

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

InterOffice Memo

To: File
From: Ashraf Ahmed, Environmental Engineer
Date: May 24, 2023
Subject: Synthetic Minor Operating Permit renewal Summary for Southeastern Pennsylvania Transportation Authority (SEPTA)- Roberts Complex, Operating Permit No. OP17-000024

Company Description:

The Southeastern Pennsylvania Transportation Authority (SEPTA)- Roberts Complex (PLID 01573) is a regional public transportation authority that operates bus, subway, and rail service in and around Philadelphia. SEPTA operates bus maintenance and rail facilities, referred to collectively as the SEPTA Roberts Complex. The Roberts Complex consists of the Roberts Train Yard at 341-342 Roberts Avenue, Philadelphia, PA 19140, the Midvale Bus Facility at 4301 Wissahickon Avenue, Philadelphia, PA 19129, and the Liberty Yard at 440 Clarissa Street, Philadelphia, PA 19140. The facility's representative to contact concerning their Synthetic Minor Operating Permit is Ms. Bree Cantiello, telephone number 215-580-7113, email bcantiello@septa.org. The facility's sources of air emission include the following:

- Two (2) combined heat and power (CHP) units each with SCR and OC 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 Nitrogen Oxides (NO_x), Carbon Monoxide (CO), Volatile Organic Compounds (VOC), and Formaldehyde.
- Four (4) boilers firing No. 2 oil, of which one (1) rated 522,000 BTU/hr, one (1) rated 4,184,000 BTU/hr, and two (2) rated 8,369,000 BTU/hr each.
- Two (2) boilers firing natural gas and No. 2 oil each derated to 9,900,000 BTU/hr.
- Four (4) boilers firing natural gas, of which two (2) rated 359,000 BTU/hr each and two (2) rated 720,000 BTU/hr each.
- One (1) pressure washer firing natural gas rated 657,000 BTU/hr.
- Six (6) space heaters firing natural gas each rated 400,000 BTU/hr.
- One (1) spray booth burner firing natural gas rated 1,771,000 BTU/hr.
- One (1) emergency generator firing diesel rated 10.150 MMBTU/hr.
- One (1) sand blasting operation and one (1) air compressor for sand blasting operations firing diesel 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) spray booth for mobile equipment repair and refinishing.
- One (1) windshield washer fluid tank.

Additionally, the facility has various insignificant sources, including storage tanks, boilers, space heaters, and emergency generators firing natural gas, No. 2 oil, or liquid petroleum gas/propane that are included in the Synthetic Minor Operating Permit, and they are required to follow the applicable requirements in the Synthetic Minor Operating Permit.

The facility is subject to the operating permit requirements under 25 Pa Code §127, Subchapter F. The facility is accepting emission limitations for Volatile Organic Compound (VOC) of less than 25 tons per

rolling 12-month period and for Nitrogen Oxides (NO_x) of less than 25 tons per rolling 12-month period. Based on the calculations shown in Table 1 below, the facility's Potential to Emit (PTE) VOC and NO_x are below the Title V threshold after taking operating limitations. The PTE for all other criteria pollutants are also below Title V thresholds. As a result, the facility is not a major stationary source as defined in Title I, Part D of the Clean Air Act Amendments and is therefore not subject to the Title V Operating Permit requirements adopted in 25 Pa Code §127, Subchapter G.

Compliance with the natural gas and No. 2 oil usage limits per rolling 12-month period ensures compliance with the facility-wide VOC emission limit of 25 tons per rolling 12-month period and NO_x emission limit of 25 tons per rolling 12-month period. Total Potential VOC Emissions for the facility is equivalent to 18.29 tons VOC per year. Total potential NO_x emissions for the facility is equivalent to 24.71 tons NO_x per year.

The facility submitted the Operating Permit renewal Application No. OP17-000024 on April 12, 2017. AMS deemed the application administratively complete on May 1, 2017. As part of the renewal application, the facility requested the following changes to the previous Synthetic Minor Operating Permit No. S12-019 dated November 19, 2012:

- In Section A, update the permit contact and responsible official for the facility.
- In Table A1, add the Installation Permit Nos. 13302 and 13303 dated 1/29/2014 to update the rated capacity of the two dual-fuel boilers, remove the welder engine which was replaced with an electric welder, and add the Plan Approval No. IP17-000009 dated 11/29/2017 for two CHP units.
- In Section D: Source Specific Requirements,
 - Add the emission limits, work practice standards, testing requirements, monitoring requirements, and recordkeeping requirements from the Plan Approval No. IP17-000009 dated 11/29/2017.
 - Add Section D.2.(a) for the facility-wide fuel usage limits and work standards for the various sources based on PTE calculation submitted on January 4, 2022 to ensure compliance with the synthetic minor emission limits.
 - Remove the requirement for exemption from 40 CFR §63 Subpart JJJJJ since none of the boilers meet the requirements of gas-fired boiler, and specify that the tune-up requirements of 40 CFR §63 Subpart JJJJJ apply to all the oil-fired boilers either biennially for boilers rated greater than 5 MMBTU/hr, or every 5-years for boilers rated less than 5 MMBTU/hr.
 - Update Condition D.2.(c)(1)(iv) for the definition of emergencies for the emergency generator and limit the maximum allowable operating hours for testing, tuning, and maintenance of the emergency generator to 25 hours per calendar year.

