

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

InterOffice Memo

To: File
From: Rahel Gebrekidan
Date: October 7, 2022
Subject: Title V Operating Permit (TVOP) Summary for PESRM/ Former Refinery
– NorthStar

Company Description:

Philadelphia Energy Solutions Refining and Marketing LLC (PESRM) owns the former refinery complex located at 3144 Passyunk Ave, Philadelphia. The facility contact in regard to the TVOP is Robert J. Armstrong, (440) 228-1524 (rmstrong@northstar.com).

All refining operations at the facility stopped after a June 2019 accident and subsequent bankruptcy. However, the facility must continue to operate some equipment during the demolition and clean-up process, including emergency engines, tanks, and wastewater treatment processes. PESRM is legally required to maintain an operating permit while there are remaining air pollution sources.

PESRM contracted with NorthStar Contracting Group, Inc. (NorthStar) to decommission and demolish the refining equipment at the Philadelphia Refinery Complex. PESRM will remain the owner of the former refinery, but NorthStar is the new operator and will be responsible for air quality compliance for equipment remaining in operation under Title V Operating Permit.

AMS administratively amended the TVOP on April 15, 2021 to list NorthStar Contracting Group, Inc. (NorthStar), the company hired to decommission and demolish the refining equipment at the Philadelphia Refinery Complex, as the facility operator. PESRM is still listed as the owner. The administrative amendment also added some previously issued plan approvals and general permits (permits to install or modify equipment) to the TVOP.

PESRM submitted an application to the City of Philadelphia – Air Management Services (AMS) to renew its existing TVOP. The application includes many proposed changes to the TVOP to reflect the current operations. These proposed changes include the following:

- Changing the Standard Industrial Classification (SIC) Code for the facility. This is a code that notes the industry that a facility belongs to. The application proposes changing this code from 2911 (Petroleum Refining) to 1795 (Wrecking and Demolition Work) since there is no longer any refining at the facility.
- Removing all shutdown equipment from the TVOP. This includes all refining processes.

- Removing all air pollution requirements that are no longer applicable to the facility due to the shutdown of processes and ceasing of refining operations. AMS will only remove air pollution requirements if it agrees that they are no longer applicable.
- Removing some storage tanks, marine loading, and railcar loading/unloading process from the TVOP. These units will be owned and operated by the adjacent Tank Farm and will be added to its TVOP as part of a permit modification.

SIC Code Change

Since the equipment at the NorthStar Facility is no longer engaged in petroleum refining, or manufacturing of any kind and the site's operators are engaged in decommissioning and demolishing the refinery process equipment, the site is no longer considered to be a petroleum refinery or a chemical manufacturing facility. Therefore, the facility SIC code should no longer be listed as 2911 in the facility permit. Instead, PESRM proposes that the SIC code be listed as 1795 – Wrecking and Demolition Work, as this is the primary activity under NorthStar's operations.

The refinery and the tank farm are no longer considered one facility under Title V, NSR, and PSD regulations since the SIC code has changed to reflect the current operational status of the refinery.

While petroleum refining has ceased, the facility remains a major source of volatile organic compounds (VOC) and hazardous air pollutant (HAP) emissions. Therefore, the site is still subject to Title V permitting requirements. With the application, PESRM requested a significant modification (in conjunction with the Title V renewal) to the PESRM TVOP to issue a modified TVOP authorizing operation of existing certain sources involved in the ongoing decommissioning and demolition activities being performed by NorthStar at the facility.

The remaining facility's air emissions sources include the following:

- Twelve (12) external floater storage tanks with capacities greater than 40 million gallons.
- Five (5) internal floating storage tanks, each with a capacity 40 million gallons;
- Seventeen (17) Petroleum Liquids Storage Tanks
- Degreasing Vats, wastewater, emergency generator and fire pump, internal combustion engines, and
- Equipment VOC Leak Components

Applicability for Regulations:

The facility is a major stationary source as defined in Title I, Part D of the Clean Air Act Amendments due to the facility's potential to emit Volatile Organic Compounds (VOC), NO_x, HAP, CO, SO_x and PM. The facility is therefore subject to the Title V operating Permit requirements adopted in 25 Pa Code §127, Subchapter G.

