

## Final Technical Support Document

### Kentucky Area Designations for the 2010 SO<sub>2</sub> Primary National Ambient Air Quality Standard

#### Summary

Pursuant to section 107(d) of the Clean Air Act (CAA), the U.S. Environmental Protection Agency (EPA, or the Agency) must designate areas as either “unclassifiable,” “attainment,” or “nonattainment” for the 2010 1-hour sulfur dioxide (SO<sub>2</sub>) primary national ambient air quality standard (NAAQS). Section 107(d) of the CAA defines a nonattainment area as one that does not meet the NAAQS or that contributes to a NAAQS violation in a nearby area, an attainment area as any area other than a nonattainment area that meets the NAAQS, and an unclassifiable area as any area that cannot be classified on the basis of available information as meeting or not meeting the NAAQS.

July 2, 2016, is the deadline established by the U.S. District Court for the Northern District of California for the EPA to designate certain areas. This deadline is the first of three deadlines established by the court for the EPA to complete area designations for the 2010 SO<sub>2</sub> NAAQS. This deadline applies to certain areas in Kentucky (Commonwealth) because two emission sources meet the conditions of the court’s order.

Kentucky submitted updated recommendations on September 16, 2015. Table 1 below lists Kentucky’s recommendations and identifies the counties in Kentucky that the EPA is designating in order to meet the July 2, 2016 court-ordered deadline. These final designations 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 – Kentucky’s Recommended and the EPA’s Final Designations**

Area	State’s Recommended Area Definition	State’s Recommended Designation	The EPA’s Final Area Definition	The EPA’s Final Designation
Ohio County, KY	Ohio County in its entirety	Attainment	Same as Commonwealth’s Recommendation (Ohio County, KY)	Unclassifiable
Pulaski County, KY	Pulaski County in its entirety	Attainment	Same as Commonwealth’s Recommendation (Pulaski County, KY)	Unclassifiable

#### Background

On June 3, 2010, the EPA revised the primary (health based) SO<sub>2</sub> NAAQS by establishing a new 1-hour standard at a level of 75 parts per billion (ppb) which is met at an ambient air quality

monitoring site when the 3-year average of the 99th percentile of 1-hour daily maximum concentrations does not exceed 75 ppb. This NAAQS was published in the *Federal Register* on June 22, 2010 (75 FR 35520), and is codified at 40 CFR 50.17. The EPA determined this is the level necessary to protect public health with an adequate margin of safety, especially for children, the elderly, and those with asthma. These groups are particularly susceptible to the health effects associated with breathing SO<sub>2</sub>. The two prior primary standards of 140 ppb evaluated over 24 hours, and 30 ppb evaluated over an entire year, codified at 40 CFR 50.4, remain applicable.<sup>1</sup> However, the EPA is not currently designating areas on the basis of either of these two primary standards. Similarly, the secondary standard for SO<sub>2</sub>, set at 500 ppb evaluated over 3 hours, codified at 40 CFR 50.5, has not been revised, and the EPA is also not currently designating areas on the basis of the secondary standard.

### General Approach and Schedule

Section 107(d) of the CAA requires that not later than 1 year after promulgation of a new or revised NAAQS, state governors must submit their recommendations for designations and boundaries to the EPA. Section 107(d) also requires the EPA to provide notification to states no less than 120 days prior to promulgating an initial area designation that is a modification of a state's recommendation. If a state does not submit designation recommendations, the EPA may promulgate the designations that it deems appropriate without prior notification to the state, although it is our intention to provide such notification when possible. If a state or tribe disagrees with the EPA's intended designations, it is given an opportunity within the 120-day period to demonstrate why any proposed modification is inappropriate. The EPA is required to complete designations within 2 years after promulgation of a new or revised NAAQS, unless the EPA determines that sufficient information is not available, in which case the deadline is extended to 3 years. The 3-year deadline for the revised SO<sub>2</sub> NAAQS was June 2, 2013.

On August 5, 2013, the EPA published a final rule establishing air quality designations for 29 areas in the United States for the 2010 SO<sub>2</sub> NAAQS, based on recorded air quality monitoring data from 2009 - 2011 showing violations of the NAAQS (78 FR 47191). In that rulemaking, the EPA committed to address, in separate future actions, the designations for all other areas for which the Agency was not yet prepared to issue designations. The EPA designated a portion of Campbell and Jefferson Counties in Kentucky as nonattainment in this initial set of designations.

