Technical Support Document:

Chapter 40
Intended Round 3 Area Designations for the 2010 1-Hour SO_2 Primary National Ambient Air Quality Standard for Utah

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.

[1] The term "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 remaining undesignated areas in Utah for the 2010 SO_2 NAAQS. In previous final actions, the EPA has issued designations for the 2010 SO_2 NAAQS for selected areas of the country.[2] 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.[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 began operation of a new SO_2 monitoring network meeting EPA specifications referenced in 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.

Utah submitted its first recommendation regarding designations for the 2010 1-hour SO_2 NAAQS on May 3, 2011, recommending an unclassifiable designation for each Utah county due to a lack of dispersion modeling. The state submitted updated air quality analyses and updated recommendations on November 1, 2016, recommending attainment for each county in Utah. 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 Utah that are part of the Round 3 designations process, Table 1 identifies EPA's intended designations and the counties or portions of counties to which they would apply. It also lists Utah'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, and could change based on changes to this information (or the availability of new information) that alters EPA's assessment and characterization of air quality.

[2] 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).
[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 Designations and the Designation Recommendations by Utah

Area/County	Utah's Recommended Area Definition	Utah's Recommended Designation	EPA's Intended Area Definition	EPA's Intended Designation
Emery County	Full County	Attainment	Same as State's Recommendation	Unclassifiable/ Attainment
Millard County	Full County	Attainment	Same as State's Recommendation	Unclassifiable/ Attainment
Remaining Undesignated Areas to Be Designated in this Action*	Full County	Attainment	Same as State's Recommendation	Unclassifiable/ Attainment

* The EPA intends to designate the remaining undesignated counties (or portions of counties) in Utah 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 5 of this TSD.

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 Utah were designated in Round 1 or Round 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_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" SO_2 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 areas associated with three sources in Utah meeting DRR emissions criteria that states have chosen to be characterized using air dispersion modeling, sources that met the DRR requirements by demonstrating shut down of the source (one of which is in Utah), 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 each county for which modeling information is available. For some counties, multiple portions of the county have modeling information available and the section on the county is divided accordingly. The remaining to-be-designated counties are then addressed together in section 5.

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.

[2] 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_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.

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 99th 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_2 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 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) 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.

3. Technical Analysis for the Emery County Area

3.1. Introduction

The EPA must designate the Emery County, Utah, area by December 31, 2017, because the area has not been previously designated and Utah 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 Emery County. The state modeled both the Hunter and Huntington facilities together, both of which are in northwestern Emery County.

3.2. Air Quality Modeling Analysis for the Emery County Area Addressing Hunter Power Plant and Huntington Power Plant

3.2.1. Introduction

This section 3.2 presents all the available air quality modeling information for a portion of Emery County that includes both Hunter Power Plant and Huntington Power Plant. (This portion of Emery County will often be referred to as "the Emery County area" within this section 3.2). This area contains the following SO_2 sources, principally the sources around which Utah 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 Hunter Power Plant emits 2,000 tons or more annually. Specifically, Hunter emitted 3,939 tons of SO_2 in 2014. This source meets the DRR criteria and thus is on the SO_2 DRR Source list, and Utah has chosen to characterize it via modeling.

- The Huntington Power Plant emits 2,000 tons or more annually. Specifically, Huntington emitted 2,479 tons of SO_2 in 2014. This source meets the DRR criteria and thus is on the SO_2 DRR Source list, and Utah has chosen to characterize it via modeling.

In its submission, Utah recommended that Emery County be designated as attainment based in part on an assessment and characterization of air quality impacts from these facilities. This assessment and characterization was performed using air dispersion modeling software, i.e., AERMOD, analyzing actual emissions. After careful review of the state's assessment, supporting documentation, and all available data, the EPA 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.

The area that the state has assessed via air quality modeling is located in northwestern Emery County. The area is a desert area with significantly steep terrain near both the Hunter and Huntington facilities.

As seen in Figure 1 below, the Hunter and Huntington facilities are located in northwest Emery County. There are no nearby sources of SO_2 included in this figure, as there are no other sources

of SO_2 above 1 ton per year in Emery County. As noted, the state's recommended area for the attainment designation is all of Emery County.

Figure 1. Map of Emery County Area including both the Hunter and Huntington facilities

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.

For this area, the EPA received and considered one modeling assessment from the state and no assessments from other parties.

3.2.2. Modeling Analysis Provided by the State

The Utah Department of Air Quality (UDAQ) provided an air quality modeling assessment for the:

- PacifiCorp – Hunter Power Plant, Castle Dale, Utah (Emery County)
- PacifiCorp – Huntington Power Plant, Huntington, Utah (Emery County)

3.2.2.1.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

In the modeling that the state submitted on January 13, 2017, the state originally used AERMOD version 15181 in regulatory default mode, which was the most recent platform that was feasible to use at the time of the modeling. The currently approved AERMOD platform is version 16216r that includes updates. At that time, the updates made to components of AERMOD version 16216r were not utilized in the air quality modeling assessment, such as ADJ_U*. There were no updates from 15181 to 16216r that would significantly affect the concentrations predicted here.

Between August 11 and August 15 of 2017, the state provided EPA with revised modeling to account for discrepancies that the state identified in the fenceline receptors using in the January 2017 modeling and the actual boundaries of the Hunter and Huntington plants. For the revised modeling, the state used AERMOD 16216r, which is currently the most recent regulatory platform. Additional details regarding the fenceline receptors are discussed in section 3.2.2.3.

A discussion of the state's approach to the individual components is provided in the corresponding discussion that follows, as appropriate.

3.2.2.2.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 site location was classified as rural using the land use procedure specified in Appendix W. The percent of land classified as developed within a 3-km ring around each facility was less than 2 percent. By the definition in Appendix W, land that contains less than 50 percent of developed land use categories should be considered rural. Figure 2 and Figure 3 shows the land cover within a 3-km radius of each facility. Further discussion of each power plant appears below. EPA's assessment supports the State's analysis on the land use classification.

- **PacifiCorp Hunter Power Plant** – The Hunter Power Plant is located 2.5 miles south of Castle Dale, Utah, and 4.5 miles northeast of Clawson, Utah, in the central part of the State. PacifiCorp operates three coal-fired 450MW electrical generation units at the Clawson facility. The area is surrounded by farmland to the north of the plant with desert

shrub land to the west and red rock desert to the south and east of the facility. The nearest residence is 1.75 miles to the north of the plant. The surrounding terrain is relatively flat close to the plant, with steep sloping terrain 4 miles to the west, and rugged desert land to the east and south. Figure 2 is an aerial view to the plant and its surrounding environment.

- **PacifiCorp Huntington Power Plant** – The Huntington Power Plant is located in Huntington Canyon, 6.5 miles northwest of Huntington, Utah, in the central part of the State. PacifiCorp operates two coal-fired 450MW electrical generation units at the Huntington facility. Huntington Canyon is a narrow canyon with steep terrain rising 3,000 feet from the canyon floor on each side. The nearest residence is 1 mile down the canyon from the plant. Figure 3 is an aerial view to the plant and its surrounding environment.

Figure 2: PacifiCorp Hunter Power Plant and Surrounding Environment

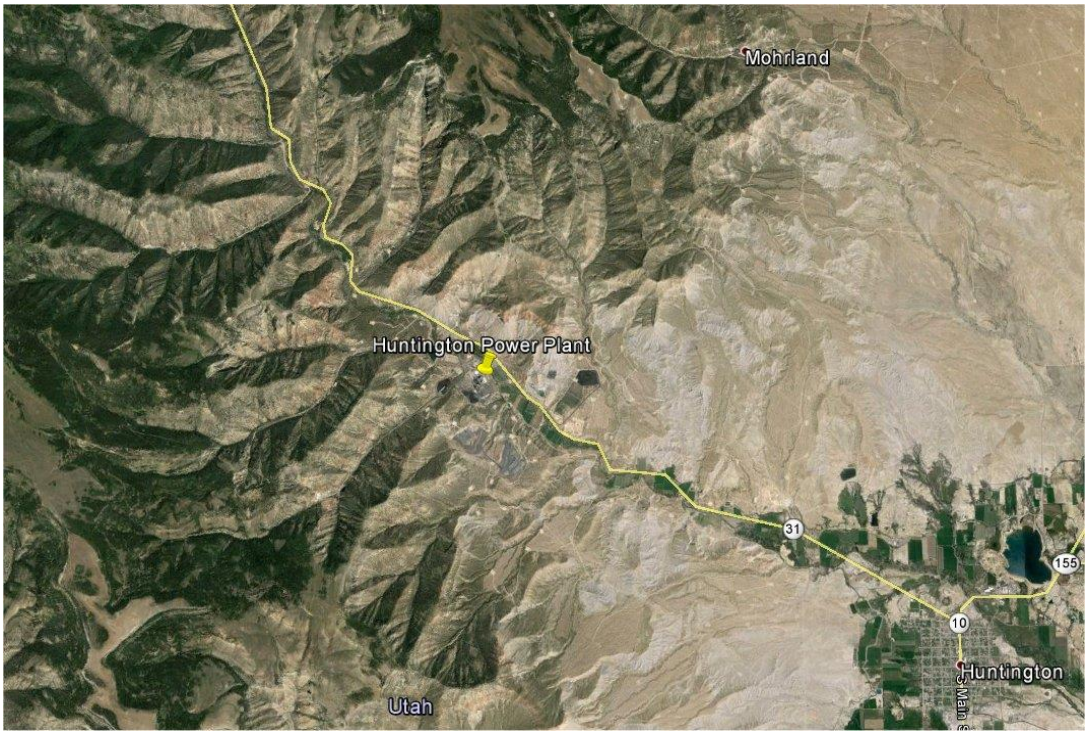


Figure 3: PacifiCorp Huntington Power Plant and Surrounding Environment

3.2.2.3.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_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 Emery County area, the state did not include other emitters of SO_2 within 10 km of each facility. 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. No other sources beyond 10 km were determined by the state to have the potential to cause concentration gradient impacts within the area of analysis.

A Cartesian modeling receptor array was established to capture the 99th percentiles of the maximum daily one-hour average SO_2 impacts from the facilities. The receptor grid is a relatively dense receptor array with the following spacing beyond the boundary:

- 100 m spacing along fence line to at least 1 km from the boundary;
- 250 m spacing from the fence line to 5 km from the boundary;

- 500 m spacing between 5 km and 10 km from the boundary; and
- 1000 m spacing at 10 km from the fence line and beyond.
- In the initial modeling, no receptors were located within the facilities' boundary (additional details below). As will be described later, an updated modeling analysis was conducted by with receptors filled in within the facility boundary for both facilities.

The modeling analysis used the same domain for the PacifiCorp Hunter and Huntington plants due to the close proximity (roughly 23 km apart) of the two plants and because both facilities are operated by the same company (PacifiCorp), who also owns the majority of the two plants. While the same modeling domain was used and the plants were modeled together, the state conducted a simulation for each plant to account for the different conditions surrounding each plant. The different conditions, such as surface characteristics and meteorological patterns, are a result of the complex terrain surrounding each plant. In other words, to assess the impacts from Huntington, the state conducted a simulation that included emissions from Huntington and Hunter, but used site-specific meteorological data and surface information representative for the area surrounding the Hunter plant. The meteorological data were provided by the state. To assess the impacts from Hunter, the state conducted another simulation that included emissions from Hunter and Huntington, but used NWS meteorological data and surface information representative for the area surrounding the Huntington plant. The specific differences in assumptions for each simulation are discussed in more detail below.

The domain used in the PacifiCorp Hunter and Huntington modeling is 95 km by 27 km. This is consistent with the Modeling TAD because the distance is more than 10 times the stack height and captures significant concentration gradients (as depicted in figures 15 and 16 below). Figure 4 depicts the receptor grid for the PacifiCorp Hunter and Huntington modeling analysis. A total of 11,379 receptors were used for the initial Hunter and Huntington modeling.

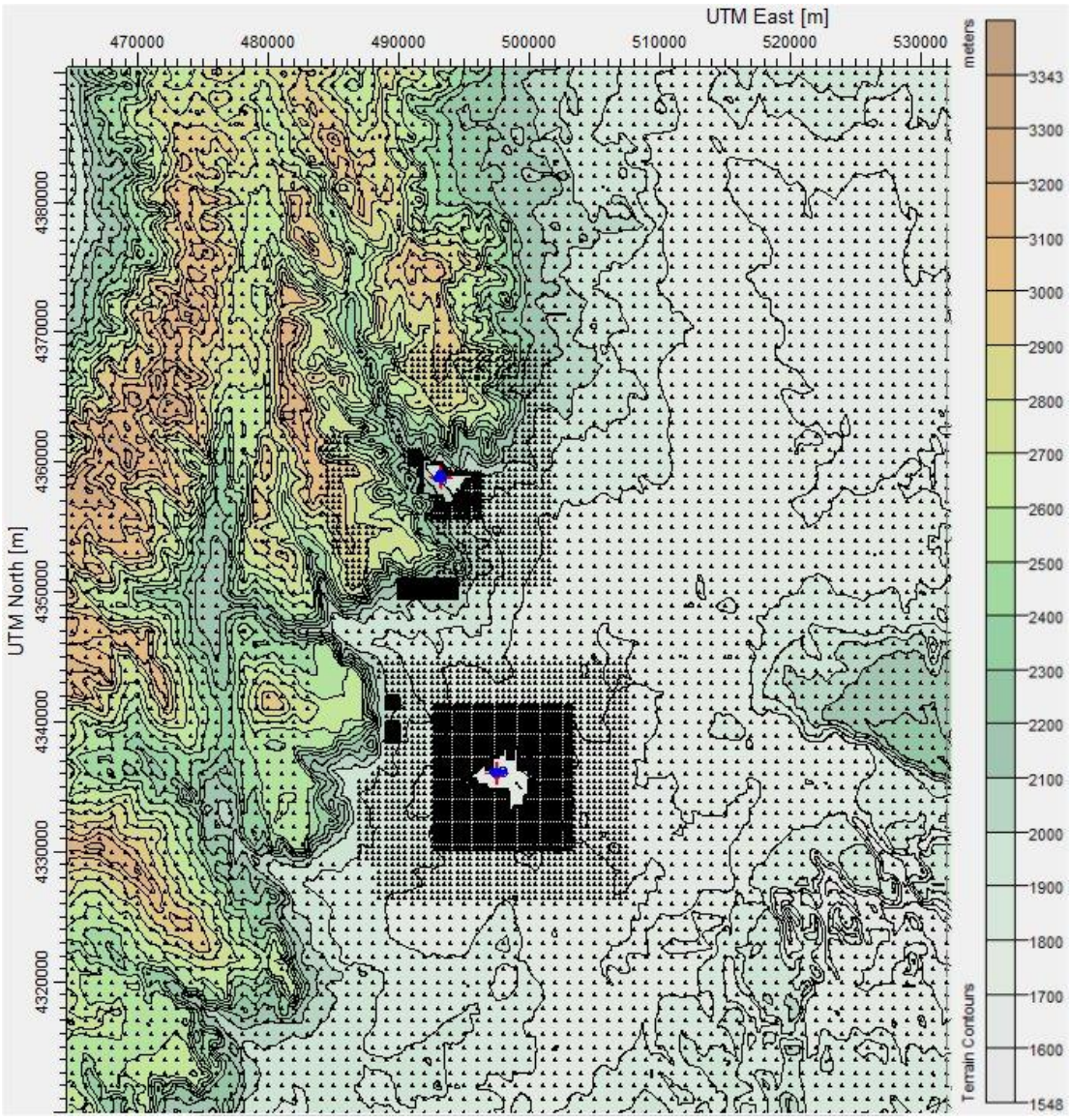


Figure 4. PacifiCorp Hunter and Huntington Receptor Grid and Elevations for Initial Modeling Submitted in November 2016.

