



Air Pollution Control Board
Greg Cox District 1
Dianne Jacob District 2
Pam Slater District 3
Ron Roberts District 4
Bill Horn District 5

Air Pollution Control District
R. J. Sommerville Director

NOTICE OF WORKSHOP

FOR DISCUSSION OF PROPOSED ADOPTION OF NEW RULE 69.3.1 - STATIONARY GAS TURBINE ENGINES - BEST AVAILABLE RETROFIT CONTROL TECHNOLOGY AND PROPOSED AMENDMENTS TO RULE 69.3 - STATIONARY GAS TURBINE ENGINES - REASONABLY AVAILABLE CONTROL TECHNOLOGY

The San Diego County Air Pollution Control District will hold a public meeting to consider the adoption of new Rule 69.3.1 - Stationary Gas Turbine Engines, Best Available Retrofit Control Technology, and the amendment of current Rule 69.3 - Stationary Gas Turbine Engines, Reasonably Available Control Technology. Comments concerning these proposals may be submitted in writing before, or made at, the workshop which is scheduled as follows:

DATE: **March 18, 1997 - Wednesday**

TIME: **1:00 p.m. to 4:00 p.m.**

PLACE: **Conference Room 139
San Diego Air Pollution Control District
9150 Chesapeake Drive
San Diego, CA**

San Diego County is classified as a serious ozone non-attainment area by both federal and state laws. As a result of this classification, the District is required to adopt rules limiting emissions of ozone precursors: volatile organic compounds and nitrogen oxides. The rules must reflect Reasonably Available Control Technology (RACT) as mandated by the Federal Clean Air Act and Best Available Retrofit Control Technology (BARCT) as required by the California Clean Air Act.

Current Rule 69.3, adopted in 1994 and subsequently approved into the State Implementation Plan (SIP) contains the RACT requirements for nitrogen oxide (NO_x) emissions from stationary gas turbine engines. It specifies the allowable NO_x emission concentrations and requires monitoring, recordkeeping and periodic source testing.

The District is now proposing to adopt new Rule 69.3.1 to further reduce NO_x emissions from stationary gas turbine engines by implementing more stringent state BARCT requirements. The new rule will also implement a corresponding control measure in the Regional Air Quality Strategy (RAQS) for the San Diego Air Basin.

Concurrently, the District is proposing to amend existing Rule 69.3 to provide some necessary updates and clarifications. The District intends to apply the current rule until new proposed Rule 69.3.1 and amended Rule 69.3 are adopted. Following adoption, amended Rule 69.3 will be submitted to EPA as a SIP revision and applied to major sources of NO_x emissions. Once

approved by EPA as a SIP revision, amended Rule 69.3 will be the federal applicable requirements for major sources of NOx emissions under the Federal Operating Permit Program (Title V). For state and local purposes, stationary gas turbines in San Diego County including those located at non-major sources will be regulated by the new proposed Rule 69.3.1. The District is currently not planning to submit Rule 69.3.1 into the SIP.

New Rule 69.3.1 will apply to any existing stationary gas turbine in San Diego County that has a power rating of 1.0 megawatt (MW) or greater and to any new stationary gas turbine that has a power rating of 0.3 MW or greater. Specifically, the proposed rule will:

- Establish NOx emission concentration limits for turbines based on their use, date of installation, power rating and thermal efficiency (see the attached table). In general, the proposed limits for turbines 2.9 MW and larger are more stringent than the current limits in Rule 69.3. For peaking units and for turbines less than 2.9 MW the limits are the same as in current Rule 69.3.
- Require the installation of continuous monitors to measure and record the appropriate operational parameters of turbine and NOx emissions reduction systems.
- Require the installation of continuous emission monitoring systems (CEMS) on any turbine with a power rating of 10 MW or more that operates more than 4,000 hours per calendar year.
- Specify that CEMS installed pursuant to any federal regulation shall be certified, calibrated and maintained in accordance with all applicable federal regulations.
- Specify that records be kept for all turbines subject to or exempt from the rule requirements.
- Specify source test requirements and require annual source testing for all turbines subject to the emission concentration standards unless otherwise specified by the Air Pollution Control Officer.
- Specify test and source test methods for determining compliance with the rule.
- Specify separate procedures for determining compliance based on CEMS data and source test results.
- Provide a compliance schedule for turbines that will require modification, replacement or installation of air pollution control equipment to comply with the rule requirements. New turbines will be required to comply with all applicable provisions upon initial installation and startup.