Following the initial August 5, 2013, designations, three lawsuits were filed against the EPA in different U.S. District Courts, alleging the Agency had failed to perform a nondiscretionary duty under the CAA by not designating all portions of the country by the June 2, 2013 deadline. In an effort intended to resolve the litigation in one of those cases, plaintiffs Sierra Club and the Natural Resources Defense Council and the EPA filed a proposed consent decree with the U.S. District Court for the Northern District of California. On March 2, 2015, the court entered the

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<sup>1</sup> 40 CFR 50.4(e) provides that the two prior primary NAAQS will no longer apply to an area 1 year after its designation under the 2010 NAAQS, except that for areas designated nonattainment under the prior NAAQS as of August 22, 2010, and areas not meeting the requirements of a SIP Call under the prior NAAQS, the prior NAAQS will apply until that area submits and the EPA approves a SIP providing for attainment of the 2010 NAAQS. The two Kentucky areas are not designated nonattainment under the prior NAAQS nor are they areas not meeting the requirements of a SIP Call under the prior NAAQS.

consent decree and issued an enforceable order for the EPA to complete the area designations according to the court-ordered schedule.

According to the court-ordered schedule, the EPA must complete the remaining designations by three specific deadlines. By no later than July 2, 2016 (16 months from the court's order), the EPA must designate two groups of areas: (1) areas that have newly monitored violations of the 2010 SO<sub>2</sub> NAAQS and (2) areas that contain any stationary sources that had not been announced as of March 2, 2015, for retirement and that according to the EPA's Air Markets Database emitted in 2012 either (i) more than 16,000 tons of SO<sub>2</sub> or (ii) more than 2,600 tons of SO<sub>2</sub> with an annual average emission rate of at least 0.45 pounds of SO<sub>2</sub> per one million British thermal units (lbs SO<sub>2</sub>/mmBTU). Specifically, a stationary source with a coal-fired unit that as of January 1, 2010, had a capacity of over 5 megawatts and otherwise meets the emissions criteria, is excluded from the July 2, 2016, deadline if it had announced through a company public announcement, public utilities commission filing, consent decree, public legal settlement, final state or federal permit filing, or other similar means of communication, by March 2, 2015, that it will cease burning coal at that unit.

The last two deadlines for completing remaining designations are December 31, 2017, and December 31, 2020. The EPA has separately promulgated requirements for state and other air agencies to provide additional monitoring or modeling information on a timetable consistent with these designation deadlines. We expect this information to become available in time to help inform these subsequent designations. These requirements were promulgated on August 21, 2015 (80 FR 51052), in a rule known as the SO<sub>2</sub> Data Requirements Rule (DRR), codified at 40 CFR part 51 subpart BB.

Updated designations guidance was issued by the EPA through a March 20, 2015 memorandum from Stephen D. Page, Director, U.S. EPA, Office of Air Quality Planning and Standards, to Air Division Directors, U.S. EPA Regions 1-10. This memorandum supersedes earlier designation guidance for the 2010 SO<sub>2</sub> NAAQS, issued on March 24, 2011, and it identifies factors that the EPA intends to evaluate in determining whether areas are in violation of the 2010 SO<sub>2</sub> NAAQS. The guidance also contains the factors the EPA intends to evaluate in determining the boundaries for all remaining areas in the country, consistent with the court's order and schedule. These factors include: 1) Air quality characterization via ambient monitoring or dispersion modeling results; 2) Emissions-related data; 3) Meteorology; 4) Geography and topography; and 5) Jurisdictional boundaries. This guidance was supplemented by two non-binding technical assistance documents intended to assist states and other interested parties in their efforts to characterize air quality through air dispersion modeling or ambient air quality monitoring for sources that emit SO<sub>2</sub>. Notably, the EPA's documents titled, "SO<sub>2</sub> NAAQS Designations Modeling Technical Assistance Document" (Modeling TAD) and "SO<sub>2</sub> NAAQS Designations Source-Oriented Monitoring Technical Assistance Document" (Monitoring TAD), were available to states and other interested parties. Both of these TADs were most recently updated in February 2016.

Based on complete, quality assured and certified ambient air quality data collected between 2013 and 2015, no violations of the 2010 SO<sub>2</sub> NAAQS have been recorded at ambient air quality monitors in any undesignated part of Kentucky. However, there are two sources in the state

meeting the emissions criteria of the consent decree for which the EPA must complete designations by July 2, 2016. In this final technical support document, the EPA discusses its review and technical analysis of Kentucky's updated recommendations for the areas that we must designate. The EPA also discusses any intended and final modifications from the state's recommendation based on all available data before us.

