INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
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Eric J. Holcomb
Governor

Brian C. Rockensuess
Commissioner

November 6, 2023

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

Re: Section 172 and 191 Requirements for the Huntington, Indiana (IN) 2010 Primary 1-Hour Sulfur Dioxide (SO_2) Nonattainment Area (Huntington Township)

Dear Ms. Shore:

Pursuant to Sections 172 and 191 of the Clean Air Act (CAA), the Indiana Department of Environmental Management (IDEM) is submitting amendments to the Indiana State Implementation Plan (SIP) for the Huntington, Indiana (IN) 2010 primary 1-hour sulfur dioxide (SO_2) nonattainment area.

Indiana hereby requests review and approval of the following documents that fulfill requirements in Sections 172 and 191 of the CAA.

- **Attainment Demonstration and Technical Support Document (Attachment A)**

  Indiana demonstrates that the Huntington, IN nonattainment area will achieve attainment of the 2010 primary 1-hour SO_2 National Ambient Air Quality Standard (NAAQS) with an ample margin of safety.

  This attainment demonstration and weight of evidence analysis, along with the modeling analyses, demonstrate that the combination of current clean air measures and the implementation of additional permanent and enforceable control measures at USMPC Buyer, Inc. d/b/a Isolatek International (Isolatek), formerly known as U.S. Mineral Wool, in Huntington County, IN, will ensure the area continues to maintain compliance with the standard with an adequate margin of safety.

- **2017 Base Year and 2023 Attainment Year SO_2 Emission Inventories (Attachment B)**

  The emission inventories satisfy the state's obligation under Section 172(c)(3) of the CAA and represent a comprehensive, accurate, and current SIP quality emission inventory of SO_2 representative of the base year (2017) and a projection of the emission inventory to the attainment year (2023) for the Huntington, IN nonattainment area.

- **Commissioner's Order 2023-Air-01 (Attachment C)**

  SO_2 emission limits are established in the attainment demonstration and made permanent and enforceable upon United States Environmental Protection Agency's (U.S. EPA's) approval of Commissioner's Order 2023-Air-01 for Isolatek as part of Indiana's SIP.

- **Public Participation Process Documentation (Attachment D)**

  IDEM provided a 30-day comment period and opportunity for a public hearing concerning the *Attainment Demonstration and Technical Support Document for the Huntington, Indiana 2010 Primary 1-Hour Sulfur Dioxide (SO_2) Nonattainment Area and Commissioner's Order No. 2023-Air-01 for Isolatek.* A public hearing was not requested and there were not any comments received. Please refer to the Public Participation Process Documentation for further information and dates regarding the public participation process.

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

IDEM staff worked with U.S. EPA Region 5 to address any potential concerns regarding the submission. 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/sad/md/bc/gf/as

Attachment A: Attainment Demonstration and Technical Support Document
Attachment B: 2017 Base-Year and 2023 Attainment Year Emission Inventories
Attachment C: Commissioner's Order 2023-Air-01
Attachment D: Public Participation Process Documentation

cc: John Mooney, U.S. EPA Region 5 (no enclosure)
Doug Aburano, U.S. EPA Region 5 (no enclosure)
Sara Arra, U.S. EPA Region 5 (no enclosure)
Chris Panos, U.S. EPA Region 5 (no enclosure)
Elizabeth Selbst, U.S. EPA Region 5 (no enclosure)
Melissa Sheffer, U.S. EPA Region 5 (no enclosure)
Matt Stuckey, IDEM (no enclosure)
Scott Deloney, IDEM (no enclosure)
Brian Callahan, IDEM (no enclosure)
Gale Ferris, IDEM (no enclosure)
Amy Smith, IDEM (w/ enclosure)
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Attachment A

ATTAINMENT DEMONSTRATION AND TECHNICAL SUPPORT DOCUMENT

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ATTAINMENT DEMONSTRATION AND TECHNICAL SUPPORT DOCUMENT FOR THE HUNTINGTON, INDIANA 2010 PRIMARY 1-HOUR SULFUR DIOXIDE (SO_2) NONATTAINMENT AREA

Huntington Township in Huntington County

Prepared By:
The Indiana Department of Environmental Management

November 2023

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1.0 OVERVIEW

1.1 Introduction

On January 9, 2018, United States Environmental Protection Agency (U.S. EPA) designated Huntington Township in Huntington County, Indiana, as nonattainment for the 2010 primary 1-hour sulfur dioxide (SO_2) National Ambient Air Quality Standard (NAAQS) (83 FR 1098). The rule became effective on April 9, 2018, establishing an attainment date of April 9, 2023. This designation was based on preliminary dispersion modeling conducted by U.S. EPA that suggested SO_2 emissions from U.S. Mineral Wool in Huntington, IN, also known as Isolatek, may potentially contribute to a violation of the 2010 primary 1-hour standard for SO_2.

Section 191(a) of the Clean Air Act (CAA) requires states with SO_2 nonattainment areas to submit a state implementation plan (SIP) within 18 months of the effective date of designations detailing how the NAAQS will be attained as expeditiously as practicable but no later than five years after the effective date of designation, or by April 9, 2023. Section 172 of the CAA stipulates the requirements nonattainment areas must meet, including the development of a plan to reduce SO_2 emissions.

This plan demonstrates that with the combination of current clean air measures and the implementation of additional permanent and enforceable control measures at Isolatek, the primary source of SO_2 emissions in the Huntington, IN area, air quality will meet the 2010 primary 1-hour SO_2 standard. The structure and content of this document address each of the elements required by the CAA as discussed in the April 23, 2014, memorandum from Stephen D. Page, Director of U.S. EPA's Office of Air Planning and Standards, titled Guidance for 1-Hour SO_2 Nonattainment Area SIP Submissions (referred to hereafter as the 2014 guidance memo).

1.2 Sulfur Dioxide (SO_2)

SO_2 is part of a group of highly reactive gases known as oxides of sulfur (SO_x) and is primarily derived from fossil fuel combustion at power plants and other industrial facilities. SO_2 is one of the six criteria air pollutants regulated under the federal CAA. SO_2 is considered harmful to human health and has been linked with many adverse health effects, particularly within the respiratory system. SO_2 is also a primary contributor to acid rain, which causes acidification of lakes and streams, damages trees at high elevations, and damages sensitive forest soils.

1.3 National Ambient Air Quality Standards (NAAQS)

NAAQS have been developed for the six criteria pollutants by U.S. EPA and are used as measurements of air quality. The CAA requires U.S. EPA to set primary standards at a level judged to be "requisite to protect the public health" with an adequate margin of safety and set secondary standards at a level "requisite to protect public welfare from any known or anticipated adverse effects" associated with the pollutant in the ambient

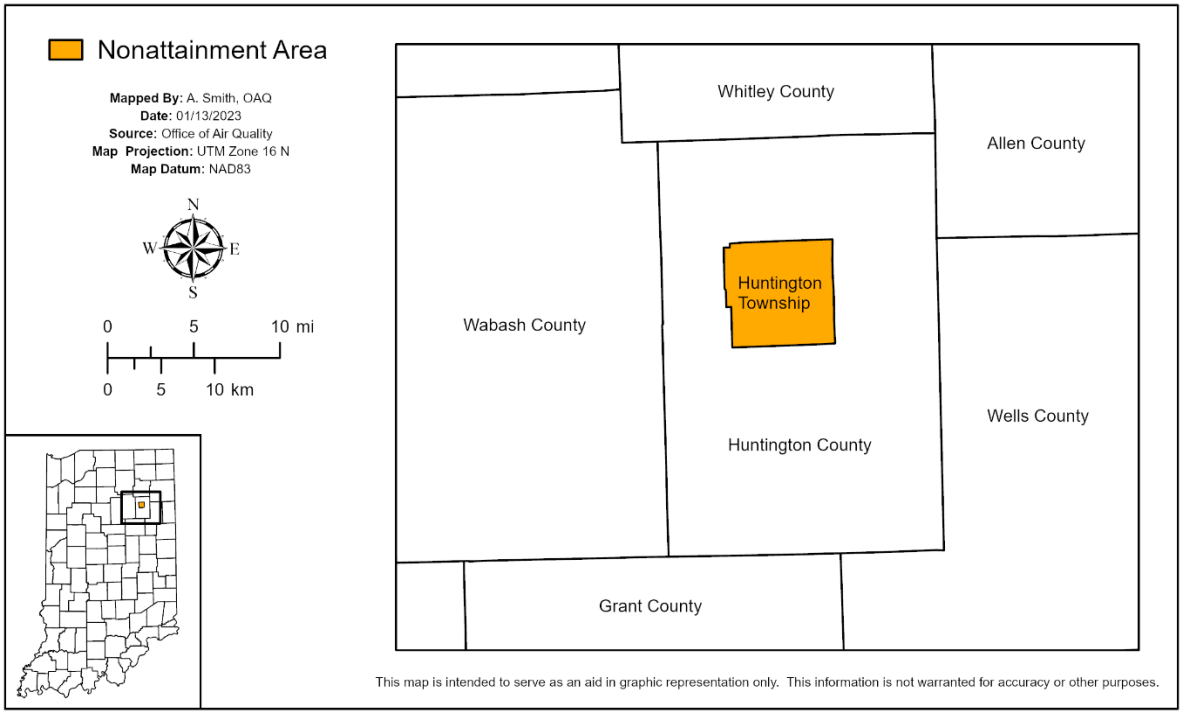
air, including effects on crops, vegetation, wildlife, buildings and national monuments, and visibility.

On June 2, 2010, U.S. EPA promulgated a new primary 1-hour SO_2 standard of 75 parts per billion (ppb), which is met at a monitoring site when the 3-year average of the annual 99th percentile of the daily maximum 1-hour average concentration does not exceed 75 ppb (75 FR 35520; June 22, 2010). The 2010 SO_2 standard was effective on August 23, 2010.

1.4 Nonattainment Area Geography

The Huntington, IN 2010 SO_2 nonattainment area includes all of, and is limited to, Huntington Township in Huntington County, Indiana, as defined in the Code of Federal Regulations (40 CFR 81.315). Huntington County is in northeast Indiana and is bordered by the Indiana counties of Allen and Wells to the east, Whitley to the north, Grant and Wells to the south, and Wabash to the west. Figure 1.1 shows the area.

Figure 1.1: Map of the Huntington, IN 2010 SO_2 Nonattainment Area



1.5 Status of Air Quality

There are currently no monitors measuring SO_2 concentrations in the Huntington, IN SO_2 nonattainment area. On January 9, 2018, United States Environmental Protection Agency (U.S. EPA) designated Huntington Township in Huntington County, Indiana, as nonattainment for the 2010 primary 1-hour sulfur dioxide (SO_2) National Ambient Air Quality Standard (NAAQS) (83 FR 1098).

2.0 CLEAN AIR ACT REQUIREMENTS OVERVIEW (NONATTAINMENT AREA PLANNING ELEMENTS)

Section 172(c) of the CAA specifies planning requirements that apply to SO_2 nonattainment areas, and recommendations for submittals are provided in U.S. EPA's 2014 guidance memo. This document follows CAA requirements and the 2014 guidance memo recommendations for addressing items that are required to be submitted with the nonattainment plan for the Huntington, IN 2010 SO_2 nonattainment area.

U.S. EPA's 2014 guidance memo explains, "An approvable attainment demonstration would be an air quality modeling analysis that demonstrates that the emission limits in the plan will suffice to provide for timely attainment of the affected standard. In cases where the necessary emission limits have not been previously made a part of the SIP, or have not otherwise become federally enforceable, the plan needs to include the necessary enforceable limits in adopted form suitable for incorporation into the SIP in order for it to be approved by the [U.S.] EPA." Section 5.0 below contains a complete modeling analysis demonstrating that limits established for Isolatek in Commissioner's Order 2023-Air-01 (Attachment C) will provide for attainment by the attainment date.

In addition, the CAA specifies the following required planning elements:

- Reasonably Available Control Measures (RACM)/Reasonably Available Control Technology (RACT);
- Reasonable Further Progress (RFP);
- Emissions Inventories;
- Identification and Quantification of Emissions;
- Permit Program for New and Modified Sources;
- Other Measures, Means, or Techniques;
- Compliance with Section 110(a)(2);
- Equivalent Techniques; and,
- Contingency Measures.

Sections 2.1 through 2.9 provide an overview of Indiana's progress in meeting these requirements.

2.1 Reasonably Available Control Measures/Reasonably Available Control Technology (CAA Section 172(c)(1))

Section 172(c)(1) of the CAA states that nonattainment plans shall provide for the implementation of all reasonably available control measures (RACM) as expeditiously as practicable including such reductions in emissions from existing sources in the area as may be obtained through the adoption, at a minimum, of reasonably available control technology (RACT) and shall provide for attainment of the national primary ambient air quality standards. For most criteria pollutants, RACT is control technology as needed to meet the NAAQS that is reasonably available considering technological and economic feasibility. However, the definition of RACT for SO_2 is, simply, that control technology which is necessary to achieve the NAAQS.

These requirements will be met by submitting a demonstration that shows attainment with the implementation of emission controls and limitations established in Commissioner's Order 2023-Air-01 for Isolatek (Attachment C).

2.2 Reasonable Further Progress (CAA Section 172(c)(2))

Section 172(c)(2) of the CAA requires attainment demonstrations for areas designated nonattainment for criteria pollutants to include a demonstration of reasonable further progress (RFP). RFP is defined in this section as "such annual incremental reductions in emissions of the relevant air pollution as required by Part D or may reasonably be required by U.S. EPA for the purpose of ensuring attainment of the applicable NAAQS by the applicable attainment date."

As stated in U.S. EPA's 2014 guidance memo, this definition is most appropriate for pollutants emitted by numerous and diverse sources, where the relationship between any individual source and the overall air quality is not explicitly quantified, and where the emission reductions necessary to attain the NAAQS are inventory-wide. The definition is generally less pertinent to pollutants such as SO_2 which usually have a limited number of sources, where the relationship between individual sources and air quality is relatively well-defined, and where emission control measures result in swift and dramatic improvement in air quality. That is, for SO_2, there is usually a single step between pre-control nonattainment and post-control attainment.

Section 3.0 below provides an emission trends analysis demonstrating that Isolatek is the primary contributor of SO_2 emissions in the nonattainment area. Emission limitations are established in this attainment demonstration and made permanent and enforceable upon U.S. EPA approval of Commissioner's Order 2023-Air-01 for Isolatek (Attachment C) as part of Indiana's SIP.

2.3 Emissions Inventories (CAA Section 172(c)(3))

Section 172(c)(3) of the CAA requires the development of a comprehensive, accurate, and current inventory of actual emissions from all sources of SO_2 in the nonattainment area, including periodic revisions as the Administrator may determine necessary to assure the requirements for this part are met. U.S. EPA's 2014 guidance memo highlights requirements concerning the submittal of a comprehensive SIP quality emission inventory of SO_2 representative of the base year (2017) and a projection of the emission inventory to the attainment year (2023). Section 3.0 below contains emission trends analyses. Emission inventories for the 2017 base year and 2023 attainment year are provided in Attachment B.

2.4 Identification and Quantification of Emissions (CAA Section 172(c)(4))

Section 172(c)(4) of the CAA requires the SIP to identify and quantify the emissions of SO_2 that sources will be allowed from the construction and operation of major new and modified sources, in accordance with CAA Section 173(a)(1)(B) and will not interfere with attainment of the SO_2 NAAQS by the attainment date. This requirement is outlined in state rule 326 IAC 2-3.

2.5 Permit Program for New and Modified Major Sources (CAA Section 172(c)(5))

Section 172(c)(5) of the CAA requires the state to implement a permit program consistent with the requirements of CAA Section 173. Indiana has a long standing and fully implemented New Source Review (NSR) permitting program that is outlined in 326 IAC 2-2 and 326 IAC 2-3. Indiana's NSR program was approved by U.S. EPA, as published in the Federal Register (FR) on October 7, 1994 (94 FR 24837), as part of the SIP.

Any facility that is not listed in the 2017 base year emissions inventory, or for the closing of which credit was taken in demonstrating attainment, will not be allowed to construct, reopen, modify, or reconstruct without meeting all applicable permit rule requirements, including an air quality analysis to evaluate whether the new source will threaten the SO_2 NAAQS.

2.6 Other Measures, Means, or Techniques (CAA Section 172(c)(6))

Section 172(c)(6) of the CAA requires plan provisions to include enforceable emission limitations, and such other control measures, means, or techniques, as well as schedules and timetables for compliance, as may be necessary or appropriate to provide for attainment by the applicable attainment date.

The establishment of permanent and enforceable emission limits for Isolatek in Commissioner's Order 2023-Air-01 (Attachment C) will ensure attainment of the 2010 1-hour SO_2 NAAQS in the Huntington, IN nonattainment area. These control measures

along with existing local, state, and national control measures will ensure that attainment will be maintained with an increasing margin of safety over time, as discussed in Section 4.0 below.

A detailed discussion of the photochemical grid modeling, model selection, methodologies, meteorology, model input, analysis methods, and technical work completed to analyze air quality data in order to demonstrate attainment of the SO_2 standard are presented in Section 5.0 below.

2.7 Compliance with CAA Section 110(a)(2) (CAA Section 172(c)(7))

Section 172(c)(7) of the CAA requires nonattainment SIPs to meet the applicable provisions of CAA Section 110(a)(2). IDEM has reviewed the requirements of Section 110(a)(2) and concluded that prior rule submittals, along with this attainment demonstration and permanent and enforceable requirements established in Commissioner's Order 2023-Air-01 for Isolatek (Attachment C), address the relevant requirements associated with rule development, SIP submissions, and implementation and enforcement of required control measures.

2.8 Equivalent Techniques (CAA Section 172(c)(8))

Section 172(c)(8) of the CAA allows the use, upon approval by U.S. EPA, of equivalent modeling, emission inventory, and planning techniques. However, IDEM has followed U.S. EPA guidance on procedures for modeling, preparing emission inventories, and the development of the plan submittal and, therefore, is not requesting approval for equivalent techniques.

2.9 Contingency Measures (CAA Section 172(c)(9))

Section 172(c)(9) of the CAA requires states with SO_2 nonattainment areas to include contingency measures as part of their attainment demonstration. Contingency measures are specific measures to be undertaken in the event the area fails to attain the standard by the applicable attainment date. These measures are required to be implemented without further action by the state or U.S. EPA. Potential contingency measures are discussed in greater detail in Section 6.0 below.

3.0 EMISSIONS ANALYSIS

An analysis of SO_2 emissions was conducted for the Huntington, IN 2010 SO_2 nonattainment area using data from the National Emissions Inventory (NEI). The NEI is a collaborative process between U.S. EPA, states, localities, and tribes (S/L/T) to build a comprehensive, detailed estimate of emissions from air sources. The NEI is released every three years based on data provided by S/L/T air agencies and supplemental data developed by U.S. EPA. The following source categories are included in the NEI:

- Point sources, including electric-generating units (EGUs) such as electric power plants and non-EGUs such as large industrial facilities and smaller industrial, non-industrial, and commercial facilities.

- Area (nonpoint) sources, which are sources that are too small to report as point sources and too numerous to count but contribute to collective air quality impacts in an area. Examples include residential heating, residential charcoal grilling, asphalt paving, and commercial and consumer solvent use.

- Non-road mobile sources such as construction equipment, locomotives, aircraft, marine, off-road vehicles, and lawn and garden equipment powered by gasoline, diesel, or other fuels.[1]

- On-road mobile sources such as gasoline- and diesel-powered cars and trucks driven on roads.