Additionally, the following changes are made for the Synthetic Minor Operating Permit, but they were not requested by the facility:

- In Table A1, updated the gasoline dispensing facility information and added Source ID for insignificant combustion units and insignificant emergency generators.
- In Section B, updated the General Conditions to the current AMS versions.
- In Section C, updated the Facility Wide Conditions to the current AMS versions.
- In Section D: Source Specific Requirements,
 - Added Condition D.1.(a)(2) to add the facility-wide VOC emission limit for compliance with the SMOP limit.
 - Added Condition D.1.(a)(3) to add the facility-wide Carbon Monoxide (CO) emission limit.
 - Removed Condition D.1.(b)(3) for Best Available Technology (BAT) requirement for the Boiler Nos. 7 and 8 since the boilers have been derated to less than 10 MMBTU/hr and the BAT limits do not apply.

- Updated the requirements of 25 Pa. Code §129.201-205 for the emergency generator and added them for the CHP units in Conditions D.1.(c)(3), D.1.(d)(9), D.2.(c)(2), and D.2.(d)(7).
- Added Condition D.1.(g)(3) for the toxic air contaminant requirement for the spray booth.
- Added Conditions D.2.(c)(1)(i), D.2.(c)(3)(i), D.2.(d)(1) & D.2.(e)(1), and updated Condition D.2.(b)(1) to specify installation, maintenance, and operating requirements for various sources.
- Updated Condition D.2.(b)(2) to specify the fuel type for each external combustion unit.
- Added Conditions D.2.(b)(3) and D.2.(b)(5) for the 40 CFR §63 Subpart JJJJJ requirements.
- Updated Condition D.2.(b)(6) to specify the boilers that require visual inspection while burning No. 2 oil.
- Added the maximum allowable fuel usage for the emergency generator in Condition D.2.(c)(1)(iii) since emission calculation is based on fuel usage.
- Updated Condition D.2.(c)(1)(v) for the emergency generator to update the links to check AQI forecast.
- Removed the sound and vibration level requirement of the previous SMOP since the Conditions are not related to air emission; however, the facility still needs to comply with the requirements.
- Updated the fuel usage limit for the air compressor AC-01 in Condition D.2.(c)(3)(iii) since emission calculation is based on fuel usage.
- Added Condition D.2.(d)(6) and D.3.(e)(1) to add the requirement to establish an SCR urea flow to engine load map for each CHP unit to determine the urea injection rate for the SCR at various engine loads.
- Added work practice standards, monitoring requirements, and recordkeeping requirements for the insignificant sources in Sections D.2.(j), D.4.(h), and D.5.(h).
- In Condition D.3.(b)(2)(i), specified that compliance with PM emission limit of 25 Pa Code §123.13(c)(1)(i) shall be based on method 5 only.
- In Condition D.3.(e), updated the testing requirements for the CHP units and urea injection determinations based on stack tests.
- Updated the monitoring and recordkeeping requirements in Sections D.4 and D.5.
- Added Conditions D.4.(a)(1)(i)-(ii) and D.5.(a)(1)(i)-(ii) to specify the calculation method, monitoring requirements, and recordkeeping requirements to verify compliance with the SMOP limit for NO_x and VOC, and CO emission limits.
- Added Conditions D.4.(a)(2) and D.5.(a)(2) to specify monitoring and recordkeeping requirements to verify compliance with the facility-wide fuel usage limits.
- Added Conditions D.4.(b)(6) and D.5.(b)(6) for Boilers COMB-07 and COMB-08 to require monitoring and recording the fuel usage and reason for operating the boilers.
- Updated Conditions D.5.(b)(9) and D.6.(c)(1)(iii)-(v) for the recordkeeping and reporting requirement of 40 CFR §63 Subpart JJJJJ.
- Removed stack test records and fuel certification requirements of 40 CFR §60 Subpart Dc for Boilers COMB-07 and COMB-08 since the boilers are derated to less than 10 MMBTU/hr and the 40 CFR §60 Subpart Dc requirements do not apply for the boilers.
- Added Conditions D.5.(c)(1)(i) & D.5.(d)(1)(i) and updated Condition D.5.(b)(1) to specify keeping record of proper operation and maintenance conducted on the various sources.
- Updated Condition D.5.(c)(1)(iii) to specify keeping record of operating hours for testing of the emergency generator.
- Added Condition D.5.(d)(1)(iv) to specify keeping record of verification of compliance with the emission limits for the CHP units.
- Updated Condition D.5.(d)(1)(xii) to specify keeping record of urea injection rate using the SCR trim system and load map.
- Added Condition D.5.(f)(1)(v) to specify keeping record of bill of sale for parts washers.

- Added Condition D.5.(g)(6) to specify keeping record of SDS of paints and solvents used.

Facility Potential Emissions:

Table 1 shows the facility's Potential to Emit (PTE) criteria pollutants and shows that the PTE in tons per year (tpy) is below the Title V threshold for each pollutant after taking limit on natural gas usage by the CHP units, natural gas and No. 2 oil usage by the boilers, heaters, and insignificant sources, and diesel fuel usage by the emergency generator and air compressor.