Section 4.2 of the EPA - SO_2 NAAQS Designations Modeling Technical Assistance Document (August 2016) states that:

> *"For SO_2 designations modeling, the areas to consider for receptor placement are those areas that would be considered ambient air relative to each modeled facility, including other facilities' property. However, for some limited ambient air locations, such as water bodies, receptors can be excluded or ignored in analyses as monitors could not feasibly be placed in those areas. For the purposes of modeling for designations, power inaccessibility or locations in areas located near roadways are not appropriate rationales for excluding receptors."*

The UDAQ identified several locations in the PacifiCorp Hunter and Huntington analysis modeling domain to exclude receptors due to steep and inaccessible terrain. The area five miles west of the Hunter plant interfaces a north-south mountain range, with changes in elevation increasing 2,000 feet over a distance of less than ½ mile, and slopes in excess of 30 degrees. The base of the range is a mix of soft sand and clay soils, which have been eroded over time resulting in rugged up and down terrain with elevation changes of several hundred feet over a short distance.

The area surrounding the Huntington plant that will be excluded from the modeling has a deep east-west canyon with mountainous terrain on both sides. The elevation changes approximately 3,000 feet over a two-mile distance from the canyon floor at the plant, to a high elevation plateau above the canyon. The slope of the canyon walls is in excess of 30 degrees for most of the area. The canyon walls and surrounding slopes are also a mix of soft sand and clay soils which have been eroded over time resulting in elevation changes of several hundred feet over short distances.

Figure 5 to Figure 9 are aerial views of these areas that were provided by the State, which include a map depicting the associated slopes of topographical features, and surface photos. The tight contour lines in Figure 6 and Figure 9 illustrate the steep terrain near the Hunter and Huntington plants, respectively. Figure 10 (Huntington) and Figure 11 (Hunter) also show the steep terrain in relation to each facility and the receptor network used to cover the model domain. The portions of Figure 10 and Figure 11 that appear shaded or solid black represent refined receptors to ensure that high SO_2 concentrations are being captured properly/adequately by the model. Note that the black boxes in these figures are areas with dense receptors and not areas representing receptor exclusions. Figure 10 and Figure 11 also present the receptor exclusions applied by UDAQ in the model simulations for Huntington and Hunter. For both Figure 10 and Figure 11, areas without receptor markers, or areas without small black triangles, shaded black areas, or solid black boxes, represent areas excluded from the modeling.

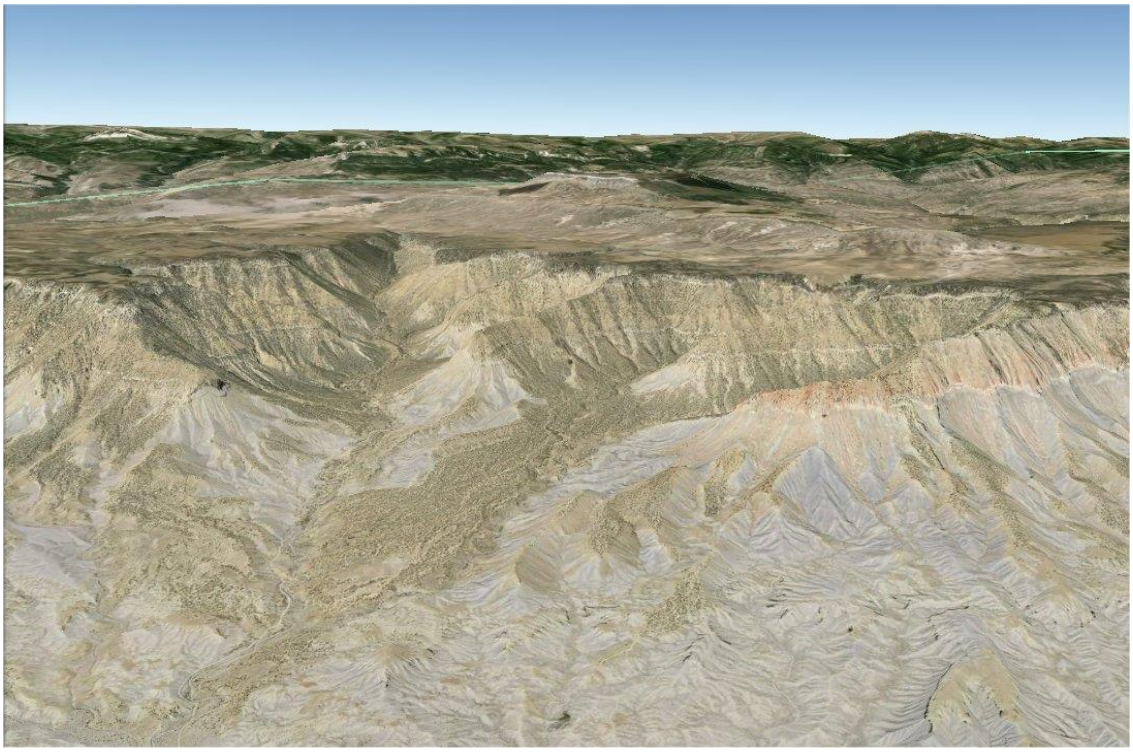


Figure 5: Aerial View of PacifiCorp Hunter Analysis Excluded Receptor Area

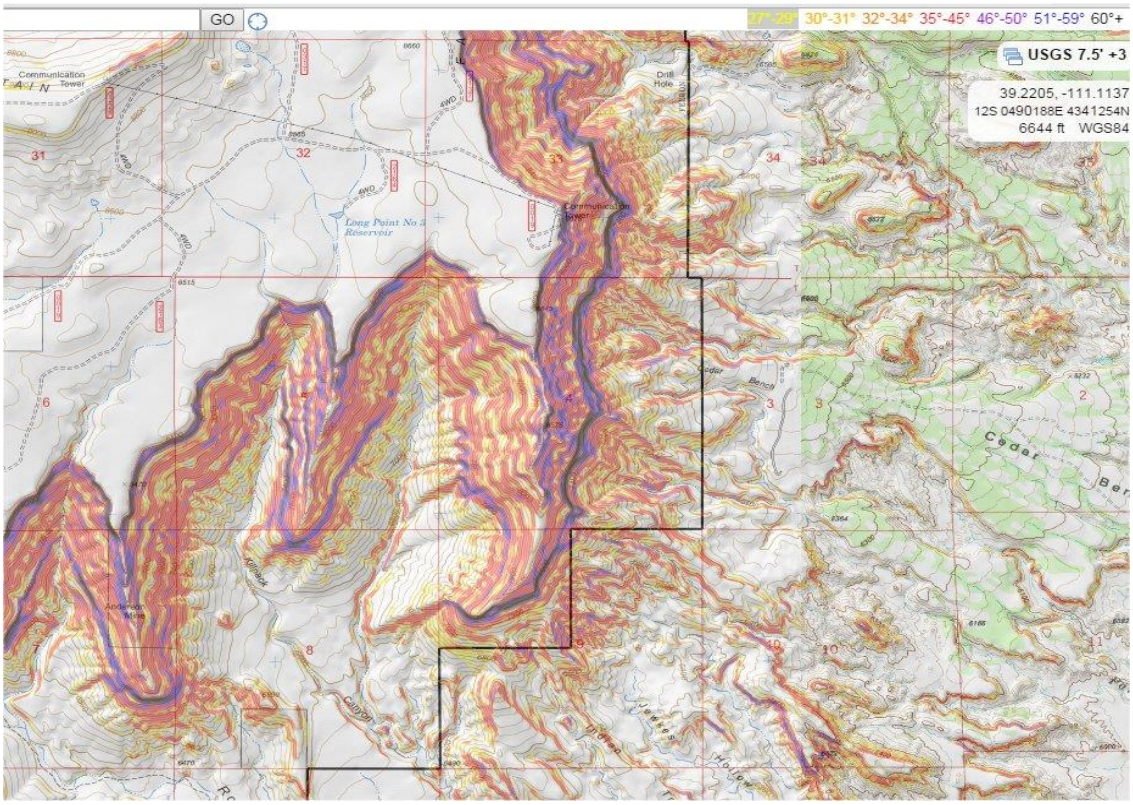


Figure 6: Slope Chart of PacifiCorp Hunter Analysis Excluded Receptor Area

Figure 7: Surface Photo of PacifiCorp Hunter Analysis Excluded Receptor Area

Figure 8: Aerial View of PacifiCorp Huntington Analysis Excluded Receptor Area

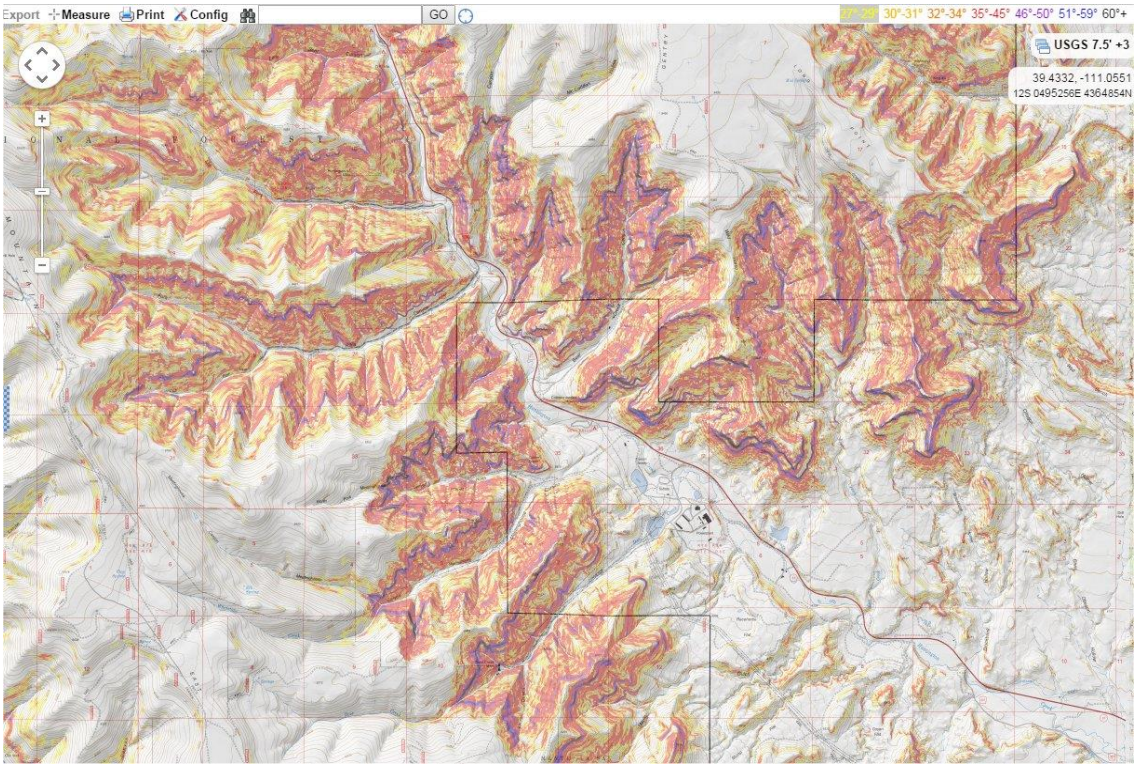


Figure 9: Slope Chart of PacifiCorp Huntington Analysis Excluded Receptor Area

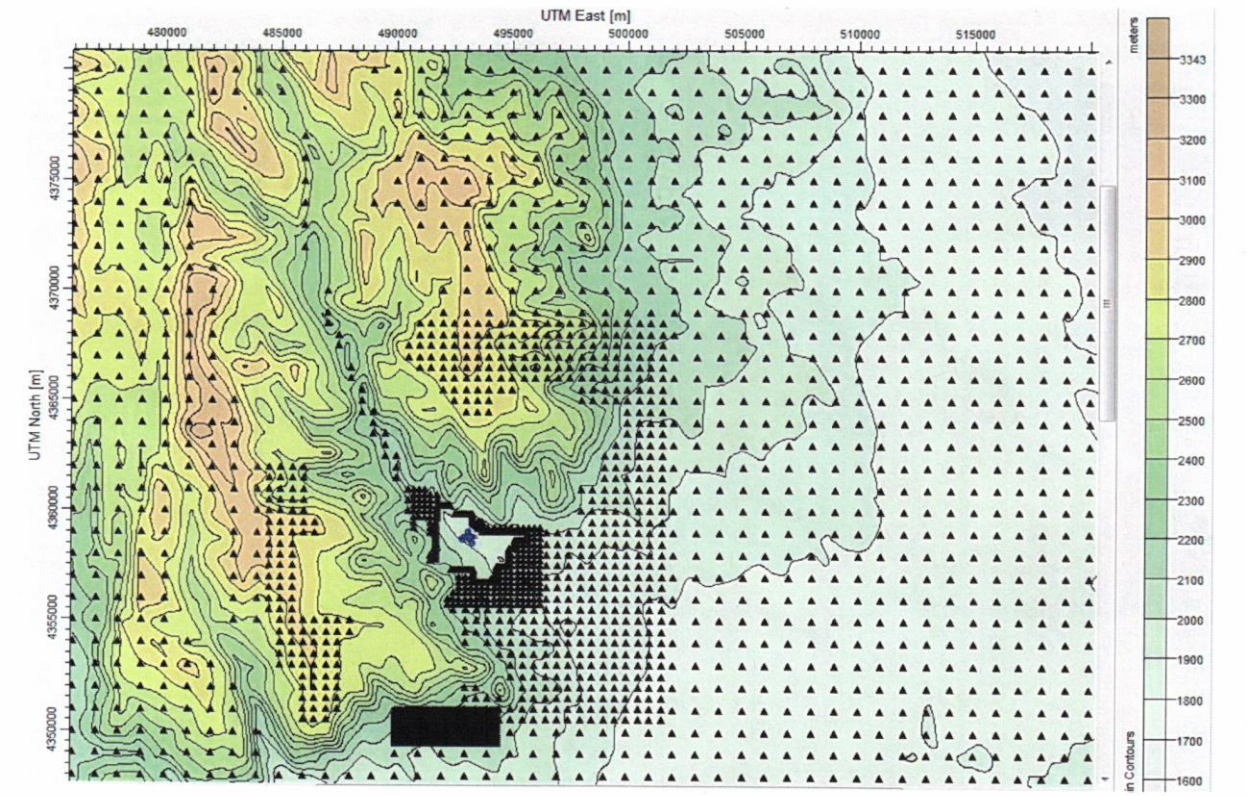


Figure 10. Huntington Receptor Grid with Receptors Excluded in Inaccessable Terrain and Applied in Model Simulation.

