Draft Technical Support Document

Indiana
Area Designations For the
2010 SO_2 Primary National Ambient Air Quality Standard

Summary

Pursuant to section 107(d) of the Clean Air Act, EPA must initially designate areas as either "unclassifiable", "attainment", or "nonattainment" for the 2010 one-hour sulfur dioxide (SO_2) primary national ambient air quality standard (NAAQS). The Clean Air Act defines a nonattainment area as one that does not meet the NAAQS or that contributes to a violation in a nearby area.

Indiana submitted recommendations on May 11, 2011 with supplemental recommendations on January 6, 2012 and April 26, 2012. Table 1 below lists Indiana's recommendations and identifies the counties or portions of counties in Indiana that EPA intends to designate "nonattainment" based on monitored violations.

Table 1. Nonattainment Designation for Indiana

Area	Indiana's Recommended Designation of Areas/Counties	EPA's Intended Designated Nonattainment Areas/Counties
Indianapolis, IN		
Marion County (partial)	Nonattainment	Nonattainment
-Wayne, Center and Perry Townships		
Morgan County, IN		
Morgan County (partial)	Nonattainment	Nonattainment
-Clay and Washington Townships		
Richmond, IN		
Wayne County (partial)	Nonattainment	Nonattainment
-Wayne Township		
Southwest Indiana, IN		
Daviess County (partial)	Nonattainment	Nonattainment
-Veale Township		
Pike County (partial)	Nonattainment	Nonattainment
-Washington Township		
Terre Haute, IN		
Vigo County (partial)		
-Fayette Township	Unclassifiable	Nonattainment
-Harrison Township	Nonattainment	Nonattainment
-Otter Creek Township	Unclassifiable	Nonattainment

Background

On June 3, 2010, EPA revised the primary SO_2 NAAQS (75 FR 35520, published on June 22, 2010). EPA revised the primary SO_2 standard by establishing a new one-hour standard at a level of 75 parts per billion (ppb) which is attained when the three-year average of the 99th percentile of one-hour daily maximum concentrations does not exceed 75 ppb. EPA has determined that this is the level necessary to provide protection of 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_2. EPA is revoking the two prior primary standards of 140 ppb evaluated over 24 hours, and 30 ppb evaluated over an entire year because they will not add additional public health protection given a one-hour standard at 75 ppb. Accordingly, EPA is not designating areas in this process on the basis of either of these two primary standards. Similarly, the secondary standard for SO_2 has not been revised, so EPA is not designating areas in this process on the basis of the secondary standard.

EPA's SO_2 Designation Approach

Section 107(d) of the Clean Air Act requires that not later than one year after promulgation of a new or revised NAAQS, state Governors must submit their recommendations for designations and boundaries to EPA by June 2011. Section 107(d) also requires 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. EPA was to promulgate initial area designations within two years of promulgation of the revised primary standard, although EPA has extended this deadline for one additional year due to having insufficient information to promulgate the designations. If a state did not submit designation recommendations, EPA will promulgate the designations that it deems appropriate. If a state or tribe disagrees with EPA's intended designations, they have an opportunity to demonstrate why any proposed modification is inappropriate.

Designations guidance was issued by EPA through a March 24, 2011, memorandum from Stephen D. Page, Director, U.S. EPA, Office of Air Quality Planning and Standards, to Air Division Directors, U.S. EPA Regions I-X. This memorandum identifies factors EPA intends to evaluate in determining boundaries for areas designated nonattainment. These five factors include: 1) air quality data; 2) emissions and emissions-related data (location of sources and potential contribution to ambient SO_2 concentrations); 3) meteorology (weather/transport patterns); 4) geography/topography (mountain ranges or other air basin boundaries); and 5) jurisdictional boundaries (e.g., counties, air districts, pre-existing nonattainment areas, reservations, metropolitan planning organization), among any other criteria deemed to be relevant to establishing appropriate area designations and boundaries for the one-hour SO2 NAAQS.

The March 24, 2011, memo recommended that area boundaries default to the county boundary unless information provided by the state or tribe justifies a larger or smaller boundary than that of the county. EPA believes it is appropriate to evaluate each potential area on a case-by-case basis, and to recognize that area-specific analyses conducted by states, tribes and/or EPA may support a differing boundary than a county boundary.

In this technical support document, EPA discusses its review and technical analysis of the recommendations regarding areas with monitored violations submitted by Indiana for designations for the one-hour SO_2 standard and any modifications from these recommendations.

Definition of important terms used in this document:

1) **Designated nonattainment area –** an area which EPA has determined, based on a state recommendation and/or on the technical analysis included in this document, has violated the 2010 SO_2 NAAQS, based on the most recent three years of air quality monitoring data, or contributes to a violation in a nearby area.

2**) Recommended nonattainment area –** an area a state or tribe has recommended that EPA designate as nonattainment.

3) **Violating monitor –** an ambient air monitor meeting all methods, quality assurance and siting criteria and requirements whose valid design value exceeds 75 ppb, as described in Appendix T of 40 CFR part 50.

4) **2010 SO_2 NAAQS –** The NAAQS for SO_2 promulgated in 2010. This NAAQS is 75 ppb, based on the three year average of the 99th percentile of the annual distribution of daily maximum one-hour average concentrations. See 40 CFR Part 50.17.

5) **Design Value** - a statistic computed according to the data handling procedures of the NAAQS (in 40 CFR 50 Appendix T) that, by comparison to the level of the NAAQS, indicates whether the area is violating the NAAQS.