Table 1: Facility Potential Emissions

Air Pollution Source	Total Capacity ^b	NO _x ^a	SO _x ^a	CO ^a	VOC ^a	PM ^a	Pb ^a	HAP
CHP Units G-01 and G-02 burning natural gas (tons per year)	572.67 million cubic feet (MMft ³)/year natural gas	21.75	0.17	27.18	16.31	0.15	Negligible	5.44 (HCHO)
Combined natural gas usage by other sources (tons per year)	17.81 MMft ³ /year natural gas	0.89	0.01	0.75	0.05	0.01	Negligible	Negligible
Combined No. 2 oil usage by boilers and space heaters (tons per year)	117,090 gallons/year No. 2 oil	1.17	0.01	0.29	0.02	0.11	Negligible	Negligible
One (1) emergency generator burning diesel (tons per year)	1,850 gallons/year diesel	0.41	0.0002	0.11	0.01	0.01	Negligible	Negligible
One (1) air compressor burning diesel (tons per year)	918 gallons/year diesel	0.28	0.02	0.06	0.02	0.02	Negligible	Negligible
One (1) Spray Booth (tons per year)	1,600 gallons/year paint	Negligible	Negligible	Negligible	1.86 ^c	0.002 ^c	Negligible	0.02 ^c
Total Emissions (tons per year)		24.71	0.21	28.44	18.29	0.30	Negligible	5.46

^a Emissions are calculated based on emission factors specified in the monitoring section of the SMOP and based on the assumption that each source operated at capacity to burn the maximum allowable fuel.

^b Natural gas, No. 2 Oil, and diesel usage limit taken by the facility to qualify for Synthetic Minor Operating Permit.

^c VOC, PM, and HAP emissions from the spray booth are calculated based on the raw data provided by the facility, maximum amount of paint usage of 1,600 gallons per year and operating hours for the spray booth of 2000 hours per year, and based on the assumption that the particulate control filters operate at 99.84% efficiency.

Table 2 shows the NO_x and VOC PTE for the two CHP units.

Table 2: CHP Units NO_x and VOC Emissions Calculations

Unit #	Rated Input	Natural Gas Input (SCF/hr)	NO _x Factor ^a	VOC Factor ^a	Operating hours per year	NO _x Emission (tons per year)	VOC Emission (tons per year)
CHP Unit G-01	6113 HP	35,490	0.2 g/HP-hr	0.15 g/HP-hr	8,068	10.873	8.155

CHP Unit G-02	6113 HP	35,490	0.2 g/HP-hr	0.15 g/HP-hr	8,068	10.873	8.155
Total						21.75	16.31

^a Permitted NO_x and VOC emission limit in the SMOP

Table 3 shows the NO_x and VOC PTE for the emergency generator.

Table 3: Emergency Generator and Air Compressor NO_x Emissions Calculations

Unit #	Rated Capacity	Fuel	NO _x Emission Factor	VOC Emission Factor	Fuel usage per year	NO _x Emissions (tons per year)	VOC Emissions (tons per year)
EG-01	10.15 MMBTU/hr	Diesel	3.2 lbs/MMBTU ^a	0.082 lbs/MMBTU ^a	1,850 gallons/year	0.406	0.01
AC-01	79 HP	Diesel	4.41 lbs/MMBTU ^b	0.36 lbs/MMBTU ^b	918 gallons/year	0.277	0.02
Total						0.68	0.03

^a U.S. EPA AP 42, Fifth Edition, Volume I, Chapter 3: Stationary Internal Combustion Sources, Section 3.4: Large Stationary Diesel And All Stationary Dual-fuel Engines, Table 3.4-1

^b U.S. EPA AP 42, Fifth Edition, Volume I, Chapter 3: Stationary Internal Combustion Sources, Section 3.3: Gasoline and Diesel Industrial Engines, Table 3.3-1

Table 4 shows the NO_x and VOC PTE for the external combustion units.

Table 4: External Combustion Units NO_x and VOC Emissions Calculations

Unit #	Fuel Input ^d	NO _x Factor for No. 2 Oil ^b	VOC Factor for No. 2 Oil ^b	NO _x Factor for Natural Gas ^c	VOC Factor for Natural Gas ^c	NO _x Emission (tons per year) ^a	VOC Emission (tons per year) ^a
Combined natural gas usage by COMB-05 to COMB-17, CU-SB, IS-3, and IS-13	17.81 MMft ³ /year			100 lbs / MMSCF	5.5 lbs / MMSCF	0.89	0.05
Combined No. 2 oil usage by COMB-01 to COMB-04, COMB-07, COMB-08, IS-1, IS-2, and IS-4 to IS-12	117,090 gallons/year	20 lbs / 1000 gallons	0.34 lbs / 1000 gallons			1.17	0.02
Total						2.06	0.07

^a Assumed the average gross heating value of natural gas to be 1,020 BTU/SCF and No. 2 oil to be 140,000 BTU/gal.

^b U.S. EPA AP 42, Fifth Edition, Volume I, Chapter 1: External Combustion Sources, Section 1.3: Fuel Oil Combustion, Table 1.3-1.

^c U.S. EPA AP 42, Fifth Edition, Volume I, Chapter 1: External Combustion Sources, Section 1.4: Natural Gas Combustion, Table 1.4-1.

^d Natural gas and No. 2 oil usage limits taken by the facility.

Total Potential Emissions for the facility = 24.71 tons NO_x per year and 18.29 tons VOC per year.

