



## INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

*We Protect Hoosiers and Our Environment.*

100 N. Senate Avenue • Indianapolis, IN 46204  
(800) 451-6027 • (317) 232-8603 • [www.idem.IN.gov](http://www.idem.IN.gov)

**Eric J. Holcomb**  
*Governor*

**Bruno L. Pigott**  
*Commissioner*

July 1, 2019

Ms. Cathy Stepp  
Regional Administrator  
U.S. EPA, Region 5  
77 West Jackson Boulevard  
Chicago, Illinois 60604

Dear Ms. Stepp:

Re: 2019 Assessment for Ongoing Data  
Requirements for the 2010 Primary 1-Hour  
Sulfur Dioxide National Ambient Air Quality  
Standard

The Indiana Department of Environmental Management (IDEM) has completed a review of areas subject to ongoing data requirements under the 2010 primary 1-hour sulfur dioxide (SO<sub>2</sub>) National Ambient Air Quality Standard (NAAQS). Based on the evaluation, IDEM recommends that no additional assessments to characterize air quality are needed at this time.

### **Background**

Implementation of the 2010 primary 1-hour SO<sub>2</sub> standard began in 2013 when United States Environmental Protection Agency (U.S. EPA) established nonattainment areas near monitors with data above the SO<sub>2</sub> NAAQS. In order to evaluate the remaining areas of the country, U.S. EPA established three additional rounds of designations: Round 2 on June 30, 2016, Round 3 on December 21, 2017, and Round 4 by December 31, 2020. This evaluation, per 40 Code of Federal Regulations (CFR) Subpart BB §51.1205(a) and (b), addresses areas designated during Round 2 and Round 3.

For areas designated during Rounds 2 and 3, ongoing data requirements are applicable if SO<sub>2</sub> monitoring or modeling using actual emissions was used as the basis for demonstrating attainment of the NAAQS during the designations process. For areas that used monitoring, ongoing requirements are the continued operation of the SO<sub>2</sub> monitoring network and the reporting of such data. For areas that used modeling, ongoing requirements are the assessment of annual SO<sub>2</sub> emissions and a recommendation regarding whether additional modeling is needed to characterize air quality to determine whether the area continues to meet the SO<sub>2</sub> NAAQS. However, per §51.1205(b)(2), if modeling demonstrates that air quality values at all receptors in the analysis area are no greater than 50% of the standard, and such demonstration is approved by the U.S. EPA Regional Administrator, the ongoing requirements of

§51.1205(b) do not apply. Ongoing data requirements are also not applicable to sources that relied on federally enforceable and permanent SO<sub>2</sub> emission limits as the basis for establishing designations demonstrating that the area will not violate the 2010 SO<sub>2</sub> NAAQS.

For areas where modeling shows ambient impacts greater than 50% of the standard, U.S. EPA generally recommends updated modeling under the following circumstances:

- The original modeling was between 50% and 90% of the standard (98.1 – 176.58 µg/m<sup>3</sup>) and emissions increase by 15% or more.
- The original modeling was equal to or greater than 90% of the standard (176.58 µg/m<sup>3</sup>) and there is any increase in emissions.

### **Round 2 Areas**

During Round 2 designations, five coal-fired electric power plants in Indiana were identified, shown in Table 1, around which air quality characterization was required.

**Table 1: Facilities Subject to the Round 2 Designation Process**

County	Source
Spencer	American Electric Power (AEP) – Rockport Station
La Porte	Northern Indiana Public Service Company (NIPSCO) – Michigan City Station
Posey	Vectren – A.B. Brown Station
Jefferson	Indiana-Kentucky Electric Corporation (IKEC) – Clifty Creek Station
Gibson	Duke Energy – Gibson Station

On June 30, 2016, U.S. EPA completed designations for Round 2 designating the areas surrounding all of Indiana’s identified sources as “unclassifiable/attainment”. The final rule was published in the Federal Register (FR) on July 12, 2016 (81 FR 45039).

Ongoing data requirements, are applicable to areas that relied on SO<sub>2</sub> monitoring or modeling using actual emissions, if the modeling shows impacts greater than 50% of the standard, to demonstrate attainment of the NAAQS during the designations process. The applicability of ongoing requirements for Round 2 areas is shown in Table 2.

**Table 2: Ongoing Data Requirements Applicability for Round 2 Areas**

Area	Source(s)	Modeled Impact $\mu\text{g}/\text{m}^3$	Greater Than 50% NAAQS?	Ongoing Data Requirements Applicability?
Spencer	AEP – Rockport Station	152.1	Yes	Yes
La Porte	NIPSCO – Michigan City Station	169.9	Yes	Yes
Posey	Vectren – A.B. Brown Station	196.08	Yes	No (Emission limits used for designation.)
Jefferson	IKEC – Clifty Creek Station	71.6	No	No (Emission limits used for designation.)
Gibson	Duke Energy – Gibson Station	NA (Monitoring used for designation.)		Yes

As shown in Table 2, ongoing data requirements are applicable to only three of the five Round 2 areas. Each area is discussed below.

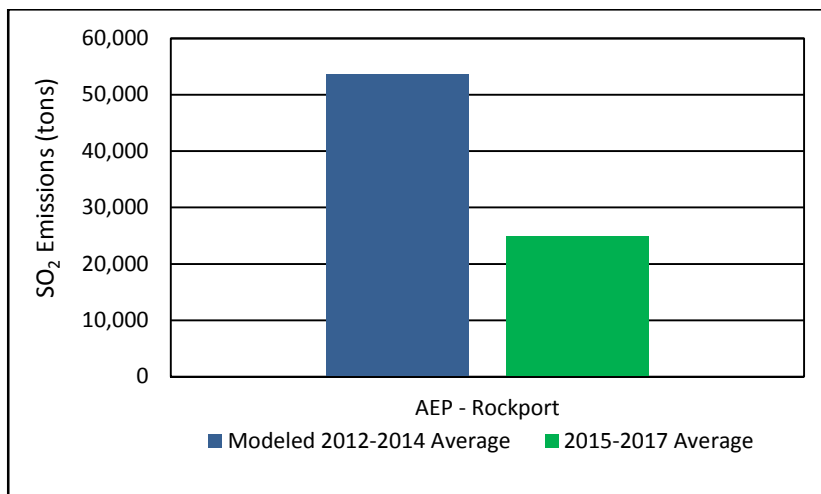
#### **Spencer County (AEP - Rockport Station)**

For Spencer County, on September 16, 2015, Indiana submitted air quality modeling to U.S. EPA that demonstrated air quality values were greater than 50%, but less than 90%, of the 1-hour  $\text{SO}_2$  NAAQS. As such, the  $\text{SO}_2$  emissions assessment requirement in 40 CFR §51.1205(b) is applicable and an emissions increase greater than 15% may necessitate additional modeling analyses to characterize air quality in the area. The primary source associated with the Spencer County area is AEP's Rockport Station. The analysis for the Spencer County area is documented in Table 3 and Chart 1.

