

PTI/PTO APPLICATION A0041047, PUBLIC VERSION
OF THE PERMIT TO INSTALL APPLICATION

The City of Cleveland is planning to build a facility at 3227 Ridge Road in Cleveland that will collect recyclables such as plastics, glass, metals, paper, etc., from Cleveland's garbage. The rest of the garbage will be used as a fuel to generate electricity.

The process the City wants to use to generate electricity requires approval from the United States Environmental Protection Agency (USEPA). The City of Cleveland has prepared an application for the EPA for a Permit to Install and operate this facility.

The EPA has published rules and requirements for the information the City must submit as part of the application. The application includes the following:

1. A description of the steps the City will take to change the waste into electricity
2. An explanation on how State and Federal Air Pollution laws apply to the facility
3. An explanation of the technologies that will be used in the facility
4. A scientific study of potential air pollution impacts of the facility

The following is a description of the major parts of the City's application for the facility:

- **Table 1 on page 2 of 15 – Proposed New Emissions Units**
 - Lists the parts of the facility that may produce air pollution. The EPA calls these parts Emission Units and assigns them an ID number. Most of the units that change the garbage into electricity are known as gasifier lines and each is an emission unit. Places in the facility that store ash and chemicals used for air pollution control are also listed as emission units.
 - Different parts of the State of Ohio law (Ohio Administrative Code) apply to emission units. Some units are exempt from the law or non-exempt and some are considered significant sources of air pollution or insignificant for the purposes of the application.
- **Table 2 on page 3 of 15 - Cuyahoga County National Ambient Air Quality Standards (NAAQS) Classifications**
 - The environmental law focuses on important specific pollutants when determining air quality within the United States. In Ohio air quality is determined by County. The following are the specific pollutants monitored:
 - PM_{2.5} - Particles floating in the air that are smaller than 2.5 microns in diameter. These particles are 100 times thinner than a human hair.
 - PM₁₀ - Particles floating in the air that are smaller than 10 microns in diameter. These particles are 25 times thinner than a human hair.
 - Sulfur Dioxide – Is a chemical commonly associated with the burning of coal and petroleum which contains sulfur compounds, and it is also associated with acid rain.
 - Nitrogen Dioxide - Is an air pollutant formed in most burning processes using air.
 - Carbon Monoxide - Is an odorless poisonous gas, generated by burning processes
 - Ozone - Is an air pollutant created by the reaction of sunlight and nitrogen oxides.
 - Lead - Is an air pollutant typically associated with motor vehicles elimination of leaded gasoline has reduced lead air pollution but lead may still be released by certain processes.

- The EPA measures the levels of these pollutants in the air within the County and compares them to legal levels. When the measured level is higher than the legal level the County is said to be in non-attainment for that pollutant.
- **Table 3 page 4 of 15 - Maximum Annual Emissions from the Proposed CPP Facility**
 - Table 3 shows the estimated air emissions from the facility to be lower than the levels allowed for Cuyahoga County
- **Table 5 page 8 of 15 – Emission Control Systems and BAT Summary**
 - The City is required by the EPA to use Best Available Technology (BAT) in the facility. Table 5 lists the performance expected from the BAT used in the facility.
 - Cloth Filters – Particles in the air
 - Sorbent Injection – Uses chemicals such as lime and activated carbon to reduce mercury and acid gases
 - Selective Catalytic Reduction (SCR) – is a process that uses urea to reduce nitrogen oxides from the air
 - Controlling Combustion by Maintaining Temperature Levels in Facility – reduces Carbon Monoxide and volatile organic compounds in the air
- **Table 6 page 8 of 15 – CPP Proposed BAT Emission Limitations vs. Other Benchmark Rules and Recent EPA BAT Determinations**
 - This table compares the proposed air emissions from the Cleveland facility vs. the emissions proposed by Mahoning County for their waste to energy facility and two applicable Federal Standards, the NSPS subpart Eb and the NSPS subpart AAAA. The NSPS subpart AAAA applies to small municipal waste combustion units for which construction occurred after August 30, 1999. The NSPS subpart Eb applies to new source performance standards for large municipal waste combustors constructed after September 20, 1994. Cleveland’s facility is proposed to emit pollutants at or below all of these compared levels.
- **Table 7 page 10 of 15 – Ohio EPA (OEPA) Air Quality Modeling Emission Thresholds**
 - Ohio EPA requires that an air quality computer model analysis be performed on the Cleveland facility. The model predicts how different air pollutants travel away from a source of pollution.
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- **Table 8 page 10 of 15 – Required Demonstrations for Air Quality Modeling**
 - Table 7 and Table 8 lists which air pollutants are required to be modeled and the allowable pollution concentrations over a period of time. Typically a 24 hour period or a 1 hour period.
- **Tables 9A – 9N – pages 11-15 of 15**
 - Show the modeled environmental impact of each air pollutant over time for Cuyahoga County, against the historical trend of each pollutant.

Section II – Specific Air Contaminant Source Information

The rest of the application includes specific air contaminant source information for each of our four gasifier emission units, and the BAT technologies that each line uses to meet emission level regulations. In general, the facility processes garbage by separating the recyclables and blending what is left over so that it contains the desired characteristics for generation of electricity. The process uses a small amount of natural gas to burn a small portion of the garbage generating enough heat to turn the rest of the garbage into a gas fuel, known as syngas. This gas fuel is then converted to steam in a boiler. Exhaust gases from this process passed through an air pollution control system that includes the BAT technologies described above (Sorbent Injection. Filter Fabrics, SCR, etc). Prior to release to the atmosphere from the facility stack.

