

TECHNICAL FACT SHEET

September 20, 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-2023-0025 from Venice Park Recycling and Disposal Facility (Venice Park RDF). The permit application is for a proposed installation and operation of a new utility flare. 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 virtual public hearing, if requested in writing, to allow all interested parties the opportunity to comment on the proposed permit. 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.

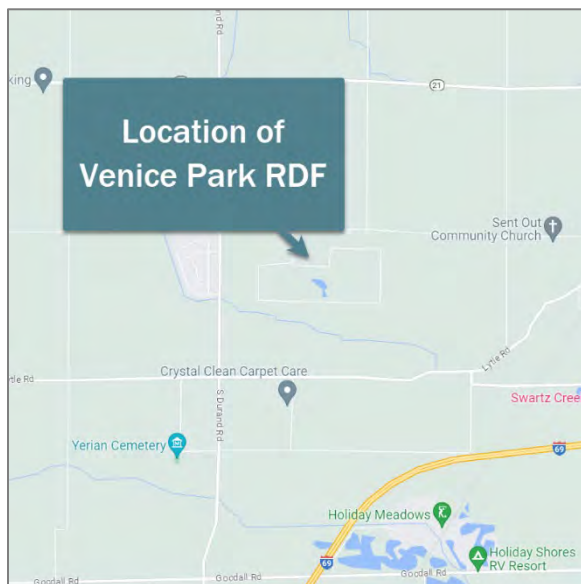


Figure 1: Location of Venice Park RDF

Background Information

Venice Park RDF operates an active municipal solid waste landfill with a gas collection system at 9536 E Lennon Road in Lennon, Michigan (Figure 1). It is co-located with an existing landfill gas-to-energy facility owned by North American Natural Resources, Inc. The landfill gas collected from Venice Park RDF is routed to the gas-to-energy plant where it is burned in four engines to generate electricity. Gas that is not directed to the plant is sent to a utility flare. For regulatory purposes, the two sites are considered to be a single stationary source.

Proposed Facility and Present Air Quality

Venice Park RDF is proposing to install a new utility flare to replace their existing one. The new flare will only operate during emergencies or periods of maintenance on any piece of the gas-to-energy plant. At these times, some of the gas extracted from the landfill will be directed to the flare. Venice Park RDF does not produce enough landfill gas to fuel at capacity the four engines and the proposed new flare simultaneously. Venice Park RDF is requesting an annual limit of 1261.44 million cubic feet (MMcf) of gas per year to be consumed in the flare.

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 (SO₂), nitrogen dioxide (NO₂), carbon monoxide (CO), particulate matter equal to or less than 10 microns in diameter (PM₁₀), particulate matter equal to or less than 2.5 microns in diameter (PM_{2.5}),

ozone, and lead. Shiawassee County, where Venice Park RDF is located, is currently meeting all of the NAAQS.

The AQD does not operate any air monitoring stations in Shiawassee County, however, it does operate a nearby monitoring station in Ingham County. Please see the [EGLE Air Monitoring Sites Web Map](#) for information on the air monitoring sites and the [EGLE AQI Website](#) for real-time air monitoring information. 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 facility, like Venice Park RDF, is in compliance with their air permit.

Pollutant Emissions

Venice Park RDF is considered to be an existing major stationary source under both Part 18 of the Michigan Air Pollution Control Rules ([Michigan Air Pollution Control Part 18 Rules](#)) and the federal Prevention of Significant Deterioration (PSD) regulations ([40 CFR 52.21](#)). Therefore, the proposed application would be subject to PSD for any regulated pollutant whose potential emissions increase exceeds its respective significant emission rate (SER) in tons per year (tpy). The proposed flare has a maximum capacity of 3500 cubic feet per minute at 50% methane (106.26 MMBtu/hr) and will have the potential to operate 24 hours a day, 7 days a week, 52 weeks a year (8,760 hours per year) and must be evaluated as if it will operate at this maximum capacity. However, the flare will only operate during emergencies or periods of maintenance on any piece of the gas-to-energy plant.

Venice Park RDF is requesting to limit the potential to emit for the proposed flare by limiting the amount of gas that may be burned in it in order to be considered a minor modification under the PSD regulations. The proposed project emissions are over 90% of SER for CO, therefore requiring public comment.

