



INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

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Eric J. Holcomb
Governor

Brian C. Rockensuess
Commissioner

Ms. Debra Shore
Regional Administrator
U.S. EPA, Region 5
77 West Jackson Boulevard
Chicago, IL 60604-3950

Re: 2024 Assessment for Ongoing Data
Requirements for the 2010 Primary 1-Hour
Sulfur Dioxide National Ambient Air Quality
Standard

Dear Ms. Shore:

The Indiana Department of Environmental Management (IDEM) has completed a review of areas subject to ongoing data requirements, as well as two Round 1 maintenance areas, under the 2010 primary 1-hour sulfur dioxide (SO₂) 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 SO₂ standard began with Round 1 designations in 2013 when United States Environmental Protection Agency (U.S. EPA) established nonattainment areas near monitors with data greater than the SO₂ NAAQS. Indiana's Round 1 areas were subsequently designated attainment and are not subject to ongoing data requirements. The Southwest Indiana, IN and Indianapolis, IN, maintenance areas, which were part of Round 1, are included in this analysis to address continuing contingency plan triggers due to the discontinuation of SO₂ monitors in these areas. 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 on December 21, 2020. This evaluation, per 40 Code of Federal Regulations (CFR) Subpart BB §51.1205(a) and (b), addresses areas designated during Rounds 2, 3, and 4.

For these designated areas, ongoing data requirements are applicable if SO₂ 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 SO₂ monitoring network and the reporting of such data. For areas that used modeling, ongoing requirements are the assessment of annual SO₂ emissions and a recommendation regarding whether additional modeling is needed to characterize air quality to determine



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whether the area continues to meet the SO₂ 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 SO₂ emission limits as the basis for establishing designations demonstrating that the area will not violate the 2010 SO₂ NAAQS.

For areas where modeling shows ambient impacts greater than 50% of the standard¹, 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/m³) and emissions increase by 15% or more.
- The original modeling was equal to or greater than 90% of the standard (176.58 µg/m³) and there is any increase in emissions.

Round 1 Areas

Southwest Indiana, IN, Maintenance Area – Partial Daviess County and Partial Pike County (IPL – Petersburg Generating Station)

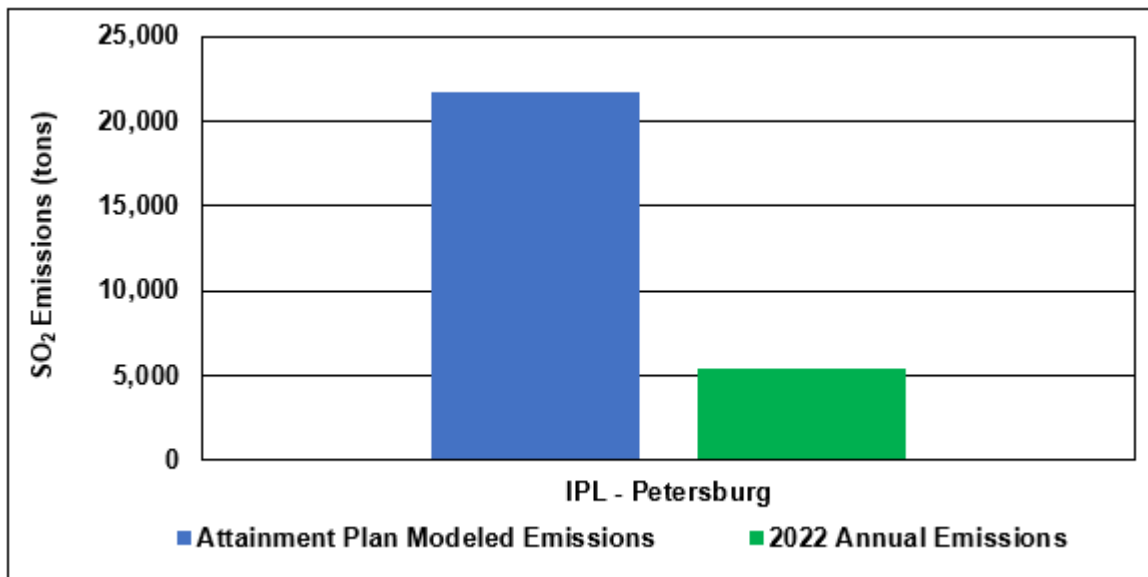
All SO₂ ambient air quality monitors have discontinued operation in the Southwest Indiana, IN, maintenance area. To verify continued attainment with the NAAQS and determine whether additional studies are needed, Indiana will continue to monitor contingency plan triggers by comparing the annual tons per year SO₂ emissions from the IPL – Petersburg Generating Station to modeled emission limits (i.e., equivalent 21,661 tons per year) used in the 1-hour SO₂ attainment demonstration. The modeling was based on never-to-exceed maximum-allowable rates that provide an ample margin of safety and are protective of the NAAQS. The analysis for the Southwest Indiana, IN, maintenance area is documented in Table 1 and Chart 1.

Table 1: SO₂ Emissions (tons) for the Southwest Indiana, IN Maintenance Area

Source Name	Attainment Plan Modeled Emissions	2022	Change	Percent Change
IPL – Petersburg	21,661	5,398	-16,263	-75%

¹ Concentrations may be expressed in parts per billion (ppb) and/or micrograms per cubic meter (µg/m³).

Chart 1: SO₂ Emissions for the Southwest Indiana, IN Maintenance Area



As outlined in Table 1 and Chart 1, IPL – Petersburg’s 2022 annual SO₂ emissions are approximately 75% lower than the modeled emission limits. Based on this SO₂ emissions assessment, Indiana recommends no additional modeling is needed to further characterize air quality in the Southwest Indiana, IN maintenance area. SO₂ emissions have trended downward from what was modeled to demonstrate attainment of the 2010 primary 1-hour SO₂ NAAQS. The area is currently designated as “attainment/unclassifiable” and no changes to its classification are necessary at this time.

