

TECHNICAL FACT SHEET

August 9, 2023

Purpose and Summary

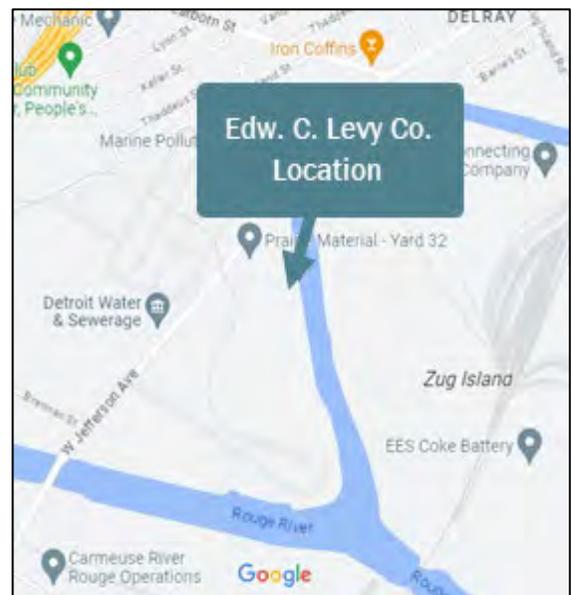
The Michigan Department of Environment, Great Lakes, and Energy (EGLE), Air Quality Division (AQD), is proposing to act on Permit to Install (PTI) application No. APP-2023-0070 from Edw. C. Levy Co. (Levy). The permit application is for the proposed installation and operation of a new blast furnace slag grinding plant. The proposed project is subject to permitting requirements of the Department's Rules for Air Pollution Control. Prior to acting on this application, the AQD is holding a public comment period and a public hearing, if requested in writing, to allow all interested parties the opportunity to comment on the proposed PTI. 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 application.

Background Information

Levy will produce ground granulated blast furnace slag, which is an alternative to traditional Portland cement. Wet, granulated blast furnace slag will be brought in via covered trucks. The slag will be sorted and dried before being sent to a grinding mill, where it will be ground down to the appropriate size before being stored in four finished product storage silos. The finished product will be loaded into trucks and transported offsite for use.

Proposed Facility and Present Air Quality

Levy's new proposed plant will be located at 8941 West Jefferson Avenue in Detroit, Michigan, which is designated as attaining the National Ambient Air Quality Standards (NAAQS) for all pollutants, except for sulfur dioxide (SO₂). The air quality standards are for particulate matter less than or equal to 10 microns in diameter (PM₁₀), particulate matter less than or equal to 2.5 microns in diameter (PM_{2.5}), carbon monoxide (CO), SO₂, nitrogen dioxide (NO₂), ozone, and lead (Pb). All of the NAAQS are set at levels designed to protect public health, including sensitive populations.



The proposed operations will include the following equipment:

- A raw material unloading station and an enclosed elevator and associated conveyors
- A wet slag bin and associated conveyors
- Two weigh feeders and associated conveyors
- A 21.6 MMBtu/hr natural gas-fired slag dryer and associated conveyors
- A ball mill grinder, a magnetic separator, a high efficiency separator, air slide conveyors, and an elevator
- Four ground slag storage silos

- Four cement storage silos

Emissions from the slag dryer, the ball mill, the eight storage silos, and various material handling operations will all be controlled by 11 separate dust collectors. Eight of the dust collectors will exhaust externally, while the remaining three will exhaust internally into the building within which they will be located.

Pollutant Emissions

The new plant will be a minor source for Prevention of Significant Deterioration (PSD) and Nonattainment New Source Review (NNSR). The following table provides the estimated emissions for each regulated pollutant:

Table 1: Emission Summary

Pollutant	Estimated Emissions (tpy)
Particulate Matter (PM)	15.4
PM10	5.0
PM2.5	2.4
SO ₂	0.06
CO	7.8
Nitrogen Oxides (NO _x)	4.6
Volatile Organic Compounds (VOCs)	0.51

