AIR POLLUTION CONTROL DISTRICT
COUNTY OF SAN DIEGO

PROPOSED AMENDED RULE 69
ELECTRICAL GENERATING STEAM BOILERS, REPLACEMENT UNITS AND NEW UNITS

WORKSHOP REPORT

A workshop notice was mailed to each company that might be subject to the rule, to each participant at a previous workshop on Rule 69, to all interested parties, and to the U.S. Environmental Protection Agency (EPA), the California Air Resources Board (ARB), the California Energy Commission (CEC), and the California Public Utilities Commission (CPUC).

The workshop was held on September 7, 1995 and was attended by 11 people. Written comments were also received from one interested party. No written comments were received from the EPA nor the ARB. The following are the comments received and District responses.

1. **WORKSHOP COMMENT**

What is the status of the approval by EPA of the recent revisions to District Rule 68 into the SIP?

DISTRICT RESPONSE

Rule 68, which applies to large fuel burning equipment including electrical generating steam boilers, was revised on September 20, 1994 and submitted to EPA for approval into the SIP on October 19, 1994. As of this date, EPA has not acted on the submission.

2. **WORKSHOP/WRITTEN COMMENT**

Was the change to the offset ratio in Section (d)(4)(ii) of the rule related to the change in the San Diego Air Basin's non-attainment reclassification?

DISTRICT RESPONSE

Since the emission reductions required by Rule 69 are intended to meet the requirements of the California Clean Air Act, and are not related to the Air Basin's ozone classification relative to the national ambient air quality standard, the offset ratio for exceedances of the emissions cap in limited circumstances was changed from 1.3 : 1.0 to 1.0 : 1.0.

3. **WORKSHOP/WRITTEN COMMENT**

Does the rule allow interpollutant trading for offsets?

DISTRICT RESPONSE

Rule 69 allows offsetting emission reductions to be provided in certain circumstances when the annual oxides of nitrogen (NOx) emissions cap may be exceeded. It also specifies that the offsetting emission reductions must conform to the criteria for emission offsets specified in District Rule 20.1. Since Rule 20.1 allows interpollutant offsets, such offsets would be allowed under Rule 69.

4. **WORKSHOP/WRITTEN COMMENT**

In different locations, the rule refers to person/company and owner/operator. Are they the same?

DISTRICT RESPONSE

Yes. The rule language will be clarified to reflect consistent references.

5. **WORKSHOP COMMENT**

Are there opportunities for other companies to qualify for the emissions offset waiver?

DISTRICT RESPONSE

The emission offset waiver provided in Rule 69 is only available to owners/operators of existing boilers subject to the rule who implement sufficient emission reductions at those existing boilers in excess of U.S. EPA Reasonably Available Control Technology requirements, and who meet other criteria specified. Since San Diego Gas and Electric is the only owner/operator of existing boilers subject to the rule who would be able to implement sufficient emission reductions, it is unlikely that any other party could qualify for the emission offset waiver.

6. **WORKSHOP COMMENT**

How does the District forecast possible exceedances of the state ambient air quality standard for ozone?

DISTRICT RESPONSE

The District meteorological staff evaluate meteorological forecasts for the air basin, air quality in neighboring areas, air basin topography, and historic and seasonal trends associated with state ozone standard exceedances. Based on this information, the District prepares a forecast for anticipated air quality levels for the following day. This forecast is available to the public on a tape recorded message (565-6626).

7. **WORKSHOP COMMENT**

Did the District evaluate the fiscal impacts of the proposed Rule 69 amendments on electricity rates? Did that analysis include the "stranded costs" associated with inactive units?

DISTRICT RESPONSE

The proposed amendments to Rule 69 are not expected to result in any increased costs and impacts on electricity rates compared to current Rule 69. The proposed amendments could result in reduced costs and impacts. The electricity rate and socioeconomic impacts of current Rule 69 were evaluated by a District contractor prior to adoption of Rule 69 in 1994. That study is available from the District. All resource forecasts associated with the currently operating SDG&E boilers show those boilers continuing to operate after implementation of Rule 69.

8. **WORKSHOP COMMENT**

What is the purpose of the aggregate emissions forecast required in Section (e) of the proposed amended rule? How would the public know of an exceedance of the forecast?