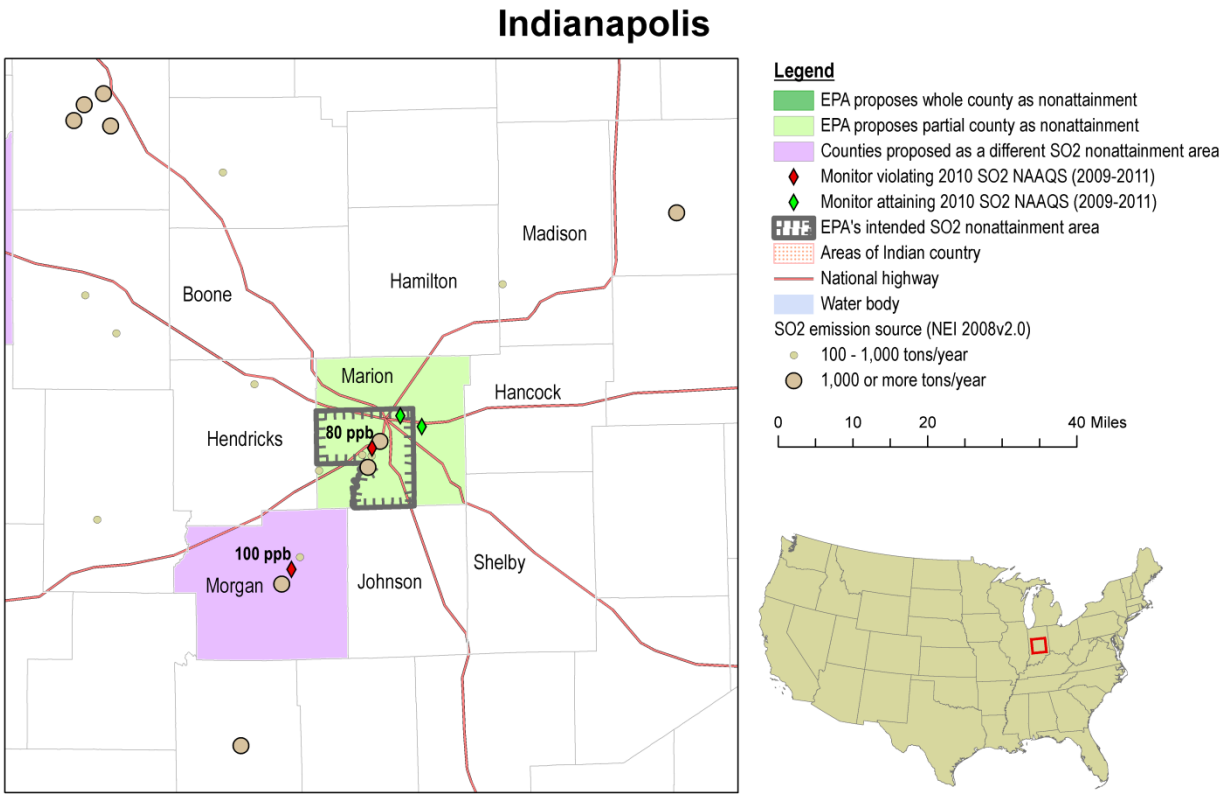
Technical analysis for the Indianapolis, IN Area

Introduction

This technical analysis for the Indianapolis, IN Area identifies Marion County with a monitor that violates the 2010 SO_2 NAAQS, and evaluates nearby counties for contributions to SO_2 concentrations in the area. EPA has evaluated this county and nearby counties based on a review of the evidence for the factors recommended in the March 24, 2011 EPA guidance.

Figure 1 is a map of the area showing the locations and design values of air quality monitors in the area, and the counties surrounding any violating air quality monitors.

Figure 1. Map of Indianapolis, IN area sources and monitors



For the Indianapolis, IN area, Indiana recommended that a portion of Marion County consisting of Center, Perry, and Wayne Townships be designated nonattainment.

Based on EPA's technical analysis described below, EPA agrees with the State's recommendation. Thus, EPA is intending to designate the three recommended townships in Marion County in Indiana as nonattainment for the 2010 SO_2 NAAQS to define the Indianapolis nonattainment area.

Detailed Assessment

Air Quality Data

This factor considers the SO_2 air quality monitoring data, including the design values (in ppb) calculated for all air quality monitors in Marion County in the Indianapolis area and the surrounding area based on data for the 2009 to 2011 period.

The 2010 SO_2 NAAQS design value for Marion County, Indiana in the Indianapolis, IN area is shown in Table 2.

Table 2. Air Quality Data for Nonattainment Designations in Indianapolis

County	State Recommended Nonattainment?	Monitor Air Quality System ID	Monitor Location	SO_2 Design Value, 2009-2011 (ppb)
Marion	Yes	18-097-0057	39.749, -86.1836	**80**
Marion	No	18-097-0073	39.7895, -86.0608	56
Marion	No	18-097-0078	39.8111, -86.1145	40

Monitor in Bold has the highest 2009-2011 design value in the respective county.

Marion County shows a monitored violation of the 2010 SO_2 NAAQS. Therefore, some area in this county and possibly additional areas in surrounding counties must be designated nonattainment. The absence of a violating monitor alone is not a sufficient reason to eliminate nearby counties as candidates for nonattainment status. Each area has been evaluated based on the evidence for the five factors and other relevant information.

Emissions and Emissions-Related Data

Evidence of SO_2 emissions sources in the vicinity of a violating monitor is an important factor for determining whether a nearby area is contributing to a monitored violation. For this factor, EPA evaluated county level emission data for SO_2 and any growth in SO_2 emitting activities since the date represented by those emissions data.

Emissions

EPA recognizes that there might be no new information on any changes in emissions that may have occurred after 2008, but would consider more recent years if available. Indiana did not provide updated emissions information, therefore EPA relied on the 2008 National Emissions Inventory (NEI) emissions data (NEI08V2).

Table 3 shows total emissions of SO_2 (given in tons per year) for violating and potentially contributing counties in and around the Indianapolis area and sources emitting (or anticipated to contribute) greater than 100 tons per year of SO_2 according to the 2008 NEI.

