

United States Environmental Protection Agency, Region 9

Air Division

Technical Support Document

for

EPA's Notice of Rulemaking

for the

California State Implementation Plan

Placer County Air Pollution Control District's

Rule 231, Industrial, Institutional and Commercial Boiler, Steam Generator and Process

Heaters

Prepared by: Idalia Perez

September 2011

Placer County Air Pollution Control District (PCAPCD)

Submitted Rule

PCAPCD Rule 231, Industrial, Institutional and Commercial Boiler, Steam Generator and Process Heaters:

- § Amended: October 9, 1997
- § Submitted: March 17, 2009
- § Determined complete: April 20, 2009

Previous Rule Submittals

Another version of Rule 231 was previously submitted to EPA on 10/19/94 as a revision to the State Implementation Plan (SIP) but was later withdrawn from submission by ARB.

SIP-Approved Rule

There is currently no SIP-approved version of Rule 231.

Rule Summary

This rule limits emission of nitrogen oxides (NO_x) and carbon monoxide (CO) from boilers, steam generators and process heaters fueled on liquid or gas fuels that are 5 MMBtu/hour or larger.

Section 103 states the units that are exempt from the rule.

Section 300 has the standards in the rule. For units with an annual heat input of 90,000 therms or more, the NO_x emission limits are:

- 30 ppm or 0.036 lbs/MMBtu for units fired on gaseous fuels;
- 40 ppm or 0.052 lbs/MMBtu for units fired on liquid fuels.

Units with a annual heat input lower than 90,000 therms can meet the above limits or are required to keep a 3% oxygen concentration in the flue gas or be tuned once a year.

Section 400 has the rule's administrative requirements.

Section 500 includes monitoring and recordkeeping requirements.

Section 600 describes the tuning procedure for low-use units that are tuned once a year to meet the requirements of Section 300.

Effects on Emissions

Supporting information that was included in the SIP-submittal indicates that no emission reduction will result from this version of Rule 231 since it does not include changes in the emission limits. Email correspondence with the John Finnell on 12/17/09 (attached) indicates that the emission reductions obtained from the previous version of Rule 231 was 0.09 tons NO_x/day.

Rule Evaluation

Generally, SIP rules must be enforceable (see section 110(a) of the Act), must require Reasonably Available Control Technology (RACT) for major sources in nonattainment areas (see sections 182(b)(2) and 182(f)), and must not relax existing requirements (see sections 110(l) and 193). In addition, Section 172(c)(1) of the Clean Air Act (CAA) requires nonattainment areas to implement all reasonably available control measures (RACM), including such reductions in emissions from existing sources in the area as may be obtained through the adoption, at a minimum, of reasonably available control technology (RACT), as expeditiously as practicable.

The PCAPCD regulates ozone nonattainment areas (40 CFR 81), thus, submitted Rule 231 must fulfill RACT and RACM requirements¹.

Guidance and policy documents that we used to define specific RACT, RACM and enforceability requirements include the following:

- *Issues Relating to VOC Regulation, Cutpoints, Deficiencies, and Deviations* (the "Blue Book"), US EPA, OAQPS (May 25, 1988).
- *Guidance Document for Correcting Common VOC and Other Rule Deficiencies*, EPA Region IX (August 21, 2001, the "Little Bluebook").
- *State Implementation Plans; General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990*, 57 FR 13498 (April 16, 1992); 57 FR 18070 (April 28, 1992).
- *State Implementation Plans; Nitrogen Oxides Supplement to the General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990* (the "NO_x Supplement to the General Preamble"), US EPA, 57 FR 55620 (November 25, 1992).
- *Clean Air Fine Particle Implementation Rule*, 72 FR 20586 (April 25, 2007)
- *Determination of Reasonably Available Control Technology and Best Available Retrofit Control Technology for Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters*, CARB (July 18, 1991).
<http://www.arb.ca.gov/ractbarc/boilers.pdf>
- *Alternative Control Techniques Document-- NO_x Emissions from Industrial/Commercial/Institutional (ICI) Boilers*, US EPA 453/R-94-022 (March 1994). <http://www.epa.gov/ttn/catc/dir1/icboiler.pdf>
- *Alternative Control Techniques Document-- NO_x Emissions from Utility Boilers*, US EPA 452/R-93-008 (March 1994).
<http://www.epa.gov/ttn/catc/dir1/utboiler.pdf>

We believe Rule 231 implements RACT for reasons including:

¹ PCAPCD also regulates a nonattainment area under the 2006 24-Hour PM_{2.5} National Ambient Air Quality Standard (NAAQS). 40 C.F.R. § 81.305 (2010). By December 14, 2012, California must submit a revision to the State Implementation Plan (SIP) for this nonattainment area that provides for, among other things, implementation of all RACM as expeditiously as practicable (including RACT for existing sources). CAA § 172(a)(2)(A), (b) & (c)(1), 74 FR 58689 (Nov. 13, 2009). EPA will take action on this RACM demonstration in a separate rulemaking.

- Both 1994 ACT documents mentioned above provide technical information including control techniques and achievable controlled NOx emission levels from boilers. Rule 231 requirements are more stringent than the ACT.
- The submitted rule is as stringent as CARB's RACT/BARCT guidance.