**Table 3:  $\text{SO}_2$  Emissions (tons) for the Spencer County Area**

Source Name	2012	2013	2014	Modeled 2012- 2014 Average	2015	2016	2017	Average 2015- 2017	Percent Change
AEP – Rockport	54,390	51,636	54,979	53,668	29,890	24,341	20,784	25,005	-53%

**Chart 1: SO<sub>2</sub> Emissions for Spencer County Area**



As outlined in Table 3 and Chart 1, averaged SO<sub>2</sub> emissions for 2015-2017 have decreased approximately 53% from the averaged SO<sub>2</sub> emissions for 2012-2014 used in the modeling for designations. SO<sub>2</sub> emissions from 2017 are also below each of the individual years of 2012, 2013, 2014 used in the modeling.

Based on this SO<sub>2</sub> emissions assessment, Indiana recommends no additional modeling is needed to further characterize air quality in Spencer County. SO<sub>2</sub> emissions have trended downward from what was modeled to demonstrate attainment of the 2010 primary 1-hour SO<sub>2</sub> NAAQS. The area is currently designated as “unclassifiable/attainment” and no changes to its classification are necessary at this time.

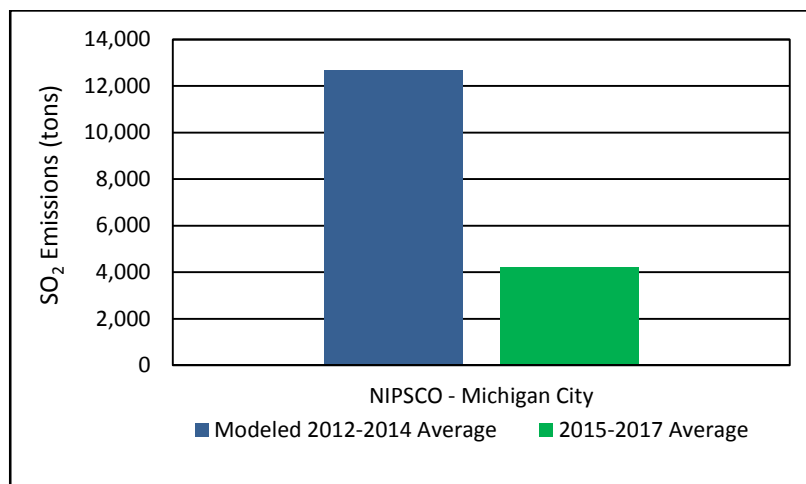
#### **La Porte County (NIPSCO – Michigan City Station)**

For La Porte County, on September 16, 2015, Indiana submitted air quality modeling to U.S. EPA that demonstrated air quality values were greater than 50%, but less than 90%, of the 1-hour SO<sub>2</sub> NAAQS. As such, the SO<sub>2</sub> emissions assessment requirement in 40 CFR §51.1205(b) is applicable and an emissions increase greater than 15% may necessitate additional modeling analyses to characterize air quality in the area. The primary source associated with the La Porte County area is NIPSCO’s Michigan City Station. The analysis for La Porte County is documented in Table 4 and Chart 2.

**Table 4: SO<sub>2</sub> Emissions (tons) for the La Porte County Area**

Source Name	2012	2013	2014	Modeled 2012-2014 Average	2015	2016	2017	Average 2015-2017	Percent Change
NIPSCO – Michigan City	11,584	10,429	15,991	12,668	10,148	1,901	601	4,217	-67%

**Chart 2: SO<sub>2</sub> Emissions for the La Porte County Area**



As outlined in Table 4 and Chart 2, averaged SO<sub>2</sub> emissions for 2015-2017 have decreased approximately 67% from the averaged SO<sub>2</sub> emissions for 2012-2014 used in the modeling for designations. SO<sub>2</sub> emissions from 2017 are also below each of the individual years of 2012, 2013, 2014 used in the modeling.

Based on this SO<sub>2</sub> emissions assessment, Indiana recommends no additional modeling is needed to further characterize air quality in La Porte County. SO<sub>2</sub> emissions have trended downward from what was modeled to demonstrate attainment of the 2010 primary 1-hour SO<sub>2</sub> NAAQS. The area is currently designated as “unclassifiable/attainment” and no changes to its classification are necessary at this time.

### **Gibson County (Duke Energy – Gibson Station)**

For Gibson County, because monitoring data was used to characterize air quality for Round 2 designations, ongoing data requirements are the continued operation of SO<sub>2</sub> monitors as well as the continued reporting of such data. Duke Energy continues to operate the SO<sub>2</sub> monitoring network and data is reported to U.S. EPA's Air Quality System (AQS) database. It is worth noting that certified ambient air quality monitoring data continues to demonstrate attainment of the 2010 primary 1-hour SO<sub>2</sub> standard as shown in Table 5.

**Table 5: Duke Energy’s Gibson Generating Station SO<sub>2</sub> Monitoring Data**

Site ID	County	99th Percentile Values, ppb							3-Year Design Value, ppb				
		2012	2013	2014	2015	2016	2017	2018	2012-2014	2013-2015	2014-2016	2015-2017	2016-2018
180510002	Gibson	76	64	77	59	71	48	49	72	67	69	59	56

### **Round 3 Areas**

During Round 3 designations, eleven sources in Indiana, shown in Table 6, were identified around which SO<sub>2</sub> air quality characterization was required.

**Table 6: Sources Subject to the Round 3 Designation Process**

County	Source
Floyd	Duke Energy – Gallagher Station
Huntington	U.S. Mineral Products – Isolatek
Jasper	NIPSCO - R.M. Schahfer Station
Lake	ArcelorMittal – USA
Lake	Cokenergy
Lake	U.S. Steel Gary Works
Posey	SABIC – Innovative Plastics
Sullivan	Hoosier Energy – Merom Station
Vermillion	Duke Energy – Cayuga Station
Warrick	ALCOA Warrick Operations
Warrick	ALCOA Power Plant

Note: ArcelorMittal – Burns Harbor, located in Porter County, IN, is an affected source under the Data Requirements Rule and will be designated during the Round 4 designations process.

