

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

**MEMO**

**TO** Kassahun Sellassie, Program Director

**FROM** Maryjoy Ulatowski *MU*

**DATE** November 8, 2023

**RE** Newman and Company, Inc Title V Operating Permit No. V15-003  
Philadelphia, Philadelphia County (PLID 3489)

**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<sub>x</sub> 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<sub>x</sub> 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) and Subparagraph (ii) 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<sub>x</sub> emissions reduced or \$12,000 per ton of VOC emissions reduced shall include the following information in the analysis:

- A statement explaining how the owner or operator determined that no new pollutant-specific air cleaning device, air pollution control technology, or technique is 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<sub>x</sub> emissions reduced or \$12,000 per ton of VOC emissions reduced.

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 and economic feasibility analyses per § 129.92(b) (relating to RACT proposal requirements).
- Submit that analysis to the Department (or the appropriate approved local air pollution control agency) for review and approval.

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

The information includes,

- A brief description of the facility and the sources being evaluated under § 129.114(i)(1)(i), 129.114(i)(1)(ii), and 129.114(i)(2). Mention which source is being evaluated under which provision.
- The date the applicant submitted the RACT II equals the RACT III proposal.
- Whether the facility is major for NO<sub>x</sub> and/or VOC.
- Mention the last date the facility received a full compliance evaluation.
- Describe here any violations present at the facility.

## **Facility Information**

Newman and Company, Inc. owns and operates a paperboard manufacturing facility located at 6101 Tacony Street, Philadelphia, PA 19135. The facility's air emissions sources include a 118 MMBTU/hr Union Cogeneration boiler (Boiler #1) firing natural gas and No. 2 oil, twenty-nine (29) space heaters each less than 0.5 MMBTU/hr, and two (2) power washers. The facility also

has a stage II vapor recovery system for a 3,000-gallon gasoline, a 973,000 BTU/hr fire pump, and a trim waste blower system.

Table 1 below lists the sources at Newman that are evaluated under the provisions of 25 PA Code §129.114(i)(1)(i), §129.11(i)(1)(ii), or §129.114(i)(2).

**§129.114(i)(1)(i)** This option is chosen if no new air pollution control device is available or if the cost analysis done for RACT II (§129.999(e)) resulted in a cost-effectiveness equal to or greater than \$7500 for NOx emission reduced or \$12,000 per ton of VOC reduced. This option is also chosen if a control option during RACT II evaluation was determined to be technically infeasible or no cost analysis was performed for another reason, such as a higher ranked control technology was installed.

**§129.114(i)(1)(ii)** This option is chosen if the cost analysis done for RACT II (§129.999(e)) resulted in a cost-effectiveness less than \$7500 for NOx emissions reduced or \$12,000 per ton of VOC reduced.

**§129.114(i)(2)** This option is chosen if for any sources which have new or upgraded control device, beyond what was elevated for RACT II (§129.99(e)), which needs to be installed.

The RACT II = RACT III sources in Table 1 below are evaluated under the provisions of 25 PA Code §129.114(i)(1)(i).

Table 1: Sources Evaluated under §129.114(i)

Source ID	Source Description	§129.114(i)(1)(i)	§129.114(i)(1)(ii)	§129.114(i)(2)
001	<u>Boiler 1 (Natural Gas)</u>	x		

Newman and Company, Inc submitted the RACT II equals RACT III proposal on December 22, 2022, as part of their RACT III notification.

The facility's most recent full compliance evaluation was on 2/15/2022, and no compliance issues were discovered.

### **RACT III Applicability for NOx and VOC**

Newman and Company, Inc is a major source of NOx due to potential emissions greater than 100 tons per year. The 100 tpy is the major source threshold in Philadelphia County that is applicable to NOx RACT for the 2015 8-hour ozone National Ambient Air Quality Standard (NAAQS).

Newman and Company, Inc is not a major source of VOC having potential emissions of less than 50 tons per year.

The 50 tpy is the major source threshold in Philadelphia County that is applicable to VOC RACT for the 2015 8-hour ozone NAAQS.

