

CITY OF PHILADELPHIA
Department of Public Health
Environmental Protection Division
Air Management Services

**Plain Language Summary for Southeastern Pennsylvania Transportation Authority
(SEPTA)- Roberts Complex, Synthetic Minor Operating Permit (SMOP) Renewal
Summary for OP17-000024, PLID 01573**

The Southeastern Pennsylvania Transportation Authority (SEPTA) is a regional public transportation authority that operates bus, subway, and rail service in and around Philadelphia. The SEPTA Roberts Complex, where SEPTA operates bus maintenance and rail facilities, consists of the following:

- The Roberts Train Yard at 341-342 Roberts Avenue, Philadelphia, PA 19140
- The Midvale Bus Facility at 4301 Wissahickon Avenue, Philadelphia, PA 19129
- The Liberty Yard at 440 Clarissa Street, Philadelphia, PA 19140

The SEPTA- Roberts Complex submitted a Synthetic Minor Operating Permit (SMOP) Renewal Application (OP17-000024) to the Health Department's division of Air Management Services, or AMS, as required by the Pennsylvania Code. An operating permit allows a facility to operate its various air pollution sources at the facility. These air pollution sources are listed in the inventory table of the operating permit. The operating permit also lists the emission limits, work practice standards, testing, monitoring, recordkeeping, and reporting requirements for the air pollution sources.

SMOP stands for Synthetic Minor Operating Permit. This name was created by the federal government to describe facilities that would be considered a major air pollution emitter if they operated at full capacity around the clock, but they choose not to do that. Because they choose to operate at less than capacity, they do not emit enough air pollution to be considered a major air pollution emitter. A major air pollution emitter, or major source, is a term created by the federal government to describe facilities that emit enough pollution to be covered under Title V of the 1990 federal Clean Air Act Amendments. Major sources are subject to much more stringent regulations because they emit more air pollution. A facility that chooses to emit less air pollution so that the facility-wide potential to emit, or PTE, is less than the major source threshold is considered a minor facility under EPA definition and does not require as stringent regulatory oversight.

One example of an SMOP in Philadelphia is the SEPTA-Roberts Complex. This facility has combined heat and power generation units, boilers, space heaters, and other sources of air pollution. If the facility operated at full capacity, they would produce enough air pollution to be considered a major source. They have accepted emission limits, fuel usage limits, and operating hour limits which means that they will not generate enough air pollution to be considered a major source under the federal guidelines. Because that facility is not a major source, they are covered by the Health Department's Synthetic Minor Operating Permit, or SMOP. They are still regulated by the Health Department and must comply with the emissions standards, monitoring

requirements, and recordkeeping requirements. There are six (6) criteria air pollutants, which are Nitrogen Oxides (NO_x), Sulfur Dioxide (SO₂), Carbon Monoxide (CO), Volatile Organic Compounds (VOC), Particulate Matter Less Than 10 Microns (PM10), and Lead. For more information about criteria pollutants, please see <https://www.epa.gov/criteria-air-pollutants>.

SEPTA is not proposing to install new sources in this draft renewal SMOP. This document summarizes the air pollution sources that will operate under the proposed draft renewal SMOP No. OP17-000024, the emission limits in the draft renewal SMOP, and the SMOP requirements to ensure compliance with the emission limits. This proposed SMOP is a renewal of the current SMOP and does not include any new installations. After AMS issued the current SMOP No. S12-019 on November 19, 2012, the only application that the facility submitted was to install two (2) combined heat and power (CHP) units. AMS approved installation of the CHPs by issuing a construction permit, AMS Plan Approval No. IP17-000009, on November 29, 2017. The CHPs are included in the draft renewal SMOP. All other sources in the draft renewal SMOP are also in the current SMOP.

The air pollution sources located at SEPTA Roberts Complex include the following:

- Two (2) CHP units firing natural gas, each rated 4.6 megawatt (MW) or 6,113 horsepower (HP). Each CHP is equipped with Urea-Injection Selective Catalytic Reduction (SCR) and Oxidation Catalyst (OC) to control emissions of NO_x, CO, VOC, and Formaldehyde.
- Two (2) boilers firing No. 2 oil, each rated less than 5 MMBTU/hr.
- Two (2) boilers firing No. 2 oil, each rated 8.369 MMBTU/hr.
- Two (2) boilers firing natural gas and No. 2 oil, each derated to 9.9 MMBTU/hr.
- Eleven (11) combustion units (boilers, space heaters, and pressure washer) firing natural gas, each rated less than 1 MMBTU/hr.
- One (1) spray booth burner firing natural gas, rated 1.771 MMBTU/hr. The burner is used to operate a spray booth for mobile equipment repair and refinishing.
- One (1) emergency generator firing diesel fuel, rated 10.150 MMBTU/hr or 2974.7 kilowatt (kW).
- One (1) sand blasting operation with associated one (1) air compressor engine firing diesel fuel rated 79 HP.
- One (1) gasoline dispensing facility with one (1) 10,000 gallons storage tank.
- Five (5) parts washers / degreasers (cold cleaning machines).
- One (1) windshield washer fluid tank.
- Insignificant sources, including storage tanks, boilers and space heaters firing natural gas or No. 2 oil each rated 0.12 MMBTU/hr or less, and emergency generators firing natural gas or liquid petroleum gas/propane each rated less than 40 kW. An insignificant source is a source with low potential to emit, or PTE, for criteria air pollutants. The insignificant sources at SEPTA Roberts Complex are exempt from AMS permitting requirements, but they are included in the SMOP to ensure the facility-wide PTE for each criteria air pollutant does not exceed the major source threshold.

These air pollution sources are required to have an air pollution permit because they can emit NO_x and VOC, which contribute to smog, and Hazardous Air Pollutants like formaldehyde (HCHO) that can be harmful to public health.

Facility-wide Limits

To qualify for a SMOP, the SEPTA- Roberts Complex is accepting a VOC emission limit of less than 25 tons per rolling 12-month period and a NO_x emission limit of less than 25 tons per rolling 12-month period. These emission levels are the major source threshold for NO_x and VOC. The facility is also accepting a CO emission limit of 28.5 tons per rolling 12-month period. The major source threshold for CO is 100 tons per year. The potential to emit for all other criteria pollutants are below major source thresholds.

To ensure compliance with the facility-wide NO_x, VOC, and CO emission limits, the facility accepted combined natural gas usage limit for the two CHP units per rolling 12-month period, combined natural gas and No. 2 oil usage limits for other sources per rolling 12-month period, and diesel fuel usage limits for emergency generator and air compressor per rolling 12-month period.

In the draft renewal SMOP, the facility is modifying the combined fuel usage limits from a previous construction permit for the sources other than the CHPs based on their current PTE calculation. Compliance with these fuel usage limits ensures compliance with the facility-wide NO_x, VOC, and CO emission limits based on the emission limits and EPA emission factors listed in Table D.4-1 of the draft renewal SMOP. The Permittee must monitor and record the facility-wide natural gas and No. 2 oil usage to ensure compliance with the fuel usage limits.

Combined Heat and Power Units (CHP)

The CHP units are subject to natural gas throughput limits and emission limits for NO_x, CO, Non- Methane, Non- Ethane Hydrocarbons (NMNEHC), formaldehyde, and ammonia slip from a previous pre-construction permit. The Permittee is required to monitor and record monthly verification of compliance with the NO_x, VOC, and CO emission limits and natural gas throughput limits. CHP units are subject to additional emission limits, work standard requirements, monitoring requirements, and recordkeeping requirements that are listed in the operating permit and explained in the review memo.

To demonstrate compliance with the emission limits, the Permittee must conduct a performance test for each CHP unit every 8,760 hours of operation of each CHP or every 3 years, whichever comes first, and perform quarterly NO_x and CO portable analyzer tests on each CHP to verify that the Urea-Injection Selective Catalytic Reduction (SCR) and Oxidation Catalyst (OC) for each unit are working properly. The Permittee must submit the test reports to AMS within 60 days of testing and keep records of the test results.

For the SCR of each CHP unit, the pre-construction permit requires the facility to establish a minimum and maximum urea injection rate during stack tests. This has been determined to be impractical because the ideal urea injection rate varies at different engine loads, so the draft renewal SMOP is modifying this requirement. The proposed modification requires the Permittee to establish a load map based on stack test results which requires different urea injection rates for

different engine loads to ensure compliance with the NO_x emission limit and the ammonia slip emission limit.

Other Units

The draft renewal SMOP also lists other units at the facility such as boilers, pressure washer, space heaters, spray booth burner, emergency generators, air compressor, sand blasting operations, gasoline dispensing facility, parts washers – degreasers, spray paint booth, and windshield washer fluid storage tank. The draft SMOP lists various air pollution requirements for the units including emission limits, work standard requirements, monitoring requirements, and recordkeeping requirements from federal, state, and local regulations, and from past construction permits. It also lists fuel usage limits and operating hour limits for the boilers, pressure washer, space heaters, spray booth burner, emergency generators, and air compressor to ensure compliance with the facility-wide emission limits that are mentioned above, along with associated monitoring and recordkeeping to show compliance with the emission limits. Additional explanations for the air pollution requirements are provided in the review memo.