Technical Support Document:

Chapter 14
Final Round 3 Area Designations for the 2010 1-Hour SO$_2$ Primary National Ambient Air Quality Standard for Iowa

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). Our Notice of Availability (NOA)[1] and our Technical Support Document[2] for our intended designations for the round of designations we are required to complete by December 31, 2017, provided background on the relevant CAA definitions and the history of the designations for this NAAQS. Chapter 1 of this TSD for the final designations explains the definitions we are applying in the final designations. The TSD for the intended Round 3 area designations also described Iowa's recommended designations, assessed the available relevant monitoring, modeling, and any other information, and provided our intended designations.

This TSD for the final Round 3 area designations for Iowa addresses any change in Iowa's recommended designations since we communicated our intended designations for areas in Iowa. It also provides our assessment of additional relevant information that was submitted too close to the signature of the NOA to have been considered in our intended designations, or that has been submitted by Iowa or other parties since the publication of the NOA. This TSD does not repeat information contained in the TSD for our intended designations except as needed to explain our assessment of the newer information and to make clear the final action we are taking and its basis, but that information is incorporated as part of our final designation. If our assessment of the information already considered in our TSD for our intended designations has changed based on new information and we are finalizing a designation based on such change in our assessment, this TSD also explains that change. For areas of Iowa, not explicitly addressed in this chapter, we are finalizing the designations described in our 120-day letters and the TSD for the intended Round 3 area designations. All the final designations are listed in Table 1 below.

For the areas in Iowa that are part of the Round 3 designations process, Table 1 identifies EPA's final designations and the counties or portions of counties to which they apply. It also lists Iowa's current recommendations, which have not changed since the 120-day letter. The EPA's

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[1] EPA Responses to Certain State Designation Recommendations for the 2010 Sulfur Dioxide Primary National Ambient Air Quality Standard: Notification of Availability and Public Comment Period, September 5, 2017 (82 FR 41903).

[2] Intended Round 3 Area Designations for the 2010 1-Hour SO$_2$ Primary National Ambient Air Quality Standard Technical Support Document, August 2017. https://www.epa.gov/sulfur-dioxide-designations/initial-technical-support-documents-area-designations-round-3.

final designations for these areas are 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.

Table 1. Summary of the EPA's Final Designations and the Designation Recommendations by Iowa

Area/County	Iowa's Recommended Area Definition	Iowa's Recommended Designation	EPA's Intended Designation	EPA's Final Area Definition*	EPA's Final Designation[+]
Linn County	Linn County	Unclassifiable/ Attainment	Unclassifiable	Same as State's Recommendation	Unclassifiable
Louisa County	Louisa County	Unclassifiable/ Attainment	Unclassifiable / Attainment	Same as State's Recommendation	Attainment/ Unclassifiable
Pottawattamie County	Pottawattamie County	Unclassifiable/ Attainment	Unclassifiable	Same as State's Recommendation	Attainment/ Unclassifiable
Remaining Undesignated Areas[&]	Remaining Undesignated Counties and Partial Counties, as Separately Designated Areas	Unclassifiable/ Attainment	Unclassifiable / Attainment	Same as State's Recommendation	Attainment/ Unclassifiable

* Our final designated areas include all tribal lands within these counties. The EPA is not determining the boundaries of any area of Indian country in this document, including any area of Indian country located in a larger designation area. The inclusion of any Indian country in the designation area is not a determination that the state has regulatory authority under the Clean Air Act for such Indian country.

[+] Refer to Chapter 1 of Technical Support Document: Final Round 3 Area Designations for the 2010 1-Hour SO_2 Primary National Ambient Air Quality Standard for definitions of the designation categories and the terminology change from Unclassifiable/Attainment to Attainment/Unclassifiable.

[&] The EPA is designating the remaining undesignated counties (or portions of counties) in Iowa as "attainment/unclassifiable". These areas that we are designating as attainment/unclassifiable (those to which this row of this table is applicable) are identified more specifically in section 6 of Chapter 14 (addressing Iowa) of the TSD for our intended designations.

2. Technical Analysis of New Information for the Louisa County Area

2.1. Introduction

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

As indicated in Table 1, the EPA's intended designation for Louisa County was unclassifiable/attainment, which is same as the Iowa's recommendation from January 5, 2017. During the 30-day public comment period, EPA received public comments on its intended unclassifiable/attainment designation for Louisa County from the Iowa Environmental Council (IEC). IEC commented on EPA's assessment of Iowa's submitted modeling demonstration for MidAmerican - Louisa Generating Station (MidAmerican – Louisa, or LGS), stating that Iowa's modeling of the nearby 1-hr SO_2 Muscatine nonattainment area and of LGS indicate that this source contributes to a nearby nonattainment area. IEC states that if a more representative background value was used in the Round 3 modeling for LGS, the modeling would show violations of the 1-hr SO_2 NAAQS in the nearby Muscatine nonattainment area. IEC also states that Iowa used a 'hybrid' approach to model emissions for nearby sources that is not consistent with the DRR rule and EPA's modeling technical assistance document for Round 3 designations.

While IEC did not submit modeling as part of their comments, the EPA will address the comments from IEC in this TSD for the final designations since IEC's comments are related to the modeling conducted by the state of Iowa. Therefore, the subsequent modeling assessment in this TSD will evaluate Iowa's modeling submittal from January 5, 2017, which is the same modeling EPA relied upon in its intended designation, in conjunction with IEC's comments.

2.2. Summary of Information Reviewed in the TSD for the Intended Round 3 Area Designations

In the 120-day letter notification to the governor of Iowa, and further explained in Chapter 14 of the TSD for the intended Round 3 area designations, EPA proposed a designation of unclassifiable/attainment based on all available information, including modeling information and all relevant monitoring information.

Table 2 identifies all the modeling assessments evaluated for the 120-day letters and discussed in the TSD for the intended Round 3 area designations. Additional details can be found in the TSD for the Intended Round 3 Area Designations, Chapter 14.

Table 2 –Modeling Assessments Evaluated in the TSD for the Intended Designation for the Louisa County Area

Organization Submitting Assessment	Date of the Assessment	Identifier used in the TSD for the Intended Round 3 Area Designations, Chapter 14	Distinguishing or Otherwise Key Features
Iowa	January 5, 2017	Technical Analysis for Louisa County	None

The EPA considered all available information for the Louisa County area, which included the modeling assessment provided by the state on January 5, 2017. The modeling assessment considered permitted allowable emissions from LGS and permitted allowable emissions and actuals emissions from three sources in the nearby Muscatine nonattainment area, identified in section 2.4.1 below. Based on the information at hand in August 2017, the EPA proposed to conclude that the state's modeling analysis provides an appropriate basis on which to determine the air quality status of the area and that a violation of the 2010 SO_2 will not occur based on allowable emissions at the DRR source in the area.

2.3.   Assessment of New Air Quality Monitoring Data for the Louisa Area

This factor considers the SO_2 air quality monitoring data in the Louisa County area. Our TSD for the intended area designations considered available data through 2016 for three monitoring sites in Muscatine County, the nearest monitors to Louisa County. We do not have certified data for any additional complete calendar years at any site. We have reviewed the latest 2017 monitoring data at these three monitors and make the following observations:

- Based on preliminary data, all 3 monitoring sites indicate that the 2015-2017 1-hour Design Values will likely be below the NAAQS.
- The 99th percentile values for all 3 sites were 45 ppb or less for calendar year 2016 and the current 99th percentile values for all 3 sites are 45 ppb or less for calendar year 2017.
- There has not been a daily exceedance of the NAAQS (daily 1-hour max > 75 ppb) at any of the 3 monitors sites since June 2015 (no daily maximum 1-hour values were above 50 ppb at any of the three monitoring sites since June 2015).

