INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

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Mike Braun
Governor

Clint Woods
Commissioner

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

Re: 2025 Assessment for Ongoing Data Requirements for the 2010 Primary 1-Hour Sulfur Dioxide National Ambient Air Quality Standard

Dear Ms. Vogel:

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 (SO_2) 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_2 standard began with Round 1 designations in 2013 when the United States Environmental Protection Agency (U.S. EPA) established nonattainment areas near monitors with data greater than the SO_2 NAAQS. Indiana's Round 1 areas were subsequently designated attainment and are not subject to ongoing data requirements. The Southwest 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 SO_2 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 SO_2 monitoring and 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_2 monitoring network and the reporting of such data. For areas that used modeling, ongoing requirements are the assessment of annual SO_2 emissions and a recommendation regarding whether additional modeling is needed to characterize air quality to determine whether the area continues to meet the SO_2 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_2 emission limits as the basis for establishing designations demonstrating that the area will not violate the 2010 SO_2 NAAQS.

For areas where modeling shows ambient impacts greater than 50% of the standard[1], 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^3) and emissions increase by 15% or more.
- The original modeling was equal to or greater than 90% of the standard (176.58 µg/m^3) 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)

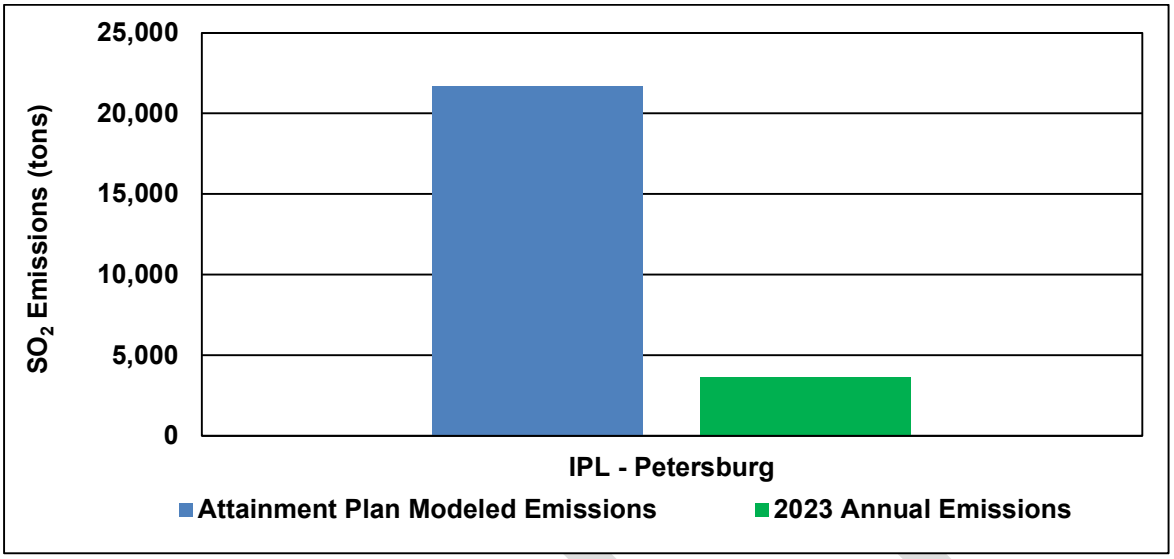
All SO_2 ambient air quality monitors have discontinued operation in Southwest Indiana, IN maintenance area. To verify continued attainment with the NAAQS and determine whether additional studies are needed, Indiana will continue to monitor contingency plan triggers by comparing the annual tons per year SO_2 emissions from the IPL – Peterburg Generating Station to modeled emission limits (i.e., equivalent 21,661 tons per year) used in the 1-hour SO_2 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: SO_2 Emissions (tons) for Southwest Indiana, IN Maintenance Area

Source Name	Attainment Plan Modeled Emissions	2023	Change	Percent Change
IPL – Petersburg	21,661	3,657	-18,004	-83%

[1] Concentrations may be expressed in parts per billion (ppb) and/or micrograms per cubic meter (µg/m^3).

Chart 1: SO_2 Emissions for the Southwest Indiana, IN Maintenance Area



As outlined in Table 1 and Chart 1, IPL – Petersburg's 2023 annual SO_2 emissions are approximately 83% lower than the modeled emission limits. Based on this SO_2 emission assessment, Indiana recommends no additional modeling is needed to further characterize air quality in the Southwest Indiana, IN maintenance area. SO_2 emissions have trended downward from what was modeled to demonstrate attainment of the 2010 primary 1-hour SO_2 NAAQS. The area is currently designated as "attainment/unclassifiable" and no changes to its classification are necessary at this time.

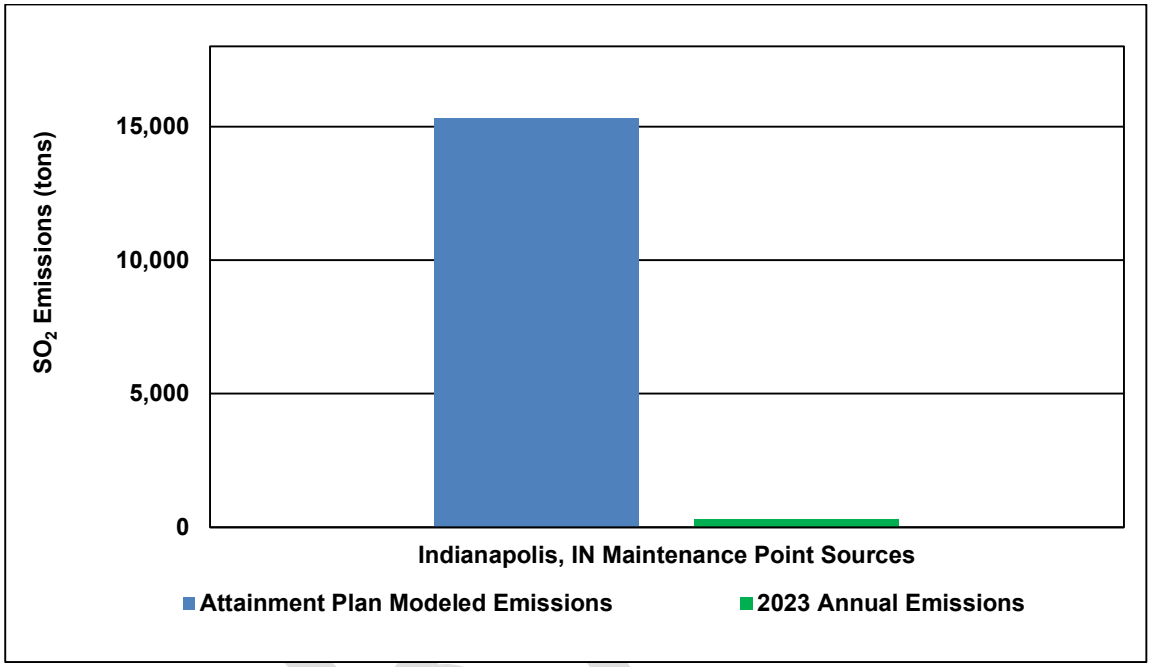
Indianapolis, IN, Maintenance Area – Partial Marion County (Center, Perry, and Wayne Townships)