On December 21, 2017, U.S. EPA completed designations for Round 3 designating areas associated with ten of the eleven identified sources as “unclassifiable/attainment”. One area, Huntington Township, associated with U.S. Mineral Products, in Huntington County, was designated “nonattainment”. The final rule was published in the Federal

Register on January 9, 2018 (83 FR 1098). Indiana has filed a petition for reconsideration and request for agency stay pending reconsideration of the final rule designating Huntington Township, Huntington County as nonattainment.

Ongoing data requirements, are applicable to areas that relied on SO<sub>2</sub> monitoring or modeling using actual emissions, if the modeling shows impacts greater than 50% of the standard, to demonstrate attainment of the NAAQS during the designations process. Ongoing data requirements are not applicable to areas that relied on federally enforceable and permanent SO<sub>2</sub> emission limits as the basis for establishing designations demonstrating that the area will not violate the 2010 SO<sub>2</sub> NAAQS. The applicability of ongoing requirements for Round 3 areas is shown in Table 7.

**Table 7: Ongoing Data Requirements Applicability for Round 3 Areas**

Area	Source(s)	Modeled Impact µg/m <sup>3</sup>	Greater Than 50% NAAQS?	Ongoing Data Requirements Applicability?
Floyd	Duke Energy – Gallagher Station	99.5	Yes	Yes
Huntington	U.S. Mineral Products – Isolatek	Not Applicable	Not Applicable	Not Applicable
Jasper	NIPSCO – R.M. Schahfer Station	162.7	Yes	Yes
Lake	ArcelorMittal – USA Cokenergy U.S. Steel Gary Works	192.2 <sup>1</sup>	Yes	Yes
Posey	SABIC – Innovative Plastics	191.9	Yes	No (Emission limits used for designation.)
Sullivan	Hoosier Energy – Merom Station	63.0	No	No
Vermillion	Duke Energy – Cayuga Station	176.4	Yes	Yes
Warrick	ALCOA Warrick Operations ALCOA Warrick Power Plant	189.7	Yes	Yes

<sup>1</sup> – Modeled impact associated with the Carmeuse Lime facility, which accepted permanent and enforceable SO<sub>2</sub> permit limits to demonstrate attainment of the 1-hr NAAQS.

As shown in Table 7, ongoing data requirements are applicable to only five of the eight Round 3 areas. Each area is discussed below.

#### **Floyd County (Duke Energy – Gallagher Station)**

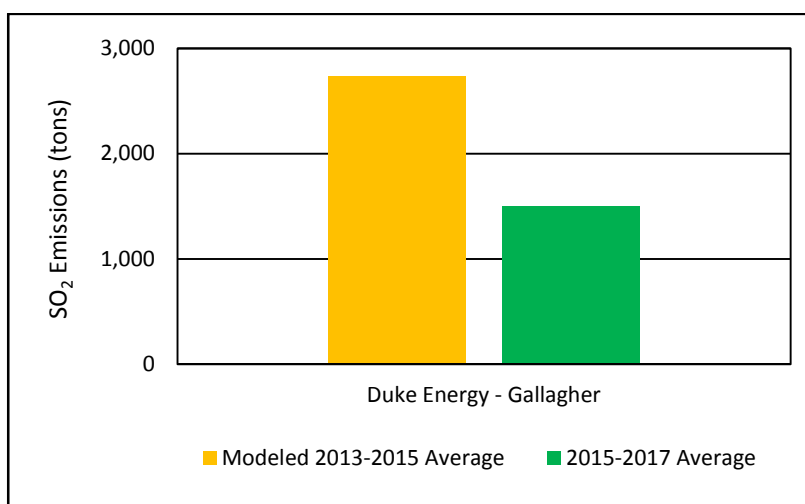
For Floyd County, on January 13, 2017, Indiana submitted air quality modeling to U.S. EPA that demonstrated air quality values were greater than 50%, but less than 90%, of the 1-hour SO<sub>2</sub> NAAQS. As such, the SO<sub>2</sub> emissions assessment requirement in 40 CFR §51.1205(b) is applicable and an emissions increase greater than 15% may

necessitate additional modeling analyses to characterize air quality in the area. The primary source associated with the Floyd County area is Duke Energy's Gallagher Station. The analysis for Floyd County is documented in Table 8 and Chart 3.

**Table 8: SO<sub>2</sub> Emissions (tons) for the Floyd County Area**

Source Name	2013	2014	2015	Modeled 2013-2015 Average	2016	2017	Average 2015-2017	Percent Change
Duke Energy – Gallagher	2,498	3,528	2,178	2,735	1,457	858	1,498	-45%

**Chart 3: SO<sub>2</sub> Emissions for the Floyd County Area**



As outlined in Table 8 and Chart 3, averaged SO<sub>2</sub> emissions for 2015-2017 have decreased by approximately 45% from the averaged SO<sub>2</sub> emissions for 2013-2015 used in the modeling for designations. SO<sub>2</sub> emissions from 2017 are also below each of the individual years of 2013, 2014, 2015 used in the modeling.

Based on this SO<sub>2</sub> emissions assessment, Indiana recommends no additional modeling is needed to further characterize air quality in Floyd County. SO<sub>2</sub> emissions have trended downward from what was modeled to demonstrate attainment of the 2010 primary 1-hour SO<sub>2</sub> NAAQS. The area is currently designated as “unclassifiable/attainment” and no changes to its classification are necessary at this time.