The EPA notes that these monitors in Muscatine County may not alone be adequate to determine whether there are violations of the NAAQS in Louisa County and thus the modeling analysis provided by the state was evaluated by the EPA to determine if there are violations of the NAAQS in Louisa County. A summary of the available monitoring data has been placed in the public docket for this action.

2.4. Assessment of Modeling Analysis for the Louisa County Area Addressing the Louisa Generating Station

2.4.1. *Introduction*

Section 2.4 presents all the available air quality modeling information for the Louisa County area that includes MidAmerican Energy Company – Louisa Station. This area will often be referred to as "the Louisa County area" within section 2.4. This area contains the following SO_2 sources, principally the source around which Iowa was 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 MidAmerican – Louisa facility in Louisa County emitted more than 2,000 tons in 2014. Specifically, MidAmerican – Louisa emitted 8,783 tons of SO_2 in 2014. This source meets the DRR criteria and thus is on the SO_2 DRR Source list, and Iowa has chosen to characterize it via modeling.

- The Grain Processing Corporation (GPC) facility in Muscatine County is not on the SO_2 DRR Source list, as it is located in designated nonattainment area and under the provisions of the DRR is therefore not an "applicable source." (See 40 CFR 51.1200.).

- The Muscatine Power and Water (MPW) facility in Muscatine County is not on the SO_2 DRR Source list, as it is also located in a designated nonattainment area.

- The Monsanto facility in Muscatine County is not on the SO_2 DRR Source list, as it is also located in a designated non-attainment area.

Because we have available results of air quality modeling in which these sources are modeled together, the area around this group of sources is being addressed in this section with consideration given to the impacts of all these sources.

In its submission, Iowa recommended that the entirety of Louisa County which includes the MidAmerican - Louisa facility, and the remainder of Muscatine County that is not part of the 1-hour SO_2 Muscatine nonattainment area[3] be designated as separate unclassifiable/attainment areas based in part on an assessment and characterization of air quality impacts from these facilities and other nearby sources that may have a potential impact in the area where the 2010 SO_2 NAAQS may be exceeded. This assessment and characterization was performed using air dispersion modeling software, i.e., AERMOD, analyzing a mixture of actual and allowable emissions.

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[3] Section 6 of Chapter 14 of the TSD for the intended designations addressed the remainder of Muscatine County that is not part of the 1-hour SO_2 Muscatine nonattainment area. This TSD does not supersede or supplement that section.

The area that the state has assessed via air quality modeling is located in the southeast corner of Iowa, near the Iowa-Illinois border which consists of the Mississippi River. As seen in Figure 1 below, the MidAmerican – Louisa facility is located in the northeast corner of Louisa County, alongside the Mississippi River.

Also included in the figure are other nearby emitters of SO_2.[4] These are GPC, MPW, and Monsanto. All three of the sources are located to the north of MidAmerican – Louisa in Muscatine County, Iowa, and within the Muscatine 1-hr SO_2 nonattainment area. The state's recommended area for the state's recommended unclassifiable/attainment designation consists of the entirety of Louisa County. The EPA's final designation boundary for the Louisa County attainment/unclassifiable area is not shown in its entirety in this figure, but is shown in a figure in the section below that summarizes our final designation.

Figure 1. Map of Louisa County and Surrounding Area Addressing MidAmerican Energy – Louisa

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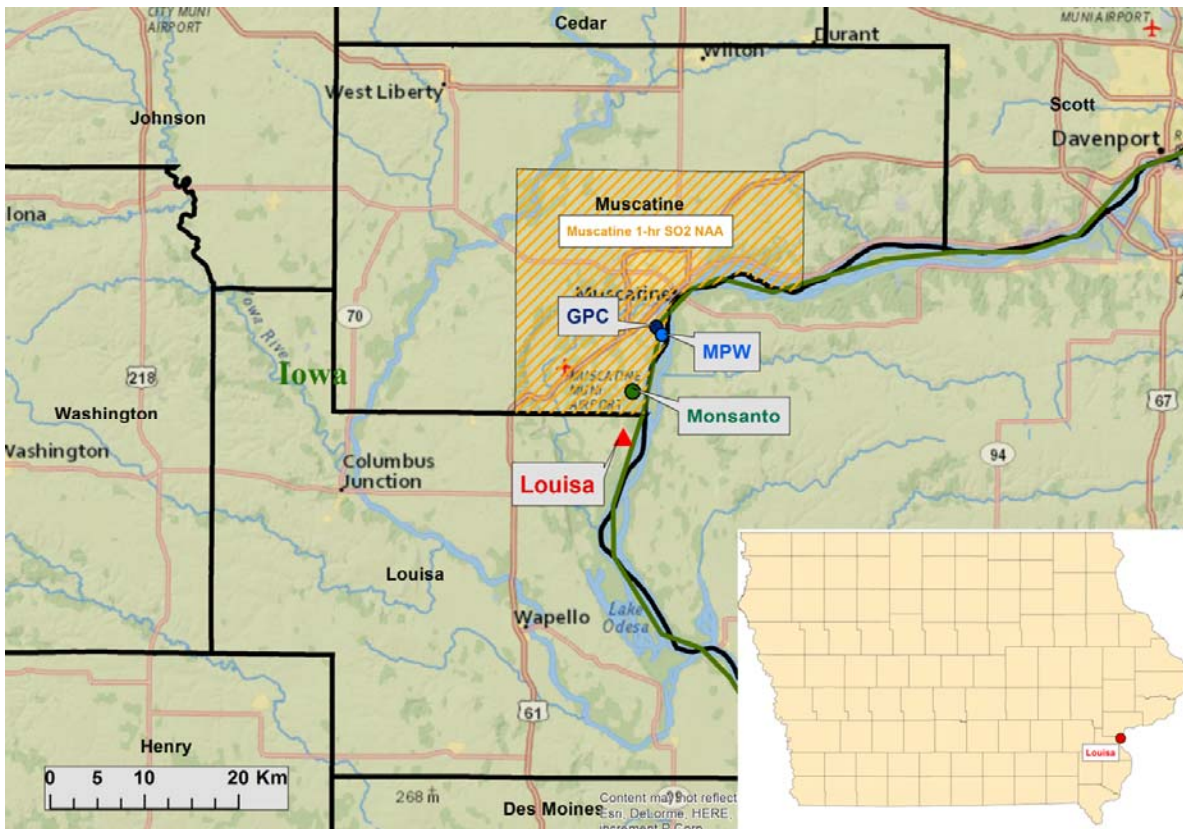
[4] All other large SO_2 emitters in the nearby portion of Muscatine County that is currently designated as nonattainment are shown in Figure 1. The other emitters of SO_2 in the area combined for an average of 0.22 tpy during the period 2012-2014.

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 cited in Chapter 1 of this TSD, as appropriate.

2.4.2. *Modeling Analysis Provided by the State*

As mentioned and explained in detail in Section 2.4.5 below, the EPA received a new dispersion modeling for this area, which supplemented but did not replace the state's January 2017 modeling analysis. This TSD assesses the modeling provided by the state in January 2017 (originally assessed in Chapter 14 of the TSD for the intended designations) taking into consideration comments received from the IEC and the supplemental state modeling described in section 2.4.5.

2.4.3. *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 its January 2017 submission, the state used AERMOD version 15181, the most up-to-date version at the time the modeling analysis was conducted, using all regulatory default options. For consistency, the state used the same version of AERMOD and AERMET in its December 2017 supplemental modeling. AERMOD version 16216r is now the regulatory model version. There were no updates from 15181 to 16216r that EPA believes would significantly affect the concentrations predicted for this area. A discussion of the state's approach to the individual components is provided in the corresponding discussion that follows, as appropriate.