Key Permit Review Issues

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

- **Rule 224 TBACT Analysis**
Rule 224 requires Best Available Control Technology for toxic air contaminants (T-BACT). The majority of toxic air contaminants (TACs) emitted by the proposed process are particulates and are controlled by bag filters which meet T-BACT. Other TAC emissions are a result of burning natural gas. These TAC emissions are very low and are not technically feasible to control.
- **Rule 225 Toxics Analysis**
EGLE Rules for Air Pollution Control require the ambient air concentration of TACs be compared against health-based screening levels. AQD staff reviewed Levy's air quality modeling and evaluation of TAC impacts. The review found that all TACs show impacts less than 1 percent of the established health-based screening levels and will comply with the requirements of Rule 225.
- **Rule 331 Emissions of Particulate Matter**
EGLE Rule 331 sets standards for PM emission rates. Levy has proposed emission limits, in pounds / 1,000 pounds of exhaust gas for each of the 8 externally vented exhaust stacks, which meets the requirements of Rule 331.

- **Criteria Pollutants Modeling Analysis**

Computer dispersion modeling was performed to predict the impacts of air emissions from PM10 and PM2.5. Emissions from the proposed facility were evaluated against both the NAAQS and the PSD increments. The NAAQS are intended to protect public health. The PSD increments are intended to allow industrial growth in an area, while ensuring that the area will continue to meet the NAAQS. As the following tables show, emissions of PM10 and PM2.5 from the proposed project will meet their respective PSD Increments and NAAQS.

The first step in this evaluation is to determine the predicted impacts from the proposed project. After impacts are determined, they are compared to the applicable PSD Significant Impact Levels (SILs). If the project impacts are less than the SIL, then no further review is required. The following table considers the potential emissions from the proposed project for PM10, and PM2.5 and compares them to their respective SILs.

Table 2 - Preliminary Modeling Impacts

Pollutant	Averaging Time	PSD Significant Level ($\mu\text{g}/\text{m}^3$)	Predicted Impact ($\mu\text{g}/\text{m}^3$)	Additional Modeling?
PM2.5	Annual	0.2	1.06	YES
PM2.5	24-hr	1.2	5.91	YES
PM10	Annual	1	3.98	YES
PM10	24-hr	5	21.36	YES

$\mu\text{g}/\text{m}^3$ = microgram per cubic meter

As the Class II modeled impacts for PM10 and PM2.5 exceeded their respective SILs, facility-wide NAAQS and PSD Increment modeling analysis was required for those pollutants.

The PSD Increments are compared against the total facility impact plus other increment consuming facilities nearby. In the NAAQS analysis, total facility impact includes additional nearby facilities, or offsite sources. The total facility impact and the background concentrations, which is data from ambient air monitors, are summed and compared to the NAAQS.

As the following tables show, emissions of PM10 and PM2.5 from the proposed project will meet their respective PSD Increments and NAAQS.

Table 3: PSD Increment

Pollutant	Averaging Time	PSD Increment ($\mu\text{g}/\text{m}^3$)	Predicted Impact ($\mu\text{g}/\text{m}^3$)	Percent of Increment (%)
PM10	Annual	17	3.98	23.4%
	24-hr	30	20.30	67.7%
PM2.5	Annual	4	1.11	27.9%
	24-hr	9	6.08	67.6%

Table 4: National Ambient Air Quality Standards (NAAQS)

Pollutant	Averaging Time	NAAQS ($\mu\text{g}/\text{m}^3$)	Predicted Impact ($\mu\text{g}/\text{m}^3$)	Background Concentrations ($\mu\text{g}/\text{m}^3$)	Total Impact ($\mu\text{g}/\text{m}^3$)	Percent of NAAQS (%)
PM10	24-hr	150	19.21	47.7	66.91	44.6%
PM2.5	Annual	12	1.67	9.0	10.67	89.0%
	24-hr	35	5.09	24.8	29.89	85.4%

Please note, there is not a NAAQS for PM10 on an annual average.