New proposed Rule 69.3.1 will exempt portable gas turbines and turbines used exclusively for research, development and testing of turbine engines or their components. Stationary turbine engines with a power rating 0.4 MW or less used in conjunction with military tactical support equipment will also be exempt if they do not operate more than 1,000 hours per year. In addition, the emission concentration standards of the rule will not apply to any turbines during startup, shutdown or a fuel change, turbines with a power rating less than 4 MW and operating less than 877 hours per calendar year, and turbines used in emergency situations.

Existing Rule 69.3 will be amended to update existing and delete outdated provisions and definitions, and to clarify the requirements for continuous emission monitoring and compliance

determination for consistency with the new proposed Rule 69.3.1. In addition, the heading of Rule 69.3 will be revised by adding "Reasonably Available Control Technology" to indicate that its requirements represent federal RACT.

In addition, the District is considering requiring that diesel fuel used in all turbines subject to the standards of the new proposed Rule 69.3.1 be certified by the California Air Resources Board in accordance with applicable state and federal regulations. The District requests comments on any technical or economic issues associated with such a requirement.

If you would like a copy of new proposed Rule 69.3.1 or amended Rule 69.3, please call Juanita Ogata at (619) 694-8851. If you have any questions concerning the proposal, please call Earnest Davis at (619) 694-3930, Natalie Zlotin at (619) 694-3312 or myself at (619) 694-3303.



RICHARD J. SMITH
Deputy Director

RJSm:NZ:ED:jo
2/2/98

PROPOSED NEW RULE 69.3.1

**NO_x EMISSION CONCENTRATION LIMITS FOR
 STATIONARY GAS TURBINE ENGINES**

<u>Power Rating (Megawatts)</u>	<u>NO_x Emissions Concentration (ppmv)</u>	
	<u>Gaseous Fuel</u>	<u>Liquid Fuel</u>
≥0.3 and <2.9 (new units)	42	65
≥1.0 and <2.9 (existing units)	42	65
≥2.9 and <10.0	25 x E/25	65
≥10.0 without post -combustion control	15 x E/25	42 x E/25
≥10.0 with post -combustion control	9 x E/25	25 x E/25

<u>Unit Description</u>	<u>NO_x Emissions Concentration (ppmv)</u>	
	<u>Gaseous Fuel</u>	<u>Liquid Fuel</u>
Peaking units ≥ 4 MW and operating less than 877 hours per calendar year	42	65
Existing 34.5 MW General Electric unit LM 5000 with SCR	25	25 x E/25

The emissions concentration in parts per million by volume (ppmv) of NO_x is calculated as nitrogen dioxide at 15% oxygen on a dry basis.

E is a unit thermal efficiency calculated according to the formula provided in the proposed rule.

**AIR POLLUTION CONTROL DISTRICT
COUNTY OF SAN DIEGO**

PROPOSED AMENDMENTS TO RULE 69.3

Proposed amendments to Rule 69.3 are to read as follows:

**RULE 69.3 STATIONARY GAS TURBINE ENGINES -
REASONABLY AVAILABLE CONTROL TECHNOLOGY**

(a) APPLICABILITY

This rule shall apply to ~~any existing stationary gas turbine engine with a power rating of 1.0 megawatt (MW) or greater, or~~ to any new stationary gas turbine engine with a power rating of 0.3 megawatt (MW) or greater. Any unit subject to Section (d) of this rule shall not be subject to Rule 68.