DISTRICT RESPONSE

The annual forecast of monthly aggregate NOx emissions in the forthcoming calendar year is intended to provide a compliance tool to assure the District that SDG&E has in place an emissions control and operations plan adequate to meet its aggregate NOx emissions cap, to ensure that progress towards compliance with the final emissions cap is occurring, and to allow a comparison of actual emissions on a monthly basis to ensure that total NOx emissions will not exceed the applicable cap and to identify where any adjustments to emission controls or operations are needed to ensure that the cap will be met. All records submitted in regards to the emissions forecast, the compliance plan/report and the monthly emissions reports are public records, available to any member of the public for inspection upon request.

9. **WORKSHOP COMMENT**

Does the District have concerns with incorporating the monitoring requirements of 40 CFR Part 75 into Rule 69? What are the specific concerns with calibration?

DISTRICT RESPONSE

The District agrees with the concept of integrating the monitoring requirements of Rule 69 and 40 CFR Part 75. However, the District is concerned with specifying Part 75 in Rule 69 since there may be areas where Part 75 requirements are not adequate to ensure proper monitoring under Rule 69. For example, calibrations of instruments under Part 75 are based on anticipated NOx emission rate levels that may be significantly higher than those of boilers retrofitted with emission controls to comply with Rule 69. In addition, Part 75 may be changed by EPA without District concurrence, and existing Part 75 contains provisions for the EPA Administrator to grant waivers from Part 75 requirements on a case-by-case basis, again without District concurrence.

Accordingly, the proposed amendments to Rule 69 will require that monitoring be conducted to collect and record specified data, but that the methods for monitoring, recording and reporting will be pursuant to a protocol proposed by the owner/operator of affected boilers and units and approved by the District. In this way, the District can work with SDG&E or any other affected owner/operator to assure that monitoring necessary to ensure compliance with Rule 69 will be adequate and can also meet other requirements such as 40 CFR Part 75.

10. **WRITTEN COMMENT**

What will be the impact of the proposed amendments to Rule 69 to the overall attainment plan (or RFP)? Will additional sources of ozone precursors be controlled or further controlled? If so, what is anticipated? If not, has the APCD determined that other control strategies provide for RFP?

DISTRICT RESPONSE

The proposed amendments to Rule 69 are not expected to result in increased NOx emissions compared to the current Rule 69 or current power plant boiler emissions. The proposed amendments retain the same overall annual NOx mass emission limits and schedule that current Rule 69 imposes - 2100 tons per year by the year 1997, and 800 tons per year by the year 2001. The 800 ton annual emissions cap is significantly below the 1200 tons per year emissions level anticipated for this source category in San Diego's Regional Air Quality Strategy. No Rule 69 emission reductions were relied on in the District's demonstration of attainment of the national ambient air quality standard for ozone, nor has Rule 69 been submitted to EPA for inclusion in the State Implementation Plan.

Accordingly, the District does not anticipate any emission increases that will need to be compensated for by additional emission reductions from other source categories. If in the future there are significant changes in electrical energy demand, energy resource availability from outside the air basin, or emission control technologies, and/or additional emission reductions to meet federal or state ambient air quality standards are needed, Rule 69 will be re-evaluated for possible further amendments.

11. **WRITTEN COMMENT**

With the removal of the "increments of progress" which would have provided a tracking mechanism for NOx emission reductions toward attainment, how does the District anticipate tracking the reductions based on the proposed amendments? What additional cost burdens or cost reductions (e.g. APCD costs, SDG&E retrofit costs) result from the proposed amendments?

DISTRICT RESPONSE

The District will track progress towards compliance with Rule 69 emission limits through the requirement for an annual compliance plan/report, including a forecast of emissions each month in the following year, by review of the required monthly reporting of total aggregate emissions, and by permitting all NOx emissions controls required to meet the limits of Rule 69. Given that SDG&E has nine currently active boilers, most of which will require retrofitting with NOx emission controls to meet the limits of Rule 69, and five years in which to reduce aggregate annual NOx emissions to 800 tons per year, the District expects, and will be looking for, continual emissions reduction progress to be made.

