

# TECHNICAL FACT SHEET

July 12, 2023

## Purpose and Summary

The Michigan Department of Environment, Great Lakes, and Energy (EGLE), Air Quality Division (AQD), is proposing to act on Permit to Install (PTI) application No. APP-2022-0290 from EES Coke Battery, LLC (EES Coke), application No. APP-2023-0033 from Dearborn Industrial Generation (DIG), and application No. APP-2023-0066 from United States Steel Corporation – Great Lakes Works (US Steel). The purpose of these actions is to incorporate requirements from the Sulfur Dioxide (SO<sub>2</sub>) [Federal Implementation Plan \(FIP or Federal Plan\)](#) into PTIs for various pieces of existing equipment located at the respective facilities. These actions are to address federal Clean Air Act (CAA) requirements to bring the SO<sub>2</sub> nonattainment portion of Wayne County back into attainment.

Prior to acting on the applications, the AQD is holding a public comment period and a public hearing, if requested, to allow all interested parties the opportunity to comment on the proposed PTIs. All relevant information received during the comment period and hearing, if held, will be considered by the decision maker prior to taking final action on the applications.

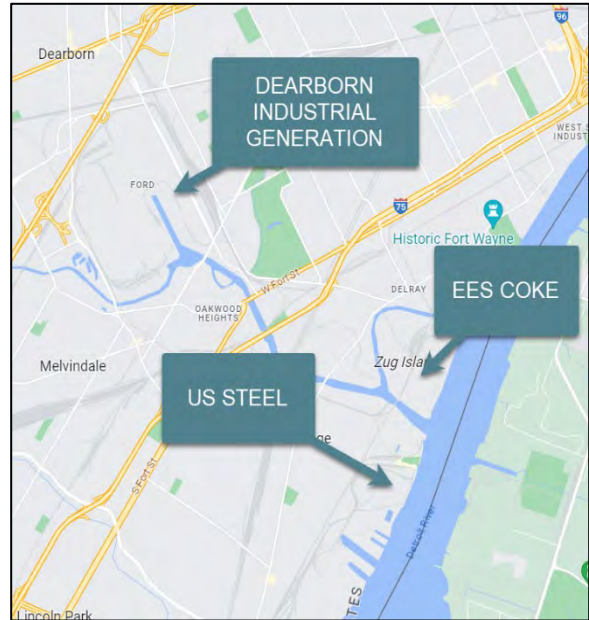


Figure 1: Facility Locations

## Incorporating Federal Plan limits into the State Plan

On March 18, 2016, the United States Environmental Protection Agency (USEPA) published an action effective April 18, 2016, finding Michigan (and other pertinent states) had failed to submit required SO<sub>2</sub> nonattainment plans by the submittal deadline for a number of nonattainment areas, including the Detroit area. This triggered the need for the USEPA to promulgate a Federal Plan within two years of the action, unless the state submitted the necessary information and the USEPA had approved the submittal as meeting applicable requirements in a timely manner. Michigan did not meet this obligation.

The Federal Plan includes reductions in SO<sub>2</sub> emissions from the three facilities under review and remains in place until EGLE submits a State Plan incorporating the limits and controls contained in it. In situations like this, the CAA requires EGLE to develop a State Implementation Plan (SIP or State Plan) demonstrating the method for bringing a nonattainment area back into attainment. Included in the method are emission limits and controls that will achieve needed reductions. Such limits and controls must be permanent and legally enforceable and can be contained in regulations or permits. The purpose of these actions is to incorporate federally enforceable limitations into air permits and into Michigan's State Plan.

In its December 20, 2022, State Plan submittal, EGLE requested that the USEPA issue a conditional approval for the State Plan, pending approval and submittal of the required permit revisions to the USEPA. With the eventual receipt of permit revisions, the USEPA will be able to issue a final approval of the EGLE SO<sub>2</sub> attainment State Plan for the Wayne County nonattainment area, and the Federal Plan will be rescinded.

