



Jeremiah W. (Jay) Nixon, Governor • Harry D. Bozoian, Director

## DEPARTMENT OF NATURAL RESOURCES

dnr.mo.gov

December 8, 2016

Mr. Mark Hague  
Regional Administrator  
U.S. EPA, Region VII  
11201 Renner Boulevard  
Lenexa, KS 66219

Dear Mr. Hague:

The Missouri Department of Natural Resources' Air Pollution Control Program (air program) hereby submits the following:

*Area Boundary Recommendations for the 2010 1-hour Sulfur Dioxide Standard: December 2017 Designations*

Through this submittal, the air program is requesting that EPA take these enhanced recommendations into consideration during the designation process to be completed by December 31, 2017.

The state is revising its recommendation for area designations (e.g. attainment, nonattainment, unclassifiable) for the 2010 1-hour SO<sub>2</sub> standard. The revised recommendations are based on technical evaluations using air quality modeling to address seven parts of the State of Missouri: the areas surrounding the Ameren Meramec Energy Center, Empire District - Asbury plant, Montrose Generating Station, Sibley Generating Station, Sikeston Power Station, City Utilities of Springfield - John Twitty Energy Center, and the Thomas Hill Energy Center Power Division. The air program is enhancing the recommendations for these seven areas based on modeling analyses for these areas that demonstrates attainment with the standard. The air program is revising only the recommendation for these seven areas. For reference, the areas addressed in this revised recommendation are summarized in Table 1.

As a reminder, the air program submitted area recommendations for the 2010 1-hour SO<sub>2</sub> standard addressing the entire state for EPA's consideration in April 2013. These recommendations went through the state's public process and were adopted by the Missouri Air Conservation Commission on April 25, 2013. The entire table of county specific recommendations is included for reference in Table 2. For ease of reference, revisions to the April 2013 recommendation as listed in Table 1 are bolded in Table 2. The recommendation submitted in April 2013 is still relevant for all other areas not addressed in this revised recommendation.



Recycled paper

Mr. Mark Hague  
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The Missouri Air Conservation Commission adopted the revised recommendations at the December 1, 2016, commission meeting. The commission has full legal authority to develop area boundary recommendations pursuant to Section 643.050 of the Missouri Air Conservation Law. A public hearing for the proposed recommendations was held on October 27, 2016. A 30-day public comment period opened by September 26, 2016, and closed on November 3, 2016. During the public comment period, the air program received both oral and written comments from Ameren Missouri. A summary of the comments received and our responses is attached.

In order to comply with Attachment A of the "Regional Consistency for the Administrative Requirements of State Implementation Plan Submittals and the Use of 'Letter Notices'" memo dated April 6, 2011, a searchable pdf version of this document will be emailed to the EPA Regional Office. Within three business days, this complete submittal package will be posted on our website at <http://dnr.mo.gov/env/apcp/naaqsboundarydesignations.htm>.

Also, due to their size, paper copies of the appendices to the recommendation are not included in this package. The disk(s) included with this package contains an electronic copy of the recommendation and appendices.

Thank you for your attention to this matter. If you have any questions regarding this submittal, please contact Ms. Darcy Bybee with the Missouri Department of Natural Resources' Air Pollution Control Program at P.O. Box 176, Jefferson City, MO 65102 or by telephone at (573) 751-4817.

Sincerely,

AIR POLLUTION CONTROL PROGRAM

Original signed by Kyra L. Moore

Kyra L. Moore  
Director

KLM:akc

Enclosures:

Area Boundary Recommendation (paper copies of the appendices are not included)  
Summary of comments and responses  
CD with electronic copy of the recommendation and appendices

c: Missouri Air Conservation Commission  
File# 2010-SO2-5-DRR Modeling

**Table 1. Missouri's Revised Boundary Recommendations for the 2010 1-hour SO<sub>2</sub> Standard: December 2017 Designations**

<b>Affected Source</b>	<b>Recommended Boundary</b>	<b>Area Designation Recommendation</b>
Ameren Missouri-Meramec Energy Center	Portion of St. Louis County	Attainment
Empire District Electric Co-Asbury Plant	Barton and Jasper Counties	Attainment
Kansas City Power And Light Co (KCP AND L)-Montrose Generating Station	Henry County	Attainment
KCP AND L - Greater Mo Operations-Sibley Generating Station	Portion of Jackson County	Attainment
Sikeston Power Station	Scott County	Attainment
City Utilities of Springfield - John Twitty Energy Center	Greene County	Attainment
Thomas Hill Energy Center Power Division-Thomas Hill	Randolph County	Attainment

**Table 2. Missouri's Area Designation Recommendation for the 2010 1-hour SO<sub>2</sub> Standard  
(As submitted in April 2013 with revisions as listed in Table 1 in bold)**