#### **Jasper County (NIPSCO – R.M. Schahfer Station)**

For Jasper County, on January 13, 2017, Indiana submitted air quality modeling to U.S. EPA that demonstrated air quality values were greater than 50%, but less than

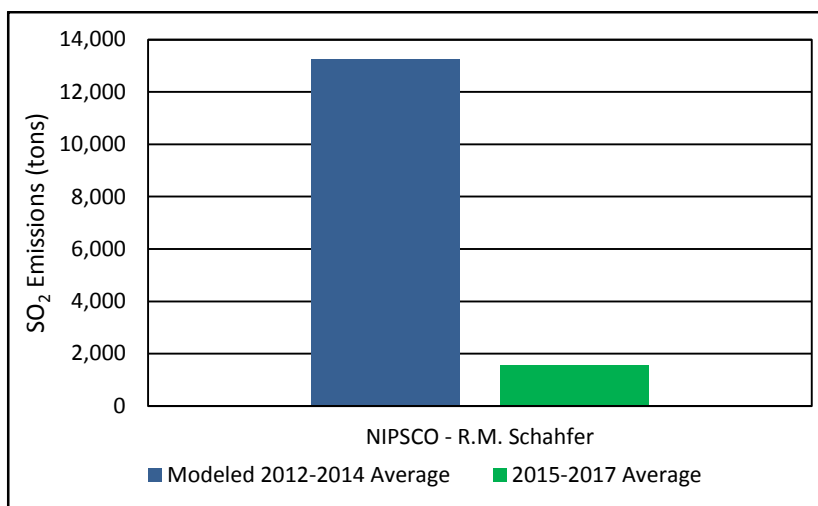


90%, of the 1-hour SO<sub>2</sub> NAAQS. As such, the SO<sub>2</sub> emissions assessment requirement in 40 CFR §51.1205(b) is applicable and an emissions increase greater than 15% may necessitate additional modeling analyses to characterize air quality in the area. The primary source associated with the Jasper County area is NIPSCO's R.M. Schahfer Station. The analysis for the Jasper County area is documented in Table 9 and Chart 4.

**Table 9: SO<sub>2</sub> Emissions (tons) for Jasper County Area**

Source Name	2012	2013	2014	Modeled 2012-2014 Average	2015	2016	2017	Average 2015-2017	Percent Change
NIPSCO - R.M. Schahfer	14,911	16,418	8,413	13,247	1,689	1,441	1,570	1,567	-88%

**Chart 4: SO<sub>2</sub> Emissions for the Jasper County Area**



As outlined in Table 9 and Chart 4, averaged SO<sub>2</sub> emissions for 2015-2017 have decreased by approximately 88% from the averaged SO<sub>2</sub> emissions for 2012-2014 used in the modeling for designations. SO<sub>2</sub> emissions from 2017 are also below each of the individual years of 2012, 2013, 2014 used in the modeling.

Based on this SO<sub>2</sub> emissions assessment, Indiana recommends no additional modeling is needed to further characterize air quality in Jasper County. SO<sub>2</sub> emissions have trended downward from what was modeled to demonstrate attainment of the 2010 primary 1-hour SO<sub>2</sub> NAAQS. The area is currently designated as “unclassifiable/attainment” and no changes to its classification are necessary at this time.

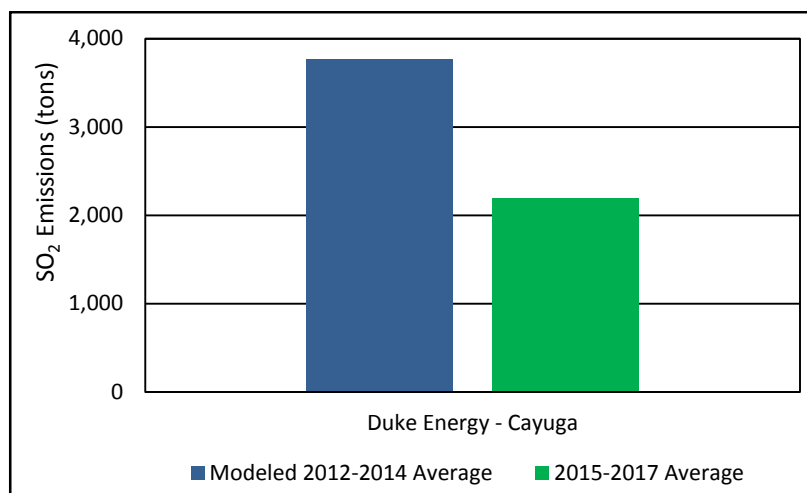
### Vermillion County (Duke Energy – Cayuga Station)

For Vermillion County, on January 13, 2017, Indiana submitted air quality modeling to U.S. EPA that demonstrated air quality values were greater than 50%, but less than 90%, of the 1-hour SO<sub>2</sub> NAAQS. As such, the SO<sub>2</sub> emissions assessment requirement in 40 CFR §51.1205(b) is applicable and an emissions increase greater than 15% may necessitate additional modeling analyses to characterize air quality in the area. The primary source associated with the Vermillion County area is Duke Energy's Cayuga Station. The analysis for the Vermillion County area is documented in Table 10 and Chart 5.

**Table 10: SO<sub>2</sub> Emissions (tons) for the Vermillion County Area**

Source Name	2012	2013	2014	Modeled 2012-2014 Average	2015	2016	2017	Average 2015-2017	Percent Change
Duke Energy – Cayuga	3,223	4,628	3,448	3,766	1,832	2,819	1,915	2,189	-42%

**Chart 5: SO<sub>2</sub> Emissions for the Vermillion County Area**



As outlined in Table 10 and Chart 5, averaged SO<sub>2</sub> emissions for 2015-2017 have decreased approximately 42% from the averaged SO<sub>2</sub> emissions for 2012-2014 used in the modeling for designations. SO<sub>2</sub> emissions from 2017 are also below each of the individual years of 2012, 2013, 2014 used in the modeling.

Based on this SO<sub>2</sub> emissions assessment, Indiana recommends no additional modeling is needed to further characterize air quality in Vermillion County. SO<sub>2</sub> emissions have trended downward from what was modeled to demonstrate attainment of the 2010 primary 1-hour SO<sub>2</sub> NAAQS. The area is currently designated as

“unclassifiable/attainment” and no changes to its classification are necessary at this time.

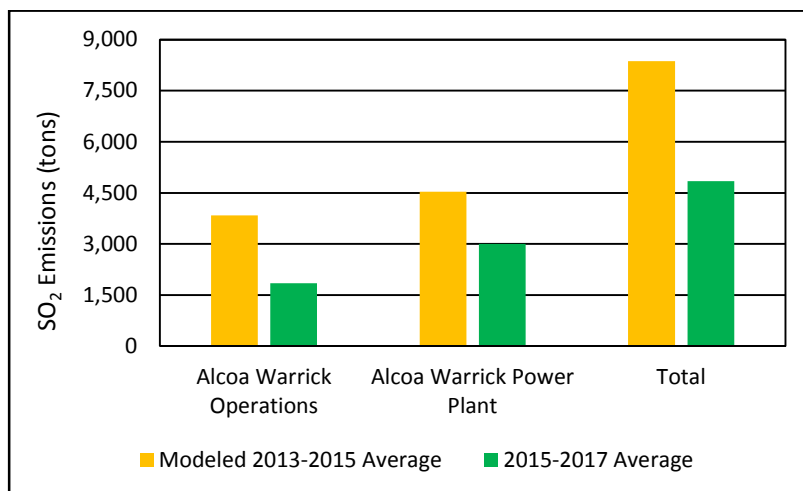
### **Warrick County (ALCOA Warrick Operations, ALCOA Warrick Power Plant)**