3.1 Emission Trends

SO_2 emissions data was analyzed for the NEI reporting years of 2011, 2014, and 2017 for on-road, non-road, area, and point source (EGU and non-EGU) sectors in Huntington County. The Huntington, IN 2010 primary SO_2 nonattainment area is comprised of a portion of Huntington County that includes Huntington Township. Emissions were quantified at the county and township levels for each category to evaluate source contributions.

The NEI provided county level data for area, non-road, and on-road sectors. Township level emissions for area and non-road categories were adjusted by a factor of 0.56 based on population data showing Huntington Township accounts for 56 percent of the county's population.[2] On-road emissions were adjusted by a factor of 0.015 based on statistics showing the City of Huntington accounted for 1.5 percent of commercial vehicle miles traveled in Huntington County.[3] Table 3.1 summarizes these adjustments.

[1] Emissions from the landing and take-off portions of aircraft operations, the ground support equipment at airports, and locomotive emissions within railyards are included in the point source category as explained in Section 3 of the 2017 NEI Technical Support Document (January 2021 Updated Release) at: https://www.epa.gov/sites/default/files/2021-02/documents/nei2017_tsd_full_jan2021.pdf.

[2] Population data source: STATS Indiana (https://www.stats.indiana.edu).

[3] VMT data source: Indiana Department of Transportation Mileage and Daily Vehicle Miles Traveled (DVMT) by Year, County, City and Functional Classification (2015-2021), revised July 22, 2022 (https://www.in.gov/indot/files/HistoricINVMT-ByCityandFunctionalClass-2015-2021-20220722.xlsx).

Table 3.1: Huntington Township Emission Allocation Ratios (Area, Non-Road, and On-Road Sectors)

Ratio	Sector	Comment
56%	Area and Non-road	56% represents the fraction of the estimated population in Huntington Township (2020). County level emissions were adjusted by a factor of 0.56 to determine township level emissions.
1.5%	On-road	1.5% represents the fraction of commercial vehicle miles traveled (VMT) in Huntington Township. County level emissions were adjusted by a factor of 0.015 to determine township level emissions.

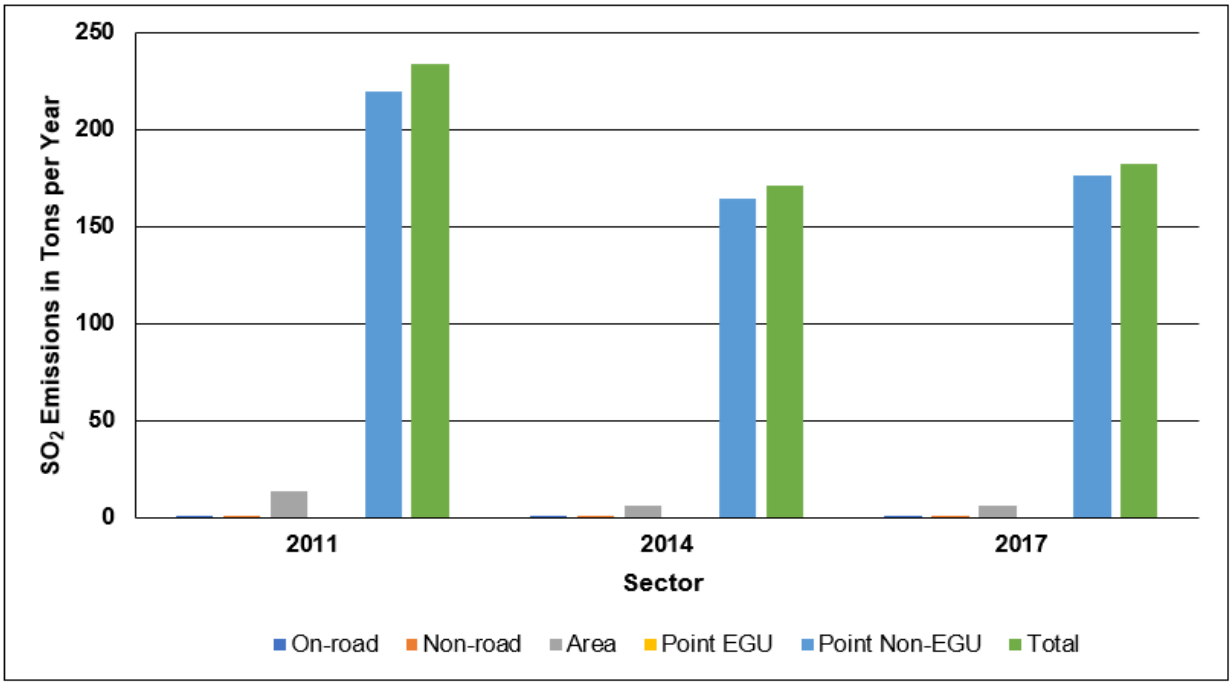
Table 3.2 shows the NEI data for Huntington County and Huntington Township, with adjusted emissions for on-road, non-road, and area categories in Huntington Township for the NEI reporting years of 2011, 2014, and 2017.

Table 3.2: Huntington County SO_2 Emissions Data by Sector for 2011, 2014, and 2017

Sector	2011 Emissions in Tons per Year (TPY)		2014 Emissions (TPY)		2017 Emissions (TPY)	
	Huntington County	Huntington Township	Huntington County	Huntington Township	Huntington County	Huntington Township
On-road	6.35	0.10	5.17	0.08	4.48	0.07
Non-road	0.82	0.46	0.95	0.53	0.75	0.42
Area	24.51	13.73	11.50	6.44	10.81	6.05
Point EGU	0.00	0.00	0.00	0.00	0.00	0.00
Point Non-EGU	219.92	219.92	164.39	164.39	176.23	176.23
Total	**251.60**	**234.21**	**182.01**	**171.44**	**192.27**	**182.77**

Graph 3.1 provides SO_2 emission trends by source sector and NEI reporting year (2011, 2014, and 2017) for the Huntington, IN 2010 SO_2 nonattainment area, which is comprised of Huntington Township. The graph illustrates the significant contribution from non-EGU point sources in comparison to total SO_2 emissions in the nonattainment area. There are no contributions from point EGUs, and insignificant contributions from area, non-road, and on-road categories, as shown in the graph.

Graph 3.1: SO_2 Emission Trends by Source Sector and Year for the Huntington, IN 2010 SO_2 Nonattainment Area (2011, 2014, and 2017)



3.2 Point Sources

An analysis was done concerning actual SO_2 emissions from non-EGU point sources in the Huntington, IN 2010 SO_2 nonattainment area.[4] The sources include Isolatek, which submits annual emission reports, and Teijin Automotive Technologies, which submits triennial reports. Isolatek is the significant point source emitter of SO_2 in the nonattainment area based on actual (reported) emissions from 2011 to 2020, as shown in Table 3.3.

Table 3.3: Actual (Reported) SO_2 Emissions from Contributing Sources in the Huntington, IN Nonattainment Area (2011-2020)

Contributing Sources		Actual (Reported) Emissions, Tons Per Year									
Plant ID#	Facility Name	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
00021	Isolatek	219.89	224.30	176.14	164.36	180.53	184.21	176.20	192.88	188.29	181.33
00043	Teijin Automotive			0.026		0.03			0.03		

[4] IDEM's Office of Air Quality (OAQ) collects, calculates, and stores point source data through Indiana's Emission Statement Program according to Title 326, Article 2, Rule 6 of the Indiana Administrative Code (326 IAC 2-6). Emission sources over specific thresholds must report actual emissions of certain pollutants, including SO_2, to IDEM annually or triennially. The data is collated into the Emission Inventory Tracking System (EMITS) and submitted to U.S. EPA through the Emission Inventory System (EIS) Gateway. Data is posted at: https://www.in.gov/idem/airquality/reporting/emissions-summary-data/.

3.3 2017 Base Year Emissions Inventory

The year 2017 was selected for the development of a comprehensive, accurate base year inventory of actual SO_2 emissions from all sources in the Huntington, IN 2010 SO_2 nonattainment area (which is comprised of Huntington Township), consistent with 40 CFR part 51, Subpart A. An adjustment for the point source non-EGU category was calculated using an emission factor derived by U.S. EPA of 21.6 pounds of SO_2 per ton of slag based on modeling conducted by U.S. EPA for purposes of the area's designation.[5] Table 3.4 summarizes the 2017 base year inventory by category for the Huntington, IN 2010 SO_2 nonattainment area.

Table 3.4: 2017 and 2017-Adjusted Base Year Inventory, All Sectors, Huntington, IN 2010 SO_2 Nonattainment Area

Sector	Total SO_2 Emissions (TPY)	Adjusted Total SO_2 Emissions (TPY)
On-road	0.07	0.07
Non-road	0.42	0.42
Area	6.05	6.05
Point EGU	0.00	0.00
Point Non-EGU	176.23	455.33
Total	**182.77**	**461.87**

A complete 2017 base year and adjusted base year emissions inventory for the Huntington, IN 2010 SO_2 nonattainment area is provided in Attachment B.

3.4 2023 Attainment Year Emissions Inventory

U.S. EPA's 2014 guidance memo recommends that, as part of the nonattainment area SIP submittal, a projected attainment year inventory should include estimated emissions for sources of SO_2 determined to have an impact on the affected nonattainment area for the year in which the area is expected to attain the standard, consistent with the attainment demonstration for the affected area. Table 3.5 provides this inventory for the attainment year of 2023 based on a modeling analysis demonstrating the Huntington, IN 2010 SO_2 nonattainment area will attain the standard by 2023. A discussion of the modeling analysis is provided in Section 5.0.

[5] See U.S. EPA "Technical Support Document (TSD) Chapter 13 Intended Round 3 Area Designations for the 2010 1-Hour SO_2 Primary National Ambient Air Quality Standard for Indiana": https://www.epa.gov/sites/default/files/2017-08/documents/13_in_so2_rd3-final.pdf.

Table 3.5: 2023 Attainment Year Emissions Inventory, Huntington, IN 2010 SO_2 Nonattainment Area

Sector	Total SO_2 Emissions (TPY)
On-road	0.05
Non-road	0.24
Area	3.41
Point EGU	0.00
Point Non-EGU	788.43
Total	**792.13**

Table 3.6 compares 2017 base year emissions to 2023 attainment year emissions for the Huntington County, IN 2010 SO_2 nonattainment area. The Isolatek facility accounts for nearly all point source emissions in the nonattainment area, as discussed in Section 3.2 above. The modeling analysis in Section 5.0 assesses the impacts of the projected changes shown in Table 3.6 and demonstrates that permanent and enforceable emission limits established for Isolatek through Commissioner's Order 2023-Air-01 (Attachment C) will ensure the Huntington, IN area will attainment the 2010 primary 1-hour SO_2 standard.

Table 3.6: 2017 Base Year and 2023 Attainment Year SO_2 Emissions and Percent Change, Huntington, IN 2010 SO_2 Nonattainment Area

Inventory Year	Emissions in TPY			% Change 2017 to 2023	% Change 2017-Adjusted to 2023
	2017	2017-Adjusted	2023		
On-road	0.07	0.07	0.05	-28.57 %	
Non-road	0.42	0.42	0.24	-42.86 %	
Area	6.05	6.05	3.41	-43.64 %	
Point EGU	0.00	0.00	0.00	n/a	
Point Non-EGU	176.23	455.33	788.43	+347.39 %	+ 73.16 %
Total	**182.77**	**461.87**	**792.13**	**+333.40 %**	**+71.50 %**

4.0 CONTROL STRATEGY

Indiana has U.S. EPA-approved programs and rules in place that ensure SO_2 reductions at specific facilities are enforceable and creditable for attainment planning purposes, in accordance with requirements discussed in U.S. EPA's 2014 guidance memo section on Control Strategy. As demonstrated in the preceding section, the Isolatek facility is the primary contributor to SO_2 emissions in the Huntington, IN nonattainment area. Indiana's control strategy for the Huntington, IN nonattainment area includes the establishment of new emission limits for SO_2 reductions from Isolatek,

as well as the continued application of existing rules without additional controls for SO_2 emission reductions from other sources.

4.1 SO_2 Reductions from National and Regional Measures and Emission Limits

Permitting programs in state rules at 326 IAC 2 incorporate requirements of federal programs including New Source Performance Standards (NSPS), National Emission Standards for Hazardous Air Pollutants (NESHAPs), Mercury and Air Toxics Standards (MATS), Maximum Achievable Control Technology (MACT) for the reduction of other pollutants that will concomitantly result in SO_2 reductions, and regulations for the interstate transport of SO_2 emissions such as the Clean Air Interstate Rule (CAIR) and the Cross State Air Pollution Rule (CSAPR).

Indiana rules for sulfur dioxide at 326 IAC 7 establish emission limits and other control measures based on national and regional regulations focusing on reduction of SO_2 emissions from fossil fuel-fired EGUs and other large sources, which ensure the control and reduction of future SO_2 emissions in the Huntington, IN nonattainment area. Indiana implements SO_2 controls and emission limits in 326 IAC 7 to maintain the 2010 SO_2 NAAQS, as outlined in Indiana's Infrastructure SIP for the 2010 SO_2 NAAQS which was approved by U.S. EPA on August 14, 2015, effective on September 14, 2015 (80 FR 48733).

4.2 Permanent and Enforceable Emission Limits for Isolatek in Huntington, IN

Permanent and enforceable SO_2 emission limits in Commissioner's Order 2023-Air-01 for Isolatek (Attachment C) supersede limits established in 326 IAC 7 for the control and reduction of SO_2 from fossil fuel-fired electric generating units (EGUs) and other large sources. This control strategy for Isolatek does not rely on any other emission reduction requirement or national program for controlling SO_2 emissions. A discussion of the modeling analysis for established limits is provided in Section 5.0.

5.0 TECHNICAL ELEMENTS OF DEMONSTRATION

5.1 Dispersion Modeling Analysis of Enforceable Limits

The following is a technical discussion of the modeling analysis approved by IDEM (see Appendix A1) demonstrating that permanent and enforceable SO_2 emissions limits in the Commissioner's Order 2023-Air-01 for Isolatek (Attachment C) will enable attainment of the 2010 primary SO_2 NAAQS in the Huntington, IN area.

For SO_2 attainment demonstrations, monitoring data alone is not adequate to demonstrate attainment of the NAAQS. A small number of ambient SO_2 monitors are not always representative of the air quality for an entire area. Modeling estimates of maximum ambient concentration are based on an infrequent combination of meteorological and source operating conditions. To capture such results with a monitor requires a prohibitively large and expensive network. Therefore, atmospheric dispersion modeling can be used to comprehensively evaluate a source's impacts and determine the areas of expected high concentrations.

5.2 Model Selection

The "Guidance for 1-Hour Sulfur Dioxide (SO_2) Nonattainment Area State Implementation Plan (SIP) Submissions" memorandum dated April 23, 2014, states the American Meteorological Society/Environmental Protection Agency Regulatory Model (AERMOD) is the preferred regulatory air quality model for the 1-hour SO_2 attainment demonstration modeling. The latest AERMOD version 22112 was used for this attainment demonstration modeling. The appropriate form of the SO_2 standard was modeled which is the 4th high (99th percentile), also known as the modeled design value, of the 1-hour maximum daily SO_2 concentration averaged across five years. This modeled result combined with the background concentration must meet the 1-hour SO_2 NAAQS of 75 ppb. The actual attainment demonstration modeling results were compared to a 1-hour SO_2 NAAQS of 196.4 µg/m^3 as stated in the November 7, 2011, Federal Register and confirmed by U.S. EPA Region V.

As part of the input data required by AERMOD, the mapping of terrain elevations was assigned with the terrain preprocessor mapping program for AERMOD known as AERMAP. AERMAP determines the elevation heights of all buildings, sources, and receptors included in the air quality modeling. The AERMAP program version 18081 was used to assign all elevations of sources, buildings, and receptors prior to running AERMOD. Additionally, the terrain elevation data were obtained from the National Elevation Dataset (NED) based on the Universal Transverse Mercator (UTM) coordinates for the North American Datum (NAD) 1983. These NED elevation files were downloaded from the United States Geological Survey (USGS) web site as recommended by the U.S. EPA modeling guidance. The regulatory default was selected for all air quality modeling runs. The appropriate rural land classification was selected for the Huntington County SO_2 modeling. The downwash algorithm was invoked in all air quality modeling where stacks did not meet the good engineering practice (GEP).

5.3 Receptor Grid and Modeling Domain

The receptor grids and modeling domain followed the recommended approach from Appendix W, Guideline on Air Quality Models, with some additional built-in conservatism. Ground-level concentrations were calculated beginning along the facility's property line with receptors spaced every fifty (50) meters (m). Next impacts were calculated within four (4) nested Cartesian receptor grids to determine the location of the maximum estimated impact. The 4 Cartesian grids will cover a region extending from the Isolatek facility to the point where impacts from the project are no longer expected to be significant. An explanation of each receptor grid that was used in the modeling analysis is provided below.

1. Fine Cartesian Grid: A "fine" grid containing 100-meter spaced receptors extending approximately 3 km from the center of the property. The nonattainment area will also be adequately covered with receptors,

2. Extended Fine Cartesian Grid: An “extended fine” grid containing 250-meter spaced receptors extending from 3 km to 5 km from the center of the facility, exclusive of receptors on the fine grid,

3. Medium Cartesian Grid: A “medium grid” containing 500-meter spaced receptors extending from 5 km to 10km from the center of the facility, exclusive of receptors on the fine and extended fine grids,

4. Extended Cartesian Grid: An “extended grid” containing 750-meter spaced receptors between 10 km and 20 km was also included.

The 4 receptor grids with the above receptor spacing and the facility fence line receptors brought the total modeled receptors for the Huntington County attainment demonstration to 6245 receptors.

5.4 SO_2 Modeled Sources

A total of two (2) facilities were modeled as inventory sources. They are Thermafiber in Wabash County and Steel Dynamics in Whitely County. Beyond the Isolatek Significant Impact Area (SIA), it was determined these two sources were significant SO_2 emission sources and should be included in the 1-Hour SO_2 NAAQS modeling attainment demonstration.

5.5 Downwash and GEP Stack Height

The Building Profile Input Program (BPIP) was used to calculate the wind direction specific building dimensions for input to AERMOD. The output from BPIP is read by AERMOD to calculate the aerodynamic downwash for all modeled stacks. All buildings which may affect the aerodynamic downwash in the wake of each modeled stack were included in the program. The length, width, height, and location of each building and the height and location of each stack are included as inputs to the program. Since no stacks have a physical stack height above 65 meters or approximately 213 feet, thereby not exceeding the GEP stack height formula; all stacks were modeled at their actual stack height. The actual GEP stack height formula is, for stacks in existence prior to January 12, 1979, $H_{GEP} = 2.5H$ and after January 12, 1979, $H_{GEP} = H + 1.5L$, where H is the height of the nearby structure and L is the lesser of the height or projected width of nearby structures within the 5L formula.

