).



The single value of the background concentration for this area of analysis was determined by the state to be 42 micrograms per cubic meter ($\mu g/m^3$), equivalent to 16 ppb when expressed in 2 significant figures,[13] and that value was incorporated into the final AERMOD results.

The Northwest AIRQUEST 2011 design value lookup tool is commonly used by states for air quality analysis and minor-source permitting in the Pacific Northwest. The design value used is conservative given the influence of the source emissions on the modeling output used by the tool. The design value is considered to be conservative in this case because the design value includes some contribution of emissions from the Boardman facility itself. Therefore, there is a degree of "double counting," where a portion of the modeled concentration is already accounted for in the background concentration. The state also opted to use the maximum design value from each grid cell instead of the average value from each cell.

3.3.2.9. Summary of Modeling Inputs and Results

The AERMOD modeling input parameters for the Morrow County area of analysis are summarized below in

Table 3.

[13] The SO_2 NAAQS level is expressed in ppb but AERMOD gives results in $\mu g/m^3$. The conversion factor for SO_2 (at the standard conditions applied in the ambient SO_2 reference method) is 1ppb = approximately 2.619 $\mu g/m^3$.

Table 3. Summary of AERMOD Modeling Input Parameters for the Area of Analysis for the Morrow County Area

Input Parameter	Value
AERMOD Version	15181 (using regulatory default options)
Dispersion Characteristics	Rural
Modeled Sources	11
Modeled Stacks	42
Modeled Structures	21
Modeled Fencelines	2
Total receptors	16966
Emissions Type	PTE for other sources. Representative hourly SO_2 emission rate based on the enforceable emission limit for Boardman
Emissions Years	SO_2 emission limit of 0.4 lbs/MMBtu heat input as a 30-day rolling average effective July 1, 2014; Requirement 26b (Regional Haze Requirement) of the PGE Boardman Title V Operating Permit (modification issued April 1, 2011). Representative allowable hourly emission rate determined using CEMs data from July 2014 through February 2017 and the permitted 30-day average emission limit.
Meteorology Years	April 1, 2012-March 31, 2013
NWS Station for Surface Meteorology	Hermiston Municipal Airport (KHRI) data used for substitution only.
NWS Station Upper Air Meteorology	Spokane International Airport (KGEG / OTX)
NWS Station for Calculating Surface Characteristics	Onsite 70-m PSD tower
Methodology for Calculating Background SO_2 Concentration	Tier 1, based on design value determined from the NW-AIRQUEST design value tool.
Calculated Background SO_2 Concentration	16 ppb (42 $\mu g/m^3$)

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_2 Concentration for the Area of Analysis for the Morrow County Area

Averaging Period	**Data Period**	**Receptor Location UTM Zone: UTM Zone 11**		**99th percentile daily maximum 1-hour SO_2 Concentration (μg/m³)**	
		UTM	**UTM**	**Modeled concentration (including background)**	**NAAQS Level**
99th Percentile 1-Hour Average	Apr. 2012-Mar. 2013	**283200**	**5063600**	192	196.4*

*Equivalent to the 2010 SO_2 NAAQS of 75 ppb using a 2.619 μg/m³ conversion factor

The state's modeling indicates that the highest predicted 99th percentile daily maximum 1-hour concentration within the chosen modeling domain is 192 μg/m³, equivalent to 73 ppb. This modeled concentration included the background concentration of SO_2, and is based on PTE (via federally enforceable and effective limit) emissions from the facilities. Figure 9 below was included as part of the state's recommendation, and indicates that the predicted value occurred about 2 km east-southeast of the source. The state's receptor grid is also shown in Figure 10.

Figure 9. Maximum Predicted 99th Percentile Daily Maximum 1-Hour SO_2 Concentrations for the Area of Analysis for the Morrow County Area

