

**Sulfur Dioxide Emissions from Large Sources in Michigan**  
**Michigan Department of Environment, Great Lakes, and Energy**  
**Air Quality Division**  
**April 2020**

**Summary**

The Michigan Department of Environment, Great Lakes, and Energy (EGLE), Air Quality Division (AQD), submits this report pursuant to the United States Environmental Protection Agency's (USEPA) Data Requirements Rule for the 2010 1-Hour Sulfur Dioxide (SO<sub>2</sub>) Primary National Ambient Air Quality Standard (NAAQS). Specifically, Title 40 of the Code of Federal Regulation, Part 51.1205(b) states, *“For any area where modeling of actual SO<sub>2</sub> emissions serve[s] as the basis for designating such area as attainment for the 2010 SO<sub>2</sub> 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<sub>2</sub> 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 applicable sources in Michigan are five power plants, a cement manufacturing plant, and a paper manufacturing plant. Specifically, the sources are the WE Energy Presque Isle power plant in Marquette, the Consumers Energy J.H. Campbell power plant in West Olive, the Consumers Energy Dan E. Karn power plant in Essexville, the Lansing Board of Water & Light Eckert and Erickson power plants in Lansing, the Lafarge Cement plant in Alpena, and the Escanaba Paper mill in Escanaba.

For the power plants, the annual SO<sub>2</sub> emissions, as tallied by the USEPA Clean Air Markets Division, are included in this report. Emissions for 2019 are compared to the previous year and to the 2012-2014 emissions to determine if there were increases. Four of the five plants have emission decreases from the previous year, and all five plants remain well below the emission rates that were modeled.

For the cement plant and the paper mill, annual SO<sub>2</sub> emissions are derived from each company's annual reporting to EGLE via the Michigan Air Emissions Reporting System (MAERS) forms. The emissions for year 2019 are compared to the previous year and to the 2012-2014 emissions to determine if there were increases. Lafarge Cement had an emissions decrease from the previous year while Escanaba Paper had an increase. Both Lafarge and Escanaba Paper remain well below the emission rates that were modeled.

Based on the analysis of 2019 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.

## Background

On June 2, 2010, the USEPA revised the primary NAAQS for SO<sub>2</sub> to 75 parts per billion (ppb) on a 1-hour average. The 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 new 1-hour SO<sub>2</sub> standard were performed in three rounds. Round 1 covered areas which, based on ambient air quality monitoring data for the years 2009-2011, showed violations of the 1-hour SO<sub>2</sub> standard. That standard was not being met at the EGLE monitoring station located at Southwestern High School in Detroit. Consequently, in July 2013, the USEPA formally designated a portion of southern Wayne County as “nonattainment” of the SO<sub>2</sub> standard. This formal designation required EGLE to develop a State Implementation Plan (SIP) for bringing the area into compliance with the NAAQS for SO<sub>2</sub>. On May 31, 2016, EGLE submitted its SO<sub>2</sub> SIP strategy for southern Wayne County to the USEPA for final approval. The USEPA has not yet acted on the SIP submittal and is developing a Federal Implementation Plan for the nonattainment area.

Round 2 covered stationary sources that either emitted more than 16,000 tons of SO<sub>2</sub> in 2012 or emitted more than 2,600 tons of SO<sub>2</sub> with a 2012 emission rate of at least 0.45 pounds (lbs.) of SO<sub>2</sub> per million BTU. Sources announcing, as of March 2, 2015, future retirements 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<sub>2</sub> 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<sub>2</sub> emissions from two coal-fired power plants in St. Clair County, DTE Belle River and DTE St. Clair, when modeled show SO<sub>2</sub> levels that exceed the 1-hour standard. EGLE is working with DTE to develop a SIP that will reduce SO<sub>2</sub> emissions to protect public health and bring the area’s air into compliance with the federal standard.

Round 3 affects two stationary sources subject to the USEPA Data Requirements Rule. Under this rule, designations are required for areas having sources that emit more than 2,000 tons per year of SO<sub>2</sub> that were not addressed in previous rounds. The two sources conducted dispersion modeling using actual emissions which showed impacts meeting the NAAQS for SO<sub>2</sub>. EGLE submitted its attainment designation recommendations for the two sources to the USEPA in January 2017 and the USEPA designated the two areas attainment / unclassifiable on April 9, 2018. With the designation comes the requirement that EGLE include the two sources in the SO<sub>2</sub> 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<sub>2</sub> 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 re-done using the higher emissions to ensure that the SO<sub>2</sub> impacts are not causing the area to go into nonattainment.

### Annual SO<sub>2</sub> Emissions

A listing of annual SO<sub>2</sub> emissions for the five affected power plants is contained in USEPA Clean Air Markets Division reports, which can be found at <https://ampd.epa.gov/ampd/>. Annual SO<sub>2</sub> emissions for the cement plant and paper mill reside in the EGLE MAERS database. Emissions for the last several years from the power plants and the paper and cement plants are listed in the following table.

The USEPA’s attainment / unclassifiable designations of the counties in which these plants are located is based on dispersion modeling using the SO<sub>2</sub> emissions for the years 2012-2014. The purpose of this annual report is to show updated emissions for 2019 and to 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<sub>2</sub> impacts in the attainment / unclassified areas.

Power Plant	Annual Tons of SO <sub>2</sub> Emissions							
	2012	2013	2014	2015	2016	2017	2018	2019
CE J.H. Campbell	21501	23627	25760	23524	12849	4909	5011	5780
CE DE Karn	6853	8561	6353	848	585	838	751	563
BWL Eckert	3677	2256	2312	1572	1857	1217	1227	150
BWL Erickson	2685	3903	3626	3035	2588	3033	2129	2072
WE Presque Isle	6028	6000	6306	6593	5884	4674	4609	856
<b>Other Sources</b>								
Lafarge Cement	7820	10087	2503	2363	2396	2232	1994	1858
Escanaba Paper	1210	1950	2068	1127	726	613	742	865

## **Analysis**

For the 2019 analysis year, the power plant SO<sub>2</sub> 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. 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<sub>2</sub> NAAQS.

## **Public Comment**

EGLE will notify the public that this report is available for a 30-day comment period, as required by USEPA.

Prepared by: Robert Irvine  
Air Quality Evaluation Section  
Air Quality Division  
Michigan Department of Environment, Great Lakes, and Energy  
517-284-6749