

STATE OF MICHIGAN
Rick Snyder, Governor



DEPARTMENT OF ENVIRONMENTAL QUALITY

AIR QUALITY DIVISION

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PUBLIC PARTICIPATION DOCUMENTS

For

Louis Padnos Iron & Metal
Holland, Michigan

PERMIT APPLICATION NUMBER

182-80C

January 19, 2012

FACT SHEET

Purpose and Summary

The Michigan Department of Environmental Quality (MDEQ), Air Quality Division (AQD), is proposing to act on Permit to Install (PTI) application No. 182-80C from Louis Padnos Iron & Metal (Padnos). The permit application is for a proposed modification and operation of an existing briquetter system. 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 and the Proposed Project

Padnos operates a scrap metal recycling facility located in downtown Holland, along the shore of Lake Macatawa. Among the equipment located at this facility is a hot briquetter system. This process recycles various types of scrap metals from machining and steel mill operations, including cast iron and various grades of steel. Prior to the briquetting, large pieces of scrap metal are broken into smaller pieces in the turnings crusher as necessary to create a uniform feed stock. The various sources of scrap metal are blended together based on customer specifications and used as the single feed stock for producing briquettes. The hot briquetter system utilizes two rotary furnaces installed in 1977 which have a combined maximum production capacity of 18 tons of metal per hour, and a Coreco dryer installed in 1998 which has a maximum production capacity of 7 tons of metal per hour. The control train for the rotary furnaces is currently a cyclone collector, a natural gas-fired afterburner, a vertical cooling tower, and a 5-module reverse-air with shaker assist high temperature baghouse. The Coreco dryer's control train is a high efficiency cyclone, hot cyclone collector natural gas-fired afterburner, heat exchanger, and baghouse. The rotary furnaces and Coreco dryer evaporate the cutting fluids and oils that remain on the scrap metal from machining and steel mill operations, and heat the metal to a temperature that renders it malleable to press into briquettes without the addition of binders.

The proposed project is to reduce the acid gas emissions through installation of a dry sorbent injection system on the rotary furnaces. Current emissions of hydrogen chloride and sulfuric acid from the briquetter system were found to be above major source thresholds; greater than 10 tons per year for any single hazardous air pollutant (HAP). Padnos is proposing to take synthetic minor restrictions to stay below major source thresholds at this facility.

This facility has enforceable limits for particulate matter that has an aerodynamic diameter less than or equal to a nominal 10 microns (PM₁₀), which were previously accepted to restrict the facility's potential to emit to less than the major source threshold of 100 tons per year for a criteria pollutant. A permit containing such restrictions is referred to as an opt-out permit. With the proposed synthetic minor restrictions and existing opt-out limit, the facility will no longer be considered an existing major source of HAPs and subject to the Renewable Operating Permit (ROP) program. The facility also has a scrap metal shredder currently operating under the conditions of PTI 365-98A and is covered under the facility-wide opt-out.

Present Air Quality

Padnos is located in Ottawa County. The area in which this county is located is currently in attainment with the National Ambient Air Quality Standards (NAAQS) for sulfur dioxide (SO₂), nitrogen oxides (NO_x), carbon monoxide (CO), PM10, particulate matter that has an aerodynamic diameter less than or equal to a nominal 2.5 microns (PM2.5), ozone, and lead.

Pollutant Emissions

The following table provides the estimated emissions for each acid gas after the proposed project:

EMISSION SUMMARY	
Pollutant	Estimated Emissions (tpy)
Hydrogen Chloride	2.2
Sulfuric Acid	5.2

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.

- **Best Available Control Technology for Toxics Analysis (R 336.1224)** – The briquetter system is not subject to Section 112(g) of the federal Clean Air Act (CAA) because the project was not a reconstruction of a major source of HAPs. This means a case-by-case Maximum Achievable Control Technology (MACT) determination is not required but does mean that the project is subject to R 336.1224 promulgated pursuant to Act 451, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA), (Rule 224). Rule 224 requires a Best Available Control Technology for Toxics (T-BACT) analysis. The emissions of hydrogen chloride and sulfuric acid were demonstrated to meet T-BACT for this proposed project.
- **Health-Based Screening for Toxics (R 336.1225)** – The MDEQ Rules for Air Pollution Control require the ambient air concentration of toxic air contaminants (TACs) be compared against health-based screening levels. AQD staff reviewed the company’s air quality modeling and evaluation of TAC impacts. The review found that all TACs show impacts less than the established health-based screening levels and will comply with the requirements of Rule 225. See the table below for a listing of each individual TAC and the predicted ambient impact.