5.6 Meteorological Data and Modeled Years

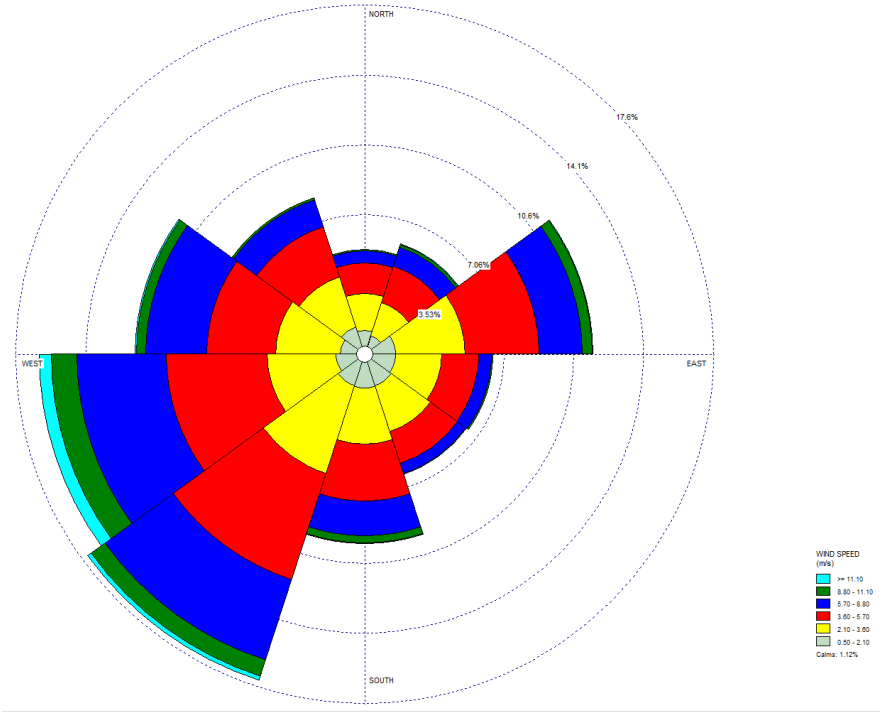
The Fort Wayne National Weather Service (NWS) surface data and the Wilmington, Ohio upper air data were used for the Huntington County attainment demonstration modeling. The Fort Wayne surface and the Wilmington, Ohio upper air preprocessed meteorology were processed with the latest version 19191 of the AERMOD meteorological data processor program AERMET. The five modeled years were 2017 through 2021 for the Fort Wayne preprocessed meteorological data.

Since the NWS meteorological data can contain a number of calm wind speeds greater than ten percent of the 8,760 annual observation hours, the 1-minute wind speed and wind direction Automated Surface Observing System (ASOS) data from the Fort Wayne NWS station were processed with the U.S. EPA 1-minute data processor program AERMINUTE. The latest AERMINUTE version 15272 was used to process the 1-minute wind speed and wind direction ASOS data. The recommended default of 0.5 meters per second (m/s) for the calm wind speed threshold was used when processing the 1-minute wind speed and wind direction ASOS data from Fort Wayne. Additionally, a default wind speed threshold of 0.5 m/s was used when processing the standard ASOS NWS wind speed and wind direction data.

The U.S EPA program AERSURFACE was used to determine the surface characteristics; albedo, Bowen ratio, and surface roughness for the NWS meteorological tower locations in Fort Wayne. Surface characteristics were determined for NWS location for 12 wind direction sectors with a recommended default radius of one kilometer.

The albedo and the Bowen ratio surface characteristics were adjusted during the three winter months of December, January, and February in accordance with the U.S. EPA Region V document, “Regional Meteorological Data Processing Protocol,” dated May 6, 2011. Additionally, a dry or wet Bowen ratio value was used during months when soil moisture conditions were abnormally dry or wet; otherwise, the Bowen ratio value for average soil moisture conditions was used. The surface roughness value for snow cover was used if more than half of the month had days with at least one inch of snow on the ground. Otherwise, the no snow cover surface roughness value was used. Fort Wayne NWS had a total of three winter months in which at least half of the days in the month had at least one inch of snow cover on the ground. One of the three months had a total of 26 days or more with at least one inch on snow on the ground. As a result, the surface roughness snow cover value was adjusted for the number of days in each month using the snow cover surface roughness value. Therefore, the surface roughness snow cover value adjustment was used for these three winter months. The Fort Wayne NWS wind rose plot is shown in Figure 5.1 below. The wind rose shows the frequency of the wind direction every ten degrees for each of the wind speed ranges for the entire five-year modeled period 2017 through 2021. The wind directions are the directions the wind is blowing from in compass degrees and the wind speeds are in meters per second.

Figure 5.1: 2017-2021 Fort Wayne NWS Wind Rose



As can be seen, the prevailing winds at the Fort Wayne NWS station are from the southwest and west-southwest.

5.7 SO_2 Background Concentrations

Appropriate nonattainment county SO_2 background concentrations were developed in accordance with the recommended U.S. EPA guidance for establishment of such background concentrations. Section 8 of U.S. EPA's "Guidance for 1-Hour SO_2 Nonattainment Area SIP Submissions" dated April 23, 2014, recommended avoiding double counting modeled and monitored contributions in the background concentration. Ambient background concentration estimates for modeling demonstrations are obtained from the most representative monitoring site in the vicinity of the modeling domain. Background concentrations from the Lima, Ohio monitor which were deemed to be representative of the Huntington, Indiana modeling site were used.

Table 5.1 lists the 1-hour SO_2 background concentrations for 2019 through 2021 which represents the average values for each season and hour-of-day that were incorporated into the modeling analysis.

Table 5.1: 1-Hour SO_2 County Background Concentrations for 2019-2021

Hour	Background Concentration (ppb)			
	Winter	Spring	Summer	Fall
1	0.67	0.67	0.33	0.33
2	0.67	0.67	0.33	0.33
3	0.67	0.33	0.33	0.33
4	0.67	0.33	0.33	0.67
5	0.33	0.33	0.33	0.67
6	0.33	0.00	0.33	0.33
7	0.33	0.33	0.67	0.33
8	0.33	0.67	1.00	0.33
9	1.00	1.00	1.33	1.33
10	1.33	0.67	1.33	1.33
11	1.67	0.67	1.33	1.33
12	1.33	0.67	0.33	1.33
13	1.33	0.33	0.67	1.00
14	1.33	0.00	0.33	0.67
15	1.33	0.33	0.33	1.33
16	1.00	0.33	0.33	1.00
17	1.00	0.67	0.33	0.67
18	1.00	0.67	0.67	1.00
19	1.00	0.67	1.00	1.00
20	1.00	0.00	1.00	1.00
21	1.00	0.33	1.00	1.67
22	1.00	0.67	1.00	1.33
23	1.00	1.00	1.00	1.00
24	0.67	0.67	0.67	0.67

5.8 Attainment Demonstration Modeling Results

Preliminary modeling conducted by U.S. EPA has indicated that Isolatek is the primary source of SO_2 emissions in the Huntington, Indiana nonattainment area. The nonattainment designation for the Huntington, Indiana area necessitates the establishment of permanent and enforceable emission limits based on dispersion modeling that provides for attainment of the standard. Isolatek conducted a detailed engineering analysis to evaluate effective means of reducing ground level concentrations of SO_2 emissions from its operations and initiated multiple emission projects consisting of increasing the height of its cupola stack, enclosing the screenhouses, and creating a single elevated stack. These projects were completed in November 2022 and stack testing was conducted in December 2022 and January 2023. Data from the stack testing was used for modeling to establish permanent and enforceable emission limits necessary for the facility's future compliance and attainment of the 2010 primary 1-hour SO_2 NAAQS.

Table 5.2 shows the 4th high 1-hour maximum daily SO_2 concentrations averaged across five years for the area. The modeled concentrations are the highest 4th high 1-hour maximum daily SO_2 concentration averaged across five years for the entire area defined by the receptor grid which includes the Huntington nonattainment area. The AERMOD modeling results, shown in Table 5.2, demonstrate the nonattainment area located in Huntington County will meet the 1-hour SO_2 NAAQS 75 ppb or 196.4 µg/m^3.

Table 5.2: 1-Hour SO_2 Nonattainment Area Attainment Demonstration

Maximum Modeled Concentration* (µg/m^3)	1-Hour SO_2 NAAQS** (µg/m^3)	Models Below Standard?
195.9	196.4	YES

* Hourly-seasonal background concentrations are incorporated into the model run.

** 1-Hour SO_2 NAAQS of 75 ppb equates to 196.4 µg/m^3 for modeling purposes.

The attainment strategy for Isolatek resulting in attainment of the SO_2 NAAQS as shown in Table 5.2 is displayed in Table 5.3; SO_2 limits are expressed as pounds of SO_2 per hour (lbs/hr).

Table 5.3: 1-Hour SO_2 Modeled Emission Rate Limits for Isolatek in Huntington County

Modeled Source	Emission Point	lbs/hr
Isolatek	Combined Cupola Stack #1	160.0
	Combined Blowchamber/Screeenhouse Stack #3	20.0

6.0 CONTINGENCY MEASURES

U.S. EPA interprets the contingency measure provisions as primarily directed at general programs that can be undertaken on an area wide basis; however, SO_2 presents special considerations. First, for some criteria pollutants, the analytical tools for quantifying the relationship between reductions in precursor emissions and resulting air quality improvements remain subject to significant uncertainties, in contrast with procedures for pollutants such as SO_2. Second, emission estimates and attainment analyses can be strongly influenced by assumptions about control efficiency and rates of compliance for many small sources. In contrast, controls for SO_2 are well understood and are far less prone to uncertainty. Since SO_2 control measures are, by definition, based upon what is directly and quantifiably necessary to attain the SO_2 NAAQS, it would be unlikely for an area to implement the necessary emission controls yet fail to attain the NAAQS. Therefore, for SO_2 programs, U.S. EPA interprets "contingency measures" to mean the state agency has a comprehensive program to identify sources of violations of the SO_2 NAAQS and will undertake an aggressive follow-up for compliance and enforcement, including expedited procedures for establishing enforceable consent agreements pending the adoption of revised SIPs.

Indiana will consider necessary contingency measures to be phased-in or implemented from a comprehensive list of measures deemed appropriate and effective at the time the selection is made. Listed below are example measures that may be considered. The selection of measures will be based upon cost-effectiveness, emissions reduction potential, economic and social considerations, or other factors that IDEM deems appropriate. IDEM will solicit input from interested and affected persons in the nonattainment area prior to selecting appropriate contingency measures. All of the listed contingency measures are potentially effective or proven methods of obtaining significant reductions of SO_2 emissions. Because it is not possible at this time to determine what control measure(s) will be appropriate at an unspecified time in the future, the list of contingency measures outlined below is not comprehensive. Indiana anticipates that if contingency measures should ever be necessary, it is unlikely that a significant number (i.e., all those listed below) will be required.

- Require alternative fuel.

- Require SO_2 emissions add-on control technologies for existing emission units.
- Require reduced operating hours.
- Require SO_2 emission offsets for new and modified major sources.
- Require SO_2 emission offsets for new and modified sources.
- Reevaluate source SO_2 emission limit requirements.

There will not be any contingency measure implemented without providing the opportunity for full public participation during which the relative costs and benefits of individual measures, at the time they are under consideration, can be fully evaluated.

7.0 CONFORMITY

As discussed in U.S. EPA's 2014 guidance memo, transportation conformity is required under Section 176(c) of the CAA to ensure that federally supported highway and transit project activities are consistent with (i.e., "conform to") the purpose of the SIP. Indiana's general conformity rules were approved into Section 176(c) of the CAA on January 14, 1998 (63 FR 2146). Transportation conformity applies to areas that are designated nonattainment and those areas redesignated attainment after 1990 (i.e., "maintenance areas") with plans developed under Section 175A of the CAA for transportation-related criteria pollutants. Due to the relatively small and decreasing amounts of sulfur in gasoline and on-road diesel fuel, transportation conformity rules do not apply to SO_2 unless transportation conformity budgets have been established for other reasons, such as SO_2 is found to be a significant contributor to a fine particle ($PM_{2.5}$) nonattainment area or if the SIP has established an approved or adequate budget for such emissions as part of the reasonable further progress (RFP) attainment or maintenance strategy. Neither of these circumstances applies to the Huntington, IN nonattainment area. Therefore, Indiana did not create mobile source SO_2 emission budgets for the area. As such, for the Huntington, IN SO_2 nonattainment area, transportation conformity is not a concern.

8.0 REQUIREMENTS FOR TRANSITIONING FROM PREVIOUS STANDARDS

As discussed in U.S. EPA's 2014 guidance memo, attainment and maintenance SIPs approved by U.S. EPA under previous SO_2 standards must continue to be implemented until they are subsumed by any new U.S. EPA-approved SIPs reflecting planning and control requirements associated with the 2010 SO_2 NAAQS. Huntington County was designated "attainment" by U.S. EPA under previous SO_2 standards; therefore, the Huntington, IN 2010 primary 1-hour SO_2 nonattainment area is not subject to existing attainment or maintenance SIP requirements. As such, there are no applicable requirements concerning a transition from previous to current SO_2 standards.

9.0 ENVIRONMENTAL JUSTICE ANALYSIS

IDEM used U.S. EPA's environmental justice (EJ) screening and mapping tool (EJScreen, Version 2.1) to identify potentially overburdened communities in the Huntington, IN nonattainment area and assess whether this attainment plan would add to existing pollution exposure or burdens for those communities. The EJ Screen tool provides calculated values for EJ Indexes, Environmental Indicators and Socioeconomic Indicators in a standard report. EJScreen report values are expressed as percentiles, which enables comparisons between screened locations and provides state and national perspectives. For example, national percentiles show what portions of the U.S. population have equal or lower values than the screened area.

The Huntington Township boundary is the boundary for the Huntington, IN nonattainment area. IDEM utilized EJScreen to generate a standard report for this area. Table 9.1 provides a full list of variables contained in the standard report. National percentiles ranging from 80-89 are highlighted in yellow, 90-94 are highlighted in orange, and 95 and above are highlighted in red.

U.S. EPA's EJScreen technical documentation[6] indicates that U.S. EPA has used the 80th percentile for EJ Indexes as a screening level to identify areas that may need further review or outreach. The technical documentation explains that the 80th percentile does not identify EJ communities but has been used as a starting point for considering impacts. For example, an area with one or more of the EJ Indexes at or above the national 80th percentile should be considered as a potential candidate for further consideration, analysis, or outreach. Further review may include other factors and information such as health-based information, local knowledge, proximity and exposure to environmental hazards, susceptible populations, unique exposure pathways, and other federal, regional, state, and local data. IDEM has used the 80th percentile screening level for the EJ Indexes as a starting point for this review.

All Socioeconomic Indicators and EJ Indexes for the Huntington, IN nonattainment area are below the national 80th percentile, as shown in Table 9.1 below. Two Environmental Indicators for the screened area are above the national 80th percentile. These include Risk Management Plan (RMP) Facility Proximity in the 96th percentile, highlighted in red, and Underground Storage Tanks in the 83rd percentile, highlighted in yellow. Appendix A2 contains the full EJScreen report.

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[6] See EJScreen Technical Documentation, September 2019 (https://www.epa.gov/sites/default/files/2017-09/documents/2017_ejscreen_technical_document.pdf), EJScreen Technical Documentation, October 2022 (https://www.epa.gov/system/files/documents/2023-01/EJScreen%20Technical%20Documentation%20October%202022.pdf) and EJScreen Technical Document Appendix, October 2022 (https://www.epa.gov/system/files/documents/2023-01/Technical-Documentation-Appendix-for-2.1.pdf).

An analysis of the standard report for Huntington Township did not identify any particular group or groups of citizens that would be disproportionately affected by this attainment plan. Attaining the 2010 primary 1-hour SO_2 standard in the Huntington, IN area should only serve to increase protection for its communities and all those who live, work, or attend school locally. IDEM has therefore taken no special action with regard to public engagement beyond the normal public participation process for the proposed attainment plan. IDEM is committed to holding a public hearing concerning the draft SIP submittal, if requested, and will respond appropriately to public comments submitted by potentially affected parties.

Table 9.1: Summary of EJScreen Report National Percentiles, Huntington, IN Nonattainment Area

EJ Indexes:	**National Percentile**
EJ Index for Particulate Matter 2.5	52
EJ Index for Ozone	43
EJ Index for Diesel Particulate Matter	44
EJ Index for Air Toxics Cancer Risk	26
EJ Index for Air Toxics Respiratory HI	18
EJ Index for Toxic Release to Air	50
EJ Index for Traffic Proximity	42
EJ Index for Lead Paint	62
EJ Index for Superfund Proximity	33
EJ Index for RMP Facility Proximity	65
EJ Index for Hazardous Waste Proximity	54
EJ Index for Underground Storage Tanks	59
EJ Index for Wastewater Discharge	58
Environmental Indicators/Pollution and Sources:	
Particulate Matter 2.5 (µg/m^3)	59
Ozone (ppb)	44
Diesel Particulate Matter* (µg/m3)	45
Air Toxics Cancer Risk (lifetime risk per million)	5
Air Toxics Respiratory HI*	4
Traffic Proximity (daily traffic count/distance to road)	50
Toxic Releases to Air	57
Lead Paint (% Pre-1960 Housing)	77
Superfund Proximity (site count/km distance)	31
RMP Facility Proximity (facility count/km distance)	96
Hazardous Waste Proximity (facility count/km distance)	67
Underground Storage Tanks (county/km 2)	83
Wastewater Discharge (toxicity-weighted concentration/m distance	73
Socioeconomic Indicators:	
Demographic Index	35
Supplemental Demographic Index	58
People of Color	15
Low Income	64
Unemployment Rate	41
Limited English-Speaking Households	62
Less Than High School Education	54
Under Age 5	55
Over Age 64	52
Low Life Expectancy	68

10.0 PUBLIC PARTICIPATION

In accordance with 40 CFR 51.102, IDEM provided opportunity for public participation concerning *Attainment Demonstration and Technical Support Document for the Huntington, Indiana 2010 Primary 1-Hour Sulfur Dioxide (SO_2) Nonattainment Area and Commissioner's Order No. 2023-Air-01 for Isolatek.* Notice of availability was posted on IDEM's website under "Public Notices: Northeast Indiana/Huntington County" on October 4, 2023, and remained posted for at least 30 days. IDEM did not receive a request for public hearing or public comments concerning the draft submittal. Details concerning public participation opportunities, including a copy of the legal notice and certification of publication, are contained in Attachment D.

11.0 CONCLUSION

Isolatek, the primary source of SO_2 emissions in the Huntington, IN nonattainment area, has recently completed design and operational improvements at the facility. IDEM and Isolatek entered into Commissioner's Order 2023-Air-01 (Attachment C) 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 SIP. An analysis of these permanent and enforceable SO_2 emission limits and operational requirements shows the area will achieve attainment of the SO_2 NAAQS with an ample margin of safety.

Indiana has ensured that all CAA requirements necessary to support this attainment demonstration have been met. This content of this document is structured to address each of the CAA required elements as outlined in U.S. EPA's 2014 guidance memo. This plan satisfies Indiana's obligations under Section 172(c) for demonstrating how the Huntington, IN nonattainment area will attain the SO_2 NAAQS.

The development of this plan will bring the Huntington, IN area into attainment with the 2010 primary 1-hour SO_2 standard, benefiting residents and furthering Indiana's progress toward cleaner air.

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Appendix A1

Air Quality Modeling Report for the Huntington, IN SO_2 Nonattainment Area

Modeling files available upon request.