<b>County</b>	<b>Recommended Classification</b>
ADAIR	Unclassifiable
ANDREW	Unclassifiable
ATCHISON	Unclassifiable
AUDRAIN	Unclassifiable
BARRY	Unclassifiable
BATES	Unclassifiable
<b>BARTON</b>	<b>Attainment</b>
BENTON	Unclassifiable
BOLLINGER	Unclassifiable
BOONE	Unclassifiable
BUCHANAN	Unclassifiable
BUTLER	Unclassifiable
CALDWELL	Unclassifiable
CALLAWAY	Unclassifiable
CAMDEN	Unclassifiable
CAPE GIRARDEAU	Unclassifiable
CARROLL	Unclassifiable
CARTER	Unclassifiable
CASS	Unclassifiable
CEDAR	Unclassifiable
CHARITON	Unclassifiable
CHRISTIAN	Unclassifiable
CLARK	Unclassifiable
CLAY	Unclassifiable
CLINTON	Unclassifiable
COLE	Unclassifiable
COOPER	Unclassifiable
CRAWFORD	Unclassifiable
DADE	Unclassifiable
DALLAS	Unclassifiable
DAVISS	Unclassifiable
DeKALB	Unclassifiable
DENT	Unclassifiable
DOUGLAS	Unclassifiable
DUNKLIN	Unclassifiable
FRANKLIN	Unclassifiable
GASCONADE	Unclassifiable
GENTRY	Unclassifiable
<b>GREENE</b>	<b>Attainment</b>
GRUNDY	Unclassifiable
HARRISON	Unclassifiable
<b>HENRY</b>	<b>Attainment</b>
HICKORY	Unclassifiable
HOLT	Unclassifiable
HOWARD	Unclassifiable
HOWELL	Unclassifiable

County	Recommended Classification
IRON	Unclassifiable
JACKSON	Nonattainment (portion of Jackson County bounded by county line on north, Kansas state border on west, Interstate-435 on the east, and the following southern boundary line that part of Jackson County north of Interstate-670 and Interstate-70 from the Kansas border to the intersection with Interstate-435)
<b>JACKSON</b>	<b>Attainment (The portion of Jackson County bounded by county lines to the North and East, Interstate 70 and 470 to the South, and Missouri Highway 291 to the West.)</b>
JACKSON	Unclassifiable (remaining portion of county)
<b>JASPER</b>	<b>Attainment</b>
JEFFERSON	Nonattainment (Herculaneum and Festus townships and the Missouri portions of Valmeyer and Selma townships west of Illinois state border)
JEFFERSON	Unclassifiable (remaining portion of county)
JOHNSON	Unclassifiable
KNOX	Unclassifiable
LACLEDE	Unclassifiable
LAFAYETTE	Unclassifiable
LAWRENCE	Unclassifiable
LEWIS	Unclassifiable
LINCOLN	Unclassifiable
LINN	Unclassifiable
LIVINGSTON	Unclassifiable
McDONALD	Unclassifiable
MACON	Unclassifiable
MADISON	Unclassifiable
MARIES	Unclassifiable
MARION	Unclassifiable
MERCER	Unclassifiable
MILLER	Unclassifiable
MISSISSIPPI	Unclassifiable
MONITEAU	Unclassifiable
MONROE	Unclassifiable
MONTGOMERY	Unclassifiable
MORGAN	Unclassifiable
NEW MADRID	Unclassifiable
NEWTON	Unclassifiable
NODAWAY	Unclassifiable
OREGON	Unclassifiable
OSAGE	Unclassifiable
OZARK	Unclassifiable
PEMISCOT	Unclassifiable
PERRY	Unclassifiable
PETTIS	Unclassifiable
PHELPS	Unclassifiable
PIKE	Unclassifiable
PLATTE	Unclassifiable
POLK	Unclassifiable

<b>County</b>	<b>Recommended Classification</b>
PULASKI	Unclassifiable
PUTNAM	Unclassifiable
RALLS	Unclassifiable
<b>RANDOLPH</b>	<b>Attainment</b>
RAY	Unclassifiable
REYNOLDS	Unclassifiable
RIPLEY	Unclassifiable
ST. CHARLES	Unclassifiable
ST. CLAIR	Unclassifiable
ST. FRANCOIS	Unclassifiable
STE. GENEVIEVE	Unclassifiable
<b>ST. LOUIS</b>	<b>Attainment (The portion of St. Louis County bounded by county and state lines to the South, West and East, and Interstate 255 and 50 to the North and East.)</b>
ST. LOUIS	Unclassifiable
ST. LOUIS CITY	Unclassifiable
SALINE	Unclassifiable
SCHUYLER	Unclassifiable
SCOTLAND	Unclassifiable
<b>SCOTT</b>	<b>Attainment</b>
SHANNON	Unclassifiable
SHELBY	Unclassifiable
STODDARD	Unclassifiable
STONE	Unclassifiable
SULLIVAN	Unclassifiable
TANEY	Unclassifiable
TEXAS	Unclassifiable
VERNON	Unclassifiable
WARREN	Unclassifiable
WASHINGTON	Unclassifiable
WAYNE	Unclassifiable
WEBSTER	Unclassifiable
WORTH	Unclassifiable
WRIGHT	Unclassifiable

# **2010 1-Hour Sulfur Dioxide Standard**

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## **Area Boundary Recommendations**

### **December 2017 Designations**

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**Prepared for the  
Missouri Air Conservation Commission**



**Adoption**

**December 1, 2016**

**Missouri Department of Natural Resources  
Division of Environmental Quality  
Air Pollution Control Program  
Jefferson City, Missouri**



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## **PURPOSE**

The purpose of this document is to provide information on Missouri's recommendations for area designations for the 2010 1-hour sulfur dioxide (SO<sub>2</sub>) standard. This document recommends attainment boundaries for seven parts of the State of Missouri: the areas surrounding the Ameren Meramec Energy Center, Empire District - Asbury plant, Montrose Generating Station, Sibley Generating Station, Sikeston Power Station, City Utilities of Springfield - John Twitty Energy Center, and the Thomas Hill Energy Center Power Division.

