



Bureau of Air Quality

Draft Proposed Rulemaking 25 Pa. Code Chapters 121 and 129

Additional RACT Requirements for Major Sources of NO_x and VOCs for the 2015 Ozone NAAQS

Air Quality Technical Advisory Committee

April 16, 2020

Harrisburg, PA

Tom Wolf, Governor

Patrick McDonnell, Secretary

Background

- On October 26, 2015, the United States Environmental Protection Agency (EPA) lowered the primary and secondary National Ambient Air Quality Standard (NAAQS) for ozone to 0.70 ppm.
- Re-evaluation of Reasonably Available Control Technology (RACT) is a requirement to be fulfilled each time an ozone NAAQS is promulgated for nonattainment areas.
- Because the entire Commonwealth is in the Ozone Transport Region and is treated as a moderate nonattainment area, RACT is applicable to major sources of nitrogen oxides (NO_x) and/or volatile organic compounds (VOC) statewide.

RACT III Implementation

- Nonattainment designations for the 2015 Ozone NAAQS were promulgated by EPA on June 4, 2018, and became effective on August 3, 2018.
- EPA published the Nonattainment Area State Implementation Plan Requirements for the 2015 Ozone NAAQS on December 6, 2018.
- The Department is proposing §§ 129.111—129.115 to establish additional RACT limits and RACT requirements for major sources of NO_x and VOC for the 2015 Ozone NAAQS (RACT III).
 - RACT I is §§ 129.91—129.95.
 - RACT II is §§ 129.96—129.100.

RACT III Applicability

- Proposed § 129.111 establishes the applicability.
- Sections 129.111—129.115 would apply to major sources of NO_x or VOC that commenced construction on or before August 3, 2018.
- Fugitive sources of VOCs at oil and gas facilities would be aggregated with an associated stationary source to determine the boundaries of the source with regard to the 1.0 ton and 2.7 ton applicability thresholds.
 - This would address the fugitive VOC emissions from natural gas compression and transmission facilities.
 - A definition facilitating this aggregation is proposed in § 121.1.

Presumptive RACT III Requirements

- Proposed § 129.112 establishes the presumptive RACT limits and RACT requirements.
- For combustion units rated between 20 and 50 MMBtu/hr heat input, compliance with the boiler MACT tune-up procedures included in RACT III would ensure compliance with RACT I and RACT II boiler tune-up presumptive RACT requirements.
- For propane and liquid petroleum gas-fired combustion units rated at 50 MMBtu/hr or greater, the proposed presumptive NO_x RACT requirement would be 0.10 lb/MMBtu or less (new).
- Averaging periods for combustion units with CEMS would be daily during the ozone season (new) and 30-operating day rolling year-round.

Presumptive RACT III Requirements

The following presumptive NO_x RACT limits are proposed:

- 85 ppmvd @ 15% oxygen for simple cycle turbines rated between 1,000 and 3,000 brake horsepower (bhp) firing natural gas (down from 150).
- 42 ppmvd @ 15% oxygen for simple cycle turbines rated between 3,000 and 6,000 bhp firing natural gas (down from 150).
- 9 ppmvd @ 15% oxygen for simple cycle turbines rated at 60,000 bhp or greater firing natural gas (down from 42).
- Combined cycle turbines would remain the same as in RACT II (4 ppmvd including start up and shutdown).

Presumptive RACT III Requirements

- Summary of proposed changes for natural gas-fired turbines:

Type and Size	Presumptive NO _x (ppmvd @ 15% oxygen)	
	RACT II	RACT III
SC ≥ 1000 bhp - <3000 bhp	150	85
SC ≥ 3000 bhp - <6,000 bhp	150	42
SC ≥ 6000 bhp - <60,000 bhp	42	42
SC ≥ 60,000 bhp	42	9
CC ≥ 1000 bhp - <180 MW	42	42
CC ≥ 180 MW	4	4

Presumptive RACT III Requirements

The following presumptive NO_x RACT limits are proposed:

- 0.6 g/bhp-hr for lean-burn engines rated at 2,500 bhp or greater firing natural gas (down from 3.0).
- 1.6 g/bhp-hr for lean-burn engines rated at 500 bhp or greater firing liquid or dual fuel (down from 8.0).
- 0.4 g/bhp-hr for rich-burn engines rated between 100 and 500 bhp firing natural gas (previously good operating practices).
- 0.4 g/bhp-hr for rich-burn engines rated at 500 bhp or greater firing natural gas (down from 2.0).

Presumptive RACT III Requirements

The following presumptive VOC RACT limits are proposed:

- 0.5 g/bhp-hr for lean-burn engines rated at 500 bhp or greater (down from 1.0).
- 0.5 g/bhp-hr for rich-burn engines rated between 100 and 500 bhp (previously good operating practices).
- 0.5 g/bhp-hr for rich-burn engines rated at 500 bhp or greater (down from 1.0).

