

REVISIONS TO

RULE 102. DEFINITIONS REGULATION II. PERMITS

RULE 333. CONTROL OF EMISSIONS FROM RECIPROCATING INTERNAL COMBUSTION ENGINES

BACKGROUND

The Santa Barbara County Air Pollution Control District (APCD) proposes modifications to Rule 201 and Rule 202, which implement the APCD permitting process, and Rule 333, which specifies the requirements for engines.

The APCD first required Permits to Operate for piston-type internal combustion engines in 1988. In 1991, the APCD adopted Rule 333 to control emissions from reciprocating internal combustion engines. Other than a minor change to a rule reference in 1997, the APCD has not modified Rule 333 from the originally adopted rule. In 1995, the EPA suggested changes to the engine permitting exemptions in Rule 202 and changes to Rule 333 to make the rules acceptable for inclusion into the State Implementation Plan.

In 1997, the APCD adopted Rule 201 and Rule 202 revisions as part of major revisions to Regulation II (Permits). That rulemaking effort included moving the New Source Review provisions out of Regulation

II into a new Regulation VIII (New Source Review).

The 1997 Regulation II changes modified the permitting requirements for engines. Those changes included revising the drill rig exemption, adding an exemption for engines registered in the statewide registration program, and exempting other miscellaneous engines.

The APCD did not modify Rule 333 as part of the 1997 Regulation II changes. Thus, staff did not address EPA suggestions at that time. The current rulemaking effort includes changes to engine requirements in Rule 202 and Rule 333 to address the EPA issues.

Aside from the March 2005 Rule 202 revision to expand permit applicability for diesel engines for the implementation of the state Airborne Toxic Control Measure, the APCD has not modified Rule 202 since 1997.

PROPOSED REVISIONS

This rulemaking effort addresses all ARB-identified suggestions and all EPA-identified deficiencies regarding the permitting and control of internal combustion engines. These concerns, summarized in Appendix A, need to be addressed in order for the engine permitting requirements of Rule 202 and the Rule 333 engine requirements to be considered for inclusion in the State Implementation Plan.

During the rule development process, the APCD received requests to modify and add Rule 202 permit exemptions that are unrelated to the internal combustion engine (ICE) exemptions. The APCD

considered each request and, where suitable, included the new or amended exemption provision.

In the amended Rule 333 provisions, oxides of nitrogen (NO_x), carbon monoxide (CO), and reactive organic compound (ROC) limits for ICEs are revised to meet a “Reasonably Available Control Technology” (RACT) level of control. The EPA requires that rules have, at a minimum, a RACT level of control for them to be included in the State Implementation Plan.

The changes to the emission limits for spark ignition internal combustion engines are consistent with the RACT standards in the CARB Reasonably Available Control Technology and Best Available Retrofit Control Technology Determination.[1] The changes to the emission limits for compression ignition engines are based on other air district's RACT standards.[2, 3]

These rule changes demonstrate that the District's Clean Air Plan to attain the California ambient ozone standard provides for expeditious implementation of "every feasible measure" to reduce ozone precursor emissions.

The APCD expects the proposed revisions to Rules 202 and 333 pertaining to ICEs to result in 6.5 tons per year of NO_x emission reduction and 0.7 ton per year of ROC emission increase. The cost-effectiveness of the Rule 333 revision is estimated to be between \$1,550 and \$11,532 per ton of NO_x reduced.

Key provisions of proposed amended Rule 333 are illustrated in flowchart format in Appendix M.

Sources that May be Affected by the Changes to Rule 202.F and Rule 333

The sources using an engine that may be affected by this rulemaking effort include, but are not limited to, sources performing: oil and gas exploration, production, processing and petroleum product marketing; mineral processing; construction; and agricultural operations subject to the APCD Part 70 Operating Permit Program. Emergency standby engine requirements will not be affected by the proposed rule revisions.

Appendix B summarizes the known companies with permit-exempt engines that will become subject to permitting requirements due to the Rule 202.F revisions. Appendix C lists the known sources operating engines currently subject to or that will become subject to the Rule 333 emission limits under the proposed amended rules.

Rule 102, Definitions

The APCD proposes to add and modify several definitions that are used in various parts of the rulebook.

Appendix D contains an annotated proposed amended Rule 102 with notes on the origin and necessity for each of the new and revised definitions.

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Rule 201, Permits Required

The Rule 201.D.2 provisions on exempting or permitting pile drivers, pipe-laying barges, and derrick barges is relocated into Rule 202, Section F.7. The Rule 202.F.7 provision is expanded to include cable-laying and pipe-laying vessels.

The Section D.1 alphanumerical designation is reduced to Section D (due to the relocation of Section D.2). The APCD is adding text to Rule 201, Section D, indicating equipment use requires an Authority to Construct.

Appendix E contains an annotated proposed amended Rule 202 with notes on the new and revised provisions.