(b) EXEMPTIONS

(1) The provisions of this rule shall not apply to the following:

(i) Any gas turbine engine when operated exclusively for the research, development or testing of gas turbine engines or their components.

(ii) Any portable gas turbine engine. ~~located at a stationary source 180 days or less in a consecutive 12-month period.~~ It is the responsibility of any person claiming this exemption to maintain records indicating the dates that such gas turbine engine was located at a stationary source. These records shall be maintained for a minimum of two calendar years by the owner or operator of such gas turbine engine and made available to the District upon request.

(iii) ~~New~~ Any stationary gas turbines engine with a power rating less than or equal to 0.4 MW used in conjunction with military tactical deployable support equipment operated at military sites, provided that operations do not exceed 1000 hours per calendar year. It is the responsibility of any person claiming this exemption to maintain records indicating the hours that such gas turbine engine was operated. These records shall be maintained for a minimum of two calendar years by the owner or operator of such gas turbine engine and made available to the District upon request.

(iv) Any stationary gas turbine engine with a power rating of 1 MW or less which was installed and operated in San Diego County on or before September 27, 1994.

(2) The provisions of Section (d) shall not apply to the following:

(i) Any emergency unit provided that operation for ~~maintenance non-~~emergency purposes to ensure operability in the event of an emergency situation does not exceed 80 hours per calendar year. It is the responsibility of any person claiming this exemption to maintain records in accordance with Subsections (e)~~(2)~~(4) and (e)(5) of this rule.

(ii) Any unit during startup, shutdown or a fuel change for a period not to exceed 120 continuous minutes. It is the responsibility of any person claiming this exemption to maintain records in accordance with Subsections (e)(3) and (e)(5) of this rule. Nothing in this rule shall be construed to limit the actual time needed to conduct a startup, shutdown or fuel change.

(c) **DEFINITIONS**

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

(1) **"Emergency Situation"** means any one of the following:

(i) an unforeseen electrical power failure of the serving utility or of on-site electrical transmission equipment; or

(ii) an unforeseen flood, fire or life-threatening situation.

Emergency situation shall not include operation of any unit for training purposes or other foreseeable event, or operation of any peaking unit for the purpose of supplying power for distribution to an electrical grid.

(2) **"Emergency Unit"** means a stationary gas turbine engine used only in the event of an emergency situation. A peaking unit shall not be considered an emergency unit.

~~(3) **"Existing" or "Existing Unit"** means any stationary gas turbine engine which was installed and operating in San Diego County on or before September 27, 1994.~~

~~(4)(3) **"Fuel Change"** means the transitory operating period when a switch occurs between liquid or gaseous fuels, or any combination thereof.~~

~~(5)(4) **"Gaseous Fuel"** means natural gas, digester gas, landfill gas, methane, ethane, propane, butane, or any gas stored as a liquids at high pressure such as liquefied petroleum gas.~~

~~(6)(5) **"Liquid Fuel"** means any fuel which is a liquid at standard conditions including but not limited to distillate oils, kerosene and jet fuel. Liquefied gaseous fuels are not liquid fuels.~~

~~(7)(6) **"Military Tactical Deployable Support Equipment"** means any equipment operated by the United States armed forces or owned by the U.S. Department~~

of Defense or the National Guard and used in combat, combat support, combat service support, tactical or relief operations, or training for such operations, which is designed specifically for military use in an off-road, dense terrain and/or hostile environment or on board military combat vessels and is capable of being moved from one location to another. This equipment requires the ability to perform in a uniform manner with a minimum amount of non-emergency which has been standardized throughout the United States military and/or NATO forces.

(8) ~~"New" or "New Unit"~~ means a stationary gas turbine engine installed in San Diego County after September 27, 1994.

(9)(7) **"Peaking Unit"** means a stationary gas turbine engine that is operated intermittently for generation of electric power during periods of high energy demand.

