

TECHNICAL FACT SHEET

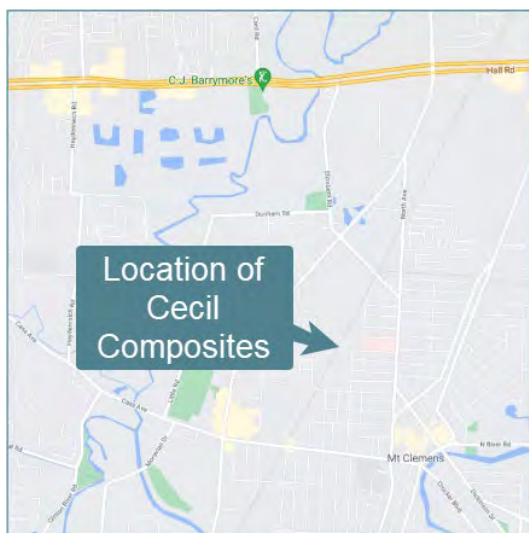
September 6, 2023

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-2023-0168 from Cecil Composites, LLC (Cecil Composites). The permit application is for proposed modifications to the exhaust stack parameters for their existing fiberglass composite pole manufacturing process. The proposed project is subject to permitting requirements of the Department's Rules for Air Pollution Control. Cecil Composites is not requesting any increase in emissions or the installation of any additional process equipment. 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.

Background Information

Cecil Composites is an existing facility located at 151 Lafayette Street, Mt. Clemens, Michigan, and was originally permitted under PTI No. 94-21. The location is shown in Figure 1. That PTI was issued after Cecil Composites went through a public comment period and public hearing in November 2021.



Since the existing permit was issued, Cecil Composites has operated under an "initial low production period" where production was limited to no more than 300 utility poles per calendar month. That production limit was less than 10% of the facility's potential maximum production. PTI No. 94-21 allowed the low production period to continue until the exhaust stack was installed and operational or until March 31, 2022, whichever came first. Without installation of the stack, the facility was not allowed to manufacture composite poles after March 31, 2022.

Figure 1: Location of Cecil Composites

In March of 2022, Cecil Composites submitted a new permit application requesting an extension of the initial low production period. That application was reviewed, determined to meet all applicable State and Federal Rules, and PTI No. [94-21A](#) was issued on April 13, 2022. Under PTI No. 94-21A, the initial low production period was extended until no later than December 31, 2022. Prior PTI No. 94-21 was voided upon issuance of PTI No. 94-21A.

In February of 2023, the AQD was contacted by Cecil Composites to discuss submitting a PTI application to change their permitted exhaust stack parameters in PTI No 94-21A to a stack height of 63.75 feet and a stack diameter of 42 inches. PTI 94-21A requires the installation of an 82-foot stack with a 44 inch diameter. When determining how tall a stack needs to be, most applicants begin with the widely used best engineering practice of one and half times the tallest part of the building. Cecil Composites originally proposed a 55-foot building and an 82-foot stack. Stack construction had been delayed, and during that delay it was discovered that the facility building was actually 42.5 feet tall, not 55 feet. In order to install a shorter stack than what was originally permitted, Cecil Composites must apply for a permit modification and the proposed changes must be able to meet air quality rules and regulations. Cecil Composites is not requesting any increase in emissions or the installation of any additional process equipment.

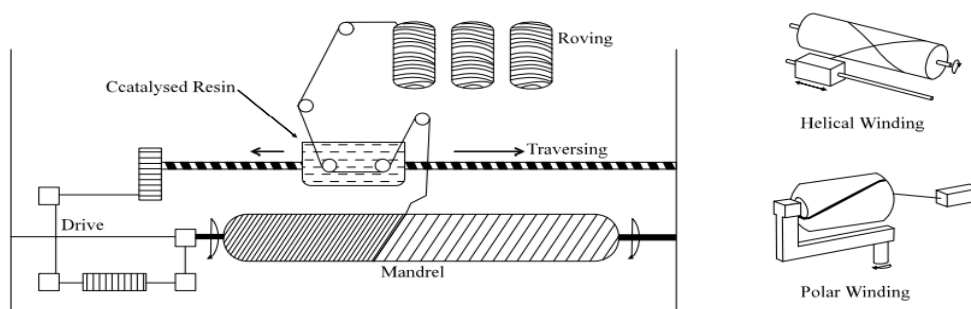
The AQD determined that Cecil Composites request to modify their stack parameters would need to undergo public comment prior to taking action upon it.

