

MDEQ Sulfur Dioxide (SO₂) Nonattainment Areas and State Implementation Plans

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Overview

- Three MDEQ SO₂ State Implementation Plan (SIP) actions in four areas
 - Southern Wayne County
 - St. Clair County
 - Outstate areas
 - Alpena
 - Escanaba

2006

MDEQ SO₂ Air Monitoring Sites



- Detroit Fort Street
- Detroit Linwood
- Detroit East 7 Mile
- Warren
- Port Huron
- Flint
- Grand Rapids

2007

- Funding cuts force national disinvestment in SO₂ monitoring
 - In Michigan, only one site remaining:
Detroit Fort Street (SWHS)



2010

- New NCORE requirement for “super sites”
 - SO₂ (trace level)
 - CO (trace level)
 - NO_y
 - Pb
 - O₃ (year round)
 - Particulate matter
- Allen Park and Grand Rapids-Monroe Street



2010*

- New NAAQS
 - 1-hour: 75 ppb
 - Three year average of the 99th percentile of the daily maximum 1-hour levels.

* June 22, 2010 (75 FR 35520)

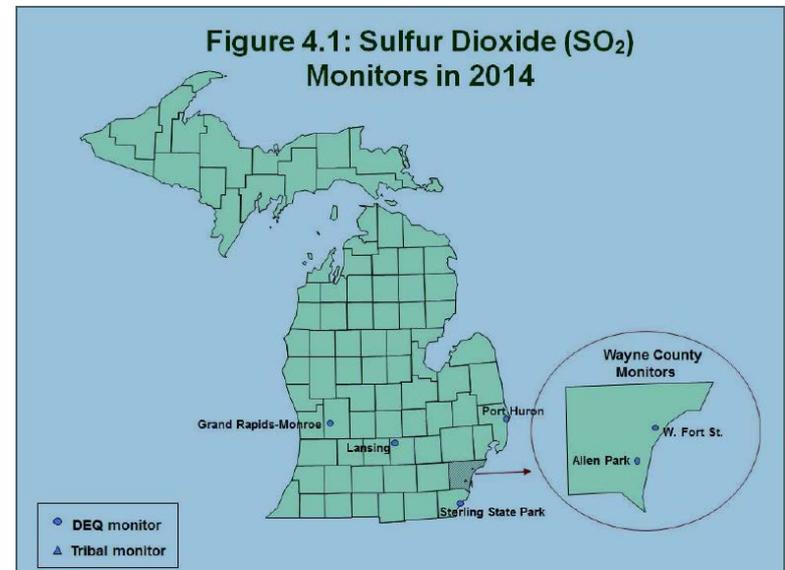
Population Weighted Emission Impact (PWEI) Monitoring

$$\frac{(\text{CBSA population})(\text{total SO}_2 \text{ emissions in that CBSA in tpy})}{1,000,000}$$

Population Weighted Emissions Index Value	Number of Sites
Greater than or equal to 1,000,000	3
Greater than or equal to 10,000 but less than 1,000,000	2
greater than or equal to 5,000 but less than 10,000	1
Less than 5,000	0