The following table provides the estimated emissions for each criteria pollutant:

Table 1: Total Facility Emission Increases and PSD Significant Emission Rates

| Pollutant | Total Emission Increase (tpy) | PSD Significant Emission Rate (tpy) | Subject to PSD? |
|-------------------------------------|-------------------------------|-------------------------------------|-----------------|
| Particulate Matter (PM) | 5.36 | 25 | No |
| PM10 | 5.36 | 15 | No |
| PM2.5 | 5.36 | 10 | No |
| SO ₂ | 31.32 | 40 | No |
| CO | 97.76 | 100 | No |
| NO ₂ | 21.44 | 40 | No |
| Volatile Organic Compounds (VOCs) | 1.24 | 40 | No |
| Lead | 0 | 0.6 | No |
| Fluorides | 0 | 3 | No |
| Sulfuric Acid Mist | 0 | 7 | No |
| Hydrogen Sulfide (H ₂ S) | 0.56 | 10 | No |

Key Permit Review Issues

Staff evaluated the proposed project to identify all state rules and federal regulations which are, or may be, applicable. The section below details why Venice Park RDF is subject to certain rules and how the permit conditions comply with them. The tables in **Appendix 1** summarize these rules and regulations.

- **Prevention of Significant Deterioration (PSD) Regulations**

The PSD regulations apply to major sources located in areas that are currently meeting (“in attainment with”) the NAAQS. The PSD major source threshold is 250 tpy for each of the regulated pollutants, unless the source is one of 28 source categories listed in the PSD regulations, then the PSD major source threshold is 100 tpy. Once a source is major for a single regulated new source review pollutant, it is major for other regulated new source review pollutants when the emissions are above their respective SER. As summarized in Table 1 above, the emissions increase associated with the proposed new flare will remain less than the SER for each regulated pollutant and therefore the project is not subject to PSD for any regulated pollutant.

- **Minor/Major Modification Determination for Attainment Pollutants**

Venice Park RDF is an existing PSD major stationary source. A modification at an existing PSD major stationary source where the emissions of any regulated pollutant will increase by more than the SER for that pollutant results in the modification being subject to PSD for that pollutant. Venice Park RDF is located in Shiawassee County which is currently in attainment for all pollutants. The proposed project is not subject to PSD because the emission increase for each regulated pollutant is less than the SER for that pollutant. The emissions associated with the proposed project are summarized in Table 1 above.

- **Federal National Emission Standards for Hazardous Air Pollutants (NESHAP) Regulations**

NESHAP regulations were established under 40 CFR Part 61 or Part 63. The proposed flare is subject to the [NESHAP for Municipal Solid Waste Landfills, 40 CFR Part 63 Subpart AAAA](#).

The main requirements of the subpart are a visible emission limit and operational parameters to minimize emissions. NESHAP AAAA conditions are already in the Venice Park RDF Renewable Operating Permit and will not change with the installation of a replacement flare, therefore only a high-level citation was included in the proposed permit.

- **Rule 224 T-BACT Analysis**

Rule 224 requires Best Available Control Technology for toxic air contaminants (T-BACT). However, the requirements of Rule 224 do not apply to any process subject to a federal NESHAP. In addition, the requirements of Rule 224 do not apply to toxic air contaminants (TACs) that are particulates or VOCs and are in compliance with BACT.

The flare itself is a control device for the VOC toxics. The capturing of emissions is not possible from an open flare without converting it to an enclosed flare. Also, the exhaust from the flare would be very hot. This limits the ability of using filters. The TACs, including VOCs, from the proposed flare are less than 3 tpy, therefore total TACs not including VOCs would also be less than 3 tpy. As such, it would not be economically feasible to

add control to the flare. In addition, the flare is subject to NESHAP AAAA and therefore not subject to Rule 224.

- **Rule 225 Toxics Analysis**

EGLE Rules for Air Pollution Control 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 ($\mu\text{g}/\text{m}^3$).

AQD staff reviewed Venice Park's air quality modeling and evaluation of TAC impacts. The review found that all TACs showed impacts less than the established health-based screening levels and will comply with the requirements of Rule 225.

- **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.

An evaluation of these four items determined that a VOC BACT (702(a)) analysis would dictate the lowest maximum allowable emission rate of VOCs from the flare, which will operate as a high-efficiency emission control on the VOCs contained in landfill gas. The flare will operate in open air without the ability to route emissions from its exhaust without converting it to an enclosed flare. Also, as the total VOC emissions from the flare are projected to be less than 3 tpy, additional add-on VOC control would not be economically feasible. Therefore, Rule 702(a) BACT was determined to be requirements to properly calibrate, maintain, and operate the flare. Compliance with these requirements will be determined by monitoring the flare operating parameters and recording the information.