2.4.4. *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 rural determination was made based on land cover surrounding the Louisa facility. The Guideline on Air Quality Models, Appendix W (November 2005) section 7.2.3 instructs users to define the urban or rural classification of the area considering land use and population density. The land use procedure in Appendix W section 7.2.3(c) classifies urban areas based on industrial, commercial, and residential land use over 50% within a 3-km radius of the source. The population density threshold of the 3-km radius surrounding each facility is compared to the urban threshold of 750 people per square kilometer. Both the land use and population density guidelines in Appendix W were used to assess the urban characteristics of the area and it was determined to be rural. The land around the Louisa facility is predominately farmland. Thus, the EPA agrees with the state that rural mode was appropriate for this analysis. The EPA agrees with Iowa's analysis and the state's decision to apply rural dispersion characteristics. This is the same conclusion as we reached for the intended designations.

2.4.5. *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 is described in the introduction to this section. For the Louisa County area, the state included all three other emitters above 1 ton per year (tpy) of SO_2 within 20 km of MidAmerican – Louisa in any direction. The state determined that this was the appropriate distance to adequately characterize air quality through modeling to include the potential extent of any SO_2 NAAQS exceedances in the area of analysis and any potential impact on SO_2 air quality from other sources in nearby areas. In addition to MidAmerican – Louisa, the other emitters of SO_2 included in the area of analysis are: GPC, MPW, and Monsanto. No other sources beyond 20 km were determined by the state to have the potential to cause concentration gradient impacts within the area of analysis, and the EPA agrees with the state's determination given that all other emitters of SO_2 in the area had combined emissions averaging only 0.22 tpy during the period 2012-2014 and are represented in the modeled background value.

The grid receptor spacing for Louisa Station within the area of analysis chosen by the state is as follows:

- 50 meters along the facility fence line
- 50 meters from the fence line to 0.5 km

- 100 meters extending from 0.5 km to 1.5 km
- 250 meters extending from 1.5 km to 3 km
- 500 meters extending from 3 km to 5 km
- 1000 meters extending from 5 km to 10 km

The state's January 2017 modeling submission indicates that receptors within the Muscatine nonattainment area were placed in the exact same locations as were used in the Muscatine nonattainment area SIP modeling analysis conducted by the state. The nonattainment area receptor grid was centered on the Musser Park monitor at the northern end of GPC's property, extending away with decreasing resolution using receptor spacing similar to that described above for the Louisa Station. Additional refined receptor spacing was used within the nonattainment area surrounding GPC, MPW, Monsanto, and Louisa's northern fence line.

The receptor network contained 9,141 receptors, and the network covered the northwestern portion of Louisa County and southern portion of Muscatine County in Iowa, and the northwestern portion of Mercer County and western portion of Rock Island County in Illinois.

Figure 2 shows the state's chosen area of analysis surrounding the Louisa facility, as well as the receptor grid for the area of analysis.

The state placed receptors for the purposes of this designation effort in locations that it considered to be ambient air with the exception of locations it considered as not being feasible locations for placing a monitor. Outside of the Muscatine nonattainment area, Iowa did not place receptors over portions of the Mississippi River. The modeling grid did include receptors on the Mississippi River within the Muscatine nonattainment area.

The state also excluded receptors within the restricted-access fencelines of the four facilities, in their January 5, 2017 modeling analysis. However, EPA notes that each facility property is ambient air with respect to each other facility. On December 7, 2017, Iowa provided EPA with additional modeling that evaluated the impacts the facilities have on each individual facility's property. For example, Iowa provided a modeling run with the emission sources from Louisa, Monsanto, and MPW operating, with receptors placed within GPC's facility fenceline. This was repeated for each operating scenario to evaluate the potential impacts within each of the four facilities' fencelines. These additional modeling runs showed no violations within a facility property when emissions from the other facilities were considered. Therefore, while the January 5, 2017, modeling relied upon by EPA for designations excludes receptors within all four modeled facilities, this additional analysis provided by the state indicates no violations within each facility.

EPA finds the receptor grid used by the state, with the additional modeling analysis provided to evaluate impacts within each facility fenceline, acceptable.

Figure 2. Area of Analysis and Modeled Receptor Grid for the Louisa County Area
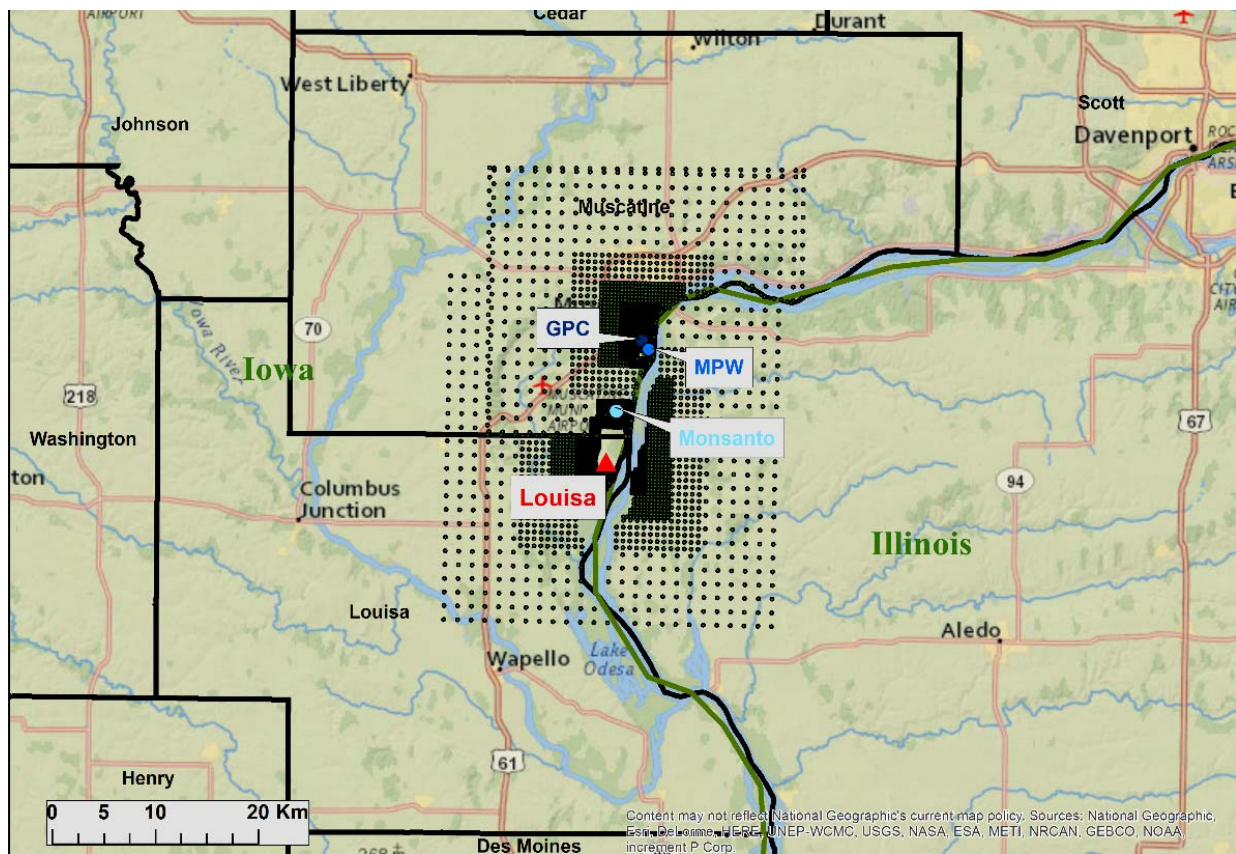
2.4.6. *Modeling Parameter: Source Characterization*

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

The state explicitly included the DRR source, MidAmerican – Louisa, along with GPC, MPW, and Monsanto because these sources were most likely to impact whether the area is meeting or is not meeting the NAAQS. 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 for certain sources and followed the EPA's good engineering practices (GEP) policy in conjunction with modeled allowable emissions limits for certain other sources. The state also adequately characterized the source's building layout and location, as well as the stack parameters, e.g., exit temperature, exit velocity, location, and diameter. Where appropriate, the AERMOD component BPIPPRM was used to assist in addressing building downwash.