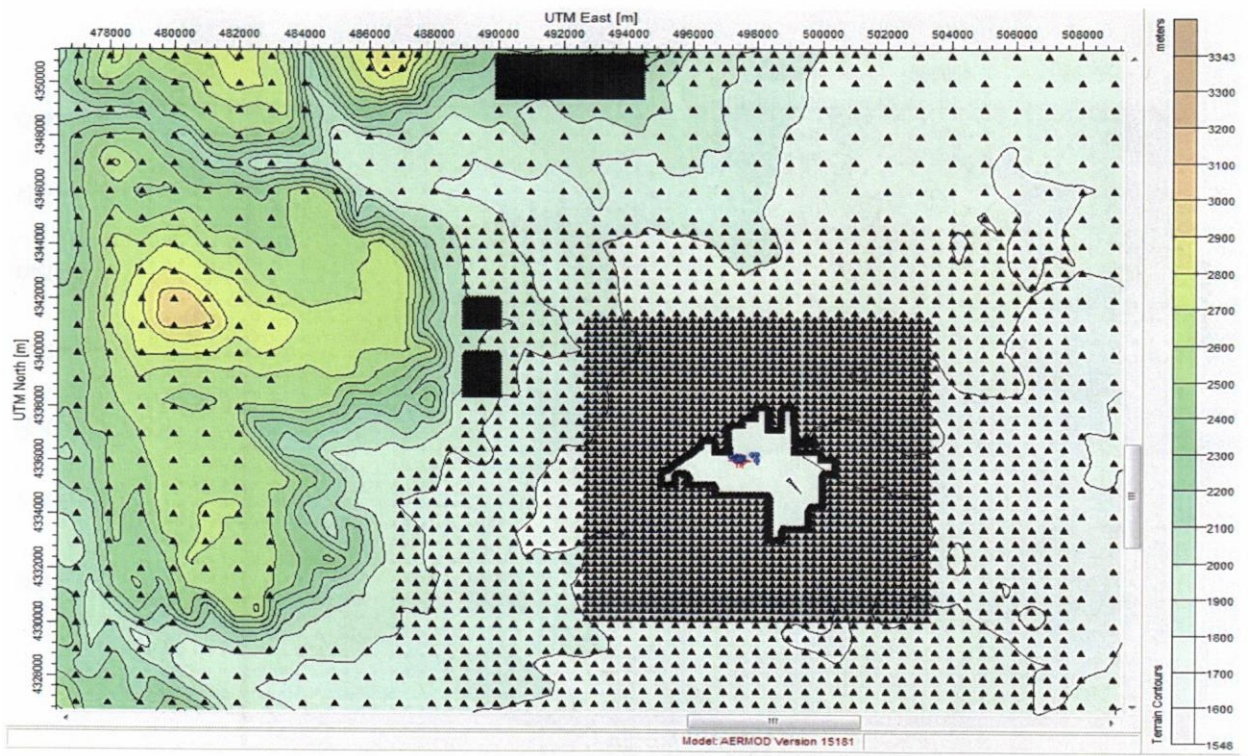


Figure 11. Hunter Receptor Grid with Receptors Excluded in Steep Terrain and Applied in Model Simulation.

During EPA's review of the fenceline receptors with the state, the state identified issues with the location of the fenceline receptors for both Hunter and Huntington. Due to discrepancies between the originally modeled property lines and the actual enclosed fencelines for both the Hunter and Huntington power plants, the state conducted additional modeling for both facilities. For the updated model simulations, the state added receptors throughout the property of each facility (i.e., inside the originally modeled property boundaries) because distinct property boundaries or physical fencelines are not continuous around the facilities. Figure 12 shows the updated receptor grid and the additional receptors placed over the Hunter property, and Figure 13 shows the updated receptor grid and the additional receptors over the Huntington property. Aside from the AERMOD version (16216r) and the additional receptors around the facilities, all other components remained the same as the initial modeling (i.e., emissions, sources, meteorology and terrain did not change). Note that the receptor exclusions in areas with complex or steep terrain remained the same as the initial modeling.

The additional modeling was performed to ensure that ambient air adjacent to the facilities was covered by the model. The state provided EPA the updated modeling analysis between August 11 and August 15 of 2017. The updated modeling package from the state included a memorandum that outlined the details of the updated analysis, maps of the updated receptor grids, and updated contour plots depicting the new model results.

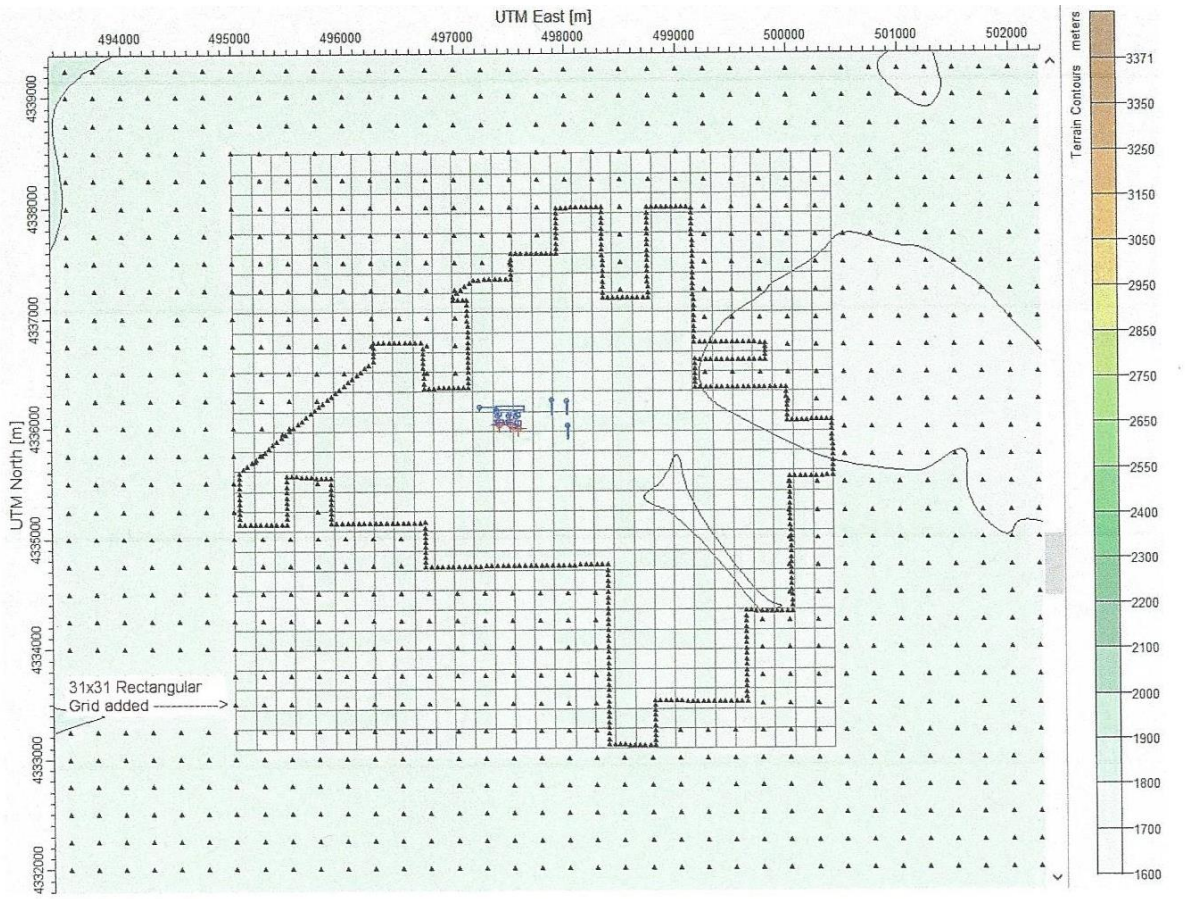


Figure 12. Revised Receptor Network for the Hunter Plant.

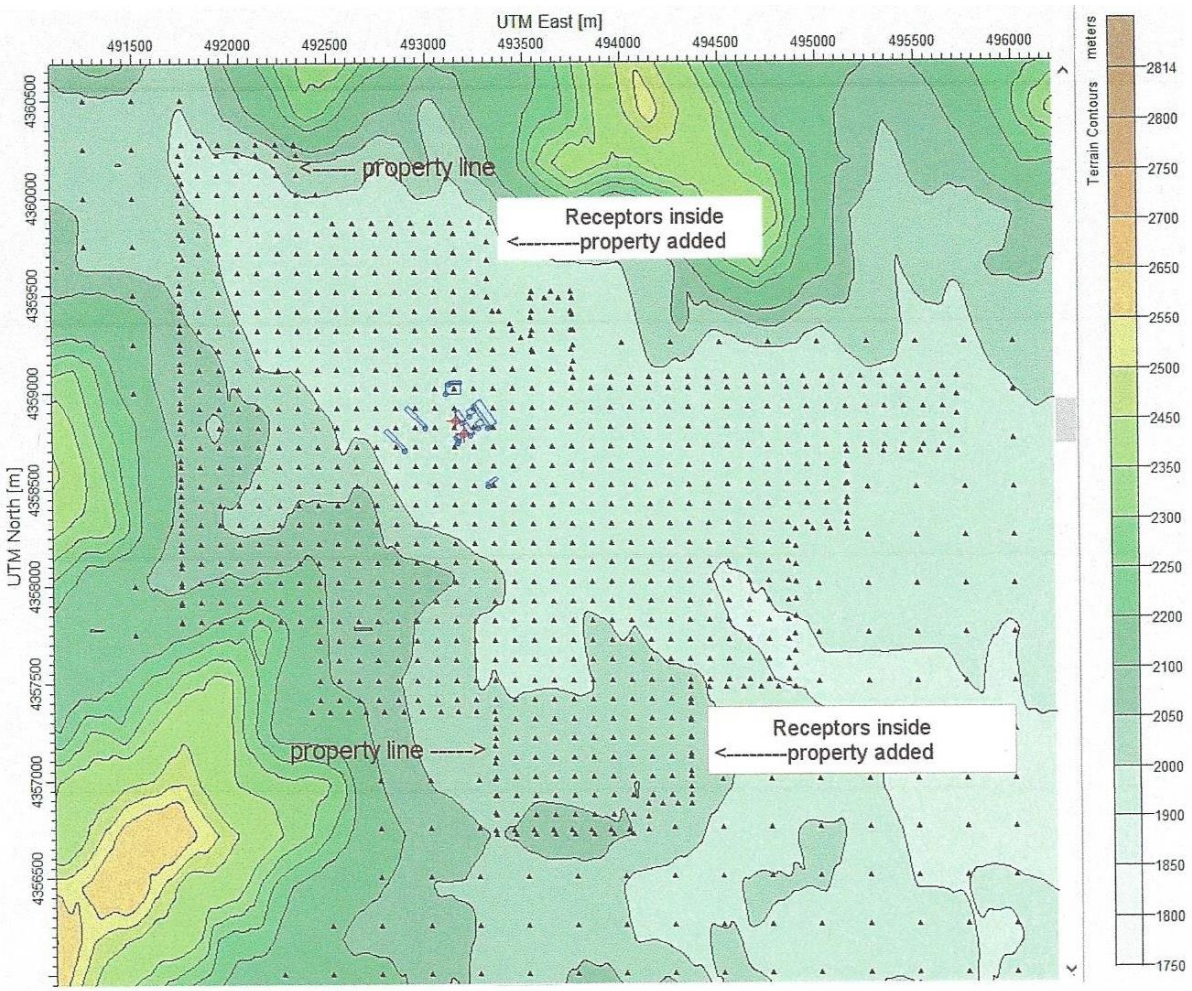


Figure 13. Revised Receptor Network for the Huntington Plant.

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, with the exceptions of locations described in Section 4.2 of the Modeling TAD. Receptors were excluded in areas with steep sloping terrain with sharp peaks, soft soil, and limited access to maintained areas, or the receptors were excluded in areas that met the criteria outlined in this section. Elevation changes include increases by 2,000 feet over a distance of less than 0.5 mile or increases by 3,000 feet over a two-mile distance. The areas also have slopes in excess of 30 degrees. These receptors exclusions were treated similar to treatment of a water body referenced in the Modeling TAD. Specifically, the Modeling TAD states that receptors may be excluded in areas where it is not feasible to place a monitor, such as water bodies. Receptors were also included on the property of each facility, or within the facilities' fencelines, because the facility operators and the state determined that there were discrepancies between the boundary in the original modeling and the actual enclosed fence lines around the facilities. The EPA supports the locations and coverage of receptors used in the state's air quality modeling assessment.