Applicability for Regulations:

Facility-wide

The facility is accepting emission limitations for VOC of less than 25 tons per rolling 12-month period and for NO_x of less than 25 tons per rolling 12-month period. As per AMS Plan Approval No. IP17-000009 dated 11/29/2017 and extended under IP22-000384 dated 10/3/2022, the CO emissions from the facility must be less than 28.5 tons per rolling 12-month period calculated monthly. To ensure compliance with the facility-wide NO_x, VOC, and CO emission limits, the facility proposed natural gas usage limits for the CHP units and other natural gas burning sources, No. 2 oil usage limits for boilers and space heaters, and diesel fuel usage limits for the Emergency Generator EG-01 and Air Compressor AC-01. As per AMS Plan Approval No. IP17-000009 dated 11/29/2017 and extended under IP22-000384 dated 10/3/2022, the combined natural gas usage for CHP Unit G-01 and CHP Unit G-02 must not exceed 572.67 MMft³ per rolling 12-month period. As per modification requested during SMOP renewal via Potential to Emit (PTE) calculation submitted on January 4, 2022, the natural gas usage for all other significant sources (combustion units COMB-05 through COMB-17 and CU-SB) and insignificant sources (Boiler IS-3 and Emergency Generator IS-13) at SEPTA Roberts Complex must not exceed 17.81 MMft³ per rolling 12-month period, and the facility-wide No. 2 fuel oil usage must not exceed 117,090 gallons per rolling 12-month period for COMB-01 through COMB-04, COMB-07, COMB-08, and insignificant sources (combustion units IS-1, IS-2, and IS-4 through IS-12) combined. Natural gas and No.2 oil usage limits for boilers, space heaters, spray booth burner, and pressure washer are modified from the limits in the AMS Plan Approval No. IP17-000009 dated 11/29/2017 and extended under IP22-000384 dated 10/3/2022 so that insignificant sources are included in the facility-wide fuel usage limit and the facility remains in compliance with the Synthetic Minor emission limits for the facility.

Additionally, as per modification requested during SMOP renewal via PTE calculation submitted on January 4, 2022, the operation of the Boilers COMB-07 and COMB-08 are limited to a combined total of 3.88 MMft³ of natural gas and 7,080 gallons of No. 2 fuel oil per rolling 12-month period, which is equivalent to 200 hours of operation of each boiler at the maximum rated capacity using natural gas and 50 hours of operation of each boiler at the maximum rated capacity using No. 2 fuel oil. All fuel combusted by Sources COMB-07 and COMB-08 are subject to the facility-wide natural gas usage limit of 17.81 MMft³ and No. 2 oil usage limit of 117,090 gallons. Furthermore, as per AMS Plan Approval No. IP17-000009 dated 11/29/2017 and extended under IP22-000384 dated 10/3/2022, the Boilers COMB-07 (Boiler 7) and Source COMB-08 (Boiler 8) are back-up units and must not operate while either CHP Unit G-01 or CHP Unit G-02 is operating, except for maintenance and testing of COMB-07 and COMB-08 as required under good engineering practices and/or manufacturer's recommendations, and during periods when both CHP units G-01 and G-02 are not providing heat to the Midvale Maintenance Facility due to shut down or maintenance of both CHP units G-01 and G-02 or the associated heat transfer system between the CHP units and the Midvale Maintenance Facility. Natural gas and No.2 oil usage limits for Boilers COMB-07 and COMB-08 are modified from the limits in the AMS Plan Approval No. IP17-000009 dated 11/29/2017 and extended under IP22-000384 dated 10/3/2022 to ensure compliance with the Synthetic Minor emission limits for the facility.

To ensure compliance with the Synthetic Minor VOC and NO_x emission limits for the facility and the facility-wide CO emission limit, the Permittee must monitor NO_x, VOC, and CO emissions monthly and shall record verification that VOC and NO_x emissions are less than 25 tons per rolling 12-month period, and facility-wide CO emission is less than 28.5 tons per rolling 12-month period. Emission calculations must be based on the AP-42 emission factors or permitted limits listed in Table D.4-1 of the SMOP. Compliance with the emission limits for the CHP units G-01 and G-02, the facility-wide natural gas and No. 2 fuel oil usage limits, the work standard practice operating limits for Boilers COMB-07 and COMB-08, the fuel usage limits for the Emergency Generator EG-01 and Air Compressor AC-01, and the operating hour limits for the insignificant Emergency Generators IS-13 and IS-14 ensures compliance with

the facility-wide NO_x, VOC, and CO emission limits. Additionally, the permittee must monitor and record the facility-wide natural gas and No. 2 oil usage to ensure compliance with the fuel usage limits.

External Combustion Units

External combustion units at the facility include the following sources with rated capacity of less than 10 MMBTU/hr for each: Four (4) boilers firing No. 2 oil, two (2) boilers firing natural gas and No. 2 oil, four (4) boilers firing natural gas, one (1) pressure washer firing natural gas, six (6) space heaters firing natural gas, and one (1) spray booth burner firing natural gas. Each external combustion unit is subject to the particulate limit of AMR II, Sec. V.2, which requires that the particulate matter (PM) emissions from each unit must not exceed 0.10 lbs/MMBTU, and the CO emission limits of AMR VIII Sec. II.6, which requires that the CO emissions from each unit must not exceed 1% by volume of exhaust gases. Based on calculations using AP-42 emission factors, none of the units will exceed the CO emission limit of 1% by volume of exhaust gases when burning natural gas and the PM emission limit of 0.10 lbs/MMBTU when burning No. 2 fuel oil with a maximum allowable sulfur content of 0.0015% by weight.

The external combustion units must be installed, maintained, and operated in accordance with manufacturers specifications, the specifications in the associated permit applications, and with good operating practices as per the requirements of AMS Plan Approval No. 11035 dated 2/3/2012 and AMS Installation Permit Nos. 13302 – 13303 dated 1/29/2014. The facility is subject to the monitoring and recordkeeping requirements of maintenance conducted on each external combustion unit, fuel type, combined monthly fuel usage, manifests documenting sulfur content of fuel oil, and visible emission checks for the Boilers COMB-02, COMB-03, COMB-07, and COMB-08. The daily visible emissions check for the Boilers COMB-02, COMB-03, COMB-07, and COMB-08 does not need to meet the requirements of Federal Reference Method 9. If visible emissions are detected, adjustments must be made to the unit to eliminate the visible emissions or a certified smoke reader shall be used to determine the opacity of the emissions.