Table 3. SO2 Emissions (NEI08V2)

County	Facility Located in State Recommended Nonattainment Area?	Facility – Total SO_2 Air Emissions NEI08V2 (tons per year)	Facility Location	Total County SO_2 Emissions (tons per year)
Marion, IN	Yes	IPL Harding Street Station-19,578	39.7119, -86.1975	26,576
	Yes	C C Perry K Steam Plant-4,493	39.7622, -86.1667	
	Yes	Rolls-Royce Corporation Plant 5 & 8- 142	39.7245, -86.2696	
	Yes	Covanta Indianapolis Inc-110	39.7337, -86.1888	
	Partial	Indianapolis Intl- 102	39.7066, -86.321	

The four sources that are fully in the nonattainment area recommended by the State are relatively near the violating monitor. The Indianapolis International Airport has relatively low emissions and is located approximately 13 kilometers from the violating monitor. Thus, while Indiana recommended boundaries for administrative convenience that include some but not all of this airport, the exclusion of a portion of the airport from the nonattainment does not represent the exclusion of any significant contribution to the monitored violation.

Emissions Controls

The emissions data used by EPA in this technical analysis and provided in Table 3 represent emissions levels taking into account any control strategies implemented on stationary sources in the Indianapolis area up to and including 2008. EPA has not received any additional information on emissions reductions resulting from controls put into place after 2008.

Meteorology (weather/transport patterns)

Indiana provided information indicating that winds on days with high concentrations of SO_2 are most likely to come from the southwest but occasionally come from the northeast and other directions.

Geography/topography (mountain ranges or other air basin boundaries)

The Indianapolis area does not have any geographical or topographical barriers significantly limiting air-pollution transport within its airshed. Therefore, this factor did not play a significant role in determining the nonattainment boundary.

Jurisdictional boundaries

Indiana did not have any nonattainment areas under the prior SO_2 NAAQS. EPA finds that county or township boundaries in Indiana provide a suitable administrative basis for formulating nonattainment area boundaries.

Other Relevant Information

EPA did not receive additional information relevant to establishing a nonattainment area boundary for this area.

Conclusion

After considering the factors described above, EPA intends to designate, based on monitored violations, Wayne, Center and Perry Townships in Marion County as the Indianapolis, IN nonattainment area for the 2010 SO_2 NAAQS. An air quality monitor in Marion County shows a violation of the 2010 SO_2 NAAQS, based on 2009 to 2011 air quality data. EPA finds these three townships include the sources that contribute to this monitored violation. Based on the consideration of all the relevant and available information, as described above, EPA believes that the boundaries described herein encompass the appropriate nonattainment area.

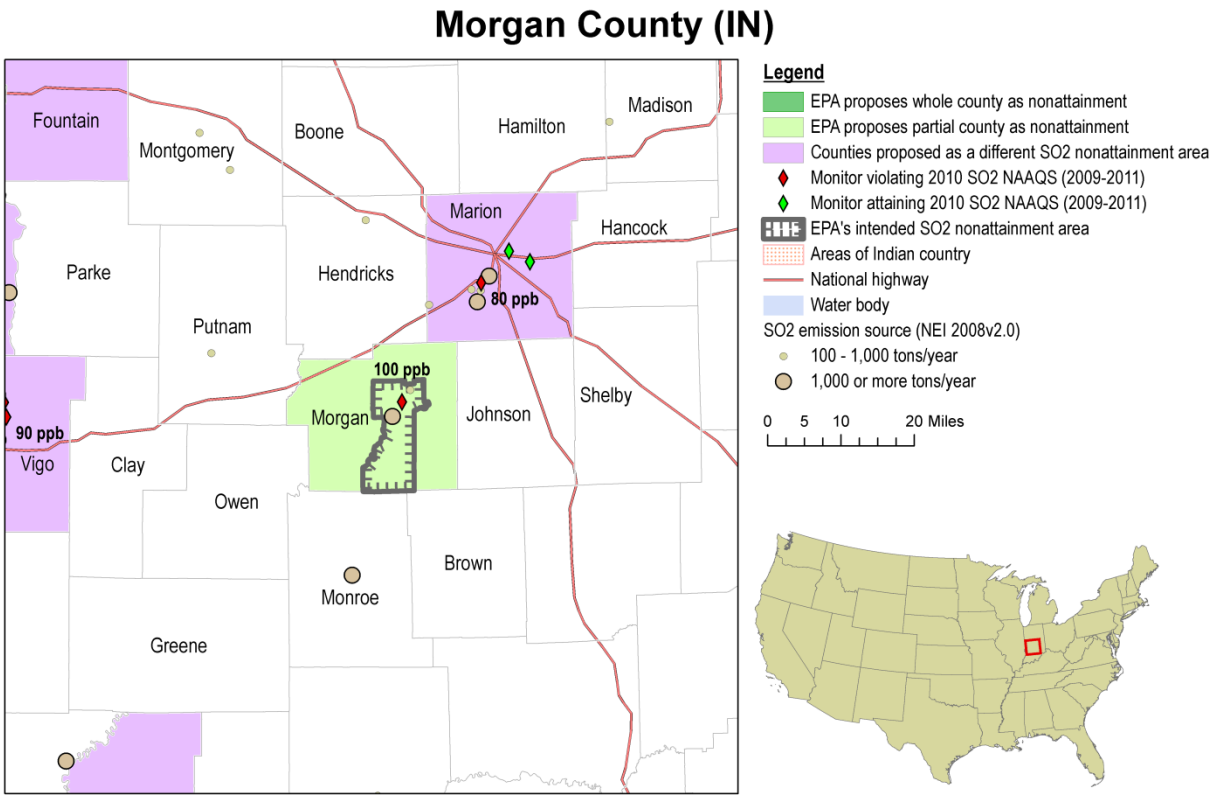
Technical analysis for Morgan County, IN

Introduction

This technical analysis for Morgan County, IN identifies Morgan County with a monitor that violates the 2010 SO_2 NAAQS, and evaluates nearby counties for contributions to SO_2 concentrations in the area. EPA has evaluated this county and nearby counties based on the evidence for the factors recommended in the March 24, 2011 EPA guidance.