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

- 1) 2010 SO<sub>2</sub> NAAQS – the primary NAAQS for SO<sub>2</sub> promulgated in 2010. This NAAQS is 75 ppb, based on the 3-year average of the 99th percentile of the annual distribution of daily maximum 1-hour average concentrations. See 40 CFR 50.17.
- 2) Attaining monitor – an ambient air monitor meeting all methods, quality assurance, and siting criteria and requirements whose valid design value is equal to or less than 75 ppb, based on data analysis conducted in accordance with Appendix T of 40 CFR part 50.
- 3) Design Value – a statistic computed according to the data handling procedures of the NAAQS (in 40 CFR part 50 Appendix T) that, by comparison to the level of the NAAQS, indicates whether the area is violating the NAAQS.
- 4) Designated nonattainment area – an area which the EPA has determined has violated the 2010 SO<sub>2</sub> NAAQS or contributed to a violation in a nearby area. A nonattainment designation reflects considerations of the state's recommendations and all of the information discussed in this document. The EPA's decision is based on all available information including the most recent 3 years of air quality monitoring data, available modeling analyses, and any other relevant information.
- 5) Designated unclassifiable area – an area for which the EPA cannot determine based on all available information whether or not it meets the 2010 SO<sub>2</sub> NAAQS.
- 6) Designated unclassifiable/attainment area – an area which the EPA has determined to have sufficient evidence to find either is attaining or is likely to be attaining the NAAQS. The EPA's decision is based on all available information including the most recent 3 years of air quality monitoring data, available modeling analyses, and any other relevant information.
- 7) Modeled violation – a violation based on air dispersion modeling.
- 8) Recommended attainment area – an area a state or tribe has recommended that the EPA designate as attainment.
- 9) Recommended nonattainment area – an area a state or tribe has recommended that the EPA designate as nonattainment.
- 10) Recommended unclassifiable area – an area a state or tribe has recommended that the EPA designate as unclassifiable.
- 11) Recommended unclassifiable/attainment area – an area a state or tribe has recommended that the EPA designate as unclassifiable/attainment.
- 12) Violating monitor – an ambient air monitor meeting all methods, quality assurance, and siting criteria and requirements whose valid design value exceeds 75 ppb, based on data analysis conducted in accordance with Appendix T of 40 CFR part 50.

## Technical Analysis for Ohio County, Kentucky Area

### Introduction

The Ohio County, KY, area contains one stationary source that, according to the EPA's Air Markets Database, emitted in 2012 either more than 16,000 tons of SO<sub>2</sub> or more than 2,600 tons of SO<sub>2</sub> and had an annual average emission rate of at least 0.45 pounds of SO<sub>2</sub> per one million British thermal units (lbs SO<sub>2</sub>/mmBTU). Specifically, in 2012, the D. B. Wilson electric generating facility (Plant Wilson) emitted 7,387 tons of SO<sub>2</sub> and had an emissions rate of 0.45 lbs SO<sub>2</sub>/mmBTU. Pursuant to the March 2, 2015 court-ordered schedule, the EPA must designate the area surrounding this facility by July 2, 2016.

In its submission, the Commonwealth of Kentucky recommended that the area surrounding Plant Wilson electric generating facility, specifically Ohio County, be designated as attainment based on an assessment and characterization of air quality from the facility and other nearby sources which may have a potential impact in the area of analysis where maximum concentrations of SO<sub>2</sub> are expected. This assessment and characterization was performed using air dispersion modeling software, specifically using AERMOD, analyzing allowable potential to emit (PTE) emissions.

On February 16, 2016, the EPA notified Kentucky that we intended to designate the Ohio County, KY area as unclassifiable, based on our view that available information did not enable us to determine whether the area is meeting the NAAQS. Additionally, we informed the Commonwealth that our intended boundaries for the unclassifiable area consisted of Ohio County. Our intended designation and associated boundaries were based on, among other things, Plant Wilson's future allowable limit was not yet federally-enforceable and there was no indication of an SO<sub>2</sub> emissions limit consisting of a 1-hour averaging time or a comparatively stringent longer term averaging period, as well as uncertainty surrounding the shutdown of the nearby source Tennessee Valley Authority (TVA) Paradise Station Units 1 and 2. Detailed rationale, analyses, and other information supporting our intended designation for this area can be found in the preliminary technical support document for Kentucky, and this document along with all others related to this rulemaking can be found in Docket ID EPA-HQ-OAR-2014-0464.