(10)(8) **"Portable Gas Turbine Engine"** means a gas turbine engine which meets the definition of a portable emission unit in Rule 20.1, a gas turbine which is designed and equipped to be easily movable and, as installed, easily capable of being moved from one stationary source to another, as determined by the Air Pollution Control Officer. Portable gas turbine engines are periodically moved and may not be located more than 180 days at any one stationary source within any consecutive 12-month period. Days when portable gas turbine engines are stored in a designated holding or storage area shall not be counted towards the 180-day limit, provided the gas turbine engine was not operated on that calendar day except for non-emergency and was in the designated holding area the entire calendar day.

(11)(9) **"Power Augmentation"** means an increase in the gas turbine engine shaft output, or a decrease in turbine fuel consumption, by the addition of energy recovered from exhaust heat.

(12)(10) **"Power Rating"** means the maximum, continuous power output of a unit, in megawatts (MW) or equivalent, as certified by the manufacturer unless limited by a condition in a District Authority to Construct or a Permit to Operate. Power augmentation shall not be included in power rating.

(13)(11) **"Reasonably Available Control Technology (RACT)"** means the lowest emission limit that a particular source is capable of meeting by the application of control technology that is reasonably available considering technological and economic feasibility.

(13)(12) **"Shutdown"** means an action necessary to cease operation of a unit and includes the amount of time needed to safely do so.

(14)(13) **"Stationary Gas Turbine Engine"** means any gas turbine engine system, with or without power augmentation, which is permanently attached to a foundation, or is not a portable gas turbine. Two or more gas turbines powering a common shaft shall be treated as one gas turbine.

(15)(14) **"Stationary Source"** means the same as defined in Rule 20.1 2.

(16)(15) "Startup" means an action necessary to begin operation of a unit and includes the amount of time needed for a unit and ancillary equipment to achieve stable operation.

(17)(16) "Unit" means any stationary gas turbine engine.

(d) **STANDARDS**

(1) Except as provided in Section (b), The the emissions concentration of oxides of nitrogen (NOx) from any unit subject to this rule, calculated as nitrogen dioxide at 15% oxygen on a dry basis, shall not exceed the following:

- (i) 42 parts per million by volume (ppmv) when operated on a gaseous fuel.
- (ii) 65 parts per million by volume (ppmv) when operated on a liquid fuel.

(e) **MONITORING AND RECORDKEEPING REQUIREMENTS**

(1) An owner or operator of a unit which is subject to the requirements of Section (d) shall install, calibrate and maintain continuous monitors in accordance with the manufacturer's recommended procedures to allow for monitoring of monitor the operational characteristics of the unit and of any NOx emissions reduction system, as applicable, to demonstrate continuous compliance, such as:

- (i) exhaust gas flow rate;
- (ii) exhaust gas temperature;
- (iii) ammonia injection rate;
- (iv) water injection rate; and
- (v) stack-gas oxygen content.

The Air Pollution Control Officer may require recording of one or more of the above parameters as necessary to ensure compliance.

(5)(2) ~~For any existing unit,~~ An owner or operator of any unit with a continuous emissions monitoring system (CEMS) which has have been installed to measure NOx emissions pursuant to any federal regulation shall be certified, calibrated and maintained certify, calibrate and maintain the CEMS in accordance with applicable federal regulations including the reporting requirements of Parts 60.7(c), 60.7(d), and 60.13 of Title 40, Code of Federal Regulations Section 60 (40 CFR 60), performance specifications of Appendix B of 40 CFR 60, quality assurance procedures of Appendix F of 40 CFR 60, and a protocol approved in writing by the Air Pollution Control Officer.

(3) An owner or operator of any unit subject to this rule shall maintain an operating log and record actual times and duration of all startups, shutdowns and fuel changes, and the type and quantity of each fuel used.