As allowed under the federal Data Requirements Rule (DRR) for future rounds of SO<sub>2</sub> designations, the state is revising its April 2013 recommendation based on refined technical evaluations for certain areas of the state. In the DRR for the 2010 SO<sub>2</sub> standard, EPA established a threshold for the evaluation of sources which are located in areas that were not previously designated as nonattainment. Sources that emitted more than 2,000 tons of SO<sub>2</sub> in the most recent emission year [2014] were evaluated. The seven main areas discussed in this document contain sources that exceed the emissions threshold and have elected to characterize the air quality surrounding their facilities through air dispersion modeling. The remaining nine Missouri sources affected by the DRR chose characterization methods other than modeling. These nine sources are also discussed in this document but the state is not revising the recommendations for these areas at this time. The final round of designations which will be based on data collected from new monitors operational by January 1, 2017, must occur by December 31, 2020. The state will have the opportunity to further revise the April 2013 recommendations with air quality monitoring data collected from 2017-2019.

The Missouri Department of Natural Resources' Air Pollution Control Program (air program) intends to submit recommendations to the EPA in December 2016, and EPA will make a final decision on designations for these areas by the court-ordered deadline of December 31, 2017. If the EPA intends to modify the state's recommendations or needs additional technical justification, they will notify the air program 120 days prior to finalizing the designations. Eighteen months after final designations, the air program will be required to submit state implementation plans (SIPs) for any nonattainment areas outlining actions that will be taken to meet the 1-hour SO<sub>2</sub> standard.

## **SUMMARY OF AREA BOUNDARY RECOMMENDATIONS**

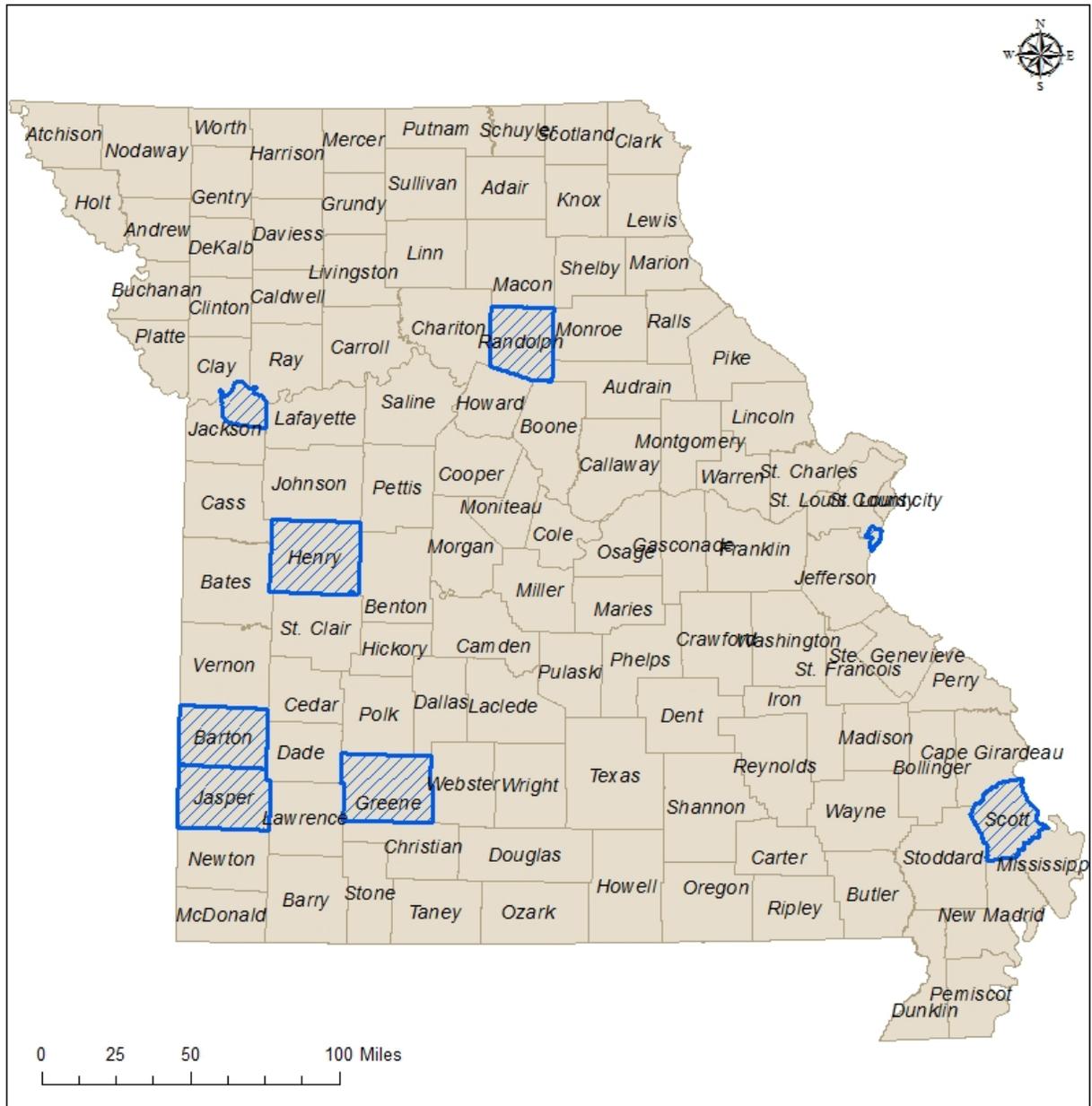
The air program is recommending attainment boundaries for each of the seven sources that chose modeling as their preferred method of characterization. The boundary for each area was selected following the five factor analysis outlined in EPA's boundary designations guidance. Each area's boundaries are based on air dispersion modeling using actual emissions data for these areas.