## History of the SO<sub>2</sub> National Ambient Air Quality Standard in Detroit

EES Coke, DIG, and US Steel are located in the portion of Wayne County which is currently meeting all of the National Ambient Air Quality Standards (NAAQS), except for SO<sub>2</sub>.

The USEPA has established NAAQS for particulate matter less than or equal to 10 microns in diameter, particulate matter less than or equal to 2.5 microns in diameter, ozone, carbon monoxide (CO), SO<sub>2</sub>, nitrogen dioxide, and lead. The standards are developed from research studies and set at levels to protect public health. This includes health protection for sensitive groups like those with heart and lung problems. By law, the USEPA is required to review the standards every five years. Whenever a new standard is set, states must collect ambient air monitoring data for that pollutant. The USEPA then reviews the state's information and determines whether areas are attaining the standard. If an area is not attaining the standard, they are designated as being in nonattainment.

In 2010, the USEPA replaced the former 24-hour primary (health based) SO<sub>2</sub> NAAQS with a new 1-hr standard of 75 parts per billion (ppb). The new 1-hour standard for SO<sub>2</sub> is more restrictive than the former 24-hour standard of 140 ppb. The new standard is met at an ambient air quality monitoring site when the 3-year average of the 99th percentile of the 1-hour daily maximum concentration does not exceed 75 ppb.

The USEPA published an action on March 18, 2016, effective April 18, 2016, finding Michigan (and other pertinent states) had failed to submit the required SO<sub>2</sub> nonattainment plan by the submittal deadline for a number of nonattainment areas, including the Detroit area. This published action triggered the need for the USEPA to promulgate a Federal Plan within two years of the finding, unless the state submitted the necessary complete information and the USEPA had approved the submittal as meeting applicable requirements by that time.

Michigan submitted a Detroit SO<sub>2</sub> attainment plan on May 31, 2016, and submitted associated measures on June 30, 2016, but these did not terminate the USEPA's Federal Plan obligation. On March 19, 2021, the USEPA partially approved and partially disapproved Michigan's SO<sub>2</sub> plan as submitted on 2016 (86 FR 14827). As Michigan did not submit an approvable plan for the Detroit nonattainment area, the USEPA published a notice of proposed rulemaking on June 1, 2022, proposing a Federal Plan for the Detroit nonattainment area (87 FR 33095). The USEPA proposed limits and associated requirements for US Steel (Ecorse and Zug Island), EES Coke, and DIG. The applications can be found on the [Applications of Interest](#) page.

## Background Facility Information: SO<sub>2</sub> Limits

EES Coke was organized and formed by Detroit Edison to take over the coke making operations from US Steel in 2004. Prior to US Steel ownership, the coke making operations were owned and operated by National Steel Company - Great Lakes Division (National Steel). The equipment is located on the southern half of Zug Island in the city of River Rouge.

The coke making operations include a by-product recovery coke oven battery consisting of eighty-five, six-meter-high ovens with an integral heating system; a by-product recovery plant; and a coke oven gas flare. The coke oven battery converts coal into metallurgical coke for use in the iron and steel industry.

The by-product recovery coke oven battery began operation in 1992. National Steel originally owned and operated the battery as well as the steel-making operations on Zug Island. The coke oven battery was modified in 1996 to correct emission rates of nitrogen oxides and CO to reflect actual operations after the battery was built. In 1997, National Steel sold the battery to EES Coke but continued to manage the coke operations. In 2003, US Steel acquired the iron and steel assets from National Steel, and in 2004, EES Coke assumed sole responsibility for the coke operations. For regulatory purposes, EES Coke (State Registration No. P0408) and US Steel (State Registration No. A7809) are considered to be the same stationary source and operate under SRN A7809.