The Harding Street SO_2 ambient air quality monitor was discontinued after the calendar year 2022. This monitor was located in the Indianapolis, IN SO_2 maintenance area within Center Township, Indianapolis, Indiana, along with the Washington Park SO_2 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 SO_2 concentration values at the Indianapolis – Washington Park SO_2 monitor, as well as comparing annual SO_2 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: SO_2 Emissions (tons) for the Indianapolis, IN Maintenance Area

Source Name	Attainment Plan Modeled Emissions	2023	Change	Percent Change
Modeled Point Sources	15,312	300	-15,012	-98%

Chart 2: SO_2 Emissions for the Indianapolis, IN Maintenance Area



As outlined in Table 2 and Chart 2, 2023 SO_2 emissions from modeled point sources in the Indianapolis, IN maintenance area are approximately 98% lower than the modeled emission limits.

Table 3: SO_2 Monitoring Data (ppb) for the Indianapolis, IN Maintenance Area

Site ID	Site Name	County	99th Percentile Values (ppb)							Three-Year Design Value (ppb)				
			2018	2019	2020	2021	2022	2023	2024	18-20	19-21	20-22	21-23	22-24
180970057	Indpls - Harding St.**	Marion	3.5	4.7*	6.1	7.6*	6.6	----	----	5	6	7	----	----
180970078	Indpls - Washington Park	Marion	3.2	2.7*	3.7	2.8	2.7	2.6	2.3	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 shown in Table 3, annual 99th percentile daily maximum 1-hour values and corresponding three-year design values demonstrate SO_2 concentrations have remailed well below the standard in the Indianapolis, IN area. Based on this SO_2 assessment, Indiana recommends no additional modeling is needed to further characterize air quality in the Indianapolis, Indiana maintenance area. SO_2 emissions

have trended downward from what was modeled to demonstrate attainment of the 2010 primary 1-hour SO_2 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 ($\mu g/m^3$)	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 5, ongoing data requirements are applicable to only three of the five Round 2 areas. Each area is discussed below.

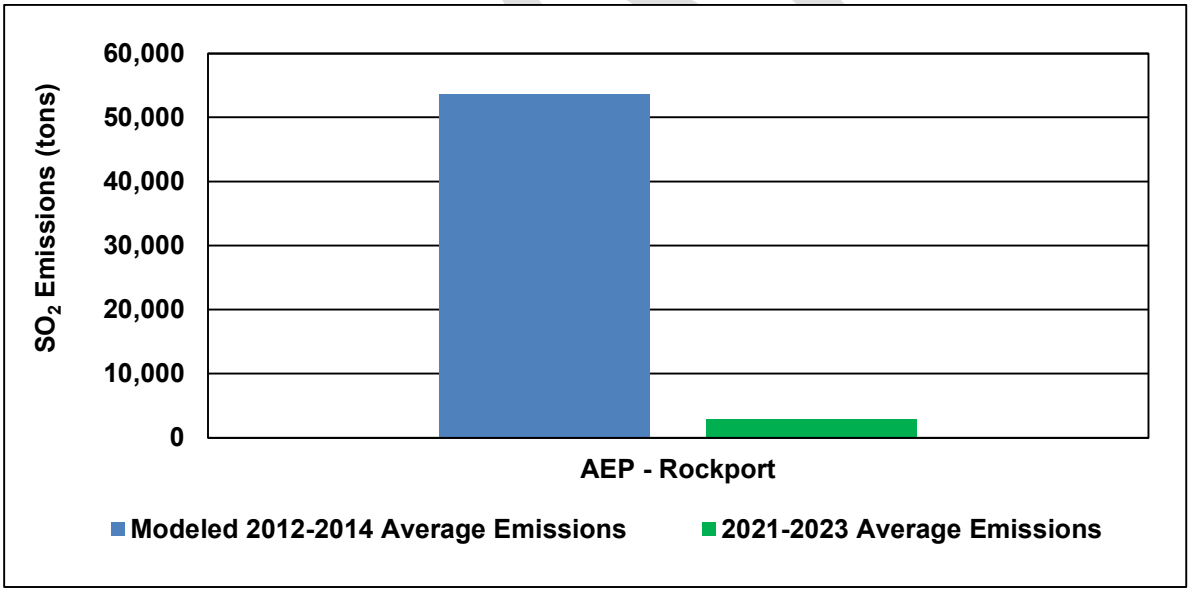
Spencer County (AEP – Rockport Station)

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 SO_2 NAAQS. As such, the 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 focused on the most recent three years of data and is documented in Table 6 and Chart 3.