The Boilers COMB-02, COMB-03, COMB-07, and COMB-08 are subject to the biennial tune up requirements of NESHAP 40 CFR §63 Subpart JJJJJ and the Boilers COMB-01 and COMB-04 are subject to tune-up every 5 years. The SMOP No. S12-019 issued to the facility required biennial tune-up for all the boilers regardless of the size, and the renewal SMOP No. OP17-000024 is updated to be consistent with the requirements in 40 CFR §63 Subpart JJJJJ so that the boilers rated less than 5 MMBTU/hr are subject to tune-up every 5 years. The tune-ups must include inspection of the burner, the flame pattern, and the system controlling the air-to-fuel ratio, optimization of total emissions of CO, and measurement of the concentration in the effluent stream of CO before and after adjustment are made. The facility is subject to the monitoring and recordkeeping requirements of biennial or 5-year tune ups and any notifications submitted to comply with 40 CFR §63 Subpart JJJJJ. As per 40 CFR §63.11225(b), the facility is required to prepare by March 1 every 2 years (for Boilers COMB-02, COMB-03, COMB-07, and COMB-08) or every 5 years (for Boilers COMB-01 and COMB-04) and submit upon request to AMS and EPA Region III a biennial or 5-year compliance report as applicable that includes the company name and address, and certification(s) of compliance signed by a responsible official. Additionally, as per 40 CFR §63.11225(b)(3), if the boiler experiences any deviations from the applicable requirements during the reporting period, then the Permittee shall prepare by March 1 and submit notification to AMS and EPA Region III by March 15 of the year that include a description of deviations, the time periods during which the deviations occurred, and the corrective actions taken.

Emergency Generator, Air Compressor, and Sand Blasting Operations

The emergency generator, air compressor, and sand blasting operations each is subject to the particulate emission limit of 25 Pa Code §123.13(c)(1)(i), which requires that the PM emissions must not exceed 0.04 grain per dry standard cubic foot, and the CO emission limit of AMR VIII, which requires that the CO emissions must not exceed 1% by volume of exhaust gases. Based on calculations using AP-42 emission

factor, the emergency generator and air compressor will not exceed the CO emission limit of 1% by volume of exhaust gases when burning diesel fuel. To comply with the PM emission limit, the emergency generator, air compressor, and sand blasting operations must be installed, operated, and maintained in accordance with the manufacturer's specifications, the specifications in the associated permit applications, and with good operating practices. As per AMR III Sec. I & III, the maximum sulfur content of the diesel fuel must not exceed 15 parts per million (ppm). The facility is subject to the monitoring and recordkeeping requirements of maintenance conducted on the emergency generator, air compressor, and sand blasting operations, and fuel manifests documenting the sulfur content of diesel fuel oil.

The emergency generator is also subject to 25 Pa Code 129.203, and the allowable NO_x emissions is 2.3 grams per brake horsepower-hour during the ozone season (May 1 through September 30 each year). If this limit is exceeded, then NO_x allowance credits must be purchased to demonstrate compliance. By October 31 of each year, the Permittee shall calculate the difference between the actual NO_x emissions from the allowable emissions for the emergency generator during the ozone season. The allowable emissions for the period shall be calculated by multiplying the cumulative hours of operation for the emergency generator for the period by the horsepower rating of the unit and by the applicable emission rate of 2.3 grams NO_x per brake horsepower-hour (Bhp-hr). The actual emissions can be calculated using either emission factor resulting from performance tests, or NO_x emission rate contained in the permit, or AP-42 emission factor, or emission factor in the EPA's "Factor Information Retrieval (FIRE)" data system, or by monitoring NO_x emissions with CEMs, or using an alternate calculation and recordkeeping procedure approved by AMS. If the actual NO_x emission is greater from the allowable NO_x emission by fraction of a ton equal to or greater than 0.50 ton for an emergency generator, then NO_x allowance credits must be purchased to demonstrate compliance. The facility must keep record of allowable and actual NO_x emissions, and NO_x allowances surrendered.

As per modification requested during SMOP renewal via Potential to Emit (PTE) calculation submitted on January 4, 2022, the emergency generator has a fuel usage limit of 1,850 gallons of diesel fuel per rolling 12-month period, based on 25 hours of operation at maximum capacity, while the air compressor has a fuel usage limit of 918 gallons of diesel fuel per rolling 12-month period, based on 200 hours of operation at maximum capacity. The emergency generator shall be operated only during emergencies, testing, engine tuning, maintenance checks, and readiness testing. As per modification requested during SMOP renewal via addendum to the SMOP application dated 1/12/2022, the emergency generator shall operate for a maximum of 25 hours per calendar year for testing, engine tuning, maintenance checks, and readiness testing. The emergency generator is applicable to the operating limits of AMR XV, which restricts non-emergency operations including testing and/or tuning during the ozone season (May 1 to September 30).

The facility must monitor and keep record of proper operation of the emergency generator, air compressor, and sand blasting operations, monthly fuel usage, operating hours per rolling 12-month period calculated monthly, daily operating hours, operating hours for the emergency generator during ozone season, total hours operated per calendar year for testing, engine tuning, maintenance checks, and readiness testing, reason for operation, the date and time when testing and/or tuning of the emergency generator was conducted during the ozone season, and the AQI forecast or color code during testing and/or tuning during the ozone season. For sand blasting operations, the facility must monitor and keep record of monthly blast media usage and the type/name of blasting media used. The Permittee must keep a copy of the Safety Data Sheets (SDS) for each blasting media used at the facility.

