

CITY OF PHILADELPHIA
Department of Public Health
Public Health Services
Air Management Services

MEMO

TO Kassahun Sellassie, Program Director

FROM Ashraf Ahmed, Environmental Engineer *A.A.*

THRU Maryjoy Ulatowski, Chief of Source Registration *M.U.*

DATE November 3, 2023

RE Philly Shipyard, Inc.
Title V Operating Permit No. OP16-000026
Philadelphia, Philadelphia County

I. Procedural History

As part of the RACT regulations codified at 25 Pa. Code §§ 129.111—129.115 (relating to additional RACT requirements for major sources of NO_x and VOCs for the 2015 ozone NAAQS) (RACT III), PA DEP has established a method under § 129.114(i) (relating to alternative RACT proposal and petition for alternative compliance schedule) for an applicant to demonstrate that the alternative RACT compliance requirements incorporated under § 129.99 (relating to alternative RACT proposal and petition for alternative compliance schedule) (RACT II) that are currently in force in the applicable operating permit continue to be RACT under RACT III.

The procedures to demonstrate that RACT II equals RACT III are specified in § 129.114(i)(1)(i), 129.114(i)(1)(ii) and 129.114(i)(2), that is, subsection (i), paragraphs (1) and (2). An applicant may submit an analysis, certified by the responsible official, that the RACT II permit requirements remain RACT for RACT III by following the procedures established under subsection (i), paragraphs (1) and (2). Paragraph (1) establishes cost-effectiveness thresholds of \$7,500 per ton of NO_x emissions reduced and \$12,000 per ton of VOC emissions reduced as “screening level values” to determine the amount of analysis and due diligence that the applicant shall perform if there is no new pollutant specific air cleaning device, air pollution control technology or technique available at the time of submittal of the analysis. Paragraph (1) has two subparagraphs.

Subparagraph (i) under paragraph (1) specifies that the applicant that evaluates and determines that there is no new pollutant specific air cleaning device, air pollution control technology or technique available at the time of submittal of the analysis and that each technically feasible air cleaning device, air

pollution control technology or technique evaluated for the alternative RACT requirement or RACT emission limitation approved by the Department (or appropriate approved local air pollution control agency) under § 129.99(e) had a cost effectiveness equal to or greater than \$7,500 per ton of NO_x emissions reduced or \$12,000 per ton of VOC emissions reduced shall include the following information in the analysis:

- A statement that explains how the owner or operator determined that there is no new pollutant specific air cleaning device, air pollution control technology or technique available.
- A list of the technically feasible air cleaning devices, air pollution control technologies or techniques previously evaluated under RACT II.
- A summary of the economic feasibility analysis performed for each technically feasible air cleaning device, air pollution control technology or technique in the previous bullet and the cost effectiveness of each technically feasible air cleaning device, air pollution control technology or technique as submitted previously under RACT II.
- A statement that an evaluation of each economic feasibility analysis summarized in the previous bullet demonstrates that the cost effectiveness remains equal to or greater than \$7,500 per ton of NO_x emissions reduced or \$12,000 per ton of VOC emissions reduced.

Subparagraph (ii) under paragraph (1) specifies that the applicant that evaluates and determines that there is no new pollutant specific air cleaning device, air pollution control technology or technique available at the time of submittal of the analysis and that each technically feasible air cleaning device, air pollution control technology or technique evaluated for the alternative RACT requirement or RACT emission limitation approved by the Department (or appropriate approved local air pollution control agency) under § 129.99(e) had a cost effectiveness less than \$7,500 per ton of NO_x emissions reduced or \$12,000 per ton of VOC emissions reduced shall include the following information in the analysis:

- A statement that explains how the owner or operator determined that there is no new pollutant specific air cleaning device, air pollution control technology or technique available.
- A list of the technically feasible air cleaning devices, air pollution control technologies or techniques previously evaluated under RACT II.
- A summary of the economic feasibility analysis performed for each technically feasible air cleaning device, air pollution control technology or technique in the previous bullet and the cost effectiveness of each technically feasible air cleaning device, air pollution control technology or technique as submitted previously under RACT II.
- A statement that an evaluation of each economic feasibility analysis summarized in the previous bullet demonstrates that the cost effectiveness remains less than \$7,500 per ton of NO_x emissions reduced or \$12,000 per ton of VOC emissions reduced.
- A new economic feasibility analysis for each technically feasible air cleaning device, air pollution control technology or technique.