AIR QUALITY MODELING REPORT

Isolatek International > Huntington, Indiana

1-Hour SO_2 NAAQS Attainment Demonstration

Prepared By:

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September 2023

Project 213401.0069

Trinity Consultants

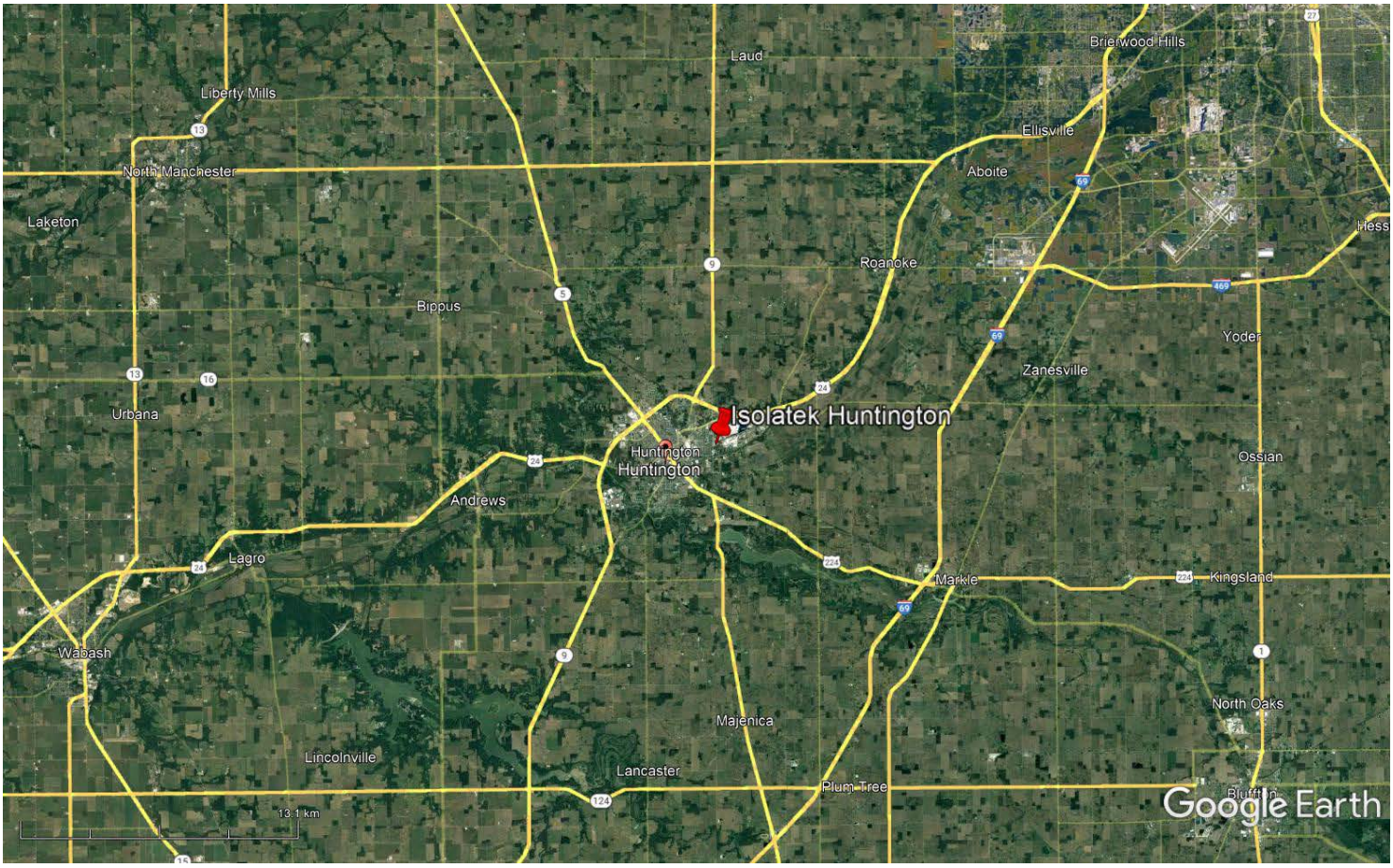
Environmental solutions delivered uncommonly well

TABLE OF CONTENTS

1. INTRODUCTION

Isolatek International (Isolatek) operates a facility located at 701 N. Broadway Street in Huntington (Huntington Facility), where operations involve manufacturing fireproofing materials for the construction and defense industries, such as fireproofing sprays and coatings, turbine insulation, sound shields, etc. The facility is located along North Broadway St., near downtown Huntington. Figure 1-1 shows an aerial image of the area surrounding the Huntington Facility.

Figure 1-1. Aerial Image of Area Surrounding Isolatek Huntington



Huntington Township, Huntington County, Indiana was designated nonattainment under Round 3 of the area designations for the 2010 primary SO_2 NAAQS. The Clean Air Act (CAA) directs any areas designated nonattainment by this rule to undertake certain planning and pollution control activities to attain the NAAQS as expeditiously as practicable. The alleged source of the SO_2 NAAQS exceedances is the Huntington Facility.

Isolatek has completed design and operational improvements that will lessen modeled SO_2 NAAQS levels originating from the Huntington facility. Trinity Consultants (Trinity) on behalf of Isolatek submitted a detailed air quality modeling protocol to present the Indiana Department of Environmental Management (IDEM) with a written description of the proposed modeling procedures and data resources in support of the IDEM's larger SIP attainment designations. The nature of the dispersion modeling analyses for this regulatory application necessitates that a well-planned modeling protocol be provided to IDEM to confirm that the proposed methods

will meet all applicable requirements and guidelines. Trinity conducted the modeling analysis consistent with that approved protocol, in a manner that conforms to the applicable rules and requirements for dispersion modeling, including the following guidance documents:

- U.S. EPA: *SO_2 NAAQS Demonstrations Modeling Technical Assistance Document* (August 2016).
- U.S. EPA: *Guideline on Air Quality Models*, 40 CFR Part 51 - Appendix W (Revised, January 17, 2017).
- U.S. EPA: *AERMOD Implementation Guide* (Revised, June 2022).
- IDEM: Air Quality Modeling Policies, October 2022.

1.1. FACILITY DESCRIPTION

Emission of SO_2 at the Huntington facility originate from two primary sources; 1) two cupolas (EU#1 and EU#2) which are ducted to a common baghouse stack (Model ID: CUP12) and 2) two screenhouses which receive emissions from the cupola fiber discharge point ("notch") and formerly discharged at ground level (Model ID: SCREEN12). The facility has completed improvements to the cupola/baghouse system including increasing the stack height and has enclosed the screenhouses to collect and exhaust the emissions through a distinct stack. The 1-hour SO_2 NAAQS compliance demonstration incorporated these layout changes and emission rates that eventually will become enforceable permit limits and clearly demonstrates that Isolatek Huntington Facility will not cause any exceedances of the NAAQS standard.

1.2. ORGANIZATION OF MODELING REPORT

The modeling report is organized as follows. Section 2 describes the modeling analyses that are required to be conducted as part of this process. Section 3 describes the selection of the appropriate dispersion model for calculating near-field concentrations and describes the inputs required for the chosen model. Section 4 describes how emission rates will be determined for the modeled sources and Section 5 presents the results of the 1-Hour SO_2 NAAQS Attainment Demonstration.

Trinity has prepared this modeling report to describe the modeling methodologies and data resources that were used to demonstrate that the design changes and associated emission do not cause or contribute to exceedances of the 1-hour SO_2 average as explained below. The air dispersion modeling analysis was conducted in accordance with 40 CFR Part 51, Appendix W, which contains the federal Revision to Guideline on Air Quality Models (*Guideline*) and is consistent with current and recommended U.S. EPA procedures for dispersion modeling analyses.[1]

2.1. SO_2 NAAQS ATTAINMENT DEMONSTRATION

This SO_2 NAAQS Attainment Demonstration was conducted to show that the Huntington Township portion of Huntington County, IN is in modeled attainment with the USEPA's 2010 1-hour SO_2 NAAQS of 75 parts per billion (ppb), which is equivalent to a modeled concentration of 196.4 micrograms per cubic meter ($\mu g/m^3$). The design value (DV) for attainment is the multi-year average of the 99th percentile of the daily maximum 1-hour concentrations. Modeled attainment demonstrations include the facility(ies) of interest in the area, along with a representative estimate of ambient background concentration to capture SO_2 from sources which are not explicitly modeled. The combination of modeled source impacts and ambient background must be below the DV for the 1-hour SO2 NAAQS, which is determined from modeling as the 5-year average of the High-Fourth-High modeled impact, including background.

2.1.1. Background Concentrations

Ambient background concentration estimates for modeling demonstrations were obtained from the most representative monitoring site in the vicinity of the modeling domain. IDEM provided the 2019-2021 SO_2 background concentrations from the Lima, OH monitor to Isolatek which were deemed to be representative of the Huntington, IN modeling site. Table 2-1 presents the values for each season and hour-of-day that were incorporated into the modeling analysis.

[1] U.S. EPA, Office of Air Quality Planning and Standards, *Federal Register* Vol. 82 / No. 10, pp. 5182-5235, 40 CFR 51, Appendix W, *Revision to Guideline on Air Quality Models*, January 17, 2017.

Table 2-1. SO_2 Background Values

Hour	Background Concentration (ppb)			
	Winter	Spring	Summer	Fall
1	0.67	0.67	0.33	0.33
2	0.67	0.67	0.33	0.33
3	0.67	0.33	0.33	0.33
4	0.67	0.33	0.33	0.67
5	0.33	0.33	0.33	0.67
6	0.33	0.00	0.33	0.33
7	0.33	0.33	0.67	0.33
8	0.33	0.67	1.00	0.33
9	1.00	1.00	1.33	1.33
10	1.33	0.67	1.33	1.33
11	1.67	0.67	1.33	1.33
12	1.33	0.67	0.33	1.33
13	1.33	0.33	0.67	1.00
14	1.33	0.00	0.33	0.67
15	1.33	0.33	0.33	1.33
16	1.00	0.33	0.33	1.00
17	1.00	0.67	0.33	0.67
18	1.00	0.67	0.67	1.00
19	1.00	0.67	1.00	1.00
20	1.00	0.00	1.00	1.00
21	1.00	0.33	1.00	1.67
22	1.00	0.67	1.00	1.33
23	1.00	1.00	1.00	1.00
24	0.67	0.67	0.67	0.67

The background concentration (discussed in Section 2.1.1) will be used to represent concentrations due to other emission sources that could impact receptors in the vicinity of the Huntington facility which were not explicitly modeled.

2.1.2. Regional Source Inventories

Trinity worked with IDEM to determine regional inventory sources that should be modeled explicitly. Upon reviewing the source list for Huntington and its neighboring counties, several larger SO_2 facilities were identified for inclusion in the modeling:

- Steel Dynamics in Whitley County
- FXI in Allen County
- Paperworks Industries in Wabash County
- Thermafiber in Wabash County
- Real Alloy Specification in Wabash County

In addition to those larger, but more distant SO_2 sources, Isolatek identified the Teijin Automotive Technologies (Teijin) facility within the nonattainment area itself. Teijin only has potential emissions of 5.22 tpy, however, since that facility was within the area of concern, it was conservatively included in the modeling analysis. Source locations, stack parameters, and appropriate emission rates for inclusion in this modeling demonstration for all major sources in Indiana were obtained from IDEM.

3. MODELING APPROACH

This section of the modeling protocol describes the modeling procedures and data resources that were utilized in the 1-hour SO_2 Attainment Designation.

3.1. MODEL SELECTION

Dispersion models predict downwind pollutant concentrations by simulating the evolution of the pollutant plume over time and space given data inputs. These data inputs include the quantity of emissions and the initial conditions of the stack exhaust to the atmosphere. According to the *Guideline*, the extent to which a specific air quality model is suitable for the evaluation of source impacts depends on the (1) the meteorological and topographical complexities of the area; (2) the level of detail and accuracy needed in the analysis; (3) the technical competence of those undertaking such simulation modeling; (4) the resources available; and (5) the accuracy of the database (i.e., emissions inventory, meteorological, and air quality data). Taking these factors into consideration, Trinity used the AERMOD modeling system for representing all emissions sources at the Huntington facility. AERMOD is the default model for evaluating impacts attributable to industrial facilities in the near field (i.e., source receptor distances of less than 50 km), and is the recommended model in the *Guideline*.

The latest version (version 22112) of the AERMOD modeling system was used to estimate maximum ground-level concentrations in this attainment demonstration. AERMOD is a refined, steady-state, multiple source, Gaussian dispersion model and was promulgated in December 2005 as the preferred model for use by industrial sources in this type of air quality analysis.[2] The AERMOD model has the Plume Rise Modeling Enhancements (PRIME) downwash algorithms incorporated in the regulatory version, so the direction-specific building downwash dimensions used as inputs are determined by the Building Profile Input Program, PRIME version (BPIP PRIME), version 04274.[3] BPIP PRIME is designed to incorporate the concepts and procedures expressed in the GEP Technical Support document, the Building Downwash Guidance document, and other related documents, while incorporating the PRIME enhancements to improve prediction of ambient impacts in building cavities and wake regions.[4]

The AERMOD modeling system is composed of three modular components: AERMAP, the terrain preprocessor; AERMET, the meteorological preprocessor; and AERMOD, the control module and modeling processor. AERMAP is the terrain pre-processor that is used to import terrain elevations for selected model objects and to generate the receptor hill height scale data that are used by AERMOD to drive advanced terrain processing algorithms. National elevation dataset (NED) data available from the USGS will be utilized to interpolate surveyed elevations onto user-specified receptor grids, buildings, and sources in the absence of more accurate site-specific (i.e., site surveys, GPS analyses, etc.) elevation data.

AERMET generates a separate surface file and vertical profile file to pass meteorological observations and turbulence parameters to AERMOD. AERMET meteorological data are refined for a particular analysis based on the choice of micrometeorological parameters that are linked to the land use and land cover (LULC) around the meteorological site. By feeding raw surface and upper air station NWS observation data to AERMET, a complete

[2] 40 CFR Part 51, Appendix W–*Guideline on Air Quality Models*, Appendix A.1– AMS/EPA Regulatory Model (AERMOD).

[3] Earth Tech, Inc., *Addendum to the ISC3 User's Guide, The PRIME Plume Rise and Building Downwash Model,* Concord, MA.

[4] U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, *Guidelines for Determination of Good Engineering Practice Stack Height (Technical Support Document for the Stack Height Regulations) (Revised),* Research Triangle Park, North Carolina, EPA 450/4-80-023R, June 1985.

set of model-ready meteorological data is created. A general discussion of the expected AERMET processing is provided in Section 3.2 below.

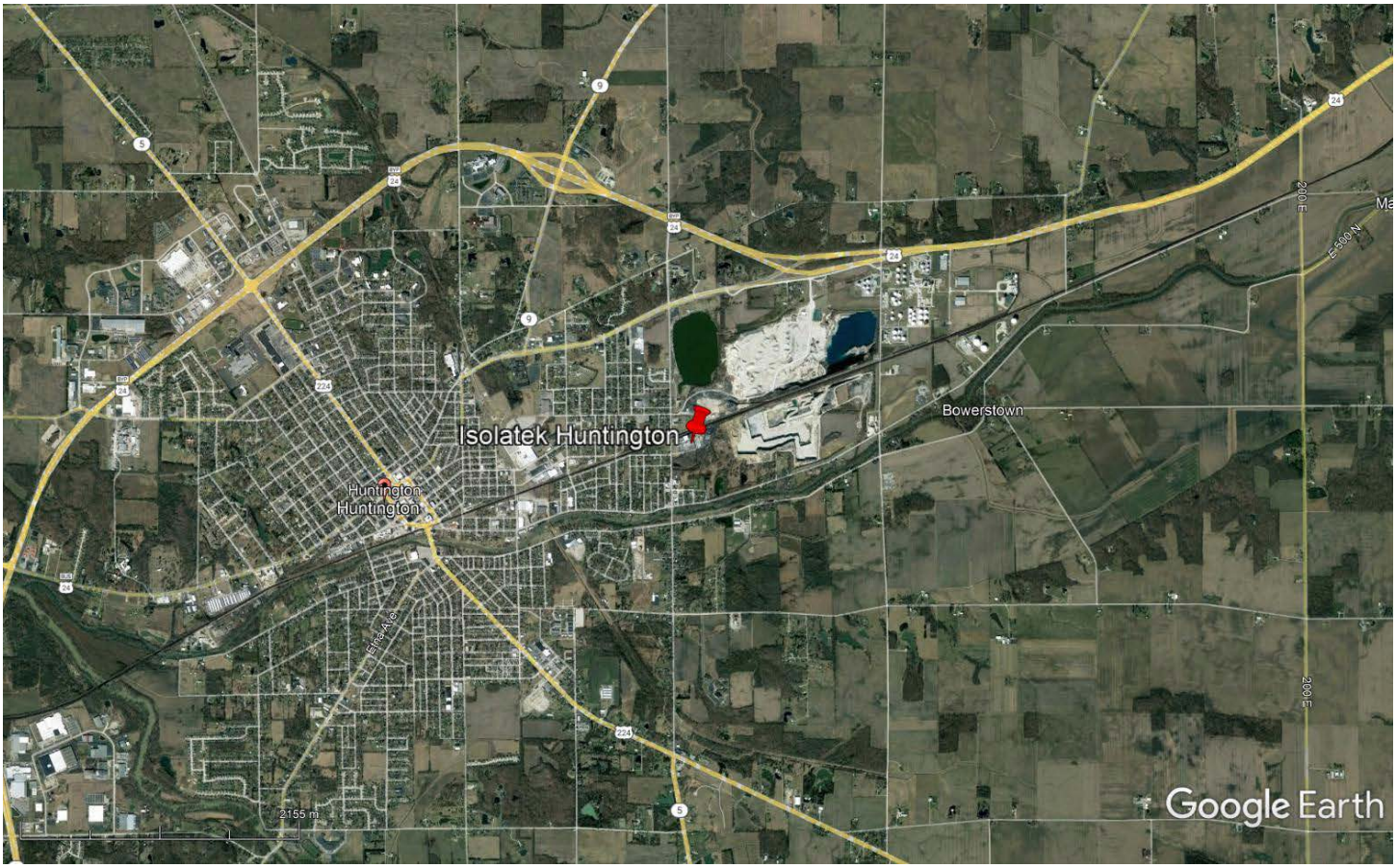
Trinity used the *BREEZE*® software, developed by Trinity Consultants, to assist in developing the model input files for AERMOD. This software program incorporates the most recent versions of AERMOD (22112) and AERMAP (dated 18081) to estimate ambient impacts from the modeled sources. Following procedures outlined in the *Guideline*, the AERMOD modeling was performed using all regulatory default options.

AERMOD was run using rural dispersion coefficients. For modeling purposes, the appropriate urban/rural land use classification for the area was determined using a variation of the Auer technique, which is recommended in the Guideline on Air Quality Models. In accordance with this technique, the area within a 3-km radius of the facility was analyzed in AERSURFACE. As shown in Table 3-1, less than 50 percent of the surrounding land use (17.2%) can be classified as urban (NLCD2019 Categories 23 and 24). Additionally, as shown in Figure 3-1, the population density surrounding the facility is not significant. As such, AERMOD was run in rural mode.