### Assessment of New Information

In our February 16, 2016, notification to Kentucky regarding our intended unclassifiable designation for the Ohio County, KY area, the EPA requested that any additional information that the Agency should consider prior to finalizing the designation should be submitted by April 19, 2016. On March 1, 2016, the EPA also published a notice of availability and public comment period in the *Federal Register*, inviting the public to review and provide input on our intended designations by March 31, 2016 (81 FR 10563).

The EPA is explicitly incorporating and relying upon the analyses and information presented in the preliminary technical support document for the purposes of our final designation of unclassifiable for this area, except to the extent that any new information submitted to the EPA

or conclusions presented in this final technical support document and our response to comments document (RTC), available in the docket, supersede those found in the preliminary document.

The EPA received additional information from Kentucky on March 2, 2016, and April 18, 2016, for consideration regarding our intended designations of this area. The March 2, 2016, submittal included revised modeling and an explanation regarding establishment of the new allowable SO<sub>2</sub> emission limit using a 30-day rolling average for the Wilson Plant. The April 18, 2016, submittal included information on the TVA Paradise Fossil Plant nearby source in Muhlenberg County, Kentucky, and a preliminary proposed title V permit establishing a new allowable PTE limit of 0.627 lbs SO<sub>2</sub>/mmBTU on a 30-day rolling average to support the recommended attainment designation for Ohio County for the SO<sub>2</sub> NAAQS.

Kentucky's original attainment designation recommendation for the entirety of Ohio County was based on Plant Wilson's air dispersion modeling analysis which considered a future allowable emission limit of 0.85 lbs. SO<sub>2</sub>/mmBTU at the facility, actual emissions from the TVA Paradise Fossil Plant Unit 3 (located just southeast of Plant Wilson in Muhlenberg County), and background concentrations based on rural and natural background sources as well as regional impacts from distant large SO<sub>2</sub> sources, and assumed that the TVA-Paradise Units 1 and 2 would be retired. The EPA's February 16, 2016, intended designation's TSD documented issues regarding the Ohio County, Kentucky, area analysis which resulted in the EPA's February 16, 2016, intended unclassifiable designation. These issues included 1) the federal enforceability of the new allowable emission limit through an appropriate mechanism by April 19, 2016, ensuring that if a longer-term averaging time is established it is comparatively stringent to a 1-hour averaging limit, and 2) uncertainty regarding the shutdown status of units 1 and 2 at the nearby TVA Paradise Fossil Plant and whether these units 2012-2014 actual SO<sub>2</sub> emissions should be included in the modeling. The EPA indicated that if the Commonwealth resolved these issues then the Agency would consider revising the intended designation to unclassifiable/attainment. However, after careful review, the EPA has determined that the Kentucky has not addressed the specific issues identified in the intended designation.

Kentucky's April 18, 2016, information included a proposed title V permit revision to establish a new federally enforceable allowable SO<sub>2</sub> emission limit of 0.627 lbs SO<sub>2</sub>/mmBTU. On March 2, 2016, Kentucky submitted to the EPA via email information explaining how this new emission limit was calculated. However, this explanation did not provide detailed calculations on how the limit was derived, including the actual hourly emissions data used for the calculations. On April 26, 2016, the EPA received the actual proposed title V permit for the allowable SO<sub>2</sub> limit for review initiating the Agency's 45-day review.<sup>2</sup> The proposed permit included a condition stipulating the new allowable limit would only be effective upon final action by the EPA to designate Ohio County attainment. Additionally, Kentucky indicated that they anticipate issuing the final permit on or about June 9, 2016. The EPA's February 16, 2016, intended designations indicated that the EPA would consider an alternative designation to unclassifiable only if the new allowable emission limit was federally-enforceable and effective prior to final designations. EPA

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<sup>2</sup> On May 20, 2016, the EPA Region 4 provided comments via letter to the Commonwealth on the proposed April 26, 2016, title V permit revision to establish a new federally enforceable allowable PTE limit of 0.627 lbs SO<sub>2</sub>/mmBTU on a 30-day rolling average for Plant Wilson to support attainment recommendation. A copy of this letter is in the docket for the final designations rulemaking.

has therefore determined that the preliminary permit, including the condition that it would only be effective upon a hypothetical future action, is not federally-enforceable. Furthermore, Kentucky has provided no additional calculations, including actual hourly emissions data, demonstrating how the limit was determined. Therefore, the 0.627 lbs SO<sub>2</sub>/mmBTU emission limit is not federally-enforceable and effective for Plant Wilson, and cannot at this time be relied upon for modeling of allowable emissions to show that the area is now meeting the NAAQS. Consequently, the EPA cannot rely upon this information to support a determination of whether the area is meeting the NAAQS.

