

## TECHNICAL FACT SHEET

November 6, 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-2023-0141 from Crimson Holdings, LLC (Crimson Holdings). The permit application is for the installation of a two-stage packed bed scrubber on the existing spray dryer used in the manufacturing of powdered eggs.

The proposed project is subject to permitting requirements of the Department's Rules for Air Pollution Control. Prior to acting on this application and a related proposed consent order, the AQD is holding a public comment period and a virtual public hearing to allow all interested parties the opportunity to comment on the proposed PTI and proposed consent order. All relevant information received during the comment period and the virtual hearing will be considered by the decision maker prior to taking final action on the application and the proposed consent order.

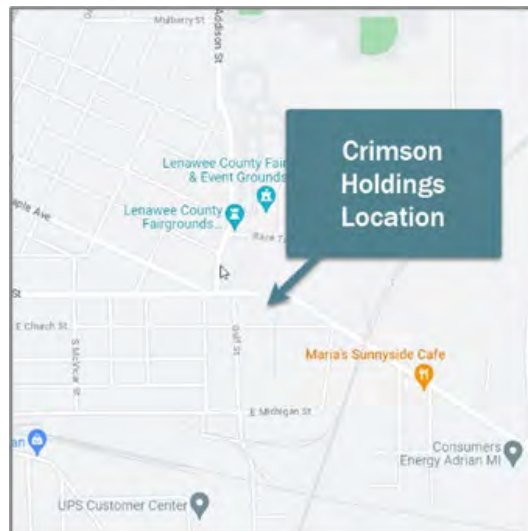


Figure 1: Location of Crimson Holdings

This document contains the technical summary for the PTI application review only. More information on the proposed consent order can be found at [Michigan.gov/EGLEAirPublicNotice](https://Michigan.gov/EGLEAirPublicNotice), under "[Consent Order Public Notice Documents](#)." Some documents have also been translated into Spanish. On this page you will find:

- [Compliance and Enforcement documents](#)
- [Enforcement Summary Report and Proposed Consent Order](#)
- [Resumen del Permiso de Aire y Aplicacion](#)
- [Aviso de Periodo para Comentarios y Audiencia Publica](#)

### Background Information

Crimson Holdings is located at 1336 East Maumee Street in Adrian, Michigan. In 2021, Crimson Holdings purchased the Dairy Farmers of America powdered milk production facility and "refashioned" the facility to produce powdered eggs.

The facility receives liquid eggs and processes them to produce powdered eggs using a spray dryer and other equipment. The spray dryer, which is required to have a PTI, is heated by natural gas and has a baghouse dust collector to control the particulate emissions. Crimson Holdings also operates powdered egg production equipment with limited emissions under rules that allow exemptions from the requirement to obtain a PTI under certain circumstances.

The AQD began receiving odor complaints after Crimson Holdings began producing powdered eggs. The AQD verified odor complaints, has issued several violation notices, and entered into escalated enforcement. To address the odors from the spray dryer, and as part of the company's compliance plan, Crimson Holdings is proposing to install a scrubber on the spray dryer and to implement a nuisance minimization plan for odors (NMPO). Prior to installation of the scrubber, Crimson Holdings is proposing to use one of two odor neutralizers in the dryer exhaust. More information on EGLE's interactions with Crimson Holdings can be found at [Michigan.gov/EGLECrimsonHoldings](https://Michigan.gov/EGLECrimsonHoldings).

Crimson Holdings is proposing a two-stage packed bed scrubber. One stage will use sulfuric acid to control ammonia, amines, and other nitrogenous compounds by absorption in the acidic solution. The second stage will use sodium hydroxide to control acid gas emissions including sulfur dioxide, sulfides, nitric acid, and similar compounds. According to Crimson Holdings, sodium hypochlorite, commonly known as bleach, is unnecessary in the second stage but may be used to give the exhaust a sweeter, cleaner smell. The scrubber will also have a mist eliminator to ensure the scrubber solution is not emitted from the stack.