Combined Heat and Power Units (CHP)

For each CHP unit, NO_x emissions must not exceed 0.2 grams per brake horsepower hour (g/bhp-hr), Non-Methane, Non-Ethane Hydrocarbons (NMNEHC) emission as propane excluding Formaldehyde (HCHO) must not exceed 0.15 g/bhp-hr, HCHO emissions must not exceed 0.05 g/bhp-hr, CO emissions must not exceed 0.25 g/bhp-hr, and ammonia slip from operation of the Urea-Injection Selective Catalytic Reduction (SCR) must not exceed 5 ppmvd @ 15% O₂ as per BAT required under 25 Pa. Code §127.1.

Compliance with the NO_x, NMNEHC, and CO emission limits ensure compliance with the emission limits in Table 1 to 40 CFR §60 Subpart JJJJ. Additionally, for each CHP unit, NO_x emissions must not exceed 10.9 tons per rolling 12-month period, VOC emissions must be less than 8.2 tons per rolling 12-month period, and CO emissions must not exceed 13.6 tons per rolling 12-month period as per AMS Plan Approval No. IP17-000009 dated 11/29/2017 and extended under IP22-000384 dated 10/3/2022. The Permittee is required to monitor and provide monthly verification of compliance with the NO_x, VOC, and CO emission limits in tons per rolling 12-month basis. Compliance with the g/bhp-hr emission limits and natural gas usage limits ensure compliance with the emission limits in tons per rolling 12-month basis.

Each CHP unit is subject to the particulate emission limit of 25 Pa Code §123.13(c)(1)(i), which requires that the PM emissions must not exceed 0.04 grain per dry standard cubic foot. Based on calculations using AP-42 emission factors, the CHP units will not exceed the PM emission limit when burning natural gas. The CHP units are also subject to 25 Pa Code 129.203, and the allowable NO_x emissions is 3.0 grams per Bhp-hr during the ozone season (May 1 through September 30 each year). If this limit is exceeded, then NO_x allowance credits must be purchased to demonstrate compliance. By October 31 of each year, the Permittee shall calculate the difference between the actual NO_x emissions from the allowable emissions for the emergency generator during the ozone season. The allowable emissions for the period shall be calculated by multiplying the cumulative hours of operation for the emergency generator for the period by the horsepower rating of the unit and by the applicable emission rate of 3.0 grams NO_x per Bhp-hr. The actual emissions can be calculated using either emission factor resulting from performance tests, or NO_x emission rate contained in the permit, or AP-42 emission factor, or emission factor in the EPA's "Factor Information Retrieval (FIRE)" data system, or by monitoring NO_x emissions with CEMs, or using an alternate calculation and recordkeeping procedure approved by AMS. If the actual NO_x emission is greater from the allowable NO_x emission by fraction of a ton equal to or greater than 0.50 ton, then NO_x allowance credits must be purchased to demonstrate compliance. The facility is subject to the monitoring and recordkeeping requirements of allowable and actual NO_x emissions and NO_x allowances surrendered.

As per AMS Plan Approval No. IP17-000009 dated 11/29/2017 and extended under IP22-000384 dated 10/3/2022, the CHP units must be installed, operated, and maintained in accordance with the manufacturer's specifications, the specifications in the associated permit applications, and with good operating practices. The CHP units are applicable to the requirements of 40 CFR Part 60 Subpart JJJJ for spark ignition engines and must keep a maintenance plan and records of conducted maintenance and must maintain and operate each engine in a manner consistent with good air pollution control practice for minimizing emissions to the extent practicable as per 40 CFR §60.4243(b)(2)(ii).

As per AMS Plan Approval No. IP17-000009 dated 11/29/2017 and extended under IP22-000384 dated 10/3/2022, each SCR and Oxidation Catalyst (OC) system shall be used whenever each CHP is in operation. As per the renewal SMOP No. OP17-000024, the permittee is required to establish an SCR urea flow to engine load map for each CHP unit that can be used to determine the urea injection rate for the SCR at various engine loads during normal operation to achieve compliance with the NO_x emissions limit and ammonia slip emission limit. This requirement is added as part of the renewal SMOP based on the results of the performance stack tests conducted for the CHP units in November 2019. A programmable SCR trim system may be used to optimize the urea injection rate to differ from the SCR urea flow to engine load map for a maximum of ±15% deviation as recommended by the manufacturer. Normal operation is defined as the period between when startup ends and when shutdown begins. Startup is defined as the period that begins when fuel flow to the engine starts and ends after appropriate and safe loading of the engine, not to exceed 60 minutes. Shutdown is defined as the period that begins when the power breaker goes to an open state and ends when fuel flow to the engine stops, not to exceed 30 minutes.

For the CHP Units G-01 and G-02, 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, to demonstrate compliance with the NO_x, CO, NMNEHC, HCHO, and ammonia slip emission limits as per 40 CFR §60.8(a), 40 CFR §60.4243(b)(2)(ii), and AMS Plan Approval No. IP17-000009 dated 11/29/2017 and extended under IP22-

000384 dated 10/3/2022. The Permittee must conduct performance stack test for each CHP unit no later than February 4, 2025, and must conduct the test sooner if a CHP unit reaches the 8,760 hours of operation since the date of the previous stack test sooner. An SCR urea flow to engine load map for each CHP unit shall be established during the performance test that can be used to determine the urea injection rate for the SCR to achieve compliance with the NO_x emission limit and ammonia slip emission limit. For the OC, the performance test shall establish the pressure drop range.