Regarding TVA Paradise Units 1 and 2, the Commonwealth noted in the April 18, 2016, correspondence to the EPA that the facility requested (from the EPA) an Administrative Order of compliance with the Mercury and Air Toxics Standards to April 16, 2017, to allow all units at the facility to operate while new natural gas fired combined cycle electricity generating units were being constructed. EPA's Office of Enforcement and Compliance Assurance granted the CAA Administrative Order on April 16, 2016. Therefore, all three units at Paradise are currently operating at least until April 2017. According to Kentucky's September 16, 2015 modeling report and the revised modeling report submitted on March 2, 2016, TVA Paradise units 1 and 2 actual emissions were excluded from the modeling because both units were scheduled for retirement by April 2016. The modeling reports included 2012-2014 actual emissions from TVA Paradise unit 3. Kentucky's April 18, 2016, information did not provide modeling to evaluate Units 1 and 2 actual emissions nor did the Commonwealth provide an explanation why both units were excluded from the modeling analysis. Because Kentucky did not consider all three operating units from TVA Paradise in the modeling analysis, the EPA has determined that it does not have sufficient information regarding the actual impacts from Plant Paradise to the area around Plant Wilson and within Ohio County, and therefore cannot accurately and completely evaluate the modeling analysis provided by the Commonwealth, and cannot fully determine whether or not the Ohio County area is attaining the NAAQS.