SDG&E has projected possible capital cost savings up to $70 million as a result of the proposed amendments to Rule 69. Actual savings will be dependent on development of less costly NOx control technologies, availability of external electrical energy resources, and future SDG&E decisions regarding the development of more energy efficient capacity from repowering projects and new electrical generating units. The fiscal impacts to the District from the proposed amendments is expected to be minimal.

12. **WRITTEN COMMENT**

What is the current estimated tons per year of NOx emissions from SDG&E's affected units?

DISTRICT RESPONSE

The average of the annual NOx emissions from the nine currently operating SDG&E boilers affected by the rule for the last five emissions inventory years is approximately 3500 tons.

13. **WRITTEN COMMENT**

Is the forecast of cumulative monthly system NOx emissions the primary mechanism for demonstrating compliance with the aggregate NOx limit placed on the system? Please clarify the process for how exceedances of the bubble would be determined and the associated compliance procedures.

DISTRICT RESPONSE

The forecast of cumulative monthly emissions for the forthcoming calendar year will be used as a compliance tool to ensure that SDG&E has in place an operating and emissions control plan that will ensure compliance with the aggregate NOx emissions limit applicable to that forthcoming year. The primary mechanism for demonstrating compliance will be the continuous emissions monitoring system required by the rule for each affected boiler or unit. Monthly aggregate emissions will be determined from the emissions data collected by the monitoring system and reported to the District. In addition, aggregate NOx emissions data must be provided to the District upon request. The emissions monitoring system must be approved by the District, must have approvable calibration, audit and QA/QC features, and will be periodically validated by independent emissions testing required by the District.

The District will be regularly reviewing reported emissions data and forecasts to verify that emissions are expected to be in compliance with the applicable limits of Rule 69.

14. **WRITTEN COMMENT**

Please describe how the forecast of emissions will be calculated (e.g. per unit, per plant). Are these emissions based on traditional air quality emission calculations, source tests, emissions monitoring, etc. Or is there a more involved forecasting procedure or model?

DISTRICT RESPONSE

SDG&E will be required to forecast monthly electrical generation patterns and/or fuel usage for each affected boiler, new unit or replacement unit. The forecast would likely be based on historic generation levels as well as anticipated changes in resource availability, unit availability and costs. An emission factor would be applied that is specific to each unit and appropriate to that unit's load forecast. The emission factors will be derived from source testing and continuous emissions monitoring data. The factors will also reflect any in-place or anticipated NOx emissions controls for each affected unit. Forecast monthly emissions for each unit would then be aggregated for the entire system. This process would be repeated for each calendar month.

15. **WRITTEN COMMENT**

The rule essentially provides for offsetting of any NOx exceedances with creditable offsets. Was this the intent?

DISTRICT RESPONSE

This was not the District's intent. Current Rule 69 language will be retained to ensure that emission offsets can only be provided to mitigate anticipated exceedances of the NOx emissions limits in the case of an unforeseen event that is not due to an intentional or negligent act or omission.

16. **WRITTEN COMMENT**

Given the upcoming utility restructuring, it is conceivable that SDG&E and another entity could venture into a joint project, located at the existing SDG&E power plants (Encina, South Bay, Silvergate) or elsewhere in the County. The following questions pertain to the offset liability for such ventures:

- If another repower is proposed on SDG&E power plant sites, is it expected that no additional offsets would be needed?
- If SDG&E enters into a joint venture with another entity, does the built-in offset provision apply to such a venture?
- If SDG&E constructs a new facility, within the County, does that project benefit from the offset provision?
- If SDG&E and another entity enter into a venture for a new facility elsewhere in the County, does that project benefit from the offset provision?
- If an entity, separate from SDG&E, proposes an identical project, does that project benefit from the offset provision?