Figure 3 is a map of the area showing the locations and design values of air quality monitors in the area, and the counties surrounding any violating air quality monitors.

Figure 3. Map of Morgan County, IN area sources and monitors



For the Morgan County, IN area, Indiana recommended that a portion of Morgan County consisting of Clay and Washington Townships be designated nonattainment.

Based on EPA's technical analysis described below, EPA agrees with the State's recommendation for the Morgan County nonattainment area, based upon currently available information. These townships are listed above in Table 1.

Detailed Assessment

Air Quality Data

This factor considers the SO_2 air quality monitoring data, including the design values (in ppb) calculated for all air quality monitors in Morgan County in the Morgan County area and the surrounding area based on data for the 2009 to 2011 period.

The 2010 SO_2 NAAQS design values for Morgan County, Indiana in the Morgan County area are shown in Table 6.

Table 6. Air Quality Data for Nonattainment Designations in Morgan County

County	State Recommended Nonattainment?	Monitor Air Quality System ID	Monitor Location	SO_2 Design Value, 2009-2011 (ppb)
Morgan	Yes	18-109-1001	39.515, -86.3917	**100**

Monitors in Bold have the highest 2009 to 2011 design value in the respective county.

Morgan County shows a violation of the 2010 SO_2 NAAQS. Therefore, some area in this county and possibly additional areas in surrounding counties must be designated nonattainment. The absence of a violating monitor alone is not a sufficient reason to eliminate nearby counties as candidates for nonattainment status.

Emissions and Emissions-Related Data

Evidence of SO_2 emissions sources in the vicinity of a violating monitor is an important factor for determining whether a nearby area is contributing to a monitored violation. For this factor, EPA evaluated county level emission data for SO_2 and any growth in SO_2 emitting activities since the date represented by those emissions data.

Emissions

EPA recognizes that there might be no new information on any changes in emissions that may have occurred after 2008, but would consider more recent years if available. Indiana did not provide updated emissions information, therefore EPA relied on the 2008 National Emissions Inventory (NEI) emissions data (NEI08V2).

Table 7 shows total emissions of SO_2 (given in tons per year) for violating and potentially contributing counties in and around the Morgan County area and sources emitting (or anticipated to contribute) greater than 100 tons per year of SO_2 according to the 2008 NEI.

Table 7. SO2 Emissions (NEI08V2)

County	Facility Located in State Recommended Nonattainment Area?	Facility – Total SO_2 Air Emissions NEI08V2 (tons per year)	Facility Location	Total County SO_2 Emissions (tons per year)
Morgan, IN	Yes	IPALCO- Pritchard Station-13,102	39.4867, -86.4165	13,821
	Yes	Hydraulic Press Brick Co.-515	39.538744, -86.370648	

Emissions Controls

The emissions data used by EPA in this technical analysis and provided in Table 7 represent emissions levels taking into account any control strategies implemented on stationary sources in the Morgan County area up to and including 2008. EPA has not received any additional information on emissions reductions resulting from controls put into place after 2008.

Meteorology (weather/transport patterns)

Indiana's submittal provides pollution rose information that indicates that violations occur most often with southwesterly winds, but also indicates that violations can occur with other wind directions as well.

Geography/topography (mountain ranges or other air basin boundaries)

The Morgan County area does not have any geographical or topographical barriers significantly limiting air-pollution transport within its airshed. Therefore, this factor did not play a significant role in determining the nonattainment boundary.

Jurisdictional boundaries

Indiana did not have any nonattainment areas under the prior SO_2 NAAQS standard. EPA finds that county and township boundaries are a suitable administrative basis for defining a nonattainment area.

Other Relevant Information

EPA did not receive additional information relevant to establishing a nonattainment area boundary for this area.

Conclusion

After considering the factors described above, EPA intends to designate Clay and Washington Townships within Morgan County (as listed in Table 1) to comprise the Morgan County, IN nonattainment area for the 2010 SO_2 NAAQS, based on a monitored violation in the county.

The air quality monitor in Morgan County shows a violation of the 2010 SO_2 NAAQS, based on 2009 to 2011 air quality data. There are no other nearby areas that EPA finds to contribute to the SO_2 concentrations in Morgan County. Based on the consideration of all the relevant and available information, as described above, EPA believes that the boundaries described herein encompass thean appropriate nonattainment area for the 2010 SO_2 NAAQS.