Rule 202, Exemptions to Rule 201

The APCD proposes changes to the rule to 1) delete the construction engine and well drilling equipment exemption, 2) add five new exemptions, and 3) modify several existing exemptions.

Appendix F contains an annotated proposed amended Rule 202 with notes on the new and revised provisions.

Rule 333, Control of Emissions from Reciprocating Internal Combustion Engines

Changes to Rule 333 1) address ARB and EPA concerns and 2) revise the emission limits to be consistent with the RACT standards.

Appendix G provides an annotated proposed amended Rule 333 with notes on each proposed change. The following table provides a summary of the Rule 333 NO_x emission limit changes.

**SUMMARIZED OXIDES OF NITROGEN EMISSION LIMIT CHANGES
RESULTING FROM THE PROPOSED AMENDED RULE 333**

Engine Type	Rule 333 NOx Limits Effective December 3, 1991		Rule 333 NOx Limits Effective [date of revised rule adoption]		Effect of Rule 333 Change
	% Control	ppmv (at 15% O2)	% Control	ppmv (at 15% O2)	
Rich-Burn Noncyclically-Loaded Spark Ignition Engines – Category 1 Engines	90	50	90	50	No change
Lean-Burn Spark Ignition Engines in the 50 to less than 100 bhp Range – Category 2 Engines	80	125	-	200	Increased emission limit
Lean-Burn Spark Ignition Engines Rated 100 bhp or Greater – Category 3 Engines	80	125	80	125	No change
Rich-Burn Cyclically-Loaded Spark Ignition Engines – Category 4 Engines	90	50	-	300	Increased emission limit
Compression Ignition Engines and Dual-Fuel Engines – Category 5 Engines	-	797	40	700	Decreased emission limit

NOx EMISSION REDUCTION / COST-EFFECTIVENESS

The APCD identified ten engines in Santa Barbara County that will require the application of emission control techniques (or enhanced emission control techniques) as a result of the changes to Rules 202 and 333. Because emission reductions will occur, a discussion of the cost-effectiveness and incremental cost-effectiveness data follows.

NOx Emission Reductions

Appendix H indicates the total emission reduction from modifying Rules 202 and 333 is 6.5 tons of NOx per year.

Cost-Effectiveness

The cost-effectiveness associated with revising Rule 333 ranges from \$1,550 to \$11,532 per ton of NOx reduced. Appendix H includes a summary of the cost-effectiveness data.

Incremental Cost-Effectiveness

Health and Safety Code Section 40920.6 requires the performance of an incremental cost-effectiveness analysis for a regulation that identifies more than one control option to meet the same emission reduction objectives. Incremental cost-effectiveness is defined as the difference in costs divided by

the difference in emission reductions between one level of control and the next more stringent level of control.

Rule 333 requires compliance with NO_x, ROC, and CO emission limits. Although, the APCD expects the engines to be able to meet the limits with low-emissions tuning procedures, sources

could replace the engine with an electric motor in lieu of complying with the engine exhaust limits. The incremental cost-effectiveness between the low-emissions tuning procedure and electrification is assessed to be \$479 per ton of NO_x reduced. Appendix H also includes a summary of the incremental cost-effectiveness data.

ENVIRONMENTAL IMPACTS OF METHODS OF COMPLIANCE / CEQA

Methods of Compliance

California Public Resources Code § 21159 requires the APCD to perform an environmental analysis of the reasonably foreseeable methods of compliance if the proposed rule requires “the installation of pollution control equipment, or [specifies] a performance standard or treatment requirement...” The proposed revisions to Rule 333 specify revised performance standards. Many existing sources already comply with the proposed revisions by performing low emissions tuning or using either clean burn kits for lean-burn engines or selective catalytic convertors for rich-burn engines. These are the most reasonably foreseeable methods of compliance.

CEQA Requirements

Pursuant to State CEQA Guidelines Section 15164, the APCD will prepare a CEQA addendum to the 2007 Clean Air Plan EIR.

ANALYSIS OF EXISTING FEDERAL AND DISTRICT REGULATIONS

Appendix I contains the written analysis required by the California Health & Safety Code Section 40727.2 requirements.

COMMENTS AND PUBLIC MEETINGS

Comments

Appendix J contains the comments received in response to the December 8, 2005 workshop and subsequent stakeholders’ meeting. Appendix J also contains the APCD’s responses to the comments.

and other nuances of the APCD permitting and enforcement processes.

WSPA STAKEHOLDERS’ MEETING, MARCH 3, 2006

Meetings

PUBLIC WORKSHOP, DECEMBER 8, 2005

Industry representatives had concerns on the proposed revisions to the definitions, permitting requirements, and the engine provisions. There were also concerns on the proposed stacking provisions

WSPA met with APCD personnel and discussed several concerns. These included the loss of the construction equipment and well drilling equipment exemptions and requiring emission offsets for such short term projects. Also, there was discussion on requirements for continuous emissions monitors, source testing averaging times, engine modes during testing, and routine engine monitoring (quarterly vs. monthly).

