United States Environmental Protection Agency, Region 9

Air Division

Technical Support Document

for

EPA's Notice of Rulemaking

for the

California State Implementation Plan

South Coast Air Quality Management District's

Rule 1146.2, Emissions of Oxides of Nitrogen From Large Water Heaters and Small Boilers and Process Heaters

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South Coast Air Quality Management District (SCAQMD)

Submitted Rule
SCAQMD Rule 1146.2, Emissions of Oxides of Nitrogen From Large Water Heaters and Small Boilers and Process Heaters – adopted May 5, 2006, submitted March 7, 2008, submittal determined complete April 17, 2008.

Previous Rule Submittals
Another version of Rule 1146.2 was previously submitted to EPA as a revision to the State Implementation Plan (SIP). The following interim submittal is superseded by the March 7, 2008 submittal which is the subject of this Technical Support Document (TSD):

- Rule 1146.2, Emissions of Oxides of Nitrogen From Large Water Heaters and Small Boilers – adopted January 7, 2005, submitted March 7, 2008, submittal determined complete April 17, 2008.

Though we can act only on the most recent version of the submitted rule, we have reviewed previously submitted versions.

SIP-Approved Rule
A previous version of Rule 1146.2 was adopted on January 9, 1998 and approved by EPA on April 8, 2002 (67 FR 16640).

Rule Summary
Rule 1146.2 regulates emissions of oxides of nitrogen (NOx) from large water heaters and small boilers and process heaters.

<u>Changes to the rule</u>
The District amended the SIP-approved rule to be applicable to all units with rated heat input less than 2,000,000 Btu/hr, instead of units that are between 75,000 Btu/hr and 2,000,000 Btu/hr.

Section (b), definitions, was amended to include new definitions, eliminate definitions that were no longer needed and change some existing definitions. New definitions include fire tube boiler, instantaneous water heater, pool heater, tank type water heater, thermal fluid heater. The definitions that were eliminated were commercial water heater, mobile home water heater and small boiler. The definitions of boiler or steam generator and of process heater were amended to only allow natural gas as fuel. The definition of Type 1 unit was changed to include units smaller than 75,000 Btu/hr.

The District extended the compliance dates for existing units to meet NOx emission limits. These limits are 30 ppm of NOx or 0.037 pound of NOx per million Btu of heat input. The deadline was extended because the District found that was technically infeasible to retrofit all existing units to meet the emission limits by the approved deadline due to lack of availability of retrofit kits. Additionally, if the previous compliance dates had been left in place, the lack of retrofit kits would have necessitated the replacement of many units before the end of their useful life.

- On or after January 1, 2006, units with rated heat inputs greater than 400,000 Btu/hr and less than 1,000,000 Btu/hr which were manufactured before January 1, 2000 have 15 years after the original date of manufacture to meet the emission limits. (The SIP-approved rule stipulated that these units should not be operated after January 1, 2006.)
- On or after January 1, 2006, units with rated heat inputs greater than 1,000,000 Btu/hr and less than 2,000,000 Btu/hr which were manufactured on or after January 1, 1992 have 15 years after the original date of manufacture to meet the emission limits. (The SIP-approved rule stipulated that units with this rated heat input manufactured between January 1, 1992 and 1999 should not be operated after January 1, 2005.)

The District added subsection (c)(6) to define the original date of manufacture.

The District will reduce the NOx emissions limits to 20 ppm or less than 14 ng/J for new units, excluding pool heaters with rated heat inputs less than or equal to 400,000 Btu/hr.

- Units manufactured on or after January 1, 2010 with a rated heat input capacity greater than 400,000 Btu/hr and less than or equal to 2,000,000 Btu/hr (Type 2) will be subject to the new NOx limit.
- Units manufactured on or after January 1, 2012 with a rated heat input capacity less than or equal to 400,000 Btu/hr (Type 1) will be subject to the new NOx limit.
- Sell-through provisions were added allowing manufacturers one year after the January 2010 and January 2012 compliance dates to sell units not complying with the new emission limits.