Technical analysis for Richmond, IN

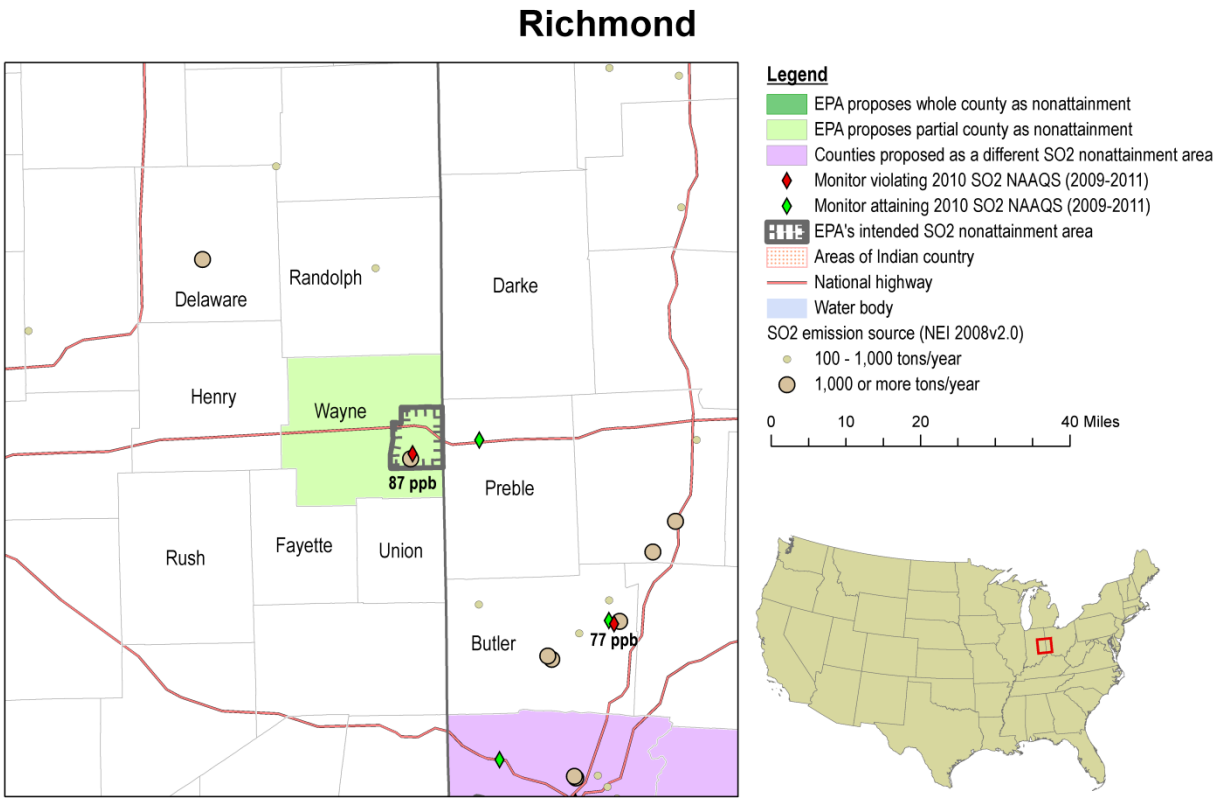
Introduction

This technical analysis for Richmond, IN identifies Wayne County with monitors that violate the 2010 SO_2 NAAQS, and evaluates nearby counties for contributions to SO_2 concentrations in the area. EPA

has evaluated this county and nearby counties based on the evidence for the factors recommended in the March 24, 2011 EPA guidance.

Figure 4 is a map of the area showing the locations and design values of air quality monitors in the area, and the counties surrounding any violating air quality monitors.

Figure 4. Map of Richmond, IN area sources and monitors



For the Richmond, IN area, Indiana recommended that a portion of Wayne County consisting of Wayne Township be designated nonattainment.

Based on EPA's technical analysis described below, EPA agrees with the State's recommendation for the 2010 SO_2 NAAQS to comprise the Morgan County nonattainment area, based upon a monitored violation of the NAAQS. This nonattainment area is listed above in Table 1.

Detailed Assessment

Air Quality Data

This factor considers the SO_2 air quality monitoring data, including the design values (in ppb) calculated for all air quality monitors in Wayne County in the Richmond, IN area and the surrounding area based on data for the 2009 to 2011 period.

The 2010 SO_2 NAAQS design value for county in the Richmond and surrounding area are shown in Table 8.

Table 8. Air Quality Data for Nonattainment Designations in Richmond

County	State Recommended Nonattainment?	Monitor Air Quality System ID	Monitor Location	SO_2 Design Value, 2009-2011 (ppb)
Wayne	Yes	181770006	39.8122, -84.89	**87**

Monitors in Bold have the highest 2009 to 2011 design value in the respective county.

Wayne County shows a monitored violation of the 2010 SO_2 NAAQS. Therefore, some area in this county and possibly additional areas in surrounding counties must be designated nonattainment. The absence of a violating monitor alone is not a sufficient reason to eliminate nearby counties as candidates for nonattainment status.

Emissions and Emissions-Related Data

Evidence of SO_2 emissions sources in the vicinity of a violating monitor is an important factor for determining whether a nearby area is contributing to a monitored violation. For this factor, EPA evaluated county level emission data for SO_2 and any growth in SO_2 emitting activities since the date represented by those emissions data.

Emissions

EPA recognizes that there might be no new information on any changes in emissions that may have occurred after 2008, but would consider more recent years if available. Indiana did not provide updated emissions information, therefore EPA relied on the 2008 National Emissions Inventory (NEI) emissions data (NEI08V2).

Table 9 shows total emissions of SO_2 (given in tons per year) for violating and potentially contributing counties in and around the Richmond area and sources emitting (or anticipated to contribute) greater than 100 tons per year of SO_2 according to the 2008 NEI. Only Wayne County, shown in bold, contains sources sufficiently nearby to consider for including in the Richmond nonattainment area.

Table 9. SO2 Emissions (NEI08V2)

County	Facility Located in State Recommended Nonattainment Area?	Facility – Total SO_2 Air Emissions NEI08V2 (tons per year)	Facility Location	Total County SO_2 Emissions (tons per year)
Wayne, IN	Yes	Richmond Power & Light- 8,681	39.8028, -84.8953	9,012

Emissions Controls

The emissions data used by EPA in this technical analysis and provided in Table 9 represent emissions levels taking into account any control strategies implemented on stationary sources in the Richmond area up to and including 2008. EPA has not received any additional information on emissions reductions resulting from controls put into place after 2008.

Meteorology (weather/transport patterns)

Pollution rose information provided by Indiana indicates that violations appear to occur exclusively when winds are blowing from the southwest, in which cases the Richmond Power & Light facility is upwind of the violating monitor.

Geography/topography (mountain ranges or other air basin boundaries)

The Richmond area does not have any geographical or topographical barriers significantly limiting air-pollution transport within its airshed. Therefore, this factor did not play a significant role in determining the nonattainment boundary.

Jurisdictional boundaries

Indiana did not have any nonattainment areas under the prior SO_2 NAAQS standard. EPA finds that township and county boundaries provide a suitable administrative basis for defining a nonattainment area.

Other Relevant Information

EPA did not receive additional information relevant to establishing a nonattainment area boundary for this area.

Conclusion

After considering the factors described above, EPA intends to designate Wayne Township within Wayne County to comprise the Richmond, IN nonattainment area, based on a monitored violation.