Table 6: SO_2 Emissions (tons) for the Spencer County Area

Source Name	2012	2013	2014	Modeled 2012-2014 Average	2021	2022	2023	2021-2023 Average	Change	Percent Change
AEP – Rockport	54,390	51,636	54,979	53,668	2,814	3,726	2,008	2,849	-50,819	-95%

Chart 3: SO_2 Emissions for Spencer County Area



As outlined in Table 6 and Chart 3, average SO_2 emissions for 2021-2023 have decreased approximately 95% from the averaged SO_2 emissions for 2012-2014 used in the modeling for designations. Based on this SO_2 emissions assessment, Indiana recommends no additional modeling is needed to further characterize air quality in Spencer County. SO_2 emissions have trended downward from what was modeled to demonstrate attainment of the 2010 primary 1-hour SO_2 NAAQS. The area is currently

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

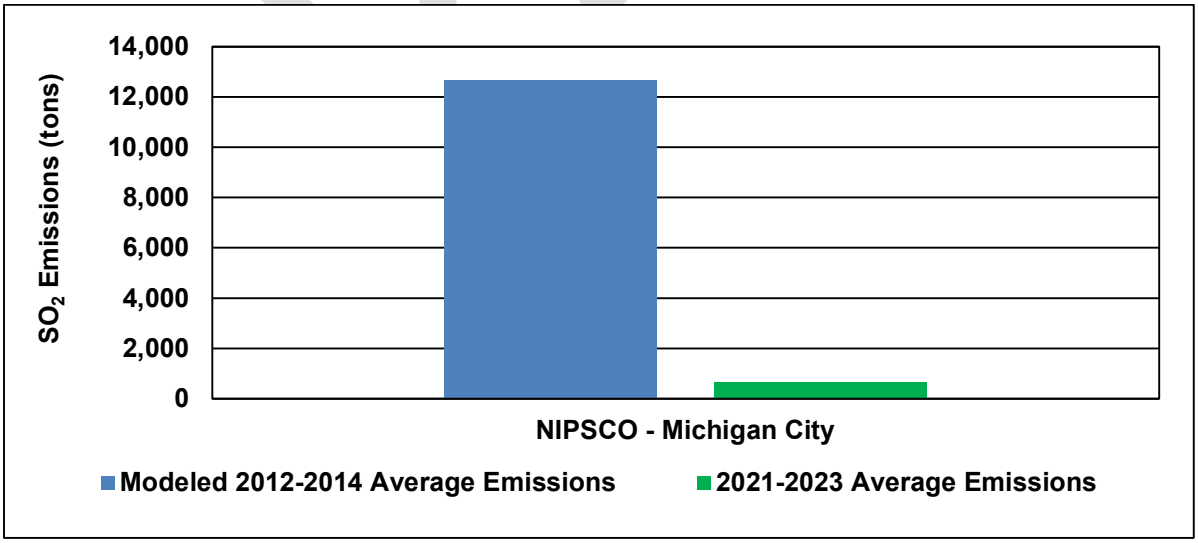
LaPorte County (NIPSCO – Michigan City Station)

For LaPorte 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_2 NAAQS. As such, the 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 LaPorte County area is NIPSCO’s Michigan City Station. The analysis for LaPorte County focused on the most recent three years of data is documented in Table 7 and Chart 4.

Table 7: SO_2 Emissions (tons) for the LaPorte County Area

Source Name	2012	2013	2014	Modeled 2012-2014 Average	2021	2022	2023	2021-2023 Average	Change	Percent Change
NIPSCO – Michigan City	11,584	10,429	15,991	12,668	659	685	640	661	-12,007	-95%

Chart 4: SO_2 Emissions for the LaPorte County Area



As outlined in Table 7 and Chart 4, average SO_2 emissions for 2021-2023 have decreased approximately 95% from the averaged SO_2 emissions for 2012-2014 used in the modeling for designations. Based on this SO_2 emissions assessment, Indiana recommends no additional modeling is needed to further characterize air quality in LaPorte County. SO_2 emissions have trended downward from what was modeled to

demonstrate attainment of the 2010 primary 1-hour SO_2 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 SO_2 monitors as well as continued reporting of such data. Duke Energy continues to operate the SO_2 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_2 standard as shown in Table 8.

Table 8: Duke Energy's Gibson Station SO_2 Monitoring Data

Site ID	County	99th Percentile Values (ppb)						Three-Year Design Value (ppb)			
		2019	2020	2021	2022	2023	2024	2019-2021	2020-2022	2021-2023	2022-2024
180510002	Gibson	41.3	59.3	37.2	33.8	21.9	36.0	46	43	31	31

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

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Round 3 Areas

During Round 3 designations, eleven sources in Indiana, shown in Table 9, were identified around which SO_2 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	Kaiser Aluminum/Newco[2]
Warrick	ALCOA Power Plant

[1] Formerly known as ArcelorMittal USA.
[2] Formerly known as ALCOA Warrick Operations.

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 February 12, 2024, IDEM and Isolatek entered into Commissioner’s Order 2023-Air-02 to establish revised emission limits for the facility that will become permanent and federally enforceable upon U.S. EPA’s approval of the order as part of Indiana’s state implementation plan. Commissioner’s Order 2023-Air-02 serves as the basis for IDEM’s attainment demonstration and technical support document and request for redesignation and maintenance plan submitted to U.S. EPA for review and approval on

November 6, 2023 and July 30, 2024, respectively.[2] 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 ($\mu g/m^3$)	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	Kaiser Aluminum/Newco[3] ALCOA Warrick Power Plant	189.7	Yes	Yes

[1] Modeled impact associated with the Carmeuse Lime facility, which accepted permanent and enforceable SO_2 permit limits to demonstrate attainment of the 1-hr NAAQS.
[2] Formerly known as ArcelorMittal USA.
[3] Formerly known as ALCOA Warrick Operations.

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

[2] On November 6, 2023, permanent and enforceable SO_2 emission limitations and rates were set forth in Commissioner's Order 2023-Air-01 for Isolatek for attainment of the 1-hour SO_2 standards in the area surrounding the facility. On February 12, 2024, Commissioner's Order 2023-Air 01 was amended and replaced by Commissioner's Order 2023-Air-02, which imposes additional compliance terms and conditions in addition to the established emission limits and conditions contained in Commissioner's Order 2023-Air-01.