The refinery was subject to a Consent Decree (05-CV-2866) governing certain air requirements for the now-former refinery. On September 21, 2021, PESRM filed an Unopposed Motion to Terminate the Consent Decree as to the Philadelphia Refinery with approval from AMS and the U.S. Environmental Protection Agency. The Consent Decree was fully and finally terminated pursuant to court order on October 19, 2021.

Source Applicability

Equipment VOC Leak Components

The Permittee shall utilize a fugitive emission LDAR program for all valves, pumps, flanges, and compressors in VOC service per presumptive RACT requirement. Equipment leaks are subject to AMV V Section XIII. In accordance with AMV V Section XIII.D-the facility must conduct a monitoring program for equipment leaks per the requirements in the current Title V permit.

For any source not covered under an existing LDAR program, monitoring shall be conducted on a quarterly basis for equipment in gaseous service and on an annual basis for equipment in liquid service.

Storage Tanks

The facility operates Internal Floater Roof (IFR) and External Floating Roof (EFR) Tanks and fixed Petroleum Liquids Storage Tanks. Pursuant to 40 CFR 60.110b, NSPS Subpart Kb applies to affected facilities with a capacity greater than 75 cubic meters used to store volatile organic liquids (VOL) that commence construction, reconstruction, or modification after July 23, 1984. NorthStar is proposing to comply with NSPS Subpart Kb requirements for the following sources that are in petroleum liquid service or contain a layer of petroleum liquid on wastewater: P-006 (GP), P-012 (GP), P-135 (GP), P-155 (GP), P-159 (GP), P-160 (GP), P-162 (GP), P-174 (GP), P-521 (PB), P546 (PB), P-579 (PB), P-587 (PB), P-588 (PB), P-590 (PB), P624 (PB), P-627 (PB). All IFR, EFR and Fixed storage tanks are applicable to 25 Pa Code §129.56 and AMR V. Sec. II.

Pursuant to 40 CFR 63.640, 40 CFR 63 Subpart CC applies to certain petroleum refining process units at a petroleum refinery that is located at a major source of hazardous air pollutants. Per 40 CFR 63.641, petroleum refining process unit means a process unit used in an establishment primarily engaged in petroleum refining as defined in the Standard Industrial Classification code for petroleum refining (2911), and used primarily for the following: (1) Producing transportation fuels (such as gasoline, diesel fuels, and jet fuels), heating fuels (such as kerosene, fuel gas distillate, and fuel oils), or lubricants; (2) Separating petroleum; or (3) Separating, cracking, reacting, or reforming intermediate petroleum streams. (4) Examples of such units include, but are not limited to, petroleum-based solvent units, alkylation units, catalytic hydrotreating, catalytic hydro refining, catalytic hydrocracking, catalytic reforming, catalytic cracking, crude distillation, lube oil processing, hydrogen production, isomerization, polymerization, thermal processes, and blending, sweetening, and treating processes. Ongoing equipment cleaning and demolition operations performed by NorthStar do not qualify as petroleum refining. Therefore, SIC code 2911 no longer applies and the facility is not subject to 40 CFR 63 Subpart CC. Since Consent Decree Order 05-CV-2866 was terminated pursuant to Court order on October 19, 2021, the Consent Decree requirements, which reference Subpart CC, are no longer applicable. Per the requirements of 40 CFR 63.2396(a), tanks which are in compliance with NSPS Subpart Kb requirements are in compliance with 40 CFR 63 Subpart EEEE except that records must be kept for 5 years rather than 2 years. According to 40 CFR 63.2338(b)(3), Subpart EEEE also applies to all equipment leak components in organic liquids service that are associated with storage tanks storing organic liquids and pipelines that transfer organic liquids to/from storage tanks storing organic liquids. The work practice requirements related to equipment leaks apply to pumps, valves, and sampling connections in organic liquids storage at least 300 hours per year and require compliance with 40 CFR Part 63, Subpart TT (control level 1), Subpart UU (control level 2), or Subpart H as applicable to pumps, valves and sampling connections. NorthStar shall comply with these requirements for the piping components associated with the crude oil and

recovered oil storage tanks. All other tanks (non-crude oil and non-recovered oil storage) remaining in operation at the NorthStar Facility will not contain greater than 5% HAP or will store products with a vapor pressure less than 0.1 psia.

