AIR POLLUTION CONTROL DISTRICT
COUNTY OF SAN DIEGO

NOTICE OF WORKSHOP TO DISCUSS PROPOSED AMENDMENTS TO RULE 68 - FUEL-BURNING EQUIPMENT - OXIDES OF NITROGEN

The San Diego County Air Pollution Control District will hold a second public workshop to consider proposed amendments to Rule 68 - Fuel-Burning Equipment - Oxides of Nitrogen. Comments concerning this proposal may be submitted in writing before, or made at the workshop which is scheduled as follows:

DATE: Thursday, December 9, 1993

TIME: 9:00 a.m. to 12:00 Noon

PLACE: Farm Advisor Conference Room
County Operations Center
Building #4
5555 Overland Avenue
San Diego, CA 92123

Rule 68 regulates emissions of nitrogen oxides (NOx) from stationary fuel-burning equipment, including boilers and gas turbines, with a maximum heat input rating of 50 million British Thermal Units (Btu) per hour or more. The District is mandated by the Federal Clean Air Act Amendments of 1990 (FCAA) to adopt rules reflecting reasonably available control technology (RACT) for all major sources of ozone precursors. These include facilities with source categories which emit 25 tons per year or more of NOx.

The first workshop for amended Rule 68 was held on February 20, 1991. Subsequently, the proposed rule changes have been revised as a result of comments received from affected industry, ARB and EPA. In addition, the rule has been revised to reflect the RACT requirements of the FCAA.

On April 21, 1993, EPA notified the District that the current Rule 68 does not reflect the RACT NOx control levels because of certain exemptions in the rule. EPA also stated that this would result in an imposition of federal sanctions, such as withholding federal funds to the region and severely restricting industrial expansion, unless the rule is amended within 18 months (by October 21, 1994) of such notification. Failure to amend Rule 68 within two years of such EPA findings would also result in promulgation of a Federal Implementation Plan. Therefore, sources exempted from Rule 68 should either comply with its requirements, or provide to the District and the EPA technical and/or economic justification of why the RACT requirements of Rule 68 cannot be met. Where appropriate, the District is currently working with affected industries to provide such information to EPA.

In general, the emission standards of Rule 68 have remain unchanged. However, the rule language has been revised throughout to provide clarity and consistency. Specifically, the proposed changes to Rule 68 will:

- Affect source categories which emit 25 tons per year or more of NOx. Sources with equipment subject to this provision of the rule must comply with one of the following:

- Meet the NOx emission standards of the rule, or
- Install Best Available Control Technology (BACT) or Lowest Achievable Emission Rate (LAER) as defined by District Regulation II, or
- Comply with other applicable District rules reflecting BARCT for NOx emission sources; or
- Reduce NOx emissions by at least 80%.

- Exempt piston-type internal combustion engines with a rated power output of 200 brake horsepower (bhp) or less provided that actual, aggregate NOx emissions from all such engines at a stationary source are less than 25 tons per year.
- Exempt piston-type internal combustion engines with a rated power output greater than 200 bhp which are used for emergency electrical power generation. Maintenance operation of such engines cannot exceed 52 hours per year and actual, aggregate NOx emissions from all such engines at a stationary source must be less than 25 tons per year.
- Specify District Methods 7 and 20 for determining compliance with the emission standards of the rule, and specify the testing time when using these methods as any sixty consecutive minute period.
- Specify the averaging time period for demonstrating compliance when continuous emissions monitors are installed as being every clock-hour.
- Specify recordkeeping requirements for equipment with continuous emissions monitors, and for equipment seeking exemption from certain provisions of the rule.
- Specify a compliance schedule for new and existing equipment. Existing equipment already subject to the rule must be in compliance by rule adoption date, and new equipment must be compliance upon initial installation and startup. For existing equipment that will become subject to amended Rule 68 and must be modified or equipped with emission controls, increments of progress are specified and final compliance must be achieved by May 31, 1995.

If you would like a copy of the proposed amendments to Rule 68, please call Juanita Ogata at (619) 694-3307. If you have any questions concerning the proposal, please call Natalie Zlotin at (619) 694-3312, or myself at (619) 694-3303.

Richard J. Smith

RICHARD J. SMITH
Deputy Director

KCM:jl
10/22/93

AIR POLLUTION CONTROL DISTRICT

PROPOSED AMENDMENTS TO RULE 68

RULE 68. FUEL-BURNING EQUIPMENT - OXIDES OF NITROGEN

(a) APPLICABILITY

Except as provided in Section (b), this rule is applicable to any non-vehicular, fuel-burning ~~article, machine,~~ equipment ~~or other contrivance~~ which

(1) ~~having~~ has a maximum heat input rating of 50 million British Thermal Units (Btu ~~BTU~~) (12.6 x 106 kcal) per hour (gross) or more; or

(2) is part of a source category located at a stationary source, as defined in Rule 20.1, where aggregate, actual emissions of nitrogen oxides (NO_x) from the source category are equal to 25 tons or more per year.