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Based on review of the provided information, the EPA finds the state appropriately characterized the modeled sources in the Louisa County area of analysis. This is the same conclusion as we reached for the intended designations.

2.4.7. *Modeling Parameter: Emissions*

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

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

In certain instances, states and other interested parties may find that it is more advantageous or simpler to use PTE rates as part of their modeling runs. For example, 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 LGS and three other emitters of SO_2 within 20 km in the area of analysis. For this area of analysis, the state has opted to use a hybrid approach, where emissions from certain facilities are expressed as actual emissions and emissions from other facilities are expressed as PTE rates. The facilities in the state's modeling analysis and their associated actual or PTE rates are summarized below.

For Monsanto emission point 195 (EP195), which is a coal-fired boiler, the state provided annual actual SO_2 emissions between 2012 and 2014. This information is summarized in Table 3. A description of how the state obtained hourly emission rates is given below this table.

Table 3. Actual SO₂ Emissions Between 2012 – 2014 from Facilities in the Area of Analysis for the Louisa County Area

Facility Name	SO₂ Emissions (tpy)		
	2012	2013	2014
Monsanto EP195	543	469	502

For Monsanto EP195, the actual hourly emissions data were obtained from a CEMS.

For MidAmerican – Louisa, GPC, MPW, and Monsanto emission points other than EP195, the state provided PTE values. This information is summarized in Table 4. A description of how the state obtained hourly emission rates for the sources listed in Table 4 is given below Table 4.

Table 4. SO₂ Emissions based on PTE from Facilities in the Area of Analysis for the Louisa County Area

Facility Name	SO₂ Emissions (tpy, based on PTE)
MidAmerican – Louisa	15,107
GPC	167
MPW	5,051
Monsanto (except EP195)	~0
Total Emissions from Facilities in the Area of Analysis Modeled Based on PTE	20,325

The PTE in tons per year for MidAmerican – Louisa is based on an air quality construction permit (05-A-31-P1) issued on February 14, 2006, that limited SO₂ emissions to 3,449.6 lb/hr (averaged over a 30-day period). Iowa determined the 1-hour emission rate used in the modeling analysis by following the procedures outlined in the EPA's "Guidance for 1-Hour SO₂ Nonattainment Area SIP Submissions" memorandum dated April 23, 2014, through the following process:

- Iowa evaluated existing continuous emission monitoring data for the main boiler at Louisa to develop a ratio of 30-day rolling averages to hourly emissions. This ratio was developed using the 99th percentile of hourly emissions from the five-year dataset from 2010 to 2014 for Louisa's main boiler. The resulting ratio of 0.8077 was used to develop an hourly emission rate of 4,271.83 lb/hr using the current 30-day average permit limit of 3,449.6 lb/hr. This 1-hr emission rate of 4,271.83 lb/hr was used in the modeling analysis.

The modeled emission rates for GPC, MPW, and Monsanto (except for EP 195) were based on SO₂ limits in federally enforceable construction permits which were included in Iowa's Muscatine 1-hour SO₂ SIP submission.

The IEC submitted a comment to the EPA during the public comment period stating that the state's use of a hybrid approach was not allowed by the modeling TAD. The EPA has determined that the state's hybrid approach is acceptable for the Louisa County area of analysis for Round 3 designations purposes. While the Modeling TAD does not specifically address using a hybrid approach, using allowable emissions for LGS and the federally enforceable limits included in construction permits issued to MPW in January 2017 provide a conservative assessment of their respective impacts, since these emission rates are greater than these facilities' past actual emissions during normal operations. In addition, using allowable emissions at GPC that correspond to the new enforceable emission limits allows for the characterization of the area to be most reflective of its sources' current potential normal operation emissions. There is no guidance in the Modeling TAD that would require Monsanto to be modeled at its permitted rate for designations, and EPA believes it is acceptable to use actual emissions for the main Monsanto boiler for this Round 3 modeling demonstration. In summary, the EPA finds that the hybrid approach used by the state is acceptable to characterize the air quality for the designation of the area around LGS. This is the same conclusion as we reached for the intended designations.

2.4.8. *Modeling Parameter: Meteorology and Surface Characteristics*

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

For the area of analysis for the Louisa Station area, the state selected the surface meteorology from the Iowa City NWS station (KIOW) located at [41.633°N, 91.543°W], 60 km to the northwest of Louisa, and coincident upper air observations from the Davenport NWS station (KDVN) located at [41.63°N, 91.54°W], 80 km to the northeast of Louisa as best representative of meteorological conditions within the area of analysis.

The state used AERSURFACE version 13016 using data from the KIOW NWS station to estimate the surface characteristics of the area of analysis. Albedo is the fraction of solar energy reflected from the earth back into space, the Bowen ratio is the method generally used to calculate heat lost or heat gained in a substance, and the surface roughness is sometimes referred to as "z_0" The state estimated surface roughness values for 12 spatial sectors out to 1 km at a monthly temporal resolution for dry, average, and wet surface moisture conditions. The output for the individual months from the three runs for moisture conditions are manually combined into one output file for each site based on the moisture conditions determined for each month.

In Figure 3 below, generated by the EPA, the locations of these NWS stations are shown relative to the area of analysis.

Figure 3. Area of Analysis and the NWS stations in the Louisa County Area

As part of its recommendation, the state provided the 3-year surface wind rose for the KIOW NWS station. In Figure 4, the frequency and magnitude of wind speed and direction are defined in terms of from where the wind is blowing from. The wind direction at the KIOW NWS station has a predominate southeast and northwest component and wind speeds are less than 3 m/s (~7 mph) on 25% of the hours.

Figure 4. Iowa City, IA Cumulative Annual Wind Rose for Years 2012 – 2014
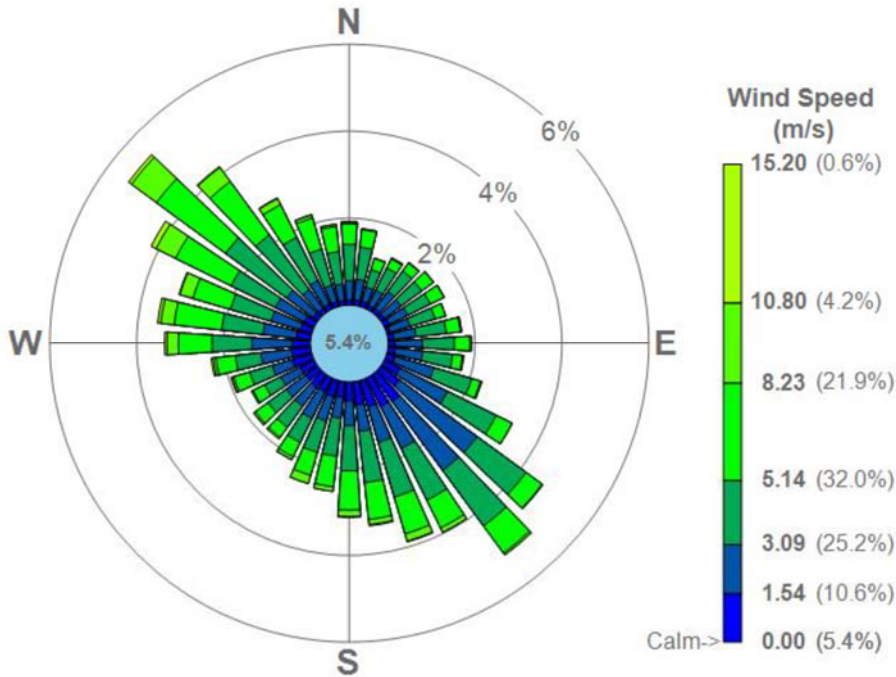
Meteorological data from the above surface and upper air NWS stations were used in generating AERMOD-ready files with the AERMET processor. The output meteorological data created by the AERMET processor is suitable for being applied with AERMOD input files for AERMOD modeling runs. The state followed the methodology and settings presented in section 8.3 of Appendix W to 40 CFR Part 51 titled, "Guideline on Air Quality Models", in the processing of the raw meteorological data into an AERMOD-ready format, and used AERSURFACE to best represent surface characteristics.