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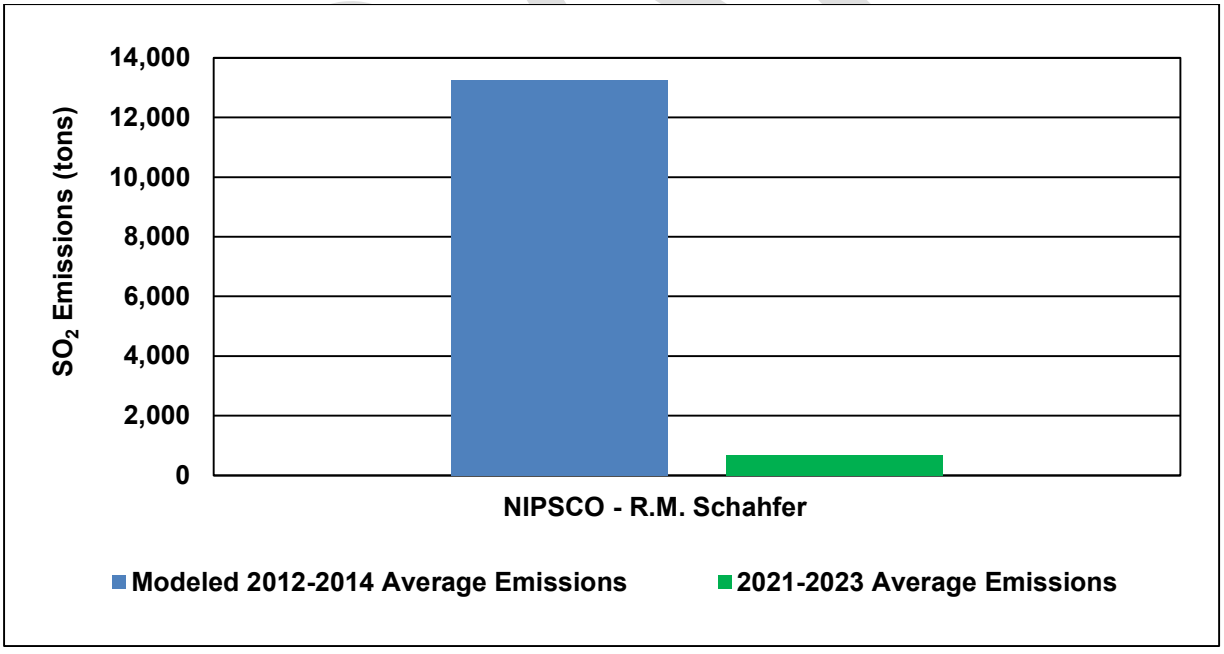
Jasper County (NIPSCO – R.M. Schahfer Station)

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_2 NAAQS. As such, the SO_2 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: SO_2 Emissions (tons) for Jasper County Area

Source Name	2012	2013	2014	Modeled 2012-2014 Average	2021	2022	2023	2021-2023 Average	Change	Percent Change
NIPSCO – R.M. Schahfer	14,911	16,418	8,413	13,247	1,018	556	464	679	-12,568	-95%

Chart 5: SO_2 Emissions for the Jasper County Area



As outlined in Table 11 and Chart 5, average SO_2 emissions for 2021-2023 have decreased approximately 95% from the averaged SO_2 emissions for 2012-2014 used in the modeling designations. Based on this SO_2 emissions assessment, Indiana recommends no additional modeling is needed to further characterize air quality in Jasper County. SO_2 emissions have trended downward from what was modeled to demonstrate attainment of the 2010 primary 1-hour SO_2 NAAQS. The area is currently

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

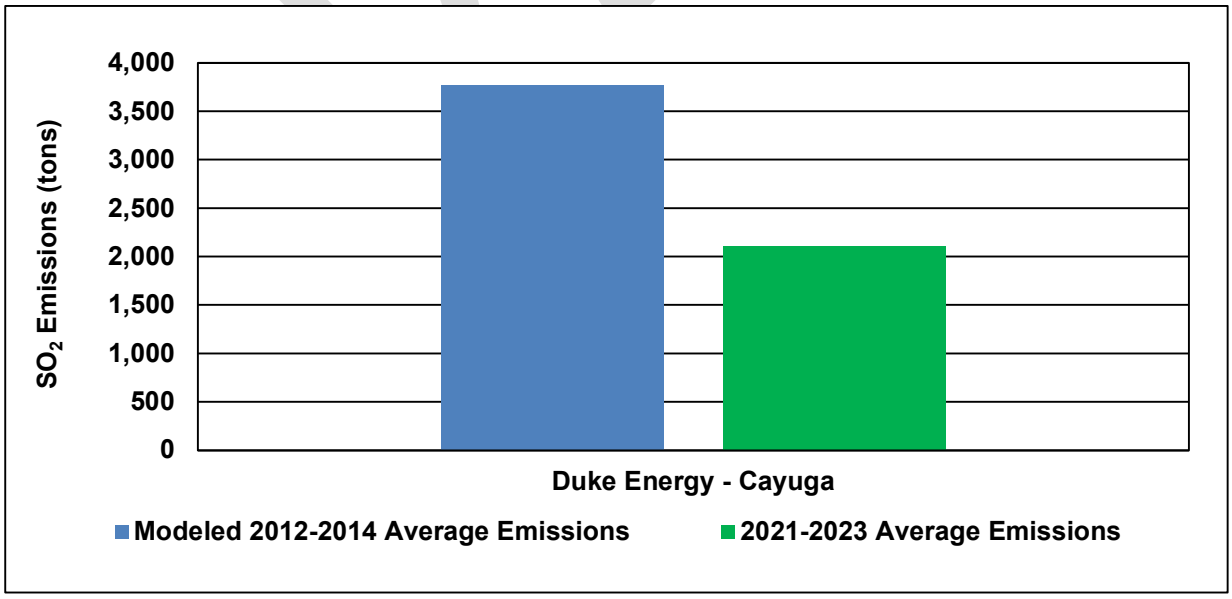
Vermillion County (Duke Energy – Cayuga Station)