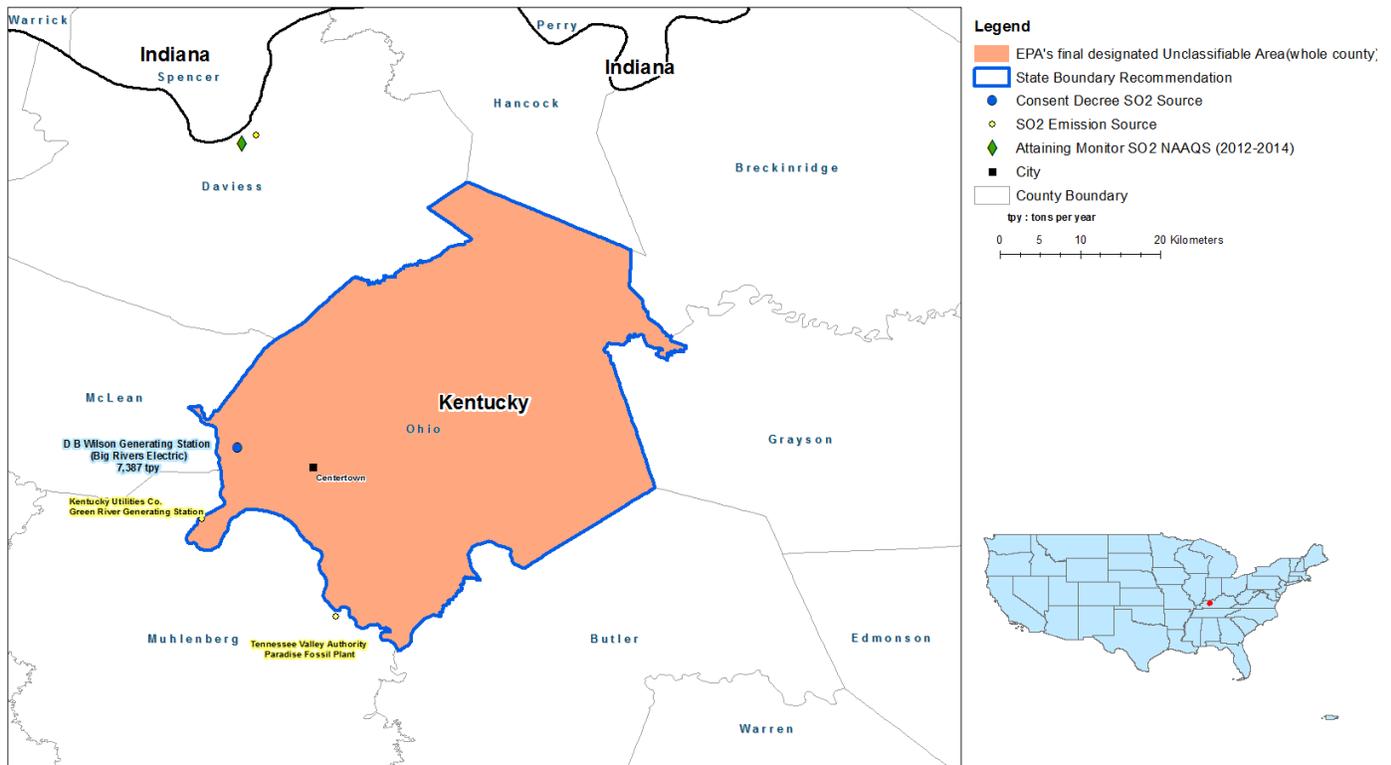
### Conclusion

After careful evaluation of all available data and information, the EPA is unable to determine whether the Ohio County, Kentucky area is meeting or not meeting the 2010 1-hour SO<sub>2</sub> NAAQS, and therefore is designating the area as unclassifiable for the 2010 1-hour SO<sub>2</sub> NAAQS because Plant Wilson's 0.627 lbs SO<sub>2</sub>/mmBTU 30-day rolling average future allowable limit has not been established as federally-enforceable and effective prior to final designation. Also, adequate documentation has not been provided to demonstrate that the limit is comparatively stringent to a 1-hour emission limit. Additionally, the EPA cannot confirm the modeled impacts from the nearby TVA Paradise facility because Kentucky only considered actual emissions from Unit 3 and excluded Units 1 and 2 from the modeling analysis. The boundary for this unclassifiable area consists of Ohio County in its entirety, and is shown in the figure below. Also included in the figure are nearby emitters of SO<sub>2</sub> and Kentucky's recommended area.

The EPA finds that the final unclassifiable area, consisting of Ohio County is comprised of a clearly defined legal boundary, and we find this boundary to be a suitably clear basis for defining our final unclassifiable area.

Figure 1: The EPA's final unclassifiable area: Ohio County, KY Area

## Ohio County, Kentucky Area



At this time, our final designations for the Commonwealth only applies to the Ohio County area, and the others contained in this final TSD. Consistent with the court-ordered schedule, the EPA will evaluate and designate all remaining undesignated areas in Kentucky by either December 31, 2017, or December 31, 2020.

## Technical Analysis for Pulaski County, Kentucky Area

### Introduction

The Pulaski County, KY, area contains one stationary source that, according to the EPA's Air Markets Database, emitted in 2012 either more than 16,000 tons of SO<sub>2</sub> or more than 2,600 tons of SO<sub>2</sub> and had an annual average emission rate of at least 0.45 pounds of SO<sub>2</sub> per one million British thermal units (lbs SO<sub>2</sub>/mmBTU). Specifically, in 2012, the John S. Cooper Power Station electric generating facility (Cooper Station) emitted 7,428 tons of SO<sub>2</sub> and had an emissions rate of 1.07 lbs SO<sub>2</sub>/mmBTU. Cooper Station is located in the southern portion of Pulaski County approximately 10 km north of the center of Somerset. Pursuant to the March 2, 2015, court-ordered schedule, the EPA must designate the area surrounding this facility by July 2, 2016.

In its submission, the Commonwealth of Kentucky recommended that the area surrounding the Cooper Station electric generating facility, specifically Pulaski County, be designated as attainment based on an assessment and characterization of air quality from the facility and other nearby sources which may have a potential impact in the area of analysis where maximum concentrations of SO<sub>2</sub> are expected. This assessment and characterization was performed using air dispersion modeling software, specifically using AERMOD, analyzing 2012-2014 actual and allowable PTE emissions.

On February 16, 2016, the EPA notified Kentucky that we intended to designate the Pulaski County, Kentucky area as unclassifiable, based on our view that available information did not support a determination regarding whether the area was meeting the NAAQS. Additionally, we informed the Commonwealth that our intended boundaries for the unclassifiable area consisted of Pulaski County. Our intended designation and associated boundaries were based on, among other things, Cooper Station's modeling for units 1 and 2 using a mix of PTE emissions and actual emissions, reliance upon a future allowable limit which is not yet federally-enforceable, and the lack of an SO<sub>2</sub> emissions limit with a 1-hour averaging time or a comparatively stringent longer term averaging period. Detailed rationale, analyses, and other information supporting our intended designation for this area can be found in the preliminary technical support document for Kentucky, and this document along with all others related to this rulemaking can be found in Docket ID EPA-HQ-OAR-2014-0464.

### Assessment of new information

In our February 16, 2016, notification to Kentucky regarding our intended unclassifiable designation for the Pulaski County, Kentucky area, the EPA requested that any additional information that the Agency should consider prior to finalizing the designation should be submitted by April 19, 2016. On March 1, 2016, the EPA also published a notice of availability and public comment period in the *Federal Register*, inviting the public to review and provide input on our intended designations by March 31, 2016 (81 FR 10563).