Facility and Production Process

Cecil Composites makes utility poles by taking long strands of fiberglass coated in a resin and wrapping them around a form called a mandrel. Once the mandrel is covered to the desired thickness, the resin is cured with the assistance of electric infrared heaters. The mandrel is then removed leaving the finished hollow utility pole.

Utility poles are produced using a dual-spindle filament system (two poles wound simultaneously) with a resin delivery system. See Figure 2. The dual spindle winder is fully automatic; however, the system as a whole is semi-automatic as the mandrels are moved between stations manually and the other equipment in the system (e.g., slitter, extractor) are operated manually. The system is set up for fully automatic operation in the future with the addition of a manipulator system for mandrel transfer and automation upgrades to the other equipment.

The fiberglass resins and catalyst react or polymerize to form a reinforced plastic material embedded with the reinforcing filaments (fiberglass). During the polymerization reaction, most of the volatile organic compounds (VOCs) in the resins and catalysts form the solid resin matrix encapsulating the reinforcing filaments. The unreacted VOCs are emitted from the poles as they cure.



F Figure 2: Typical filament winding machine set-up¹

¹ C.A. Brighton, *et al.*, *Styrene Polymers: Technology and Environmental Aspects*, Applied Science Publishers, Ltd., London, 1979

The process requires periodic cleaning of the equipment. Cecil Composites uses acetone, which is not considered a VOC as it is not photoreactive in the atmosphere, excluding it from the [EPA definition of a VOC](#). The acetone clean-up solvent that is not recovered and recycled is considered to be emitted.

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 (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.

Cecil Composites is located in Macomb County, Michigan which is currently meeting all of the NAAQS. This means all of the pollutants with NAAQS are meeting their health-based NAAQS standard.

The AQD operates two air monitoring stations in Macomb County with nearby monitoring stations in Oakland and Wayne Counties. The Macomb County stations measure ozone and PM_{2.5}. The nearby Wayne County stations also measure criteria pollutants as well as some air toxics. 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 Cecil Composites, are in compliance with their air permit.

Pollutant Emissions

The following table provides the estimated total maximum potential emissions for each pollutant from the fiberglass composite pole manufacturing process. The potential emissions are not changing from what is currently permitted under PTI No. 94-21A:

Table 1: Emissions Summary

Pollutant	Potential Emissions (tpy)
Particulate Matter (PM)	0
PM ₁₀	0
PM _{2.5}	0
Sulfur Dioxide (SO ₂)	0
Carbon Monoxide (CO)	0
Nitrogen Oxides (NO _x)	0
Volatile Organic Compounds (VOCs)	65.1
Lead	0
Total Hazardous Air Pollutants (HAPs)	65
• Styrene	64.8
• All other HAPs	<1 tpy
Acetone	15.6

As the above table shows Cecil Composites has a potential to emit (PTE) below the Prevention of Significant Deterioration (PSD) major source threshold of 250 tons per year (tpy) for each regulated. As such, it is considered a minor source under the State of Michigan Air Quality Rules.

At full production capacity the facility will be a major source under Title 40 of the Code of Federal Regulations (CFR), Part 70 for its potential to emit hazardous air pollutants (HAPs), primarily styrene. The major source threshold for HAPs is 10 tons per year (tpy) of any individual HAP or 25 tpy of total combined HAPs.

Potential Odors

The primary pollutant emitted by Cecil Composites from the fiberglass composite pole manufacturing process is styrene. To minimize emissions and reduce potential odors from the facility the proposed permit contains material, operational and equipment restrictions. These restrictions include, but are not limited to, a styrene content limit of materials as applied; handling materials in a manner to minimize fugitive emissions; and capturing and storing waste materials appropriately. Such limits were previously included in PTI Nos. 94-21 and 94-21A.

Odors are regulated by Michigan Air Pollution Control Rule R336.1901 (Rule 901), which prohibits the emission of air contaminants that causes an unreasonable interference with the comfortable enjoyment of life and property. The permit application was reviewed following the [Air Quality Division Policy and Procedure \(AQD-021\) Application of Rule 901\(b\) in the Permit to Install Review Process](#). Previous PTI Nos. 94-21 and 94-21A were also evaluated per this policy and procedure.

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 Cecil Composites is subject to certain rules and how the permit conditions comply with them. The tables in **Appendix 1** summarize these rules and regulations.

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

NESHAP regulations were established under 40 CFR Part 61 or Part 63. The fiberglass composite pole manufacturing process is subject to the NESHAP in [40 CFR Part 63 Subpart WWWW](#) for Reinforced Plastic Composites Production.

This regulation applies to new and existing reinforced plastic composites production facilities which are major sources of HAPs emissions. Recordkeeping, emission limits and operational practices are the main requirements of this NESHAP. Specific requirements related to this regulation are included in the proposed permit. Such limits were previously included in PTI Nos. 94-21 and 94-21A.