Paragraph (2) establishes the procedures that the applicant that evaluates and determines that there is a new or upgraded pollutant specific air cleaning device, air pollution control technology or technique available at the time of submittal of the analysis shall follow.

- Perform a technical feasibility analysis and an economic feasibility analysis in accordance with § 129.92(b) (relating to RACT proposal requirements).

- Submit that analysis to the Department (or appropriate approved local air pollution control agency) for review and approval.

The applicant shall also provide additional information requested by the Department (or appropriate approved local air pollution control agency) that may be necessary for the evaluation of the analysis submitted under § 129.114(i).

II. Facility Information

Philly Shipyard, Inc., Philadelphia Naval Business Center is located at 2100 Kitty Hawk Ave., Philadelphia, PA, 19112. Philly Shipyard, Inc. operates a shipbuilding facility that produces oceangoing merchant vessels. The facility constructs of standard and specialized ships. The emission sources are cleaning solutions used at the Dry Dock, Building 763 Paint Booth, and Main Building Paint Operations. These emission sources contribute significant levels of VOC emissions at the facility. Philly Shipyard, Inc. is operated in accordance with Title V Operating Permit (TVOP) No. OP16-000026 issued July 22, 2019.

The solvent cleaning operations at the facility is being evaluated under 25 Pa Code § 129.114(i)(1)(i). Philly Shipyard, Inc. submitted the RACT II equals RACT III proposal on December 21, 2022, as part of their RACT III notification. The facility is a major source for VOC only.

The most recent facility full compliance inspection was completed on June 12, 2023. There are currently no outstanding compliance issues or consent agreements.

III. RACT III Applicability for NO_x and VOC

Philly Shipyard, Inc. is not a major source of Nitrogen Oxides (NO_x) due to having potential NO_x emissions less than 100 tons per year, which is the major source threshold in Philadelphia County that is applicable to NO_x RACT for the 2008 8-hour ozone NAAQS and 2015 ozone NAAQS.

Philly Shipyard, Inc. is a major source of Volatile Organic Compounds (VOC) having potential VOC emissions greater than 50 tons per year, which is the major source threshold in Philadelphia County that is applicable to VOC RACT for the 2008 8-hour ozone NAAQS and 2015 ozone NAAQS.

RACT III Analysis for NO_x and VOC applicability

The solvent cleaning operations associated with coating operations at Main Building Paint Shop P-29, Dry Dock P-31, and Building 763 Paint Booth P-47 are subject to the RACT III analysis.

There are no changes to emission factors and calculations used to determine NO_x and VOC emissions from the sources at the facility that would have an impact on the NO_x and VOC PTE for the facility.

Source ID	Source Name	New source or change to existing source?	NO _x (tpy)	VOC (tpy)
Facility Wide	PTE for all sources at the facility, including combustion sources, painting operations, and solvent cleaning operations	No	24.5	179.9
TOTAL FACILITY PTE			<100	>50

Philly Shipyard, Inc. is a major source for VOC. The facility’s potential to emit (PTE) for VOC comes from a Facility Applicability Limit. As per AMS Plan Approval No. IP18-000312 issued December 20, 2017, and amended October 29, 2018, the facility-wide VOC emission limit from operation of all sources at the facility, including combustion sources, painting operations, and solvent cleaning operations, is 179.9 tons per year.

Summary of RACT requirements for each source

The AMS Plan Approval No. IP16-000300 effective April 8, 2020, included the following conditions that were 2008 VOC RACT for Solvent Cleaning:

- (a) The Permittee shall ensure that the following coating operating practices are in effect at all times:
 - (i) All handling and transfer of VOC/VOHAP-containing materials to and from containers, tanks, vats, drums, and piping systems is conducted in a manner that minimizes spills.
 - (ii) All containers, tanks, vats, drums, and piping systems are free of cracks, holes, and other defects and remain closed unless materials are being added to or removed from them.
 - (iii) Institute a procedure which controls the distribution of VOC containing thinner and solvent within the facility. The provided thinner used in each batch of coatings shall not exceed the established maximum allowable thinner ratio calculated in accordance with 40 CFR 63.785(c)(2).
 - (iv) Paint line and spray guns must be cleaned in a closed system that is able to recirculate and collect spent solvent during the cleaning process for proper disposal; and
 - (v) Waste paint, spent solvent, solvent contaminated rag or materials, and sludge from gun cleaners must be stored in gasket sealed containers until properly disposed.

