MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY

Sulfur Dioxide Emissions from Large Sources in Michigan

Air Quality Division | June 2025

The Michigan Department of Environment, Great Lakes, and Energy (EGLE), Air Quality Division, submits this report pursuant to the United States Environmental Protection Agency's (USEPA) Data Requirements Rule for the 2010 1-Hour Sulfur Dioxide (SO_2) Primary National Ambient Air Quality Standard (NAAQS). Specifically, Title 40 of the Code of Federal Regulations, Part 51.1205(b) states, "For any area where modeling of actual SO_2 emissions serve[s] as the basis for designating such area as attainment for the 2010 SO_2 NAAQS, the air agency shall submit an annual report to the EPA Regional Administrator by July 1 of each year... that is available for public inspection, that documents the annual SO_2 emissions of each applicable source in each such area and provides an assessment of the cause of any emissions increase from the previous year."

The remaining subject sources in Michigan are two power plants, a cement manufacturing plant, and a paper manufacturing plant. Specifically, the sources are the Consumers Energy J.H. Campbell power plant in West Olive, the Consumers Energy Dan E. Karn power plant in Essexville, the Lafarge Cement Plant in Alpena, and the Escanaba Paper Mill in Escanaba.

Annual SO_2 emissions for the four emission sources are derived from each company's annual reporting to EGLE via the Michigan Air Emissions Reporting System forms and the MiEnviro Portal. The emissions for year 2024 are compared to the 2012-2014 emissions to determine if there were increases. All four sources continue to emit well below the 2012-2014 emission levels.

Based on the analysis of 2024 emissions compared to modeled emissions, it is reasonable to conclude that no additional modeling is necessary. The existing modeling that was approved by the USEPA in its attainment/unclassifiable determination for the affected counties, using 2012-2014 emissions data, can still be relied upon to demonstrate that the NAAQS continues to be met in these areas.

An additional source, DTE's Belle River power plant, was added to this report this year. Emissions from Belle River are now being tracked from year to year to ensure that the permitted values are not exceeded because these maximum emission values have been modeled as part of the redesignation demonstration submitted to the USEPA by EGLE.

Background

On June 2, 2010, the USEPA revised the primary NAAQS for SO_2 to 75 parts per billion on a 1-hour average. The federal Clean Air Act requires states to recommend to the USEPA appropriate designations of areas in the state relative to the new NAAQS. This can be determined with ambient air monitoring or with modeling when monitoring is not available. The USEPA makes the final designation determination.

Designations for the 1-hour SO_2 standard were performed in three rounds. Round 1 covered areas which, based on ambient air quality monitoring data for the years 2009 through 2011, showed violations of the 1-hour SO_2 standard. That standard was not being met at the EGLE monitoring station located on Waterman Street in Detroit.

Consequently, in July 2013, the USEPA formally designated a portion of southern Wayne County as "nonattainment" of the SO_2 standard. This formal designation required EGLE to develop a State Implementation Plan (SIP) for bringing the area into compliance with the NAAQS for SO_2. On May 31, 2016, EGLE submitted its SO_2 SIP strategy for southern Wayne County to the USEPA for final approval. Effective April 19, 2021, the USEPA partially approved and partially disapproved the SIP submittal. To address the portion that was disapproved the USEPA finalized a Federal Implementation Plan (FIP) for the nonattainment area on October 12, 2022. EGLE submitted a revised SIP on December 20, 2022, which mirrored the provisions of the FIP and committed to complete three permit revisions to incorporate FIP limits. The USEPA issued a Conditional Approval of the revised SIP on March 23, 2023, requiring that the permits be submitted by April 30, 2024. EGLE submitted the permits on December 14, 2023, with a supplement submitted on April 2, 2024. The USEPA will formally approve EGLE's SO_2 attainment plan for southern Wayne County soon. Also, EGLE submitted to the USEPA a Redesignation Request for the SO_2 nonattainment area on May 5, 2025.