(b) EXEMPTIONS

The provisions of this rule shall not apply to:

(1) Any article, machine, equipment, facility, or other contrivance used exclusively for the testing of turbine engines or their components.

(2) ~~A person discharging into the atmosphere from any article, machine,~~ Any equipment or other contrivance used exclusively for the processing and combustion of municipal solid waste ~~(i.e., Group 2 Solid Waste, as defined in Section 2521 of Title 23 of the California Administrative Code)~~ provided that emissions of nitrogen oxides, calculated as nitrogen dioxide (NO_2) at three percent oxygen (O_2) on a dry basis, meet the requirements of Lowest Achievable Emission Rate (LAER) ~~Best Available Control Technology (BACT)~~ as defined in Rule 20.1. ~~For the purposes of this exemption BACT shall be determined when the applicable Authority to Construct is issued. The cost-effectiveness exemption of Rule 20.2(b) shall not apply in making this determination.~~

(3) Turbine engines during a continuous 30-minute period for startup, a continuous 30-minute period for shutdown and a continuous 30-minute period during a fuel change ~~switching~~.

(4) Piston-type internal combustion engines with a rated power output of 200 brake horsepower (bhp) or less provided that actual, aggregate NOx emissions from all such engines at a stationary source are less than 25 tons per year.

(5) Piston-type internal combustion engines, with a rated power output greater than 200 bhp, which are used for emergency electrical power generation, provided that operation of each such engine for maintenance purposes does not exceed 52 hours per year and actual, aggregate NOx emissions from all such engines at a stationary source are less than 25 tons per year. It is the responsibility of any person claiming this exemption to maintain records in accordance with Section (e) of this rule.

~~(4)~~ (6) Boilers ~~Steam generators~~ installed prior to January 1, 1966, with a maximum heat input of 2200 million ~~BTU's~~ Btu per hour or less, ~~when in operation~~ during startup, fuel change, low load, or pre- or post-overhaul tests, provided that their operations ~~conforms~~ to an operating condition described in Table 1 and ~~emissions do not exceed conditions~~ that NOx emissions concentration does not exceed an exemption limit specified in Table 1. ~~operations conform to and emissions do not exceed conditions The actual duration of the emissions specified in this exemption shall not exceed the maximum duration specified for the operating condition. "Emissions Limits" are for oxides of nitrogen, expressed as nitrogen dioxide (NO_2), calculated at three percent oxygen (O_2) on a dry basis.~~

Compliance with an exemption limit shall be determined by first averaging NOx emissions concentration over every clock-hour, and then averaging the clock-hour NOx emissions concentration over the compliance averaging period. The compliance averaging period shall be determined by one of the following conditions:

(i) If the actual number of clock-hours of the operating condition, as listed in Table 1, does not exceed the maximum compliance averaging period, then the compliance averaging period shall be the actual number of clock-hours of the operating condition; or

(ii) If the actual number of clock-hours of the operating condition, as listed in Table 1, exceeds the maximum compliance averaging period, then the compliance averaging period shall consist of successive clock-hours that are equal in number to the maximum compliance averaging period.

It is the responsibility of any person claiming this exemption to maintain records in accordance with Section (e) of this rule.

Table 1: Exemption Limits

	Maximum Gross Heat Input Rate in (Million Btu~~'~~s Per Hour)			
	Less than 1200		1200 to 2200	
Operating Condition:	~~Average~~ Exemption Limit (ppm)	Maximum ~~Duration~~ Compliance Averaging Period (Hrs)	~~Average~~ Exemption Limit (ppm)	Maximum ~~Duration~~ Compliance Averaging Period (Hrs)
Cold Startup (Gas)	175	8	250	8
Cool Startup (Gas)	175	5	250	5
Warm Startup (Gas)	175	3	200	3
Hot Startup (Gas)	175	2	200	2
Fuel Change *	225 ~~no change~~	no maximum ~~change~~	250	1
Low Load (Gas)	125 ~~no change~~	no maximum ~~change~~	175	no maximum ~~limit~~
Low Load (~~Oil~~ Liquid)	225 ~~no change~~	no maximum ~~change~~	300	no maximum ~~limit~~
Overhaul Test (Gas)**	125 ~~no change~~	no maximum ~~change~~	200	3

* For the purposes of this Subsection, a fuel change shall be considered ~~an oil~~ a liquid fuel operation.

** The exemption limit for "Overhaul Test" shall be used for only one pre-overhaul and one post-overhaul test per boiler-steam turbine generator set per year.