Monitors Added to MDEQ's SO₂ Network

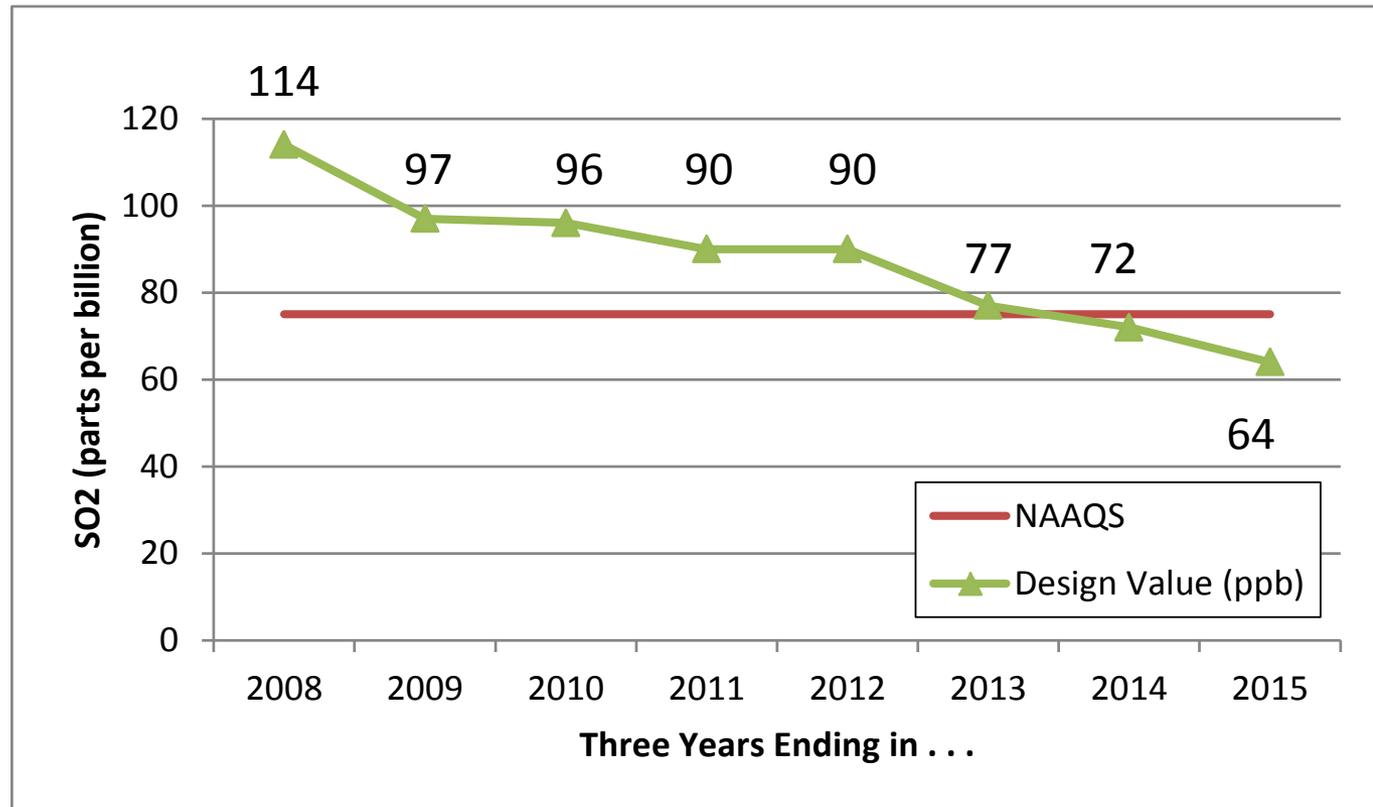
- Because of PWEI
 - Lansing (2012)
 - Monroe (2013)
 - West Olive (2015)
- Because of historical levels
 - Port Huron (2012)