The air quality monitor in Wayne County shows a violation of the 2010 SO_2 NAAQS, based on 2009 to 2011 air quality data. There are no other nearby areas that EPA finds to contribute to the monitored violation of the SO_2 NAAQS in Wayne County. Based on the consideration of all the relevant and available information, as described above, EPA believes that the boundaries described herein encompass the appropriate nonattainment area for the 2010 SO_2 NAAQS.

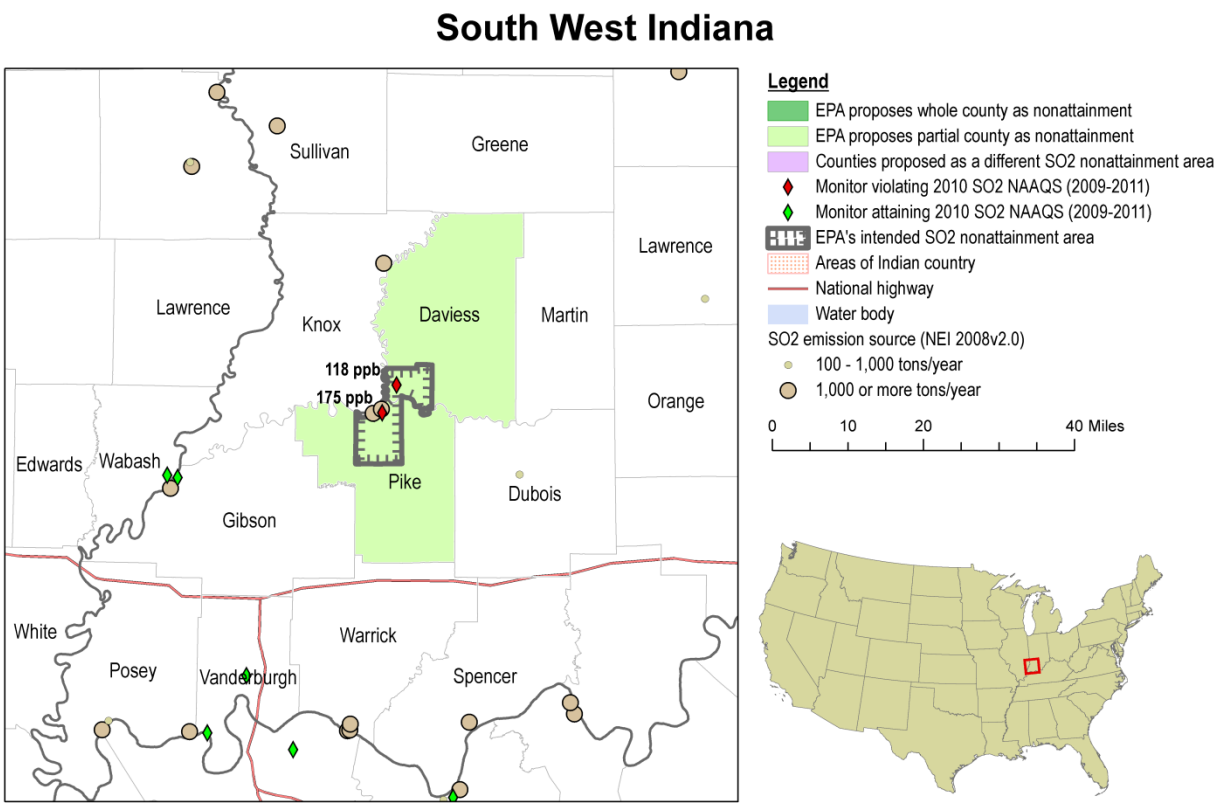
Technical analysis for Southwest Indiana, IN

Introduction

This technical analysis for Southwest Indiana, IN identifies Daviess and Pike Counties with monitors that violate the 2010 SO_2 NAAQS, and evaluates nearby counties for contributions to SO_2 concentrations in the area. EPA has evaluated this county and nearby counties based on the evidence for the factors recommended in the March 24, 2011 EPA guidance.

Figure 5 is a map of the area analyzed showing the locations and design values of air quality monitors in the area, and the counties surrounding any violating air quality monitors.

Figure 5. Map of Southwest Indiana area sources and monitors



For the Southwest Indiana, IN area, Indiana recommended that Veale Township within Daviess County and Washington Township within Pike County be designated nonattainment.

Based on EPA's technical analysis described below, EPA agrees with the State's recommendation for the boundaries of the Morgan County nonattainment area for the 2010 SO_2 NAAQS. The townships to be included in the nonattainment area are listed above in Table 1.

Detailed Assessment

Air Quality Data

This factor considers the SO_2 air quality monitoring data, including the design values (in ppb) calculated for all air quality monitors in Daviess and Pike counties in the Southwest Indiana area and the surrounding area based on data for the 2009 to 2011 period.

The 2010 SO_2 NAAQS design values for Daviess and Pike Counties, Indiana in the Southwest Indiana area are shown in Table 10.

Table 10. Air Quality Data for Nonattainment Designations in Southwest Indiana

County	State Recommended Nonattainment?	Monitor Air Quality System ID	Monitor Location	SO_2 Design Value, 2009-2011 (ppb)
Daviess	Yes	180270002	38.5728, -87.2147	**118**
Pike	Yes	181250005	38.5192, -87.2497	**175**

Monitors in Bold have the highest 2009 to 2011 design value in the respective county.

Daviess and Pike Counties show monitored violations of the 2010 SO_2 NAAQS. Therefore, some area in these counties and possibly additional areas in surrounding counties must be designated nonattainment. The absence of a violating monitor alone is not a sufficient reason to eliminate nearby counties as candidates for nonattainment status.

Emissions and Emissions-Related Data

Evidence of SO_2 emissions sources in the vicinity of a violating monitor is an important factor for determining whether a nearby area is contributing to a monitored violation. For this factor, EPA evaluated county level emission data for SO_2 and any growth in SO_2 emitting activities since the date represented by those emissions data.