3.2.2.4.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.

Concentrations predicted in the analyses are based on hourly emission rates and release parameters (e.g., in-stack gas temperatures, and in-stack flow rates) recorded on continuous emission monitors (CEM) at the two power plants between January 1, 2012 and December 31, 2014. All missing data substitutions and bias adjustments to the CEM data were based on 40 CFR Part 75.33 Missing Data Substitution Procedures.

Emissions of SO_2 at the two plants are released from a dedicated stack for each coal-fired boiler unit. The stack locations and release parameters for the two power plant's boiler stacks are listed in Table 3 below.

Table 3: AERMOD Stack Location and Release Parameters

SO_2 Source	UTME (m)	UTMN (m)	Height (m)	Diameter (m)	Temperature (K)	Exit Velocity (m/s)
PacifiCorp – Hunter Plant					Gas Temp. Changes Hourly, Consistent with each Unit's CEM for Period 2012 through 2014	Exit Velocity Changes Hourly, Consistent with each Unit's CEM for Period 2012 through 2014
Unit 1	497394	4336026	183	7.3		
Unit 2	497488	4336026	183	7.3		
Unit 3	497567	4335993	183	7.3		
PacifiCorp – Huntington Plant						
Unit 1	493148	4358849	183	7.3		
Unit 2	493190	4358784	183	7.3		

The plant structures, buildings, and tanks were included for AERMOD downwash calculations using BPIPPRM. All stacks meet the definition of GEP stack height, and the actual height of each stack will be used in the analyses. A total of 25 structures were included for the Hunter and Huntington modeling.

The state characterized these sources 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 sources' 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. EPA supports the state's analysis of the source characterizations because the assumptions align with the Modeling TAD.

3.2.2.5.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 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, 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."

As previously noted, the state included the Hunter and Huntington facilities, which are roughly 23 km apart, in the area of analysis. The state has chosen to model these facilities using actual emissions. The facilities in the state's modeling analysis and their associated annual actual SO_2 emissions between 2012 and 2014 are summarized below.

For the Hunter and Huntington facilities, the state provided annual actual SO_2 emissions between 2012 and 2014. This information is summarized in Table 4. A description of how the state obtained hourly emission rates is given below this table.

Table 4. Actual SO_2 Emissions Between 2012 – 2014 from Facilities in the Emery County Area

	SO_2 Emissions (tpy)		
Facility Name	**2012**	**2013**	**2014**
Hunter Power Plant	4,502	5,001	3,937
Huntington Power Plant	2,231	2,325	2,452
Total Emissions from All Modeled Facilities in the State's Area of Analysis	6,733	7,326	6,389

For both facilities, the actual hourly emissions data were obtained from CEMs.

3.2.2.6.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.

The meteorological record for the UDAQ modeling analysis is January 1, 2012, through December 31, 2014. Meteorological monitoring data was collected onsite at the PacifiCorp – Huntington plant during this period. The PacifiCorp – Hunter plant did not operate a meteorological monitoring tower during this period. The Hunter analysis used site-representative meteorological data from the nearest National Weather Service (NWS) – ASOS station in Price, Utah, 30 miles northeast of the facility. Data used in the analyses is as follows:

- PacifiCorp - Hunter Power Plant - 10 meter NWS-ASOS meteorological tower from Price – Carbon Regional Airport, UT with winds recorded at 10 meters, and temperature recorded at 2 and 10 meters.
- PacifiCorp – Huntington Power Plant - 50 meter onsite SRDT meteorological tower with winds recorded at 10 and 50 meters, and temperature recorded at 2, 10, and 50 meters.
- NWS Upper Air data from Salt Lake City, Utah, and Grand Junction, Colorado.

Figure 14 presents the location of the onsite and NWS stations relative to the areas of analysis. This figure was not provided in the state's analysis.

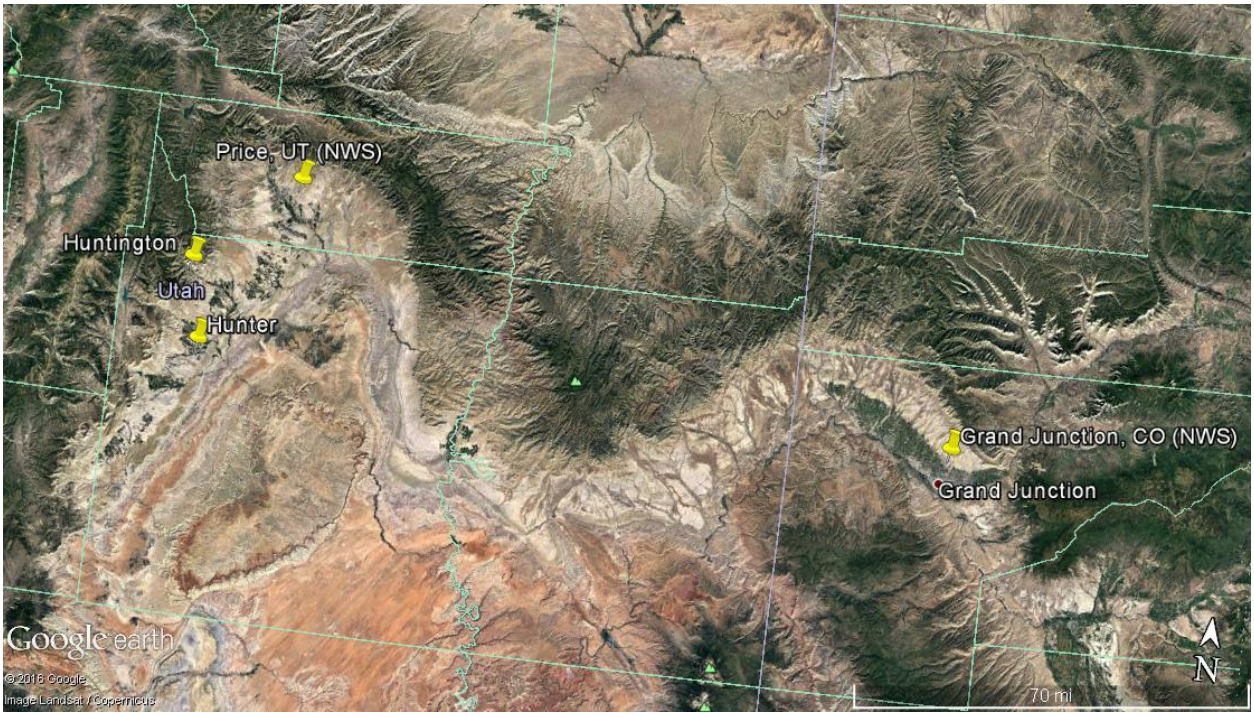


Figure 14. Map of Facilities and Monitoring Locations.

Hourly surface meteorological data records are read by AERMET, and include all the necessary elements for data processing. However, wind data taken at hourly intervals may not always portray wind conditions for the entire hour, which can be variable in nature. Hourly wind data may also be overly prone to indicate calm conditions, which are not modeled by AERMOD. In order to better represent actual wind conditions at the meteorological tower, one-minute ASOS (Automated Surface Observing System) wind data from the Price, Utah station were processed using AERMINUTE (version 15272) into hourly data for input into AERMET (15181) for the Hunter modeling. The other sites used on-site meteorological datasets. The ASOS data were subsequently integrated into the AERMET processing to produce final hourly wind records of AERMOD-ready meteorological data that better estimate actual hourly average conditions and that are less prone to over-report calm wind conditions. This allows AERMOD to apply more hours of meteorology to modeled inputs, and therefore produce a more complete set of concentration estimates. As a guard against excessively high concentrations that could be produced by AERMOD in very light wind conditions, the state did not set a minimum threshold of 0.5 meters per second in processing meteorological data for use in AERMOD. In setting this threshold, no wind speeds lower than this value would be used for determining concentrations. This threshold was specifically applied to the 1-minute wind data.

A surface wind rose for the entire 3-year period proposed for the modeling time period is shown in Figure 15 to Figure 16 for each dataset. For each facility, the wind roses show:

- **PacifiCorp - Hunter Power Plant**: the dominate wind directions are from the north-east (about 7 percent of the time) and north-southwest (about 5 percent of the time). The average wind speed is about 6.62 knots, where calm winds are about 1.7 percent of the time.

- **PacifiCorp – Huntington Power Plant:** the dominate wind directions are from the north-northwest (about 17 percent of the time). The average wind speed is about 7.6 knots, where calm winds are about 0.1 percent of the time.

The wind rose for each facility is different because each source used a different meteorological dataset.

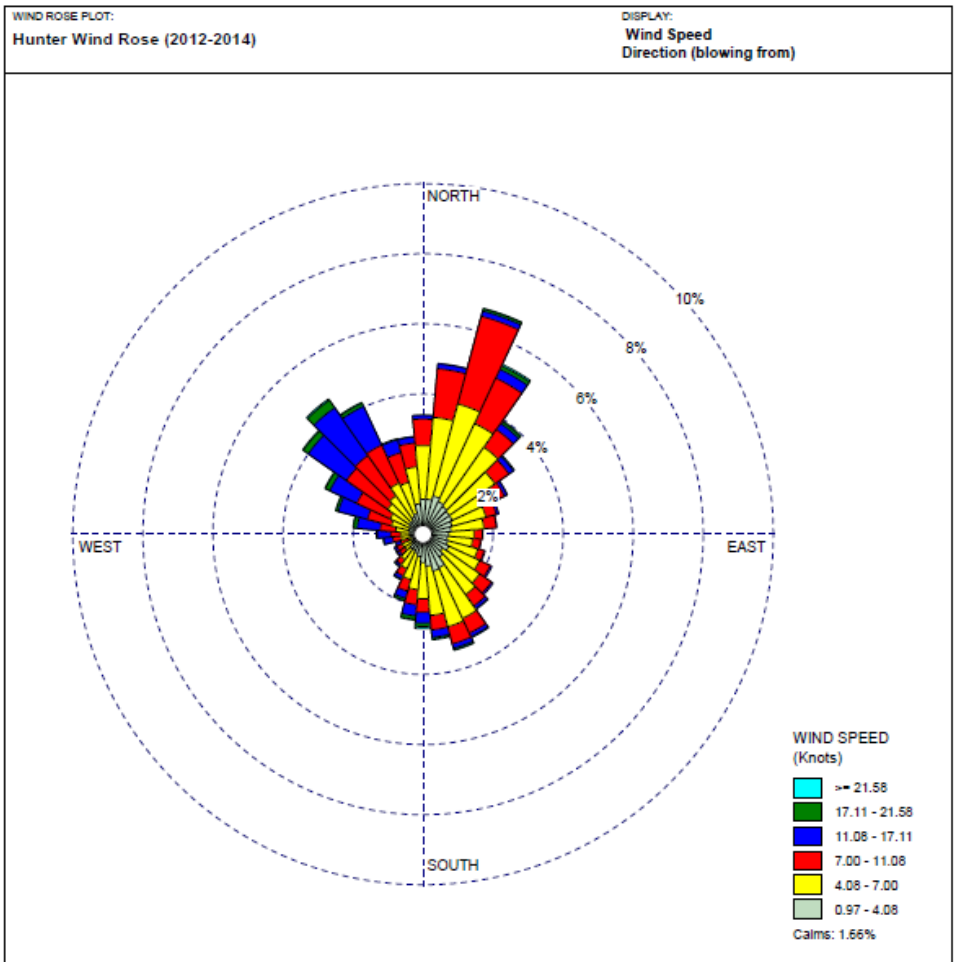


Figure 15: PacifiCorp Hunter – Price NWS Meteorology Windrose

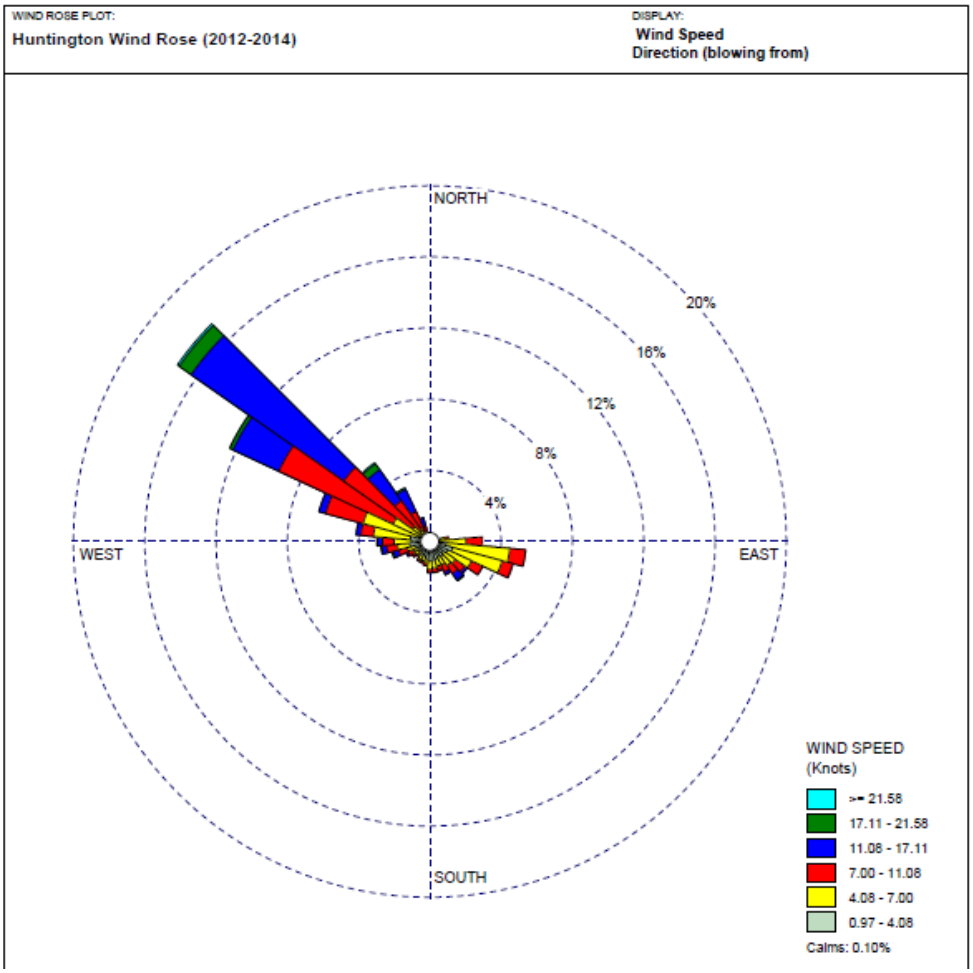


Figure 16: Huntington Onsite Meteorology Windrose

AERSURFACE (version 13016) was used to calculate the surface characteristics values, including albedo, Bowen ratio, and surface roughness length, at the surface meteorological observing site for input into AERMET. The 1992 National Land Cover Dataset (NLCD92) file for input into AERSURFACE was downloaded from the United States Geological Society (USGS) website.