For Warrick County, on October 18, 2017, Indiana submitted air quality modeling to U.S. EPA that demonstrated air quality values greater than 90% of the 1-hour SO<sub>2</sub> NAAQS. As such, the SO<sub>2</sub> emissions assessment requirement in 40 CFR §51.1205(b) is applicable and any emissions increase may necessitate additional modeling analyses to characterize air quality in the area. The primary sources associated with the Warrick County area are ALCOA Warrick Operations and ALCOA Warrick Power Plant. The analysis for Warrick County is documented in Table 11 and Chart 6.

**Table 11: SO<sub>2</sub> Emissions (tons) for Round 3 Sources in Warrick County**

Source Name	2013	2014	2015	Modeled 2013-2015 Average	2016	2017	Average 2015-2017	Percent Change
Alcoa Warrick Operations	3,852	3,500	4,147	3,833	1,374	24	1,848	-52%
ALCOA Warrick Power Plant	5,707	4,993	2,907	4,536	3,457	2,632	2,999	-34%
Total	9,559	8,493	7,054	8,369	4,831	2,656	4,847	-42%

**Chart 6: SO<sub>2</sub> Emissions for the Warrick County Area**



As outlined in Table 11 and Chart 6, averaged SO<sub>2</sub> emissions for 2015-2017 have decreased approximately 52% and 34% for ALCOA Warrick Operations and ALCOA Warrick Power Plant, respectively, from the averaged SO<sub>2</sub> emissions for 2013-2015 used in the modeling for designations. SO<sub>2</sub> emissions from 2017 for both facilities are also below each of the individual years of 2013, 2014, 2015 used in the modeling.

Based on this SO<sub>2</sub> emissions assessment, Indiana recommends no additional modeling is needed to further characterize air quality in Warrick County. SO<sub>2</sub> emissions have trended downward from what was modeled to demonstrate attainment of the 2010 primary 1-hour SO<sub>2</sub> NAAQS. The area is currently designated as “unclassifiable/attainment” and no changes to its classification is necessary at this time.

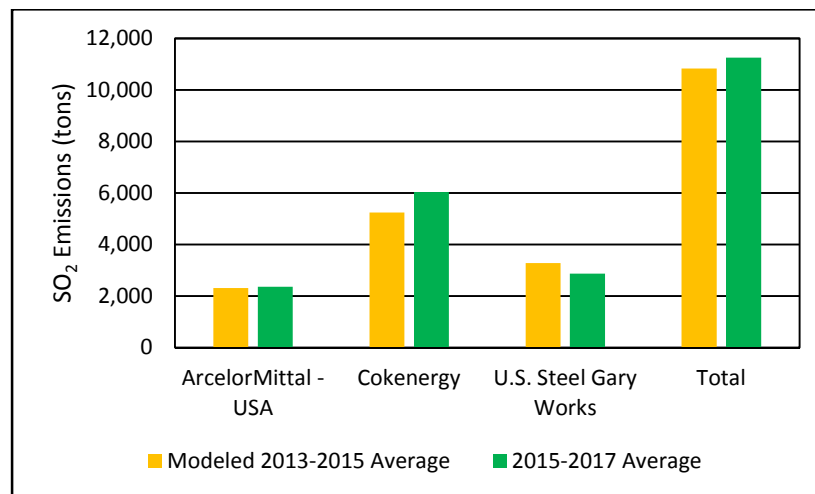
### **Lake County (ArcelorMittal – USA, Cokenergy, U.S. Steel Gary Works)**

For Lake County, on January 13, 2017, Indiana submitted air quality modeling to U.S. EPA that demonstrated air quality values greater than 90% of the 1-hour SO<sub>2</sub> NAAQS. As such, the SO<sub>2</sub> emissions assessment requirement in 40 CFR §51.1205(b) is applicable and any emissions increase may necessitate additional modeling analyses to characterize air quality in the area. The emissions analysis for Lake County is documented in Tables 12 and 13, Chart 7, and is discussed below.

**Table 12: SO<sub>2</sub> Emissions (tons) for Round 3 Sources in Lake County**

<b>Source Name</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>Modeled 2013-2015 Average</b>	<b>2016</b>	<b>2017</b>	<b>Average 2015-2017</b>	<b>Percent Change</b>
Cokenergy	4,653	4,952	6,104	5,236	6,298	5,681	6,028	+15%
ArcelorMittal USA	2,369	2,163	2,398	2,310	2,392	2,274	2,355	+2%
U.S. Steel Gary Works	3,564	3,285	2,980	3,276	2,590	3,030	2,867	-12%
Total	10,586	10,400	11,482	10,822	11,280	10,985	11,249	+4%

**Chart 7: SO<sub>2</sub> Emissions for DRR-Identified Sources in Lake County**



As outlined in Table 12 and Chart 7, averaged SO<sub>2</sub> emissions for 2015-2017 have increased approximately 2% and 15% from ArcelorMittal USA and Cokenergy, respectively, and decreased 12% from U.S. Steel Gary Works from the averaged SO<sub>2</sub> emissions for 2013-2015 used in the modeling for designations. Averaged total emissions from the three DRR-identified sources for 2015-2017 increased 427 tons, approximately 4%, above what was modeled.

To determine if additional modeling is warranted, Indiana examined, as shown in Table 13, the SO<sub>2</sub> emissions from all sources included in the modeling for designations.