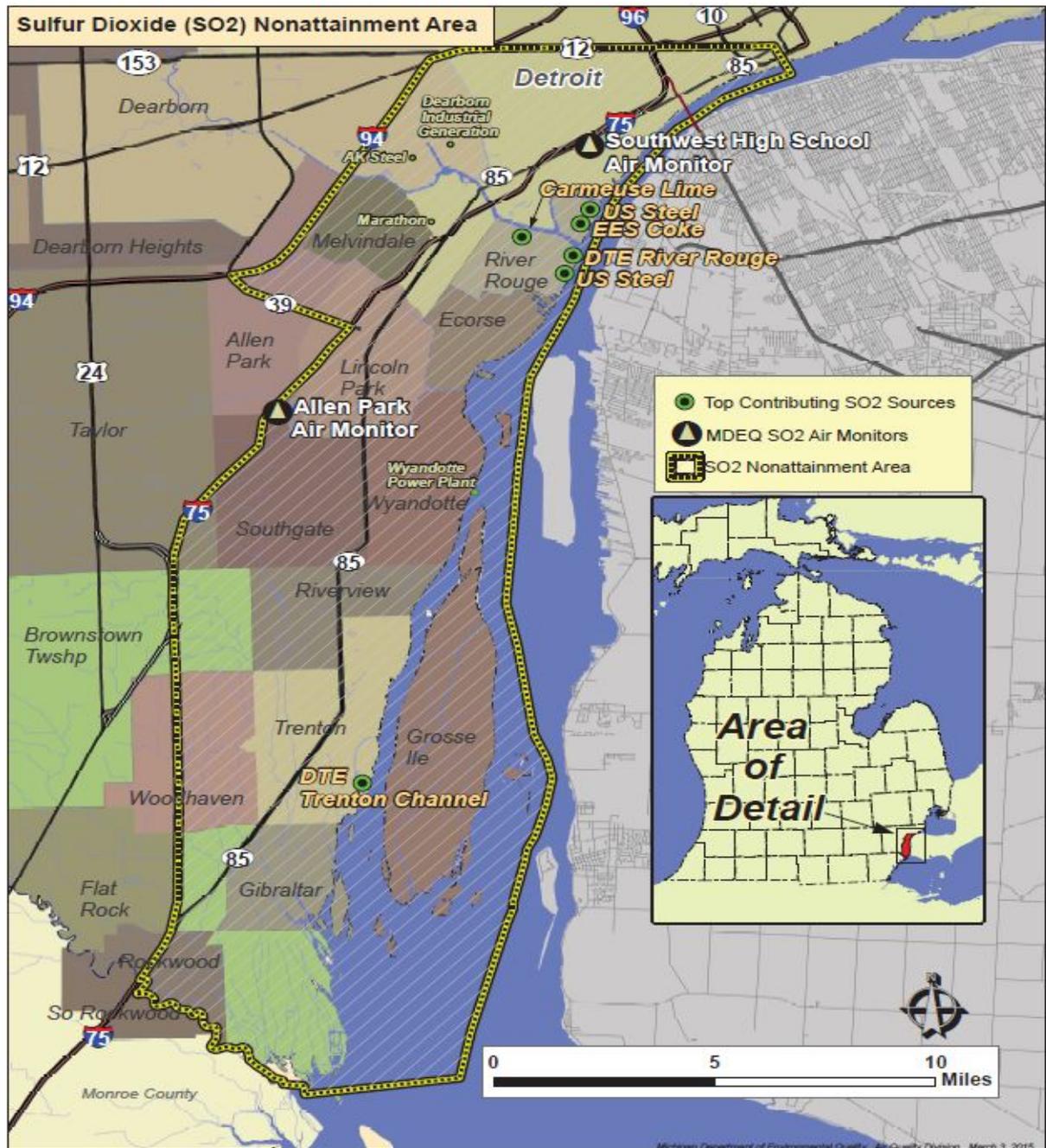
Phase 1: Non-attaining Monitors

Sulfur Dioxide SO₂

3-Year Average of 99th Percentile Maximum Daily 1 Hour at Detroit – W. Fort Street (SWHS)



Sulfur Dioxide (SO₂) Nonattainment Area



Wayne County SIP Planning

- Attainment Demonstration (aka, “the SIP”) due to USEPA by April 2015
 - Modeling found four companies of primary concern
 - » DTE (River Rouge and Trenton Channel)
 - » U.S. Steel (Zug Island and Ecorse)
 - » Carmeuse Lime
 - » EES Coke