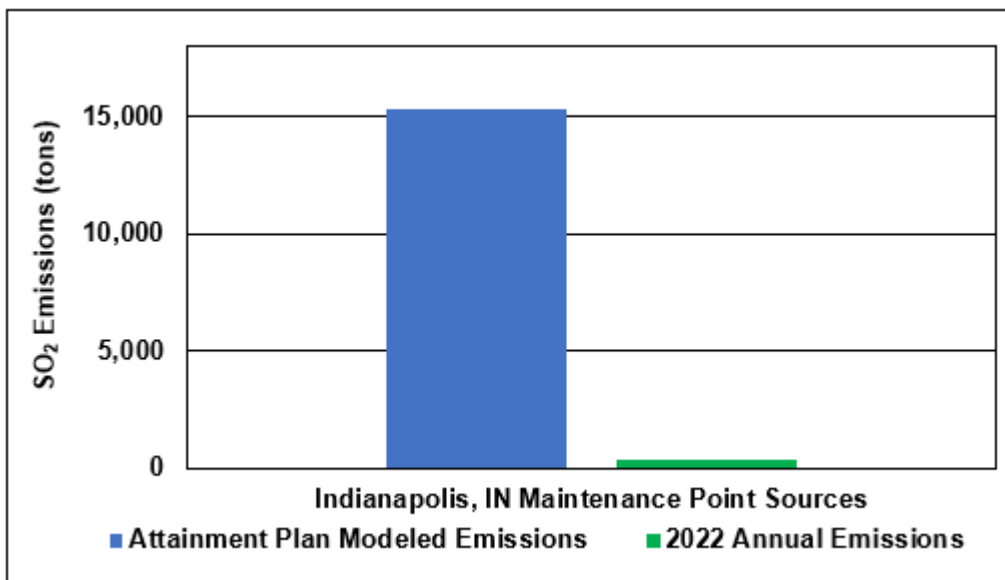
Indianapolis, IN, Maintenance Area- Partial Marion County (Center, Perry, and Wayne Townships)

The Harding Street SO₂ ambient air quality monitor was discontinued after the calendar year 2022. This monitor was located in the Indianapolis, IN SO₂ maintenance area within Center Township, Indianapolis, Indiana, along with the Washington Park SO₂ monitor which will remain in operation. To verify continued attainment with the NAAQS and determine whether additional studies are needed, Indiana will continue to monitor contingency plan triggers by evaluating SO₂ concentration values at the Indianapolis – Washington Park SO₂ monitor, as well as comparing annual SO₂ emissions from sources within the maintenance area. The modeling was based on never-to-exceed maximum-allowable rates that provide an ample margin of safety and are protective of the NAAQS. The analysis for the Indianapolis, IN maintenance area is documented in Tables 2 and 3, and Chart 2.

Table 2: SO₂ Emissions (tons) for the Indianapolis, IN Maintenance Area

Source Name	Attainment Plan Modeled Emissions	2022	Change	Percent Change
Modeled Point Sources	15,312	317	-14,995	-98%

Chart 2: SO₂ Emissions for the Indianapolis, IN Maintenance Area



As outlined in Table 2 and Chart 2, 2022 annual SO₂ emissions from modeled point sources in the Indianapolis, IN maintenance area are approximately 98% lower than the modeled emission limits.

Table 3: SO₂ Monitoring Data for the Indianapolis, IN Maintenance Area

Site ID	Site Name	99th Percentile Values (ppb)								Three-Year Design Values (ppb)					
		2016	2017	2018	2019	2020	2021	2022	2023	16-18	17-19	18-20	19-21	20-22	21-23
180970057	Indpls - Harding St.**	14.6	6.3	3.5	4.7*	6.1	7.6*	6.6	----	8	5	5	6	7	----
180970078	Indpls - Washington Park	6.4	3.2	3.2	2.7*	3.7	2.8	2.7	2.6	4	3	3	3	3	3

Note: Three-year design value must be equal to or less than 75 ppb to attain the standard.

* Incomplete Data

** Site Discontinued 12/31/22

As outlined in Table 3, annual 99th percentile daily maximum 1-hour values and corresponding three-year design values demonstrate SO₂ concentrations have remained well below the standard in the Indianapolis, IN area. Based on this SO₂ emissions assessment, Indiana recommends no additional modeling is needed to further characterize air quality in the Indianapolis, Indiana, maintenance area. SO₂ emissions have trended downward from what was modeled to demonstrate attainment of the 2010 primary 1-hour SO₂ NAAQS. The area is currently designated as “attainment/unclassifiable” and no changes to its classification are necessary at this time.

Round 2 Areas

During Round 2 designations, five coal-fired electric power plants in Indiana were identified, shown in Table 4, around which air quality characterization was required.

Table 4: 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 Indiana’s five identified sources as “attainment/unclassifiable”. The final rule was published in the Federal Register (FR) on July 12, 2016 (81 FR 45039). The applicability of ongoing requirements for Round 2 areas is shown in Table 5.

Table 5: Ongoing Data Requirements Applicability for Round 2 Areas

Area	Source(s)	Modeled Impact µg/m³	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 5, ongoing data requirements are applicable to only three of the five Round 2 areas. Each area is discussed below.

Spencer County (AEP - Rockport Station)

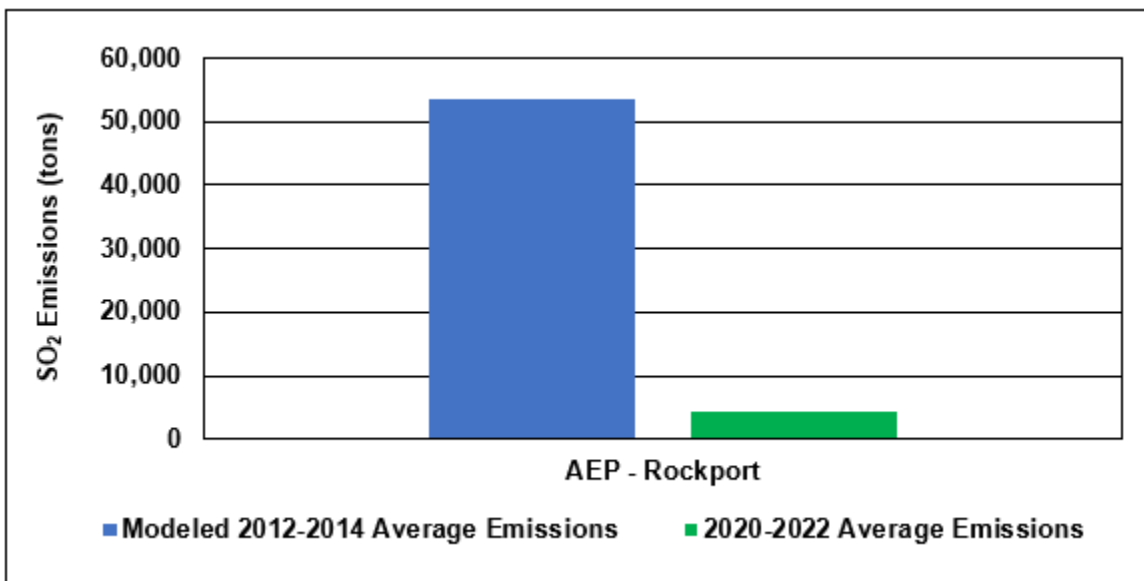
For Spencer County, on September 16, 2015, Indiana submitted air quality modeling to U.S. EPA that demonstrated air quality values were greater than 50%, but less than 90%, of the 1-hour SO₂ NAAQS. As such, the SO₂ emissions assessment requirement in 40 CFR §51.1205(b) is applicable and an emissions 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 focused on the most recent three years of data and is documented in Table 6 and Chart 3.