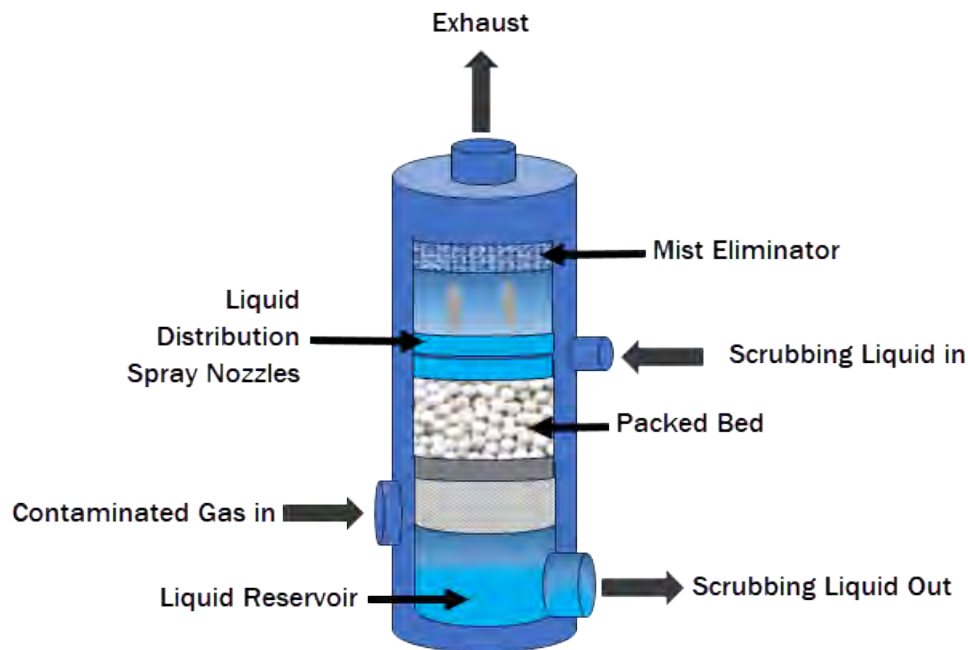


Figure 2: General example of flow through a packed bed scrubber

## Facility and Present Air Quality

The United States Environmental Protection Agency (USEPA) has developed health-protective standards for specific air pollutants. These standards are called the National Ambient Air Quality Standards (NAAQS). There are NAAQS for [some pollutants](#), including sulfur dioxide (SO<sub>2</sub>), nitrogen dioxide (NO<sub>2</sub>), carbon monoxide (CO), particulate matter equal to or less than 10 microns in diameter (PM<sub>10</sub>), particulate matter equal to or less than 2.5 microns in diameter (PM<sub>2.5</sub>), ozone, and lead. All the standards are set at levels designed to protect public health.

Crimson Holdings is located in Lenawee County, which is currently listed as attainment/unclassified for all NAAQS. This means that each pollutant listed above is meeting the requirements for the attainment standards set by the USEPA. The AQD operates an air monitoring station in Lenawee County south of Tecumseh and measures PM<sub>2.5</sub> and ozone. The purpose of the air monitoring stations is to assess the regional or area-wide air quality and is not used to determine if a specific source is complying with their air permit.

## Pollutant Emissions

The emissions evaluated in the application review are based on Crimson Holdings manufacturing powdered eggs for 24 hours per day, 365 days per year. Table 1 shows the estimated potential emissions for each criteria pollutant from the facility, before and after installation of the scrubber,

including the spray dryer and all other equipment. This worst-case scenario is to show potential emissions. The USEPA requires permit applicants to include a potential emissions evaluation as part of the permitting process to help determine the rules and regulations that may apply to the proposed project. The potential emissions do not always become emission limits in the permit conditions.

**Table 1: Potential Emissions**

<b>Pollutant</b>	<b>Estimated Emissions without Scrubber (tpy*)</b>	<b>Estimated Emissions with Scrubber (tpy)</b>
Particulate Matter (PM)	7.6	1.8
PM10	9.7	1.8
PM2.5	9.7	1.8
SO <sub>2</sub>	0.04	0.04
CO	5.0	5.0
Nitrogen Oxides (NO <sub>x</sub> )	6.0	6.0
Volatile Organic Compounds (VOC)	8.4	8.4

\* tpy – tons per year

Crimson Holdings' potential to emit of each regulated pollutant will be below 250 tpy. Therefore, the facility would not be considered a major source subject to the Prevention of Significant Deterioration (PSD) Regulations in Part 18 of the Michigan Air Pollution Control Rules.

## 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 requirements of Rule 224 do not apply to toxic air contaminants (TACs) that are VOCs and are in compliance with VOC BACT. As discussed under "Rule 702 VOC Emissions", the proposed project has been determined to comply with Rule 702 BACT for VOCs, so the TACs that are VOCs are not subject to Rule 224.

For non-VOC TACs, such as ammonia and carbonyl sulfide, the two-stage packed bed scrubber is T-BACT and will effectively reduce emissions of these TACs.

- **Rule 225 Toxics Analysis**

EGLE's Air Pollution Control Rules require the ambient air concentration of TACs be compared against their respective health-based screening levels. These screening levels are defined as concentrations measured in micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ) with specific averaging times of 1-hour, 8-hour, 24-hour, and/or annual averaging.