~~(4) Continuous monitors shall be installed, calibrated and maintained in accordance with applicable federal regulations and a protocol approved in writing by the Air Pollution Control Officer.~~

~~(2)(4)~~ An owner or operator of an emergency unit shall maintain an operating log and record the hours of operation for maintenance non-emergency purposes and during an each emergency situation. At a minimum, these records shall include the dates and actual times and duration of all startups and shutdowns, total cumulative annual hours of operation for maintenance non-emergency purposes, and a description of any each emergency situation.

~~(6)(5)~~ The An owner or operator of any unit subject to this rule shall maintain all records required by Section (e) for a minimum of ~~three~~ two calendar years. These records shall be maintained on the premises and made available to the District upon request.

(f) **TEST METHODS**

(1) To determine compliance with Section (d), measurement of oxides of nitrogen and stack-gas oxygen content shall be conducted in accordance with the ARB District Source Test Method 100 or the Air Resources Board (ARB) Test Method 100, as approved by the U.S. Environmental Protection Agency (EPA).

~~(2) The averaging period to calculate NO_x emissions concentration shall be any thirty consecutive minute period.~~

~~(3) Measurements of emissions concentrations shall not include calibration or span check measurements of the emissions testing equipment.~~

(g) **SOURCE TEST REQUIREMENTS AND COMPLIANCE DETERMINATION**

(1) Any required ~~S~~source testing shall be performed at no less than 80% of the power rating. If an owner or operator of ~~a an-existing~~ turbine demonstrates to the satisfaction of the Air Pollution Control Officer that the turbine cannot operate at these conditions, then emissions sources testing shall be performed at the highest achievable continuous power rating.

(2) A unit subject to the requirements of Section (d) shall be tested for compliance at least annually before the Permit to Operate renewal date ~~once every 12 months~~, unless otherwise specified in writing by the Air Pollution Control Officer. Testing shall be

conducted in accordance with Section (f) and a source test protocol approved in writing by the Air Pollution Control Officer.

(3) Test reports shall include the operational characteristics, as described in Subsection (e)(1), of the unit and of all add-on NOx control systems.

(4) For the purposes of a compliance determination based on source testing, the NOx emissions concentration shall be calculated as an average of three subtests.

(5) For the purposes of a compliance determination based on CEMS data, the averaging period to calculate NOx emissions concentration shall be one clock hour.

(h) ~~COMPLIANCE SCHEDULE~~

(1) ~~An owner or operator of an existing unit shall be in compliance with all applicable provisions of this rule no later than May 31, 1995.~~

(2) ~~Any person installing a new unit subject to the provisions of this rule shall comply with the applicable provisions of Section (d) upon initial installation and commencement of operation.~~

**AIR POLLUTION CONTROL DISTRICT
COUNTY OF SAN DIEGO**

PROPOSED NEW RULE 69.3.1.

Proposed new Rule 69.3.1 is to read as follows:

**RULE 69.3.1. STATIONARY GAS TURBINE ENGINES - BEST
AVAILABLE RETROFIT CONTROL TECHNOLOGY**

(a) APPLICABILITY

This rule shall apply to any existing stationary gas turbine engine with a power rating of 1.0 megawatt (MW) or greater, or to any new stationary gas turbine engine with a power rating of 0.3 MW or greater. Any unit subject to Section (d) of this rule shall not be subject to Rule 68.

(b) EXEMPTIONS

(1) The provisions of this rule shall not apply to the following:

(i) Any gas turbine engine when operated exclusively for the research, development or testing of gas turbine engines or their components.

(ii) Any portable gas turbine engine. It is the responsibility of any person claiming this exemption to maintain records indicating the dates that such gas turbine engine was located at each stationary source. These records shall be maintained for a minimum of two calendar years by the owner or operator of such gas turbine engine and made available to the District upon request.

(iii) Any stationary gas turbine engine with a power rating less than or equal to 0.4 MW used in conjunction with military tactical support equipment operated at military sites, provided that operations do not exceed 1000 hours per calendar year. It is the responsibility of any person claiming this exemption to maintain records indicating the hours that such gas turbine engine was operated. These records shall be maintained for a minimum of two calendar years by the owner or operator of such gas turbine engine and made available to the District upon request.