**Table 13: SO<sub>2</sub> Emissions (tons) for the Lake County Area**

Source Name	2013	2014	2015	Modeled 2013-2015 Average	2016	2017	Average 2015-2017	Change	Percent Change
Cokenergy	4,653	4,952	6,104	5,236	6,298	5,681	6,028	792	+15%
ArcelorMittal USA	2,369	2,163	2,398	2,310	2,392	2,274	2,355	45	+2%
U.S. Steel Gary Works	3,564	3,285	2,980	3,276	2,590	3,030	2,867	-409	-12%
Inland Lafarge	129	113	127	123	185	168	160	37	+30%
Safety Kleen	56	68	63	62	71	86	73	11	+18%
ArcelorMittal Burns Harbor	13,864	12,189	12,202	12,752	12,831	12,959	12,664	-88	-1%
ArcelorMittal Indiana Harbor	1,638	1,587	1,067	1,431	1,387	1,619	1,358	-73	-5%
BP Products Whiting	----	----	400 <sup>a</sup>	400	388	323	371	-29	-7%
Eco Services	347	215	205	256	225	279	236	-20	-8%
Kopper, Inc.	1,096	870	669	878	380	202	417	-461	-53%
NIPSCO Bailly	2,474	1,117	515	1,369	808	545	623	-746	-54%
Ironside Energy	231	274	108	204	30	109	82	-122	-60%
Carmeuse Lime	----	----	----	263 <sup>b</sup>	----	91	91 <sup>c</sup>	-172	-65%
Indiana Harbor Coke	4,668	1,838	817	2,441	439	737	664	-1,777	-73%
<b>Total</b>	<b>35,089</b>	<b>28,671</b>	<b>27,655</b>	<b>31,001</b>	<b>28,024</b>	<b>28,103</b>	<b>27,989</b>	<b>-3,012</b>	<b>-10%</b>

<sup>a</sup> Based on 2015 due to Whiting Refinery Modernization Project.

<sup>b</sup> Based on maximum allowable emissions taken from Commissioner's Order #2016—04.

<sup>c</sup> Based on 2017 emissions due to Commissioner's Order #2016-04 effective date of January 1, 2017.

SO<sub>2</sub> emissions have decreased substantially throughout the area from what was modeled during the designations process. The increases, totaling 885 TPY, are more than offset by emissions decreases, totaling 3,897 TPY, from the remaining sources. The largest increase in SO<sub>2</sub> emissions, 792 TPY, occurred at Cokenergy which is co-located with Indiana Harbor Coke which had a much larger decrease, 1,777 TPY, of SO<sub>2</sub> emissions. Due to the close proximity of these two sources, and similar source characteristics, the net impact of these emissions changes is an expected reduction of SO<sub>2</sub> concentrations.

## Analysis of Modeling

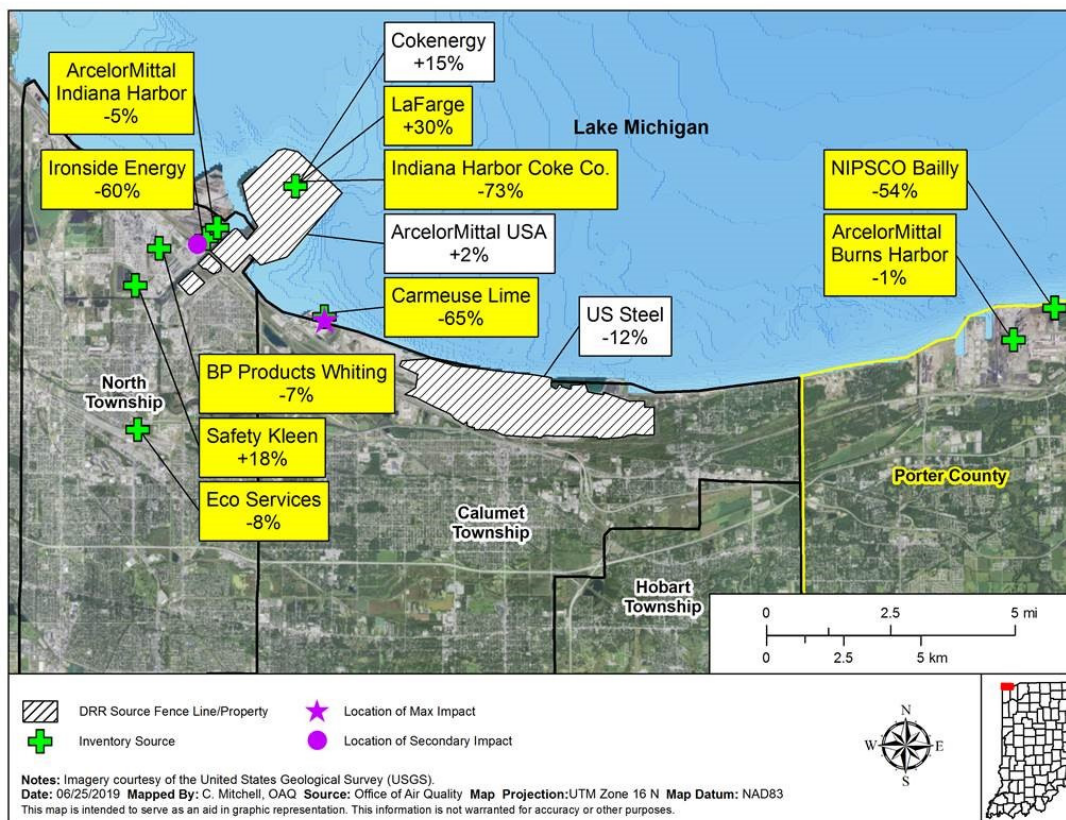
In addition, IDEM reviewed the modeling of Lake County used for designation purposes to determine the potential impact of the emissions changes.

## Analysis of Maximum Impact

As shown in Figures 1 and 2, the location of maximum impact used for the 1-hour SO<sub>2</sub> attainment designation for Lake County is located near the Carmeuse facility. The maximum modeled concentration was 192.2 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ).

The Carmeuse Lime facility, although not an identified source under Round 3 designations, accepted permanent and enforceable SO<sub>2</sub> emissions limits to address SO<sub>2</sub> concentrations in the area and to demonstrate attainment of the 1-hr SO<sub>2</sub> NAAQS. It is unlikely that new modeling will show a higher impact given the significant emissions reductions in the region and at the Carmeuse facility which has reported actual SO<sub>2</sub> emissions well below the limits used to demonstrate attainment of the NAAQS.

