

## Southeastern Pennsylvania Transit Authority (SEPTA)

### Notice of Application for Plan Approval at the Midvale Bus Facility

Southeast Pennsylvania Transit Authority (SEPTA) has applied for approval of plans to install a Combined Head and Power Plant (CHP) at its Midvale Bus Facility located at 4130 Wissahickon Avenue, part of its Roberts Complex (SEPTA-Roberts). The CHP will consist of two 6113 horsepower (HP) natural gas-fired generators that will provide steam and electricity to the facility and supplemental electricity to SEPTA's regional railcars. Each generator will be equipped with a Selective Catalytic Reduction (SCR) and Oxidation Catalyst (OC) System. The SCR reduces Nitrogen Oxide (NO<sub>x</sub>) emissions and the OC reduces Carbon Monoxide (CO), Volatile Organic Compound (VOC) and Formaldehyde (CH<sub>2</sub>O) emissions.

#### Estimated Emissions Impact of New Permit

The table below lists the potential increase in emissions (pollutants released into the air) associated with this project, expressed in tons per year:

Pollutant	Potential Emissions (tons/yr)
Nitrogen Oxides (NO <sub>x</sub> )	21.8
Volatile Organic Compounds (VOC)	16.4
Particulate Matter Less Than 10 Microns (PM10)	0.08
Carbon Monoxide (CO)	27.2
Sulfur Oxides (SO <sub>x</sub> )	0.09
Lead (Pb)	0.00

- Nitrogen Oxides (NO<sub>x</sub>) are gases made up of nitrogen and oxygen that are released during the burning of fuel. In 2015, SEPTA-Roberts released 2.6 tons of NO<sub>x</sub> into the air. Under Federal regulations, a facility in Philadelphia is a major source of NO<sub>x</sub> if it has the potential to emit 25 tons in a year.
- Sulfur Dioxide (SO<sub>2</sub>) is a colorless, irritating gas that is created when fuel containing sulfur is burned. In 2015, SEPTA-Roberts released 0.9 tons of SO<sub>x</sub> into the air. Under Federal regulations, a facility in Philadelphia is a major source of SO<sub>x</sub> if it has the potential to emit 100 tons in a year.
- Carbon Monoxide (CO) is a colorless, odorless gas that is formed when carbon in fuel is burned. In 2015, SEPTA-Roberts released 3.0 tons of CO into the air. Under Federal regulations, a facility in Philadelphia is a major source of CO if it has the potential to emit 25 tons in a year.
- Volatile Organic compounds (VOC) are chemicals that evaporate at room temperature. In 2015, SEPTA-Roberts released 1.6 tons of VOC into the air. Under Federal regulations, a

facility in Philadelphia is a major source of VOC if it has the potential to emit 25 tons in a year.

- Particulate Matter Less Than 10 Microns (PM10) are very small substances, such as dust, dirt, soot, smoke, or drops of liquid, that are released into the air during the burning of fuel. In 2015, SEPTA-Roberts released 2.3 tons of PM10 into the air. Under Federal regulations, a facility in Philadelphia is a major source of PM10 if it has the potential to emit 100 tons in a year.
- Lead is a metal that can be released into the air during the burning of fuel. In 2015, SEPTA-Roberts released a negligible amount of lead into the air.

### **Permit Requirements**

SEPTA–Roberts has a facility-wide Synthetic Minor operating permit which limits the total facility emissions below levels defined as major under Federal regulations. SEPTA-Roberts will maintain its Synthetic Minor operating permit and facility emission limits after the installation of the CHP. Since the facility will remain a minor facility, this plan approval application is not applicable to New Source Review (NSR) or Prevention of Significant Deterioration (PSD) requirements, regulations that only apply to major facilities.

The generators are applicable to the Federal Standards of Performance for Stationary Spark Ignition Internal Combustion Engines found in 40 CFR Subpart JJJJ. The requirements in this regulation include emission limits for NO<sub>x</sub>, CO, and Non-Methane Non-Ethane Hydrocarbons (NMNEHC, similar to VOC) on a grams per brake horsepower-hour (g/bhp-hr) basis. The draft plan approval includes emission limits for these pollutants that are significantly lower than the limits found in this regulation. The draft plan approval also includes emission limits for Formaldehyde and Ammonia.

Air Management Services (AMS) must ensure that the proposed target heater operation will comply with all applicable air quality requirements. The final plan approval will include testing, monitoring, recordkeeping, and reporting requirements to ensure compliance. These requirements will include initial emission tests for NO<sub>x</sub>, NMNEHC, CO, Formaldehyde, and Ammonia. SEPTA must conduct additional tests for NO<sub>x</sub>, NMNEHC CO, and Formaldehyde every 8,760 hours of operation or every 3 years, whichever comes first.

After a plan approval is issued and installation is complete, AMS will confirm by inspection that the units conform to the plan approval conditions and the information supplied in the permit application is accurate. AMS will continue to monitor the units' operation by reviewing facility reports and visually inspecting the facility on a regular basis.

### **Emissions Impact on Neighborhood:**

AMS determined the project's emission impact on the neighborhood using a computer model called AERSCREEN. The computer model projects the worst-case emission level in the area due to the project based on project characteristics such as the emission rate, exhaust stack details, and local geography. AMS ran the computer model for NOx emissions, the pollutant with the highest expected emissions due to the project. AMS compared these results to the EPA standard for Nitrogen Dioxide (NO2), the main component of NOx. See Table 1 below for the results.

Table 1 – Project Emissions Impact in Parts Per Billion (ppb) NOx

Project	Background	Project + Background	EPA Standard
10.78 ppb	76 ppb	86.78 ppb	100 ppb

**Project** – This is the emission impact on the neighborhood due to the project. AMS input hourly NOx emissions (based on the emission limits in the draft plan approval); stack temperature, diameter, and height; and local geography into the model to determine the NOx emission concentration increase in the ambient air due to this project. The model determined the maximum 1-hour NOx concentration increase from the combined stack is 10.78 ppb.

**Background** – This is the existing pollution level in the area without the project. To be conservative, AMS used 76 ppb, the highest certified 1-hour level measured by AMS air monitors in Philadelphia since 2009, as the background level.

**Project + Background** – This is the maximum projected pollution level in the area after the project.

**EPA Standard** – This is the National Ambient Air Quality Standards (NAAQS) Primary Standard of 100 parts per billion (ppb) established by EPA for Nitrogen Dioxide (NO2). NAAQS primary standards provide public health protection, including protecting the health of "sensitive" populations such as asthmatics, children, and the elderly. For more information on NAAQS standards, see <https://www.epa.gov/criteria-air-pollutants/naqs-table>.

The results of the computer model show that the total ambient pollutant concentrations of this project are below the primary standard for NO2. AMS finds that the proposed project does not have the potential for significant health and environmental effects.

## **Permitting Process**

After AMS completed its review of the application, AMS had a public notice published in the *Pennsylvania Bulletin*, to alert community members of the proposed plan approval, the 30-day public comment period, and a public hearing scheduled on **June 27, 2017, at 6 PM** at the Panati Playground located at 3101 N. 22<sup>nd</sup> Street, Philadelphia, PA 19132. AMS will address any comments received during the comment period or public hearing before taking final action on the plan approval.

During the public comment period, copies of the application will be available for public review at Air Management Services, 321 University Ave, Philadelphia, PA 19104. The public will be able to arrange a visit by calling (215) 685-7572. Copies will also be available at the Falls of Schuylkill Branch (3501 Midvale Avenue, 215-685-2093) and the Nicetown-Tioga Branch (3720 North Broad Street, 215-685-9790) of the Free Library of Philadelphia.