(2) The provisions of Section (d) shall not apply to the following:

(i) Any emergency unit provided that operation for non-emergency purposes to ensure operability in the event of an emergency situation does not exceed 80 hours per calendar year. It is the responsibility of any person claiming this exemption to maintain records in accordance with Subsections (e)(5) and (e)(8) of this rule.

(ii) Any unit during startup, shutdown or a fuel change for a period not to exceed 120 continuous minutes. It is the responsibility of any person claiming this exemption to maintain records in accordance with Subsections (e)(4) and (e)(8) of this rule. Nothing in this rule shall be construed to limit the actual time needed to conduct a startup, shutdown or fuel change.

(iii) Any unit with a power rating less than 4 MW provided that such unit operates less than 877 hours per calendar year. It is the responsibility of any person claiming this exemption to maintain records in accordance with Subsections (e)(7) and (e)(8) of this rule.

(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 class or category of source.

(2) **"Emergency Situation"** means any one of the following:

(i) an unforeseen electrical power failure of the serving utility or of on-site electrical transmission equipment; or

(ii) an unforeseen flood, fire or life-threatening situation.

Emergency situation shall not include operation of any unit for training purposes or other foreseeable event, or operation of any peaking unit for the purpose of supplying power for distribution to an electrical grid.

(3) **"Emergency Unit"** means a stationary gas turbine engine used only in the event of an emergency situation. A peaking unit shall not be considered an emergency unit.

(4) **"Existing" or "Existing Unit"** means any stationary gas turbine engine which was installed and operating in San Diego County on or before (*date of adoption*).

(5) **"Fuel Change"** means the transitory operating period when a switch occurs between liquid or gaseous fuels, or any combination thereof.

(6) **"Gaseous Fuel"** means natural gas, digester gas, landfill gas, methane, ethane, propane, butane, or any gas stored as a liquid at high pressure such as liquefied petroleum gas.

(7) **"Higher Heating Value (HHV)"** means the total heat liberated, including the heat of condensation of water, per mass of fuel burned (Btu per pound) when fuel and dry air at standard conditions undergo complete combustion and all resultant products are brought to standard conditions.

(8) **"Liquid Fuel"** means any fuel which is a liquid at standard conditions including but not limited to distillate oils, kerosene and jet fuel. Liquefied gaseous fuels are not liquid fuels.

(9) **"Lower Heating Value (LHV)"** means the total heat liberated, excluding the heat of condensation of water, per mass of fuel burned (Btu per pound) when fuel and dry air at standard conditions undergo complete combustion and all resultant products are brought to standard conditions.

(10) **"Manufacturer's Rated Thermal Efficiency (MRTE)"** means the manufacturer's continuous rated percent thermal efficiency of the gas turbine engine equipped with air pollution control equipment, at peak load, after correction to lower heating value.

(11) **"Military Tactical Support Equipment"** means any equipment owned by the U.S. Department of Defense or the National Guard and used in combat, combat support, combat service support, tactical or relief operations, or training for such operations.

(12) **"New" or "New Unit"** means a stationary gas turbine engine installed in San Diego County after *(date of adoption)*.

(13) **"Peaking Unit"** means a stationary gas turbine engine that is operated intermittently for generation of electric power during periods of high energy demand.

(14) **"Portable Gas Turbine Engine"** means a gas turbine engine which meets the definition of a portable emission unit in Rule 20.1.

(15) **"Power Augmentation"** means an increase in the gas turbine engine shaft output, or a decrease in turbine fuel consumption, by the addition of energy recovered from exhaust heat.

(16) **"Power Rating"** means the maximum, continuous power output of a unit, in megawatts (MW) or equivalent, as certified by the manufacturer unless limited by a condition in a District Authority to Construct or a Permit to Operate. Power augmentation shall not be included in power rating.