Table 1 summarizes the revisions to area boundary and designation recommendations for the 1-hour SO<sub>2</sub> standard discussed in this document and appendices. The respective appendices discuss in more detail the data and analysis used to support the recommendations. The map in Figure 1 graphically depicts these recommended area boundaries.

**Table 1 – Missouri’s Boundary Recommendations for the 2010 1-hour SO<sub>2</sub> Standard:  
December 2017 Designations**

<b>Affected Source</b>	<b>Area Boundary</b>	<b>Area Designation Recommendation</b>
Ameren Missouri-Meramec Energy Center	Portion of St. Louis County	Attainment
Empire District Electric Co-Asbury Plant	Barton and Jasper Counties	Attainment
Kansas City Power And Light Co (KCP AND L)-Montrose Generating Station	Henry County	Attainment
KCP AND L - Greater Mo Operations-Sibley Generating Station	Portion of Jackson County	Attainment
Sikeston Power Station	Scott County	Attainment
City Utilities of Springfield - John Twitty Energy Center	Greene County	Attainment
Thomas Hill Energy Center Power Division-Thomas Hill	Randolph County	Attainment

## 2010 1-hour SO<sub>2</sub> NAAQS: Dec. 2017 Designations Area Boundary Recommendations



### Legend

- Recommended Attainment Area Boundaries
- Missouri County Boundaries



**Figure 1 – 2010 1-hour SO<sub>2</sub> NAAQS Attainment Area Boundary Recommendations for December 2017 Round of Designations**

## BACKGROUND

On June 22, 2010, the EPA established a new 1-hour SO<sub>2</sub> primary National Ambient Air Quality Standard (NAAQS) of 75 parts per billion (ppb), based on the three-year average of the annual 99<sup>th</sup> percentile of 1-hour daily maximum concentrations (75 FR 35520; June 22, 2010). This new SO<sub>2</sub> standard replaces the previous 24-hour and annual primary SO<sub>2</sub> NAAQS promulgated in 1971 (36 FR 8187; April 30, 1971). Once EPA establishes or revises a NAAQS, the Clean Air Act requires EPA to designate areas as "attainment" (meeting), "nonattainment" (not meeting), or "unclassifiable" (insufficient data).

The EPA has chosen a different approach to determine attainment status for the 1-hour SO<sub>2</sub> NAAQS. Unlike other criteria pollutants, SO<sub>2</sub> is almost exclusively a point source-emitted pollutant. A monitoring network large enough to adequately cover all large sources would be prohibitively expensive and an affordable network would leave large gaps in coverage. Therefore, EPA has decided to use a hybrid monitoring-modeling approach for the implementation of the 1-hour SO<sub>2</sub> standard.

In the March 20, 2015 document, "Updated Guidance for Area Designations for the 2010 Primary Sulfur Dioxide National Ambient Air Quality Standard," EPA defines area designation categories for this standard as follows:

- **Nonattainment:** An area that the EPA has determined violates the 2010 SO<sub>2</sub> NAAQS, based on the most recent three years of ambient air quality monitoring data or an appropriate modeling analysis, or that EPA has determined contributes to a violation in a nearby area.
- **Attainment:** An area that the EPA has determined meets the 2010 SO<sub>2</sub> NAAQS and does not contribute to a violation of the NAAQS in a nearby area based on either: a) the most recent three years of ambient air quality monitoring data from a monitoring network in an area that is sufficient to be compared to the NAAQS per EPA interpretations in the Monitoring Technical Assistance Document (TAD), or b) an appropriate modeling analysis.
- **Unclassifiable:** An area where the EPA cannot determine based on available information whether the area is or is not meeting the 2010 SO<sub>2</sub> NAAQS and whether the area contributes to a violation in a nearby area.

EPA is promulgating designations under this standard for areas throughout the nation in multiple phases. In April 2013, after bringing the initial round designations through the public process and to the Missouri Air Conservation Commission (MACC), the air program submitted adopted area recommendations addressing the entire state to the EPA for consideration. In this initial round, EPA designated areas as nonattainment based on monitoring data from existing monitors showing a violation of the standard but did not act on other areas. In Missouri, EPA designated portions of Jackson and Jefferson Counties as nonattainment for the 2010 SO<sub>2</sub> standard, effective October 4, 2013, but did not designate any remaining areas of the state at that time.

The air program developed Nonattainment Area (NAA) State Implementation Plan (SIP) revisions for each of the nonattainment areas. The Jefferson County SIP was adopted by the

MACC on May 28, 2015 and submitted to EPA the next day. The Jackson County SIP was adopted by the MACC on August 3, 2015, and was submitted to EPA on October 9, 2015.

Subsequent rounds of designations are prescribed by a consent decree between EPA, the Sierra Club, and the Natural Resource Defense Council which was signed and entered by the court on March 2, 2015. The decree specifies a schedule for the EPA to complete SO<sub>2</sub> designations for the rest of the country in three additional rounds:

- Second round by July 2, 2016;
- Third round by December 31, 2017; and
- Final round by December 31, 2020.

To meet the first deadline, on June 30, 2016, EPA designated areas that contained either a newly violating monitor or a stationary source that according to the EPA's Air Markets Database:

- Emitted 16,000 tons of SO<sub>2</sub> in 2012; or
- Emitted 2,600 tons of SO<sub>2</sub> and had an average emission rate of at least 0.45 lbs. SO<sub>2</sub>/MMBtu in 2012.