Hourly surface meteorological data records are read by AERMET, and include all the necessary elements for data processing. 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, wind data of 1-minute duration was provided from the KIOW NWS station, but in a different formatted file to be processed by a separate preprocessor, AERMINUTE. These 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 0.5 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.

The EPA has assessed the meteorological and surface characterization in Iowa's modeling, including the conclusions Iowa has drawn from the wind rose above, and concludes that this component of Iowa's modeling is appropriate. This is the same conclusion as we reached for the intended designations.

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

The terrain in the area of analysis is best described as flat to gently rolling. To account for these terrain changes, the AERMAP terrain program within AERMOD was used to specify terrain elevations for all the receptors. The source of the elevation data incorporated into the model is from the USGS National Elevation Dataset data for Louisa and surrounding counties and is based on North American Datum 1983 (NAD83). The EPA has assessed this component of the state's modeling and concludes that it is appropriate. This is the same conclusion as we reached for the intended designations.

2.4.10. *Modeling Parameter: Background Concentrations of SO₂*

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 used a tier 1 approach. Iowa used the Keosauqua Lake Sugema monitor in Van Buren County, Iowa (AQS site ID # 191770006). The Lake Sugema monitor is approximately 100 km to the southwest of the Louisa facility. The single value of the background concentration for this area of analysis was determined by the state to be 7 micrograms per cubic meter ($\mu g/m^3$), equivalent to 2.7 ppb when expressed in two significant figures,[5] and that value was incorporated into the final AERMOD results.

The IEC provided comment on the appropriateness of the use of the Lake Sugema monitor to determine the background concentration in the Louisa area of analysis. The IEC noted in its comment that the state's chosen background for the modeling is submitted in support of its recommended designation for Louisa County is inconsistent with the state's chosen representative background used in its Muscatine 1-hr SO_2 SIP modeled attainment demonstration. The state used a season-by-hour varying background concentration from the Davenport, Iowa, monitor in its SIP modeling demonstration.

The EPA evaluated the use of the Lake Sugema monitor as a representative background for the modeling demonstration of the area around LGS. As mentioned in the previous paragraph, the Lake Sugema monitor is located 100 km to the southwest of LGS. There is one SO_2 monitor located closer to LGS than the Lake Sugema monitor, excluding the monitors located in the Muscatine nonattainment area. This other monitor is approximately 50 km to the northeast in Davenport, Iowa. To evaluate background concentration representativeness between these two potential background monitors, the EPA compared the SO_2 emission sources greater than 100 tons per year in the vicinity of LGS, but not specifically included in the dispersion model, with sources surrounding the Lake Sugema monitor and the Davenport monitor. Excluding sources in this emission analysis around LGS that are explicitly modeled is appropriate to avoid double counting emissions. The 2014 NEI was used for this emissions comparison and the details are provided below:

- 2 sources within 50 km of LGS with combined SO_2 emissions of 1,785 tpy.

- 1 source within 50 km of the Lake Sugema monitor with combined SO_2 emissions of 145 tpy.

- 12 sources within 50 km of the Davenport monitor with combined SO_2 emissions of 30,437 tpy.

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

SO₂ emissions with the potential to impact the Davenport monitor are much greater than the SO_2 emissions within the LGS area of maximum modeled impacts, which is located in the Muscatine nonattainment area (see Figures 5 and 6), that were not explicitly modeled. The state included all large emitters within 20 km (i.e., sources that have the potential to cause a concentration gradient) of the area of maximum modeled concentration, while numerous sources near the Davenport monitor are within 20 km. EPA notes that no provision of the CAA or EPA guidance provides that the decision by the state to use the higher Davenport monitor for the SIP creates a presumption or a requirement that the state also use the same monitor as the source of the background concentration for the designation modeling, or that EPA adjust the results of the state's designation modeling to reflect the Davenport-based background concentration used in the Muscatine SIP. Therefore, the EPA determined that the state's chosen representative background Lake Sugema background monitor is acceptable for the Louisa County area of analysis for designations purposes. This is the same conclusion as we reached for the intended designations.

2.4.11. *Summary of Modeling Inputs and Results*

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

Table 5: Summary of AERMOD Modeling Input Parameters for the Area of Analysis for the Louisa Station Area

Input Parameter	Value
AERMOD Version	15181 (default options)
Dispersion Characteristics	Rural
Modeled Sources	4
Modeled Stacks	70
Modeled Structures	43
Modeled Fencelines	4
Total receptors	9,141
Emissions Type	Mixed actual and allowable
Emissions Years	2012-2014 for actual emissions. PTE limits were effective on various dates.
Meteorology Years	2012 – 2014
NWS Station for Surface Meteorology	Iowa City, IA NWS
NWS Station Upper Air Meteorology	Davenport, IA NWS
NWS Station for Calculating Surface Characteristics	Iowa City, IA NWS

Input Parameter	Value
Methodology for Calculating Background SO_2 Concentration	AQS site ID # 191770006, Lake Sugema, Tier 1 based on 2012 – 2014 design value
Calculated Background SO_2 Concentration	7 µg/m³

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

Table 6. Maximum Predicted 99th Percentile Daily Maximum 1-Hour SO_2 Concentration Averaged Over 3 Years for the Area of Analysis for the Louisa County Area

| Averaging Period	Data Period	Receptor Location UTM zone 15		99th percentile daily maximum 1-hour SO_2 Concentration (µg/m³)	
		UTM	UTM	Modeled concentration (including background)	NAAQS Level
99th Percentile 1-Hour Average	2012 – 2014	662219 E	4585008 N	194	196.4*

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

The state's modeling indicates that the highest predicted 99th percentile daily maximum 1-hour concentration within the chosen modeling domain is 194 µg/m³, equivalent to 74.1 ppb. This modeled concentration includes the background concentration of SO_2, and is based on a mixture of actual and PTE emissions from the facilities. Figure 5 below was included as part of the state's recommendation, and indicates that the predicted value occurred in Muscatine County near the GPC and MPW facilities. Modeled concentrations in Louisa County are less than 85 µg/m³. The modeling submitted by the state indicates that the 1-hour SO_2 NAAQS is being met in Louisa County and the receptor with the highest modeled concentration is located in the adjacent Muscatine county.

Figure 6 provides more detail of the area of highest modeled concentration. The highest concentrations occur along GPC's eastern fenceline adjacent to the Mississippi River bank along an approximate 15-meter strip of land just outside of GPC's property abutting the River. Even though Iowa included receptors on the riverbank, EPA notes that these locations are not feasible for SO_2 monitoring as the riverbank area is subject to water level rises based on season and precipitation. Therefore, excluding receptors at these locations would have been consistent with EPA's 2015 guidance.