A Risk and Technology Review (RTR) conducted by the USEPA for this rule evaluated the risk of HAP emissions from facilities operating under this NESHAP. The RTR determined the requirements of the NESHAP provide an ample margin of safety to protect public health.

- **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 Best Available Control Technology (BACT).

The only non-VOC TAC subject to T-BACT review is acetone used for clean-up operations. The proposed permit contains an acetone emission limit of 15.6 tpy and process and operational restrictions on the use and storage of the acetone cleaning solvent. Such limits were previously included in PTI Nos. 94-21 and 94-21A. These requirements meet the requirements of T-BACT for the process.

- **Rule 225 Toxics Analysis**

EGLE Rules for Air Pollution Control require the ambient air concentration of TACs be compared against their respective allowed [health-based screening levels](#). These screening levels are defined as concentrations measured in micrograms per cubic meter ($\mu\text{g}/\text{m}^3$).

An RTR was completed for the federal NESHAP WWWW and was promulgated by the USEPA on March 20, 2020. The RTR determined that the NESHAP provides ample margin of safety to protect public health. As Cecil Composites will be subject to the NESHAP and will have to comply with its requirements, HAP emissions from the proposed project were not evaluated under Michigan's Air Toxic rules since potential health impacts from the HAP emissions were already reviewed under the RTR. Please note that the HAPs regulated by the NESHAP are considered TACs under Michigan's Part 2 rules.

The only TAC emissions not covered by the RTR and thus subject to review under Michigan Rule 225 are acetone. Acetone emissions were evaluated using the Allowable Emission Rate Methodology contained in Rule 227(1)(a). It was determined that acetone emissions will meet their respective health-based screening level and thus 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 (NSPS).
- 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 under 702(a) the following requirements represent BACT and were placed in the proposed permit:

- VOC emission limit;
- Material limit on the allowable styrene content of resins used;
- Operational requirements for proper storage and handling of materials;
- Equipment requirements specifying filament winding be used for production.

Such limits were previously included in PTI Nos. 94-21 and 94-21A.

A BACT cost analysis was submitted with the application evaluating if the installation of add-on control equipment such as a catalytic oxidizer, recuperative thermal oxidizer, or a regenerative

thermal oxidizer would be cost effective. The AQD reviewed this analysis and agreed with the conclusion that it would not be cost effective to install control equipment for the proposed project.

- **Criteria Pollutants Modeling Analysis**

Modeling analyses are typically done using a computer simulation program. Since the majority of the emissions from the fiberglass composite pole manufacturing process are VOCs, which have no respective NAAQS or PSD increments, no modeling was performed as a part of the review of this application. This is consistent with how the reviews for PTI Nos. 94-21 and 94-21A were also performed.

Key Aspects of Draft Permit Conditions

The only changes in the proposed permit conditions from those in existing PTI No. 94-21A are changes the exhaust stack parameters and removal of the low production operating period. All of the following aspects were carried forward from PTI No. 94-21A.

- **Emission Limits (By Pollutant)**

- VOCs: 65.1 tpy (based on a 12-month rolling time period as determined at the end of each calendar month).
- Acetone: 15.6 tpy (based on a 12-month rolling time period as determined at the end of each calendar month).

- **Material Limits**

- The styrene content of all resins shall not exceed 45.3 percent by weight as applied.

- **Process/Operational Restrictions**

- All waste materials shall be captured and stored in closed waste containers. Waste materials shall be disposed of in an acceptable manner and in compliance with all applicable state rules and federal regulations.
- Implementation and maintaining a nuisance minimization plan (NMP) for odors. This plan includes procedures to minimize the release of odors to the outside air, procedures to address odor complaints, and a plan of corrective action to address any odor releases to the outside air.

- **Design/Equipment Parameters**

- Composite pole fabrication shall be conducted by filament winding using the dual-spindle 4-axis system with an automated resin delivery system.

- **Recordkeeping Requirements**

- The identity and amount of each material used.
- The VOC, styrene and acetone content of each material used.
- Emission calculations.

- **Federal Regulations**

The composite pole manufacturing process is subject to the NESHAP for Reinforced Plastic Composites Production, 40 CFR Part 63 Subpart WWWW. The emission limits from the NESHAP were included in the proposed permit along with operational, testing, recordkeeping and reporting requirements.

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.

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 Jeff Khaled, AQD, at 517-582-5117 or KhaledJ@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 336.1901	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.
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.

State Rule	Description of State Air Regulations
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.
<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: 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.