**Figure 1: Lake County Area SO<sub>2</sub> Sources and Percent Change in Emissions**

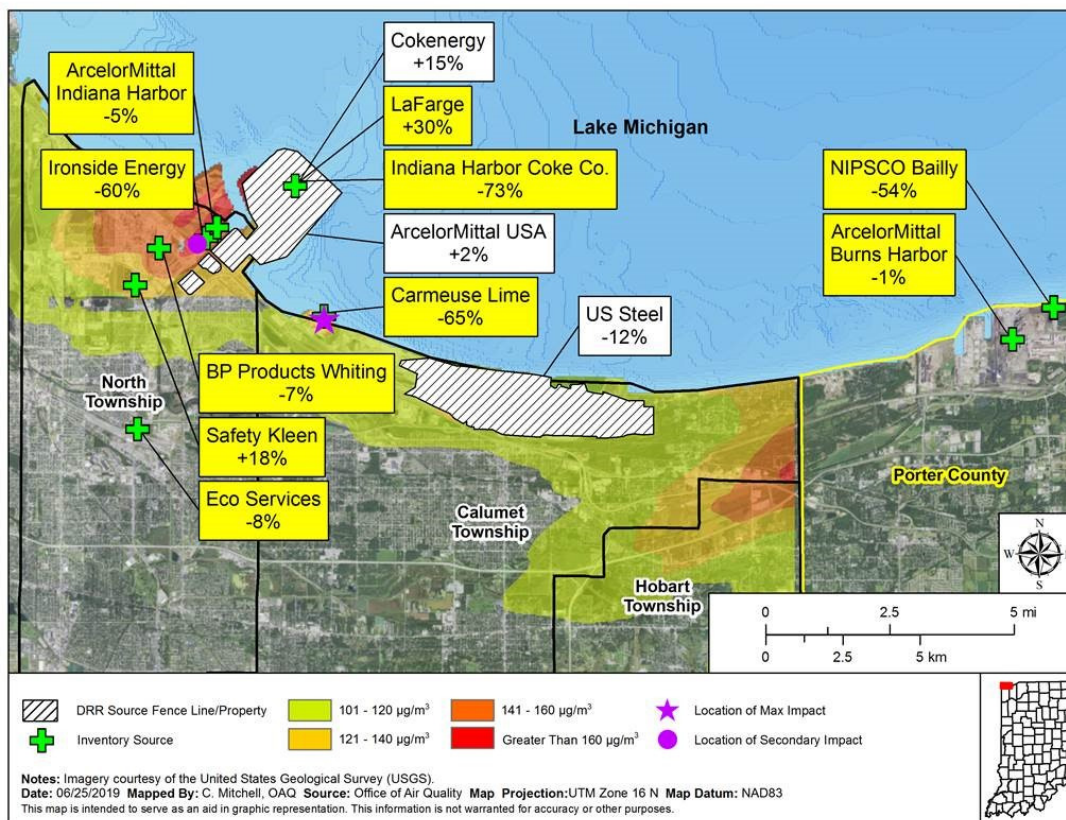


In addition, assuming a simple, linear relationship in modeled impacts and the percent change in emissions from each source in the area, the overall 10% decrease in emissions from all modeled sources in the Lake County area would show a decrease in



projected SO<sub>2</sub> concentrations. Figure 2 shows the relationship of the modeled sources in Lake and Porter County to the 1-hour SO<sub>2</sub> modeled hot spots and how emission changes could influence the air quality impacts.

**Figure 2: Lake County Area Sources and 1-Hour SO<sub>2</sub> Modeled Impact Areas.**



Based on the complexity of characterizing air quality in Lake County, it is appropriate to assess emissions and cumulative projected modeled impacts from all modeled sources in the area.

Table 14 shows the modeled impacts on the maximum impact receptor, which was used for designation purposes. The results of this analysis show that if the maximum modeled impacts from each of the Lake County sources, using the 2013-2015 emissions, were added together and compared to the projected modeled impacts incorporating 2015-2017 emissions changes, the resulting total modeled impacts would be less than modeled previously. While this approach is conservative in nature, as the maximum modeled impacts for each individual source do not occur on the same hour and day, it does show the reduction in overall projected maximum modeled impacts as a result of the emission change from each source and indicates that the 1-hour SO<sub>2</sub> NAAQS will not be exceeded.



**Table 14: Projected Modeled Impacts at Maximum Modeled Location**

Sources	Maximum Modeled Impact from 2013-2015 Emissions	% Emissions Change 2013-2015 to 2015-2017	Projected Modeled Impact from 2015-2017 Emissions
Carmeuse Lime	156.3	-65%	54.7
ArcelorMittal USA	53.1	2%	54.2
Cokenergy	41.1	15%	47.3
U.S. Steel Gary Works	26.8	-12%	23.6
All other modeled sources	27.8	-16%	23.4
Background <sup>1</sup>	17.8		17.8
Total	322.9		221.0

<sup>1</sup> Background concentrations averaged from seasonal hourly Hammond data on day/hour of top 12 highest modeled values.

### Analysis of Secondary Impact

As shown in Figures 1 and 2, a secondary maximum modeled impact area was located northwest of the highest modeled impact area. This secondary impact had a modeled concentration of 182.8  $\mu\text{g}/\text{m}^3$ .

Table 15 shows the modeled impacts on the secondary maximum location for the area, as well as the projected modeled impacts when emission changes were taken into account. The results of this analysis show that if the maximum modeled impacts from each of the modeled Lake County area sources using the 2013-2015 emissions were added together and compared to the projected modeled impacts, that take into account all emissions changes from 2013-2015 to 2015-2017, the resulting modeled concentrations are considerably less and will not violate the 1-hour  $\text{SO}_2$  NAAQS. This approach is conservative in nature, as the maximum modeled impacts for each individual source do not occur on the same hour and day.

**Table 15: Projected Modeled Impacts at Secondary Maximum Modeled Location**

Sources	Maximum Modeled Impact from 2013-2015 Emissions	% Emissions Change 2013-2015 to 2015-2017	Projected Modeled Impact from 2015-2017 Emissions
Carmeuse Lime	11.9	-65%	4.2
ArcelorMittal USA	78.3	2%	79.9
Cokenergy	54.6	15%	62.8
U.S. Steel Gary Works	17.5	-12%	15.4
All other modeled sources	106.1	-16%	89.1
Background <sup>1</sup>	17.8		17.8
Total	286.2		269.2

<sup>1</sup> Background concentrations averaged from seasonal hourly Hammond data on day/hour of top 12 highest modeled values.

Also, it is worth noting that certified ambient air quality monitoring data from Lake County continues to improve and demonstrates attainment of the 2010 primary 1-hour SO<sub>2</sub> standard. Design values at both SO<sub>2</sub> sites within the county for the 2015-2017 period have decreased from 2013-2015. The Gary-IITRI monitoring site has decreased from 44 ppb to 34 ppb and the Hammond-141<sup>st</sup> St. monitor has decreased from 23 ppb to 22 ppb.