Table 6: SO₂ Emissions (tons) for the Spencer County Area

Source Name	2012	2013	2014	Modeled 2012-2014 Average	2020	2021	2022	2020-2022 Average	Change	Percent Change
AEP – Rockport	54,390	51,636	54,979	53,668	6,816	2,814	3,726	4,452	-49,216	-92%

Chart 3: SO₂ Emissions for Spencer County Area



As outlined in Table 6 and Chart 3, averaged SO₂ emissions for 2020-2022 have decreased approximately 92% from the averaged SO₂ emissions for 2012-2014 used in the modeling for designations. Based on this SO₂ emissions assessment, Indiana recommends no additional modeling is needed to further characterize air quality in Spencer County. SO₂ emissions have trended downward from what was modeled to demonstrate attainment of the 2010 primary 1-hour SO₂ NAAQS. The area is currently designated as “attainment/unclassifiable” and no changes to its classification are necessary at this time.

La Porte County (NIPSCO – Michigan City Station)

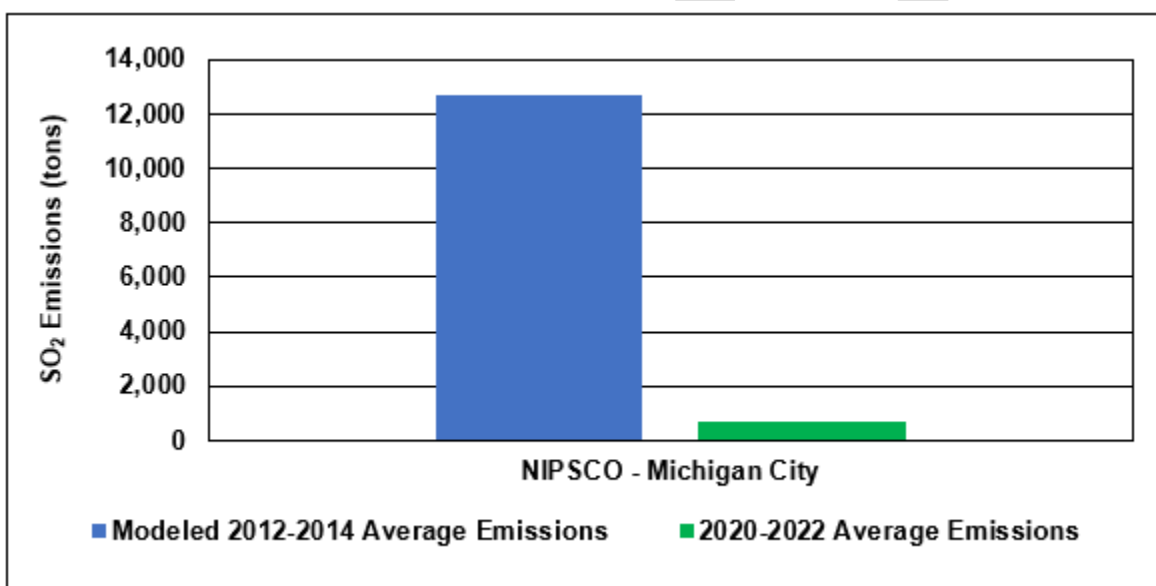
For La Porte County, on September 16, 2015, Indiana submitted air quality modeling to U.S. EPA that demonstrated air quality values were greater than 50%, but less than 90%, of the 1-hour SO₂ NAAQS. As such, the SO₂ emissions assessment requirement in 40 CFR §51.1205(b) is applicable and an emissions 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 focused on the most recent three years of data and is documented in Table 7 and Chart 4.

Table 7: SO₂ Emissions (tons) for the La Porte County Area

Source Name	2012	2013	2014	Modeled 2012-2014 Average	2020	2021	2022	2020-2022 Average	Change	Percent Change
NIPSCO – Michigan City	11,584	10,429	15,991	12,668	695	659	685	680	-11,988	-95%

Chart 4: SO₂ Emissions for the La Porte County Area



As outlined in Table 7 and Chart 4, averaged SO₂ emissions for 2020-2022 have decreased approximately 95% from the averaged SO₂ emissions for 2012-2014 used in the modeling for designations. Based on this SO₂ emissions assessment, Indiana recommends no additional modeling is needed to further characterize air quality in LaPorte County. SO₂ emissions have trended downward from what was modeled to demonstrate attainment of the 2010 primary 1-hour SO₂ NAAQS. The area is currently designated as “attainment/unclassifiable” 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 SO₂ monitors as well as the continued reporting of such data. Duke Energy continues to operate the SO₂ 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 SO₂ standard as shown in Table 8.

Table 8: Duke Energy’s Gibson Generating Station SO₂ Monitoring Data

Site ID	County	99th Percentile Values, ppb						Three-Year Design Value, ppb			
		2018	2019	2020	2021	2022	2023	2018-2020	2019-2021	2020-2022	2021-2023
180510002	Gibson	49.2	41.3	59.3	37.2	33.8	21.9	50	46	43	31

Note: Three-year design value must be equal to or less than 75 ppb to attain the standard.

Round 3 Areas

During Round 3 designations, eleven sources in Indiana, shown in Table 9, were identified around which SO₂ air quality characterization was required.

Table 9: 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	Cleveland-Cliffs Steel (316) ¹
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

¹ Formerly known as ArcelorMittal USA.