DISTRICT RESPONSE

The following responds to each specific scenario described in the written comment:

- If another repower is proposed on a SDG&E power plant site and that repower is owned or operated by SDG&E, additional NOx emission offsets would likely be needed only to the extent that the project causes total aggregate NOX emissions from the SDG&E system to exceed the annual aggregate NOX emissions limit prescribed by Rule 69. Emission offsets may be required for other pollutants such as VOC, PM10 and SOx.
- If SDG&E enters into a joint venture with another entity, the emission offset waiver provision would only apply if SDG&E owns or operates the existing, new or replacement unit, or has a controlling interest in the unit.
- If SDG&E constructs a new facility within the county, that project may qualify for the offset waiver of Rule 69 provided SDG&E meets all of the requirements for the waiver and only to the extent that the project does not cause total aggregate NOX emissions from the SDG&E system to exceed the annual aggregate NOX emissions limit prescribed by Rule 69. Emission offsets may be required for other pollutants such as VOC, PM10 and SOx.
- If SDG&E and another entity enter into a venture for a new facility elsewhere in the county, that project can likely only qualify for the emission offset waiver if SDG&E owns or operates the new or replacement unit or has a controlling interest in the unit.
- If an entity, separate from SDG&E, proposes an identical project, that project will likely not qualify for the emissions offset waiver of Rule 69 since the entity will likely not have generated emission reductions from existing units that exceed federal RACT requirements.

17. **WRITTEN COMMENT**

What is Reasonably Available Control Technology (RACT) for this source category? How do SDG&E sources currently compare to this RACT level?

DISTRICT RESPONSE

The NOx emission rates prescribed by District Rule 68 are consistent with EPA's presumptive RACT emission levels for fossil fuel fired electrical generating steam boilers. SDG&E boilers are currently meeting the emission limits of Rule 68, and thus are in compliance with EPA RACT requirements for major sources. Compliance with Rule 68 is verified by annual emissions source tests and continuous emissions monitors installed on SDG&E boilers. District Rule 69 goes beyond RACT controls required by EPA because it implements Best Available Retrofit Control Technology (BARCT) as required by the California Clean Air Act.

18. **WRITTEN COMMENT**

What are the envisioned logistics/procedures involved with the APCO's determination of an ozone exceedance and thus the lead time for SDG&E to burn fuel oil?

DISTRICT RESPONSE

The District will forecast whether an exceedance of the state ozone standard is expected the following day by 4:00 PM each day. SDG&E, or any other entity affected by Rule 69, must call the District daily to determine whether an exceedance is forecast. See also the response to Workshop Comment No. 6.

AIR POLLUTION CONTROL DISTRICT
COUNTY OF SAN DIEGO

PROPOSED AMENDMENTS TO RULE 69

Proposed amendments to Rule 69, Sections (a), (c), (d), (e), (f) and (g) are to read as follows:

RULE 69. ELECTRICAL GENERATING STEAM BOILERS, REPLACEMENT UNITS AND NEW UNITS

(a) **APPLICABILITY**

(1) Except as provided in Section (b) or otherwise specified in this rule, this rule is applicable to ~~all~~ the following existing electrical generating steam boilers, to all replacement units and to all new units, including any auxiliary boiler used in conjunction with ~~an~~ such electrical generating steam boilers, ~~and to~~ replacement units ~~and~~ or new units:

(i) Encina Power Plant Units 1, 2, 3, 4 and 5

(ii) South Bay Power Plant Units 1, 2, 3 and 4

(iii) Silvergate Power Plant Units

(2) Equipment subject to this rule shall also comply with the emission limitations and exemptions set forth in Rule 68.

(b) **EXEMPTIONS**

(1) The provisions of Section (d) shall not apply to:

(i) Any electrical generating steam boiler with a maximum heat input capacity of less than 100 million Btu's per hour.

(ii) Boilers which generate steam used exclusively for space heat or process heat and not used for electrical generation.

(c) **DEFINITIONS**

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

(1) **"Boiler"** means any combustion equipment fired with solid, liquid and/or gaseous fuels and used to produce steam, excluding electrical generating gas turbines.

(2) **"Calendar Day"** means the 24-hour period starting on the 00:00 hour and ending on the 24:00 hour.

(3) **"Calendar Year"** means the consecutive 12-month period beginning January 1 and ending December 31.

~~(4) **"Capacity Factor"** means the fraction of an electrical generating steam boiler's, replacement unit's or new unit's maximum electrical generating capacity that is actually utilized during a calendar year. The maximum electrical generating capacity shall be determined by multiplying the maximum rated capacity of a boiler, replacement unit or new unit, in megawatts, by 8760 maximum operating hours per year (8784 hours for a leap year).~~

(4) **"Compliance Emissions Testing"** means any emissions or continuous emissions monitor (CEM) quality assurance/quality control (QA/QC) testing required by federal, state, or local regulations.