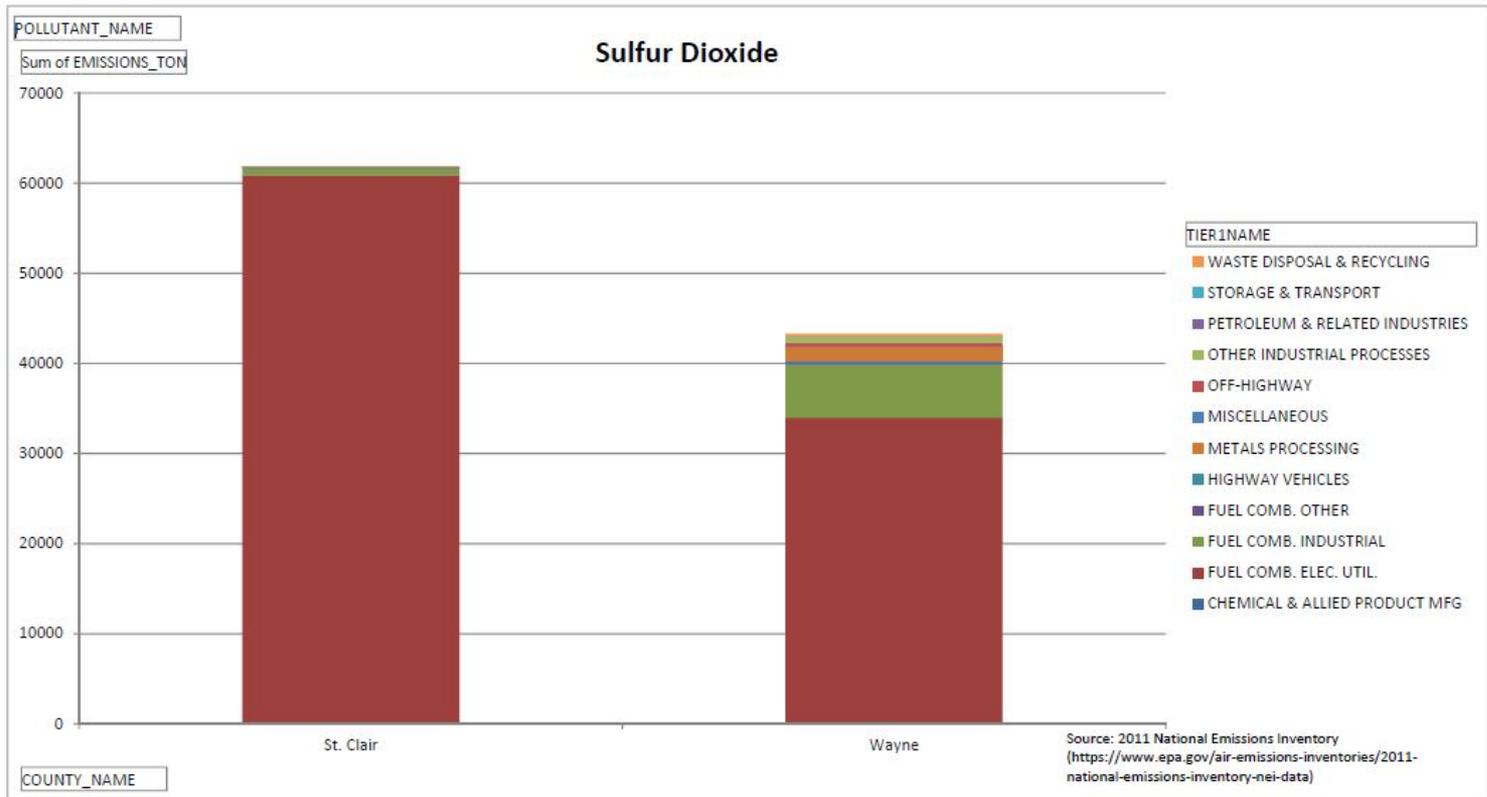
Wayne County SIP Planning (continued)

- Control Strategies Developed
 - **DTE:**
 - » **Permit Modification:**
 - » Shut down Unit 2 at River Rouge
 - » Shut down Units 16-19 at Trenton Channel
 - **Carmeuse Lime**
 - » **Permit Modification:**
 - » Increase height of stand-alone lime kiln stack to 120 feet
 - **U.S. Steel**
 - » **State Rule 430 (promulgated June 14, 2016):**
 - » Emission limits on Boiler Houses 1 and 2 and reheat furnaces
 - » Sub-rule 4 allows for alternative, equivalent controls
 - » Plan for implementation due by August 31, 2016
 - » Control strategies implemented by December 31, 2016
 - **EES Coke**
 - » **No additional controls:**
 - » Produces but does not directly emit Coke Oven Gas (COG)
- SIP Submitted to USEPA on May 31, 2016 and updated on June 30, 2015 to recognize Rule 430 finalization