The coke oven battery set SO<sub>2</sub> emission limits in PTI No. [51-08C](#). Along with the coke-oven battery, the by-product recovery plant, and the material handling processes are all currently operating under PTI Nos. [51-08C](#) and [124-09](#). Also, the source has a Renewable Operating Permit (ROP) identified as No. [199600132d](#) which is currently in the process of being renewed.

DIG is a fossil fuel power generation facility operating in Dearborn since 1999. The facility has a maximum capacity to produce 705 megawatts (MW) of electricity instantaneously and uses 16-17.5 MW of power on-site while the rest is sent to the grid. The facility also produces steam which is sold to AK Steel and Double Eagle Steel.

DIG previously had hourly and annual SO<sub>2</sub> limits established in PTI No. 253-02A for Boilers 1, 2, and 3 (combined) and an annual SO<sub>2</sub> limit for Boilers 1, 2, and 3 and Flares 1 and 2 (combined). That PTI went through the public comment process in 2003. DIG is an existing major source under both the state and federal Prevention of Significant Deterioration (PSD) regulations and subject to the Title V Program. The facility currently operates under Title V ROP, MI-ROP-N6631-2012a. That Title V permit is also currently in the process of being renewed.

## Key Permit Review Issues or Items

AQD staff evaluated the proposed changes to identify all state rules and federal regulations which are, or may be, applicable. The tables in Appendix 1 summarize these rules and regulations.

All three companies are proposing to accept additional emission limit restrictions. There will be no equipment additions, physical modifications, changes to the method of operation, or increases in emissions of any regulated pollutants. Therefore, the applications did not undergo New Source Review or review per State of Michigan Rules R 336.1224, R 336.1225, and R 336.1702.

## Criteria Pollutants Modeling Analysis

Computer dispersion modeling was performed by the USEPA for the area of SO<sub>2</sub> nonattainment. The proposed combined emissions from EES Coke, US Steel, and DIG were evaluated against the NAAQS and were found to be below the allowed SO<sub>2</sub> standards. The analysis factored in background concentrations. The emission limits in the Federal Plan and previously approved into the State Plan are needed for attaining the NAAQS and have been demonstrated by modeling. The NAAQS are intended to protect public health.

## Key Aspects of EES Coke Draft Permit Conditions

### SO<sub>2</sub> Emission Limits

The draft permit includes the following SO<sub>2</sub> limits for Boilerhouse No. 2 (FGBH2):

- FGBH2 750.00 lb/hr, or
- FGBH2 81.00 lb/hr if Boilerhouse 1, A1 Blast Furnace, B2 Blast Furnace, D4 Blast Furnace, A/B Blast Furnace Flares, or D Furnace Flare are operating.

### Stack/Other Requirements

The draft permit requires EES Coke to build a new stack for Boilerhouse No. 2 with a height of 170 feet within 2 years of the effective date of Federal Plan (November 14, 2022).

### Monitoring Requirements

The draft permit includes the requirement that SO<sub>2</sub> emissions must be continuously monitored and recorded using a Continuous Emissions Monitoring System (CEMS).

### Reporting

The draft permit and Federal Plan both require quarterly SO<sub>2</sub> emissions reports be submitted to the USEPA.

## Key Aspects of DIG Draft Permit Conditions

### SO<sub>2</sub> Emission Limits

The draft permit includes an SO<sub>2</sub> limit for Boilers 1, 2, and 3 and Flares 1 and 2 (combined) as FGBFG. This limit includes all periods of operation (including startups, shutdowns, and malfunctions). The draft limit is:

- FGBFG 840.00 lb/hr

### Monitoring Requirements

The draft permit includes the requirement that SO<sub>2</sub> emissions must be continuously monitored and recorded using a CEMS. The company is also required to verify emission limits using the procedures and methodologies contained in the document entitled “Protocol for Demonstrating Continuous Compliance with the Emission Limitations of ROP MI-ROP-N6631-2004 dated May 31, 2011, or subsequent revisions to this document approved by the USEPA.”