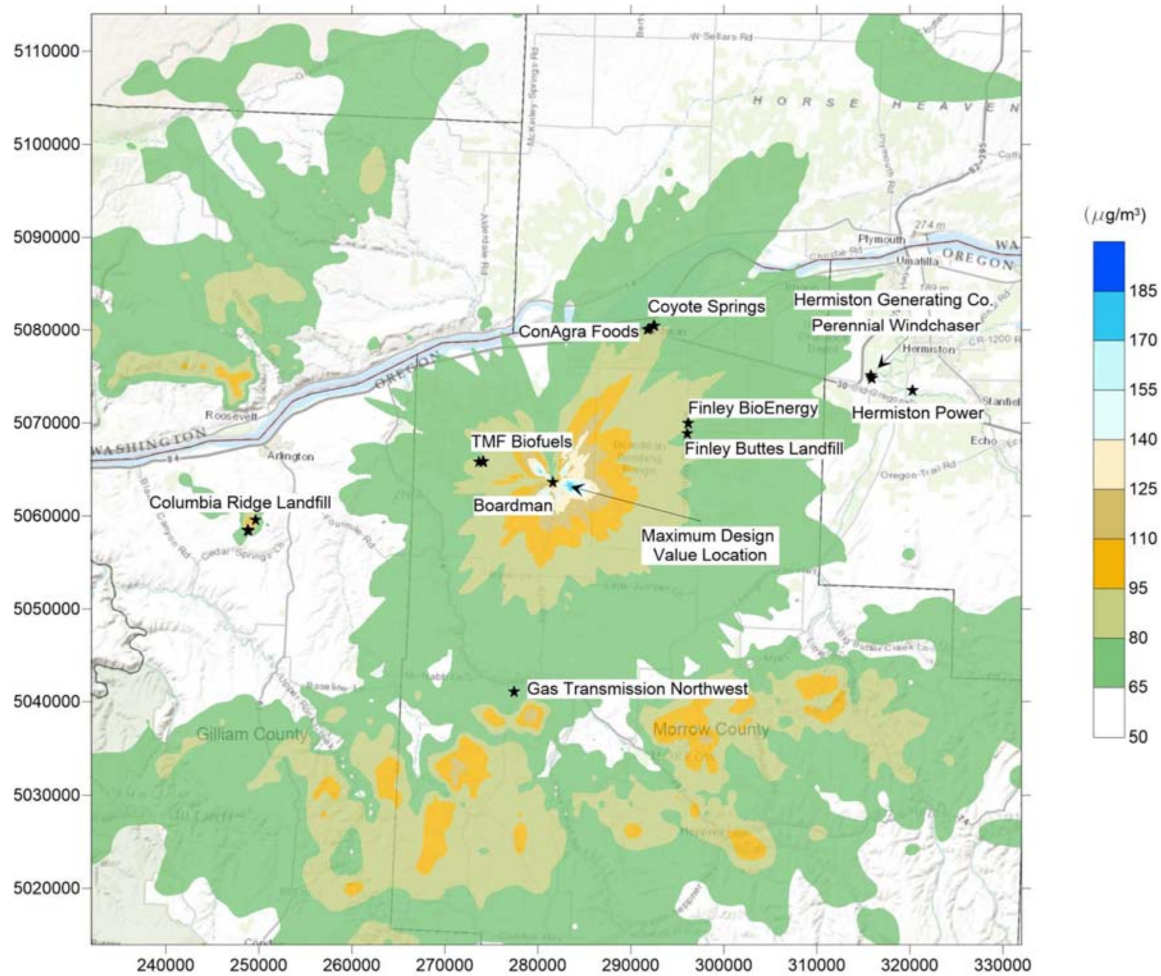
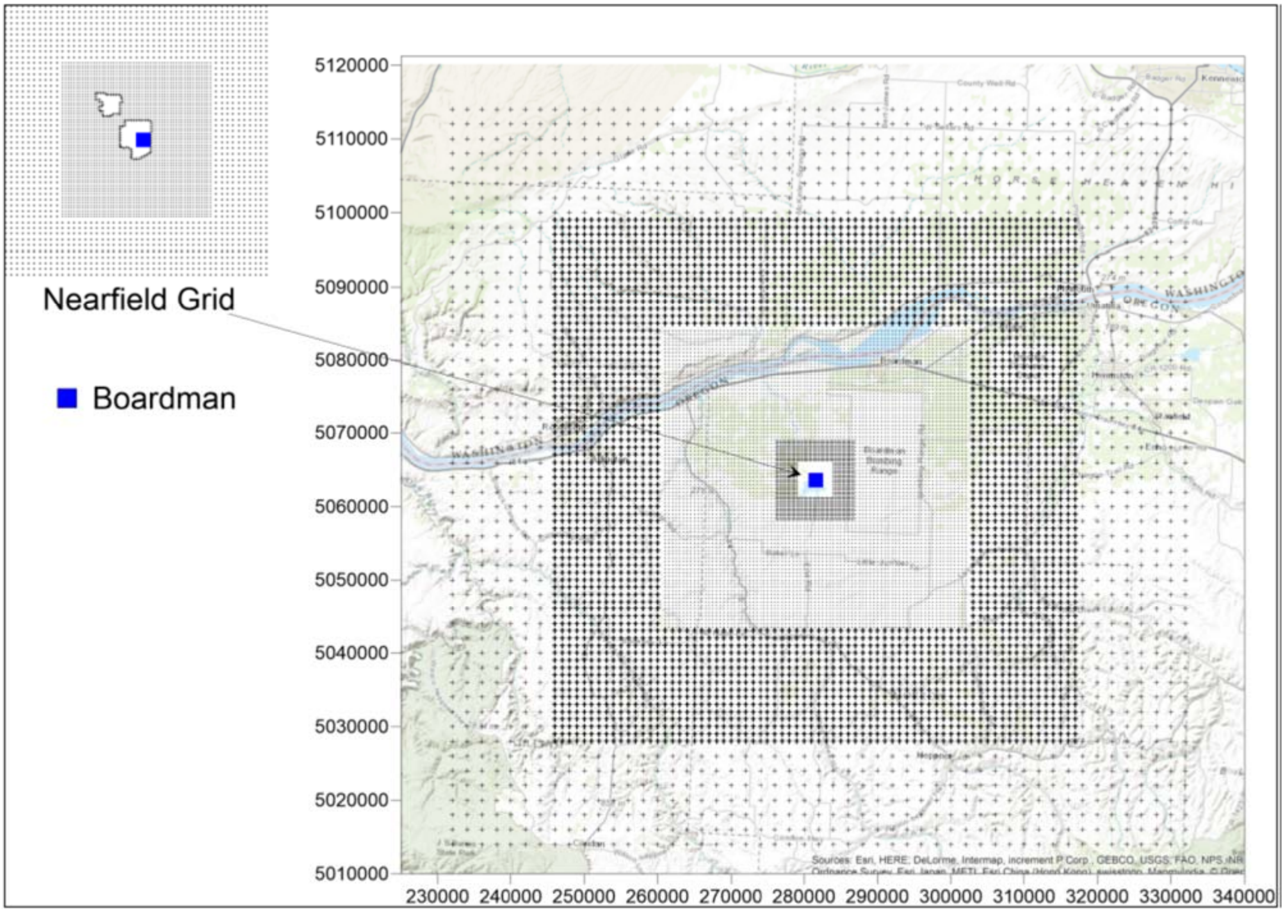