The state estimated values in 30 degree sectors, equating to 12 spatial sectors, out to a 1 km radius around the monitoring site for surface characteristics of the area of analysis. Seasonal temporal resolution for dry conditions were assumed to represent the Hunter area, while seasonal temporal resolution for average conditions were assumed to represent the Huntington area. Different approaches were applied to each facility to account for differences in the conditions surrounding each facility. 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").

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 Appendix W and the Modeling TAD in the processing of the raw meteorological data into an AERMOD-ready format, and used AERSURFACE to best represent surface characteristics. EPA supports the state's analysis as best representative of meteorological conditions within the area of analysis because the approach aligns with the Modeling TAD.

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

As illustrated above, the surrounding area of the Hunter and Huntington areas is complex terrain. In particular, the Hunter plant has relatively flat terrain close to the plant, with steep sloping terrain 4 miles to the west, and rugged desert land to the east and south. The Huntington plant is within a narrow canyon with steep terrain rising 3,000 feet from the canyon floor on each side. To account for these terrain changes, the AERMAP terrain program (version 11103) 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. EPA supports the state's approach for defining the terrain as explained in section 3.2.2.3 above.

3.2.2.8.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 utilized the tier 1 approach, where the background concentrations for this area of analysis were based on a monitored design value.

Ambient SO_2 monitoring data was collected at the Intermountain Power Plant (IPP) plant during the period of October 2, 2001, through October 2, 2002. This data set was used in the UDAQ modeling analyses as a representative background concentration for the two power plants. Meteorological Solutions Incorporated (MSI), the third-party air monitoring company that collected the data, conduct an in-depth evaluation of monitored values and the associated meteorological monitoring data collected during this period.

The review identified a number of recorded above averaged ambient values that were influenced by emissions from the plant during periods of strong instability in the surrounding atmosphere, which allowed for recirculation of plant exhaust gases into the area where the monitor was located. The EPA - Guidelines for Air Models allows for sources influenced monitoring values to be excluded from the process for determining a representative background concentration. Consistent with the 1-Hour SO_2 NAAQS, the fourth highest daily high monitored value for the period was 7.6 ppb or 19.8 µg/m^3. The UDAQ considers the IPP data set representative of current SO_2 background conditions in the areas surrounding the two plants because:

- The monitoring data was collected onsite in west-central Utah under a Prevention of Significant Deterioration monitoring plan for a proposed modification to the IPP plant.
- A large source of SO_2 emissions in central Utah, the PacifiCorp's Carbon Plant was shut down in June of 2015. The facility's permit has been revoked, and a letter January 8, 2016, letter from Utah DEQ to PacifiCorp confirming revocation of this permit can be found in the docket for this action.
- No new sources of SO_2 emissions have been added to these areas since 2001 and the PacifiCorp plants have since installed additional controls to significantly reduce their SO_2 emissions.
- A search of the EPA-AIRDATA website identified no other SO_2 monitoring sites in rural areas of central Utah between 1995 and 2015.

EPA supports the state's approach for determining the background concentration.

3.2.2.9.Summary of Modeling Inputs and Results

The AERMOD modeling input parameters for each area of analysis are summarized below in Table 5.

Table 5: Summary of AERMOD Modeling Input Parameters for the Area of Analysis for the Emery County Area surrounding the Hunter and Huntington Facilities.

Input Parameter	Value
AERMOD Version	15181 (regulatory options) Revised Modeling: 16216r
Dispersion Characteristics	Rural
Modeled Sources	2
Modeled Stacks	5
Modeled Structures	25
Modeled Fencelines	0
Total receptors	Initial Modeling: 11,379 Revised Modeling: 13,172
Emissions Type	Actual
Emissions Years	2012-2014
Meteorology Years	2012-2014
NWS Station for Surface Meteorology	Hunter: NWS/Price Carbon County (KPUC) Huntington: On-site data
NWS Station Upper Air Meteorology	Grand Junction, CO
NWS Station for Calculating Surface Characteristics	Price, Utah [NLCD_081500]
Methodology for Calculating Background SO_2 Concentration	Tier 1
Calculated Background SO_2 Concentration	7.6 ppb

The results presented below in Table 6 to Table 7 show the magnitude and geographic location of the highest predicted modeled concentration based on the input parameters.

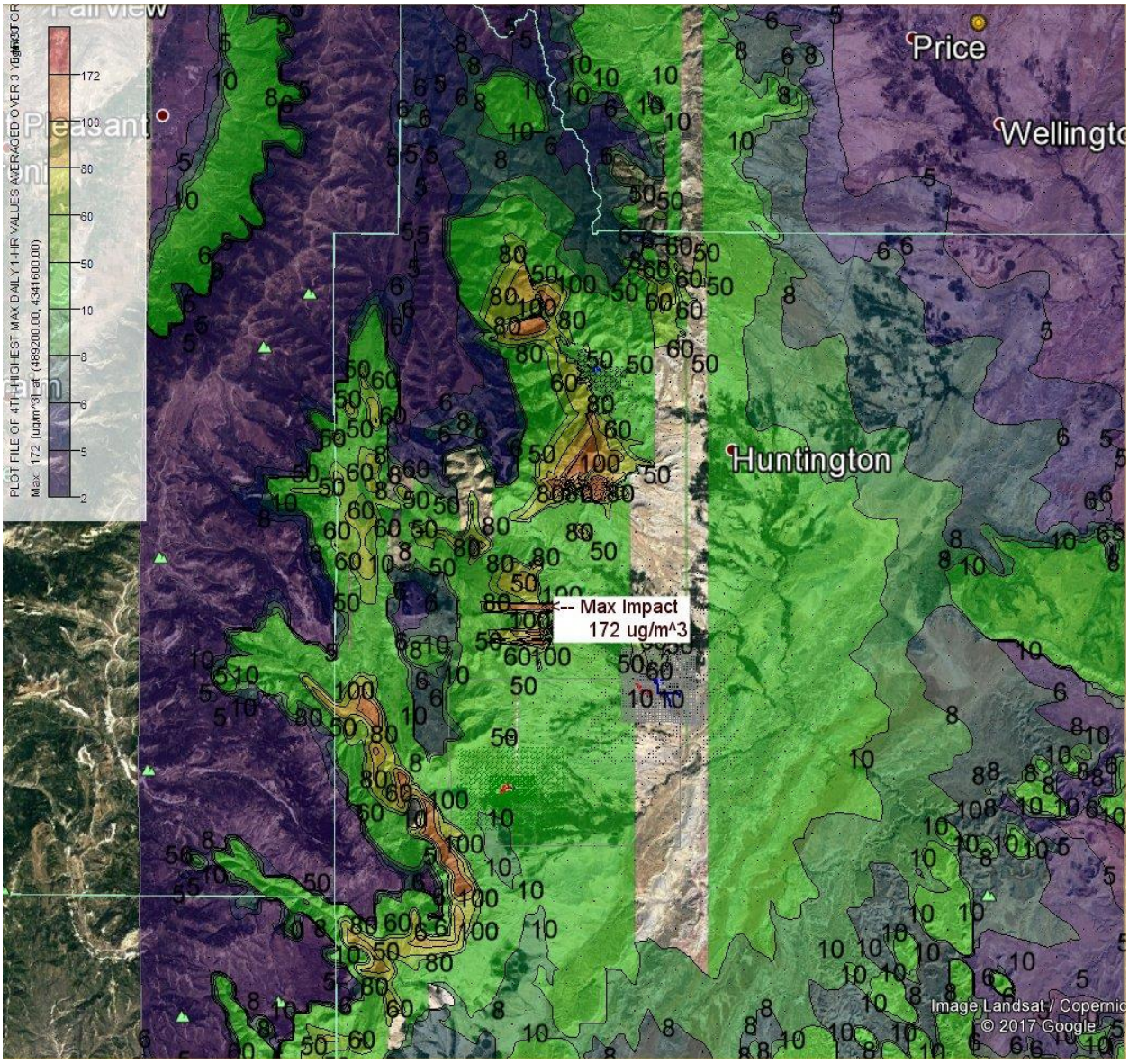


Figure 17: Maximum Predicted 99th Percentile Daily Maximum 1-Hour SO_2 Concentrations for the Emery County Area of Analysis for the Hunter Facility

Table 6. Maximum Predicted 99th Percentile Daily Maximum 1-Hour SO_2 Concentrations Averaged Over Three Years for the Emery County Area of Analysis for the Hunter Facility.

Averaging Period	Data Period	Receptor Location UTM zone 12		99th percentile daily maximum 1-hour SO_2 Concentration ($\mu g/m^3$)	
		UTM	UTM	Modeled concentration (including background)	NAAQS Level
99th Percentile 1-Hour Average	2012-2014	489200	4341600	192.0	196.4*

*Equivalent to the 2010 SO_2 NAAQS of 75 ppb using a 2.619 $\mu g/m^3$ conversion factor

Table 7. Predicted 99th Percentile Daily Maximum 1-Hour SO_2 Concentrations Averaged Over Three Years for the Emery County Area of Analysis for the Huntington Facility.

Averaging Period	Data Period	Receptor Location UTM zone 12		99th percentile daily maximum 1-hour SO_2 Concentration ($\mu g/m^3$)	
		UTM	UTM	Modeled concentration (including background)	NAAQS Level
99th Percentile 1-Hour Average	2012-2014	494998.1	4337225.0	102.85**	196.4*

*Equivalent to the 2010 SO_2 NAAQS of 75 ppb using a 2.619 $\mu g/m^3$ conversion factor.
** Predicted concentration reported in AERMOD output file.

The state's modeling indicates that the highest predicted 99th percentile daily maximum 1-hour concentration within the chosen modeling domain for each facility is:

- Hunter: 192.0 $\mu g/m^3$, equivalent to 73.3 ppb.
- Huntington: 102.8 $\mu g/m^3$, equivalent to 39.2 ppb.

The modeled concentrations include the background concentration of SO_2, and are based on actual emissions from each facility. Figure 17 to Figure 18 below were included as part of the state's recommendation, and indicates where the predicted value occurred:

- Hunter: about 10 km north-north-west of facility.
- Huntington: about 22 km south of facility.

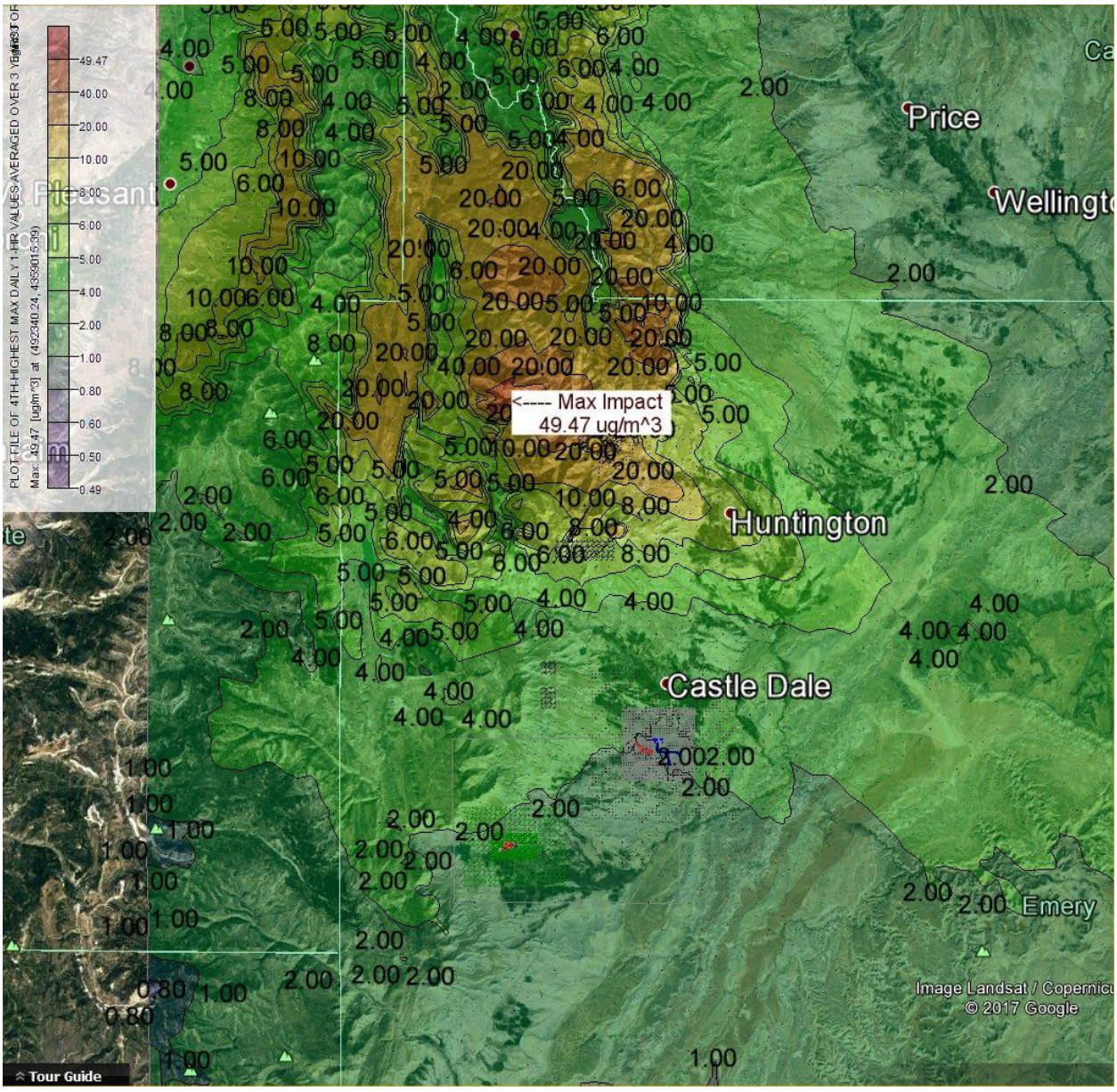


Figure 18: Predicted 99th Percentile Daily Maximum 1-Hour SO_2 Concentrations Averaged Over Three Years for the Emery County Area of Analysis for the Huntington Facility

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 for each facility.