Table 3-1. AERSURFACE Landuse Distribution

Landuse Category	Description	# Cells	% of Total (%)
0	Missing, Out-of-Bounds, or Undefined	0	0.0%
11	Open Water	483	1.5%
12	Perennial Ice/Snow	0	0.0%
21	Developed, Open Space	4873	15.5%
22	Developed, Low Intensity	5786	18.4%
23	**Developed, Medium Intensity**	3894	**12.4%**
24	**Developed, High Intensity**	1510	**4.8%**
31	Barren Land (Rock/Sand/Clay)	619	2.0%
32	Unconsolidated Shore	0	0.0%
41	Deciduous Forest	3703	11.8%
42	Evergreen Forest	41	0.1%
43	Mixed Forest	24	0.1%
51	Dwarf Scrub	0	0.0%
52	Shrub/Scrub	27	0.1%
71	Grasslands/Herbaceous	145	0.5%
72	Sedge/Herbaceous	0	0.0%
73	Lichens	0	0.0%
74	Moss	0	0.0%
81	Pasture/Hay	1228	3.9%
82	Cultivated Crops	8770	27.9%
90	Woody Wetlands	178	0.6%
91	Palustrine Forested Wetland	0	0.0%
92	Palustrine Scrub/Shrub Wetland	0	0.0%
93	Estuarine Forested Wetland	0	0.0%
94	Estuarine Scrub/Shrub Wetland	0	0.0%
95	Emergent Herbaceous Wetland	135	0.4%
96	Palustrine Emergent Wetland (Persistent)	0	0.0%
97	Estuarine Emergent Wetland	0	0.0%
98	Palustrine Aquatic Bed	0	0.0%
99	Estuarine Aquatic Bed	0	0.0%
	Total	31416	100.0%

Figure 3-1. Aerial Image of Area Immediately Surrounding Isolatek Huntington



3.2. METEOROLOGICAL DATA

Site-specific dispersion models require a sequential hourly record of dispersion meteorology representative of the region within which the source is located. In the absence of site-specific measurements, the *Guideline* requires five years of reliable, quality assured, and representative meteorological data to be used in regulatory modeling analyses. The representativeness of a particular observation site should be evaluated with respect to four factors: (1) the proximity of the meteorological monitoring site to the area under consideration; (2) the complexity of the terrain; (3) the exposure of the meteorological monitoring site; and (4) the period during which data are collected.

Regulatory air quality modeling using AERMOD requires five years of quality-assured NWS meteorological data or at least one year of site-specific meteorological data that includes hourly records of the following parameters:

- Wind speed
- Wind direction
- Air temperature
- Micrometeorological parameters (e.g., friction velocity, Monin-Obukhov length)
- Mechanical mixing height
- Convective mixing height

The first three of these parameters are directly measured by monitoring equipment located at typical surface observation stations. The friction velocity, Monin-Obukhov length, and mixing heights are derived from characteristic micrometeorological parameters and from observed and correlated values of cloud cover, solar insolation, time of day and year, and latitude of the surface observation station. Surface observation stations form a dense network, are always found at airports, and are typically operated by the NWS. There are fewer upper air stations than surface observation points since the upper atmosphere is less vulnerable to local effects caused by terrain or other land influences and is therefore less variable. The NWS operates virtually all available upper air measurement stations in the United States.

Based on recommendations from IDEM's modeling website,[5] Trinity used the Ft. Wayne Airport (FWA, WBAN# 14827) surface NWS observation station and the Wilmington Ohio (ILN, WBAN# 13841) upper air observation station as representative stations for the Huntington facility when using AERMOD. The most recent, readily available five years of meteorological data from the FWA surface station (i.e., 2017 to 2021) were used in the air quality modeling analysis. These data were processed using the AERMET program and incorporated 1-minute ASOS wind data into the AERMOD-ready meteorological datasets using U.S. EPA's AERMINUTE (version 15272) meteorological data preprocessor. A minimum threshold wind speed of 0.5 m/s was implemented using the THRESH_1MIN keyword incorporated into AERMET version 19191 as suggested in the recently revised *Guideline*. All hours with wind speeds below this value were treated as "calm" in AERMOD. Additionally, the ADJ_U* function within AERMET was used, due to its designation as a regulatory default option in the recent *Guideline* revision. During the five-year data period, the anemometer height and base elevation for the FWA surface station were ten meters and 252 meters, respectively.

3.3. COORDINATE SYSTEM

The location of emission sources, structures, and receptors were represented in the Universal Transverse Mercator (UTM) coordinate system. The UTM grid divides the world into coordinates that are measured in north

[5] https://www.in.gov/idem/airquality/modeling/air-dispersion-meteorological-data/

meters (measured from the equator) and east meters (measured from the central meridian of a particular zone, which is set at five hundred kilometers [km]). The datum is based on North American Datum 1983 (NAD83). UTM coordinates for this analysis all reside within UTM Zone 16.

3.4. TREATMENT OF TERRAIN

A designation of terrain at a particular receptor is source-dependent, since it depends on an individual source's effective plume height. AERMOD is capable of estimating impacts in both simple and complex terrain. Source, building and receptor elevations and base elevations for inventory sources required by AERMOD were determined using the AERMAP terrain preprocessor (version 18081). AERMAP also calculates receptor hill height parameters required by AERMOD. As suggested in the *AERMOD Implementation Guide*, terrain elevations from the USGS 1-arc second NED data were used for the AERMAP processing of receptors and regional inventory sources.[6] NED data files were downloaded from USGS's Multi-Resolution Land Characteristics Consortium (MRLC) Viewer.[7]

3.5. RECEPTOR GRID

Per IDEM guidance, ground-level concentrations were calculated beginning along the facility's property line with receptors spaced every fifty meters (m). Next impacts were calculated within four (4) nested Cartesian receptor grids to determine the location of the maximum estimated impact. The 4 Cartesian grids were centered on the Isolatek facility and extended out 20 km at varying densities. An explanation of each receptor grid that was used in the modeling analysis is provided below.

1. **Fine Cartesian Grid:** A "fine" grid containing 100-meter spaced receptors extending approximately 3 km from the center of the property.

2. **Extended Fine Cartesian Grid:** An "extended fine" grid containing 250-meter spaced receptors extending from 3 km to 5 km from the center of the facility, exclusive of receptors on the fine grid,

3. **Medium Cartesian Grid:** A "medium grid" containing 500-meter spaced receptors extending from 5 km to 10km from the center of the facility, exclusive of receptors on the fine and extended fine grids, and

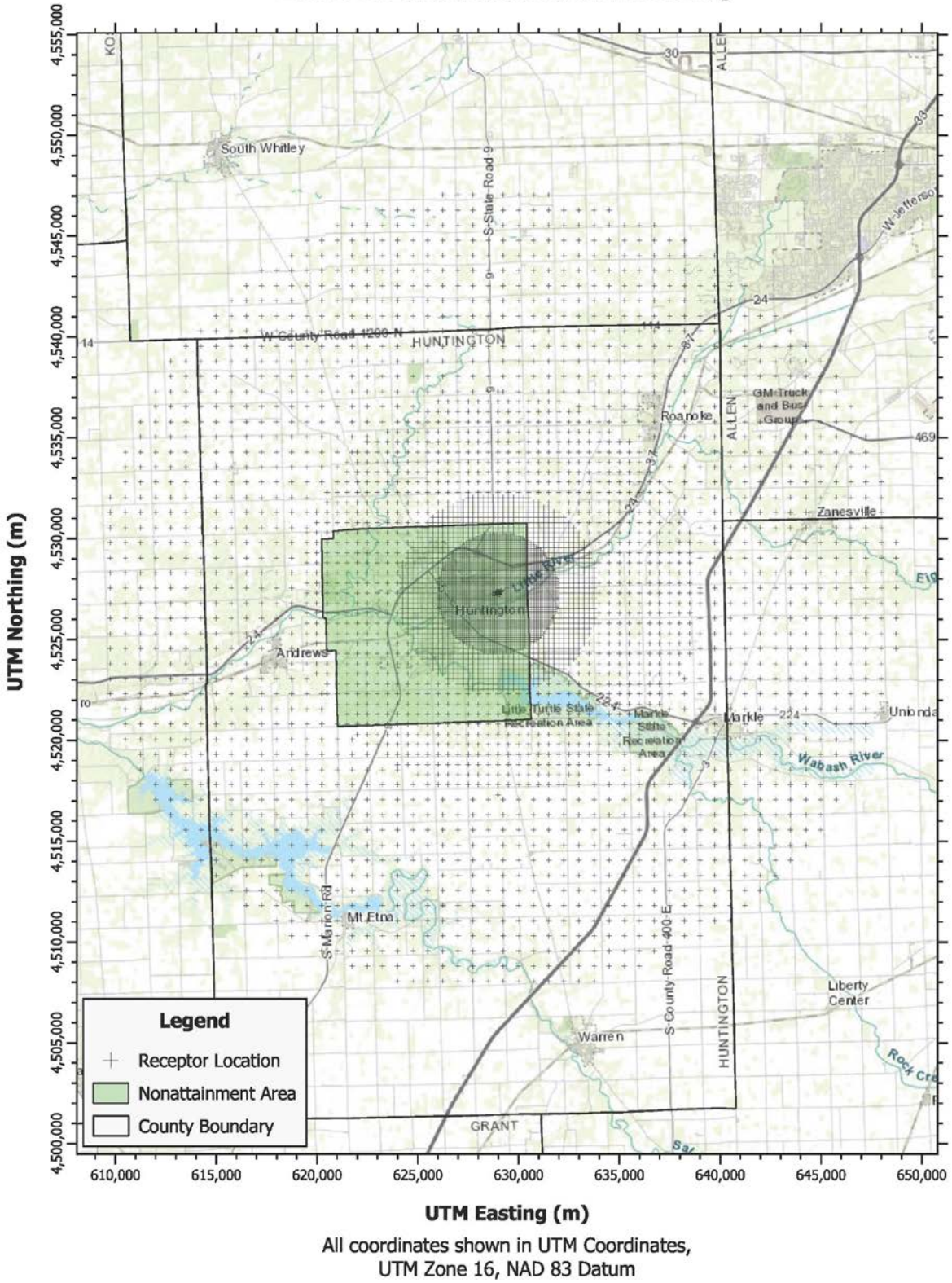
4. **Coarse Cartesian Grid:** A "coarse grid" containing 750-meter spaced receptors extending from 10 km to 20 km from the center of the facility, exclusive of receptors on the fine, extended fine and medium grids.

The Huntington Township nonattainment area was sufficiently covered by the above receptor grids as shown in Figure 3-2 below. The green box illustrates the extent of the nonattainment area, and it is fully covered by modeled receptors. The maximum modeled concentrations were reviewed to ensure that they were captured within the fine grid.

[6] Section 4.3 of the latest version of U.S. EPA's *AERMOD Implementation Guide* recommends that AERMOD users transition from the use of DEM data to NED data in AERMAP as soon as practicable.

[7] http://www.mrlc.gov/viewerjs/

Figure 3-2. Receptor Location Map for Huntington Township
1-hour SO2 Nonattainment Area Modeling



All coordinates shown in UTM Coordinates,
UTM Zone 16, NAD 83 Datum

3.6. BUILDING DOWNWASH

The *Guideline* requires the evaluation of the potential for physical structures to affect the dispersion of emissions from stack sources. The exhaust from stacks that are located within specified distances of buildings may be subject to "aerodynamic building downwash" under certain meteorological conditions. This determination is made by comparing actual stack height to the Good Engineering Practice (GEP) stack height. The modeled emission units at the modified facility will be evaluated in terms of their proximity to nearby structures.

In accordance with recent AERMOD updates, an emission point is assumed to be subject to the effects of downwash at all release heights even if the stack height is above the U.S. EPA formula height, which is defined by the following formula:

$$H_{GEP} = H + 1.5L, \text{ where:}$$

where,

H_{GEP}	=	GEP stack height,
H	=	structure height, and
L	=	lesser dimension of the structure (height or maximum projected width).

This equation is limited to stacks located within 5L of a structure. Stacks located at a distance greater than 5L are not subject to the wake effects of the structure.

Direction-specific equivalent building dimensions used as input to the AERMOD model to simulate the impacts of downwash will be calculated using the U.S. EPA-sanctioned Building Profile Input Program (BPIP-PRIME). BPIP-PRIME is designed to incorporate the concepts and procedures expressed in the GEP Technical Support document, the Building Downwash Guidance document, and other related documents and has been adapted to incorporate the PRIME downwash algorithms.[8]

A GEP analysis of all modeled point sources at the Huntington facility in relation to each building was performed to evaluate which building had the greatest influence on the dispersion of each stack's emissions. The GEP height for each stack calculated using the dominant structure's height and maximum projected width was also determined. The actual release heights of all stacks are all less than the calculated GEP value, and therefore, all stacks were represented in the modeling at their actual release heights and were subject to downwash effects.

[8] U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, *Guidelines for Determination of Good Engineering Practice Stack Height (Technical Support Document for the Stack Height Regulations) (Revised),* Research Triangle Park, North Carolina, EPA 450/4-80-023R, June 1985.

This section of the report describes the data resources that were used to determine the source parameters and emission rates from the emission sources at the Huntington Facility and the regional sources included in modeling analysis required as part of this process. In general, emission rates to be modeled in a SIP attainment modeling demonstration not only depend on the source itself, but also the standard by which the estimated concentration is compared. Consistent with Table 8-1 of the *Guideline*, short-term maximum potential or allowable emission rates for "project" sources were used in the evaluation given its short-term standard. Emission rates for "nearby" emission sources were based temporarily representative operation levels consistent with Table 8-1 of the *Guideline*.

4.1. HUNTINGTON FACILITY SOURCES AND LAYOUT

The modeling analysis was conducted in order to determine emission rates that would maintain maximum operational flexibility while still demonstrating attainment with the 1-hour SO_2 NAAQS standard. Tables 4-1 and 4-2 present the modeled source locations and stack parameters.

Table 4-1. Modeled Source Locations

Model ID	Description	UTM-E (m)	UTM-N (m)	Elevation (m)
CUP12	New Cupola Stack	629086.10	4527367.40	226.66
SCREEN12	Screenhouse 1 and 2 Stack	629034.30	4527348.20	226.41

Table 4-2. Modeled Source Parameters

Model ID	SO_2 Emiss. Rate (lb/hr)	Stack Height (m)	Stack Temperature (K)	Exit Velocity (m/s)	Stack Diameter (m)
CUP12	160.00	31.70	395.93	18.04	1.47
SCREEN12	20.00	18.29	328.09	16.09	2.29

Figure 4-1 presents the modeled site layout.

Figure 4-1. Modeled Site Layout

4.2. REGIONAL INVENTORY SOURCES

As discussed in Section 2.1.2, several additional facilities were identified as potential sources of concern in the vicinity of the nonattainment area and were included explicitly in the model. Emission rates from all sources for use in the analysis, based on facility potentials-to-emit (PTE), were obtained directly from IDEM. A spreadsheet listing all of the regional inventory sources, emission rates and source parameters is included in the electronic modeling file archive.

5. MODELING RESULTS

This section presents the modeling results from the 1-Hour SO_2 NAAQS Attainment Demonstration The electronic air dispersion modeling analysis input and output data files, as well as the meteorological data and downwash files used, will be provided via email secure attach upon request from IDEM.

5.1. 1-HOUR SO_2 MODELING RESULTS

Table 5-1 presents the results from the 1-Hour SO_2 NAAQS Attainment Demonstration that has been described in this report. As shown, the Isolatek Huntington facility does not cause or contribute to any exceedance of the 1-Hour SO_2 NAAQS and as such, the facility and surrounding area are in attainment with that standard.

Table 5-1. 1-Hour SO_2 NAAQS Results

Pollutant	Averaging Period	UTM-E (m)	UTM-N (m)	Modeled Design Value	Total Concentration[1] ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)	Exceeds NAAQS? (Yes/No)
SO_2	1-Hour	629,200.0	4,527,600.0	5 yr. avg of H4H	195.87	196.4	No

[1] Includes Season/Hour of Day Background

Figure 5-1 presents a full domain illustration of the concentration distribution from this attainment demonstration. As shown, the maximum impacts in the immediate vicinity of the Isolatek facility and fall off rapidly with distance such that concentrations are less than 25% of the NAAQS at a distance of 2 km.

Figure 5-2 presents a zoomed in illustration of the impacts in the immediate vicinity of the facility. The maximum concentrations are very localized to one area just off the northeast facility property in an unoccupied area consisting of a quarry and impacts fall off rapidly in all directions. The plotted receptors are those with concentrations of at least 25% of the NAAQS and all are within 2 km of the Isolatek facility.