As per AMS Plan Approval No. IP17-000009 dated 11/29/2017 and extended under IP22-000384 dated 10/3/2022, the Permittee shall conduct the performance tests on each CHP unit following 25 PA Code Chapter 139, the Pennsylvania Source Testing Manual, and procedures in 40 CFR §60 Subpart JJJJ. As per 40 CFR §60.4244, each performance test must be conducted within 10 percent of 100 percent peak (or the highest achievable) load, must not be conducted during periods of startup, shutdown, or malfunction, as specified in 40 CFR §60.8(c), and must consist of three separate 1-hour test runs. If the CHP engines are non-operational, then the Permittee does not need to startup the engine solely to conduct a performance test but must conduct the performance test immediately upon startup of each engine. Additionally, for the CHP Units G-01 and G-02, the Permittee is required to perform quarterly NO_x and CO portable analyzer tests on each CHP using an AMS-approved procedure to verify that the SCR and OC for each unit are working properly. The quarterly portable analyzer testing requirement replaces the annual catalytic activities test requirement.

For the CHP units, the permittee is required to monitor and record the pressure drop across the oxidation catalyst and inlet temperature to the oxidation catalyst continuously, fuel type and fuel usage, manufacturer's emissions data, operating hours for each engine, electrical production for each engine, stack test results for each engine, quarterly portable analyzer test results, and actual and expected urea injection rate using the SCR urea flow to engine load map and SCR Trim System. Additionally, as per 40 CFR §60.4245(a), the Permittee must keep records of all notifications submitted to comply with 40 CFR Part 60 Subpart JJJJ, maintenance conducted on each engine, and documentation that the engine meets the emission standards if the engine is not a certified engine or is a certified engine operating in a non-certified manner and subject to 40 CFR §60.4243(a)(2).

Gasoline Tank (Gasoline Dispensing Facility)

The Gasoline Dispensing Facility (GDF) is subject to AMR V Sec. V (D), which requires that the facility shall not use or dispense any gasoline having a Reid Vapor Pressure (RVP) greater than 9.0 psi during the period May 1 through September 15. As per AMS Plan Approval No. 11035 dated 2/3/2012, the GDF shall be installed, maintained, and operated in accordance with the manufacturer's specification, the specifications in the application, and with good operating practices. As per 40 CFR §63.11115(a), the facility is required to operate and maintain each source or control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. The monthly throughput from the GDF must be less than 10,000 gallons. The facility must take measures to prevent vapor releases to the atmosphere for extended periods of time. The GDF was equipped with Stage II vapor recovery in the past, but the stage II vapor recovery was decommissioned on July 25, 2022.

As per AMS Plan Approval No. 11035 dated 2/3/2012, the GDF is subject to monitoring and recordkeeping requirement of monthly gasoline throughput, type and duration of any failures, maintenance and repair, occurrence and duration of each malfunction and actions taken during periods of malfunction to minimize emissions, and details of fuel received between April 15 and September 1, including Reid Vapor Pressure (RVP), quantity, and date.

Part Washers – Degreasers

For the Parts Degreasers, as per AMR V Sec. VII, VOC emissions from photochemically reactive materials must not exceed 40 pounds per day or must be reduced by at least 85 percent overall from any

machine, equipment, or device. As per AMS Plan Approval No. 11035 dated 2/3/2012, the parts washers must be installed, maintained, and operated in accordance with the manufacturer's specification, the specifications in the application, and with good operating practices. If the Permittee intends to use any solvent containing methylene chloride, perchloroethylene, trichloroethylene, 1,1,1-trichloroethane, carbon tetrachloride, or chloroform, or any combination of these halogenated HAP solvents as a cleaning and/or drying agent in the degreaser in a total concentration greater than 5 percent by weight, then prior to use, the Permittee must submit a plan approval application to AMS and comply with 40 CFR §63, Subpart T as per AMS Plan Approval No. 11035 dated 2/3/2012.

As per 25 Pa. Code §129.63(a)(1), the immersion cold cleaning machines shall have a freeboard ratio of 0.50 or greater. Additionally, as per 25 Pa. Code §129.63, the immersion cold cleaning machines and remote reservoir cold cleaning machines shall be covered except during cleaning of parts or the addition or removal of solvent, and shall have a permanent, conspicuous label summarizing the operating requirements, such as collecting and storing waste solvents in closed containers, flushing of parts, and cleaning of spills, as well as discretionary good operating practices including draining cleaned parts, operating agitators with no observable splashing of the solvent, positioning fans to prevent blowing across the opening of the degreaser unit etc.

As per 25 Pa. Code §129.63(a), the Permittee may not use, sell or offer for sale for use in a cold cleaning machine any solvent with a vapor pressure of 1.0 millimeter of mercury (mm Hg) or greater and containing greater than 5% VOC by weight, measured at 20°C (68°F) containing VOCs, except for cold cleaning machines used in extreme cleaning service, or to avoid unsafe operating conditions, or for immersion cold cleaning machines with a freeboard ratio equal to or greater than 0.75.