Round 2 covered stationary sources that either emitted more than 16,000 tons of SO_2 in 2012 or emitted more than 2,600 tons of SO_2 with a 2012 emission rate of at least 0.45 pounds of SO_2 per million BTU. Sources announcing future retirements as of March 2, 2015, were not covered. The USEPA identified eight coal-fired power plants in Michigan that met this criterion. The affected companies provided dispersion modeling for these facilities using either actual SO_2 emissions or allowable emissions, at their discretion. Modeling showed that only one area, a portion of St. Clair County, was not attaining the NAAQS. On July 1, 2016, the USEPA designated the counties of Bay, Eaton, Ingham, Marquette, Monroe, and Ottawa as attainment/unclassifiable and a portion of St. Clair County as nonattainment. SO_2 emissions from two coal-fired power plants in St. Clair County; DTE Belle River and DTE St. Clair; when modeled, showed SO_2 levels that exceeded the 1-hour standard. EGLE submitted a request for a Clean Data Determination in 2020 to the USEPA based on SO_2 monitoring near the two power plants, which showed the area to be attaining the NAAQS. The USEPA approved the Clean Data Determination in a *Federal Register* notice dated December 7, 2021. The DTE St. Clair power plant shut

down in 2022, and new modeling showed the DTE Belle River power plant is meeting the NAAQS. EGLE submitted a Redesignation Request to the USEPA in December 2023 and is developing a Supplement to the Redesignation Request as of the drafting of this report.

Round 3 affected two stationary sources subject to the USEPA Data Requirements Rule: the Lafarge Cement Plant in Alpena and the Escanaba Paper Mill in Escanaba. Under this rule, designations were required for areas having sources that emit more than 2,000 tons per year of SO_2 that were not addressed in previous rounds. The two sources conducted dispersion modeling using actual emissions, which showed impacts meeting the NAAQS for SO_2. EGLE submitted to the USEPA its attainment designation recommendations for the two sources in January 2017, and the USEPA designated the two areas as attainment/unclassifiable on April 9, 2018. With the designation comes the requirement that EGLE include these two sources in the SO_2 emissions report due each July.

Data Requirements Rule – Ongoing Data Requirements

The dispersion modeling for Rounds 2 and 3 could be performed using actual emissions or allowable emissions at the company's discretion. The Data Requirements Rule requires that when actual emissions are used for modeling and the USEPA designates an area as attainment of the NAAQS, states must submit to the USEPA an annual SO_2 emissions report by July 1 of each year showing the latest annual emissions from each modeled facility. If emissions have increased from the levels modeled, the state must explain the reason for the increase to the USEPA. The USEPA may determine that modeling needs to be redone using the higher emissions to ensure the SO_2 impacts are not causing the area to go into nonattainment.

Annual SO_2 Emissions

A listing of annual SO_2 emissions for the remaining three affected power plants, for the cement plant, and paper mill resides in EGLE's MiEnviro Portal. Emissions for 2012-2014, as well as the last several years from the two power plants and the paper and cement plants, are listed in Table 1.

The USEPA's attainment/unclassifiable designations of the counties in which the four plants are located are based on dispersion modeling using the SO_2 emissions for the years 2012-2014. The purpose of this annual report is to show updated emissions for 2024 and compare them to the 2012-2014 emissions. If the more recent emissions are less than the modeled emissions, a conclusion can reasonably be made that modeling with the more recent emissions data will not show increased SO_2 impacts in the attainment/unclassifiable areas.

The DTE Belle River power plant is included in Table 1 to annually verify that actual SO_2 emissions do not exceed maximum allowable emissions for purposes of EGLE's Redesignation Request to the USEPA. The annual maximum allowable

value is determined by the modeled value of 9,268 pounds per hour, multiplied by 8,760 hours per year, yielding 40,594 tons per year.

Table 1: Annual Tons of SO_2 Emissions

Power Plant	Annual Tons of SO_2 Emissions					
	2012	2013	2014	2022*	2023	2024
CE J.H. Campbell	21,501	23,627	25,760	5,520	4,220	5,424
CE DE Karn	6,853	8,561	6,353	992	240	48
DTE Belle River	N/A	N/A	N/A	26,872	16,810	15,955
Lafarge Cement	7,820	10,087	2,503	2,286	2,219	1,959
Escanaba Paper	1,210	1,950	2,068	590	115	124

* The 2022 emissions for the DTE Belle River power plant include partial year emissions from the St. Clair power plant.

Analysis

For the 2024 analysis year, the remaining two power plants' SO_2 emissions continue to be well below those used in the modeling (2012-2014), as reflected in the table above. The table also shows the same to be true for the paper and cement plants. Also, the emissions from the Belle River power plant are well below the annual allowable value. EGLE therefore concludes that new modeling is not required for the plants subject to Rounds 2 and 3 because the affected areas are reasonably expected to continue to show attainment of the SO_2 NAAQS.

Public Comment

EGLE will hold a 30-day public comment period that will be posted on the EGLE calendar https://www.michigan.gov/egle/outreach/calendar. This document will be updated after the public comment period has closed with any comments received.

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