## Key Aspects of US Steel Draft Permit Conditions

### SO<sub>2</sub> Emission Limits

The draft permit includes SO<sub>2</sub> limits for several pieces of equipment under the new flexible group, FGFIP. The draft limits are:

- EU80MILLFURNCS 0.31 pph
- EUBOP-HMT 3.30 pph
- EUBHMP-1-8 0.07 pph
- EUBHMP-1-9 0.07 pph
- EUBLAST-FCE-A1 0.00 pph
- EUBLAST-FCE-B2 40.18 pph
- EUBLAST-FCE-D4 40.18 pph
- EUBFG-FLARE-A-B 60.19 pph
- EUBFG-FLARE-D 60.19 pph
- EUBHZI-1 55.0 pph

### Monitoring Requirements

The draft permit includes requirements to keep records of:

- Production
- Hourly emissions calculations
- Maintenance activities on emission units, air pollution control equipment and CEMS
- Quality assurance requirements

### Reporting

The draft permit and Federal Plan both require quarterly SO<sub>2</sub> emissions reports be submitted to the USEPA.

### Conclusion

Based on the analyses conducted to date, AQD staff have concluded that the proposed SO<sub>2</sub> limits would comply with all applicable state and federal air quality requirements. AQD staff have also concluded that no federal NAAQS, state and federal PSD Increments, or requirements of the State Plan and Federal Plan would be violated.

Based on these conclusions, AQD staff have developed proposed permit terms and conditions which would ensure incorporated limits and new stack requirement are enforceable and that sufficient monitoring, recordkeeping, and reporting would be performed by the applicants to determine compliance with these terms and conditions. If approvable, the delegated decision maker may determine a need for additional or revised conditions to address issues raised during the public participation process.

If you would like additional information about these applications, please contact Janelle Trowhill, AQD, at 517-582-5312 or [TrowhillJ1@Michigan.gov](mailto:TrowhillJ1@Michigan.gov).



**Appendix 1  
STATE AIR REGULATIONS**

State Rule	Description of State Air Regulations
<b>R 336.1201</b>	Requires an Air Use Permit for new or modified equipment that emits, or could emit, an air pollutant or contaminant. However, there are other rules that allow smaller emission sources to be installed without a permit (see Rules 336.1279 through 336.1290 below). Rule 336.1201 also states that the Department can add conditions to a permit to assure the air laws are met.
<b>R 336.1205</b>	Outlines the permit conditions that are required by the federal Prevention of Significant Deterioration (PSD) Regulations and/or Section 112 of the Clean Air Act. Also, the same types of conditions are added to their permit when a plant is limiting their air emissions to legally avoid these federal requirements. (See the Federal Regulations table for more details on PSD.)
<b>R 336.1224</b>	New or modified equipment that emits toxic air contaminants must use the Best Available Control Technology for Toxics (T-BACT). The T-BACT review determines what control technology must be applied to the equipment. A T-BACT review considers energy needs, environmental and economic impacts, and other costs. T-BACT may include a change in the raw materials used, the design of the process, or add-on air pollution control equipment. This rule also includes a list of instances where other regulations apply and T-BACT is not required.
<b>R 336.1225 to R 336.1232</b>	The ambient air concentration of each toxic air contaminant emitted from the project must not exceed health-based screening levels. Initial Risk Screening Levels apply to cancer-causing effects of air contaminants and Initial Threshold Screening Levels apply to non-cancer effects of air contaminants. These screening levels, designed to protect public health and the environment, are developed by Air Quality Division toxicologists following methods in the rules and United States Environmental Protection Agency (USEPA) risk assessment guidance.
<b>R 336.1279 to R 336.1291</b>	These rules list equipment to processes that have very low emissions and do not need to get an Air Use permit. However, these sources must meet all requirements identified in the specific rule and other rules that apply.
<b>R 336.1301</b>	Limits how air emissions are allowed to look at the end of a stack. The color and intensity of the color of the emissions is called opacity.
<b>R 336.1331</b>	The particulate emission limits for certain sources are listed. These limits apply to both new and existing equipment.
<b>R 336.1370</b>	Material collected by air pollution control equipment, such as dust, must be disposed of in a manner which does not cause more air emissions.
<b>R 336.1401 and R 336.1402</b>	Limit the sulfur dioxide emissions from power plants and other fuel burning equipment.
<b>R 336.1601 to R 336.1651</b>	Volatile organic compounds (VOCs) are a group of chemicals found in such things as paint solvents, degreasing materials, and gasoline. VOCs contribute to the formation of smog. The rules set VOC limits or work practice standards for existing equipment. The limits are based upon Reasonably Available Control Technology (RACT). RACT is required for all equipment listed in R 336.1601 through 336.1651.
<b>R 336.1702</b>	New equipment that emits VOCs is required to install the Best Available Control Technology (BACT). The technology is reviewed on a case-by-case basis. The VOC limits and/or work practice standards set for a particular piece of new equipment cannot be less restrictive than the RACT limits for existing equipment outlined in R 336.1601 through 336.1651.
<b>R 336.1801</b>	Nitrogen oxide emission limits for larger boilers and stationary internal combustion engines are listed.
<b>R 336.1910</b>	Air pollution control equipment must be installed, maintained, and operated properly.
<b>R 336.1911</b>	When requested by the Department, a facility must develop and submit a malfunction abatement plan. This plan is to prevent, detect, and correct malfunctions and equipment failures.
<b>R 336.1912</b>	A facility is required to notify the Department if a condition arises which causes emissions that exceed the allowable emission rate in a rule and/or permit.