Engines

The remaining diesel engines are subject to the Particulate Matter (PM) emission standards of 25 PA Code 123.13(c)(1)(i) and the CO emission standards of AMR VIII. During the ozone season, the diesel fire pumps need to comply with the requirements of AMR XV.

The facility shall continue to comply with all applicable requirements for the remaining engines at the site. The facility shall monitor NO_x emission per rolling 12-month period, calculated monthly to demonstrate compliance with Section D.31.(a)(1). Emission verification shall be based on AP-42 factors, manufacturer's specification, or other AMS approved emission factors.

Wastewater

NorthStar shall comply with NSPS Subpart Kb requirements for applicable wastewater tanks.

Plan Approvals and Installation Permits

AMS issued multiple installation permits and plan approval to PESRM in the last five years. A TVOP renewal application was submitted to AMS on January 18, 2019 which included incorporation of these various installation permits and plan approvals. PESRM requested that the plan approvals and IPs issued to PES be transferred to NorthStar and incorporated into the PESRM TVOP.

Removed section and sources

Section D – Facility – Reporting Requirements – sections related to reporting under the Consent Decree have been deleted since the Consent Decree has been terminated.

Group 01 – Boilers and Heater. NorthStar is requesting that all of the emission sources/members under this group be removed from the TVOP as they are all permanently shutdown.

Group 02 – Process Heaters. NorthStar is requesting that all of the emission sources/members under this group be removed from the TVOP as they are all permanently shutdown.

Group 03-*Flares*

All of the emission sources/members under this group have been removed from the TVOP as they are all permanently shutdown.

Group 04 – Loading Facilities and Control Equipment. All sources in this group are removed from the air permit as they are shutdown.

Group 05 – Sulfur Recovery Units. NorthStar is requesting that all of the emission sources/members under this group be removed from the TVOP as they are all permanently shutdown.

Group 06 – Refinery VOC, SOCOMI VOC, & Existing Refinery MACT, NSPS, or NESHAP HAP Components Subject to 40 CFR 60 Subpart VV. NorthStar is requesting that the group be deleted. Regulations: 40 CFR 60.480, 60.590, & 63.648; 25 Pa Code 129.58, and 40 CFR 61 Subpart J are no longer applicable. Since Consent Decree Order 05-CV-2866 was terminated, the Consent Decree requirements are no longer applicable.

Group 07 – SOCOMI or Refinery NESHAP Components, and Certain VOC Components Subject to 40 CFR 63 Subpart H. NorthStar is requesting that the group be deleted. Regulations: 40 CFR 63.160-182; 25 Pa Code 129.571 are no longer applicable. Since Consent Decree Order 05-CV-2866 was terminated, the Consent Decree requirements are no longer applicable.

Group 08 – Equipment VOC Leak Components Not Subject to NSPS or NESHAP. NorthStar is requesting that reference to 25 Pa Code 129.58 regulation be removed as it is no longer applicable. However, NorthStar will continue to comply with applicable requirements for case-by-case RACT and AMR V Section XIII A in this group. In addition, NorthStar requests to incorporate applicable section of 40 CFR 63 Subpart EEEE to the crude oil tanks remaining in operation at the facility.

Group 09 – Cooling Towers. NorthStar is requesting that all of the emission sources/members under this group be removed from the air permit as they are all permanently shutdown.

Group 10 – Miscellaneous Process Vents (Group 1) subject to 40 CFR 63 Subparts G and CC. NorthStar is requesting that all of the emission sources/members under this group be removed from the air permit as they are all permanently shutdown.

Group 13A – Tanks Subject to 40 CFR 63 Subpart G. NorthStar is requesting that: P-025 (GP), P-026 (GP), P-029 (GP), and P-163 (GP) be transferred to Host TVOP. Remaining emission sources/members be removed from the air permit as they are all permanently shutdown.

Group 13B – Internal Floating Roof Tanks subject to 40 CFR 63, Subpart CC. NorthStar is requesting that: P-012 (GP) be transferred to Group 13C as compliance with 40 CFR 60 Subpart Kb is deemed equivalent to compliance with 40 CFR 63 Subpart CC. Remaining emission sources/members be removed from the air permit as they are all permanently shutdown.