The EPA is explicitly incorporating and relying upon the analyses and information presented in the preliminary technical support document for the purposes of our final designation of

unclassifiable for this area, except to the extent that any new information submitted to the EPA, our responses, or conclusions presented in this final technical support document supersede those in the preliminary technical support document.

Subsequent to our February 16, 2016 notification, the EPA received additional information from Kentucky on May 19, 2016, via email, and April 18, 2016, for consideration regarding our intended designations of this area. The May 19, 2016, email included an explanation regarding establishment of the new allowable SO<sub>2</sub> emission limit using a 30-day rolling average. The April 18, 2016, submittal included an explanation of the hybrid emission modeling approach for units 1 and 2 (i.e. use of a mix of an allowable emissions for Unit 1 and actual emissions from Unit 2 being emitted from the same stack) based on the installation of a dry flue gas desulfurization system and a proposed title V permit establishing a new allowable PTE limit of 0.100 lbs SO<sub>2</sub>/mmBTU for unit 1 on a 30-day rolling average to support the recommended attainment designation for Pulaski County for the SO<sub>2</sub> NAAQS.

Kentucky's original attainment designation recommendation for the entirety of Pulaski County was based on Cooper Station's air dispersion modeling analysis which considered a hybrid approach based on a future allowable emission limit of 0.165 lbs SO<sub>2</sub>/mmBTU for unit 1 and hourly emission rate for unit 2, and background concentrations based on rural and natural background sources as well as regional impacts from distant large SO<sub>2</sub> sources. The EPA's February 16, 2016, intended designations TSD documented issues regarding the Pulaski County, Kentucky Area analysis which resulted in the EPA's February 16, 2016 intended unclassifiable designation. Specifically, EPA noted: 1) the modeling approach using a combination of future PTE and actual emissions for Cooper Station's unit 1 and 2 was inappropriate because the two units are combined and emitted from a common stack; and 2) the federal-enforceability of the new allowable emission limit through an appropriate mechanism was needed by April 19, 2016, and needed to ensure that if a longer-term averaging time is established it is comparatively stringent to a 1-hour averaging limit. EPA explained in its intended designation TSD that Cooper Station's hybrid modeling approach was inconsistent with the Modeling TAD's recommendations and advised that Kentucky could revise their modeling configuration to either use new future allowable PTE from both units, provided that these new limits were made federally-enforceable prior to final designations. Alternatively, the EPA advised that Kentucky could use actual emissions for their modeling from a common 3-year period for both units. After careful review, the EPA has determined that Kentucky has not addressed the specific issues identified in the intended designation.

Kentucky's April 18, 2016, information did not include revised modeling based on the EPA's guidance for units 1 and 2, and therefore the EPA is unable to determine (based on Kentucky's reliance on the hybrid modeling approach) if the area is meeting or is not meeting the SO<sub>2</sub> NAAQS. Additionally, Kentucky's April 16, 2016, submittal included a proposed title V permit revision to establish a new federally-enforceable allowable SO<sub>2</sub> emission limit of 0.100 lbs SO<sub>2</sub>/mmBTU for unit 1 based on 30-day rolling average. On May 19, 2016, Kentucky submitted to the EPA via email information explaining the process by which the new emission limit was determined. However, the Commonwealth's explanation did not provide detailed calculations on how the limit was derived including the actual hourly emissions data used for the calculations. As a result, EPA could not verify how the limits were determined or whether or not they would

be feasible or ensure attainment of the NAAQS. Kentucky's April 18, 2016, submittal included the proposed title V permit for the allowable SO<sub>2</sub> limit for unit 1 for review.<sup>3</sup> The proposed permit included a condition stipulating the new allowable limit would be effective only upon final action by the EPA to designate Pulaski County attainment. EPA has therefore determined that the preliminary permit, including the condition that it would only be effective upon a hypothetical future action, is not effective prior to this final designation and not federally-enforceable, and cannot at this time be relied upon for modeling of allowable emissions to show that the area is now meeting the NAAQS. Consequently, the EPA cannot rely upon this information to support a determination of whether the area is meeting the NAAQS.

### Conclusion

After careful evaluation of all available data and information, the EPA is unable to determine whether the Pulaski County, Kentucky area is meeting or not meeting the 2010 1-hour SO<sub>2</sub> NAAQS, and therefore is designating the area as unclassifiable for the 2010 1-hour SO<sub>2</sub> NAAQS because Cooper Station's 0.100 lbs SO<sub>2</sub>/mmBTU 30-day rolling average future allowable limit for unit 1 is not established as federally-enforceable and effective prior to final designations. Also, there is no indication the limit is comparatively stringent to a 1-hour emission limit. Additionally, the EPA cannot confirm whether the area within the vicinity of the Cooper Station and Pulaski County are meeting or not meeting the NAAQS due to Kentucky's hybrid modeling approach. The boundary for this unclassifiable area consists of Pulaski County in its entirety, and is shown in the figure below. Also included in the figure are nearby emitters of SO<sub>2</sub> and Kentucky's recommended area.