State Rule	Description of State Air Regulations
R 336.2001 to R 336.2060	Allow the Department to request that a facility test its emissions and to approve the protocol used for these tests.
R 336.2801 to R 336.2804 Prevention of Significant Deterioration (PSD) Regulations  Best Available Control Technology (BACT)	<p>The PSD rules allow the installation and operation of large, new sources and the modification of existing large sources in areas that are meeting the National Ambient Air Quality Standards (NAAQS). The regulations define what is considered a large or significant source, or modification.</p> <p>In order to assure that the area will continue to meet the NAAQS, the permit applicant must demonstrate that it is installing the BACT. By law, BACT must consider the economic, environmental, and energy impacts of each installation on a case-by-case basis. As a result, BACT can be different for similar facilities.</p> <p>In its permit application, the applicant identifies all air pollution control options available, the feasibility of these options, the effectiveness of each option, and why the option proposed represents BACT. As part of its evaluation, the Air Quality Division (AQD) verifies the applicant's determination and reviews BACT determinations made for similar facilities in Michigan and throughout the nation.</p>
R 336.2901 to R 336.2903 and R 336.2908	<p>Applies to new "major stationary sources" and "major modifications" as defined in R 336.2901. These rules contain the permitting requirements for sources located in nonattainment areas that have the potential to emit large amounts of air pollutants. To help the area meet the NAAQS, the applicant must install equipment that achieves the Lowest Achievable Emission Rate (LAER). LAER is the lowest emission rate required by a federal rule, state rule, or by a previously issued construction permit. The applicant must also provide emission offsets, which means the applicant must remove more pollutants from the air than the proposed equipment will emit. This can be done by reducing emissions at other existing facilities.</p> <p>As part of its evaluation, the AQD verifies that no other similar equipment throughout the nation is required to meet a lower emission rate and verifies that proposed emission offsets are permanent and enforceable.</p>