Since no CTG has been issued for this activity, we do not have clear national guidance defining presumptive RACT. However, we believe the analysis summarized above sufficiently demonstrates that Rule 231 implements RACT.

CAA §172(c)(1) requires nonattainment areas to implement all reasonably available control measures, including such reductions in emissions from existing sources in the area as may be obtained through the adoption, at a minimum, of RACT, as expeditiously as practicable. Boilers can emit direct PM_{2.5}, as well as SO_x, which is a precursor to PM_{2.5}, and NO_x, which is a precursor to both PM_{2.5} and ozone. Therefore, PCAPCD must implement RACM for boilers if those measures will advance attainment of the National Ambient Air Quality Standard (NAAQS) for PM_{2.5} or ozone, when considered collectively with other reasonable measures. Additional control measures may be required pursuant to CAA §172(c)(1) if both: (1) additional measures are reasonably available; and (2) these additional reasonably available measures will advance attainment in the area when considered collectively. In separate rulemakings, EPA will take action on the State's RACM demonstration for PM_{2.5} and ozone based on an evaluation of the control measures submitted as a whole and their overall potential to advance the applicable attainment dates in the District. *See* 40 CFR §§ 51.1010, 51.912(d).

Recordkeeping and other compliance provisions in the rule ensure that the requirements are adequately enforceable. Lastly, since there is currently no rule in the SIP that regulates this source category for PCAPCD, the emission limitations in the submitted rule strengthen the SIP. We propose to determine that our approval of the submittal would comply with CAA sections 110(l) and 193, because the proposed SIP revision would not interfere with the on-going process for ensuring that requirements for RFP and attainment of the NAAQS are met, and the submittal strengthens the SIP as there is no rule for this category currently in the SIP and would insure equivalent or greater emission reductions of NO_x.

Additional Recommendation

Although not currently basis for rule disapproval, EPA recommends that the PCAPCD make the following revisions to Rule 231:

1. Section 103.1 refers to Rule 232 that has not been submitted to be included in the SIP. The rule should be submitted or this reference should be eliminated.
2. Section 103.6 incorrectly refers to Section 206 as the definition of municipal solid waste. This section should refer to 207.
3. The district should consider lowering the emission limits in Section 301 to be consistent with South Coast Rule 1146 (adopted September 5, 2008) and analogous rules in other areas.

4. Section 302.1 does not specify how a 3% or less stack oxygen content would be verified. This provision should be eliminated and Section 302.2 should be used instead.
5. Section 502.2 should clarify the definition of “as-found operating conditions”. It could specify that operating conditions that are prevalent more than 90% of the time or it could state that “as-found operating conditions” must be defined in the permit. For units with varying loads, the tests should span the loads the unit varies throughout operations.
6. Section 601.1 and Section 602.9 should clarify normal operations and significant load variations. Definitions can be based on percentage of time spent at a given firing rate.

Recommended Action

EPA staff recommends approval for incorporation into the California Applicable SIP.

Other References

1. Submitted Rule 231 (Clean Copy)
2. SIP submittal package
3. Email from John Finnell to Idalia Perez indicating emission reductions, dated December 17, 2009.



Placer Rule 231
John Finnell
to:
Idalia Perez
12/17/2009 07:42 AM
Hide Details
From: John Finnell <JFinnell@placer.ca.gov>

To: Idalia Perez/R9/USEPA/US@EPA

History: This message has been replied to.

1 Attachment



Reduction in Emissions from Boilers from Rule 231.xlsx

Hi Idalia,

Regarding RULE 231 INDUSTRIAL, INSTITUTIONAL, AND COMMERCIAL BOILERS, STEAM GENERATORS, AND PROCESS HEATERS, the emission reductions obtained at the time the Rule 231 was adopted are estimated to be 0.09 tons per day.

Attached is a spreadsheet showing the results. These reductions required modifications of boilers. Low NOx burners and flue gas recirculation were used.

John Finnell
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Boiler Reductions		MMBtu/hr	Reductions		
			lbs/hr	lbs/year	tons/day
NEC	AC-95-16 M-Line Boilers	20.9 MMBtu/hr	1.45	12702	0.0174
	AC-95-16 M-Line Boilers	20.9 MMBtu/hr	1.45	12702	0.0174
	AC-97-34 K-Line Boilers	8.4 MMBtu/hr	0.42	3679.2	0.0050
	AC-97-34 K-Line Boilers	8.4 MMBtu/hr	0.42	3679.2	0.0050
	AC-97-34 K-Line Boilers	8.4 MMBtu/hr	0.42	3679.2	0.0050
Kaiser	AC-98-36	8 MMBtu/hr	0.4	3504	0.0048
		8 MMBtu/hr	0.4	3504	0.0048
		8 MMBtu/hr	0.4	3504	0.0048
HB Fuller	AC-96-74	6.277 MMBtu/hr	0.65	5694	0.0078
Sutter Roseville	AC-96-10	7.499 MMBtu/hr	0.4	3504	0.0048
		7.499 MMBtu/hr	0.4	3504	0.0048
		7.499 MMBtu/hr	0.4	3504	0.0048
		7.499 MMBtu/hr	0.4	3504	0.0048

Total tons/yr Tons/day Total
33.3 0.0913