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

the Federal Register on January 9, 2018 (83 FR 1098). On November 6, 2023, Indiana submitted an attainment plan to U.S. EPA with modeling that demonstrates the Huntington, IN nonattainment area meets the NAAQS as a result of the implementation of permanent and enforceable emission limits established in Commissioner’s Order 2023-Air-02 for Isolatek. Upon U.S. EPA’s approval of the November 6, 2023, submittal, the emission limits established in the Order for Isolatek will become federally permanent and enforceable. IDEM intends to work further with U.S. EPA concerning the area’s future redesignation to attainment and will incorporate Huntington Township into annual assessments of ongoing data requirements in accordance with 40 CFR §51.1205. The applicability of ongoing requirements for Round 3 areas is shown in Table 10.

Table 10: Ongoing Data Requirements Applicability for Round 3 Areas

Area	Source(s)	Modeled Impact $\mu\text{g}/\text{m}^3$	Greater Than 50% NAAQS?	Ongoing Data Requirements Applicability?
Floyd	Duke Energy – Gallagher Station	99.5	Yes	No (Source Permanently Closed/Dismantled)
Huntington	U.S. Mineral Products – Isolatek	Not Applicable	Not Applicable	Not Applicable
Jasper	NIPSCO – R.M. Schahfer Station	162.7	Yes	Yes
Lake	Cleveland-Cliffs Steel (316) ² Cokenergy U.S. Steel Gary Works	192.2 ¹	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

¹ Modeled impact associated with the Carmeuse Lime facility, which accepted permanent and enforceable SO₂ permit limits to demonstrate attainment of the 1-hr NAAQS.

² Formerly known as ArcelorMittal USA.

As shown in Table 10, ongoing data requirements are applicable to only four of the eight Round 3 areas. Each area is discussed below.

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

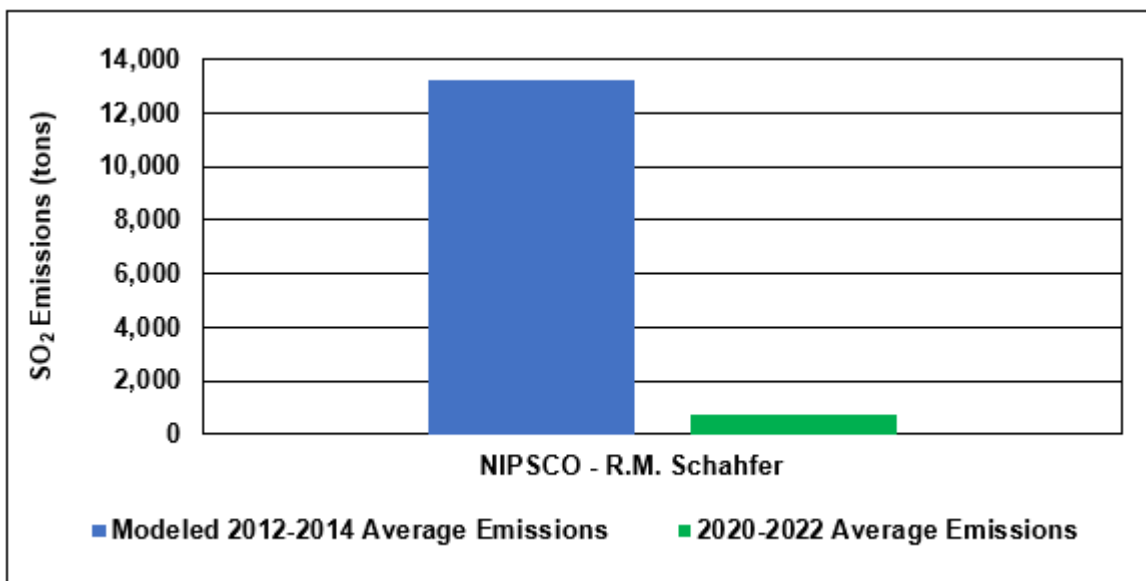
For Jasper County, on January 13, 2017, Indiana submitted air quality modeling to U.S. EPA that demonstrated air quality values were greater than 50%, but less than 90%, of the 1-hour SO₂ NAAQS. As such, the SO₂ emissions assessment requirement in 40 CFR §51.1205(b) is applicable and emissions increase 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 focused on the most recent three years of data and is documented in Table 11 and Chart 5.

Table 11: SO₂ Emissions (tons) for Jasper County Area

Source Name	2012	2013	2014	Modeled 2012-2014 Average	2020	2021	2022	2020-2022 Average	Change	Percent Change
NIPSCO – R.M. Schahfer	14,911	16,418	8,413	13,247	760	1,018	556	778	-12,469	-94%

Chart 5: SO₂ Emissions for the Jasper County Area



As outlined in Table 11 and Chart 5, averaged SO₂ emissions for 2020-2022 have decreased by approximately 94% from the averaged SO₂ emissions for 2012-2014 used in the modeling for designations. Based on this SO₂ emissions assessment, Indiana recommends no additional modeling is needed to further characterize air quality in Jasper County. SO₂ emissions have trended downward from what was modeled to demonstrate attainment of the 2010 primary 1-hour SO₂ NAAQS. The area is currently designated as “attainment/unclassifiable” and no changes to its classification are necessary at this time.

Vermillion County (Duke Energy – Cayuga Station)

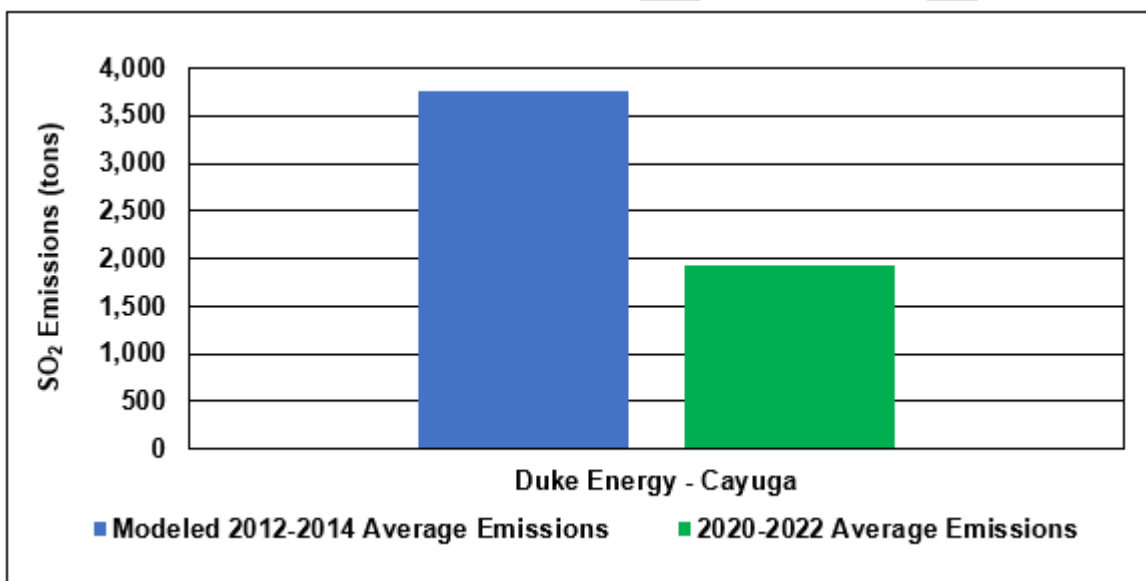
For Vermillion County, on January 13, 2017, Indiana submitted air quality modeling to U.S. EPA that demonstrated air quality values were greater than 50%, but less than 90%, of the 1-hour SO₂ NAAQS. As such, the SO₂ emissions assessment requirement in 40 CFR §51.1205(b) is applicable and emissions increase 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 focused on the most recent three years of data and is documented in Table 12 and Chart 6.