Figure 10. Modeling receptor grid



The modeling submitted by the state does not indicate that the 1-hour SO_2 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 modeling submitted by the state was mostly conducted in accordance with the guidance provided in the Modeling TAD. The state opted to use a constant emission rate for PGE Boardman based on a federally enforceable and effective limit (allowable emissions). Other sources were also modeled using allowable emissions. As stated in Section 5.4 of the TAD, when allowable emissions are used the modeling exercise becomes more like a PSD/NSR application, and therefore use of a single year of PSD-quality onsite meteorological data may be appropriate. Based on our review, the meteorological dataset is likely the most representative dataset available given its location relative to the source and the advantage of wind data measured at three different heights. The full set of quality assurance documentation was provided by the state and was reviewed by the EPA to confirm the PSD-quality of the dataset.

AERMOD modeling was conducted in accordance with the Modeling TAD and Appendix W. The state's contractor used the appropriate high-resolution land-use and terrain data in pre-processing. A dense network of receptors was used.

The EPA asked for the state to conduct a sensitivity study to evaluate the differences in AERMOD results using "normal" and "dry" soil moisture for the AERSURFACE processing. The modeling protocol proposed use of dry conditions, given the annual rainfall for the period was slightly below the 30-year 30th percentile value. We noted the source was located adjacent to a heavily irrigated agricultural area and therefore dry soil conditions may not be appropriate. AERMOD maximum modeled concentrations were higher using AERMET meteorology produced using the "dry" land-use settings. The results under the dry regime are reported.

The use of background design values using the AIRQUEST design tool could be considered a departure from the Modeling TAD. The TAD emphasizes the importance of using representative ambient monitored background concentrations. However, representative monitor data was unavailable for this site. Use of the AIRQUEST background values is common for regulatory decision making in the Pacific Northwest. The tool interpolates modeled and measured data and the EPA acknowledges the background value is conservative because it is a maximum design value based off of data that likely includes some influence from the Boardman facility's emissions itself.

The EPA could not completely verify the PTE values for the nearby sources. However, given the distance of the nearby sources from the region of maximum impacts and relative magnitude rates of the nearby sources, it is reasonable to conclude the nearby sources have a low contribution to the maximum design values. Therefore, any small variance in the PTE for the nearby sources will not likely have any meaningful influence on the final result. The contribution of the offsite sources to the design value concentration (192 $\mu g/m^3$) was 0.32 $\mu g/m^3$. The PTE for nearby sources would need to be significantly higher (more than 12 times higher) to risk exceedance of the NAAQS at the maximum receptor.

3.4. Emissions and Emissions-Related Data, Meteorology, Geography, and Topography for the Morrow County Area

These factors 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.