Apart from the Mississippi River and Mississippi River riverbank, the area of highest model predictions occurs to north and west of the GPC fenceline, with modeled concentrations ranging from 150 – 160 µg/m^3. These values are below the NAAQS by a much greater degree than the maximum concentration of 194 µg/m^3 shown in Table 6. This means that use of a higher background concentration would have still resulted in predicted attainment in this area. This area includes the location of Musser Park and Muscatine High School monitors. As discussed in Section 2.3, preliminary data from these two existing monitors for 2015-2017 strongly suggest that the design values will be much lower than the NAAQS. The direction of this comparison of the modeling results and the available monitoring data for the same area is logical given that the sources in Muscatine County were modeled with allowable emissions rather than actual emissions. We note that while these monitors in Muscatine County cannot be used to properly assess whether MidAmerican-Louisa causes NAAQS violation in Louisa County, this is a separate issue from whether they are sited so as to represent the maximum concentrations in areas in Muscatine County where it would be feasible to place a monitoring station. The modeling indicates that they are representative in this way.

Figure 5. Predicted 99th Percentile Daily Maximum 1-Hour SO₂ Concentrations Averaged Over 3 Years for the Area of Analysis for the Louisa County Area (not including background)
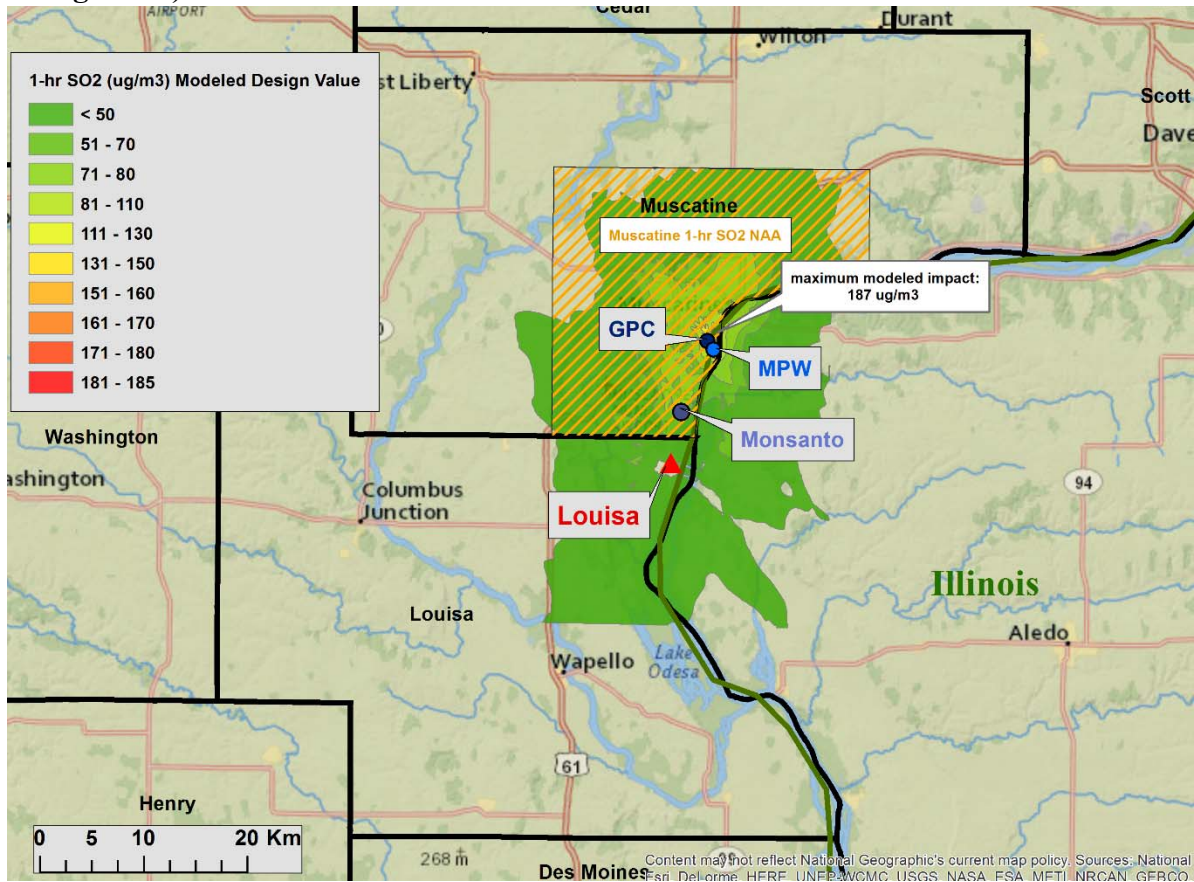
Figure 6. Same as Figure 5 except zoomed into the area of maximum modeled concentration. Location of the Musser Park and Muscatine High School monitors are provided. Modeled receptors are shown by small black squares.
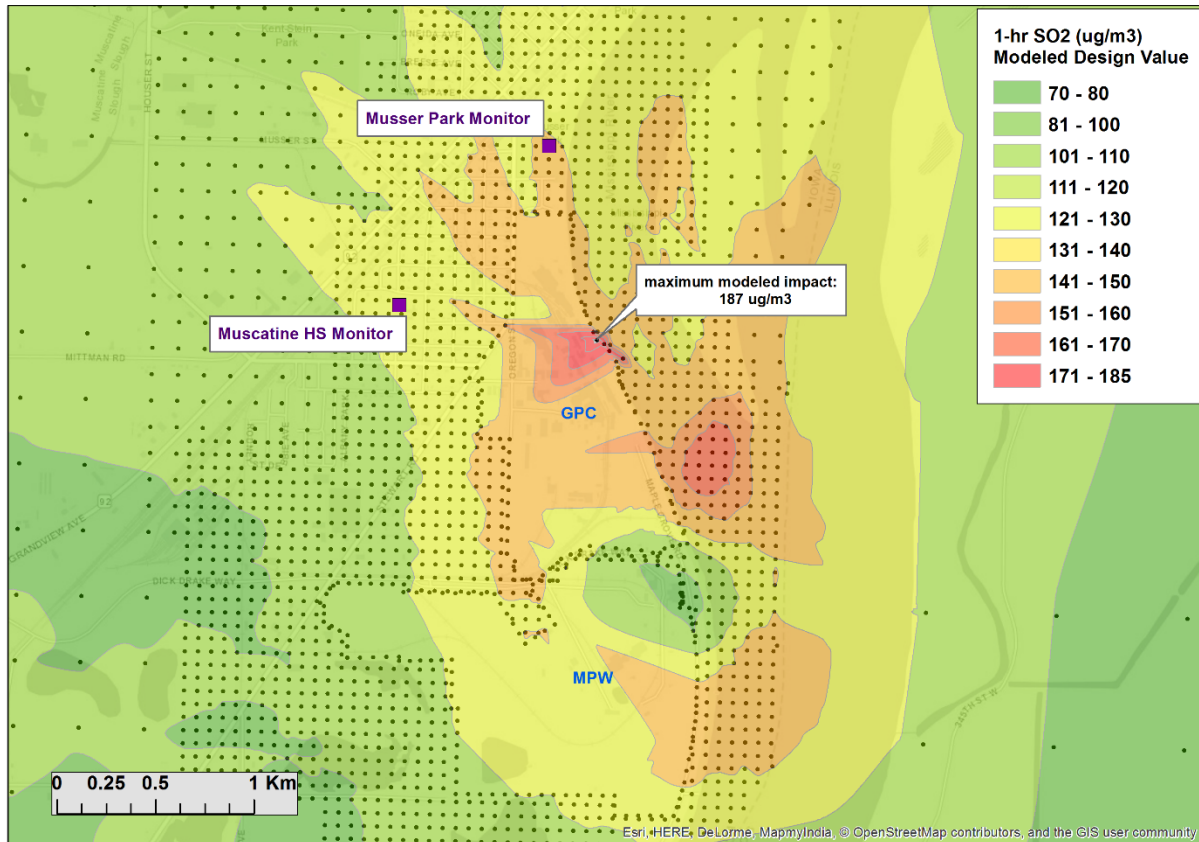
2.4.12. *The EPA's Assessment of the Modeling Information Provided by the State*

The state's modeling analysis conforms to the EPA's Modeling TAD and is acceptable to rely upon to inform us in making a designation for Louisa County. LGS was modeled at its current federally enforceable and effective permitted allowable emissions, and the nearby sources, which all reside in the current Muscatine nonattainment area, were modeled at permitted allowable emissions except for the main Monsanto boiler, which was modeled at actual emissions. The greatest modeled impacts from all combined sources occurred in the Muscatine nonattainment area, while the modeled impacts in Louisa County were less than 50% of the NAAQS even with the use of conservative, allowable emissions for LGS. Setting aside receptors in locations that are not feasible for a monitoring station, the existing Musser Park and Muscatine High School monitors are well located to sample the maximum concentrations in Muscatine County.