Table 12: SO₂ Emissions (tons) for the Vermillion County Area

Source Name	2012	2013	2014	Modeled 2012-2014 Average	2020	2021	2022	2020-2022 Average	Change	Percent Change
Duke Energy – Cayuga	3,223	4,628	3,448	3,766	1,902	2,233	1,668	1,934	-1,832	-49%

Chart 6: SO₂ Emissions for the Vermillion County Area



As outlined in Table 12 and Chart 6, averaged SO₂ emissions for 2020-2022 have decreased approximately 49% from the averaged SO₂ emissions for 2012-2014 used in the modeling for designations. Based on this SO₂ emissions assessment, Indiana recommends no additional modeling is needed to further characterize air quality in Vermillion County. SO₂ emissions have trended downward from what was modeled to demonstrate attainment of the 2010 primary 1-hour SO₂ NAAQS. The area is currently designated as “attainment/unclassifiable” and no changes to its classification are necessary at this time.

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

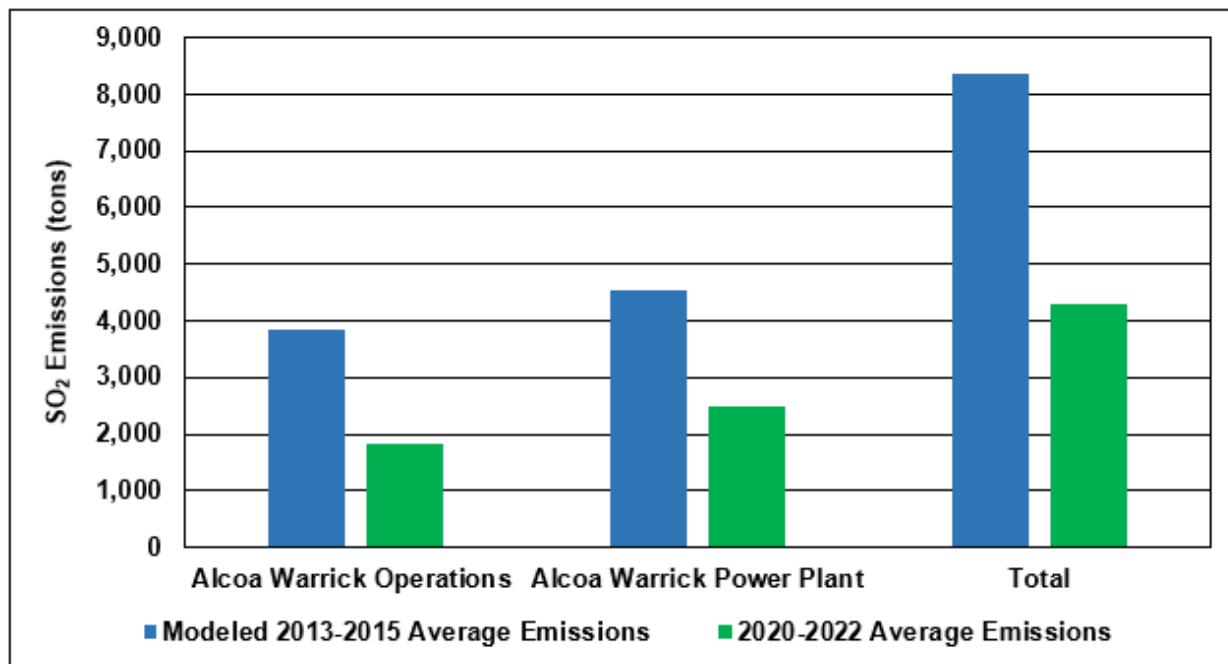
For Warrick County, on October 18, 2017, Indiana submitted air quality modeling to U.S. EPA that demonstrated air quality values greater than 90% of the 1-hour SO₂ NAAQS. As such, the SO₂ emissions assessment requirement in 40 CFR §51.1205(b) is applicable and any emissions increase may necessitate additional 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 focused on the most recent three years of data and is documented in Table 13 and Chart 7.

Table 13: SO₂ Emissions (tons) for Round 3 Sources in Warrick County

Source Name	2013	2014	2015	Modeled 2013-2015 Average	2020	2021	2022	2020-2022 Average	Change	Percent Change
ALCOA Warrick Operations	3,852	3,500	4,147	3,833	2,219	1,737	1,543	1,833	-2,000	-52%
ALCOA Warrick Power Plant	5,707	4,993	2,907	4,536	2,203	2,664	2,571	2,479	-2,057	-45%
Total	9,559	8,493	7,054	8,369	4,422	4,401	4,114	4,312	-4,057	-48%

Chart 7: SO₂ Emissions for the Warrick County Area



As outlined in Table 13 and Chart 7, averaged SO₂ emissions for 2020-2022 have decreased approximately 52% and 45% for ALCOA Warrick Operations and ALCOA Warrick Power Plant, respectively, from the averaged SO₂ emissions for 2013-2015 used in the modeling for designations. Based on this SO₂ emissions assessment, Indiana recommends no additional modeling is needed to further characterize air quality in Warrick County. SO₂ emissions have trended downward from what was modeled to demonstrate attainment of the 2010 primary 1-hour SO₂ NAAQS. The area is currently designated as “attainment/unclassifiable” and no changes to its classification is necessary at this time.