Group 13C – Internal Floating Roof Tanks Subject to 40 CFR 60, Subpart Kb. NorthStar is requesting that: P-012 (GP) be transferred from Group 13B and its stored material be updated from Crude Oil to Recovered Oil. The stored material in P-174 (GP) be updated from RCRA CC waste to Oily Wastewater. P-009 (GP), P-010 (GP), P-134 (GP), P-136 (GP) (temp inactive), P-137 (GP), P-501 (PB), and P-511 (PB) be removed from the air permit as they are all permanently shutdown.

Group 14B – External Floating Roof Tanks Subject to 40 CFR 63, Subpart CC. P-521 (PB), P-546 (PB), P-579 (PB), P-587 (PB), P-588 (PB), P-590 (PB), and P-601 (PB) be transferred to Group 14C as compliance with 40 CFR 60 Subpart Kb is deemed equivalent to compliance with 40 CFR 63 Subpart CC. 40 CFR 63 Subpart CC is not applicable anymore since the facility is no longer considered as petroleum refinery. Remaining emission sources/members be removed from the air permit as they are all permanently shutdown.

Group 14C – External Floating Roof Tanks Subject to 40 CFR 60 Subpart Kb Requirements (or equivalent). NorthStar is requesting that: P-521 (PB), P-546 (PB), P-579 (PB), P-587 (PB), P-

588 (PB), P-590 (PB), and P-601 (PB) be transferred from Group 14B. Additionally, the stored material in P-546 (PB) is being changed from Crude Oil to Recovered Oil.

Group 15A – Group 2 Storage Tanks. NorthStar is requesting that: The name of this group be updated from “Group 2 Storage Tanks” to “Petroleum Liquids Storage Tanks” because Group 2 refers to 40 CFR 63 Subpart CC, which is no longer applicable to this facility

Group 15B – Fixed Roof Tanks Subject to Subpart Kb Recordkeeping Requirements. NorthStar is requesting that all of the emission sources/members under this group be removed from the air permit as they are all permanently shutdown.

Group 17 – Marine Loading Equipment – This operation is being transferred to the SRTF.

Group 18 – Fluidized Catalytic Cracking Units. NorthStar is requesting that all of the emission sources/members under this group be removed from the air permit as they are all permanently shutdown.

Group 19 – Inter-Refinery Pipeline Equipment. NorthStar is requesting that the emission source/member under this group be removed from the air permit.

Group 20 – Alkylation Unit. NorthStar is requesting that all of the emission sources/members under this group be removed from the air permit as they are all permanently shutdown.

Group 21 – Hydrogen Purification. NorthStar is requesting that the emission source/member under this group be removed from the air permit as it is permanently shutdown.

Group 22 – Degreasing Vats. Except for P-108 (GP), (GP) Garage – Model E3000, (GP) Bundle Pad – 22 x 6 x 4 Bundle Cleaner (2960 gal), and (GP) Bundle Pad – 22 x 6 x 4 Bundle Cleaner (4578 gal) that remain in NorthStar air permit, NorthStar is requesting that the emission sources/members under this group be removed from the air permit as they are permanently shutdown.

Group 23 – Butane Isomerization. NorthStar is requesting that the emission source/member under this group be removed from the air permit as it is permanently shutdown.

Group 25A – Refining Wastewater. NorthStar is requesting that: The group name be updated from “Refining Wastewater” to “Wastewater” as the facility is no longer classified as petroleum refinery. CD-002, CD-003, CD-105, CD-010, CD-106, CD-107, and CD-007 be removed from the air permit since operation of these units is no longer required by regulation. P-141 (GP) be removed from the air permit as these roughing filters are permanently out of service. “Subject to or exempt from 40 CFR 61 Subpart FF and 40 CFR 63, Subpart CC” be removed from P-114 (GP) source name. Similarly, “40 CFR 61, Subpart FF & 40 CFR 63, Subpart CC” be removed from P-667 (PB) source name. 40 CFR 61 Subpart FF and 40 CFR 63 Subpart CC are no longer applicable. -Since Consent Decree Order 05-CV-2866 was terminated, the Consent Decree requirements are no longer applicable.

Group 25B – SOCFI Wastewater. NorthStar is requesting that all of the emission sources/members under this group be removed from the air permit as they are all permanently shutdown.

Group 26 – Benzene and Cumene Production. NorthStar is requesting that all of the emission sources/members under this group be removed from the air permit as they are all permanently shutdown.