3.2.2.10. The EPA's Assessment of the Modeling Information Provided by the State

The state's approach to conducting the dispersion modeling for EPA's 1-hour SO_2 designations aligns with the TAD. The state has also provided sufficient information to Region 8 to determine that the modeling assessment is sufficient for supporting designation decisions. While the state used AERMOD v15181, the state elected to use regulatory default options (i.e., ADJ_U* was not used in the modeling) which should not significantly impact the predicted SO_2 concentrations.

The state also used data collected between 2012 and 2014, which are not the most recent years. However, Region 8 supports the data used for the modeling assessment because it was the most complete data at the time the modeling was conducted and the use of more recent data is not anticipated to cause significant differences in the model results as the 2012-2014 data have higher SO_2 emissions compared to more recent data for the Hunter Facility, and very similar to more recent Huntington data. Specifically, average annual SO_2 for the Hunter facility from 2012-2014 was 4,509 tons compared to a 2014-2016 average of 3,791 tons. The Huntington facility's average annual SO_2 from 2012-2014 was 2,396 tons, while the 2014-2016 average was 2,456. Receptors were excluded in areas with steep sloping terrain with sharp peaks, and soft soil. These receptors exclusions were treated similar to water bodies referenced in the Modeling TAD. Specifically, the Modeling TAD states that receptors may be excluded in areas where it is not feasible to place a monitor, such as water bodies. EPA supports the locations and coverage of receptors used in the state's air quality modeling assessment.

3.2.3. Modeling Analysis Provided by Other Organizations

As of March 2017, Region 8 has not received any modeling assessments from a 3rd party.

3.3. Emissions and Emissions-Related Data, Meteorology, Geography, and Topography for the Emery 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.

3.4. Jurisdictional Boundaries in the Emery County Area

Existing jurisdictional boundaries are considered for the purpose of informing the EPA's designation action for the Emery County Area. Our goal is to base designations on clearly defined legal boundaries, and to have these boundaries align with existing administrative boundaries when reasonable. As noted, the state has requested a full-county attainment designation for Emery County. There are no sources of SO_2 in Emery County aside from the Hunter and Huntington facilities.

3.5. The EPA's Assessment of the Available Information for the Emery County Area

The EPA has determined, based on our review of the modeling data provided by the state, that Emery County meets the 2010 SO_2 NAAQS and does not contribute to any nearby area that does not meet the NAAQS, as the nearest 2010 SO_2 nonattainment area is located roughly 620 km from the Hunter facility. For this reason, we intend to designate Emery County as unclassifiable/attainment.

The EPA believes that our intended unclassifiable/attainment area, bounded by the borders of Emery County, 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.

3.6. Summary of Our Intended Designation for the Emery County Area

After careful evaluation of the state's recommendation and supporting information, as well as all available relevant information, the EPA intends to designate Emery County, Utah, as unclassifiable/attainment as the area meets the 2010 SO_2 NAAQS and does not contribute to an area that does not meet the NAAQS. Specifically, the boundaries are comprised of the boundaries of Emery County.

Figure 19 shows the boundary of this intended designated area.

Figure 19. Boundary of the Intended Emery County Unclassifiable/Attainment Area

4. Technical Analysis for the Millard County Area

4.1. Introduction

The EPA must designate the Millard County, Utah, area by December 31, 2017, because the area has not been previously designated and Utah 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 Millard County.

4.2. Air Quality Modeling Analysis for the Millard County Area Addressing Intermountain Power Plant

4.2.1. Introduction

This section 4.2 presents all the available air quality modeling information for a portion of Millard County that is near Intermountain Power Plant (IPP). This area contains the following SO_2 source, which Utah 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:

- IPP emits 2,000 tons or more annually. Specifically, Intermountain emitted 4,371 tons of SO_2 in 2014. This source meets the DRR criteria and thus is on the SO_2 DRR Source list, and Utah has chosen to characterize it via modeling.

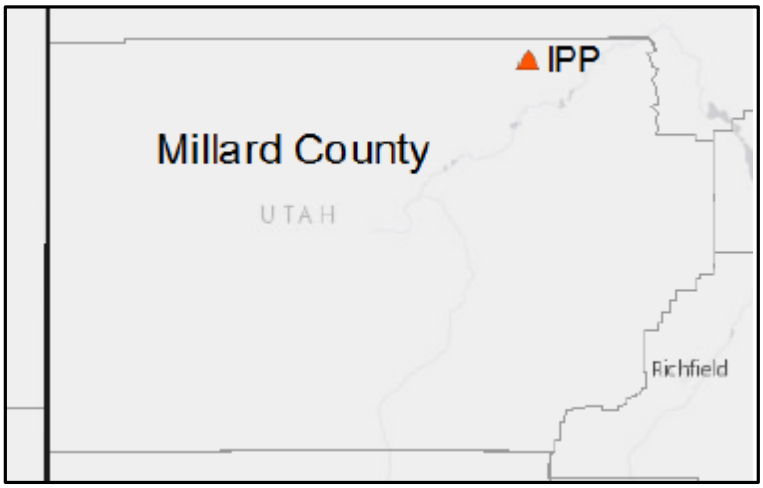
In its submission, Utah recommended that an area that includes the area surrounding the IPP be designated as attainment based in part on an assessment and characterization of air quality impacts from this facility. This assessment and characterization was performed using air dispersion modeling software, i.e., AERMOD, analyzing actual emissions. After careful review of the state's assessment, supporting documentation, and all available data, the EPA 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.

The area that the state has assessed via air quality modeling is located in northeastern Millard County.

As seen in Figure 20 below, IPP is located northeastern Millard County. There are no other emitters of SO_2 greater than 5 tons SO_2/year in Millard County or within 100 km of the Intermountain facility.

Also included in the figure is the state's recommended area for the attainment designation. The EPA's intended unclassifiable/attainment designation boundary for the Millard County area is the same as that recommended by the state (i.e. full county).

Figure 20. Map of the Millard County Area Addressing Intermountain Power Plant (IPP)



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.

For this area, the EPA received and considered one assessment from the state and no assessments from other parties.

4.2.2. Modeling Analysis Provided by the State

The Utah Department of Air Quality (UDAQ) provided an air quality modeling assessment for the Intermountain Power Service Corporation – Intermountain Power Plant, Delta, Utah (Millard County).

4.2.2.1.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 in regulatory default mode, which was the most recent platform that was feasible to use at the time of the modeling. The currently approved AERMOD platform is version 16216r that includes updates. However, the updates made to components of

AERMOD version 16216r were not utilized in the air quality modeling assessment, such as ADJ_U*. A discussion of the state's approach to the individual components is provided in the corresponding discussion that follows, as appropriate.

4.2.2.2.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 site location was classified as rural using the land use procedure specified in Appendix W. The percent of land classified as developed within a 3-km ring around each facility was less than 2 percent. By the definition in Appendix W, land that contains less than 50 percent of developed land use categories should be considered rural. Figure 21 shows the land cover within a 3-km radius of the facility. Further discussion of the power plant appears below. EPA's assessment supports the state's analysis on the land use classification because it aligns with EPA modeling guidance.

- **Intermountain Power Service Corporation Plant** – IPP is located 10 miles north of Delta, Utah, in the west central part of the State. IPP operates two coal-fired 950MW electrical generation units at the Delta facility. The land surrounding the plant is desert shrub land, suitable for limited grazing, with some areas of farmland to the southwest. The nearest residence to the plant is 4 miles to the southwest. The surrounding terrain is flat with little change in elevation. Figure 21 is an aerial view of the plant and its surrounding environment.

Figure 21: Intermountain Power Service Corporation Plant and Surrounding Area

4.2.2.3.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_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 in this area is described in the introduction to this section. For the Millard County Area, the state did not include other emitters of SO_2 within 10 km of IPP, as there are none. 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. No other sources beyond 10 km were determined by the state to have the potential to cause concentration gradient impacts within the area of analysis.

A Cartesian modeling receptor array was established to capture the 99th percentiles of the maximum daily one-hour average SO_2 impacts from the facilities. The receptor grid is a relatively dense receptor array with the following spacing beyond the fence line:

- 100 m spacing along fence line to at least 1 km from the fence line;
- 250 m spacing from the fence line to 5 km from the fence line;

- 500 m spacing between 5 km and 10 km from the fence line; and
- 1000 m spacing at 10 km from the fence line and beyond.
- No receptors were located within the facilities' fence line.

The modeling domain for the IPSC-IPP analysis is 83 km by 93 km. The modeling domain is consistent with the Modeling TAD because it is larger than 10 times the stack height and captures significant concentration gradients (as depicted in figure 25 below). that captures the locations of the concentration gradients for the model domain, which is consistent with the Modeling TAD. Figure 22 depicts the receptor grid for the IPSC modeling analysis. A total of 12,833 receptors were used for the IPP modeling.

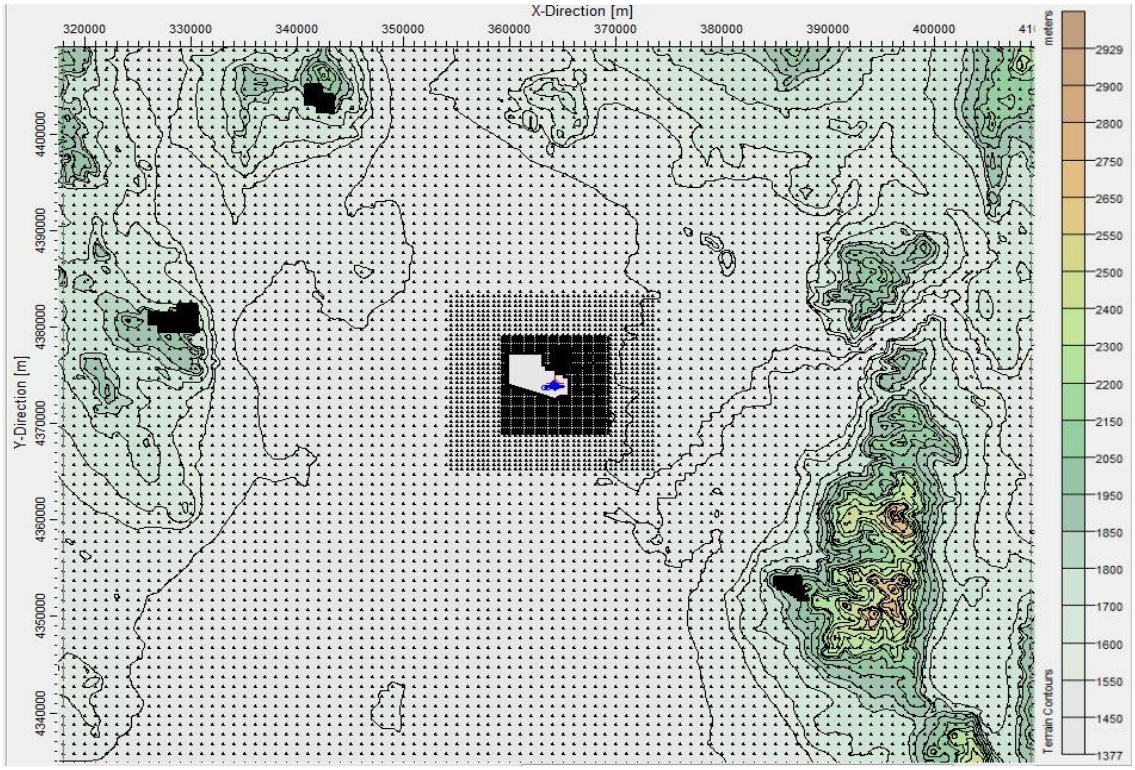


Figure 22. Intermountain Power Service Corporation Receptor Grid and Elevations.

Section 4.2 of the EPA - SO_2 NAAQS Designations Modeling Technical Assistance Document (August 2016) states that:

> *"For SO_2 designations modeling, the areas to consider for receptor placement are those areas that would be considered ambient air relative to each modeled facility, including other facilities' property. However, for some limited ambient air locations, such as water bodies, receptors can be excluded or ignored in analyses as monitors could not feasibly be placed in those areas. For the purposes of modeling for designations, power inaccessibility or locations in areas located near roadways are not appropriate rationales for excluding receptors."*

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 with the exceptions of locations described in Section 4.2 of the Modeling TAD. The EPA supports the locations and coverage of receptors (including the removal of receptors within the facility's fenceline, as the fence provides a barrier to public access of the area) used in the state's air quality modeling assessment.

4.2.2.4.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.

Concentrations predicted in the analyses are based on hourly emission rates and release parameters (e.g., in-stack gas temperatures, and in-stack flow rates) recorded on continuous emission monitors (CEM) at the power plant between January 1, 2012, and December 31, 2014. All missing data substitutions and bias adjustments to the CEM data were based on 40 CFR Part 75.33 Missing Data Substitution Procedures.

Emissions of SO_2 at the plant are released from a dedicated stack for each coal-fired boiler unit. The stack locations and release parameters for the power plant's boiler stacks are listed in Table 9 below.

Table 9: AERMOD Stack Location and Release Parameters

SO_2 Source	UTME (m)	UTMN (m)	Height (m)	Diameter (m)	Temperature (K)	Exit Velocity (m/s)
ISPC – IPP Plant					Gas Temp. Changes Hourly, Consistent with each Unit's CEM for Period 2012 through 2014	Exit Velocity Changes Hourly, Consistent with each Unit's CEM for Period 2012 through 2014
Unit 1	364213	4374464	217	8.5		
Unit 2	364213	4374464	217	8.5		

The plant structures, buildings, and tanks were included for AERMOD downwash calculations using BPIPPRM and the actual height of each stack will be used in the analyses. A total of 14 structures were included for IPP modeling.

The state characterized the sources 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 sources' 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. For these reasons, EPA supports the state's analysis of the source characterizations.