Lake County (Cleveland-Cliffs Steel (316), Cokenergy, U.S. Steel Gary Works)

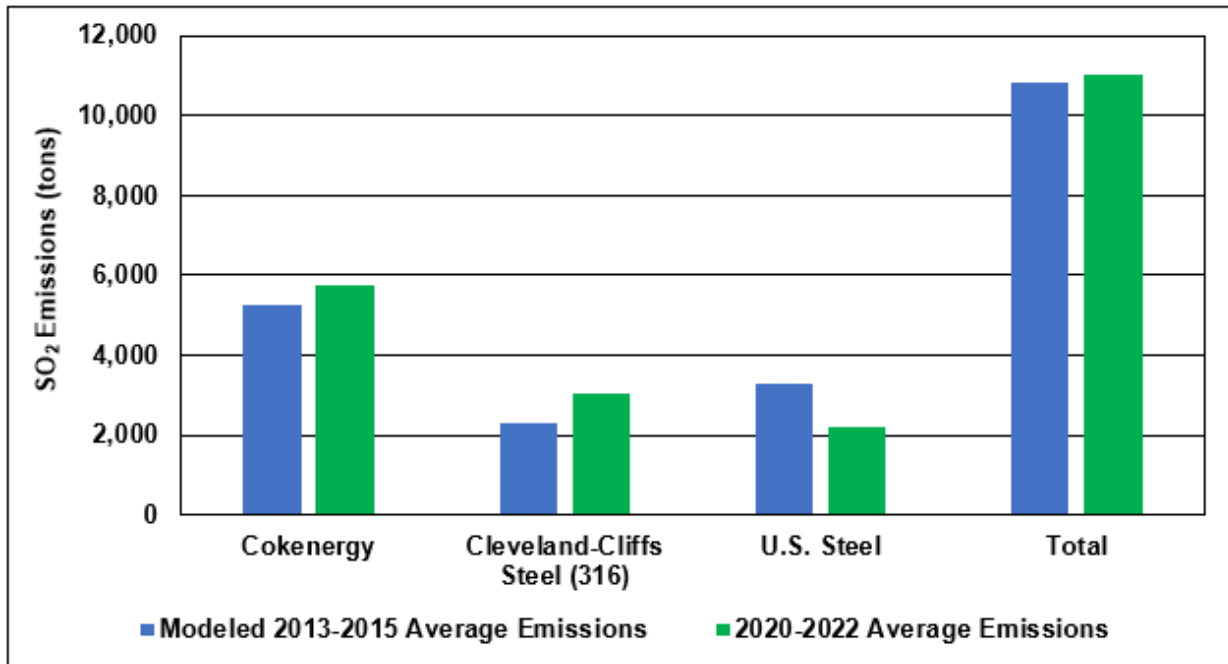
For Lake County, on January 13, 2017, Indiana submitted air quality modeling to U.S. EPA that demonstrated air quality values greater than 90% of the 1-hour SO₂ NAAQS. As such, the SO₂ emissions assessment requirement in 40 CFR §51.1205(b) is applicable and any emissions increase may necessitate additional modeling analyses to characterize air quality in the area. The emissions analysis for Lake County focused on the most recent three years of data, as documented in Tables 14 and 15, and Chart 8, and discussed below.

Table 14: SO₂ Emissions (tons) for Round 3 Sources in Lake County

Source Name	2013	2014	2015	Modeled 2013-2015 Average	2020	2021	2022	2020-2022 Average	Change	Percent Change
Cokenergy	4,653	4,952	6,104	5,236	5,470	5,593	6,256	5,773	537	10%
Cleveland-Cliffs Steel (316) ¹	2,369	2,163	2,398	2,310	2,435	3,042	3,613	3,030	720	31%
U.S. Steel Gary Works	3,564	3,285	2,980	3,276	1,863	2,209	2,523	2,198	-1,078	-33%
Total	10,586	10,400	11,482	10,822	9,768	10,844	12,392	11,001	179	2%

¹ Formerly known as ArcelorMittal USA.

Chart 8: SO₂ Emissions for DRR-Identified Sources in Lake County



As outlined in Table 14 and Chart 8, averaged SO₂ emissions for 2020-2022 increased 10% and 31% for Cokenergy and Cleveland-Cliffs Steel (316), while U.S. Steel Gary Works emissions decreased 33% from the 2013-2015 SO₂ emissions used in the modeling for designations. Averaged total emissions from the three DRR-identified sources for 2020-2022 increased 179 tons, approximately 2% above what was modeled.

To determine if additional modeling is warranted, Indiana examined, as shown in Table 15, the SO₂ emissions from all sources included in the modeling for designations.

Table 15: SO₂ Emissions (tons) for the Lake County Area

Source Name	2013	2014	2015	Modeled 2013-2015 Average	2020	2021	2022	2020-2022 Average	Change	Percent Change
Cokenergy	4,653	4,952	6,104	5,236	5,470	5,593	6,256	5,773	537	10%
Cleveland-Cliffs Steel (316) ⁴	2,369	2,163	2,398	2,310	2,435	3,042	3,613	3,030	720	31%
U.S. Steel	3,564	3,285	2,980	3,276	1,863	2,209	2,523	2,198	-1,078	-33%
Safety Kleen	56	68	63	62	41	41	34	39	-23	-38%
Holcim US Inc ⁶	129	113	127	123	160	157	137	151	28	23%
Eco Services	347	215	205	256	306	351	384	347	91	36%
Cleveland-Cliffs Steel (318) ³	1,638	1,587	1,067	1,431	724	966	231	640	-791	-55%
Cleveland-Cliffs Burns Harbor ⁵	13,864	12,189	12,202	12,752	10,714	11,046	10,024	10,595	-2,157	-17%
BP Products Whiting	----	----	400 ¹	400	278	335	319	311	-89	-22%
Ironside Energy	231	274	108	204	14	36	0	17	-187	-92%
Carmeuse Lime	----	----	----	263 ²	50	64	70	61	-202	-77%
Indiana Harbor Coke Co.	4,668	1,838	817	2,441	425	337	277	346	-2,095	-86%
Kopper, Inc.	1,096	870	669	878	309	246	253	269	-609	-69%
NIPSCO Bailly	2,474	1,117	515	1,369	0	0	0	0	-1,369	-100%
Total	35,089	28,671	27,655	31,001	22,789	24,423	24,121	23,778	-7,223	-23%

¹ Based on 2015 due to Whiting Refinery Modernization Project.