- **Criteria Pollutants Modeling Analysis**

Computer dispersion modeling was performed to predict the impacts of air emissions from NO_x , CO, SO_2 , PM10, and PM2.5. NO_x refers specifically to nitrogen oxide and NO_2 , with the larger portion being NO_2 . NO_2 is a highly reactive gas and is the pollutant for which the USEPA established a NAAQS. Emissions from the proposed flare were evaluated against both the NAAQS and the PSD Increments. The NAAQS are intended to protect public health, including the health of sensitive groups like those with heart or lung conditions. The PSD Increments are intended to allow industrial growth in an area, while ensuring the area will continue to meet the NAAQS. To determine predicted impacts, the dispersion modeling compared the worst-case impact for each criteria pollutant, for each averaging time, to the maximum levels allowed.

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 flare for NO_x , CO, SO_2 , PM10, and PM2.5 and compares them to their respective SILs.

Table 2: Class II Significant Impact Levels

| Pollutant | Averaging Time | SIL ($\mu\text{g}/\text{m}^3$) | Total Maximum Impact ($\mu\text{g}/\text{m}^3$) | Refined Modeling Required? |
|-----------------|----------------|----------------------------------|---|----------------------------|
| PM10 | Annual | 1 | 0.1273 | No |
| PM10 | 24-hr | 5 | 0.7639 | No |
| SO ₂ | Annual | 1 | 0.7257 | No |
| SO ₂ | 24-hr | 5 | 4.3544 | No |
| SO ₂ | 3-hr | 25 | 7.2571 | No |
| SO ₂ | 1-hr | 7.8 | 7.2571 | No |
| CO | 8-hr | 500 | 20.9755 | No |
| CO | 1-hr | 2,000 | 23.3067 | No |
| NO ₂ | Annual | 1 | 0.5116 | No |
| NO ₂ | 1-hr | 7.5 | 7.2571 | No |

All pollutants were less than their respective SILs, therefore no further modeling was required.

Key Aspects of Draft Permit Conditions

This section provides information about conditions in the proposed permit and how the permit conditions limit emissions and impacts.

- Emission Limits (By Pollutant)**

The proposed permit includes specific emission limits for the flare (EUOPENFLARE) as detailed in Table 3 below. The emission limits are based on the annual throughput limit of landfill gas to the flare.

Table 3: Proposed Emission Limits

| Pollutant | Emission Limits |
|-----------------|-----------------|
| NO _x | 21.44 tpy |
| CO | 97.76 tpy |
| SO ₂ | 31.32 tpy |

- Usage Limits**

The proposed permit includes a limit of 1261.44 million cubic feet/year (MMcf/yr) of landfill gas that can be burned in the flare.

- Process/Operational Restrictions**

The proposed permit includes the following process/operation requirements:

- A Preventative Maintenance/Malfunction Abatement Plan must be developed, implemented, and followed.
 - The facility must operate the flare with a flame present at all times.
 - The facility must operate the flare at all times that landfill gas is routed to the flare.
 - The facility must install, calibrate, maintain, and operate a heat sensing device and a landfill gas flow rate measuring device on the flare.

- Testing & Monitoring Requirements**

The proposed permit requires verification of the H₂S content of the landfill gas burned in the flare through gas sampling.

- **Monitoring and Recordkeeping Requirements.**

The proposed permit includes the following monitoring and recordkeeping requirements:

- Monitoring and recording the amount of landfill gas burned in the flare.
- Keeping and maintaining records of gas sampling.
- Monthly and 12-month rolling emission calculations for SO₂, NO_x and CO.
- Documentation of maintenance performed.

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. Also, this project, as proposed, would not violate the federal NAAQS 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 Megan Arduin, AQD, at 517-275-1936 or ArduinM1@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. |
| <p>R 336.2801 to R 336.2804 Prevention of Significant Deterioration (PSD) Regulations</p> <p>Best Available Control Technology (BACT)</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> |
| 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 |
|---|---|
| <p>Section 109 of the Clean Air Act – National Ambient Air Quality Standards (NAAQS)</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 (SO₂). Portions of Michigan are currently non-attainment for either ozone or SO₂. Further, in Michigan, State Rules 336.1225 to 336.1232 are used to ensure the public health is protected from other compounds.</p> |
| <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> |

| 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. |
| 40 CFR 63— National Emissions Standards for Hazardous Air Pollutants (NESHAP) | 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. |
| 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: <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.