Toxic Air Contaminant Impacts

CAS No.	Toxic Air Contaminant	Potential Emission Rate (lb/hr)	Pollutant Impact (µg/m³)	ITSL or IRSL (µg/m³)	Averaging Time	% of ITSL or IRSL
7647010	Hydrogen Chloride	0.54	0.36	20	Annual	1.8%
7647010	Hydrogen Chloride	0.54	9.38	2,100	1-hr	0.45%
7664939	Sulfuric Acid	1.26	0.83	1	Annual	82.6%
7664939	Sulfuric Acid	1.26	21.21	120	1-hr	17.7%

Key Aspects of Draft Permit Conditions

- **Emission Limits** – The draft permit includes PM, PM10, PM2.5, hydrogen chloride, and sulfuric acid emission limits for the rotary furnaces and Coreco dryer. The draft permit requires the rotary furnaces be operated with a dry sorbent injection system to limit hydrogen chloride and sulfuric acid emissions.
- **Process/Operational Restrictions** - The rotary furnaces and Coreco dryer will each be limited to 8,200 operating hours per year.
- **Emission Control Device Requirements** – The draft permit includes emission control device requirements as follows:
 - The rotary furnaces required control train is a cyclone, a natural gas-fired afterburner, a vertical cooling tower, dry sorbent injection system, and a 5-module reverse-air with shaker assist high temperature baghouse.
 - The Coreco dryer required control train is a high efficiency cyclone, hot cyclone collector natural gas-fired afterburner, heat exchanger, and baghouse.
 - The control devices are required to be operating and maintained in accordance with an approved malfunction abatement plan (MAP).
 - Changes to the stack parameters (increase in stack heights) for the rotary furnaces are required to be completed within 60 days of permit issuance.
- **Testing and Monitoring Requirements** –The draft permit includes verification of opacity, PM, PM10, PM2.5, hydrogen chloride and sulfuric acid emission rates for the rotary furnaces through performance testing.
- **Other** – Previously assessed facility-wide emission limits for PM10, based upon a 12-month rolling time period as determined at the end of each calendar month, with appropriate record keeping will be maintained.

Conclusion

Based on the analyses conducted to date, staff concludes that the proposed project would comply with all applicable state and federal air quality requirements. 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, staff has developed draft 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 Ms. Julie Brunner, AQD, at 517-373-7088.

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 336.1290	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 336.1299(2)(b)	Adopts by reference the provisions of 40 CFR 63.40 to 63.44 (2002) and 40 CFR 63.50 to 63.56 (2002), the federal hazardous air pollutant regulations governing constructed or reconstructed major sources.
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 336.1901	Prohibits the emission of an air contaminant in quantities that cause injurious effects to human health and welfare, or prevent the comfortable enjoyment of life and property. As an example, a violation may be cited if excessive amounts of odor emissions were found to be preventing residents from enjoying outdoor activities.

STATE AIR REGULATIONS

State Rule	Description of State Air Regulations
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.
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. Portions of Michigan are currently non-attainment for either ozone or PM2.5. Further, in Michigan, State Rules 336.1225 to 336.1232 are used to ensure the public health is protected from other compounds.

FEDERAL AIR REGULATIONS

Citation	Description of Federal Air Regulations or Requirements
<p>40 CFR 52.21 – Prevention of Significant Deterioration (PSD) Regulations</p> <p>Best Available Control Technology (BACT)</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 Air Quality Division verifies the applicant’s determination and reviews BACT determinations made for similar facilities in Michigan and throughout the nation.</p>
<p>40 CFR 60 – New Source Performance Standards (NSPS)</p>	<p>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.</p>
<p>40 CFR 63— National Emissions Standards for Hazardous Air Pollutants (NESHAP)</p>	<p>The United States Environmental Protection Agency has set national standards for specific sources of pollutants. The National Emissions Standards for Hazardous Air Pollutants (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>Section 112 of the Clean Air Act</p> <p>Maximum Achievable Control Technology (MACT)</p> <p>Section 112g</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"> 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.