4.2.2.5.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 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, 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."

As previously noted, the state included only IPP in the modeling analysis. The state has chosen to model this facility using actual emissions. The facility in the state's modeling analysis and their associated annual actual SO_2 emissions between 2012 and 2014 are summarized below in Table 9. A description of how the state obtained hourly emission rates is given below this table.

Table 9. Actual SO_2 Emissions Between 2012 – 2014 from Facilities in the Millard County Area

	SO_2 Emissions (tpy)		
Facility Name	**2012**	**2013**	**2014**
Intermountain Power Plant	3,551	4,724	4,368
Total Emissions from All Modeled Facilities in the State's Area of Analysis	3,551	4,724	4,368

For IPP, the actual hourly emissions data were obtained from CEMs data.

4.2.2.6.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.

The meteorological record for the UDAQ modeling demonstration is January 1, 2012, through December 31, 2014. Meteorological monitoring data was collected onsite at the IPSC-IPP plant during this period. Data used in the analysis is as follows:

- IPSC – IPP - 50 meter onsite Solar Radiation/Delta T (SRDT) meteorological tower with winds recorded at 10 and 50 meters, and temperature recorded at 2, 10, and 50 meters.
- NWS Upper Air data from Salt Lake City, Utah, and Grand Junction, Colorado.

Figure 23 presents the location of the onsite and NWS stations relative to the areas of analysis. This figure was not provided in the state's analysis.

Figure 23. Map of Facilities and Monitoring Locations in the Millard County Area.

Hourly surface meteorological data records are read by AERMET, and include all the necessary elements for data processing. However, wind data taken at hourly intervals may not always portray wind conditions for the entire hour, which can be variable in nature. Hourly wind data may also be overly prone to indicate calm conditions, which are not modeled by AERMOD. In order to better represent actual wind conditions at the meteorological tower, one-minute ASOS (Automated Surface Observing System) wind data from the Price, Utah, station were processed using AERMINUTE (version 15272) into hourly data for input into AERMET (15181) for the Hunter modeling. The other sites used on-site meteorological datasets. The ASOS data were subsequently integrated into the AERMET processing to produce final hourly wind records of AERMOD-ready meteorological data that better estimate actual hourly average conditions and that are less prone to over-report calm wind conditions. This allows AERMOD to apply more hours of meteorology to modeled inputs, and therefore produce a more complete set of concentration estimates. As a guard against excessively high concentrations that could be produced by AERMOD in very light wind conditions, the state set a minimum threshold of 0.2 meters per second in processing meteorological data for use in AERMOD. In setting this threshold, no wind speeds lower than this value would be used for determining concentrations. This threshold was specifically applied to the 1-minute wind data.

A surface wind rose for the entire 3-year period proposed for the modeling time period is shown in Figure 24. For IPSC-IPP, the dominate wind directions are from the south (about 5 percent of the time) and north-northwest (about 5 percent of the time). The average wind speed is about 6.33 knots, where calm winds are about 0.21 percent of the time.

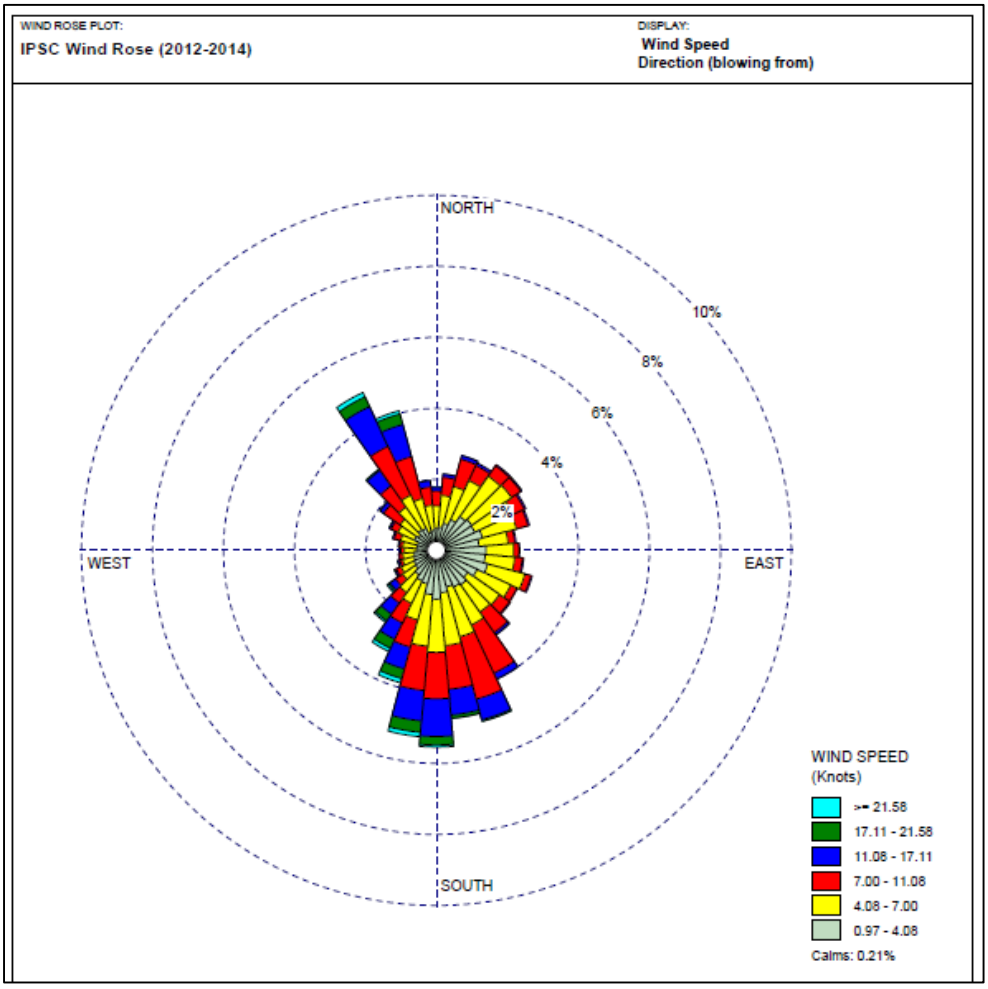


Figure 24: Intermountain Power Service Corp. Onsite Meteorology Windrose

AERSURFACE (version 13016) was used to calculate the surface characteristics values, including albedo, Bowen ratio, and surface roughness length, at the surface meteorological observing site for input into AERMET. The 1992 National Land Cover Dataset (NLCD92) file for input into AERSURFACE was downloaded from the United States Geological Society (USGS) website.

The state estimated values in 30 degree sectors, equating to 12 spatial sectors, out to a 1 km radius around the monitoring site for surface characteristics of the area of analysis. Seasonal temporal resolution for dry conditions were assumed to represent the IPP area. 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”).

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 Appendix W and the Modeling TAD in the processing of the raw meteorological data into an AERMOD-ready format, and used AERSURFACE to best represent surface characteristics. For these reasons, EPA supports the state's analysis as representative of meteorological conditions within the area of analysis.

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

As illustrated above, the surrounding area of the IPSC is flat with little change in elevations. To account for these terrain changes, the AERMAP terrain program (version 11103) 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. EPA supports the state's approach for defining the terrain because the approach aligns with EPA modeling guidance.

4.2.2.8.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 99^{th} percentile monitored concentrations by hour of day and season or month. For this area of analysis, the state utilized the tier 1 approach, where the background concentrations for this area of analysis were based on a monitored design value.

IPSC collected ambient SO_2 monitoring data at IPP during the period of October 2, 2001, through October 2, 2002. This data set was used in the UDAQ modeling analysis as a representative background concentration for the power plant. Meteorological Solutions Incorporated (MSI), the third-party air monitoring company that collected the data, conduct an in-depth evaluation of monitored values and the associated meteorological monitoring data collected during this period.

The review identified a number of recorded above average ambient values that were influenced by emissions from the plant during periods of strong instability in the surrounding atmosphere, which allowed for recirculation of plant exhaust gases into the area where the monitor was located. The EPA Guidelines for Air Models allows for sources influencing monitor values to be excluded from the process for determining a representative background concentration. Consistent with the 1-Hour SO_2 NAAQS, the fourth highest daily high monitored value for the period was 7.6 ppb or 19.8 $\mu g/m^3$. The UDAQ considers the ISPC-IPP data set representative of current SO_2 background conditions in the area surrounding the plant because:

- The monitoring data was collected onsite in west-central Utah under a Prevention of Significant Deterioration monitoring plan for a proposed modification to the IPP.
- No new sources of SO_2 emissions have been added to these areas since 2001 and the PacifiCorp plants have since installed additional controls to significantly reduce their SO_2 emissions.

- A search of the EPA-AIRDATA website identified no other SO_2 monitoring sites in rural areas of central Utah between 1995 and 2015.

EPA supports the state's approach for determining the background concentration.

4.2.2.9.Summary of Modeling Inputs and Results

The AERMOD modeling input parameters for the area of analysis are summarized below in Table 10.

Table 10: Summary of AERMOD Modeling Input Parameters for the Area of Analysis for the Area surrounding the IPSC Facility.

Input Parameter	Value
AERMOD Version	15181 (regulatory options)
Dispersion Characteristics	Rural
Modeled Sources	1
Modeled Stacks	2
Modeled Structures	4
Modeled Fencelines	1
Total receptors	12,833
Emissions Type	Actual
Emissions Years	2012-2014
Meteorology Years	2012-2014
NWS Station for Surface Meteorology	On-site data
NWS Station Upper Air Meteorology	Salt Lake City, UT
NWS Station for Calculating Surface Characteristics	Price, Utah [NLCD_081500]
Methodology for Calculating Background SO_2 Concentration	Tier 1
Calculated Background SO_2 Concentration	7.6 ppb

The results presented below in Table 11 show the magnitude and geographic location of the highest predicted modeled concentration based on the input parameters.

Table 11. Maximum Predicted 99th Percentile Daily Maximum 1-Hour SO_2 Concentrations Averaged Over Three Years for the Millard County Area of Analysis for the IPP Facility.

Averaging Period	Data Period	Receptor Location UTM zone 12		99th percentile daily maximum 1-hour SO_2 Concentration ($\mu g/m^3$)	
		UTM	UTM	Modeled concentration (including background)	NAAQS Level
99th Percentile 1-Hour Average	2012-2014	330500	4381500	90.5	196.4*

*Equivalent to the 2010 SO_2 NAAQS of 75 ppb using a 2.619 $\mu g/m^3$ conversion factor

The state's modeling indicates that the highest predicted 99th percentile daily maximum 1-hour concentration within the chosen modeling domain for facility is 90.5 $\mu g/m^3$, equivalent to 34.6 ppb. The modeled concentrations included the background concentration of SO_2, and is based on actual emissions from the. Figure 25 below was included as part of the state's recommendation, and indicates that the predicted value occurred about 35 km west of facility.

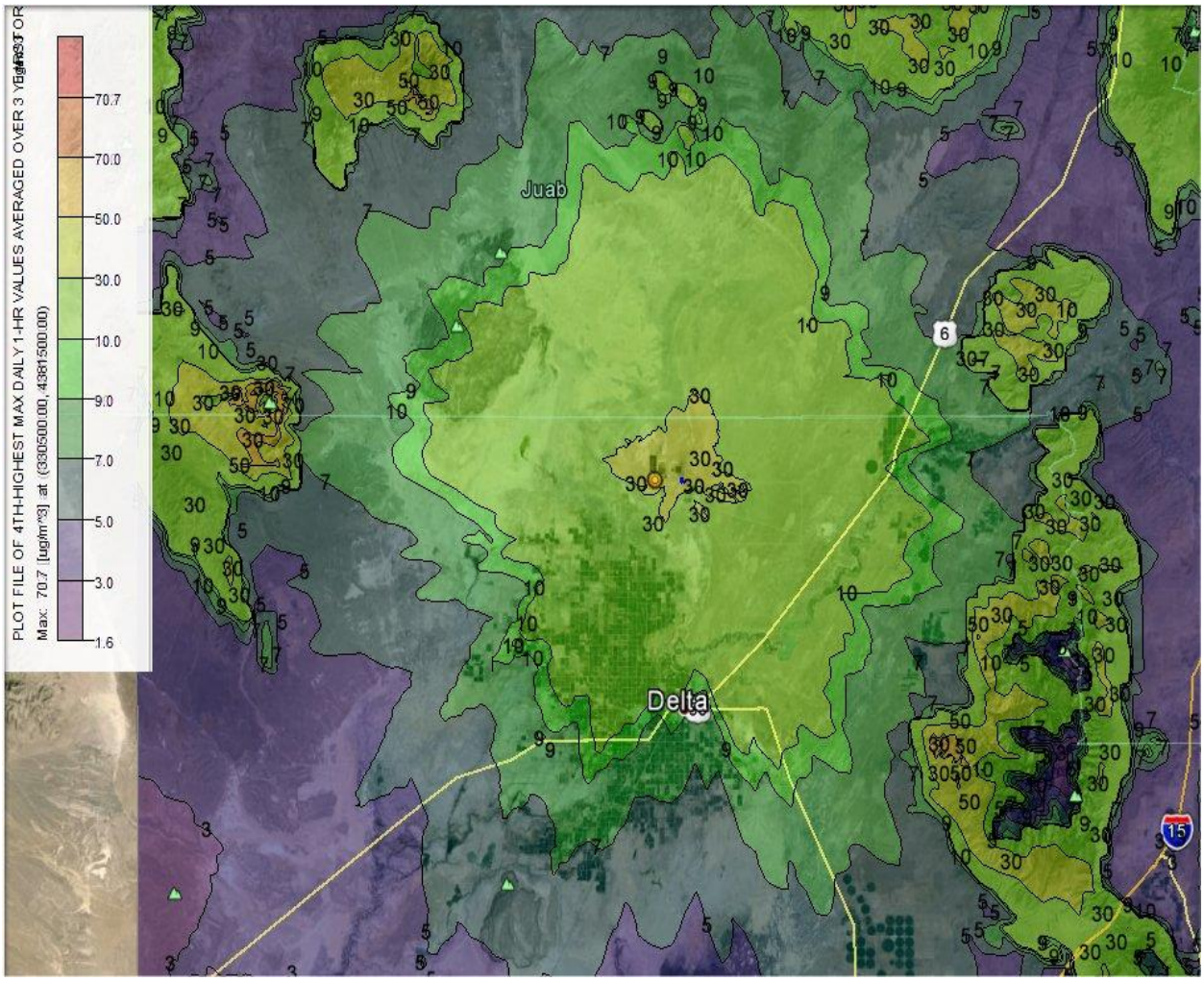


Figure 25: Predicted 99th Percentile Daily Maximum 1-Hour SO_2 Concentrations Averaged Over Three Years for the Area of Analysis for the Millard County Area of Analysis for the IPP Facility

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 for the facility.