3.5. Jurisdictional Boundaries in the Morrow County Area

Existing jurisdictional boundaries are considered for the purpose of informing the EPA's designation action for city/county/parish. 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 has officially recommended that Morrow County be the area for an unclassifiable/attainment area. This recommendation was made in the context of the state's expectation at the time that the remainder of the state would be designated unclassifiable, and so a boundary between two separate designated areas needed to be established. Consistent with more recent information on the state's preference, the EPA intends to combine Morrow County with the remainder of the state, addressed in section 4, into one designated unclassifiable/attainment area.

3.6. The EPA's Assessment of the Available Information for the Morrow County Area

Modeling demonstrated no violations of the 1-hour SO_2 standard over the region modeled, which included north Morrow County and portions of surrounding counties not considered in the designation. Although the modeling domain did not cover all of Morrow County, the EPA has determined the modeling is sufficient to conclude Morrow County is meeting the 1-hour SO_2 standard and does not contribute to air quality in any nearby area that violates the NAAQS. All of the additional sources of SO_2 are located within the receptor grid. Southern Morrow County is sparsely populated (the largest town not included in the receptor grid is Hardman, Oregon, population 20) and has no SO_2 emitting sources above 2 tpy. The modeled maximum concentrations occur at receptors within three kilometers from Boardman. Although some higher concentrations occur far downwind from Boardman on higher terrain, it is highly unlikely higher concentrations could occur in regions outside the receptor grid given the distances involved. The modeling demonstrates concentrations in the more populated and industrialized portions of Morrow County (northeast of Boardman) are well below the standard. Maximum concentrations in the surrounding counties in Oregon and Washington are well below the standard also.

3.7. Summary of Our Intended Designation for the Morrow County Area

After careful evaluation of the state's recommendation and supporting information, as well as all available relevant information, based on available information including (but not limited to) appropriate modeling analyses and/or monitoring data, the EPA has determined the Morrow County area (i) meets the 2010 SO_2 NAAQS, and (ii) does not contribute to ambient air quality in a nearby area that does not meet the NAAQS, and the EPA intends to designate Morrow County as unclassifiable/attainment for the 2010 SO_2 NAAQS, and to combine Morrow County with the remainder of the state, addressed section 4, into one designated unclassifiable/attainment area.

4. Technical Analysis for All Other Counties

4.1. Introduction

The state has not installed and begun timely operation of a new, approved SO_2 monitoring network meeting EPA specifications referenced in EPA's SO_2 DRR, for any sources of SO_2 emissions in the state of Oregon. Accordingly, the EPA must designate all the remaining counties of Oregon by December 31, 2017. At this time, there are no air quality modeling results available to the EPA for these counties. In addition, there is no air quality monitoring data that indicate any violation of the 1-hour SO_2 NAAQS. The EPA intends to designate all the remaining counties in the state as "unclassifiable/attainment" since the counties were not required to be characterized under 40 CFR 51.1203(c) or (d) and there is no available information including (but not limited to) appropriate modeling analyses and/or monitoring data that suggests that these counties may not be meeting the NAAQS or that they contribute to ambient air quality in a nearby area that does not meet the NAAQS. The EPA intends to combine these counties with Morrow County, addressed in section 3, into one designated unclassifiable/attainment area.

Table 1 summarizes Oregon's recommendations for these areas. Specifically, the state recommended that all counties except for Morrow County, be designated as unclassifiable.

4.2. Air Quality Monitoring Data for the All Other Counties Area

No monitoring data was provided by the State of Oregon with its recommendations. The only operating AQS monitoring site in the state, AQS 41-051-0080 in Multnomah County, has measured 1-hour SO2 levels far below the level of the NAAQS, with a design value of 4 ppb in 2013-2015. The monitoring site was not included in the state's recommendation for designation. These data were available to 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.

4.3. Jurisdictional Boundaries for the Remaining Counties of Oregon

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

Our intended unclassifiable/attainment area, consisting of the entire state of Oregon, will have clearly defined legal boundaries, and we intend to find these boundaries to be a suitable basis for defining our intended unclassifiable/attainment area.

4.4. The EPA's Assessment of the Available Information for the All Other Counties Area

These counties were not required to be characterized under 40 CFR 51.1203(c) or (d) and 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. We therefore intend to modify the state's recommendation and designate the remaining counties of Oregon (all counties except Morrow County) as unclassifiable/attainment for the 2010 SO_2 NAAQS. The EPA intends to combine these counties with Morrow County, addressed in section 3, into one designated unclassifiable/attainment area.

4.5. Summary of Our Intended Designation for the All Other Counties Area

After careful evaluation of the state's recommendation and supporting information, as well as all available relevant information, the EPA intends to designate the entire state of Oregon as a single unclassifiable/attainment area for the 2010 SO_2 NAAQS.

The EPA intends to designate all areas of Oregon in Round 3. There will be no remaining undesignated areas to be addressed.