

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION IX AIR DIVISION

Technical Support Document

for

EPA's Notice of Proposed Rulemaking and Direct Final Rule

for the

California State Implementation Plan

Sacramento Metropolitan Air Quality Management District

Rule 413, Stationary Gas Turbines

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AGENCY NAME: Sacramento Metropolitan Air Quality Management District (SMAQMD)

SUBMITTED RULE: Rule 413, Stationary Gas Turbines
Amended: March 24, 2005
Submitted: September 5, 2007
Complete: October 16, 2007

PREVIOUS RULE SUBMITTALS: There are no previous submittals of Rule 413 not acted upon by EPA.

SIP-APPROVED RULE: Rule 413 was amended on May 1, 1997. That version was submitted to EPA on May 18, 1998, and approved on February 11, 1999 (64 FR 6803).

RULE SUMMARY

The purpose of Rule 413 is to limit emissions of nitrogen oxides (NO_x) from stationary gas turbines. Rule 413 was first adopted locally on May 6, 1995. The latest compliance date was May 31, 1997.

Changes to Rule 413

SMAQMD made the following rule changes in response to a request from the Sacramento Municipal Utility District (SMUD). SMUD provided evidence that some requirements in SIP-approved Rule 413 are technologically infeasible for large, combined-cycle turbines.

- Submitted Rule 413 extends the startup exemption for turbines with a rated output greater than or equal to 160 MW, and which are part of a combined cycle process, to up to 4 hours following a shutdown of the associated steam turbine of 72 hours or more; and up to 3 hours following a shutdown of the associated steam turbine of between 8 and 72 hours (Section 113).
- Submitted Rule 413 allows a 6-hour averaging period for compliance with NO_x limits for gas turbines with a rated output greater than 100 MW, and which are part of a combined cycle process, during a short-term excursion. A short-term excursion is defined in the rule as a period of time in which the 15-minute average concentration of NO_x emitted from a stationary gas turbine exceeds the emissions limits in the rule in response to transient operating conditions (Sections 114, 214).
- Submitted Rule 413 imposes new recordkeeping requirements to make the above changes enforceable.
- Other modifications were made that improve the clarity of the rule provisions.

RULE EVALUATION

Generally, SIP rules must be enforceable (see section 110(a) of the Clean Air Act), and must not relax existing requirements (see sections 110(l) and 193). The Sacramento metropolitan area is a “serious” ozone nonattainment area; therefore Rule 413 must implement Reasonably Available Control Technology (RACT) for control of NO_x emissions (as a precursor to ozone) at existing sources, as required under CAA sections 182(b)(2) and 182(f) for moderate and above ozone nonattainment areas. The Sacramento metropolitan area is also a “moderate” PM-10 nonattainment area, and is therefore subject to the requirement under sections 189(a)(1)(C) and 189(e) of the Act to implement Reasonably Available Control Measures (RACM) (which includes RACT) for control of PM-10 precursor emissions, including NO_x.

Documents used to evaluate the rule include the following: EPA’s *Issues Relating to VOC Regulation Cutpoints, Deficiencies, and Deviations* (May 25, 1988, the “Bluebook”); EPA Region IX’s *Guidance Document for Correcting Common VOC and Other Rule Deficiencies* (August 21, 2001, the “Little Bluebook”); the EPA memorandum to Regional Administrators, “State Implementation Plans: Policy Regarding Excess Emissions during Malfunctions, Startup, and Shutdown,” September 20, 1999; EPA’s State Implementation Plans - General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990 (April 16, 1992); EPA’s 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 (August 16, 1994); CARB’s *Determination of Reasonably Available Control Technology and Best Available Retrofit Control Technology for the Control of NO_x from Stationary Gas Turbines* (“Determination,” May 18, 1992); and EPA’s *Alternative Control Techniques Document—NO_x Emissions from Stationary Gas Turbines* (January 1993).

Submitted Rule 413 implements RACM/RACT and satisfies the SIP approval criteria for this source category. The emissions limits in the rule match the levels in the RACT/BARCT Determination, and were approved as RACT by EPA in our approval of SIP-approved Rule 413. While the extension of allowable startup periods and the provision for short-term excursions constitute rule relaxations, they are supported by District staff analysis and appropriately bounded: The amended startup and short-term excursion exemptions apply to only one and two plants respectively of the 13 total permitted plants within the District, and reasonable justification for the limited additional flexibility was provided in the staff report. Both of the affected sources have installed BACT-level NO_x emission controls in accordance with SMAQMD’s New Source Review (NSR) requirements. New turbines covered by the revised exemptions (i.e., turbines with capacities exceeding 100 MW) will also be subject to BACT for control of NO_x emissions. These revisions to Rule 413 only provide limited flexibility to address operational necessities at large turbines during narrowly defined periods, and do not alter the control technology requirements that apply to these sources.

Net Effect on Emissions

SMAQMD did not estimate the increase in NO_x emissions from the amendment to the startup exemption. They estimate the worst-case increase in emissions from the short-term excursions exemption to be approximately 1,800 lb NO_x per year. According to the SMAQMD's *Sacramento Area 2002 Regional Milestone Report* (May 2003), the NO_x commitment from gas turbines in the SMAQMD 1994 SIP was 0.3 tons per day reductions, while at the time of the Milestone Report, the District had actually achieved 0.6 tons per day in reductions from Rule 413. Consequently, the increase in emissions from the submitted amendments will not affect the District's commitments under the 1994 SIP.

RECOMMENDED ACTION

I recommend full approval of submitted Rule 413 under Section 110(k) of the Clean Air Act.

ATTACHMENTS

1. SMAQMD Rule 413, Stationary Gas Turbines, amended March 24, 2005 (submitted rule).
2. SMAQMD Rule 413, Stationary Gas Turbines, amended May 1, 1997 (SIP-approved rule).
3. U.S. EPA. *Issues Relating to VOC Regulation Cutpoints, Deficiencies, and Deviations*. May 25, 1988 (the "Bluebook," cover only).
4. U.S. EPA Region IX. *Guidance Document for Correcting Common VOC & Other Rule Deficiencies*. August 21, 2001 (the "Little Bluebook," cover only).
5. Herman, Steven A., Assistant Administrator for Enforcement and Compliance Assurance, Robert Perciasepe, Assistant Administrator for Air and Radiation, memorandum to Regional Administrators, "State Implementation Plans: Policy Regarding Excess Emissions during Malfunctions, Startup, and Shutdown," September 20, 1999 (cover only).
6. California Air Resources Board. *Determination of Reasonably Available Control Technology and Best Available Retrofit Control Technology for the Control of NO_x from Stationary Gas Turbines*. May 18, 1992 (cover only).
7. U.S. EPA. *Alternative Control Techniques Document—NO_x Emissions from Stationary Gas Turbines*. EPA-453/R-93-007, January 1993 (cover only).
8. Sacramento Metropolitan Air Quality Management District. *Sacramento Area 2002 Regional Milestone Report*. May 2003 (cover only).

9. 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) (cover only).
10. 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).