### FEDERAL AIR REGULATIONS

Citation	Description of Federal Air Regulations or Requirements
Section 109 of the Clean Air Act – NAAQS	The USEPA has set maximum permissible levels for seven pollutants. These NAAQS are designed to protect the public health of everyone, including the most susceptible individuals, children, the elderly, and those with chronic respiratory ailments. The seven pollutants, called the criteria pollutants, are carbon monoxide, lead, nitrogen dioxide, ozone, particulate matter less than 10 microns (PM <sub>10</sub> ), particulate matter less than 2.5 microns (PM <sub>2.5</sub> ), and sulfur dioxide (SO <sub>2</sub> ). Portions of Michigan are currently nonattainment for either ozone or SO <sub>2</sub> . Further, in Michigan, State Rules 336.1225 to 336.1232 are used to ensure the public health is protected from other compounds.
40 CFR 51 Appendix S Emission Offset Interpretive Ruling	Appendix S applies during the interim period between nonattainment designation and USEPA approval of a State Plan that satisfies nonattainment requirements specified in Part D of the Clean Air Act. Appendix S would apply in nonattainment areas where either no nonattainment permit rules apply or where the existing state rules are less stringent than Appendix S.

Citation	Description of Federal Air Regulations or Requirements
<p><b>40 CFR 52.21 – PSD Regulations (BACT)</b></p>	<p>The PSD regulations allow the installation and operation of large, new sources and the modification of existing large sources in areas that are meeting the NAAQS. The regulations define what is considered a large or significant source, or modification.</p> <p>In order to assure that the area will continue to meet the NAAQS, the permit applicant must demonstrate that it is installing BACT. By law, BACT must consider the economic, environmental, and energy impacts of each installation on a case-by-case basis. As a result, BACT can be different for similar facilities.</p> <p>In its permit application, the applicant identifies all air pollution control options available, the feasibility of these options, the effectiveness of each option, and why the option proposed represents BACT. As part of its evaluation, the AQD verifies the applicant’s determination and reviews BACT determinations made for similar facilities in Michigan and throughout the nation.</p>
<p><b>40 CFR 52 Subpart X - Approval and Promulgation of Implementation Plans for Michigan</b></p>	<p>Subpart X contains the approved regulations approved by EPA for the State Implementation Plan for the state of Michigan.</p>
<p><b>40 CFR 60 – New Source Performance Standards (NSPS)</b></p>	<p>The USEPA has set national standards for specific sources of pollutants. These NSPS apply to new or modified equipment in a particular industrial category. These NSPS set emission limits or work practice standards for over 60 categories of sources.</p>
<p><b>40 CFR 63— National Emissions Standards for Hazardous Air Pollutants (NESHAP)</b></p>	<p>The USEPA has set national standards for specific sources of pollutants. The NESHAP (a.k.a. Maximum Achievable Control Technology (MACT) standards) apply to new or modified equipment in a particular industrial category. These NESHAPs set emission limits or work practice standards for over 100 categories of sources.</p>
<p><b>Section 112 of the Clean Air Act</b></p> <p><b>MACT</b></p> <p><b>Section 112g</b></p>	<p>In the Clean Air Act, Congress listed 189 compounds as Hazardous Air Pollutants (HAPS). For facilities which emit, or could emit HAPS above a certain level, one of the following two requirements must be met:</p> <ol style="list-style-type: none"> <li>1) The USEPA has established standards for specific types of sources. These MACT standards are based upon the best-demonstrated control technology or practices found in similar sources.</li> <li>2) For sources where a MACT standard has not been established, the level of control technology required is determined on a case-by-case basis.</li> </ol>

**Notes:** An “Air Use Permit,” sometimes called a “Permit to Install,” provides permission to emit air contaminants up to certain specified levels. These levels are set by state and federal law, and are set to protect health and welfare. By staying within the levels set by the permit, a facility is operating lawfully, and public health and air quality are protected.

**The Air Quality Division does not have the authority to regulate noise, local zoning, property values, off-site truck traffic, or lighting.**

These tables list the most frequently applied state and federal regulations. Not all regulations listed may be applicable in each case. Please refer to the draft permit conditions provided to determine which regulations apply.