The facility is required to monitor monthly combined solvent usage, and maintain information of the solvent supplier, including name, address, type of solvent, VOC content, and the vapor pressure of the solvent. The recordkeeping requirement for the facility include records of the dates and amounts of solvent added to the tank, the amount of solvent in the wastes removed from the tank, maintenance records, safety data sheet (SDS) of the solvents, and invoices, bill of sale, and other documentation to maintain the solvent supplier information. If the Permittee sells or offers for sale any solvent containing VOCs for use in a cold cleaning machine, then the Permittee shall keep records of invoice, bill of sale, certificate that corresponds to a number of sales, SDS, or other appropriate documentation acceptable to AMS as per 25 Pa. Code §129.63(a)(6).

Spray Paint Booth

The spray booths at the facility are subject to Air Management Regulation (AMR) V Sec. XIV for odor emissions, visible emissions, and toxic air contaminants, and 25 Pa. Code §129.75(c) for Volatile Organic Compound (VOC)-containing materials. AERSCREEN View was used to develop an air dispersion model for the spray booth based on type and amount of paint used, operating cycle, and exhaust system of the spray booth. Based on the air dispersion model, if the Permittee operates within the parameters specified in the application, then the pollutant concentrations will be below any odor or toxic air contaminants threshold. The spray paint booth shall be installed, maintained, and operated in accordance with the manufacturer's specification, the specifications in the application, and with good operating practices as per AMS Plan Approval No. 11035 dated 2/3/2012. The Permittee must not use methylene chloride (MeCl) in paint stripping operations at the facility to be exempt from the requirements of 40 CFR §63.11173(a)-(d).

The Permittee is also required to comply with the equipment standards in AMR V Sec. XIV, and may only apply coatings by using either electrostatic application or high-volume, low pressure (HVLP) spray. The Permittee shall spray all coatings inside an enclosed paint spray booth, and airflow carrying paint fumes must pass through a filter system to a properly designed stack. The Permittee must ensure the operating practices regarding cleaning paint spray gun, storing fresh and spent solvents, handling and transferring

coatings and solvents, training new and existing personnel, sanding operations etc. are in effect and in agreement with the requirements in AMR V. Sec. XIV.C and 25 Pa. Code §§129.75(g)-(h) as applicable.

As per AMR V. Sec. XIV, the Permittee must inspect equipment, frames, filters, stacks, and visible emissions from the stack during paint spraying on a weekly schedule, and keep a log of the dates and times of inspection. As per AMR V. Sec. XIV, the Permittee must monitor and keep records of the number of partial and full refinishing jobs completed on a daily basis, the volume and/or weight and the VOC content, less water, of surface preparation products used, and daily records of each type of primer, topcoat, and specialty coating used including volume of coating, catalyst, and reducer used, mix ratio of components in the coating, and VOC content of coating, less water. Additionally, the Permittee must keep a log for each gun cleaner to record the quantity of replacement solvent added and waster solvent removed on a monthly basis, the number of gun cleanings performed daily, and the dates and times of routine inspections and maintenance and repair activities. The Permittee must keep records of Safety Data Sheet (SDS) of all paints and solvents used. To comply with the VOC emission limits, the facility must monitor and keep records of the VOC content of the material sprayed and provide material balance calculations to demonstrate compliance with the VOC emission limits per calendar year.

Windshield Washer Fluid Storage Tank

The Windshield Washer Fluid Storage Tank must be installed, maintained, and operated in accordance with the manufacturer's specification, the specifications in the application, and with good operating practices as per AMS Plan Approval No. 11035 dated 2/3/2012. As per 25 Pa. Code §129.57, the storage tank shall have a pressure relief valve which is maintained in good operating condition and which is set to release at no less than 0.7 psig of pressure, or 0.3 psig of vacuum, or the highest possible pressure and vacuum in accordance with the state or local fire codes or the National Fire Prevention Association guidelines or other national consensus standards acceptable to AMS.

Insignificant Activities - Oil-Water Separator

The oil-water separator shall only receive VOC materials from a spill. The facility shall not store VOC materials in containers of 200 gallons or greater.

Insignificant Activities

Each insignificant source IS-1 through IS-14 shall only burn fuel types as specified in Table A1- Facility Inventory List of the operating permit, and the Permittee shall monitor and record the fuel type and fuel usage by each unit. Insignificant Emergency Generators IS-13 and IS-14 each shall operate for a maximum of 100 hours per rolling 12-month period for emergencies, testing, engine tuning, maintenance checks, and readiness testing as per modification requested during SMOP renewal via PTE calculation submitted on January 4, 2022. During the ozone season (May 1 – September 30), the Permittee shall comply with the requirements of AMR XV for the Insignificant Emergency Generators IS-13 and IS-14. For the insignificant Emergency Generators IS-13 and IS-14, the Permittee shall monitor and record the monthly operating hours, operating hours per rolling 12-month period calculated monthly, reason for operating the emergency generators, the date and time during ozone season when testing and/or tuning of the Emergency Generator IS-13 or IS-14 was conducted, and the AQI forecast or color code during testing and/or tuning.

Compliance Review:

AMS last inspected the facility virtually on April 21, 2021. A Notice of Violation (NOV) was issued to the facility on April 20, 2022 for testing the emergency generator outside of allowable hours during the ozone season and for the CHP unit G-01 exceeding the NMNEHC emission limit during the performance stack test conducted on January 6, 2022. The facility took steps to train the operators regarding testing of the emergency generator. The facility also inspected and repaired the CHP unit G-01 and conducted retest of

the unit on February 4, 2022 that demonstrated compliance with the NMNEHC emission limit. The facility settled the NOV by paying a fine on September 15, 2022. The NOV was closed on September 29, 2022. There are no consent agreements or significant compliance issues.