2.5. Emissions and Emissions-Related Data, Meteorology, Geography, and Topography for the Louisa 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.

2.6. Jurisdictional Boundaries in the Louisa County Area

The state recommended the Louisa County borders as the jurisdictional boundary for this designation. Iowa supported this recommendation by stating that the modeling results predict that neither the SO_2 emissions from Louisa, nor emissions from the sources in the Muscatine County nonattainment area, will cause or contribute to a violation of the 1-hour SO_2 NAAQS in Louisa County. Iowa further asserted that the county boundary provides a clearly defined legal boundary for carrying out the air quality planning and enforcement functions for the area.

2.7. Other Additional Information Relevant to the Designations for the Louisa Area

As discussed in Section 2.4.11, Iowa's modeling for the Louisa County area demonstrates that Louisa County attains the 1-hour SO_2 NAAQS. However, the MidAmerican - Louisa facility in Louisa County is in close proximity to the portion of Muscatine County that is designated nonattainment. Iowa has developed and submitted to the EPA for approval, on May 26, 2016, an attainment plan for Muscatine County. The attainment plan included a modeling screening analysis which indicated that Louisa Generating Station's actual emissions from 2011-2013 contributed to 2.7% of predicted exceedances during the screening period, with a maximum contribution of 59 $\mu g/m^3$ to at least one predicted modeled exceedance of the NAAQS. The most prevalent contributors to predicted exceedances of the SO_2 NAAQS were GPC (100% of exceedances) and MPW (26% of exceedances), with Monsanto also showing contribution (0.4% of exceedances).

As mentioned in Section 2.4.7, the control strategy portion of the attainment plan included new federally enforceable limits for the sources located in Muscatine County, implemented through state construction permits that the state has issued and are effective. The limits in these permits address 52 emissions points at the GPC facility (with effective dates for 28 emissions points in 2015, 17 emissions points in 2016, and 7 emissions points in late 2017/early 2018), 4 emissions points at the MPW facility (with an effective date of January 1, 2017), and 2 emissions points at the Monsanto facility (with an effective date of May 2015). The SO_2 emissions limits at smaller sources at GPC that are scheduled to be effective in the coming months account for less than 0.3% of the total implemented emissions controls at GPC.

As discussed in section 2.3, there has not been a daily exceedance of the NAAQS at any of the Muscatine monitors since June 7, 2015, and the 3-year design value at the end of 2017 will likely show attainment based on the controls that have already been implemented as part of the Muscatine County attainment plan submitted by Iowa.[6] In 2017, the 99th percentile through the first 3 quarters at all three monitors is equal to or less than 35 ppb, well below the NAAQS.

Iowa's January 5, 2017, modeling of permitted allowable emissions from the Louisa Generating Station and permitted allowable emissions and actual emissions from sources in the nearby Muscatine nonattainment area demonstrate attainment in Louisa County and in the adjacent Muscatine nonattainment area. In addition, Iowa's December 7, 2017, modeling demonstrates that there are no predicted violations within each facility's fenceline in the Muscatine County nonattainment area due only to emissions from other facilities. Based upon these modeling analyses, and the available monitoring data for the Muscatine nonattainment area, the EPA concludes that LGS does not contribute to any nearby area that does not meet the NAAQS.[7]

2.8.   The EPA's Assessment of the Available Information for the Louisa County Area

The modeling analysis submitted by the state generally follows the procedures contained in the EPA's Modeling TAD as described in previous sections of this TSD chapter. The EPA has determined that this modeling analysis does indicate that the area in Louisa County around the Louisa facility is meeting the NAAQS.

Further, it is reasonable for EPA to conclude, based on recent SO_2 monitored values that do not exceed the NAAQS and based on the state's conservative modeling of permitted emission levels at key SO_2 sources in the area, that LGS does not contribute to any nearby area that does not meet the NAAQS.

The EPA believes that our final attainment/unclassifiable area, bounded by the Louisa County borders, will have clearly defined legal boundaries, and we intend to find these boundaries to be a suitable basis for defining our intended attainment/unclassifiable area.

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[6] Note, however, that by this observation EPA is not making a final judgment about the approvability of Iowa's submitted attainment plan. Any such judgment will occur only in a separate final action by EPA taken under Clean Air Act section 110(k).

[7] We note that if we were instead concluding that we could not determine whether Louisa County contributes to air quality in a nearby area that violates the NAAQS, the final designation would also be attainment/unclassifiable, given the definition of an attainment/unclassifiable area presented in Section 1 of this TSD.

2.9. Summary of Our Final Designation for the Louisa Area

After careful evaluation of the state's recommendation and supporting information, as well as all available relevant information, the EPA is designating Louisa County as attainment/unclassifiable for the 2010 SO_2 NAAQS because based on available relevant information the EPA has determined that Louisa County meets the 2010 SO_2 NAAQS, and does not contribute to ambient air quality in a nearby area that does not meet the NAAQS. Specifically, the boundaries are comprised of entirety of Louisa County.

Figure 7 shows the boundary of this final designated area.

Figure 7. Boundary of the Final Louisa County Attainment/unclassifiable Area
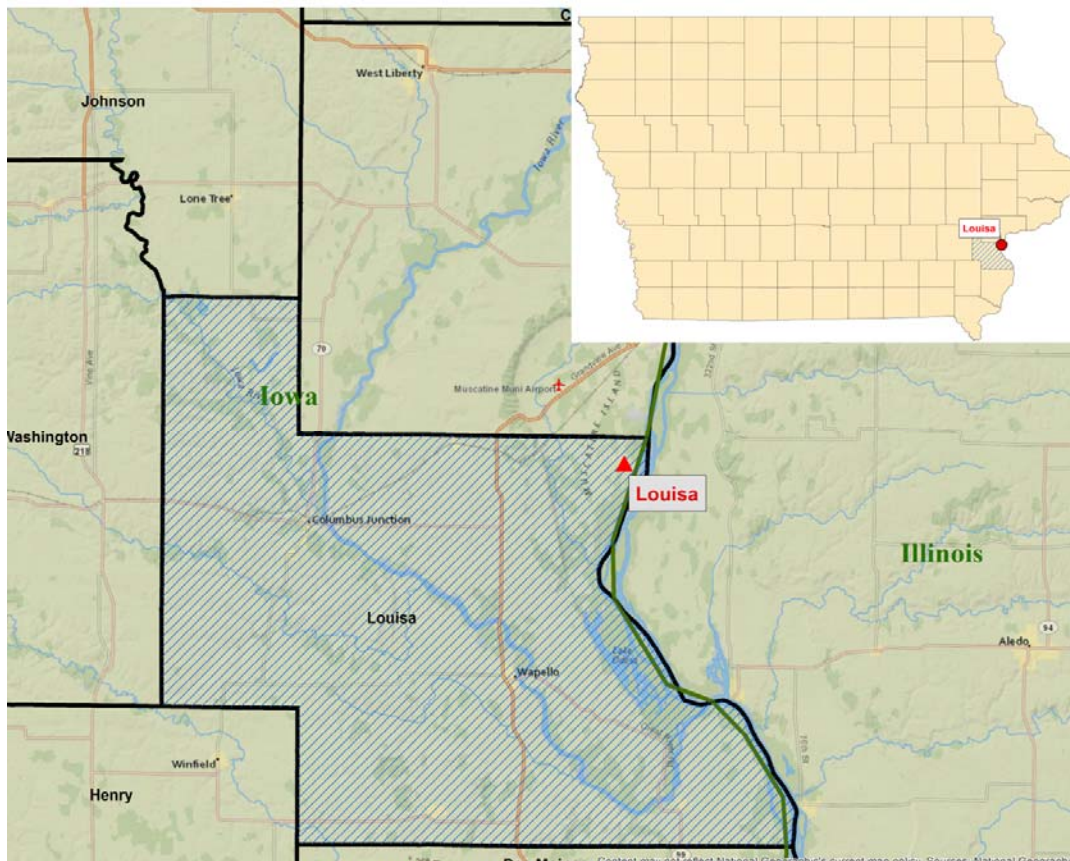
3. Technical Re-Analysis of Information for the Pottawattamie County Area