EPA approved the RACT II requirements on 11/1/2021 in Federal Register §52.2064(f)(9). RACT II continues to be RACT for RACT III and therefore these requirements are not changing.

RACT II as RACT III

Philly Shipyard, Inc. uses cleaning solvents to clean and purge equipment associated with the facility’s painting operations. In the RACT II analysis that was approved by AMS on April 8, 2020, Philly Shipyard, Inc. evaluated known and available air cleaning devices, air pollution control technologies, and techniques, as well as the technical analysis of available control technologies. The solvent cleaning operations does not fit under any presumptive or CTG VOC RACT categories. In the RACT II analysis,

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Philly Shipyard, Inc. proposed an alternative VOC RACT under 25 Pa Code §129.99(d). This includes a technical analysis of available VOC control technologies. The following VOC control technologies are potentially available for solvent cleaning operations:

- Good Work Practice Standards
- Add-on controls to capture and control VOCs
- Use of alternative solvent with lower VOC contents

From these VOC control technologies, only Good Operating Practices was determined to be technically and economically feasible. All other technologies including add-on controls to capture and control VOCs, and use of alternative solvent with lower VOC contents were considered technically infeasible due to certain operating requirements for solvent cleaning operations at Philly Shipyard, Inc. Since the cleaning solvents are used in multiple locations throughout the facility, using add-on controls to capture and control VOC is technically infeasible. Additionally, Philly Shipyard, Inc. cannot use alternative solvents with lower VOC contents because the paints must meet the requirements of the Performance Standard for Protective Coating (PSPC), adapted by the International Maritime Organization, and specific cleaning solvents identified by the paint supplier must be used in conjunction with the paints so that the paint will meet performance requirement of PSPC. So, using alternative solvent with lower VOC contents is technically infeasible.

After the approval of the RACT II analysis by AMS, there hasn't been any new technologies that can be evaluated for technical and economic feasibility. Searches of the RACT/BACT/LAER Clearinghouse by Philly Shipyard, Inc. and AMS did not locate any new control options. AMS believes the analysis is sufficient.

Since the only technically feasible option of VOC control technology is the use of good work practice standards, Philly Shipyard, Inc. did not need to perform an economic analysis.

AMS has reviewed source information, control technologies or measures evaluated by Philly Shipyard, Inc. AMS also performed an independent analysis which included, AMS's continuous review of permit applications since the applicability date of RACT II, internet searches, BACT/RACT/LAER Clearinghouse search, knowledge gained from the AMS permitting staff participating in technical presentations by several vendors and manufacturers of pollution control technology, and a review of EPA and MARAMA's documents. Based on our review of these documents, along with training and the expertise of the reviewing staff, AMS concludes that there are no new or updated air pollution control technologies available for the sources found at Philly Shipyard, Inc. and determines that RACT II requirements for solvent cleaning operations at Philly Shipyard, Inc. listed in the table assure compliance with requirement for RACT III for the § 129.111 - § 129.115.

AMS proposed good work practice standards as RACT in the approved RACT II permit. Good work practice standards include conducting all handling and transfer of VOC/VOHAP-containing materials in a manner that minimizes spills, ensuring all containers, tanks, vats, drums, and piping systems are free of cracks, holes, and other defects and remain closed except during addition or removal of materials, instituting a procedure to control distribution of VOC containing thinner and solvent within the facility, cleaning paint line and spray guns in a closed system that is able to recirculate and collect spent solvent for disposal, and storing waste paint, spent solvent, solvent contaminated rag or materials, and sludge from gun cleaners in gasket sealed containers until properly disposed.

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Since there hasn't been any new technologies that can be evaluated for technical and economic feasibility, the provisions of § 129.114(i)(2) are not used.

Comparison between RACT II and RACT III requirements

- Because RACT II requirements are being certified as continuing to be RACT, RACT III requirements are identical to RACT II and therefore are as stringent as RACT II.

Public discussion

- No discussions occurred with the EPA, the company, or the public after the company submitted the RACT II is RACT III proposal application.

Attachments (1)

RACT III Notification.