Boiler #1 has a capacity of 118 million British thermal units per hour (MMBtu/hr) and burn both natural gas and No. 2 fuel oil. Steam from the boiler is supplied to the boiler and some steam is supplied to the paper machine. At the time of the RACT II submittal and issuance of the RACT II Plan Approval, Boiler 1 was permitted to burn natural gas and No. 6 fuel oil. Boiler 1 no longer burns No. 6 fuel oil. Boiler 1 now it is permitted to natural gas, burn No. 2 oil, or ultra-low sulfur diesel, under AMS IP21-00989 dated 6/27/2023. The boiler is the point of air emissions and is subject to the presumptive RACT requirements found in 25 Pa. Code §§129.97 and 129.112(g)(1)(i)-(ii). When firing natural gas, Boiler 1 is subject to the presumptive NO<sub>x</sub> emissions rate of 0.10 pounds per million British thermal units (lb/MMBtu), found in §129.112(g)(1)(i). Boiler 1 is unable to meet the presumptive RACT III emission limit for natural gas or No. 2 oil. While firing natural gas is being evaluated under the RACT II = RACT III provision. While firing No. 2 oil, Boiler 1 will be evaluated under a separate new Case-by-Case analysis.

Source ID	Source Name	New source or change to the existing source?	NO <sub>x</sub> (tpy)	VOC (tpy)
001	Union Cogeneration Boiler with oxygen trim system	The boiler can now burn natural gas and No. 2 oil. The boiler can no longer burn No. 6 oil.	121	<50 tpy
			121	
<b>TOTAL FACILITY PTE</b>			< 100	< 50

### Summary of RACT II requirements for Boiler #1 (Source Id 001)

The following is a list of case-by-case NO<sub>x</sub> sources and the requirements from RACT II (IP16-000223) dated 3/31/2020. The RACT II permit was approved by EPA on 11/1/2021 under Federal Register 52.2064 (f)(7). The RACT II IP16-000223 permit supersedes RACT Plan Approval, effective January 9, 2015

Below are the requirements of RACT II (IP16-000223) dated 3/31/2020 for Boiler 1 while burning natural gas.

- NO<sub>x</sub> emissions from Boiler 1 shall not exceed 0.37 lbs/MMBTU when firing natural gas,
- The total NO<sub>x</sub> emissions limit from the Boiler 1 shall not exceed 121 tons per rolling 12-month period.
- The Permittee shall monitor and record the monthly fuel usage for each boiler.
- The Permittee shall monitor and record verification of compliance with the NO<sub>x</sub> emission limits. Compliance with the NO<sub>x</sub> limit shall be based on AMS approved stack test data.

## RACT II as RACT III

The facility searched the RACT/BACT/LAER Clearinghouse (RBLC) and consulted with the boiler vendor and did not identify any new control techniques. AMS also performed an independent analysis which included, the Department's continuous review of permit applications since the applicability date of RACT II, internet searches, BACT/RACT/LAER Clearinghouse search, knowledge gained from the Department 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, the Department concludes that there are no new or updated air pollution control technologies available for the sources found Newman and determines that RACT II requirements for sources Boiler at Newman listed in the table assure compliance with requirement for RACT III for the § 129.111 - § 129.115.

AMS believes the above RACT II determinations continue to be RACT III. 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.

Source ID	Control Technology	VOC Cost Effectiveness (\$/ton)	NOX Cost Effectiveness (\$/ton)	Technologically feasible?
Boiler #1	<u>Selective Non-Catalytic Reduction</u>	N/A	N/A	No
Boiler#1	Economizer	N/A	N/A	No
Boiler #1	FGR	N/A	22,885	Yes
Boiler #1	LNB	N/A	7,922	Yes
Boiler #1	LNB+FGR	N/A	9,486	Yes
Boiler #1	SCR	NA	\$13,607	Yes

\* AMS evaluated LNB+FGR for RACT II and found it to be economically unreasonable. However, Newman has received guidance from Powerhouse Operations Inc. The combustion Control engineer who is familiar with the boiler, indicated several concerns with the operation of the boiler should LNB with FGR need to be installed. The concerns relate to the furnace configuration and construction that present several unique combustion problems that have not been adequately addressed by the equipment suppliers. The considered opinion of the engineer is that the expected *NOx* reduction will not be realized, and the safety, reliability, and capacity of the boiler will be adversely affected should LNB+FGR be installed on the boiler.

## **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:**

- After submitting the RACT III Notification in December 2022, AMS requested more information from the facility. The requested information included an updated cost analysis for Low NOx Burner and FGR while burning natural gas and No. 2oil.
- No public discussion was held after the initial RACT II is RACT III proposal application.

### Attachments (2)

RACT III Notification – 12/22/2022

Updated RACT III Cost Analysis - 9/26/2023

RACT Plan Approval Permit IP16-000223 dated 3/31/2020.