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 SO_2 NAAQS. As such, the SO_2 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: SO_2 Emissions (tons) for the Vermillion County Area

Source Name	2012	2013	2014	Modeled 2012-2014 Average	2021	2022	2023	2021-2023 Average	Change	Percent Change
Duke Energy – Cayuga	3,223	4,628	3,448	3,766	2,233	1,668	2,425	2,109	-1,657	-44%

Chart 6: SO_2 Emissions for the Vermillion County Area



As outlined in Table 12 and Chart 6, average SO_2 emissions for 2021-2023 have decreased approximately 44% from the averaged SO_2 emissions for 2012-2014 used in the modeling for designations. Based on this SO_2 emissions assessment, Indiana recommends no additional modeling is needed to further characterize air quality in

Vermillion County. SO_2 emissions have trended downward from what was modeled to demonstrate attainment of the 2010 primary 1-hour SO_2 NAAQS. The area is currently designated as "attainment/unclassifiable" and no changes to its classification are necessary at this time.

Warrick County (Kaiser Aluminum/Newco, ALCOA Warrick Power Plant)

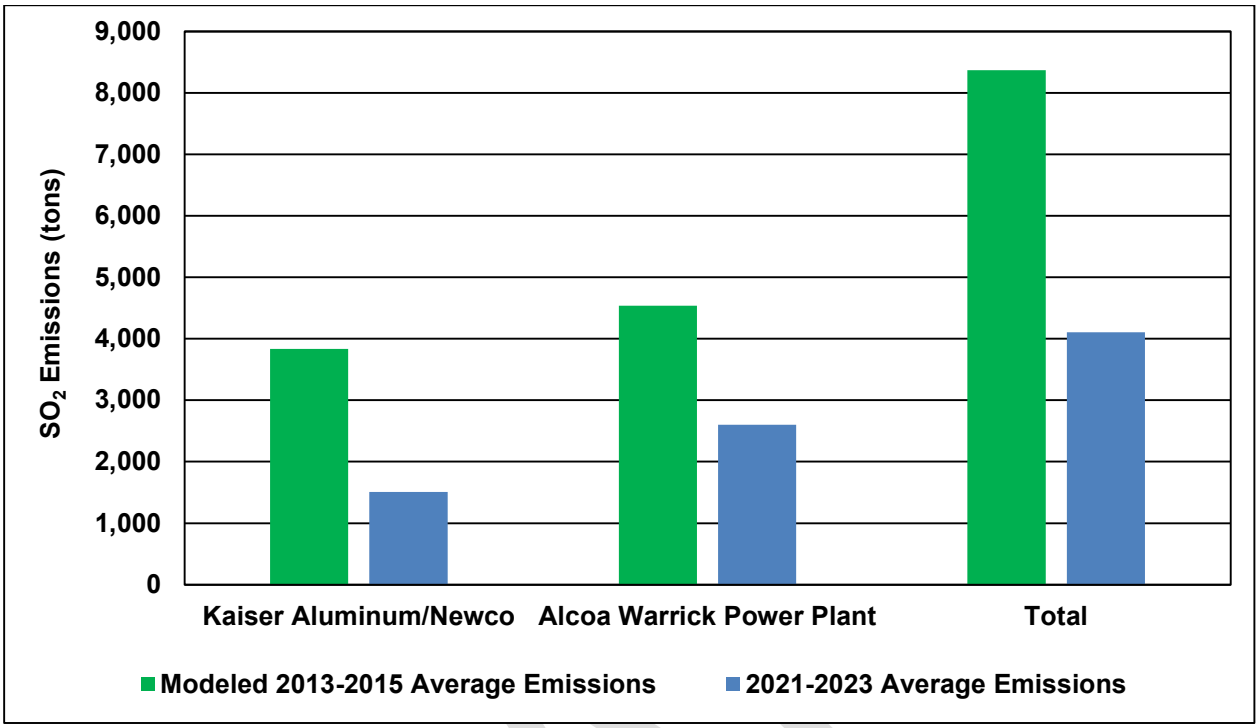
For Warrick County, on October 18, 2017, Indiana submitted air quality modeling to U.S. EPA that demonstrated air quality values greater than 90% of the 1-hour SO_2 NAAQS. As such, the SO_2 emissions assessment requirement in 40 CFR §51.1205(b) is applicable and any emissions increase may necessitate additional modeling analyses to characterize air quality in the area. The primary sources associated with the Warrick County area are Kaiser Aluminum/Newco 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: SO_2 Emissions (tons) for Round 3 Sources in Warrick County

Source Name	2013	2014	2015	Modeled 2013-2015 Average	2021	2022	2023	2021-2023 Average	Change	Percent Change
Kaiser Aluminum/ Newco	3,852	3,500	4,147	3,833	1,737	1,543	1,237	1,506	-2,328	-61%
ALCOA Warrick Power Plant	5,707	4,993	2,907	4,536	2,664	2,571	2,571	2,602	-1,934	-43%
Total	**9,559**	**8,493**	**7,054**	**8,369**	**4,401**	**4,114**	**3,806**	**4,107**	**-4,262**	**-51%**

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Chart 7: SO_2 Emissions for the Warrick County Area



As outlined in Table 13 and Chart 7, averaged SO_2 emissions for 2021-2023 have decreased approximately 61% and 43% for Kaiser Aluminum/Newco and ALCOA Warrick Power Plant, respectively, from the averaged SO_2 emissions for 2013-2015 used in the modeling for designations. Based on this SO_2 emissions assessment, Indiana recommends no additional modeling is needed to further characterize air quality in Warrick County. SO_2 emissions have trended downward from what was modeled to demonstrate attainment of the 2010 primary 1-hour SO_2 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)