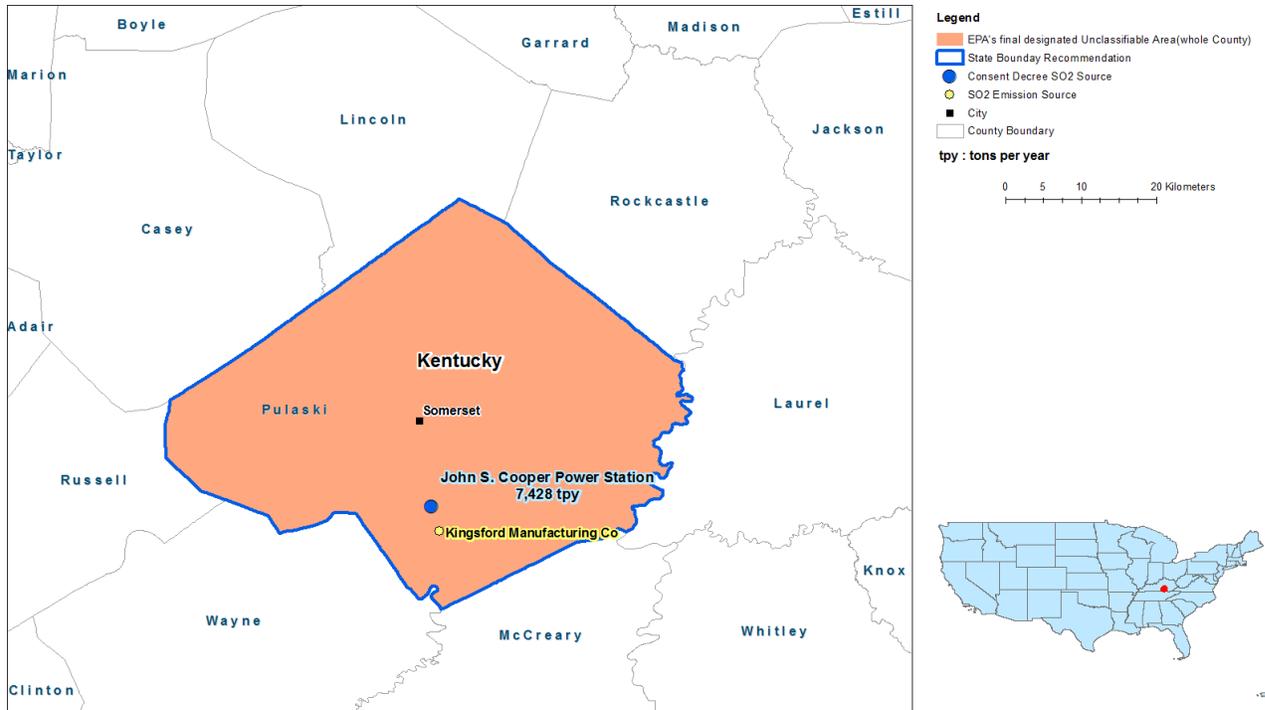
The EPA finds that our final unclassifiable area, consisting of Pulaski County is comprised of a clearly defined legal boundary, and we find this boundary to be a suitably clear basis for defining our final unclassifiable area.

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<sup>3</sup> EPA notes the proposed title V permit revision was submitted as an attachment to the Commonwealth's April 18, 2016 information, but was actually provided to EPA on April 14, 2016, initiating the 45-day review period. On May 20, 2016, the EPA Region 4 provided comments via letter to the Commonwealth on the proposed April 26, 2016 title v permit revision to establish a new federally enforceable allowable PTE limit of 0.100 lbs SO<sub>2</sub>/mmBTU on a 30-day rolling average for Cooper Station to support attainment recommendation. A copy of this letter is in the docket for the final designations rulemaking.

Figure 2: The EPA's final unclassifiable area: Pulaski County, KY Area

## Pulaski County, Kentucky Area



At this time, our final designations for the Commonwealth only applies to the Pulaski County area, and the others contained in this final TSD. Consistent with the court-ordered schedule, the EPA will evaluate and designate all remaining undesignated areas in Kentucky by either December 31, 2017, or December 31, 2020.