(18) **"Selective Catalytic Reduction (SCR)"** means a post-combustion control technology that utilizes a reducing agent, such as ammonia, injected into the exhaust gas stream where it converts oxides of nitrogen (NOx) to molecular nitrogen in the presence of a catalyst.

(19) **"Shutdown"** means an action necessary to cease operation of a unit and includes the amount of time needed to safely do so.

(20) **"Stationary Gas Turbine Engine"** means any gas turbine engine system, with or without power augmentation, which is permanently attached to a foundation, or is not a portable gas turbine. Two or more gas turbines powering a common shaft shall be treated as one gas turbine.

(21) **"Stationary Source"** means the same as defined in Rule 2.

(22) **"Startup"** means an action necessary to begin operation of a unit and includes the amount of time needed for a unit and ancillary equipment to achieve stable operation.

(23) **"Unit"** means any stationary gas turbine engine.

(24) **"Unit Thermal Efficiency (E)"** means the percent thermal efficiency of the gas turbine engine and is calculated as follows:

$$E = \frac{(MRTE) (LHV)}{(HHV)}$$

A gas turbine engine with an efficiency lower than 25 percent shall be assigned a unit efficiency of 25 percent.

(d) STANDARDS

(1) Except as provided for in Section (b) and Subsection (d)(2), the emissions concentration in parts per million by volume (ppmv) of nitrogen oxides (NOx) from any unit subject to this rule, calculated as nitrogen dioxide at 15% oxygen on a dry basis, shall not exceed the following:

<u>Power Rating (Megawatts)</u>	<u>NOx Emissions Concentration (ppmv)</u>	
	<u>Gaseous Fuel</u>	<u>Liquid Fuel</u>
≥0.3 and <2.9 (new units)	42	65
≥1.0 and <2.9 (existing units)	42	65
≥2.9 and <10.0	25 x E/25	65
≥10.0 without post -combustion control	15 x E/25	42 x E/25
≥10.0 with post -combustion control	9 x E/25	25 x E/25

(2) The emissions concentration in parts per million by volume (ppmv) of nitrogen oxides (NOx) from any unit subject to this rule and described below, calculated as nitrogen dioxide at 15% oxygen on a dry basis, shall not exceed the following:

<u>Unit Description</u>	<u>NOx Emissions Concentration (ppmv)</u>	
	<u>Gaseous Fuel</u>	<u>Liquid Fuel</u>
Peaking units ≥ 4 MW and operating less than 877 hours per calendar year	42	65
Existing 34.5 MW General Electric unit LM 5000 with SCR	25	25 x E/25

(e) MONITORING AND RECORDKEEPING REQUIREMENTS

(1) An owner or operator of a unit which is subject to the requirements of Section (d) shall install, calibrate and maintain continuous monitors in accordance with the manufacturer's recommended procedures to monitor the operational characteristics of the unit and of any NOx emissions reduction system, as applicable, to demonstrate continuous compliance, such as:

- (i) exhaust gas flow rate;
- (ii) exhaust gas temperature;
- (iii) ammonia injection rate;
- (iv) water injection rate; and
- (v) stack-gas oxygen content

The Air Pollution Control Officer may require recording of one or more of the above parameters as necessary to ensure compliance.

(2) An owner or operator of any unit with a power rating of 10 MW or more that operates more than 4000 hours per calendar year shall install and operate a continuous emission monitoring system (CEMS) to measure and record NO_x emissions. The CEMS shall be certified, calibrated and maintained in accordance with all applicable federal regulations including the requirements of Parts 60.7(c), 60.7(d), and 60.13 of Title 40, Code of Federal Regulations, Section 60 (40 CFR 60), performance specifications of Appendix B of 40 CFR 60, quality assurance procedures of Appendix F of 40 CFR 60, and a protocol approved by the Air Pollution Control Officer.