Emissions

EPA recognizes that there might be no new information on any changes in emissions that may have occurred after 2008, but would consider more recent years if available. Indiana did not provide updated emissions information, therefore EPA relied on the 2008 National Emissions Inventory (NEI) emissions data (NEI08V2).

Table 11 shows total emissions of SO_2 (given in tons per year) for violating and potentially contributing counties in and around the Southwest Indiana area and sources emitting (or anticipated to contribute) greater than 100 tons per year of SO_2 according to the 2008 NEI. The counties that contain all or part of the Southwest Indiana nonattainment area for the 2010 SO_2 NAAQS are shown in **bold**.

Table 11. SO2 Emissions (NEI08V2)

County	Facility Located in State Recommended Nonattainment Area?	Facility – Total SO_2 Air Emissions NEI08V2 (tons per year)	Facility Location	Total County SO_2 Emissions (tons per year)
Pike	Yes	Hoosier Energy - Ratts Station- 27,334	38.5183, -87.2722	49,850
	Yes	IPL Petersburg Generating Station - 22,494	38.5267, -87.2525	
Daviess		None		150

Emissions Controls

The emissions data used by EPA in this technical analysis and provided in Table 11 represent emissions levels taking into account any control strategies implemented on stationary sources in the Southwest Indiana area up to and including 2008. EPA has not received any additional information on emissions reductions resulting from controls put into place after 2008.

Meteorology (weather/transport patterns)

Pollution rose information provided by Indiana suggests that high concentrations of SO_2 at the Pike County monitor are most likely to occur with winds ranging from southwesterly to northwesterly. Nevertheless, when considering a one hour standard, violations can occur at anytime, even when weather patterns are varied from the normal trends of the area. For this area, wind patterns can be from any direction. Therefore, for a one hour standard, it is useful to consider all directions to have potential contribution.

Geography/topography (mountain ranges or other air basin boundaries)

The Southwest Indiana area does not have any geographical or topographical barriers significantly limiting air-pollution transport within its airshed. Therefore, this factor did not play a significant role in determining the nonattainment boundary.

Jurisdictional boundaries

Indiana did not have any nonattainment areas under the prior SO_2 NAAQS standard. EPA finds that township and county boundaries provide a suitable administrative basis for defining a nonattainment area.

Other Relevant Information

EPA did not receive additional information relevant to establishing a nonattainment area boundary for this area.

Conclusion

After considering the factors described above, EPA intends to designate Veale Township within Daviess County and Washington Township within Pike County as the Southwest Indiana, IN nonattainment area for the 2010 SO_2 NAAQS.

The air quality monitors in Daviess and Pike Counties shows violations of the 2010 SO_2 NAAQS, based on 2009 to 2011 air quality data. There are no nearby areas outside these counties that EPA finds to contribute to the SO_2 NAAQS violations in Daviess and Pike Counties. Based on the consideration of all the relevant and available information, as described above, EPA believes that the boundaries described herein encompass the appropriate nonattainment area for the 2010 SO_2 NAAQS.

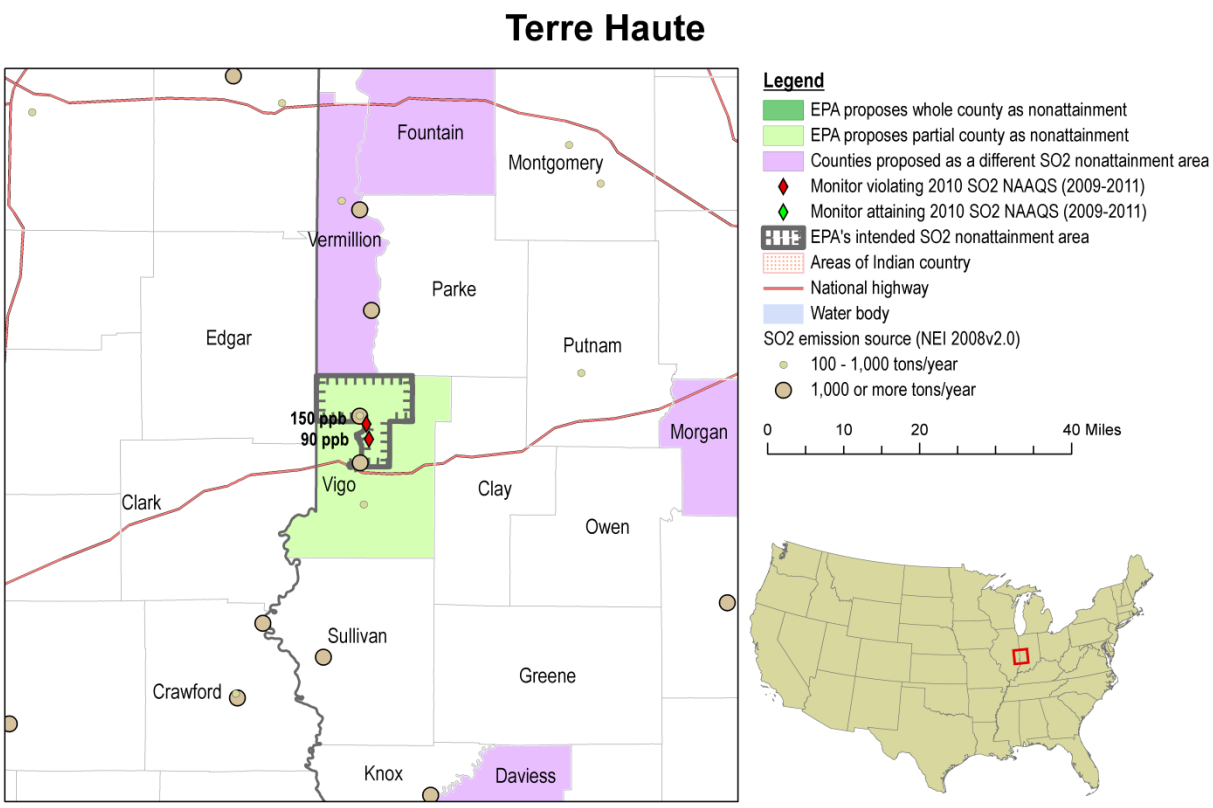
Technical analysis for Terre Haute, IN

Introduction

This technical analysis for Terre Haute, IN identifies Vigo County with monitors that violate the 2010 SO_2 NAAQS and evaluates nearby counties for contributions to SO_2 concentrations in the area. EPA has evaluated this county and nearby counties based on the evidence for the factors recommended in the March 24, 2011 EPA guidance.