Figure 5-1. 1-Hour SO_2 NAAQS Impact Plot

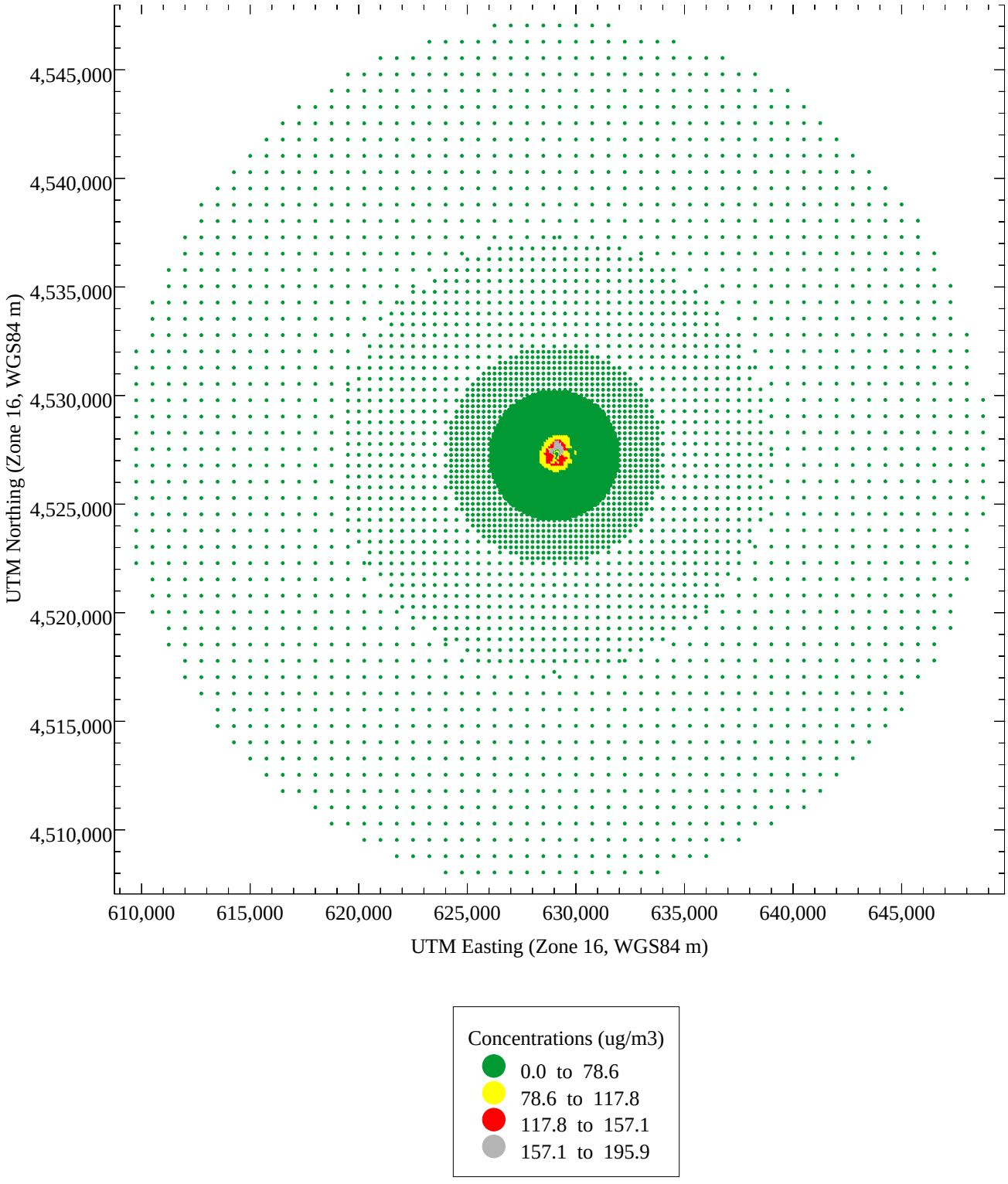
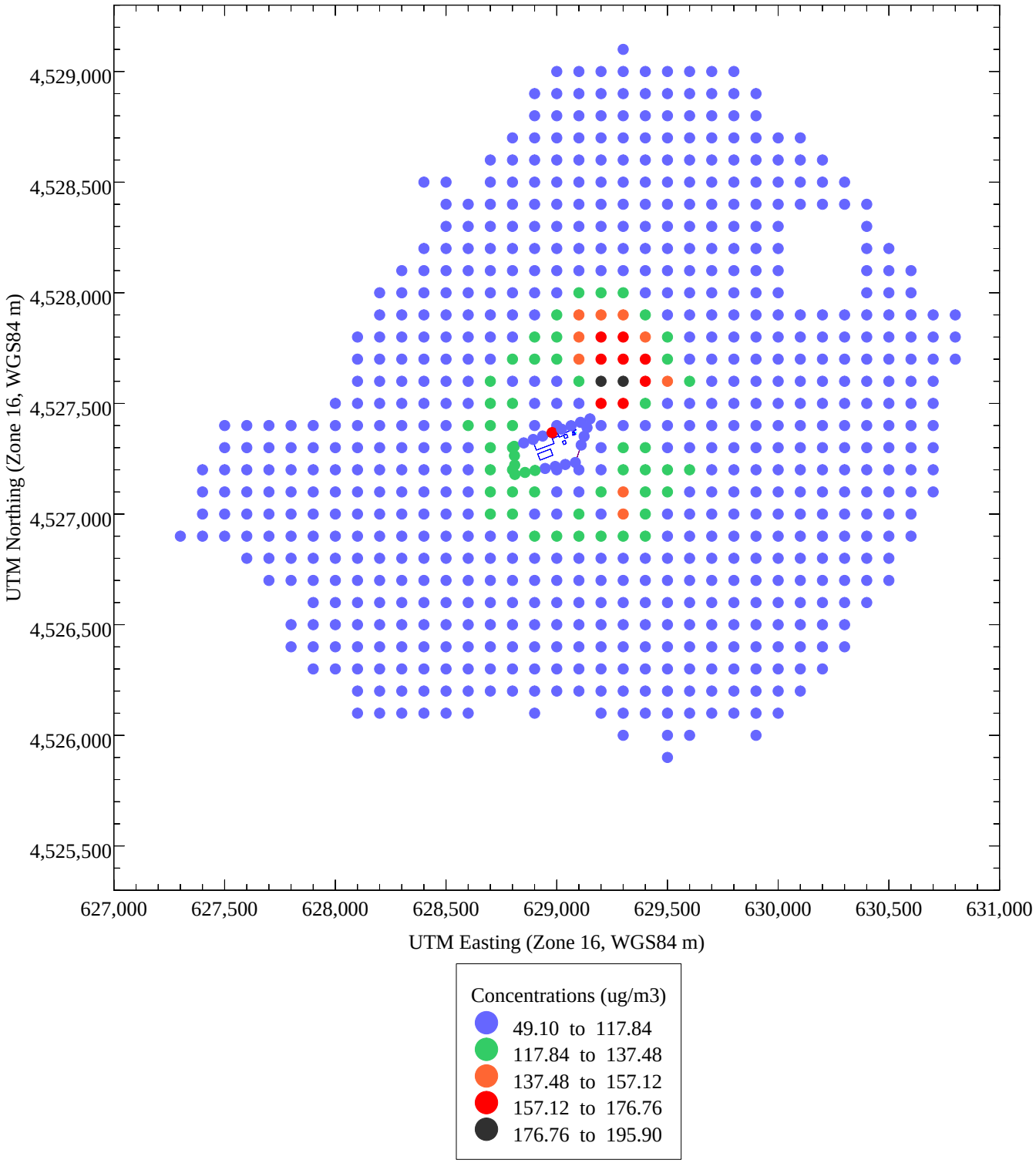


Figure 5-2. 1-Hour SO_2 NAAQS Impact Plot (Zoomed View)



Appendix A2

EJScreen (Environmental Justice) Report for the Huntington, IN SO_2 Nonattainment Area

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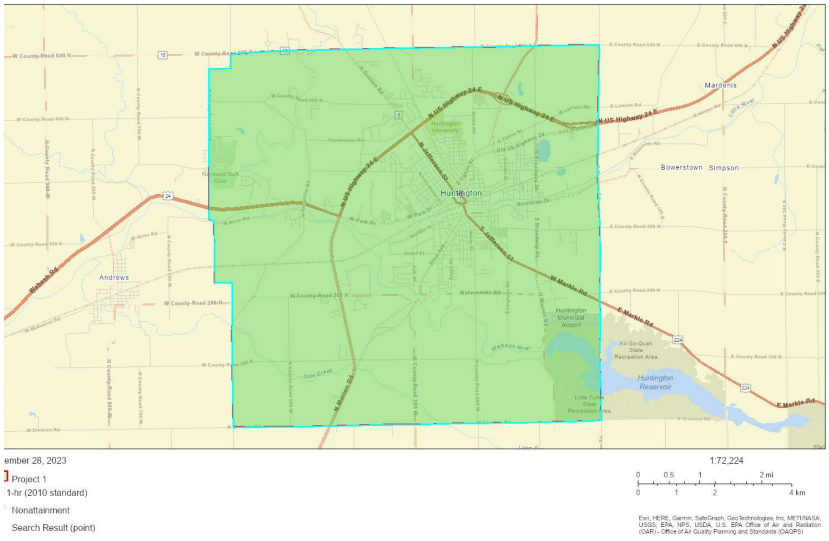
EJScreen Community Report

This report provides environmental and socioeconomic information for user-defined areas, and combines that data into environmental justice and supplemental indexes.

Huntington, IN

the User Specified Area
Population: 20,379
Area in square miles: 37.26



COMMUNITY INFORMATION

Low income: 36 percent	People of color: 6 percent	Less than high school education: 9 percent	Limited English households: 2 percent
Unemployment: 3 percent	Persons with disabilities: 16 percent	Male: 49 percent	Female: 51 percent
77 years Average life expectancy	$27,092 Per capita income	Number of households: 8,245	Owner occupied: 68 percent

BREAKDOWN BY RACE

White: 94%	Black: 1%	American Indian: 0%	Asian: 1%
Hawaiian/Pacific Islander: 0%	Other race: 0%	Two or more races: 1%	Hispanic: 3%

BREAKDOWN BY AGE

From Ages 1 to 4	5%
From Ages 1 to 18	22%
From Ages 18 and up	78%
From Ages 65 and up	16%

LIMITED ENGLISH SPEAKING BREAKDOWN

Speak Spanish	46%
Speak Other Indo-European Languages	12%
Speak Asian-Pacific Island Languages	42%
Speak Other Languages	0%

Notes: Numbers may not sum to totals due to rounding. Hispanic population can be of any race.
Source: U.S. Census Bureau, American Community Survey (ACS) 2017 -2021. Life expectancy data comes from the Centers for Disease Control.

LANGUAGES SPOKEN AT HOME

LANGUAGE	PERCENT
English	95%
Spanish	3%
German or other West Germanic	1%
Chinese (including Mandarin, Cantonese)	1%
Total Non-English	5%

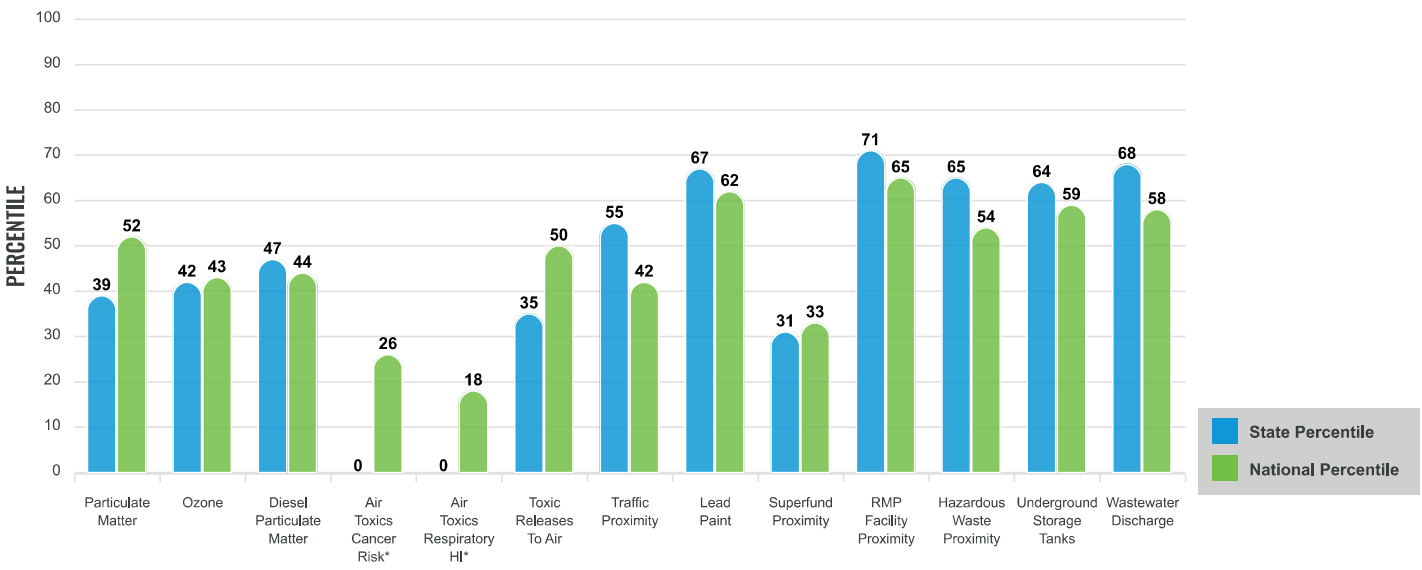
Environmental Justice & Supplemental Indexes

The environmental justice and supplemental indexes are a combination of environmental and socioeconomic information. There are thirteen EJ indexes and supplemental indexes in EJScreen reflecting the 13 environmental indicators. The indexes for a selected area are compared to those for all other locations in the state or nation. For more information and calculation details on the EJ and supplemental indexes, please visit the EJScreen website.

EJ INDEXES

The EJ indexes help users screen for potential EJ concerns. To do this, the EJ index combines data on low income and people of color populations with a single environmental indicator.

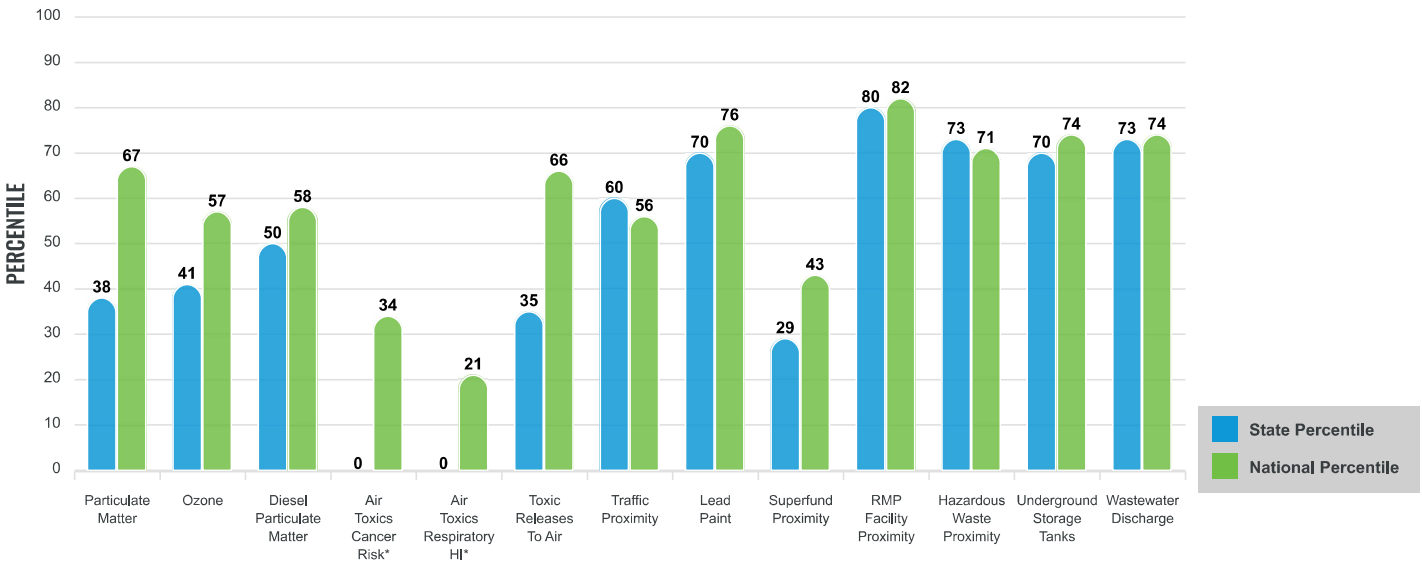
EJ INDEXES FOR THE SELECTED LOCATION



SUPPLEMENTAL INDEXES

The supplemental indexes offer a different perspective on community-level vulnerability. They combine data on percent low-income, percent linguistically isolated, percent less than high school education, percent unemployed, and low life expectancy with a single environmental indicator.

SUPPLEMENTAL INDEXES FOR THE SELECTED LOCATION



These percentiles provide perspective on how the selected block group or buffer area compares to the entire state or nation.

Report for the User Specified Area

EJScreen Environmental and Socioeconomic Indicators Data

SELECTED VARIABLES	VALUE	STATE AVERAGE	PERCENTILE IN STATE	USA AVERAGE	PERCENTILE IN USA
POLLUTION AND SOURCES					
Particulate Matter (µg/m^3)	8.54	8.98	29	8.08	59
Ozone (ppb)	60.4	61.4	32	61.6	44
Diesel Particulate Matter (µg/m^3)	0.199	0.259	38	0.261	45
Air Toxics Cancer Risk* (lifetime risk per million)	20	21	0	25	5
Air Toxics Respiratory HI*	0.2	0.25	0	0.31	4
Toxic Releases to Air	880	16,000	27	4,600	57
Traffic Proximity (daily traffic count/distance to road)	77	96	61	210	50
Lead Paint (% Pre-1960 Housing)	0.56	0.38	72	0.3	77
Superfund Proximity (site count/km distance)	0.033	0.17	20	0.13	31
RMP Facility Proximity (facility count/km distance)	2	0.51	95	0.43	96
Hazardous Waste Proximity (facility count/km distance)	1.4	1	76	1.9	67
Underground Storage Tanks (count/km^2)	6.9	3.2	84	3.9	83
Wastewater Discharge (toxicity-weighted concentration/m distance)	0.022	200	74	22	73
SOCIOECONOMIC INDICATORS					
Demographic Index	22%	27%	50	35%	35
Supplemental Demographic Index	14%	14%	57	14%	58
People of Color	6%	22%	33	39%	15
Low Income	36%	32%	62	31%	64
Unemployment Rate	3%	5%	47	6%	41
Limited English Speaking Households	2%	2%	79	5%	62
Less Than High School Education	9%	11%	52	12%	54
Under Age 5	5%	6%	52	6%	55
Over Age 64	16%	17%	54	17%	52
Low Life Expectancy	21%	21%	55	20%	68

*Diesel particulate matter, air toxics cancer risk, and air toxics respiratory hazard index are from the EPA's Air Toxics Data Update, which is the Agency's ongoing, comprehensive evaluation of air toxics in the United States. This effort aims to prioritize air toxics, emission sources, and locations of interest for further study. It is important to remember that the air toxics data presented here provide broad estimates of health risks over geographic areas of the country, not definitive risks to specific individuals or locations. Cancer risks and hazard indices from the Air Toxics Data Update are reported to one significant figure and any additional significant figures here are due to rounding. More information on the Air Toxics Data Update can be found at: https://www.epa.gov/haps/air-toxics-data-update.

Sites reporting to EPA within defined area:

Superfund	0
Hazardous Waste, Treatment, Storage, and Disposal Facilities	3
Water Dischargers	72
Air Pollution	16
Brownfields	11
Toxic Release Inventory	25

Other community features within defined area:

Schools	7
Hospitals	1
Places of Worship	4

Other environmental data:

Air Non-attainment	Yes
Impaired Waters	Yes

Selected location contains American Indian Reservation Lands*	No
Selected location contains a "Justice40 (CEJST)" disadvantaged community	Yes
Selected location contains an EPA IRA disadvantaged community	Yes

Report for the User Specified Area

EJScreen Environmental and Socioeconomic Indicators Data

HEALTH INDICATORS

INDICATOR	HEALTH VALUE	STATE AVERAGE	STATE PERCENTILE	US AVERAGE	US PERCENTILE
Low Life Expectancy	21%	21%	55	20%	68
Heart Disease	7.1	6.8	56	6.1	69
Asthma	10.2	10.4	49	10	58
Cancer	6.7	6.4	49	6.1	59
Persons with Disabilities	15.5%	14.5%	61	13.4%	68

CLIMATE INDICATORS

INDICATOR	HEALTH VALUE	STATE AVERAGE	STATE PERCENTILE	US AVERAGE	US PERCENTILE
Flood Risk	11%	9%	78	12%	71
Wildfire Risk	0%	2%	0	14%	0

CRITICAL SERVICE GAPS

INDICATOR	HEALTH VALUE	STATE AVERAGE	STATE PERCENTILE	US AVERAGE	US PERCENTILE
Broadband Internet	20%	16%	69	14%	74
Lack of Health Insurance	7%	8%	52	9%	53
Housing Burden	No	N/A	N/A	N/A	N/A
Transportation Access	Yes	N/A	N/A	N/A	N/A
Food Desert	Yes	N/A	N/A	N/A	N/A

Footnotes

Report for the User Specified Area

Attachment B

2017 BASE YEAR AND
2023 ATTAINMENT YEAR
EMISSION INVENTORIES

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2017 BASE YEAR AND 2023 ATTAINMENT YEAR EMMISSION INVENTORIES FOR THE HUNTINGTON, INDIANA 2010 PRIMARY 1-HOUR SULFUR DIOXIDE (SO_2) NONATTAINMENT AREA

Huntington Township in Huntington County

Prepared By:
The Indiana Department of Environmental Management

November 2023

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TABLES

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1.0 OVERVIEW

1.1 Introduction

On January 9, 2018, United States Environmental Protection Agency (U.S. EPA) designated Huntington Township in Huntington County, Indiana, as nonattainment for the 2010 primary 1-hour sulfur dioxide (SO_2) National Ambient Air Quality Standard (NAAQS), effective April 9, 2018 (83 FR 1098). The designation was based on preliminary dispersion modeling conducted by U.S. EPA that suggested SO_2 emissions from U.S. Mineral Wool, also known as Isolatek, may potentially contribute to a violation of the 2010 primary 1-hour standard for SO_2.