AQD staff reviewed the ground level TAC concentrations from the spray dryer using air dispersion computer modeling. The model factors potential emission rates, exhaust flow rates, exhaust stack heights, and building dimensions to predict what the ground level concentrations would be under the worst-case meteorological conditions for air quality. These predicted ground level concentrations are compared to the health-based screening levels. Based on the model results, the ground level concentrations of all TACs that have AQD established health-based screening levels are below their respective screening levels.

Several of the TACs identified by Crimson Holdings do not have AQD established health-based screening levels. These TACS were evaluated by the AQD Toxics Unit, which determined that the predicted ambient impact of these emissions will not negatively impact human health and the environment.

- **Rule 702 VOC Emissions**

This rule requires an evaluation of the following four items to determine what will result in the lowest maximum allowable emission rate of VOCs:

- a) BACT or a limit listed by the department on its own initiative
- b) New Source Performance Standards
- c) VOC emission rate specified in another permit
- d) VOC emission rate specified in the Part 6 rules for existing sources

Crimson Holdings is proposing use of the two-stage packed-bed scrubber as Rule 702(a) BACT, which is acceptable because the scrubber will provide some VOC control. However, the level of VOC control is unknown, so Crimson Holdings did not take credit for any control when estimating the VOC emissions.

Additionally, Crimson Holdings did provide a cost analysis for a combustion device to control the VOC emissions which demonstrated that a combustion device would not be cost effective.

## Key Aspects of Draft Permit Conditions

- **Emission Limits**

The draft permit includes PM, PM10, PM2.5, and VOC emission limits and an opacity limit for the spray dryer. Note there are two sets of PM, PM10, and PM2.5 emission limits proposed: emission limits that apply before the scrubber is installed and lower emission limits that apply after the scrubber is installed.

- **Process/Operational Restrictions**

The proposed permit requires Crimson Holdings to have a NMPO, which must include the following:

- Procedures for maintaining and operating the facility in a manner that minimizes the release of odors to the outside air.
- Procedures that shall be taken to address odor complaints.
- A plan for corrective action to address any odor releases to the outside air.

The proposed permit requires Crimson Holdings to update the NMPO if the plan fails to address or inadequately addresses odor management, if new equipment is installed, or upon request from the AQD District Supervisor.

- **Emission Control Device Requirements**

The draft permit includes the following emission control device requirements:

- The spray dryer PM, PM10, and PM2.5 emissions are controlled by a fabric filter dust collector.
- On and after December 22, 2023, Crimson Holdings will not be allowed to operate the spray dryer unless the two-stage packed bed scrubber is installed, maintained, and operated in a satisfactory manner, in addition to the dust collector.

- **Testing and Monitoring Requirements**

The proposed permit includes requirements for:

- Verification of the PM, PM10, PM2.5, and/or VOC emission rates through performance testing upon request of the AQD.
- Monitoring of the fabric filter dust collector pressure drop and the scrubber acid section pH, base section pH, and liquid flow rate.
- Records of odor neutralizer usage, including the name, manufacturer, and chemical composition or each odor neutralizer used, the dates odor neutralizer was used, and the usage rate.

- **Reporting**

The proposed permit requires Crimson Holdings to notify the AQD when the scrubber is installed.

## Conclusion

Based on the analyses conducted to date, the AQD concludes that the proposed project would comply with all applicable state and federal air quality requirements. The AQD 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, the AQD has developed proposed permit terms and conditions which would ensure 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 Andrew Drury, AQD, at [DruryA@Michigan.gov](mailto:DruryA@Michigan.gov) or 517-648-6663.

**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 (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.
<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 336.1702</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 Reasonably Available Control Technology limits for existing equipment outlined in Rules 336.1601 through 336.1651.
<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 (MAP). 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.
<b>R 336.2001 to R 336.2060</b>	Allow the Department to request that a facility test its emissions and to approve the protocol used for these tests.



State Rule	Description of State Air Regulations
<p><b>R 336.2801 to R 336.2804</b>  <b>Prevention of Significant Deterioration (PSD) Regulations</b></p> <p><b>Best Available Control Technology (BACT)</b></p>	<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>
<p><b>R 336.2901 to R 336.2903 and R 336.2908</b></p>	<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
<p><b>Section 109 of the Clean Air Act – National Ambient Air Quality Standards (NAAQS)</b></p>	<p>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<sub>2</sub>). Portions of Michigan are currently non-attainment 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.</p>
<p><b>40 CFR 52.21 – Prevention of Significant Deterioration (PSD) Regulations</b></p> <p><b>Best Available Control Technology (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 Air Quality Division verifies the applicant's determination and reviews BACT determinations made for similar facilities in Michigan and throughout the nation.</p>
<p><b>40 CFR 60 – New Source Performance Standards (NSPS)</b></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>

Citation	Description of Federal Air Regulations or Requirements
<p><b>40 CFR 63— National Emissions Standards for Hazardous Air Pollutants (NESHAP)</b></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>

**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.