Figure 6 is a map of the area showing the locations and design values of air quality monitors in the area, and the counties surrounding any violating air quality monitors.

Figure 6. Map of Terre Haute, IN area sources and monitors



For the Terre Haute, IN area, Indiana recommended that a portion of Vigo County consisting of Harrison Township be designated nonattainment.

However, EPA intends in addition to include Fayette Township and Otter Creek Township in this nonattainment area, to include an important contributing source (PSI Energy's Wabash River plant, in Fayette Township) and connecting land to provide a continuous nonattainment area (in Otter Creek Township). Based on EPA's technical analysis described below, EPA is intending to designate these townships in Vigo County in Indiana as nonattainment for the 2010 SO_2 NAAQS as part of the Terre Haute nonattainment area, based upon currently available information. These townships are listed above in Table 1.

Detailed Assessment

Air Quality Data

This factor considers the SO_2 air quality monitoring data, including the design values (in ppb) calculated for all air quality monitors in Vigo County in the Terre Haute, IN Area and the surrounding area based on data for the 2009 to 2011 period.

The 2010 SO_2 NAAQS design values for county in the Terre Haute area is shown in Table 12.

Table 12. Air Quality Data for Nonattainment Designations in Indiana

County	State Recommended Nonattainment?	Monitor Air Quality System ID	Monitor Location	SO_2 Design Value, 2009-2011 (ppb)
Vigo, IN	Yes	181671014	39.5147, -87.4078	**150**
	Yes	181670018	39.4861, -87.4014	90

Monitors in Bold have the highest 2009-2011 design value in the respective county.

Vigo County shows monitored violations of the 2010 SO_2 NAAQS. Therefore, some area in this county and possibly additional areas in surrounding counties must be designated nonattainment. The absence of a violating monitor alone is not a sufficient reason to eliminate nearby counties as candidates for nonattainment status.

Emissions and Emissions-Related Data

Evidence of SO_2 emissions sources in the vicinity of a violating monitor is an important factor for determining whether a nearby area is contributing to a monitored violation. For this factor, EPA evaluated county level emission data for SO_2 and any growth in SO_2 emitting activities since the date represented by those emissions data.

Emissions

EPA recognizes that there might be no new information on any changes in emissions that may have occurred after 2008, but would consider more recent years if available. Indiana did not provide updated emissions information, therefore EPA relied on the 2008 National Emissions Inventory (NEI) emissions data (NEI08V2).

Table 13 shows total emissions of SO_2 (given in tons per year) for violating and potentially contributing counties in and around the Terre Haute Area and sources emitting or anticipated to contribute greater than 100 tons per year of SO_2 according to the 2008 NEI. The counties that contain all or part of the Terre Haute nonattainment area for the 2010 SO_2 NAAQS are shown in **bold**.

Table 13. SO2 Emissions NEI08V2

County	Facility Located in State Recommended NA Area?	Facility – Total SO_2 Air Emissions NEI08V2 (tons per year)	Facility Location	Total County SO_2 Emissions (tons per year)
Vigo, IN	No*	PSI Energy - Wabash River- 75,823	39.53, -87.4247	78,291
	Yes	International Paper Co- 1,215	39.4408, -87.42295	
	No*	Wabash River Combined Cycle Plant- 414	39.530785, -87.424787	
	No	Danisco Sweeteners- 370	39.361448, -87.413742	

*These sources are included in the nonattainment area that EPA intends to promulgate

The most significant source in the area, the PSI Energy – Wabash River facility, is located in Fayette Township, just northwest of Harrison Township. This facility clearly contributes to the violation in Vigo County and must be included in the nonattainment area.

Emissions Controls

The emissions data used by EPA in this technical analysis and provided in Table 13 represent emissions levels taking into account any control strategies implemented on stationary sources in the Terre Haute area up to and including 2008. EPA has not received any additional information on emissions reductions resulting from controls put into place after 2008.

Meteorology (weather/transport patterns)

Pollution rose information provided by Indiana indicates that high concentrations of SO_2 are especially likely to occur with winds from the northwest (when winds are blowing from the PSI Energy-Wabash River facility toward the violating monitors), but high concentrations can occur with a range of other wind directions as well.

Geography/topography (mountain ranges or other air basin boundaries)

The Terre Haute Area does not have any geographical or topographical barriers significantly limiting air-pollution transport within its airshed. Therefore, this factor did not play a significant role in determining the nonattainment boundary.

Jurisdictional boundaries

Indiana did not have any nonattainment areas under the prior SO_2 NAAQS standard. EPA finds that township and county boundaries provide a suitable administrative basis for defining a nonattainment area.

Conclusion

Two air quality monitors in Vigo County show a violation of the 2010 SO_2 NAAQS, based on 2009 to 2011 air quality data. Indiana recommended defining a nonattainment area to include only Harrison Township, which includes the two monitors recording violations of the standard. EPA finds that the nonattainment area must also include PSI Energy's Wabash River power plant, which EPA finds to be a key contributor to the violations. This plant is located nearby in Fayette Township. EPA also intends to define a single relatively continuous area, which EPA envisions achieving by also including Otter Creek Township as a connecting township. Thus, after considering the factors described above, EPA intends to designate the Terre Haute, IN Area as nonattainment for the 2010 SO_2 NAAQS and to define this area to include Harrison, Otter Creek, and Fayette Townships in Vigo County.