Section 172(c)(3) of the federal Clean Air Act (CAA) requires the development of a comprehensive, accurate, and current inventory of actual SO_2 emissions from all sources in the nonattainment area, as well as any sources located outside the nonattainment area which may affect attainment in the area, consistent with inventory data requirements at 40 Code of Federal Regulations part 51, Subpart A. A projected emissions inventory should also be developed for the year in which the area is expected to attain the standard, as recommended in U.S. EPA's April 23, 2014, memorandum concerning "Guidance for 1-Hour SO_2 Nonattainment Area SIP Submissions" (referred to hereafter as the 2014 guidance memo).[1]

Consistent with CAA requirements and U.S. EPA's 2014 guidance memo, Indiana has prepared the following base year and attainment year emission inventories for the Huntington, IN 2010 primary SO_2 nonattainment area.

1.2 U.S. EPA National Emissions Inventory Data Source

U.S. EPA's National Emissions Inventory (NEI) is the primary source of the emissions data for the base year inventory. The NEI is a collaborative process between U.S. EPA, states, localities, and tribes (S/L/T) to build a comprehensive, detailed estimate of emissions from air sources. U.S. EPA releases the NEI every three years based on data provided by S/L/T air agencies and supplemental data developed by U.S. EPA. NEI data categories include point (i.e., electric generating units (EGUs) and non-EGUs), nonpoint (area), on-road (cars and trucks driven on roads), and non-road (locomotives, aircraft, marine, off-road vehicles, and nonroad equipment such as lawn and garden equipment).[2] An examination of NEI data provides a starting point to examine large sources in and near the nonattainment area. As discussed in the following sections Indiana has utilized NEI data to develop a list of sources and potential impacts, with

[1] https://www.epa.gov/so2-pollution/guidance-1-hour-sulfur-dioxide-so2-nonattainment-area-state-implementation-plans-sip

[2] For complete information about the collection, compilation, and quality assurance of emissions data, see 2017 National Emissions Inventory: January 2021 Updated Release, Technical Support Document at: https://www.epa.gov/sites/default/files/2021-02/documents/nei2017_tsd_full_jan2021.pdf.

certain adjustments based on population data, vehicle miles traveled data, and an emissions factor utilized in U.S. EPA modeling for the area's designation.

2.0 2017 BASE YEAR EMISSIONS INVENTORY

The year 2017 has been selected for the base year inventory.

2.1 Emission Allocation Ratios

The Huntington, IN 2010 primary SO_2 nonattainment area is comprised of a portion of Huntington County that includes Huntington Township. The NEI provided county level data for area, non-road, and on-road sectors. Table 2.1 summarizes adjustments made to the county level data to generate Huntington Township emissions.

Table 2.1: Huntington Township Emission Allocation Ratios (Area, Non-Road, and On-Road Sectors)

Ratio	Sector	Comment
56%	Area and Non-road	56% represents the fraction of the estimated population in Huntington Township (2020). County level emissions were adjusted by a factor of 0.56 to determine township level emissions.[3]
1.5%	On-road	1.5% represents the fraction of commercial vehicle miles traveled (VMT) in Huntington Township. County level emissions were adjusted by a factor of 0.015 to determine township level emissions.[4]

2.2 2017 Base Year Emissions Inventory Tables

Table 2.2 summarizes 2017 emissions as reported to the NEI as well as a 2017-Adjusted base year inventory, by NEI category, for the Huntington, IN 2010 SO_2 nonattainment area. An adjustment for the point source non-EGU category was calculated using an emission factor derived by U.S. EPA of 21.6 pounds of SO_2 per ton of slag based on modeling conducted by U.S. EPA for purposes of the area's designation.[5] The point non-EGU sector accounts for approximately 96.4 percent and is the significant contributor of SO_2 emissions in the nonattainment area. On-road, non-road, and area sectors, combined, account for only approximately 3.6 percent of total SO_2 emissions in the nonattainment area. There are no EGUs in the nonattainment area.

[3] Population data source: STATS Indiana (https://www.stats.indiana.edu).
[4] VMT data source: Indiana Department of Transportation Mileage and Daily Vehicle Miles Traveled (DVMT) by Year, County, City and Functional Classification (2015-2021), revised July 22, 2022 (https://www.in.gov/indot/files/HistoricINVMT-ByCityandFunctionalClass-2015-2021-20220722.xlsx).
[5] See U.S. EPA "Technical Support Document (TSD) Chapter 13 Intended Round 3 Area Designations for the 2010 1-Hour SO_2 Primary National Ambient Air Quality Standard for Indiana": https://www.epa.gov/sites/default/files/2017-08/documents/13_in_so2_rd3-final.pdf.

Table 2.2: 2017 and 2017-Adjusted Base Year Inventory, All Sectors, Huntington County and Huntington Township

Sector	Total SO_2 Emissions (TPY)			
	Huntington County		Huntington Township	
	2017	2017-Adjusted	2017	2017-Adjusted
On-Road	4.48	4.48	0.07	0.07
Non-Road	0.75	0.75	0.42	0.42
Area	10.81	10.81	6.05	6.05
Point EGU	0.00	0.00	0.00	0.00
Point Non-EGU	176.23	455.33	176.23	455.33
Total	**192.27**	**471.37**	**182.77**	**461.87**

Table 2.3 displays a Tier 1 breakdown of the emissions data for the base year, 2017.

Table 2.3: 2017 and 2017-Adjusted Base Year Emissions Inventory Tier 1 Breakdown for Huntington County and Huntington Township

Category	Tier 1 Description	Total SO_2 Emissions (TPY)			
		Huntington County		Huntington Township	
		2017	2017-Adjusted	2017	2017-Adjusted
On-Road	Highway Vehicles	4.48	4.48	0.07	0.07
Non-Road	Off-Highway	0.75	0.75	0.42	0.42
Area	Miscellaneous	5.34	5.34	2.99	2.99
Area	Fuel Comb. Other	2.49	2.49	1.39	1.39
Area	Waste Disposal & Recycling	1.51	1.51	0.85	0.85
Area	Fuel Comb. Industrial	1.38	1.38	0.77	0.77
Area	Petroleum & Related Industries	0.09	0.09	0.05	0.05
Point Non-EGU	Other Industrial Processes	176.23	455.33	176.23	455.33

Table 2.4 provides a breakdown of emissions from point sources in the Huntington, IN 2010 SO_2 nonattainment area. The data is obtained from emission statements submitted by regulated facilities under Indiana's Emission Reporting rule at Title 326, Article 2, Rule 6 of the Indiana Administrative Code (326 IAC 2-6).[6]

[6] IDEM's Office of Air Quality (OAQ) collects, calculates, and stores point source data through Indiana's Emission Statement Program according to 326 IAC 2-6. Emission sources over specific thresholds must report actual emissions of certain pollutants, including SO_2, to IDEM annually or triennially. The data is collated into the Emission Inventory Tracking System (EMITS) and submitted to U.S. EPA through the Emission Inventory System (EIS) Gateway. Data is posted at: https://www.in.gov/idem/airquality/reporting/emissions-summary-data/.

Table 2.4: 2017 SO_2 Emissions from Contributing Point Sources in the Huntington, IN Nonattainment Area

Plant ID#	Facility Name	Emissions (Tons per Year)	
		2017	2017-Adjusted
00021	Isolatek	176.20	455.3
00043	Teijin Automotive	0.03	0.03

3.0 2023 ATTAINMENT YEAR EMISSIONS INVENTORY

The Huntington, IN 2010 SO_2 nonattainment area is expected to attain the standard by 2023; therefore, 2023 is selected for the projected attainment year emissions inventory.

3.1 2023 Attainment Year Data Summary and Comparison

Table 3.1 summarizes the 2023 attainment year inventory, by category, for the Huntington, IN 2010 SO_2 nonattainment area. The table includes 2017 base year emissions data for comparison, as well as estimated percentages of emissions changes in SO_2 emissions from base year, 2017, to attainment year, 2023.

Table 3.1: Comparison of 2017 and 2017-Adjusted Base Year and 2023 Attainment Year Emissions Inventories for the Huntington County, IN SO_2 Nonattainment Area

Inventory Year	Emissions in TPY			Change % 2017 to 2023	Change % 2017-Adjusted to 2023
	2017	2017-Adjusted	2023		
On-road	0.07	0.07	0.05	-28.57 %	
Non-road	0.42	0.42	0.24	-42.86 %	
Area	6.05	6.05	3.41	-43.64 %	
Point EGU	0.00	0.00	0.00	n/a	
Point Non-EGU	176.23	455.33	788.43	+347.39 %	+73.16 %
Total	**182.77**	**461.87**	**792.13**	**+333.40 %**	**+71.50 %**

Attachment C

COMMISSIONER'S ORDER
FOR ISOLATEK INTERNATIONAL

HUNTINGTON, IN SO_2 NONATTAINMENT AREA

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INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
We Protect Hoosiers and Our Environment.
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(800) 451-6027 • (317) 232-8603 • www.idem.IN.gov
Eric J. Holcomb, *Governor*
Brian C. Rockensuess, *Commissioner*

STATE OF INDIANA)
COUNTY OF MARION) SS:
)

BEFORE THE INDIANA DEPARTMENT
OF ENVIRONMENTAL MANAGEMENT

IN THE MATTER OF:)
ORDER OF THE COMMISSIONER)
PURSUANT TO IC 13-14-2-1)
FOR U.S. MINERAL PRODUCTS COMPANY)
(D/B/A ISOLATEK INTERNATIONAL))
)

NOTICE AND ORDER OF THE COMMISSIONER OF THE DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

This Notice and Order of the Commissioner of the Department of Environmental Management ("Order") is issued pursuant to Indiana Code ("IC") 13-14-1-9, IC 13-14-2-1, and IC 13-14-2-7. During the Commissioner's review, it was determined that the Petition should be granted according to the terms specified below:

PETITION

Petitioner is U.S. Mineral Products Company (d/b/a Isolatek) ("Petitioner"), a stationary acoustic and thermal insulation manufacturing facility with Source I.D. Number 069-00021, located at 701 North Broadway Street in Huntington, Huntington County, Indiana, and permitted under the Part 70 air operating permit program. Isolatek charges a mixture of fuel (coke), slag, and other feed material (e.g., feldspar) from the smelting and refining of raw ore at integrated steel mills in cupolas. The charged mixture is heated to a molten state and processed to form mineral wool for creating thermal or acoustical insulation material.

On August 10, 2015, the U.S. Environmental Protection Agency (U.S.EPA) finalized requirements for air agencies to monitor or model sulfur dioxide (SO_2) levels in areas with large sources of SO_2 emissions to help implement the 1-hour SO_2 National Air Ambient Quality Standard (NAAQS), otherwise known at the Data Requirements Rule (DRR). This final rule established that air agencies would characterize air quality around sources that emit 2,000 tons per year (tpy) or more of SO_2.

On April 9, 2018, the U.S. EPA designated Huntington Township within Huntington County Indiana as nonattainment under the 2010 1-hour standard for sulfur dioxide (SO_2). This designation was supported by preliminary dispersion modeling conducted by U.S. EPA that suggested that SO_2 emissions from Isolatek may potentially contribute to a violation of the 2010 1-hour standard for SO_2.

On October 2, 2023, the Petitioner submitted a request to the Commissioner to impose permanent and enforceable SO_2 emission limitations and emission rates on the Petitioner in order to ensure continued attainment of the 1-hour SO_2 NAAQS in the area surrounding Isolatek in Huntington Township within Huntington County.

The Petitioner proposed SO_2 emission rates, expressed in SO_2 pounds per hour ("lb/hr"), applicable to both Cupolas (identified as EU #1 and EU #2), exhausting to a shared stack #1 and two blow chambers (identified as EU #3 and EU #4) exhausting to screen houses (identified as CE #3 and CE #4), enclosed by a single building, exhausting to a single stack #3 as follows:

a. 160.0 lb/hr combined for the cupolas EU #1 and EU #2 exhausting to stack #1; and

b. 20.0 lb/hr combined for the blow chambers EU #3 and EU #4 exhausting to screen houses CE #3 and CE #4 and exhausting to a single stack #3.

FINDINGS

Pursuant to IC 13-14-2-1(b) and IC 13-14-2-7(1), the Commissioner may issue Orders to secure compliance with Indiana's environmental statutes and rules, including the ambient air quality standard for SO_2 at 326 Indiana Administrative Code ("IAC") 1-3-4(b)(1)(A).

Petitioner's proposal and this Order are intended to support IDEM's demonstration of attainment for the 2010 1-hour SO_2 NAAQS in Huntington Township within Huntington County.

Based on the foregoing information, IDEM finds the following:

1. Permanent and enforceable SO_2 emission limitations and emission rates for Isolatek are required in order to model attainment of the 1-hour SO_2 NAAQS in the area surrounding the Petitioner.

2. A Commissioner's Order is required to ensure SO_2 emission limitations and emission rates remain permanent and federally enforceable, as required by 42 U.S.C. § 7407(d)(3)(E)(iii) until the SO_2 emission limitations and emission rates are incorporated into the Petitioner's Part 70 Operating Permit.

3. Approval by U.S. EPA of the Commissioner's Order into the Indiana State Implementation Plan ("SIP") is required to make Order requirements federally enforceable. Upon approval into the Indiana SIP, the Order requirements become applicable requirements as defined in 326 IAC 2-7-1(6).

4. Based on modeling conducted by the Petitioner and reviewed and approved by IDEM, the SO_2 emission rates proposed by the Petitioner in Order paragraphs 2 and 3 are adequate to assure attainment of the SO_2 NAAQS.

ORDER

1. This Order approves the Petition submitted by the Petitioner according to the terms specified below. This Order imposes on the Petitioner the SO_2 emission limitations and emission rates described below.

2. The combined emissions from cupolas (EU #1 and EU #2) exhausting to stack #1 shall not exceed the combined SO_2 emission rate as follows:

    a. 160.0 lb/hr

3. The combined emissions from blow chambers (EU #3 and EU #4) exhausting through screen houses (CE #3 and CE #4) to stack #3 shall not exceed the combined SO_2 emission rate as follows:

    a. 20.0 lb/hr

4. The Petitioner shall comply with the SO_2 emission limitations and emission rates beginning from effective date of Commissioner's order as outlined in this order.

5. As required by 326 IAC 2-7-2(d)(1) and 326 IAC 2-7-5, the Petitioner shall apply to incorporate these Order requirements, including reporting and recordkeeping requirements and methods to determine compliance, into its Part 70 Operating Permit within ninety (90) days of U.S. EPA approval of the Commissioner's Order into the Indiana SIP.

6. From effective date of Commissioner's order, until IDEM issues a Permit incorporating Order requirements, the Petitioner shall comply with the reporting and recordkeeping requirements and methods to determine compliance specified in this paragraph.

    a. Reporting: The Petitioner shall submit to IDEM, on a quarterly basis,
        i. A report of the monthly average hourly SO_2 emissions in pounds per hour from each cupula EU #1 and EU #2 based upon the calculation method as set forth in Section 6(c)(ii) and the monthly average hourly SO_2 emissions in pounds per hour from each blow chamber EU #3 and EU #4 based upon the calculation method as set forth in Section 6(c)(iii). Each report will be submitted not later than thirty (30) days after the end of the quarter being reported.
        ii. A report of throughput of all input materials (coke, slag, and other feed material (e.g., feldspar)) in pounds per hour for each cupula (EU #1 and EU #2) for each 12-hour shift. Each report will be submitted not later than thirty (30) days after the end of the quarter being reported.
        iii. A report of any exceedances of the SO_2 emissions limits for the cupolas or blow chambers, as stated in Order paragraphs 2 and/or 3. This report will be submitted no later than thirty (30) days after the end of the quarter being reported.

b. Stack Testing: The Petitioner shall perform SO_2 testing of cupolas EU #1 and EU #2 exhausting to stack #1 and the blow chambers EU #3 and EU #4 and screen houses CE #3 and CE #4 exhausting to stack #3 utilizing methods approved by the Commissioner at least once every sixty (60) months from the date of the most recent valid stack test. Testing shall be conducted in accordance with the provisions of 326 IAC 3-6 (Source Sampling Procedures). Permit Condition C.7, Performance Testing, in Title V Permit No. T069-45112-00021 contains the Petitioner's obligation with regard to the performance testing required herein. Material sampling (as-fed during test) and analysis methods as set forth in Section 6(c)(i) shall be included in the test protocol submitted to OAQ. Stack testing shall be conducted with input materials (coke, slag, and other feed material (e.g., feldspar)) representative of the input material typically processed in the cupolas during normal operation. The initial SO_2 stack test for the cupolas shall occur no later than 180 days from the effective date as determined in Order paragraph 4.

c. Compliance determination: Petitioner shall demonstrate compliance with the SO_2 emission rates in Order paragraphs 2 and 3 above as follows:

<u>Sampling, Analysis and Calculations:</u>

(i) Sampling: Coke and slag are to be sampled and analyzed by an independent laboratory, utilizing American Society for Testing and Materials (ASTM) standards for sampling and chemical analysis, method D4239. A monthly sampling analyses of the coke and slag at the facility or sulfur content information provided by the vendor shall be the source of the data of the sulfur content of the coke and slag to be used in calculating and reporting the hourly SO_2 emissions. The current sampling and analysis protocol to be used in lieu of certified analyses, certificates of analysis, or certification of compliance with Isolatek's specifications for coke and slag is as follows:

(A) The sample acquisition points shall be at locations where representative samples of the respective material shipments may be obtained.

(B) Samples shall be composited by Petitioner for slag and coke, and analyzed in accordance with ASTM method D4239 specifications until such time that the suppliers of coke and/or slag can supply certificates of analyses for sulfur content of the input material.

(1) For slag and coke, a once per month sample shall be taken from the charge bucket before a charge is delivered to either cupola to be analyzed for the first 12 months from the effective date of Commissioner's order. No additional sampling will be necessary after the first 12 months from the effective date of the Commissioner's Order, except for stack test purposes or a change in supplier or vendor of the coke and/or slag.

(2) Any change in the supplier or vendor of the coke and/or slag, supplied to the Petitioner, would require a once per month sample taken for an additional 12 months of sampling, as described in Section 6(c)(i) with sampling beginning with the first delivery of coke from the new supplier or the date a new source of slag is approved by the Petitioner. The additional 12 months of sampling for sulfur content of the coke and/or slag shall establish a new baseline for such material(s) to ensure that the sulfur content of the raw materials are able to demonstrate compliance with the limits established herein.

(3) In the event the SO_2 emissions exceed either Order paragraphs 2 or 3, the Petitioner will expeditiously conduct another sample in order to determine the sulfur content of the slag or coke respectively that was used to determine the SO_2 emission rate that exceeded the limit in paragraphs 2 or 3.

ii. The petitioner will be responsible for ensuring the SO_2 limit in Order paragraph 2 is protected when coke or slag is burned by the Petitioner. SO_2 emissions will be determined by using the following calculation for the cupolas:

$$SO_{2\ \text{cupola-hourly (i)}} = \{(T_{\text{12-hr shift (i)}} * EF_{\text{cupola}}) + [(T_{\text{12-hr shift (i)}} * EF_{\text{cupola}}) * AR_{\text{sulfurcontentslag}}] + [(T_{\text{12-hr shift (i)}} * EF_{\text{cupola}}) * AR_{\text{sulfurcontentcoke}}]\} / H_{\text{12-hr shift (i)}}$$

Where:

$SO_{2\ \text{cupola-hourly (i)}}$ = Average Hourly SO_2 emissions from both cupolas exhausting to cupola stack #1 for 12-hr shift i (lbs/hr);

$T_{\text{12-hr shift (i)}}$ = Total input of coke, slag, and feldspar to the cupolas for 12-hr shift i (tons/12-hr shift);

EF_{cupola} = SO_2 Emission Factor for the cupolas (lbs/ton) exhausting to the cupola stack #1 from the most recent valid stack test;

$AR_{\text{sulfurcontentslag}}$ = Adjustment ratio for difference of sulfur content of slag based on a 12 sample rolling average from charge to sulfur content of the slag during the latest stack test.