Second Phase (Outstate)

- March 20, 2015: EPA identifies eight large SO₂ emitting electrical generating units
 - Karn-Weadock Generating Complex (Bay County)
 - J.H. Campbell (Ottawa)
 - Erickson/Eckert (Ingham/Eaton)
 - Presque Isle (Marquette)
 - Monroe (Monroe)
 - Belle River/St.Clair (St. Clair)
- MDEQ and companies carry out modeling of these sources

Emissions



St. Clair County Nonattainment Area

- Modeling of DTE's Belle River and St. Clair power plants shows impacts above the NAAQS (131.7 ppb)
 - September 18, 2015: MDEQ sends nonattainment recommendation sent to EPA
 - June 30, 2016: EPA letter to MDEQ on Non-attainment area (actual FR effective date of September 12, 2016)
 - March 12, 2018 (18 months from designation): MDEQ to submit SIP to EPA
 - September 2021: (5 years from designation) NAAQS must be attained
- DTE announces shutdown of St. Clair power plant
 - 2020-2023
 - Belle River to continue operation

Sulfur Dioxide (SO2) Nonattainment Area



- MDEQ SO2 Air Monitor
- Top Contributing SO2 Sources
- SO2 Nonattainment Area
- 75 ppb SO2 (source plus background)

0 5 10 Miles



Data Requirement Rule

- Affecting [outstate] sources of SO₂ emitting more than 2000 tons/year
 - Rule signed on August 10, 2015 and published on August 21, 2015
 - Two sources impacted: Lafarge and Escanaba Paper
 - Must characterize their impacts by either modeling or through ambient air monitoring: Methodology must be proposed by July 1, 2016
 - If modeling, must be completed by January 1, 2017
 - If monitoring, operational by January 1, 2017 (Data must be collected for three years, meeting the quality assurance requirements of 40 CFR 58)

Michigan DEQ/air

The screenshot shows the Michigan Department of Environmental Quality (DEQ) website. At the top, there is a navigation bar with links for DEQ, Contacts, Permits, Online Services, Programs, Locations, and MI.gov. Below this is the DEQ logo and a search bar. The main navigation menu includes ABOUT THE DEQ, AIR, LAND, WASTE, WATER, and SUSTAINABILITY. The AIR section is currently selected, and the page title is "DEQ / AIR".

The left sidebar contains a menu with the following items: News & Info, Compliance, Emissions, Permits, Monitoring, and SIP & Attainment. The main content area features the "AIR QUALITY" logo and a section titled "PROTECTING MICHIGAN'S AIR" with a brief description of the DEQ's mission. To the right of this section is a list of links: Staff Directory, Organization Chart, District Information, Michigan Air Emissions Reporting System, Asbestos NESHAP Program, Michigan Dry Cleaning Program, Air Advisory Council, Enforcement Program, and DEQ Calendar.

Below the main content area is a horizontal navigation bar with tabs for News & Info, Compliance, Emissions, Permits, Monitoring, and SIP & Attainment. The SIP & Attainment tab is selected, and an arrow points from the text "SIP& Attainment, then SO₂" at the bottom of the image to this tab. The content under this tab includes "Announcements" (2017 Air Monitoring Network Review Public Comment, AQD Presents "Air Quality 101 - Year of Clean Air" Free Webinar Series), "Spotlight" (Marathon Petroleum LP, Arbor Hills Landfill, Detroit Renewable Power Consent Judgment Schedule, Attainment Status Map, Mercury Air Issues, Woodburning & Air Quality, PM2.5 Minor Source Baseline Dates Updated, DEQ Celebrates 50th Anniversary of the Michigan Air Pollution Act), and a "Public Notice" section with links for State Air Laws and Rules, Other Air Regulations of Interest, Federal Air Laws, and Air Toxics Laws & Rules.

SIP& Attainment, then SO₂