EPA designated the following areas of Missouri: portions of Jackson, St. Charles, and Franklin Counties as unclassifiable and Scott County as unclassifiable/attainment. [81 FR 45039]

The last two deadlines for EPA to complete remaining designations are December 31, 2017, and December 31, 2020. The designations completed by these later deadlines are to be made pursuant to the EPA's Data Requirements Rule (DRR) for the 1-hour SO<sub>2</sub> NAAQS. The final DRR was published in the Federal Register (FR) on August 21, 2015 [80 FR 51052]. The DRR establishes a timetable and other requirements for the characterization of current air quality around large sources of SO<sub>2</sub> emissions.

As stated in §51.1202, sources that emitted more than 2,000 tons of SO<sub>2</sub> in the most recent, quality assured emission year [2014], excluding sources in previously designated nonattainment areas, must be evaluated under the DRR. The DRR details two characterization options available to sources: modeling or monitoring. Alternatively, a source may elect to adopt federally enforceable emissions limitations to less than 2,000 tons per year to forego characterization under the DRR.

Specifically, the 2015 federal consent decree outlines the areas to be designated by EPA in each of the two upcoming rounds:

*“EPA shall sign for publication in the Federal Register no later than December 31, 2017, a notice of EPA's promulgation of designations for the 2010 revised primary SO<sub>2</sub> NAAQS pursuant to section 107(d) of the CAA, . . . , for remaining undesignated areas in which, by January 1, 2017, states have not installed and begun operating a new SO<sub>2</sub> monitoring network meeting EPA specifications. . . .”*

The decree goes on to say all remaining undesignated areas must be designated by EPA no later than December 31, 2020.

In January 2016, the air program submitted a list of sources affected by the DRR around which to characterize air quality to fulfill the requirement outlined in §51.1203(a). The sources being evaluated under the DRR are listed in Table 2 and displayed graphically in Figure 2. The air

program used the most recent, certified emissions year to compare to the threshold established in the DRR. At the time of developing the list for submission to EPA in January 2016, the latest certified emissions year was 2014. In June 2016, the air program submitted a document detailing the method with which each of the affected sources' air quality is to be characterized. The air program concurrently submitted a modeling protocol for characterization of air quality under the federal DRR. The air program also made the annual ambient monitoring network plan available for public inspection in May 2016. These three items together fulfill the requirement outlined in §51.1203(b).

In February and August 2016, EPA released technical assistance documents (TADs) for each avenue of characterization, monitoring and modeling, respectively. The purpose of the TADs is to aid in the technical aspects of using these methods for designation purposes. The air program relied on the TADs while developing the air quality evaluations and subsequent area recommendations presented here.

Table 2 lists the sources affected by the DRR and their chosen method of characterization as was submitted to EPA in June 2016. The sources are sorted by their 2014 actual emissions. There are 16 total sources in Missouri affected by the DRR. Four sources have elected to install new ambient air quality monitors to characterize their air quality impact. Seven areas have elected to characterize their air quality impact through air dispersion modeling using their recent actual emissions. The modeling of actual conditions acts as a surrogate for monitoring. The remaining five sources have elected to adopt federally enforceable emission limitations to forego further characterization under the DRR.

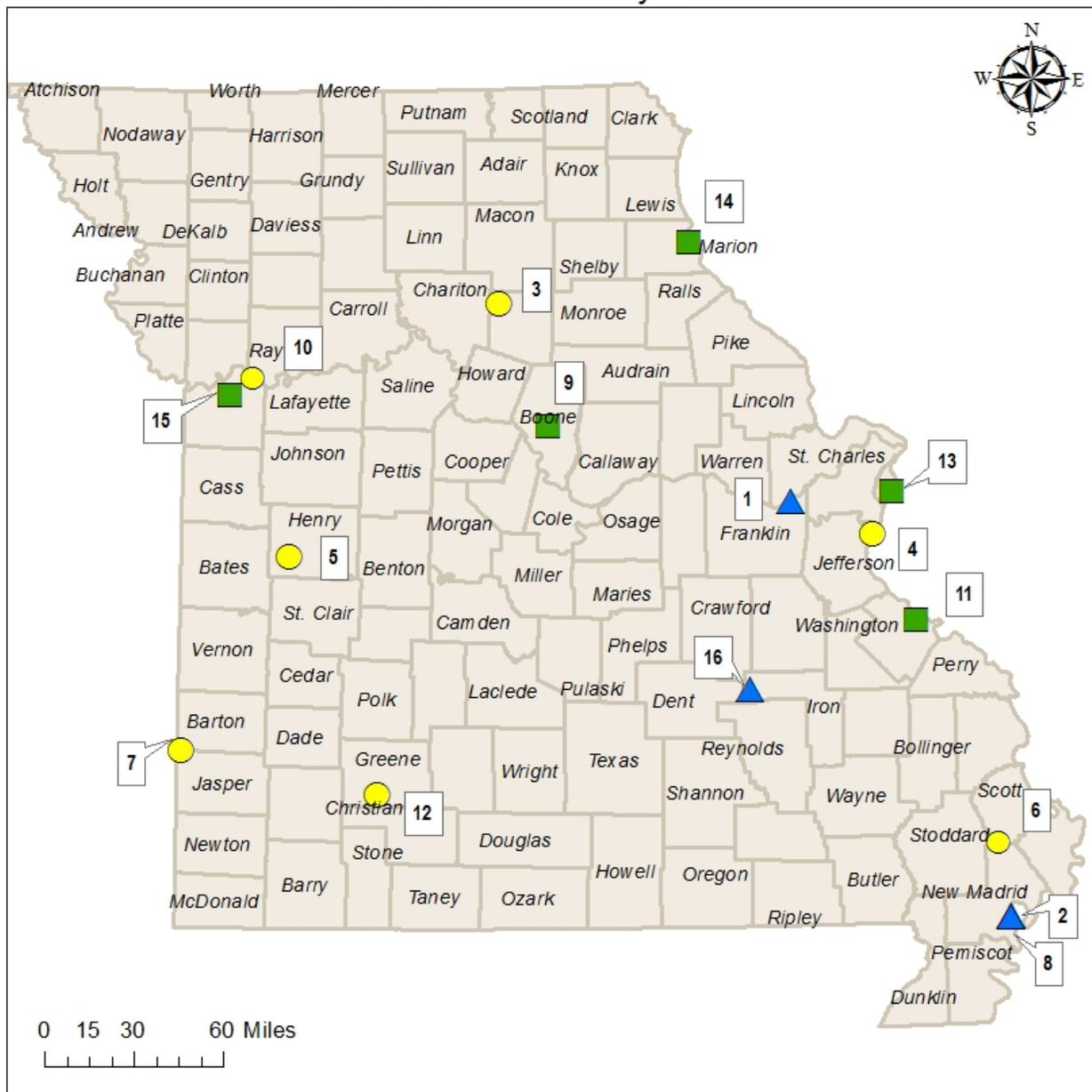
This document revises the April 2013 area boundary recommendations specifically for the seven areas containing sources that elected to characterize their air quality through air dispersion modeling. The seven sources addressed in this revised recommendation are denoted by the shaded rows in Table 2. The remainder of the April 2013 recommendation for the rest of the state is still valid for the 2010 1-hour SO<sub>2</sub> standard and is being re-submitted concurrently with this recommendation to EPA for reference.