Based on this assessment, Indiana recommends that additional modeling is not needed to further characterize air quality in Lake County. The area is currently designated as "unclassifiable/attainment" and no changes to their classification are necessary at this time.

IDEM is providing a 30-day public comment period concerning this submittal of the *Ongoing Data Requirements for the 2010 Primary 1-Hour Sulfur Dioxide National Ambient Air Quality Standard*. Please refer to the Supporting Document for further information and dates regarding the public participation process.

This report consists of one (1) hardcopy of the required documentation. An electronic version of the submittal in PDF format that is identical to the hard copy *will be* sent to Doug Aburano, Chief of U.S. EPA Region 5's Attainment Planning and Maintenance Section and Chris Panos of U.S. Region 5. If you have any questions or need additional information, please contact Brian Callahan, Chief, Air Quality Standards and Implementation Section, Office of Air Quality at (317) 232-8244 or [bcallaha@idem.IN.gov](mailto:bcallaha@idem.IN.gov).

Sincerely,



Keith Baugues  
Assistant Commissioner  
Office of Air Quality

KB/sd/bc/gf/lf

Supporting Document:

1. Public Participation Process Documentation

cc: Chris Panos, EPA – Region 5 (no enclosure)  
Doug Aburano, EPA – Region 5 (no enclosure)  
John Summerhays, EPA – Region 5 (no enclosure)  
Jennifer Liljegren, EPA – Region 5 (no enclosure)  
Keith Baugues, IDEM (no enclosure)  
Scott Deloney, IDEM (no enclosure)

Brian Callahan, IDEM (no enclosure)  
Gale Ferris, IDEM (no enclosure)  
Leslie Ferguson, IDEM (w/ enclosure)  
File Copy

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# **Supporting Document**

## **Public Participation Process Documentation**

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## INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

*We Protect Hoosiers and Our Environment.*

100 N. Senate Avenue • Indianapolis, IN 46204  
(800) 451-6027 • (317) 232-8603 • [www.idem.IN.gov](http://www.idem.IN.gov)

**Eric J. Holcomb**  
*Governor*

**Bruno L. Pigott**  
*Commissioner*

May 23, 2019

### CERTIFICATE OF PUBLICATION

This is to certify that the Indiana Department of Environmental Management (IDEM) Notice of the opportunity for a Public Comment regarding the following:

- Draft 2019 Assessment for Ongoing Data Requirements for the 2010 Primary 1-Hour Sulfur Dioxide National Ambient Air Quality Standard

was published on IDEM's web site on May 23, 2019. It is expected that it will remain posted on the site until at least June 28, 2019.

The notice in full was available online at the following web address, under "Statewide":

<http://www.in.gov/idem/5474.htm>

The draft document was also posted online May 29, 2019 at the following web address:

<https://www.in.gov/idem/airquality/2432.htm>

Web publication of the notice was at the request of Scott Deloney, Branch Chief, Programs Branch, Office of Air Quality, IDEM.

By:

Mike Finklestein  
IDEM Webmaster

Attachments:

Copy of web page as published.

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Public Notices: Statewide

Name or Facility	Publication Dates	Public Comment?	Additional Information
Jones Island Water Reclamation Facility (Milwaukee, WI)	06/20/2019 - 07/27/2019	Yes	Project Manager: Kate Garvey Applicant Company: Milwaukee Metropolitan Sewerage District Permit Number: IN LA 000616
Indiana Department of Environmental Management (IDEM) Permit	06/15/2019 - 08/14/2019	No	Project Manager: Matt Stuckey
Draft 2019 Assessment for Ongoing Data Requirements for the 2010 Primary 1-Hour Sulfur Dioxide National Ambient Air Quality Standard	05/29/2019 - 06/28/2019	Yes	Project Manager: Leslie Ferguson Additional information is available under "Rounds 3 and 4 Nonattainment Designations" on the IDEM Air Quality in Indiana: Sulfur Dioxide (SO <sub>2</sub> ) Air Quality Attainment/Nonattainment Designations page.

Sulfur Dioxide (SO<sub>2</sub>) Air Quality Attainment/Nonattainment Designations

All National Ambient Air Quality Standards (NAAQS) undergo periodic review and may be revised. When a new standard is promulgated or an existing standard is revised, the first step in implementing the standard is to determine if existing designations are still appropriate. When a new standard is promulgated or an existing standard is revised, the first step in implementing the standard is to determine if existing designations are still appropriate.

advances. When a new standard is promulgated or an existing standard is revised, the first step in implementing the standard is to determine if existing designations are still appropriate.

reviews and

• [Map of Nonattainment Boundaries for the 2010 SO<sub>2</sub> 1-Hour Standard \[PDF\]](#)

### SO<sub>2</sub> Designation Documents

#### Rounds 3 and 4 Nonattainment Designations

- [Draft 2019 Assessment for Ongoing Data Requirements for the 2010 Primary 1-Hour Sulfur Dioxide National Ambient Air Quality Standard \(May 2019\) \[PDF\]](#)
- [Petition for Reconsideration and Request for Agency Stay Pending Reconsideration of Final Rule Designating Huntington Township, Huntington County, Indiana, Nonattainment under Round 3 SO<sub>2</sub> Designations \(March 9, 2018\) \[PDF\]](#)
- [Federal Register Notice Concerning Round 3 SO<sub>2</sub> Designations \(January 9, 2018\) \[PDF\]](#)
- [U.S. EPA Round 3 Nonattainment Boundaries for the 2010 SO<sub>2</sub> 1-Hour Standard \(December 20, 2017\) \[PDF\]](#)
  - [U.S. EPA Technical Support Information for SO<sub>2</sub> Boundary Definitions \[PDF\]](#)
- [Indiana Response to U.S. EPA 120 Day Letter Concerning Intended Round 3 Area Designations \(October 18, 2017\)](#)
  - [Part 1 \[ZIP\]](#)
  - [Part 2 \[ZIP\]](#)
- [U.S. EPA Proposed Round 3 Designation Recommendations \(August 22, 2017\) \[PDF\]](#)
- [Approval and Promulgation of Indiana's SIP Submittal of the Commissioner's Order for Carmeuse Lime, Inc. effective July 10, 2017 \[PDF\]](#)
- [Approval and Promulgation of Indiana's SIP Submittal of the Commissioner's Order for SABIC Innovative Plastics effective July 10, 2017 \[PDF\]](#)
- [Indiana Preliminary Round 3 Designation Recommendations \(January 13, 2017\) \[PDF\]](#)

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