(c) **DEFINITIONS**

For the purposes of this rule, the following definitions shall apply:

(1) **"Best Available Retrofit Control Technology (BARCT)"** means an emission limitation that is based on the maximum degree of reduction achievable, taking into

account environmental, energy, and economic impacts by each source category and which has been installed pursuant to any other source category-specific District rule.

(2) **"Boiler"** means any combustion equipment, excluding gas turbines, fired with liquid, gaseous and/or solid fuel and used to produce steam or to heat water. A duct burner/heat exchanger combination installed in the exhaust duct of a gas turbine or internal combustion engine shall not be considered a boiler.

(3) **"Clock-Hour"** means every 60-minute period starting on the hour.

(4) **"Cold Startup"** means that, in a boiler-steam turbine generator set, the initial steam turbine metal temperature is less than 300°F (149°C).

(5) **"Cool Startup"** means that, in a boiler-steam turbine generator set, the initial steam turbine metal temperature is greater than 300°F (149°C).

(6) **"Exemption Limit"** means the maximum, allowable concentration of oxides of nitrogen, by volume, expressed as nitrogen dioxide (NO_2), calculated at three percent oxygen (O_2) on a dry basis.

(7) **"Existing Equipment"** means any non-vehicular, fuel-burning equipment that was installed and operating on or before (date of adoption).

(8) **"Fuel Change"** means a temporary period ~~during which there~~ when ~~occurs~~ a switch occurs between oil, gas or any combination of ~~oil~~ liquid or gaseous fuels.

~~(8) "Average ppm" is the average of all hourly (average) emission concentrations, over the actual duration of the specified operating conditions that exceed 125 ppm for gas fuel operations and 225 ppm for oil fuel operations.~~

(9) **"Hot Startup"** means that, in a boiler-steam turbine generator set, the initial steam turbine metal temperature is greater than 800°F (427°C).

~~(9) "No Change" means there is no exemption and the standards of this rule are applicable.~~

(10) **"Low Load"** means boiler operation at less than 25 percent of rated capacity, when not performing an overhaul test.

(11) **"Municipal Solid Waste"** means Group 2 Solid Waste, as defined in Section 2521 of Title 23 of the California Administrative Code.

(12) **"New Equipment"** means any non-vehicular, fuel-burning equipment installed after *(date of adoption)*.

(13) **"Source Category"** means a grouping of one or more of the same type of equipment, including but not limited to, piston-type engines, gas turbines, and boilers.

(14) **"Overhaul Test"** means testing of turbine ~~overspeed protection~~ control and protective devices, which must be conducted at low load conditions. Nothing in this rule shall be construed to limit the number, type or load conditions of overhaul tests conducted in compliance with the emission limits of Subsection (d)(1).

(15) **"Warm Startup"** means that, in a boiler-steam turbine generator set, the initial steam turbine metal temperature is greater than 600°F (316°C).

(d) **STANDARDS**

(1) ~~A person shall not discharge into the atmosphere from an article, machine, equipment or other contrivance subject to the provisions of this rule, air contaminants having~~ a For equipment subject to this rule, pursuant to Subsection (a)(1), the average concentration of nitrogen oxides (NOx), calculated as nitrogen dioxide (NO_2) at three percent oxygen (O_2) on a dry basis, shall not exceed the following ~~in excess of that shown in the following table~~:

Type of Fuel	Nitrogen Oxides, Concentration Volume (parts per million [ppm])	Mass (mg/m^3, at 68°F [20°C])
(i) Gaseous	125	240
(ii) Liquid or Solid	225	430

~~Type of Fuel~~ ~~Nitrogen Oxides, Parts per Million~~

~~a. Gas~~ ~~125 (240 mg/m^3, mass, at 20° C)~~

~~b. Liquid or Solid~~ ~~225 (430 mg/m^3, mass, at 20° C)~~

~~For purposes of this rule, in calculating the concentration of nitrogen oxides the percentage of oxygen (O_2) in the ambient air and in the source emissions shall be determined at the same time and at the same site.~~

When more than one type of fuel is used, the allowable NOx concentration shall be determined by proportioning the gross heat input for each fuel to its respective allowable concentration.

(2) Equipment, subject to this rule pursuant solely to Subsection (a)(2), shall not be operated unless:

(i) It meets the emission standards of Subsection (d)(1); or

(ii) Best Available Control Technology (BACT) or Lowest Achievable Emission Rate (LAER) has been installed, pursuant to Regulation II of this District; or

(iii) Best Available Retrofit Control Technology (BARCT) has been installed, pursuant to any other source category-specific District rule; or

(iv) The average NOx emissions concentration from such equipment is reduced by at least 80%.

