STATE OF MICHIGAN
Rick Snyder, Governor

DEPARTMENT OF ENVIRONMENTAL QUALITY

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PUBLIC PARTICIPATION DOCUMENTS

For

EES Coke Battery, LLC

River Rouge, Michigan

PERMIT APPLICATION NUMBER

77-17

July 19, 2017

FACT SHEET

July 19, 2017

Permit to Install 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. 77-17 from EES Coke Battery, LLC (EES Coke). The permit application is for the temporary controlled venting of an existing 300,000 gallon light oil storage tank (Tank 37). The temporary controlled venting will be for a maximum of 30 days. The controlled venting will remove all vapors from the tank which in-turn will allow it to be inspected for structural integrity. The venting process is referred to as de-gassing. The vapors from the storage tank will be routed to a thermal oxidizer (vapor combustion unit) where a minimum of 98 percent of them will be destroyed.

The proposed project is subject to permitting requirements of the Department's Rules for Air Pollution Control. The AQD has evaluated this proposal and made a preliminary determination that the project will not violate any of the MDEQ's rules nor the health protective National Ambient Air Quality Standards (NAAQS) and the Prevention of Significant Deterioration (PSD) air quality increments. The PSD increments are intended to allow industrial growth in an area while ensuring that the area will continue to meet the NAAQS.

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. The public hearing, if requested, will be held on August 23, 2017, at 7:00 p.m. at the City Hall Council Chambers Room in River Rouge, Michigan. Prior to the hearing, an informational session will be held at 6:00 p.m. All relevant information received during the comment period and hearing, will be considered by the decision maker prior to taking final action on the application.

Background Information

EES Coke is located at 1400 Zug Island Road on Zug Island in River Rouge, Wayne County, Michigan. The facility is a coke production facility which includes a coke battery and a byproducts recovery plant. The facility produces metallurgical coke which is used in the steel manufacturing process. The process of producing coke also produces coke oven gas. The coke oven gas contains light oils and tars which are removed from the coke oven at the byproducts recovery plant. Once the light oils and tars are removed from the coke oven gas stream, the coke oven gas is combusted. The light oils and tars are stored in liquid storage tanks and sold to offsite customers.

The EES Coke facility is located on Zug Island. The island is part of the City of River Rouge. It is bordered on the north and the west by the City of Detroit, on the south by the City of River Rouge and on the east by the Detroit River and the City of Windsor, Ontario, Canada.

EES Coke is currently operating under existing PTI No. 51-08C and a Renewable Operating Permit (ROP), No. 199600132d (Section 7). The ROP for EES Coke contains emission limits, testing requirements, work practices, reporting requirements, and recordkeeping requirements to assure that all equipment at EES Coke operates in compliance with all federal regulations and state rules.

Proposed Project and Present Air Quality

The proposed project is a temporary permit allowing Tank 37 at EES Coke to be emptied and prepared for internal structural integrity testing. The testing is required under a consent order with the United States Environmental Protection Agency (USEPA). Prior to the internal structural integrity testing, the light oils generated at the byproducts plant and stored in Tank 37 will need to be temporarily diverted to another storage tank (Tank 38). Subsequently Tank 37 will have to have all tank vapors removed via a de-gassing process. The vapors are considered to be volatile organic compounds (VOCs). In the de-gassing process, the VOCs from the tank will pass through a thermal oxidizer where they will be raised to a minimum temperature of 1400°F which is sufficient to oxidize or destroy them. It is expected that the operation of the thermal oxidizer will achieve a minimum 98 percent destruction efficiency of the VOCs being removed from the tank. The thermal oxidizer will be fired with propone fuel at a rate of approximately 4 million British Thermal Units (BTUs) per hour.

Once the de-gassing has been completed, the internal tank integrity testing will proceed. Upon completion of the degassing project and inspection of Tank 37, the permit will be voided.

The facility is located in the part of Wayne County, which is currently meeting all of the NAAQS set by the USEPA except for sulfur dioxide (SO_2). NAAQS were established for particulate matter less than or equal to 10 microns in diameter (PM10), particulate matter less than or equal to 2.5 microns in diameter (PM2.5), ozone, carbon monoxide (CO), SO_2, Nitrogen Oxides (NOx), and lead. These standards are set at levels designed to protect the public health. A portion of Wayne County is currently not in compliance with the 1-hour NAAQS for SO_2.

Pollutant Emissions

Following is a description of the emissions associated with this project. Emissions from the thermal oxidizer are steady state, meaning that they will have uniform hourly emission rates and will remain constant when the oxidizer is operated. Emissions of vapors being emitted from the tank are defined as “event” emissions, meaning they are present only during the evacuation or de-gassing of the tank. The total duration of the tank degassing is expected to take less than a maximum of 30 days. Annual emissions (in tons per year) were calculated to show emissions in relation to PSD significant threshold for illustrative purposes. This process will not be operational for a year.

Table 1. Project Emissions Regulated PSD Pollutants

Pollutant	Hourly Emissions, lb/hr	Total Event Emissions, lbs/month	Tons per year	PSD Significant Threshold, tons per year	% of PSD Threshold
NOx	0.49	360	2.16	40	5.4
CO	0.29	208	1.25	100	1.25
PM	0.0076	5.5	0.033	25	0.132
PM10	0.0266	20	0.12	15	0.08
PM2.5	0.0266	20	0.12	10	1.2
SO_2	0.002	1.5	0.0089	40	0.02
VOC	0.038	28.5	0.17	40	0.425

As the above Table shows the expected total VOC emissions from the de-gassing project will be less than 30 pounds. Annual breathing losses (emissions) from Tank 37 range between 80 to 100 pounds of VOCs per year depending upon the amount of liquid stored.

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.