**Table 2 – Sources Affected by EPA’s SO<sub>2</sub> Data Requirements Rule**

Map ID	FID	Plant Name	Method of Air Quality Characterization		Federally enforceable requirement to limit SO <sub>2</sub> emissions to under 2,000 tpy	Description
			Monitoring	Modeling		
1	071-0003	AMEREN MISSOURI-LABADIE ENERGY CENTER	X			
2	143-0004	NEW MADRID POWER PLANT-MARSTON	X			
3	175-0001	THOMAS HILL ENERGY CENTER POWER DIVISION-THOMAS HILL		X		
4	189-0010	AMEREN MISSOURI-MERAMEC ENERGY CENTER		X		
5	083-0001	KANSAS CITY POWER AND LIGHT CO (KCP AND L)-MONTROSE GENERATING STATION		X		

6	201-0017	SIKESTON POWER STATION		X		
7	097-0001	EMPIRE DISTRICT ELECTRIC CO-ASBURY PLANT		X		
8	143-0008	NORANDA ALUMINUM INC- NEW MADRID	X			
9	019-0004	UNIVERSITY OF MISSOURI (MU)- COLUMBIA POWER PLANT			X	Facility-wide limit enforceable through permit
10	095-0031	KCP AND L - GREATER MO OPERATIONS-SIBLEY GENERATING STATION		X		
11	186-0001	MISSISSIPPI LIME COMPANY- STE. GENEVIEVE			X	Facility-wide limit enforceable through permit
12	077-0039	CITY UTILITIES OF SPRINGFIELD -JOHN TWITTY ENERGY CENTER		X		
13	510-0003	ANHEUSER-BUSCH INC-ST. LOUIS			X	Facility-wide limit enforceable through permit
14	127-0001	BASF CORPORATION- HANNIBAL PLANT			X	Reduction of potential to emit through equipment shutdown or fuel switch. Post-2016 PTE less than 2,000 tons per year.
15	095-0050	INDEPENDENCE POWER AND LIGHT-BLUE VALLEY STATION			X	Reduction of potential to emit through equipment shutdown or fuel switch. Post-2016 PTE less than 2,000 tons per year.
16	093-0009	DOE RUN –BUICK RESOURCE RECYCLING FACILITY	X			

## 2010 1-hour SO<sub>2</sub> Standard: Round 3 and 4 Sources affected by DRR



### Legend

- Modeled Sources
- ▲ Monitoring Sources
- Limited Sources



**Figure 2 – Sources Affected by EPA’s SO<sub>2</sub> Data Requirements Rule**

## **AREAS NOT INCLUDED IN THIS REVISED RECOMMENDATION**

### **Sources Installing New Monitors**

Sources that have elected to install new ambient air monitors to characterize their air quality will not be designated in this round of designations. Designations for areas with new monitors will be based on monitoring data collected from 2017-2019. EPA is required by court order to finalize designations for these areas and all remaining undesignated areas no later than December 31, 2020. Specific information regarding the monitoring site locations can be found in the latest annual monitoring network plan available on the air program's webpage. As seen in Table 2, there are four sources that will be characterizing their air quality impact through the installation of new ambient air quality monitors: Ameren Labadie, Noranda Aluminum, AECI New Madrid, and Doe Run Buick.

Ameren Labadie began collecting monitoring data surrounding their facility in April 2015. Labadie sited two monitors surrounding their facility to quantify their air quality impact. Data collected thus far has not exceeded the standard. The two existing monitor site locations were chosen based on dispersion modeling and follow minimum monitor siting criteria. The air program is working with EPA and Ameren to ensure the monitoring network appropriately characterizes the area's air quality.