4.2.2.10. The EPA's Assessment of the Modeling Information Provided by the State

The state's approach to conducting the dispersion modeling for EPA's 1-hour SO_2 designations appears to align with the TAD. The state has also provided sufficient information to EPA to determine that the modeling assessment is sufficient for supporting designation decisions. While the state used AERMOD v15181, the state elected to use regulatory default options (i.e., ADJ_U* was not used in the modeling) which should not significantly impact the predicted SO_2 concentrations. The state also used data collected between 2012 and 2014, which are not the most recent years. However, EPA supports the data used for the modeling assessment because it was the most complete data at the time the modeling was conducted and the use of more recent data is not anticipated to cause significant differences in the model results, as the 2012-2014 data are conservative compared to more recent data. Specifically, the facility's average annual SO_2 emissions from 2012-2014 were 4,214 tons, whereas the annual average for 2015-2016 was 3,276 tons/SO_2. Additionally, emissions for the most recent available year (2016) were 2,785 tons of SO2, or 66% of the average annual emissions for the three modeled years.

4.2.3. Modeling Analysis Provided by Other Organizations

As of July 2017, EPA has not received any modeling assessments from a 3rd party.

4.3. Jurisdictional Boundaries in the Millard County Area

Existing jurisdictional boundaries are considered for the purpose of informing the EPA's designation action for the Millard County Area. 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 a full-county designation for Millard County based on the results of the modeling analysis. This includes the portions of the Paiute Reservation that are located in southeastern Millard County within the borders of the county. As noted, there are no SO_2 sources above 5 tpy aside from the IPP facility in Millard County. There are also no sources of SO_2 within 70 km of the borders of Millard County.

4.4. The EPA's Assessment of the Available Information for the Millard County Area

The EPA has determined, based on our review of the modeling data provided by the state, that Millard County meets the 2010 SO_2 NAAQS and does not contribute to any nearby area that does not meet the NAAQS, as the nearest 2010 SO_2 nonattainment area is located roughly 680 km from this facility. For these reasons, we intend to designate Millard County as unclassifiable/attainment.

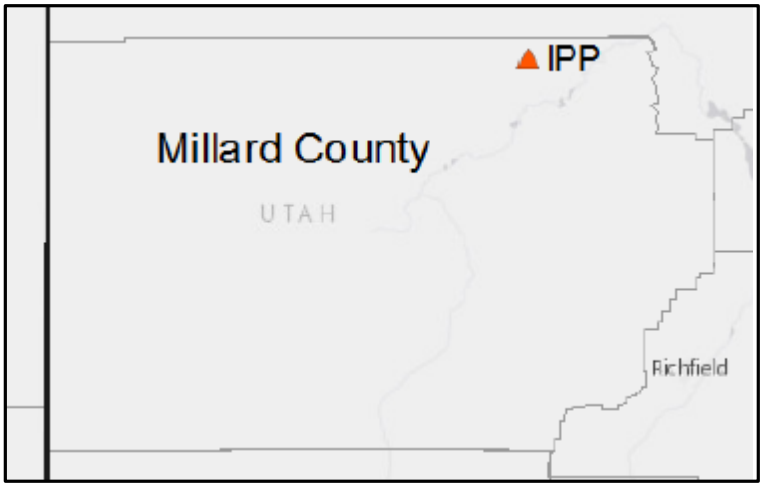
The EPA believes that our intended unclassifiable/attainment area, bounded by the state's recommended borders of Millard County will have clearly defined legal boundaries, and we intend to find these boundaries to be a suitable basis for defining our intended unclassifiable/attainment area. The EPA is selecting a full county designation because there are no other sources of SO_2 above 5 tons/year in or near Millard County aside from IPP, which the state's modeling indicates does not violate the NAAQS.

4.5. Summary of Our Intended Designation for the Millard County Area

After careful evaluation of the state's recommendation and supporting information, as well as all available relevant information, the EPA intends to designate Millard County, Utah, as unclassifiable/attainment as the area meets the 2010 SO_2 NAAQS and does not contribute to an area that does not meet the NAAQS. Specifically, the boundaries are comprised of the borders of Millard County, including the portions of the Paiute Reservation located within the borders of Millard County.

Figure 26 shows the boundary of this intended designated area.

Figure 26. Boundary of the Intended Millard County Unclassifiable/Attainment Area



5. Technical Analysis for the Rest of the Utah Areas

5.1. 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 counties identified in Table 12. 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. In addition, there are no air quality monitoring data that indicate any violation of the 1-hour SO_2 NAAQS. The EPA intends to designate all previously undesignated areas listed in Table 12 in the state as "unclassifiable/attainment" since 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.

Table 12. Counties that the EPA Intends to Designate Unclassifiable/Attainment

County	Utah's Recommended Area Definition	Utah's Recommended Designation	EPA's Intended Area Definition	EPA's Intended Designation
Box Elder*	Full County	Attainment	Same as State's Recommendation	Unclassifiable/Attainment
Cache	Full County	Attainment	Same as State's Recommendation	Unclassifiable/Attainment
Carbon*	Full County	Attainment	Same as State's Recommendation	Unclassifiable/Attainment
Daggett	Full County	Attainment	Same as State's Recommendation	Unclassifiable/Attainment
Davis	Full County	Attainment	Same as State's Recommendation	Unclassifiable/Attainment
Duchesne*	Full County	Attainment	Same as State's	Unclassifiable/Attainment

County	Utah's Recommended Area Definition	Utah's Recommended Designation	EPA's Intended Area Definition	EPA's Intended Designation
			Recommendation	
Garfield	Full County	Attainment	Same as State's Recommendation	Unclassifiable/Attainment
Grand*	Full County	Attainment	Same as State's Recommendation	Unclassifiable/Attainment
Iron*	Full County	Attainment	Same as State's Recommendation	Unclassifiable/Attainment
Juab*	Full County	Attainment	Same as State's Recommendation	Unclassifiable/Attainment
Kane	Full County	Attainment	Same as State's Recommendation	Unclassifiable/Attainment
Morgan	Full County	Attainment	Same as State's Recommendation	Unclassifiable/Attainment
Piute	Full County	Attainment	Same as State's Recommendation	Unclassifiable/Attainment
Rich	Full County	Attainment	Same as State's Recommendation	Unclassifiable/Attainment
Salt Lake	Full County	Attainment	Same as State's Recommendation	Unclassifiable/Attainment
San Juan*	Full County	Attainment	Full County with the exception of	Unclassifiable/Attainment

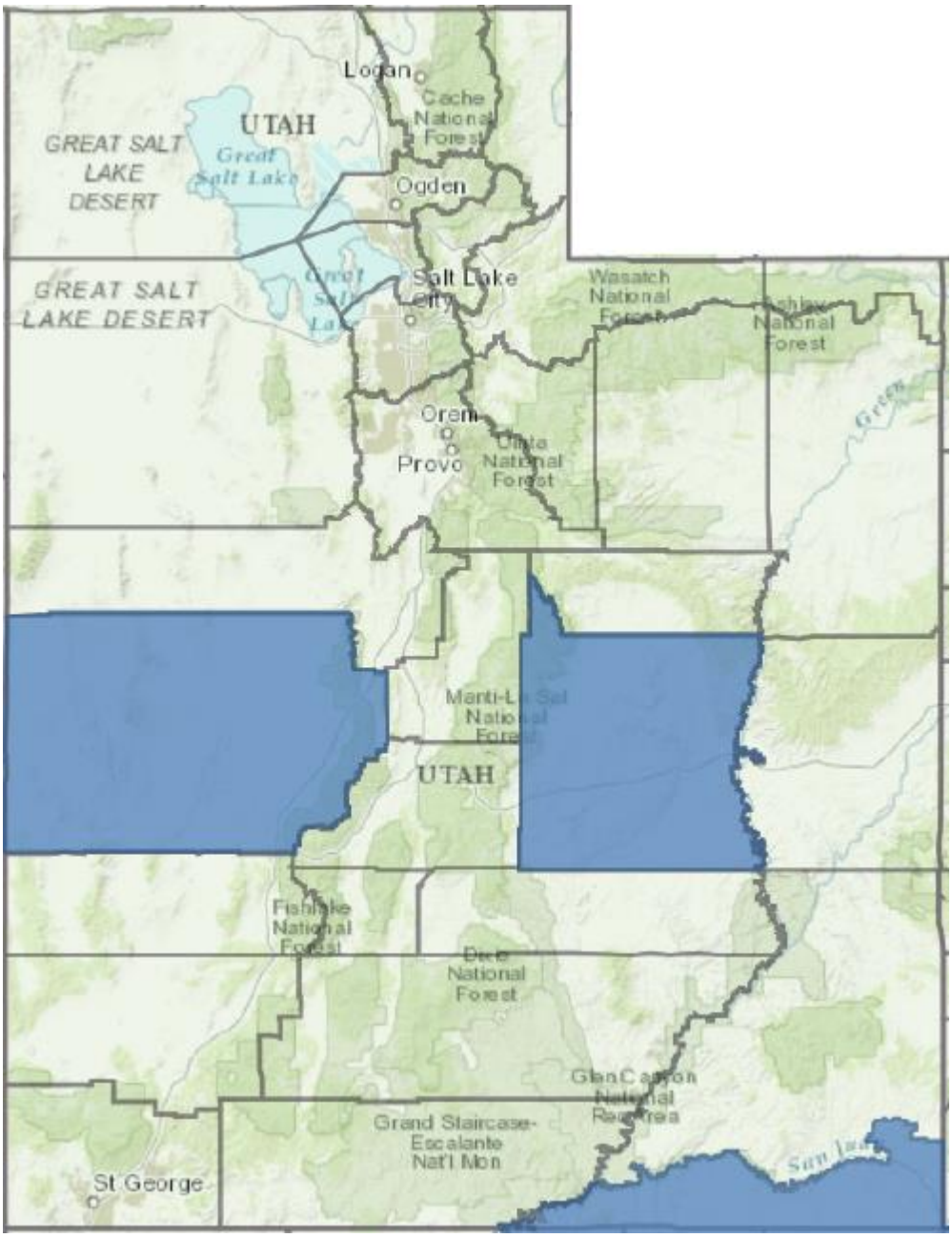
County	Utah's Recommended Area Definition	Utah's Recommended Designation	EPA's Intended Area Definition	EPA's Intended Designation
			the portion of the county that contains the Navajo Nation Reservation	
Sanpete	Full County	Attainment	Same as State's Recommendation	Unclassifiable/Attainment
Sevier*	Full County	Attainment	Same as State's Recommendation	Unclassifiable/Attainment
Summit	Full County	Attainment	Same as State's Recommendation	Unclassifiable/Attainment
Tooele*	Full County	Attainment	Same as State's Recommendation	Unclassifiable/Attainment
Uintah*	Full County	Attainment	Same as State's Recommendation	Unclassifiable/Attainment
Utah*	Full County	Attainment	Same as State's Recommendation	Unclassifiable/Attainment
Wasatch*	Full County	Attainment	Same as State's Recommendation	Unclassifiable/Attainment
Washington*	Full County	Attainment	Same as State's Recommendation	Unclassifiable/Attainment
Wayne	Full County	Attainment	Same as State's Recommendation	Unclassifiable/Attainment

County	Utah's Recommended Area Definition	Utah's Recommended Designation	EPA's Intended Area Definition	EPA's Intended Designation
Weber	Full County	Attainment	Same as State's Recommendation	Unclassifiable/Attainment

***** Includes areas of Indian country located in the county.

Table 12 also summarizes Utah's recommendations for these areas. Specifically, the state recommended that the entirety of these counties be designated as attainment based on the absence of significant sources in these counties. After careful review of the state's assessment, supporting documentation, and all available data, the EPA agrees with the state's conclusion that these areas attain the 2010 SO_2 NAAQS, and intends to designate the areas as unclassifiable/attainment. Figure 27 shows the locations of these areas (all those not in blue) within Utah.

Figure 27. The EPA's Intended Unclassifiable/Attainment Designations for Counties in Utah



5.2. Air Quality Monitoring Data for all other Counties in Utah

AQS monitor 490353006 located in Salt Lake County has sufficient valid data for 2013-2015 design value period and these data indicate that there was no violation of the 2010 SO_2 NAAQS

at the monitoring site in that period. These data were available to the EPA for consideration in the designations process. However, the EPA does not have information indicating this data is in an area of maximum concentration, so this data cannot be used as the basis for designation.

5.3. Jurisdictional Boundaries for the Rest of the Utah Areas

Existing jurisdictional boundaries are considered for the purpose of informing the EPA's designation action for these counties. Our goal is to base designations on clearly defined legal boundaries, and to have these boundaries align with existing administrative boundaries when reasonable. As noted, the state recommended full county designations for all counties in Utah.

The state recommended that the counties listed in Table 12 be designated as attainment in the state's November 1, 2016, submittal, and has not changed that recommendation. The EPA believes using the existing county boundaries is appropriate.

5.4. The EPA's Assessment of the Available Information for the Rest of the Utah Areas

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 for this action. Therefore, the EPA intends to designate the areas in the above Table 12 as unclassifiable/attainment for the 2010 SO_2 NAAQS.

Our intended unclassifiable/attainment area, bounded by the borders of the counties listed in Table 12, 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.

5.5. Summary of Our Intended Designation for the Rest of the Utah Areas

After careful evaluation of the state's recommendation and supporting information, as well as all available relevant information, the EPA intends to designate all counties in Utah aside from Emery and Millard Counties as unclassifiable/attainment for the 2010 SO_2 NAAQS. Specifically, the boundaries are comprised of the borders of the counties listed in Table 12, above. Figure 27 above shows the location of these areas within Utah. There will be no remaining undesignated areas in the state for this NAAQS following the finalization of the intended designations described in this document.