- **Minor/Major Modification Determination for Attainment Pollutants –** EES Coke is considered an existing major stationary source with respect to the PSD Regulations in Part 18 of the Michigan Air Pollution Control Rules and 40 CFR 52.21, which means that the potential emissions of one or more regulated New Source Review (NSR) pollutant is greater than 100 tons per year (tpy). Both the Michigan Rules and 40 CFR 52.21 set the 100 tpy threshold for 28 specifically identified source categories, including coke batteries. For all other source categories, the threshold is 250 tpy. Existing major stationary PSD sources trigger permitting requirements under the PSD regulations if the emissions increase of any regulated NSR pollutant is greater than or equal to the PSD significant emission rate for that pollutant. The de-gassing project is not subject to PSD review since the emissions of each NSR pollutant is not greater than its respective PSD significant threshold. This is shown in Table 1 above.

- **Federal NESHAP Regulations –** National Emission Standards for Hazardous Air Pollutants (NEHAP) were established under 40 CFR Part 61 or Part 63. The EES Coke facility is subject to 40 CFR Subpart L "National Emission Standard for Benzene Emissions from Coke By-product Recovery Plants", and 40 CFR 63 Subpart CCCCC "National Emissions Standards for Hazardous Air Pollutants for Coke Ovens: Pushing, Quenching and Battery Stacks". Conditions related to this regulation have already been included in the ROP for this facility. Neither of these regulations are applicable to the proposed tank de-gassing project.

- **Rule 224 T-BACT Analysis –** This rule requires best available control technology (BACT) for all toxic air contaminants (TACs) which will be emitted. Emissions from the de-gassing process will be controlled using a thermal oxidizer (vapor combustion unit). The unit will achieve a minimum of 98 percent destruction efficiency. Use of the thermal oxidizer (vapor combustion unit) is considered best available control for air toxics (T-BACT) for EES Coke.

- **Rule 225 Toxics Analysis –** The MDEQ Rules for Air Pollution Control require the ambient air concentration of TACs be compared against allowed health-based screening levels. Screening levels for non-carcinogenic compounds are referred to as Initial Threshold Screening Levels (ITSLs) while screening levels for carcinogenic compounds are referred to as Initial Risk Screening Levels (IRSLs). Rule 227 contains several different methods which may be used to demonstrate compliance with applicable screening levels.

  Rule 227(1)(a) includes an allowable emissions rates (AER) algorithm table which is often used as a first method of determining compliance with applicable allowed screening levels. Using this table, EES Coke evaluated the proposed emissions of benzene, toluene, xylene, naphthalene, ethylbenzene, carbon disulfide, styrene, hexachloroethane, 2-methylnapthalene, and 1,3,5-trimethylbenzene. Results of the AER methodology showed that proposed emissions of each TAC will be in compliance with their respective screening levels and meet Rule 225 requirements, with the exception of benzene on a 24-hour averaging period basis. EES Coke's analysis was conservative in the fact that it assumed that the entire emissions which could occur over a period of up to 30 days, would occur in a single day.

Another method of demonstrating compliance with applicable screening levels included in Rule 227 is the use of air dispersion modeling. EES Coke performed a dispersion modeling analysis for its proposed benzene emissions on a 24-hour average. The results of that modeling indicate that the predicted ambient impact of benzene will be 3 percent of the 24-hour ITSL and in compliance with the requirements of Rule 225.

The location of highest benzene impact will be on Zug Island. This indicates there is not a health concern for noncancer effects. The amount of benzene emissions for the limited time period is also not a health concern for cancer.

- **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.

  Use of the proposed thermal oxidizer (vapor combustion unit) and the level of VOC emissions is considered to be BACT for this project under Rule 702(a).

- **Criteria Pollutants Modeling Analysis –** Due to the small size of the proposed emissions and the temporary status of the proposed project, an air quality impact analysis using computer dispersion modeling was not performed for criteria pollutants. The proposed project is not expected to have a significant impact on any of the NAAQS.

Key Aspects of Draft Permit Conditions

Draft PTI No. 77-17 includes conditions which address the proper operation of the thermal oxidizer to assure that a high degree of vapor destruction is achieved and maintained. As it is a temporary permit, it will automatically become void, at which point the facility will continue to operate under its existing ROP. Below is a summary of the conditions specific to the temporary permit.

- **Process/Operational Restrictions –** The draft permit requires EES Coke to only use propane in the thermal oxidizer and allows de-gassing of the tank only when the thermal oxidizer is installed and operating properly.

- **Testing & Monitoring Requirements –** The draft permit requires EES Coke to:
  - Measure and record benzene concentrations at the inlet of the thermal oxidizer.
  - Monitor and record the outlet temperature of the thermal oxidizer on a continuous basis.

- **Emission Control Device Requirements –** The draft permit requires EES Coke to maintain a minimum combustion temperature of 1400°F in the thermal oxidizer. Additionally, a minimum retention time of 0.5 seconds must be maintained in the thermal oxidizer.

- **Reporting Requirements –** The draft permit requires EES Coke to notify the AQD in writing 10 days prior to the start of the de-gassing operation, and to notify AQD in writing when the de-gassing operation has been completed.

- **Other –** The draft permit will terminate 30 days after the de-gassing operation commences. Also, EES Coke will be responsible for operating the thermal oxidizer in compliance with all applicable requirements of 40 CFR Section 61, Subpart L, V and FF.

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 NAAQS 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 Mr. John Vial, AQD, at 517-284-6805.

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.
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)**	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. 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. 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.
R 336.2901 to R 336.2903 and R 336.2908	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. 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.

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 lead or sulfur dioxide. 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
40 CFR 52.21 – Prevention of Significant Deterioration (PSD) Regulations **Best Available Control Technology (BACT)**	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. 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. 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.
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.