(3) An owner or operator of any unit with a continuous emissions monitoring system which has been installed to measure NO_x emissions pursuant to any federal regulation shall certify, calibrate and maintain the CEMS in accordance with applicable federal regulations including the requirements of Parts 60.7(c), 60.7(d), and 60.13 of Title 40, Code of Federal Regulations Section 60 (40 CFR 60), performance specifications of Appendix B of 40 CFR 60, quality assurance procedures of Appendix F of 40 CFR 60, and a protocol approved in writing by the Air Pollution Control Officer.

(4) An owner or operator of any unit subject to this rule shall maintain an operating log and record actual times and duration of all startups, shutdowns and fuel changes, and the type and quantity of each fuel used.

(5) An owner or operator of an emergency unit shall maintain an operating log and record the hours of operation for non-emergency purposes and during each emergency situation. At a minimum, these records shall include the dates and actual times and duration of all startups and shutdowns, total cumulative annual hours of operation for non-emergency purposes, and a description of each emergency situation.

(6) An owner or operator of a peaking unit shall maintain an operating log and record the hours of operation during periods of high energy demand, and the total cumulative hours of operation during each calendar year.

(7) An owner or operator of any unit with a power rating less than 4 MW claiming the exemption of Subsection (b)(2)(iii) shall maintain an operating log and record total cumulative hours of operation during each calendar year.

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

(f) TEST METHODS

(1) To determine compliance with Section (d), measurement of oxides of nitrogen and stack-gas oxygen content shall be conducted in accordance with the District Source Test Method 100, or ARB Test Method 100 as approved by the U.S. Environmental Protection Agency (EPA).

(2) The higher heating value and lower heating value of a fuel shall be determined by the most current version of the following methods and can be provided by a fuel supplier:

(i) ASTM Test Method D240 or D2382 for liquid fuels, and

(ii) ASTM Test Method D1826, or D1945, in conjunction with ASTM Test Method D3588 for gaseous fuels.

(g) **SOURCE TEST REQUIREMENTS AND COMPLIANCE DETERMINATION**

(1) Any required source testing shall be performed at no less than 80% of the power rating. If an owner or operator of a gas turbine engine demonstrates to the satisfaction of the Air Pollution Control Officer that the turbine cannot operate at these conditions, then emissions source testing shall be performed at the highest achievable continuous power rating.

(2) A unit subject to the requirements of Section (d) shall be tested for compliance at least annually before the Permit to Operate renewal date, unless otherwise specified in writing by the Air Pollution Control Officer. Testing shall be conducted in accordance with Section (f) and a source test protocol approved in writing by the Air Pollution Control Officer.

(3) Test reports shall include the operational characteristics, as described in Subsection (e)(1), of the unit and of all add-on NOx control systems.

(4) For the purposes of a compliance determination based on source testing, the NOx emissions concentration shall be calculated as an average of three substests.

(5) For the purposes of a compliance determination based on CEMS data, the averaging period to calculate NOx emissions concentration shall be one clock hour.

(h) **COMPLIANCE SCHEDULE**

(1) An owner or operator of an existing unit requiring modification, replacement or installation of air pollution control equipment pursuant to Section (d) requirements shall meet the following increments of progress:

(i) By *(twelve months after date of adoption)* submit an application to the Air Pollution Control Officer for an Authority to Construct and Permit to Operate the modified or replacement air pollution control equipment necessary to meet the emission standards of Section (d) of this rule.

(ii) By *(twenty-four months after date of adoption)* demonstrate compliance with the emission standards specified in Section (d) and all other applicable provisions of this rule.

(2) By *(six months after date of adoption)*, an owner or operator of an existing unit not requiring modification, replacement or installation of additional air pollution control equipment pursuant to Section (d) shall submit an application to modify conditions on the Permit to Operate as necessary to comply with the applicable requirements of Sections (d) and (e).

(3) An owner or operator of a new or replacement unit shall comply with all applicable provisions of this rule upon initial installation and commencement of operation.