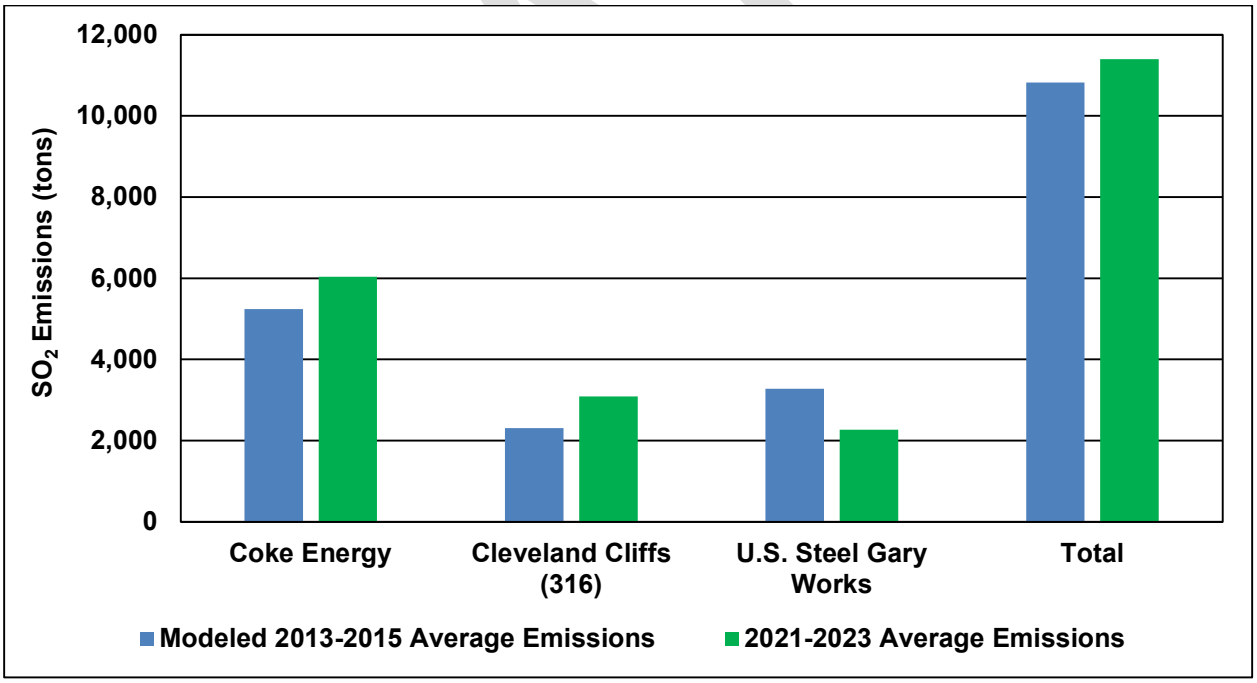
Indiana submitted air quality modeling for Lake County to U.S. EPA on January 13, 2017 that demonstrated air quality values greater than 90% of the 1-hour SO_2 NAAQS. As such, the SO_2 emission assessment requirement in 40 CFR §51.1205(b) is applicable and any emissions increase may necessitate additional 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, as seen below.

Table 14: SO_2 Emissions (tons) for Round 3 Sources in Lake County

Source Name	2013	2014	2015	Modeled 2013-2015 Average	2021	2022	2023	2021-2023 Average	Change	Percent Change
Cokenergy	4,653	4,952	6,104	5,236	5,593	6,256	6,258	6,036	800	15%
Cleveland-Cliffs Steel (316) [1]	2,369	2,163	2,398	2,310	3,042	3,613	2,620	3,092	782	34%
U.S. Steel Gary Works	3,564	3,285	2,980	3,276	2,209	2,523	2,062	2,265	-1,011	-31%
Total	**10,586**	**10,400**	**11,482**	**10,822**	**10,844**	**12,392**	**10,940**	**11,393**	**571**	**5%**

[1] Formerly known as ArcelorMittal USA.

Chart 8: SO_2 Emissions for DRR-Identified Sources in Lake County



As outlined in Table 14 and Chart 8, averaged SO_2 emissions for 2021-2023 increased 15% and 34% for Cokenergy and Cleveland=Cliffs Steel (316), while the U.S. Steel Gary Works emissions decreased 31% from 2013-2015 SO_2 emissions used in the modeling designations. Average total emissions from the three DRR-identified sources for 2021-2023 increased 571 tons, approximately 5% above what was modeled.

To determine if additional modeling is warranted, Indiana examined, as shown in Table 15, the SO_2 emissions from all sources included in the modeling for designations.

Table 15: SO_2 Emissions (tons) for the Lake County Area

Source Name	2013	2014	2015	Modeled 2013-2015 Average	2021	2022	2023	2021-2023 Average	Change	Percent Change
Cokenergy	4,653	4,952	6,104	5,236	5,593	6,256	6,258	6,036	800	15%
Cleveland-Cliffs Steel (316) [4]	2,369	2,163	2,398	2,310	3,042	3,613	2,620	3,092	782	34%
U.S. Steel	3,564	3,285	2,980	3,276	2,209	2,523	2,062	2,265	-1,011	-31%
Safety Kleen	56	68	63	62	41	34	41	39	-23	-38%
Holcim US Inc [6]	129	113	127	123	157	137	122	139	16	13%
Eco Services	347	215	205	256	351	384	223	319	63	25%
Cleveland-Cliffs Steel (318) [3]	1,638	1,587	1,067	1,431	966	231	57	418	-1,013	-71%
Cleveland-Cliffs Burns Harbor [5]	13,864	12,189	12,202	12,752	11,046	10,024	10,686	10,585	-2,167	-17%
BP Products Whiting	----	----	400 [1]	400	335	319	259	304	-96	-24%
Ironside Energy	231	274	108	204	36	0	0	12	-192	-94%
Carmeuse Lime	----	----	----	263 [2]	64	277	64	135	-128	-49%
Indiana Harbor Coke Co.	4,668	1,838	817	2,441	337	0	302	213	-2,228	-91%
Kopper, Inc.	1,096	870	669	878	246	253	261	253	-625	-71%
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**	**24,423**	**24,051**	**22,955**	**23,810**	**-7,191**	**-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.