² Based on maximum allowable emissions taken from Commissioner's Order #2016—04.

³ Formerly known as ArcelorMittal Indiana Harbor.

⁴ Formerly known as ArcelorMittal USA.

⁵ Formerly known as ArcelorMittal Burns Harbor.

⁶ Formerly known as Lafarge.

SO₂ emissions have decreased 23% throughout the Lake County area from what was modeled during the designation process. The increases, totaling 1,376 TPY, are more than offset by emissions decreases, totaling 8,600 TPY from the remaining sources. The largest increase in emissions, 720 tons, occurred at Cleveland-Cliffs Steel (316), which is co-located with Indiana Harbor Coke which had a much larger decrease,

2,095 tons, of SO₂ emissions. Due to the close proximity of these two sources, and similar source characteristics, the net impact of these emission changes is an expected reduction of SO₂ concentrations.

Analysis of Modeling

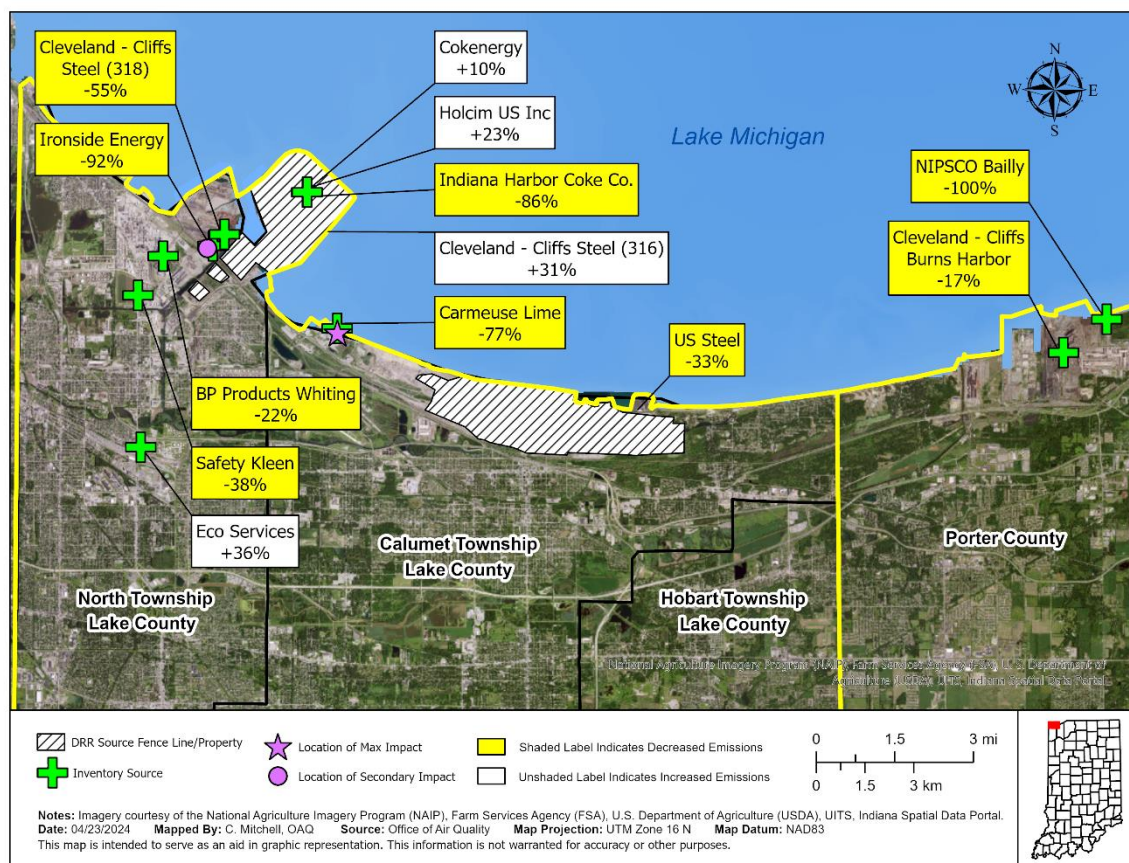
In addition, IDEM reviewed the modeling of Lake County used for designation purposes to determine the potential impact of the emissions changes.

Analysis of Maximum Impact

As shown in Figures 1 and 2, the location of maximum impact used for the 1-hour SO₂ attainment designation for Lake County is located near the Carmeuse facility. The maximum modeled concentration was 192.2 micrograms per cubic meter (µg/m³).

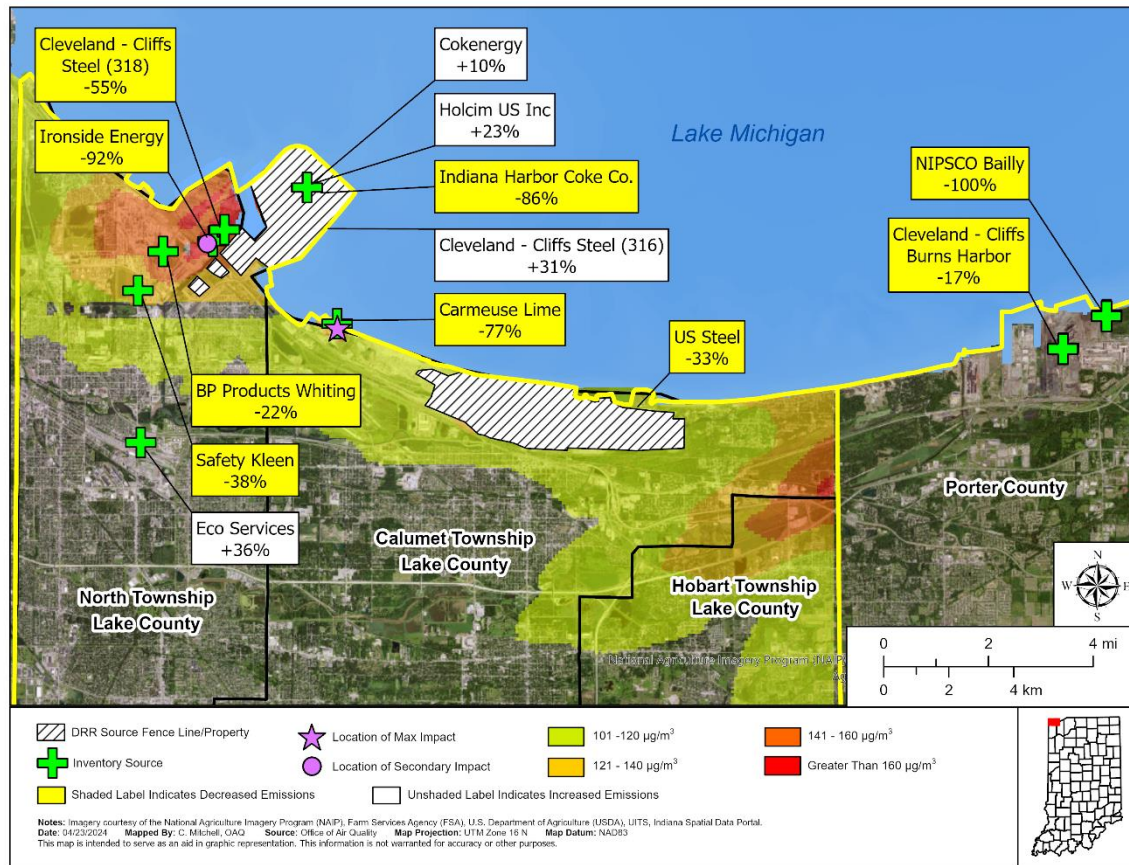
The Carmeuse Lime facility, although not an identified source under Round 3 designations, accepted permanent and enforceable SO₂ emissions limits to address SO₂ concentrations in the area and to demonstrate attainment of the 1-hr SO₂ NAAQS. It is unlikely that new modeling will show a higher impact given the significant emissions reductions in the region and at the Carmeuse facility which has reported actual SO₂ emissions well below the limits used to demonstrate attainment of the NAAQS.