(e) **RECORDKEEPING REQUIREMENTS**

(1) When continuous emission monitors are installed on equipment subject to the provisions of this rule, pursuant to Rule 19.2 or any other District, state or federal requirement, the operator shall record, at a minimum, the following information:

(i) Unit identification

(ii) Time of measurement

(iii) Fuel type burned

(iv) Measured oxygen level (%)

(v) Uncorrected NOx emission concentration (ppm) at the measured oxygen level

(vi) Corrected NOx emission concentration (ppm) at 3% O_2

(2) When a boiler is operating under the criteria of Subsection (b)(6), the following information, at a minimum, shall be recorded:

(i) Unit identification

(ii) Heat input (Btu/hr)

(iii) Operating conditions as specified in Subsection (b)(6) and defined in Section (c)

(iv) Operating condition start and finish times and date(s)

(v) Duration of the operating condition

(vi) Initial steam turbine metal temperature (^{o}F or ^{o}C)

(vii) Unit load (megawatts [MW])

(viii) Fuel type burned at start of operating condition

(ix) Fuel type burned at end of operating condition

(x) Total time each fuel type was burned during operating condition

(xi) Measured oxygen level (%)

(xii) Uncorrected NOx emission concentration (ppm) at the measured oxygen level

(xiii) Each clock-hour emission concentration (ppm) over the duration of the operating condition, corrected to 3% O_2

(xiv) Average of all clock-hour emission concentrations (ppm) over the duration of the operating condition, corrected to 3% O_2

(3) The owner or operator of any unit exempt from the requirements of this rule, pursuant to Subsections (b)(3) and (b)(5), shall maintain records of the hours of operation during the operating conditions described therein.

(4) The owner or operator of any unit subject to this rule shall maintain all records required by Section (e) for a minimum of three years. These records shall be maintained on the premises and made available to the District upon request.

(f) TEST METHODS

(1) NOx emissions pursuant to Subsection (a)(2) shall be calculated using annual fuel usage and emission factors based upon one of the following methods:

(i) EPA Publication AP-42, Compilation of Air Pollution Emission Factors as it exists on *(date of adoption)*; or

(ii) manufacturer's emissions data; or

(iii) source test data.

(2) Measurement of the average NOx emissions concentration subject to Subsection (d)(1) or (d)(2)(iv) shall be conducted in accordance with District Method 7 or 20, or with continuous emission monitors which are installed on equipment pursuant to District Rule 19.2, or any other District, state or federal requirement. An exceedance detected by any of the means described above shall be considered a violation of this rule.

(3) When District Method 7 or 20 is used to determine compliance with Subsection (d)(1) or (d)(2)(iv), the averaging period to calculate the average NOx emissions concentration shall be any sixty consecutive minute period.

(4) When continuous emissions monitors are installed on equipment pursuant to Rule 19.2, or any other District, state or federal requirement and are used to determine compliance with Subsection (d)(1), the averaging period to calculate the average NOx emissions concentration shall be every clock-hour.

(5) Measurements of emissions concentrations shall not include calibration or span check measurements of the emissions testing equipment.

(6) As specified in Subsection (h)(6) and defined in Section (c), startup conditions shall be determined by using pre-calibrated thermocouples to measure the initial steam turbine metal temperature at the first stage of the steam turbine.

(7) A source test protocol shall be submitted prior to testing, and approved in writing by the Air Pollution Control Officer.

(8) Equipment subject to the standards of Subsection (d)(1) shall be tested for compliance for each fuel burned at least once every 12 months, unless otherwise directed in writing by the Air Pollution Control Officer.

(g) COMPLIANCE SCHEDULE

(1) The owner of operator of existing equipment, subject to this rule pursuant to Subsection (a)(1) or which is already in compliance with Section (d) of this rule, shall meet all applicable provisions of this rule no later than *(date of adoption)*.

(2) Except as specified in Subsections (g)(1) and (g)(3), the owner or operator of existing equipment, subject to this rule pursuant to Subsection (a)(2), shall meet the following increments of progress:

(i) No later than *(6 months after date of adoption)*, submit an application for Authority to Construct the air pollution control equipment and any equipment modifications necessary to meet the requirements of Subsection (d)(2)(iv); and

(ii) No later than May 31, 1995, demonstrate compliance with Subsection (d)(2)(iv).

(3) Notwithstanding the provisions of Subsection (g)(2), the owner or operator of existing equipment, subject to this rule pursuant to Subsection (a)(2) and required to have BACT, LAER, or BARCT installed pursuant to another District rule, shall follow the most expeditious compliance schedule.

(4) The owner or operator of any new equipment subject to this rule, installed after *(date of adoption)*, shall comply with applicable provisions of this rule upon initial startup of such equipment.