3.1. Introduction

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

Although the EPA did not receive any new information associated with this area in response to our intended designation, we re-evaluated whether this area was, in fact, contributing to an area that was violating the NAAQS. The discussion of re-evaluation is included in the following sections.

3.2. Summary of Information Reviewed in the TSD for the Intended Round 3 Area Designations

In the 120-day letter notification to the governor of Iowa, and further explained in Chapter 14 of the TSD for the intended Round 3 area designations, EPA proposed a designation of unclassifiable based on all available information, including modeling information and all relevant monitoring information.

The following Table 7 identifies all the modeling assessments evaluated for the 120-day letters and discussed in the TSD for the intended Round 3 area designations. Additional details can be found in the TSD for the Intended Round 3 Area Designations, Chapter 14.

Table 7 – Modeling Assessments Evaluated in the TSD for the Intended Designation for the Pottawattamie Area

Organization Submitting Assessment	Date of the Assessment	Identifier used in the TSD for the Intended Round 3 Area Designations, Chapter 14	Distinguishing or Otherwise Key Features
IDNR	January 5, 2017	January 5, 2017 IDNR modeling analysis	DRR modeling submittal

The EPA considered all available information for the Pottawattamie area, including the modeling assessment provided by the state on January 5, 2017. The EPA also considered ambient air monitoring data collected at the at the Whitmore – Omaha monitor (AQS ID #310550053), the Omaha NCore monitor (AQS ID #310550019), and the OPPD North Omaha Station monitor (AQS ID #310550057). All three monitors indicate levels below the level of the NAAQS, though the monitors have either not been shown to be in areas of expected maximum concentration or were not operated long enough to generate a valid design value. Based on the information at hand in August 2017, the EPA proposed to conclude that the state's modeling analysis provided an appropriate basis on which to determine the attainment status of the area. As indicated in our intended Round 3 designation for the Pottawattamie area, the EPA could not determine if MidAmerican Walter Scott caused or contributed to a violation of the 2010 SO_2 NAAQS based on actual emissions from 2012-2014 for MidAmerican Walter Scott Unit #3 and allowable emissions for MidAmerican Walter Scott Unit #4[8].

3.3. Emissions and Emissions-Related Data, Meteorology, Geography, and Topography for the Pottawattamie County Area

These factors have been incorporated into the air quality modeling efforts and results discussed in the 120-day intended designation TSD. 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. EPA's analysis of this data is the same as described in the intended designation TSD.

3.4. Jurisdictional Boundaries in the Pottawattamie County Area

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

Iowa selected the Pottawattamie County borders as providing a clearly defined legal boundary for carrying out the air quality planning and enforcement functions for the area. Based on these considerations the State recommended that the entirety of Pottawattamie County be designated attainment/unclassifiable for the 1-hour SO_2 NAAQS.

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[8] The EPA notes that Table 11 on page 61 of the TSD developed for the intended designations in Iowa (Chapter 14) incorrectly indicated that MidAmerican Walter Scott Unit #3 was modeled using allowable emissions and MidAmerican Walter Scott Unit #4 was modeled using actual emissions. The modeling that Iowa submitted to EPA used actual emissions for Unit #3 and allowables for Unit #4.

3.5. Other Additional Information Relevant to the Designations for the Pottawattamie County Area

The EPA's assessment of Iowa's modeling has not generally changed in that the EPA believes that Iowa's January 5, 2017 modeling analysis followed the EPA's modeling TAD. Further, the EPA noted in the intended designation TSD that three OPPD North Omaha coal-fired units (Units #1, #2 and #3) in Douglas County, Nebraska, were shut down in 2016. Since these units are no longer operating, no emissions from these units were considered in Iowa's modeling analysis. As mentioned in the intended designation TSD, the two OPPD North Omaha coal-fired units (Units #4 and #5) that are currently operating were modeled at actual emissions. Nebraska chose to install a new monitoring site to characterize the air quality around OPPD North Omaha. The area around OPPD North Omaha will be designated by December 31, 2020.

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

As EPA indicated in the intended designation TSD, the modeling analysis submitted by Iowa generally follows the procedures contained in the EPA's Modeling TAD. The modeling results provided by Iowa predict that there is no violation of the 1-hour SO_2 NAAQS in the area in Pottawattamie County surrounding Walter Scott. The EPA has determined that this modeling analysis indicates that the area around the MidAmerican – Walter Scott facility is meeting the NAAQS.

However, the EPA also noted in the TSD for the intended designations that the Walter Scott facility is close to another source in Nebraska which the state of Nebraska chose to characterize using ambient monitoring and for which designations will not be completed at this time. The EPA stated in the TSD for the intended designations that we could not determine at that time based on available information whether the area around Walter Scott is contributing to SO_2 air quality and, possibly, a violation of the SO_2 standard in the area around the North Omaha facility. Under the definitions that we proposed to apply, this fact led to an intended designation of unclassifiable. However, in the final designation the EPA has revised its definitions of attainment/unclassifiable and unclassifiable areas as explained in Chapter 1 of this TSD, and has accordingly determined that since available information does not indicate that this area, which is itself meeting the NAAQS, contributes to violating air quality in the nearby Omaha Round 4 area or in any other area surrounding the MidAmerican Walter Scott facility, it is appropriate for the EPA to designate the Pottawattamie County area as attainment/unclassifiable.

The EPA believes that our final attainment/unclassifiable area, bounded by the Pottawattamie County borders, will have clearly defined legal boundaries, and we intend to find these boundaries to be a suitable basis for defining our final attainment/unclassifiable area.

3.7. Summary of Our Final Designation for the Pottawattamie County Area

After careful evaluation of the state's recommendation and supporting information, as well as all available relevant information, the EPA is designating the Pottawattamie County area as attainment/unclassifiable for the 2010 SO_2 NAAQS because we have concluded that there is no violation in Pottawattamie County and there is no indication that MidAmerican Walter Scott contributes to ambient air quality in a nearby area that does not meet the NAAQS. Specifically, the boundaries are comprised of the entirety of Pottawattamie County. Figure 8 shows the boundary of this final designated area.

Figure 8. Boundary of the Final Pottawattamie County Attainment/Unclassifiable Area