Figure 1: Lake County Area SO₂ 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 23% decrease in emissions from all modeled sources in the Lake County area would show a decrease in projected SO₂ concentrations. Figure 2 shows the relationship of the modeled sources in Lake and Porter County to the 1-hour SO₂ modeled hot spots and how emission changes could influence the air quality impacts.

Figure 2: Lake County Area Sources and 1-Hour SO₂ 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 16 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 2020-2022 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 because of the emission change from each source and indicates that the 1-hour SO₂ NAAQS will not be exceeded.

Table 16: Projected Modeled Impacts at Maximum Modeled Location

Sources	Maximum Modeled Impact from 2013-2015 Emissions	% Emissions Change 2013-2015 to 2020-2022	Projected Modeled Impact From 2020-2022 Emissions
Carmeuse Lime	156.3	-77	35.9
Cleveland-Cliffs Steel (316) ²	53.1	31	69.6
Cokenergy	41.1	10	45.2
U.S. Steel Gary Works	26.8	-33	18.0
All other modeled sources	27.8	-36	17.8
Background ¹	17.8		17.8
Total	322.9		204.3

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

² Formerly known as ArcelorMittal USA.

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 µg/m³.

Table 17 shows the modeled impacts on the secondary maximum location for the area, as well as the projected modeled impacts when emission changes were considered. 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 consider all emissions changes from 2013-2015 to 2020-2022, the resulting modeled concentrations are less, and will not violate the 1-hour SO₂ 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 17: Projected Modeled Impacts at Secondary Maximum Modeled Location

Sources	Maximum Modeled Impact from 2013-2015 Emissions	% Emissions Change 2013-2015 to 2020-2022	Projected Modeled Impact from 2020-2022 Emissions
Carmeuse Lime	11.9	-77	2.7
Cleveland-Cliffs Steel (316) ²	78.3	31	102.6
Cokenergy	54.6	10	60.1
U.S. Steel Gary Works	17.5	-33	11.7
All other modeled sources	106.1	-36	67.9
Background ¹	17.8		17.8
Total	286.2		262.8

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

² Formerly known as ArcelorMittal USA.

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 SO₂ standard. Design values for the 2021-2023 period at the Gary-IITRI and Hammond-141st Street SO₂ sites have decreased from 44 ppb to 25 ppb and 23 ppb to 18 ppb from 2013-2015. It should also be noted that the East Chicago-Marina monitoring site recorded a 2021-2023 design value of 16 ppb, which is well below the standard of 75 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 “attainment/unclassifiable” and no changes to their classification are necessary at this time.

Round 4 Areas

During Round 4 designations, one source in Indiana, shown in Table 18, was identified around which SO₂ air quality characterization was required.

Table 18: Sources Subject to the Round 4 Designation Process

County	Source
Porter	Cleveland-Cliffs Burns Harbor ¹

¹ Formerly known as ArcelorMittal Burns Harbor.

On December 21, 2020, U.S. EPA completed designations for Round 4 designating Porter County, as “attainment/unclassifiable”. The final rule was published in the Federal Register on March 26, 2021, and became effective on April 30, 2021 (86 FR 16055).

Monitoring data was used to characterize air quality for designation of Porter County. Ongoing data requirements are the continued operation of SO₂ monitors as well as the continued reporting of such data. Cleveland-Cliffs Burns Harbor continues to operate its Indiana Port SO₂ monitoring station located west of the facility. Data is reported to U.S. EPA's Air Quality System (AQS) database. The Dunes Acre Substation SO₂ monitor was discontinued in 2020 due to monitored SO₂ values below 50% of the 1-hour SO₂ NAAQS.

Monitoring data for the years 2021-2023, as shown in Table 19, show a three-year average design value at the Indiana Port monitor below the 1-hour SO₂ NAAQS.

Table 19: Indiana Port (Cleveland-Cliffs Burns Harbor) SO₂ Monitoring Data

Site ID	County	99th Percentile Values, ppb					Three-Year Design Value, ppb		
		2019	2020	2021	2022	2023	2019-2021	2020-2022	2021-2023
181270028	Porter	78.8	80.5	72.5	44.9	79.4	77	66	66

Note: Three-year design value must be equal to or less than 75 ppb to attain the standard.

Public Participation

IDEM is providing a 30-day public comment period concerning this submittal of the *2024 Assessment for 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.

A copy of this report will be sent to U.S. EPA Region 5 through the State Planning Electronic Collaboration System (SPeCS).

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.

Sincerely,

Matt Stuckey
Assistant Commissioner
Office of Air Quality

MS/sd/bc/md/gf/as

Supporting Document:

1. Public Participation Process Documentation

cc: Chris Panos, EPA – Region 5 (no enclosure)
Sara Arra, EPA – Region 5 (no enclosure)
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