Key Aspects of Draft Permit Conditions

- Emission Limits (By Pollutant)**
The draft permit includes PM, PM10, PM2.5, and visible emissions limits for various pieces of equipment at the plant.
- Control Equipment Requirements**
The draft permit requires all process equipment (with the exception of a number of conveyor transfer points) be operated with 11 separate bag filter systems to limit particulate emissions. Eight of the dust collectors will exhaust externally, while the remaining three will exhaust internally into the building within which they will be located.
- Usage Limits**
The draft permit includes limits on the amount of slag that can be processed (315,000 tons per year) and the amount of final product leaving the facility (250,000 tons per year).
- Process/Operational Restrictions**
The draft permit includes restrictions on how the proposed plant must operate. Levy is required to utilize water spray systems to minimize fugitive dust emissions, maintain a Nuisance Minimization Plan (NMP) and Malfunction Abatement Plan (MAP), and install, maintain, and operate the 11 bag filter systems satisfactorily.
- Testing & Monitoring Requirements**
The draft permit requires Levy to verify the PM, PM10, and PM2.5 emission rates from a representative process at the plant. The AQD may also request that Levy analyze the slag processed at the plant for various metals and evaluate the visible emissions from the plant and/or perform visible emissions readings.

Conclusion

Based on the analyses conducted to date, AQD staff concludes that the proposed project would comply with all applicable state and federal air quality requirements. AQD staff also concludes that this project, as proposed, would not violate the federal National Ambient Air Quality Standards or the state and federal PSD Increments.

Based on these conclusions, AQD staff has developed proposed permit terms and conditions which would ensure that the proposed facility design and operation are enforceable and that sufficient monitoring, recordkeeping, and reporting would be performed by the applicant to determine compliance with these terms and conditions. If the permit application is deemed 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 this proposal, please contact Vrajesh Patel, AQD, at 517-582-3909 or PatelV@Michigan.gov.

**Appendix 1
STATE AIR REGULATIONS**

State Rule	Description of State Air Regulations
R 336.1201	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.
R 336.1205	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.)
R 336.1224	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.
R 336.1225 to R 336.1232	The ambient air concentration of each toxic air contaminant emitted from the project must not exceed health-based screening levels. Initial Risk Screening Levels (IRSL) apply to cancer-causing effects of air contaminants and Initial Threshold Screening Levels (ITSL) 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 U.S. EPA risk assessment guidance.
R 336.1279 to R 336.1291	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.
R 336.1301	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.
R 336.1331	The particulate emission limits for certain sources are listed. These limits apply to both new and existing equipment.
R 336.1370	Material collected by air pollution control equipment, such as dust, must be disposed of in a manner, which does not cause more air emissions.
R 336.1401 and R 336.1402	Limit the sulfur dioxide emissions from power plants and other fuel burning equipment.
R 336.1601 to R 336.1651	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 Rules 336.1601 through 336.1651.
R 336.1702	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 Reasonably Available Control Technology limits for existing equipment outlined in Rules 336.1601 through 336.1651.
R 336.1801	Nitrogen oxide emission limits for larger boilers and stationary internal combustion engines are listed.
R 336.1910	Air pollution control equipment must be installed, maintained, and operated properly.
R 336.1911	When requested by the Department, a facility must develop and submit a malfunction abatement plan (MAP). This plan is to prevent, detect, and correct malfunctions and equipment failures.
R 336.1912	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 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 – National Ambient Air Quality Standards (NAAQS)	The United States Environmental Protection Agency 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 (PM10), particulate matter less than 2.5 microns (PM2.5), and sulfur dioxide (SO ₂). Portions of Michigan are currently non-attainment for either ozone or SO ₂ . Further, in Michigan, State Rules 336.1225 to 336.1232 are used to ensure the public health is protected from other compounds.
40 CFR 52.21 – Prevention of Significant Deterioration (PSD) Regulations Best Available Control Technology (BACT)	<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 Air Quality Division verifies the applicant's determination and reviews BACT determinations made for similar facilities in Michigan and throughout the nation.</p>

Citation	Description of Federal Air Regulations or Requirements
40 CFR 60 – New Source Performance Standards (NSPS)	The United States Environmental Protection Agency has set national standards for specific sources of pollutants. These New Source Performance Standards (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.
Section 112 of the Clean Air Act Maximum Achievable Control Technology (MACT) Section 112g	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: 1) The United States Environmental Protection Agency has established standards for specific types of sources. These Maximum Achievable Control Technology (MACT) standards are based upon the best-demonstrated control technology or practices found in similar sources. 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.

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.