Group 27 – Emergency Generator and Fire Pump. NorthStar is requesting that FP-017 and FP-018 be removed from the air permit as they are both permanently shutdown.

Group 28 – Internal Combustion Engines. NorthStar is requesting that IC-002 through IC-005 be removed from the air permit as they are all permanently shutdown.

Group 29 – Stacks. NorthStar is requesting this group to be appropriately updated based on the revision requested above.

Compliance Summary

At this time, there is no outstanding non-compliance pursuant to the TVOP at the former refinery. AMS submitted Notices of Violation (NOVs) dated August 30, 2021 and proposed civil penalties on October 1, 2021 to each PESRM and NorthStar in connection with an incident at Tank 885 during the course of tank demolition. As of the date of this Memorandum, the NOVs and civil penalties have been fully resolved.

Non-Applicability

AMS has determined that the facility or sources is not subject to the following:

- 40 CFR 60 Subpart VV – Equipment Leaks
- 40 CFR 60 Subpart GGG – Equipment Leaks
- 40 CFR 60 Subpart GGGa – Equipment Leaks
- 40 CFR 60 Subpart QQQ – Petroleum Refineries Wastewater Systems
- 40 CFR 61 Subpart FF –Benzene Waste Operations
- 40 CFR 63 Subpart F -- Synthetic Organic Chemical Manufacturing Industry
- 40 CFR 63 Subpart G - Synthetic Organic Chemical Manufacturing Industry for Process Vents, Storage Vessels, Transfer Operations, and Wastewater
- 40 CFR 63 Subpart Q –Industrial Process Cooling Towers
- 40 CFR 63 Subpart CC - Petroleum Refineries
- 40 CFR 63 Subpart UUU - Petroleum Refineries: Catalytic Cracking Units, Catalytic Reforming Units, and Sulfur Recovery Units
- 25 PA Code 123.13b – Processes - Petroleum Refining (catalytic cracking)
- 25 PA Code 129.13 – Sulfur Recovery Plants
- 25 PA Code 129.58 – Petroleum refineries – fugitive sources
- 25 PA Code 129.71 – Synthetic organic chemical and polymer manufacturing – fugitive sources
- 25 Pa Code §123.12 – Incinerators
- 25 Pa Code §129.12 – Sulfuric Acid Plants
- 25 Pa Code §129.52 – Surface Coating Processes
- 25 Pa Code §129.54 – Seasonal Incineration Equipment
- 25 Pa Code §129.59 – Bulk Gasoline Terminals
- 25 Pa Code §129.60 – Bulk Gasoline Plants
- 25 Pa Code §129.65 – Ethylene Production Plants
- 25 Pa Code §129.82 – Control of VOC from gasoline dispensing facilities (Stage II)

NSPS Regulations:

40 CFR 60 Subpart D – Fossil fuel steam gen. units

40 CFR 60 Subpart D(a) – Fossil fuel electric utility boilers

40 CFR 60 Subpart D(c) – Small I/C/I steam gen. units

40 CFR 60 Subpart J – Petroleum refineries –

40 CFR 60 Subpart Ja – Petroleum refineries

40 CFR 60 Subpart GG – Stationary gas turbines

40 CFR 60 Subpart UU – Asphalt roofing plants (stg. blowing of non-roofing asph.)

40 CFR 60 Subpart XX – Bulk Gasoline Terminals

MACT Regulations:

40 CFR 63 Subpart R – Gasoline Distribution (no gasoline loading in refinery)

40 CFR 63 Subpart Y – Mar. Ves. Ldg. – Gaso/Crude/HAP (facility does not trigger loading volume or HAP emission triggers)

40 CFR 63 Subpart DD – Offsite Waste

The following NESHAP regulations have been streamlined as a result of the applicability of related MACT regulations.

40 CFR 61 Subpart J – Bz VHAP Lks (10% w Bz) – 40 CFR 63 Subpart H has subsumed all previous 61/J applicability

40 CFR 61 Subpart V – VHAP Equipment Lks – 61/V is the technical section for Subpart J (see comment above)

40 CFR 61 Subpart Y – Bz (product) Storage – 40 CFR 63 Subpart G has subsumed all previous 61/Y applicability

40 CFR 61 Subpart Y – Bz (product) Storage – 40 CFR 63 Subpart G has subsumed all previous 61/Y applicability



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