Presumptive RACT III Requirements

- Summary of proposed RACT limit changes for engines:

Type	Fuel	Size	NOx (g/bhp-hr)		VOC (g/bhp-hr)	
			RACT II	RACT III	RACT II	RACT III
Lean	Natural Gas	≥ 500 bhp - < 2500 bhp	3.0	3.0	1.0	0.5
Lean	Natural Gas	≥ 2500 bhp	3.0	0.6	1.0	0.5
Lean	Liquid or Dual	≥ 500 bhp	8.0	1.6	1.0	0.5
Rich	Natural Gas	≥ 100 bhp - < 500 bhp	Good OP	0.4	Good OP	0.5
Rich	Natural Gas	≥ 500 bhp	2.0	0.4	1.0	0.5

Presumptive RACT III Requirements

- For multiple fuels, a fuel representing less than 2% of the annual fuel consumption may be excluded from the multiple fuels calculation (up from 1%).
- Requirements of two Lehigh Cement consent decrees of 3.0 lb NO_x per ton of clinker for Evansville and 2.30 lb NO_x per ton of clinker for Nazareth are proposed as presumptive NO_x RACT. These requirements are proposed for all cement kilns (new).
- Requirements for glass melting furnaces that are the same as the requirements contained in §§ 129.301--129.310 are proposed as presumptive NO_x RACT (new).

Presumptive RACT III Requirements

The following presumptive NO_x RACT requirements are proposed:

- For lime kilns, 4.6 lb NO_x per ton of lime produced.
 - Specific requirements would be included for the Graymont Pleasant Gap facility that match current permit limits.
- For electric arc furnaces, operation of the source in accordance with the manufacturer's specifications and with good operating practices.
- For other direct-fired heaters, furnaces, or ovens rated at 20 MMBtu/hr or greater, the emissions limit would be 0.10 lb/MMBtu.

EGU Presumptive RACT III Requirements

The following presumptive NO_x RACT requirements for coal-fired combustion units with selective catalytic reduction (SCR) systems are proposed:

- 0.10 lb/MMBtu when SCR inlet temperature is 600°F or greater on a 30-operating day rolling average year-round (previously 0.12).
- 0.12 lb/MMBtu when SCR inlet temperature is 600°F or greater on a daily average during the ozone season (new).
- 0.35 (tangential-fired) or 0.40 (wall-fired) lb/MMBtu, as applicable, when SCR inlet temperature is below 600°F on a 30-operating day rolling average year-round and on a daily average during the ozone season (previously only 30-day average).

EGU Presumptive RACT III Requirements

Owners and operators of combustion units with SCR or selective non-catalytic reduction (SNCR) would be required to control the NO_x emissions each operating day by operating the installed air pollution control technology and combustion controls at all times consistent with:

- the technological limitations,
- manufacturer specifications,
- good engineering and maintenance practices, and
- good air pollution control practices for controlling emissions (new).

EGU Presumptive RACT III Requirements

RACT requirements for the Brunner Island units that are consistent with the company's consent decree with Sierra Club (new).

- Coal may be fired during the time period between May 1 and September 30 for calendar years 2022—2028 if the NO_x emissions do not exceed 0.12 lb NO_x/million Btu heat input.
- Coal may not be fired after December 31, 2028, unless PJM has declared an *Emergency Action* and natural gas is not available.

▶ RACT III Averaging Requirements

- Proposed § 129.113 establishes averaging requirements.
- Facility-wide and system-wide NO_x emissions averaging plans would be submitted to EPA as site-specific SIP revisions, similar to case-by-case determinations.
 - This would be consistent with the requirement EPA implemented for averaging plans for RACT II.
- Averaging proposals shall be due no more than 6 months after the final rulemaking is published or no more than 6 months after the source meets the definition of major NO_x emitting facility, whichever is later.

▶ RACT III Case-By-Case Requirements

- Proposed § 129.114 establishes case-by-case requirements.
- Case-by-case determinations made for RACT II would satisfy the case-by-case requirements of RACT III, except in circumstances where a source not subject to a RACT II presumptive requirement is subject to a RACT III presumptive requirement.
- This would greatly reduce the number of case-by-case proposals and alleviate administrative burden on the regulated community, DEP, and EPA.

▶ RACT III Notification Requirements

- Proposed § 129.115 establishes notification and compliance requirements.
- Owners and/or operators would be required to notify the Department of all facilities/sources that are subject to RACT III (new).
 - All facilities/sources includes exempt facilities/sources.
 - Explain how they plan to comply with the requirements, even if all facilities/sources are subject to presumptive RACT.
 - Required no more than 6 months after the final rulemaking is published.
- This requirement would allow DEP to identify the facilities/sources that are subject to RACT III.

▶ RACT III Compliance Requirements

- For combustion units with SCR or SNCR, temperature at the inlet to the SCR must be recorded on an hourly basis and reported to DEP (new hourly requirement).
- Compliance with stack testing requirements may be shown with testing conducted within two years prior to the date the final rulemaking is published (previously 1 year).
- For combustion turbines, compliance with presumptive requirements may be demonstrated on a mass-equivalent basis (new).

RACT III Compliance Date

- EPA requires implementation of RACT for the 2015 Ozone NAAQS to be no later than January 1 of the fifth year after the effective date of the designations.
 - For the 2015 Ozone NAAQS, that date is January 1, 2023.
 - January 1, 2023, is the proposed compliance date.

Anticipated Rulemaking Schedule

- Air Quality Technical Advisory Committee – April 16, 2020
- Small Business Compliance Advisory Committee – April 22, 2020
- Citizens Advisory Council Policy and Regulatory Oversight Committee – May 2020
- Citizens Advisory Council – May/June 2020
- Environmental Quality Board – Third Quarter 2020
- Proposed Rulemaking Published – Fourth Quarter 2020

AQTAC Action

The Department is requesting AQTAC's concurrence with the Department's recommendation to move the proposed rulemaking for additional RACT requirements for major sources of NO_x and VOC for the 2015 Ozone NAAQS forward to the EQB for consideration.



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DEPARTMENT OF ENVIRONMENTAL PROTECTION



Bureau of Air Quality

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