Noranda Aluminum has elected to install three monitors surrounding their facility to quantify their air quality impact. Noranda shares a property boundary with the AECI New Madrid power plant, and both are affected by the DRR. Per 51.1203(b), for any area with multiple applicable sources, the air agency (or air agencies if a multi-state area) shall use the same technique (monitoring, modeling, or emissions limitation) for all applicable sources in the area. Therefore the air program combined the evaluation of these sources and relied on a single characterization method to evaluate the combined area containing both sources due to their close proximity. Based on these evaluations, Noranda's emissions have a greater influence on the location of the area of maximum concentration than the impacts from AECI's emissions. As such, monitor site locations were chosen based on dispersion modeling with a focus on Noranda's areas of maximum concentration. All monitors follow minimum monitor siting criteria. Should Noranda not install the monitors in accordance with DRR requirements, the area including both Noranda and AECI New Madrid will be evaluated through air dispersion modeling and will be designated by EPA in December 2017 per the final 2015 federal consent decree.

Doe Run Buick has elected to site three monitors surrounding their facility to quantify their air quality impact. Monitor site locations were chosen based on dispersion modeling and follow minimum monitor siting criteria.

### **Sources taking a 2,000 ton per year limit**

Sources that have elected to limit their emissions to less than 2,000 tons of SO<sub>2</sub> per year may forgo the requirement for further characterization under the DRR. EPA has indicated that taking a satisfactory limit removes the source from undergoing the DRR's required technical evaluation at this time. These and any remaining undesignated areas that have not installed and begun operation of a new SO<sub>2</sub> monitoring network will be designated in December 2017. As

mentioned previously, the April 2013 recommendations for these areas and the rest of the state are still valid and are not being revised at this time. The sources taking new limits are listed below along with a brief description of the limit’s enforceable mechanism.

The University of Missouri Power Plant has elected to take a facility-wide 2,000 ton per 12 month rolling average SO<sub>2</sub> limit in a construction permit. Construction Permit #112016-004 contains specific limit related language. This permit is available on the air program’s issued permit webpage.

Mississippi Lime Company has elected to take a facility-wide 2,000 ton per 12 month rolling average SO<sub>2</sub> limit in its Title V operating permit. Mississippi Lime Company’s Title V Permit #OP2013-035A (Amendment Project #2016-03-080) contains specific limit related language. This permit is available on the air program’s issued permit webpage.

Anheuser Busch has elected to take a facility-wide 2,000 ton per 12 month rolling average SO<sub>2</sub> limit in its Title V operating permit. Anheuser Busch’s Title V Permit #OP2016-041 contains specific limit related language. This permit is available on the air program’s issued permit webpage.

**Sources with new potential emissions below 2,000 tons per year**

The BASF-Hannibal plant has removed their coal burning/handling capabilities to comply with other federal regulations. Their potential emissions are now below 2,000 tons of SO<sub>2</sub> per year. This is enforceable through construction permit #072013-001. Specifically, BASF dismantled two coal burning boilers in 2015 to comply with the federal Major Source Boiler MACT (Maximum Achievable Control Technology) regulation. Since the coal boilers were removed, there are four incinerators at BASF that account for the majority of their current potential SO<sub>2</sub> emissions. Their current facility-wide calculated potential emissions sum to 1,963.3 tons of SO<sub>2</sub> per year. BASF’s reported actual emissions from 2015, excluding the two coal boilers that have since been removed, do not exceed 200 tons. BASF is therefore no longer subject to further characterization under the DRR. Further source discussion and potential emission calculations are included in Appendix I for reference.

As of January 2016, Blue Valley has switched to burning exclusively natural gas to comply with other federal regulations. Their potential emissions are now below 2,000 tons of SO<sub>2</sub> per year. This is enforceable through 10 CSR 10-6.261. The compliance date for this rule is January 1, 2017. Blue Valley is therefore no longer subject to further characterization under the DRR. Specifically, Blue Valley discontinued burning coal and switched to exclusively burn natural gas in all of its three boilers to comply with the Major Source Boiler MACT and the MATS (Mercury Air Toxics Standard). Boilers 1 and 2 are subject to the Boiler MACT and boiler 3 is subject to the MATS. The compliance dates were April 16, 2015, for the MATS and January 31, 2016, for the Boiler MACT.

**Table 3 – Summary of Sources Electing DRR Compliance Methods other than Monitoring or Modeling**

Source Name	Compliance Method	Enforceable Mechanism
Anheuser Busch	Facility-wide 2,000 tpy limit	Title V Permit #OP2016-041
BASF-Hannibal	PTE less than 2,000 tpy	Construction Permit #072013-001

Blue Valley	PTE less than 2,000 tpy	10 CSR 10-6.261
Mississippi Lime Company	Facility-wide 2,000 tpy limit	Title V Permit #OP2013-035A
University of Missouri Power Plant	Facility-wide 2,000 tpy limit	Construction Permit #112016-004

## RECOMMENDATION FOR 1-HOUR SO<sub>2</sub>: ATTAINMENT

The area boundaries and designation recommendations presented in this document were developed in accordance with EPA’s March 20, 2015, document titled, “Updated Guidance for Area Designations for the 2010 Primary Sulfur Dioxide National Ambient Air Quality Standard.” This guidance provides information on the recommended process for designating areas under the 2010 revised 1-hour SO<sub>2</sub> NAAQS. In this document, EPA lists five factors to be considered when developing boundary designation recommendations:

- Monitoring/Modeling data
- Emissions information, including growth, controls, and regional emission reductions
- Meteorology
- Topography
- Jurisdictional boundaries

The air program developed the enclosed 1-hour SO<sub>2</sub> boundary recommendations based on these five factors. Appendices A.1 through G.1 detail the technical analysis performed for each of the seven modeled areas. Table 4 lists the respective appendix for each source. Each area analysis evaluates the five factors as they apply to the individual area and details the rationale for the recommendation. The modeling protocol details the general modeling conditions and procedures utilized in these technical evaluations. The protocol is included in Appendix H.