DRAFT

SO_2 emissions have decreased 23% throughout the Lake County area from what was modeled during the designation process. The increases, totaling 1,660 TPY, are more than offset by the emission decreases totaling 8,852 TPY from the remaining sources.

Analysis of Modeling

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

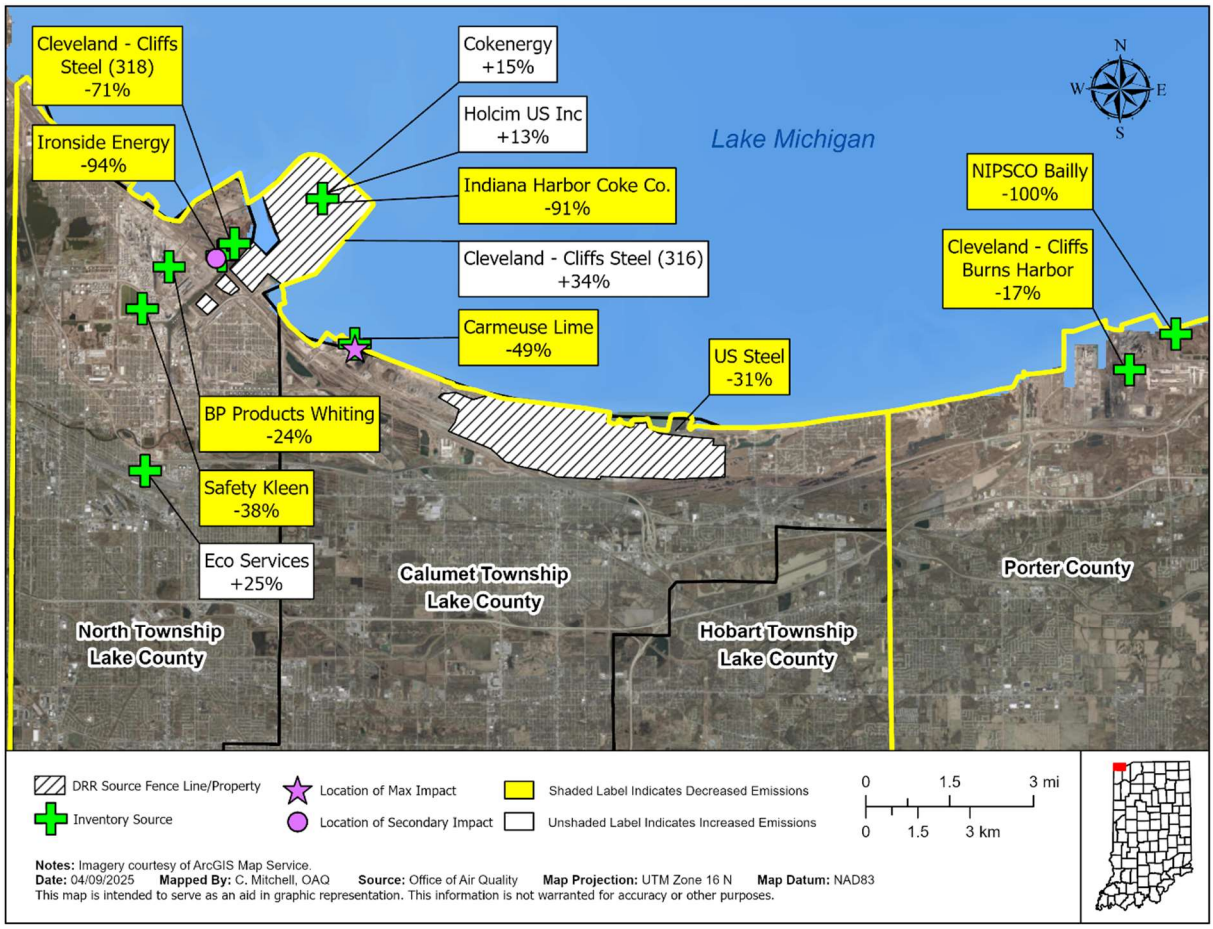
Analysis of Maximum Impact

As shown in Figures 1 and 2, the location of maximum impact for the 1-hour SO_2 attainment designation for Lake County is located near the Carmeuse facility. The maximum modeled concentration was 192.2 micrograms per cubic meter ($\mu g/m^3$).

The Carmeuse Lime facility, although not an identified source under Round 3 designations, accepted permanent and enforceable SO_2 emission limits to address SO_2 concentrations in the area and to demonstrate attainment of the 1-hour SO_2 NAAQS. It is unlikely that new modeling will show a higher impact given that significant emission reductions in the region and at the Carmeuse facility which has reported actual SO_2 emissions well below the limits used to demonstrate attainment of the NAAQS.