$AR_{\text{sulfurcontentscoke}}$ = Adjustment ratio for difference of sulfur content of coke based on a 12 sample rolling average from charge to sulfur content of the coke during the latest stack test.

$H_{\text{12-hr shift (i)}}$ = Hours of operation per 12-hr shift for each cupola

iii. The petitioner would be responsible for ensuring the SO_2 limit in Order paragraph 3 is protected when the load of coke or slag is burned by the Petitioner by using the following calculation for the blow chambers exhausting to screenhouse stack #3:

$$SO_{2\ \text{screenhouse-hourly (i)}} = \{(T_{\text{12-hr shift (i)}} * EF_{\text{screenhouse}}) + [(T_{\text{12-hr shift (i)}} * EF_{\text{screenhouse}}) * AR_{\text{sulfurcontentslag}}] +$$

$$[(T_{12\text{-hr shift (i)}} * EF_{screenhouse}) * AR_{sulfurcontentcoke}]\}/ H_{12\text{-hr shift (i)}}$$

Where:

$SO_{2\ screenhouse\text{-}hourly\ (i)}$ = Average Hourly SO_2 emissions from both blow chambers exhausting to screenhouse stack #3 for 12-hr shift i (lbs/hr);

$T_{12\text{-hr shift (i)}}$ = Total input of coke, slag, and feldspar to the cupolas for 12-hr shift i (tons/12-hr shift);

$EF_{screenhouse}$ = SO_2 Emission Factor for the blow chambers (lbs/ton) exhausting into the screenhouse stack #3 from the most recent valid stack test;

$AR_{sulfurcontentslag}$ = Adjustment ratio for difference of sulfur content of slag based on a 12 sample rolling average from charge to sulfur content of the slag during the latest stack test.

$AR_{sulfurcontentscoke}$ = Adjustment ratio for difference of sulfur content of coke based on a 12 sample rolling average from charge to sulfur content of the coke during the latest stack test.

$H_{12\text{-hr shift (i)}}$ = Hours of operation per 12-hr shift for each blow chamber

1. These emissions shall be noted per each 12-hour shift data collected, per Section 6(a)(ii) and (iii) and demonstrate the SO_2 emissions remain below the limits established in Order paragraphs 2 and 3.
2. The Petitioner shall note any exceedances in the resulting SO_2 emissions on the Quarterly Deviation and Compliance Monitoring Report.

d. Recordkeeping: The Petitioner shall maintain records of the sampling and analysis of the coke and slag, certifications, other documentation, and the equations used to demonstrate compliance with the emission requirements in Order paragraphs 2 and 3. These records shall be retained for a period of at least five (5) calendar years.

7. Nothing in this Order shall prohibit future revisions to the emission rates in Order paragraphs 2 and 3, including increases in such emission rates and/or limitations, provided such future revisions demonstrate continued attainment of the 1-hour SO_2 NAAQS, satisfy the requirements in Section 110(l) of the Clean Air Act (42 U.S.C. §7410(l)), and any necessary revisions to the applicable regulations and SIP are obtained.

8. This Order shall apply to and be binding upon the Petitioner, its successors and assigns. No change in ownership, corporate, or partnership status of the Petitioner shall in any way alter its status or responsibilities under this Order.

9. The requirements of this Order supersede any less stringent requirements applicable to the Petitioner.

EFFECTIVE DATE OF ORDER

Pursuant to IC 13-14-2-1(d), IC 4-21.5-3-1, IC 4-21.5-3-5(a)(6), and 40 Code of Federal Regulations ("CFR") 51.102, IDEM will give notice of this Order to each entity to whom the Order is directed and affected neighbors by mailing and to the general public by web publication. Pursuant to IC 4-21.5-3-7(a)(3), IC 4-21.5-3-2(e), and IC 4-21.5-3-5, this Order may be appealed by filing a Petition for review within eighteen (18) days after the date affected persons were

given notice of the Order by U.S. mail. Information on petitions for review of this Order can be found at IC 4-21.5-3-7.

Pursuant to IC 4-21.5-3-5(f) and IC 4-21.5-3-2(e), the Order is effective eighteen (18) days from mailing of notice unless a Petition for review has been filed before or on the eighteenth (18th) day. However, the compliance date for the emission limitations in this Order is March 1, 2024. Pursuant to 40 CFR 51.103, IDEM will submit this Order to U.S. EPA as a revision to the Indiana SIP. Upon approval by the U.S. EPA, this Order will be part of the Indiana SIP. Persons seeking judicial review of this Order may do so in accordance with IC 4-21.5-5.

If you have procedural or scheduling questions regarding your request for review, you may contact the Office of Environmental Adjudication at (317) 232-8591. If you have questions regarding this Order, please contact Mark Derf, Office of Air Quality, by telephone at (317) 233-5682 or email at MDERF@idem.IN.gov.

Dated at Indianapolis, Indiana this 6th day of November, 2023.

Brian Rockensuess
Commissioner
Indiana Department of Environmental Management

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
COMPLIANCE AND ENFORCEMENT BRANCH
Part 70 Quarterly Report
(Submit Report Quarterly)

Source Name: Isolatek
Source Address: 701 N Broadway St, Huntington 46750
Part 70 Permit No.: T069-45112-00021

Facility: Acoustic and thermal insulation manufacturing facility
Parameter: Average Hourly Sulfur Dioxide (SO_2) Emissions
Limit: 160.0 pounds of SO_2 per hour for cupola stack
(Based on Sulfur Content: Slag-1.0% / Coke 0.7%)

This form consists of 2 pages

Average Hourly SO_2 Emissions (Quarterly Report) Page 1 of 2

QUARTER:_____ YEAR:_____

		Month 1	Month 1	Month 1	Month 2	Month 2	Month 2	Month 3	Month 3	Month 3
Material *(tons)*	Emission Factor (lb SO_2/ton)	Hours of Operation per month (hrs)	Material Input (tons/month)	Average Hourly SO_2 Emissions (lb/hr)*	Hours of Operation per month (hrs)	Material Input (tons/month)	Average Hourly SO_2 Emissions (lb/hr)*	Hours of Operation per month (hrs)	Material Input (tons/month)	Average Hourly SO_2 Emissions (lb/hr)*
Cupola #EU1 - Coke										
Cupola #EU1 – Slag										
Cupola #EU2 - Coke										
Cupola #EU2 – Slag										
			Month 1 =			**Month 2 =**			**Month 3 =**	

* Average Hourly SO_2 Emissions (lb/hr) = {Material Input (tons/month) x Emission Factor (lb SO_2/ton) * Adjustment Factor for Sulfur Content of Slag/Coke} / Hours of Operation per Month

INDIANA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
OFFICE OF AIR QUALITY
COMPLIANCE AND ENFORCEMENT BRANCH
Part 70 Quarterly Report
(Submit Report Quarterly)

Source Name: Isolatek
Source Address: 701 N Broadway St, Huntington 46750
Part 70 Permit No.: T069-45112-00021

Facility: Acoustic and thermal insulation manufacturing facility
Parameter: Average Hourly Sulfur Dioxide (SO_2) Emissions
Limit: 20.0 pounds of SO_2 per hour for screenhouse stack
(Based on Sulfur Content: Slag-1.0% / Coke 0.7%)

This form consists of 2 pages

Average Hourly SO_2 Emissions (Quarterly Report) Page 2 of 2

QUARTER: _____ YEAR: _____

		Month 1	Month 1	Month 1	Month 2	Month 2	Month 2	Month 3	Month 3	Month 3
Material *(tons)*	Emission Factor (lb SO_2/ton)	Hours of Operation per month (hrs)	Material Input (tons/month)	Average Hourly SO_2 Emissions (lb/hr)*	Hours of Operation per month (hrs)	Material Input (tons/month)	Average Hourly SO_2 Emissions (lb/hr)*	Hours of Operation per month (hrs)	Material Input (tons/month)	Average Hourly SO_2 Emissions (lb/hr)*
Blow Chamber EU#3										
Blow Chamber EU#4										
			Month 1 =			**Month 2 =**			**Month 3 =**	

* Average Hourly SO_2 Emissions (lb/hr) = {Material Input (tons/month) x Emission Factor (lb SO_2/ton) * Adjustment Factor for Sulfur Content of Slag/Coke} / Hours of Operation per Month

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APPENDIX C1

Isolatek International Request for Commissioner's Order

Huntington, IN SO_2 Nonattainment Area

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ISOLATEK® INTERNATIONAL
Corporate Headquarters

Isolatek International
41 Furnace Street
Stanhope, NJ 07874
Telephone: 973.347.1200

October 2, 2023

Via E-mail only

Matthew Stuckey
Assistant Commissioner, Office of Air Quality
Indiana Department of Environmental Management
100 N. Senate Ave, Room 1003
Indianapolis, Indiana 46204

Re: Isolatek Request for a Commissioner's Order to Address the 2010 1-hour SO_2 National Ambient Air Quality Standard

Dear Mr. Stuckey:

USMPC Buyer d/b/a Isolatek International ("Isolatek") owns and operates a stationary acoustic and thermal insulation manufacturing facility with Source I.D. Number 069-00021, located at 701 North Broadway Street in Huntington, Huntington County, Indiana (the "Facility") and permitted under the Part 70 air operating permit program. Isolatek charges a mixture of fuel (coke), slag from smelting in cupolas at integrated steel mills, and other feed material (e.g., feldspar). The charged mixture is heated to a molten state and processed to form mineral wool for production of thermal or acoustical insulation material.

On April 9, 2018, the U.S. EPA designated Huntington Township within Huntington County, Indiana as nonattainment under the 2010 1-hour NAAQS standard for sulfur dioxide (SO_2). This designation was based upon preliminary dispersion modeling conducted by U.S. EPA that suggested that SO_2 emissions from Isolatek may potentially contribute to an exceedance of the 2010 1-hour NAAQS standard for SO_2.

Since this designation, Isolatek has invested considerable capital to improve the capture and dispersion characteristics of the Huntington facility to mitigate the SO_2 impacts from its operations. Included in this capital investment is construction of (1) a new taller cupola stack and (2) an enclosure around two screenhouses and dedicated new stack for dispersion of blow chamber emissions.

We understand that at this point, SO2 emission standards and associated conditions must be established for the Facility. We also understand, a mechanism which could be used to establish legally binding requirements is through a Commissioner's Order, issued pursuant to Section 13-14-2-1(b) of the Indiana Code, which is not an enforcement action, but rather is a power vested in the Commissioner to achieve overall environmental goals, like confirmation

of the 1-hour SO_2 attainment status of Huntington Township through an attainment demonstration.

Therefore, Isolatek requests a Commissioner's Order to be issued for the Facility to establish SO_2 emission limits applicable to Cupolas EU #1 and EU #2 exhausting through stack #1 and blow chambers EU #3 and EU #4 exhausting to screen houses CE #3 and CE #4 and then to a single stack #3. Specifically, Isolatek requests the following SO2 limits be established:

- 160.0 lb/hr combined for the cupolas EU #1 and EU #2 exhausting to stack #1; and
- 20.0 lb/hr combined for the blow chambers EU #3 and EU #4 exhausting to screen houses CE #3 and CE #4 and then to a single stack #3.

Attached to this letter is a technical support document that consists of dispersion modeling performed by Trinity Consultants which demonstrates the requested limits are adequate to ensure protection of the 2010 1-hour standard for SO_2. Isolatek proposes compliance with the emission limitations be demonstrated through recordkeeping and reporting that is consistent with operations and sampling at the facility. Once a Commissioner's Order is issued, the State of Indiana intends to request the U.S. EPA approve the limits into Indiana's State Implementation Plan.

We believe that once the Commissioner approves this Order, it will ensure compliance with the 2010 primary 1-hour SO_2 NAAQS and will provide the enforceable limitations necessary to satisfy U.S. EPA and provide the means for Huntington Township to attain the 1-hour SO_2 National Ambient Air Quality Standard, and ultimately be redesignated to attainment.

We appreciate the cooperation of your office in this matter and look forward to receipt of the Commissioner's Order and a resolution to this matter.

Sincerely,

Raj Jonnalagadda
Global Vice President Operations and Engineering

Enclosure
cc: Scott Deloney, IDEM-OAQ via e-mail
Mark Derf, IDEM-OAQ via e-mail

Attachment D

PUBLIC PROCESS PARTICIPATION DOCUMENTATION

HUNTINGTON, IN SO_2 NONATTAINMENT AREA

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LEGAL NOTICE OF PUBLIC HEARING

State Implementation Plan (SIP) Submittal
Draft Attainment Demonstration and Technical Support Document for the Huntington, Indiana 2010 Primary 1-Hour Sulfur Dioxide (SO_2) Nonattainment Area and Commissioner's Order No. 2023-Air-01 for Isolatek

Note: Legal notices for public hearings are no longer published in newspapers, but can be found on the Indiana Department of Environmental Management's web site at: IDEM: Public Notices: Northeast Indiana

Notice is hereby given under 40 Code of Federal Regulations (CFR) 51.102 that the Indiana Department of Environmental Management (IDEM) is accepting written comment and providing an opportunity for a public hearing regarding a revision to the State Implementation Plan (SIP) for the *Draft Attainment Demonstration and Technical Support Document for the Huntington, Indiana 2010 Primary 1-Hour Sulfur Dioxide (SO_2) Nonattainment Area* and Commissioner's Order No. 2023-Air-01 for U.S. Mineral Wool, also known as Isolatek, in Huntington, IN. All interested persons are invited and will be given reasonable opportunity to express their views concerning this submittal.

On January 9, 2018, United States Environmental Protection Agency (U.S. EPA) designated Huntington Township in Huntington County, Indiana, as nonattainment for the 2010 primary 1-hour SO_2 NAAQS, effective April 9, 2018. The designation was based on preliminary dispersion modeling conducted by U.S. EPA that suggested SO_2 emissions from Isolatek may potentially contribute to a violation of the 2010 primary 1-hour standard for SO_2. A plan to demonstrate how the area will be brought into attainment of the standard is required for nonattainment areas under general requirements of Clean Air Act (CAA) Section 172 and SO_2-specific planning requirements of CAA Sections 191 and 192. The plan must include an attainment demonstration that shows the area will meet the 1-hour SO_2 NAAQS within five years of designation, or by April 9, 2023.

The purpose of this notice is to solicit public comment on the *Draft Attainment Demonstration and Technical Support Document for the Huntington, Indiana 2010 Primary 1-Hour Sulfur Dioxide (SO_2) Nonattainment Area* and Commissioner's Order 2023-Air-01, which establishes SO_2 emission limits for Isolatek. The draft documents will be available for review on or before October 4, 2023, on the following web page:

- IDEM: State Implementation Plans: Sulfur Dioxide (SO2) Attainment Demonstrations

Copies of the document will also be made available on or before October 4, 2023, to any person upon request at the following locations:

- Huntington City-Township Public Library, 255 W. Park Drive, Huntington, IN 46750

- IDEM Office of Air Quality, Indiana Government Center North, 100 North Senate Avenue, Room N1003, Indianapolis, IN 46204-2251

Any person may submit written comments on the *Draft Attainment Demonstration and Technical Support Document for the Huntington, Indiana 2010 Primary 1-Hour Sulfur Dioxide (SO_2) Nonattainment Area* and Commissioner's Order No. 2023-Air-01 for Isolatek. Written comments should be directed to: Ms. Amy Smith via U.S. Mail at IDEM Office of Air Quality, Room N1003, 100 North Senate Avenue, Indianapolis, IN 46204-2251; fax at (317) 233-5967; or email at amsmith@idem.in.gov. Written comments must be submitted by November 3, 2023. Please refer to Commissioner's Order No. 2023-Air-01 in all correspondence.

A public hearing on the *Draft Attainment Demonstration and Technical Support Document for the Huntington, Indiana 2010 Primary 1-Hour Sulfur Dioxide (SO_2) Nonattainment Area* and Commissioner's Order No. 2023-Air-01 for Isolatek will be held if a request is received by November 3, 2023. If a hearing is requested, the hearing will be held on November 8, 2023, and the comment period will be extended to November 9, 2023. If held, the hearing will convene at 6:00 p.m. local time at the Huntington City-Township Public Library, 255 W. Park Drive, Huntington, IN 46750. Interested parties may present oral or written comments at the public hearing if it is held. If a hearing is held, oral statements will be heard, but for the accuracy of the record, a written copy of the statements should be submitted. If a request for a public hearing is not received by November 3, 2023, the public hearing will be cancelled.

Interested parties can check the online IDEM calendar at IDEM Calendar - State of Indiana or contact Ms. Amy Smith via email at amsmith@idem.in.gov or phone at (317) 233-8211 (direct) or (800) 451-6027 (toll free in Indiana) after November 3, 2023 to see if the public hearing has been cancelled.

If a public hearing is held, a transcript of the public hearing and all written submissions provided as part of the public hearing shall be open to public inspection at IDEM, and copies may be made available to any person upon payment of reproduction costs. Any person heard or represented at the hearing or requesting notice shall be given written notice of actions resulting from the hearing.

For additional information, contact Amy Smith via U.S. Mail at IDEM, Office of Air Quality, Room N1003, Indiana Government Center North, 100 North Senate Avenue, Indianapolis, IN 46204; e-mail at amsmith@idem.in.gov; or telephone at (317) 233-8211 (direct) or (800) 451-6027 (toll free in Indiana).

Speech and hearing impaired callers may contact the agency via the Indiana Relay Service at 1-800-743-3333. Individuals requiring reasonable accommodations for participation in this hearing should contact the IDEM Americans with Disabilities Act (ADA) coordinator at: Attn: ADA Coordinator, Indiana Department of Environmental Management – Mail Code 50-10, 100 North Senate Avenue, Indianapolis, IN 46204-

2251, o*r call (317) 233-1785 (voice) or (317) 233-6565 (TDD). Please provide a minimum of 72 hours notification.*

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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

Eric J. Holcomb
Governor

Brian C. Rockensuess
Commissioner

October 4, 2023

CERTIFICATE OF PUBLICATION

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

- Draft Attainment Demonstration and Technical Support Document for the Huntington, Indiana 2010 Primary 1-Hour Sulfur Dioxide (SO2) Nonattainment Area and Commissioner's Order No. 2023-Air-01 for Isolatek

was published on IDEM's web site on October 3, 2023. It is expected that it will remain posted on the site until at least November 4, 2023.

The notice in full was available online at the following web address, under "Northeast Indiana/Huntington County":
https://www.in.gov/idem/public-notices/public-notices-northeast-indiana/

The draft document was posted online October 3, 2023, at the following web address under "2010 Primary 1-Hour SO2 Standard/Huntington County":
https://www.in.gov/idem/sips/attainment-demonstrations/sulfur-dioxide-so2-attainment-demonstrations/

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

By:

Kevin Bump
IDEM Webmaster

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