The supporting modeling files for each area are included for reference in the second subpart (A.2, B.2, etc.) of each sources’ appendices. Certain lengthy modeling files are excerpted, but the complete set of all modeling files used for these analyses are available upon request in digital format from the air program. As established in EPA’s modeling TAD, modeling for designation purposes should be done using actual emissions to act as a surrogate for monitoring data. Hourly emissions, recorded by Continuous Emissions Monitoring Systems (CEMS), are the best option for source characterization. Additional justification is given for sources without hourly recorded emissions. Moreover, EPA has indicated that hourly variable stack release parameters should be used in modeling for designation purposes when available.

**Table 4 – Source Appendices**

Affected Source	Appendix
Ameren Missouri-Meramec Energy Center	A
Empire District Electric Co-Asbury Plant	B
Kansas City Power And Light Co (KCP AND L)-Montrose Generating Station	C
KCP AND L - Greater Mo Operations-Sibley Generating Station	D
Sikeston Power Station	E
City Utilities of Springfield - John Twitty Energy Center	F
Thomas Hill Energy Center Power Division-Thomas Hill	G

**COMMENTS AND RESPONSES ON**  
**AREA BOUNDARY RECOMMENDATIONS FOR THE**  
**2010 1-HOUR SULFUR DIOXIDE STANDARD: DECEMBER 2017 DESIGNATIONS**

The public comment period for the proposed area boundary recommendations for the 2010 1-hour sulfur dioxide (SO<sub>2</sub>) standard: December 2017 designations opened on September 26, 2016 and closed on November 3, 2016.

The following is a summary of comments received and the Missouri Department of Natural Resources' Air Pollution Control Program's (air program's) corresponding responses. All comments were related to the area around the Ameren Meramec Energy Center; no comments were received on the areas surrounding the Empire District - Asbury plant, Montrose Generating Station, Sibley Generating Station, Sikeston Power Station, City Utilities of Springfield - John Twitty Energy Center, and the Thomas Hill Energy Center Power Division. The air program finalized the state's area boundary recommendation based on consideration of the comments received.

**SUMMARY OF COMMENT(S):** During the public comment period for the proposed area boundary recommendations, the air program received oral testimony and written comments from Ameren Missouri.

**COMMENT #1:** Ameren Missouri provided oral testimony in support of the air program's proposed recommendation of attainment for the area containing the Ameren Meramec Energy Center. Ameren also commented that they are committed to clean, reliable, affordable energy while continuing to comply with environmental regulations. Ameren commented that they prefer the use of actual monitoring data for area designations and that modeling is conservative in nature; nonetheless the modeling for Meramec Energy Center demonstrates compliance with the standard and supports an attainment area designation.

**RESPONSE:** The air program appreciates Ameren's comment and support of its proposed attainment area recommendation for the Meramec Energy Center. No changes were made to the document as a result of these comments.

Ameren Missouri also provided written comments specific to the dispersion modeling performed to support the attainment area recommendation for the area around the Meramec Energy Center.

**COMMENT #2:** Ameren asserts that the area around Meramec Energy Center should have been classified as rural and modeled with rural dispersive conditions rather than the urban dispersive conditions used by the air program in its modeling evaluation.

**RESPONSE:** AERMOD, EPA's recommended dispersion model per Appendix W, contains an option to model a source under either rural or urban dispersive conditions. Air program staff evaluated the entire model domain, a 20 x 20 kilometer grid centered on Meramec Energy Center, to determine the most representative classification for the entire area, urban or rural. In Section A.1 of Appendix A to the recommendation, the air program references EPA guidance documents

that detail land use and population as the primary elements to consider when characterizing an area as urban or rural. The air program evaluated land use categories and population density for the entire modeling domain around Meramec Energy Center. Since the full modeling domain includes the urbanized area of south St. Louis and urban heat islands are known to extend beyond the boundary of the urban core, the air program chose urban dispersive conditions as representative for the modeling domain containing the Meramec Energy Center.

Ameren submitted an additional modeling analysis that relied on rural dispersive conditions. Ameren's analysis resulted in lower modeled concentrations than the air program's modeled results. The air program acknowledges these differences and notes that the use of either the rural or urban option will result in an attainment area recommendation. The air program appreciates receiving Ameren's perspective and further supporting analysis. No changes were made to the document as a result of these comments.

COMMENT #3: Ameren states that the regional background concentration for urban areas used by the air program in the modeling is not representative of the area around Meramec Energy Center but the air program should have instead incorporated the regional background concentration for rural areas.

RESPONSE: The AERMOD model allows the user to incorporate a regional background concentration in the model result to account for natural, unknown, and not explicitly modeled sources of pollution. For the same reasons as described in the response to Comment #2, when determining to treat the entire modeled area as urban, the air program elected to use the regional background concentration for urban areas of 13 ppb that has been used in previous SO<sub>2</sub> modeling exercises. The approach used to establish these regional background concentrations, for both urban and rural values, has since been deemed acceptable and representative by EPA<sup>1</sup>. The use of the higher urban background concentration adds another conservative layer to the evaluation to ensure that no violations of the standard are likely to occur. The air program appreciates Ameren's perspective that the highest modeled impacts occur when winds originate from the south, or otherwise not flowing through the urban core of St. Louis. No changes were made to the document as a result of these comments.

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<sup>1</sup> See EPA's Response to Comments on Area Designations for the Second Round under the 2010 1-hour SO<sub>2</sub> standard, page 110.