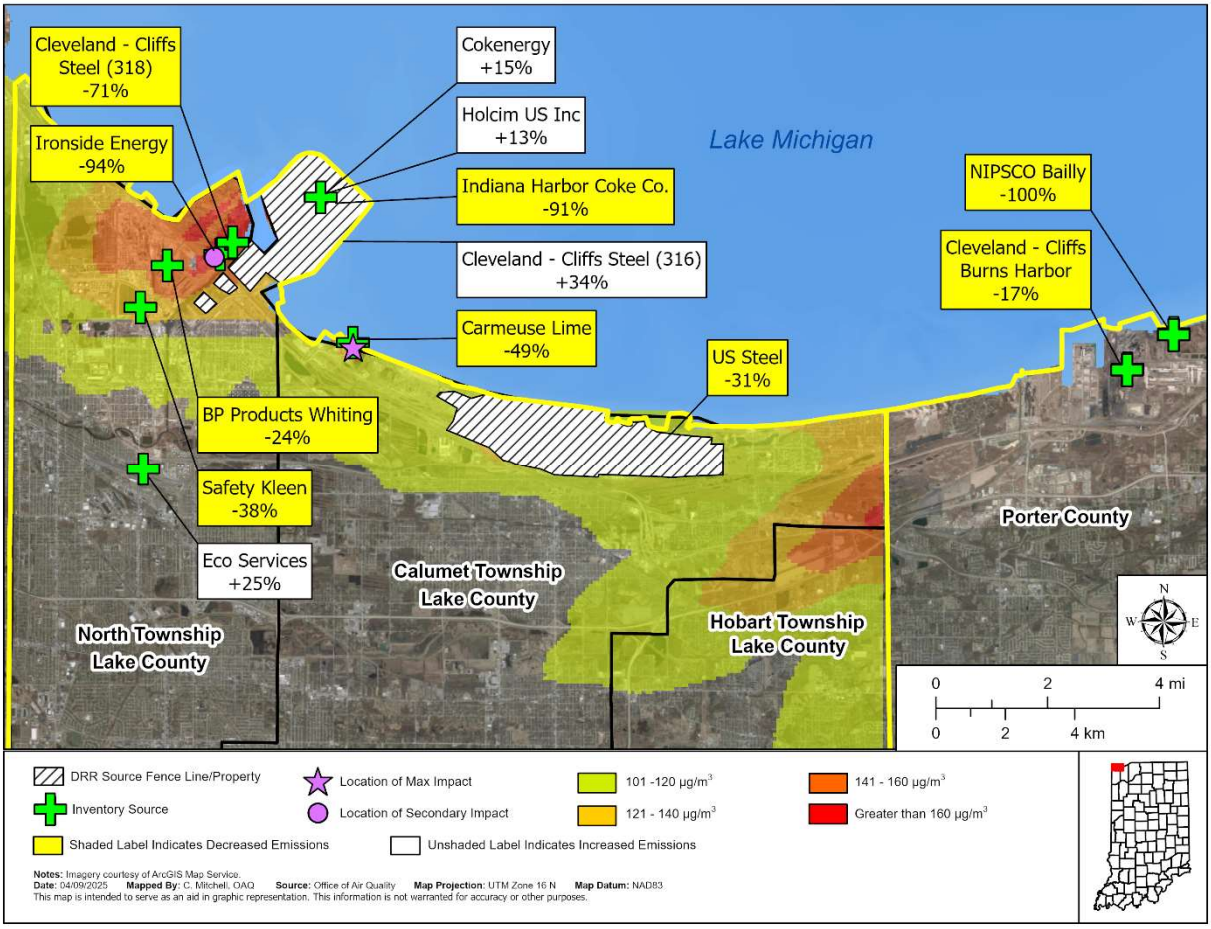
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Figure 1: Lake County Area SO_2 Sources and Percent Change in Emissions



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 projected SO_2 concentrations. Figure 2 shows the relationship of the modeled sources in Lake and Porter counties to the 1-hour SO_2 modeled hot spots and how emission changes could influence the air quality impacts.

Figure 2: Lake County Area Sources and 1-Hour SO_2 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.

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 2021-2023 emission 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 SO_2 NAAQS will not be exceeded.

Table 16: Projected Modeled Impacts (µg/m^3) at Maximum Modeled Location

Sources	Maximum Modeled Impact from 2013-2015 Emissions	% Emissions Change 2013-2015 to 2021-2023	Projected Modeled Impact from 2021-2023 Emissions
Carmeuse Lime	156.3	-49%	79.7
Cleveland-Cliffs Steel (316)[2]	53.1	34%	71.2
Cokenergy	41.1	15%	47.3
U.S. Steel Gary Works	26.8	-31%	18.5
All other modeled sources	27.8	-38%	17.2
Background [1]	17.8		17.8
Total	**322.9**		**251.7**

[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/m^3.

Table 17 shows the modeled impacts on the secondary maximum location for the area, as well as the projected modeled impacts when the 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 emission changes from 2013-2015 to 2021-2023, the resulting modeled concentrations are less and will not violate the 1-hour 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.

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Table 17: Projected Modeled Impacts (µg/m^3) at Secondary Maximum Modeled Location

Sources	Maximum Modeled Impact from 2013-2015 Emissions	% Emissions Change 2013-2015 to 2021-2023	Projected Modeled Impact from 2021-2023 Emissions
Carmeuse Lime	11.9	-49%	*6.1*
Cleveland-Cliffs Steel (316) [2]	78.3	34%	*104.9*
Cokenergy	54.6	15%	*62.8*
U.S. Steel Gary Works	17.5	-31%	*12.1*
All other modeled sources	106.1	-38%	*65.8*
Background [1]	17.8		*17.8*
Total	**286.2**		***269.5***

[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, as shown in Table 18, demonstrates attainment of the 2010 primary 1-hour SO_2 standard.

Table 18: SO_2 Monitoring Data Design Values (ppb) for Lake County 2013-2015 through 2022-2024

Site ID	Site Name	13-15	14-16	15-17	16-18	17-19	18-20	19-21	20-22	21-23	22-24
180890022	Gary - IITRI	44	39	34	30	32	31	33	28	25	27
180890034	East Chicago - Marina*						18**	18**	17	16	14
180892008	Hammond – 141st St.	23	22	22	20	19	22	22	19	18	18

Note: Three-year design value (DV) must be equal to or less than 75 ppb to attain the standard
* Site began operation 11/01/2019
** Incomplete data

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 19, was identified around which SO_2 air quality characterization was required.

Table 19: 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 SO_2 monitors as well as the continued reporting of such data. Cleveland – Cliffs Burns Harbor continues to operate its Indiana Port SO_2 monitoring station located west of the facility. Data is reported to U.S. EPA's Air Quality System (AQS) database. The Dunes Acre Substation SO_2 monitor was discontinued in 2020 due to monitored SO_2 values below 50% of the 1-hour SO_2 NAAQS.

Monitoring data for the years 2022-2024, as shown in Table 20, show a three-year average design value at the Indiana Port monitor below the 1-hour SO_2 NAAQS.

Table 20: Indiana Port (Cleveland-Cliffs Burns Harbor) SO_2 Monitoring Data

Site ID	County	99th Percentile Values (ppb)					Three-Year Design Value (ppb)		
		2020	2021	2022	2023	2024	2020-2022	2021-2023	2022-2024
181270028	Porter	80.5	72.5	44.9	79.4	50.6	66	66	58

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).

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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/mb

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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