**STAKEHOLDERS' MEETING, JANUARY 25,
2007**

The APCD released revised proposed amended rules to the public on December 15, 2006. To get industry feedback on the latest proposed amended rules, the APCD met with stakeholders on January 25, 2007. During the meeting, the group discussed rule revision issues and the progress being made to resolve them.

EXXONMOBIL MEETING, JUNE 12, 2007

Staff met with ExxonMobil representatives and discussed concerns about the proposed revised rules. Many of the concerns were the same ones raised earlier by WSPA (e.g., loss of the well drilling equipment exemption, the construction equipment exemption, and offset requirements). The discussion included information on the past, current, and future Santa Ynez Unit Project construction and operations.

**VANDENBERG AIR FORCE BASE MEETING,
JUNE 14, 2007**

The VAFB representatives presented their concerns on construction emissions, equipment emissions (i.e., the handling of construction emissions associated with non-permitted structures and infrastructure-type utility pipelines and power lines), the treatment of marine vessel emissions when they are associated with VAFB, microturbines used for backup distributed generation, and the 55 gallons per year exemptions (e.g., Rule 202.I.3, coatings application equipment exemption, and Rule 202.U.3, solvent wipe cleaning exemption).

PUBLIC WORKSHOP (to be announced)

**COMMUNITY ADVISORY COUNCIL MEETING
(to be announced)**

**PUBLIC HEARING ON THE ADOPTION OF THE
PROPOSED AMENDED RULES (to be announced)**

COMPARISON OF ADJOINING APCD RULES

Appendix K provides a comparison of the San Joaquin Valley APCD, Ventura County APCD, and the San Luis Obispo County APCD rules on permit exemptions and requirements for internal combustion engines. Basically, there are general similarities with some minor differences between the adjoining air district rules and the proposed amended rules.

IMPACTS OF THE REVISED RULES TO INDUSTRY AND THE APCD

Details of the impacts from the rule revisions are summarized in Appendix L. The rule revisions will cause impacts to the regulated community and APCD staff by:

1. One hundred and thirty-seven previously exempt engines becoming subject to permitting (new applications).
2. Eleven engines becoming subject to Rule 333 emission limits for the first time.
3. Ten engines requiring an emission control technique or use of an enhanced emission control technique (modification applications for engines listed in Appendix H, Table 1).
4. The requirement to submit new and revised Inspection and Maintenance Plans and Compliance Plans.
5. The initial and subsequent source testing of engines to demonstrate compliance with a new or revised emission limit.
6. Applying and verifying control techniques to comply with the Rule 333 emission limits.
7. New or increased operating and monitoring costs.
8. New or increased fees associated with permitting, source testing, annual emissions, air quality plans, and the air toxics program.
9. Equipment owners or operators seeking exemptions under the new specialty equipment, gas turbine, or winery exemption provisions.

RULE CLARIFICATION ISSUES

During public workshops and meetings, members of the regulated community raised concerns and questions about the intent of certain rule provisions. These are addressed in the public comment section (Appendix J).

REFERENCES

1. Air Resources Board, Determination of Reasonably Available Control Technology and Best Available Retrofit Control Technology for Stationary Spark-Ignited Internal Combustion Engines, November 1991.
2. Sacramento Metropolitan Air Quality Management District, Rule 412, Stationary Internal Combustion Engines Located at Major Stationary Sources of NOx, June 1, 1995.
3. Ventura County Air Pollution Control District, Rule 74.9, Stationary Internal Combustion Engines, November 8, 2005.

APPENDICES

- Appendix A: EPA and ARB Concerns on Rules 202 and 333 (Pursuant to Documents Dating from 1992 and 1994)
- Appendix B: Known Companies with Permit-Exempt Engines that will Become Subject to Permitting Due to Revisions to Rule 202
- Appendix C: Known Sources Currently Operating Engines Subject to or that will Become Subject to Rule 333 Emission Limits
- Appendix D: Annotated Proposed Amended Rule 102, Definitions
- Appendix E: Annotated Proposed Amended Rule 201, Permits Required
- Appendix F: Annotated Proposed Amended Rule 202, Exemptions to Rule 201
- Appendix G: Annotated Proposed Amended Rule 333, Control of Emissions from Reciprocating Internal Combustion Engines
- Appendix H: Summarized Data on Emission Reductions, Cost-Effectiveness, and Incremental Cost-Effectiveness
- Appendix I: Identification of Existing Federal and APCD Regulations that Apply to the Same Equipment or Source Type Covered in Rule 333
- Appendix J: Public Comments and the APCD Responses
- Appendix K: Comparison of the Proposed Amended Rules to the Rules in the Adjoining Air Districts
- Appendix L: Impacts of the Revised Rules to industry and the APCD
- Appendix M: Flowchart Overviews of Proposed Amended Rule 333 Provisions on Applicability; Engine Identification, Meters, and Continuous Monitoring Systems; Emission Limits; and Compliance Schedule