Provisions describing maintenance requirements and documentation requirements were added to section (c). Specifications for the demonstration of compliance with the 9,000 therm exemption were added. The Implementation Study, section (i), a requirement that is no longer applicable was eliminated and a new section (i) requiring progress reports was included.

Emissions Reductions

The Staff Report for Submitted Rule 1146.2 predicts a reduction of NOx emissions totaling 1.8 ton per day by 2026 as compared to the reductions anticipated in SIP-approved Rule 1146.2.

Rule Evaluation

Generally, SIP rules must be enforceable (see section 110(a) of the Clean Air Act, hereafter CAA); must require Reasonably Available Control Technology (RACT) for major sources in nonattainment areas (see CAA section 182(a)(2)(A)); must not interfere with applicable requirements, including requirements concerning attainment (see CAA section 110(l)); and must not relax existing requirements in effect prior to enactment of the 1990 CAA amendments (see section 193). The SCAQMD regulates a severe ozone nonattainment area (40 CFR 81), thus, submitted Rule 1146.2 must fulfill RACT requirements. The SCAQMD is also a serious PM-10 nonattainment area, and is therefore

subject to the requirement under sections 189(b)(1)(B) and 189(e) of the Act to implement Best Available Control Measures (BACM, which includes Best Available Control Technology or BACT) for control of PM-10 precursor emissions, including NOx.

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

- *Issues Relating to VOC Regulation, Cutpoints, Deficiencies, and Deviations* (the "Blue Book"), US EPA, OAQPS (May 25, 1988).
- EPA Region IX's *Guidance Document for Correcting Common VOC and Other Rule Deficiencies* (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).
- *State Implementation Plans for Serious PM-10 Nonattainment Areas, and Attainment Date Waivers for PM-10 Nonattainment Areas Generally; Addendum to the General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990,* 59 FR 41998 (August 16, 1994).
- *PM-10 Guideline Document*, US EPA 452/R-93-008, April 1993.
- CARB's *Determination of Reasonably Available Control Technology and Best Available Retrofit Control Technology for Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters* (July 18, 1991)
- EPA's *Alternative Control Techniques Document-- NOx Emissions from Industrial/Commercial/Institutional (ICI) Boilers* (March 1994).

Rule 1146.2 meets the requirements listed above. The delay in compliance dates is adequately justified. According to the staff report, the relaxation of these deadlines will not compromise any attainment demonstration. The rule's emissions limits for in-use units match the most stringent emissions limits identified in other areas for these source categories. The addition of lower emission limits for new units clearly strengthens the rule and offsets emission reductions delayed by the change in compliance dates. Additional rule revisions improve the clarity and enforceability of the rule.

Based on the discussion above, Rule 1146.2 fulfills relevant Clean Air Act requirements for SIP approval.

Recommendation

EPA staff recommends approval of SCAQMD Submitted Rule 1146.2 for incorporation into the California Applicable SIP.

Attachments

1. Submitted Rule 1146.2
2. US EPA, *Issues Relating to VOC Regulation, Cutpoints, Deficiencies, and Deviations* (the "Blue Book"), cover only
3. US EPA Region IX. *Guidance Document for Correcting Common VOC & Other Rule Deficiencies*. August 21, 2001 (the "Little Bluebook"), cover only
4. US EPA, *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), cover only
5. US EPA, *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"), cover only
6. US EPA, *State Implementation Plans for Serious PM-10 Nonattainment Areas, and Attainment Date Waivers for PM-10 Nonattainment Areas Generally; Addendum to the General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990,* 59 FR 41998 (August 16, 1994), cover only
7. US EPA, *PM-10 Guideline Document,* document no. 452/R-93-008, April 1993.
8. California Air Resources Board. *Determination of Reasonably Available Control Technology and Best Available Retrofit Control Technology for Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters.* July 18, 1991 (cover only).
9. U.S. EPA. *Alternative Control Techniques Document-- NOx Emissions from Industrial/Commercial/Institutional (ICI) Boilers.* EPA-453/R-94-022, March 1994 (cover only).