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

(6) **"Electrical Generating Steam Boiler"** means any boiler used to produce steam to be expanded in a turbine generator used for the generation of electric power.

(7) **"Electrical Generating Gas Turbine"** means any combustion turbine fired with solid, liquid and/or gaseous fuels and used to provide direct shaft work for the generation of electric power.

(8) **"Force Majeure Natural Gas Curtailment"** means an interruption in natural gas service such that the daily fuel needs of a boiler or replacement unit subject to this rule cannot be met with the natural gas available due to:

(i) Unforeseeable natural disaster or other cause resulting in the failure or malfunction of natural gas supply, delivery or storage system facilities, not resulting from an intentional or negligent act or omission on the part of an owner or operator of a boiler, a new unit or a replacement unit, or

(ii) A supply restriction resulting from a California Public Utilities Commission priority allocation ruling, or

(iii) Delivery restrictions due to pipeline capacity limitations of the natural gas supplier or upstream transports or within a gas utility's delivery system.

(9) **"Heat Input"** means the heat derived from combustion of fuel in an electrical generating unit and does not include the heat input from preheated combustion air, recirculated flue gases, or exhaust gases from other sources, such as gas turbines, internal combustion engines, kilns, etc. The maximum heat input rating means the lesser of the steady state heat input capacity of an electrical generating unit, as limited by its design and construction or as limited by an Authority to Construct or Permit to Operate.

(10) **"Megawatt-hour (MW-hr)"** means the total electrical energy generation of a boiler, new unit or replacement unit subject to this rule**.**

(11) **"New Unit"** means any electrical generating steam boiler or gas turbine or other combustion device for which the first Authority to Construct is issued on or after January 18, 1994 ~~(date of adoption)~~.

(12) **"Oxides of Nitrogen (NOx)"** means the sum of all compounds containing at least one atom of nitrogen and one atom of oxygen, measured as nitrogen dioxide.

~~(12)~~(13) **"Reasonable Further Progress"** means annual incremental reductions in emissions of the applicable air pollutant which are sufficient, in the judgment of the Air Pollution Control Officer, to provide for attainment of the applicable National Ambient Air Quality Standard by the date required by law.

~~(13)~~(14) **"Reasonably Available Control Technology"** 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 and any technology findings made by the U. S. Environmental Protection Agency.

~~(14)~~(15) **"Replacement Unit"** means any electrical generating steam boiler or gas turbine or other combustion device which permanently replaces or augments, on or after January 18, 1994 ~~(date of adoption)~~, an existing electrical generating steam boiler subject to this rule. For purposes of this rule, a replacement unit need not be limited to the same electrical generating capacity as the existing boiler being replaced.

~~(15)~~(16) **"SIP Control Measures"** means those emission control measures approved by the Air Pollution Control Board for inclusion in the State Implementation Plan (SIP) required by federal law or contained in the SIP approved by the U.S. Environmental Protection Agency.

~~(16) **"Startup"** means the period of time during which a boiler, replacement unit or new unit, and associated emissions control device(s), are being heated to the minimum functional operating temperatures of the emission control device(s), or when electrical generation equals or exceeds 25 percent of rated capacity, whichever is sooner.~~

~~(17) **"Shutdown"** means the period of time during which a boiler, replacement unit or new unit, and its associated emissions control device(s), are allowed to cool from the minimum functional operating temperatures of the emission control device(s) or when electrical generation drops below 25 percent of rated capacity, whichever is later.~~

(d) **STANDARDS**

A person shall not operate an existing electrical generating steam boiler, replacement unit or new unit subject to this rule unless only natural gas, alternative fuel and/or fuel oil is burned and the following requirements are met. If an alternative fuel is burned in an existing boiler subject to the provisions of Subsection (d)(7), the operator shall have previously demonstrated to the satisfaction of the Air Pollution Control Officer that the emissions of oxides of nitrogen (NOx) per megawatt-hour of electricity generated is not greater than would be the emissions from the burning of natural gas in the same boiler, replacement unit or new unit.

~~(1) Except as provided in Subsections (d)(2) through (d)(6), a person shall not operate an electrical generating steam boiler unless:~~

~~(i) The emissions of oxides of nitrogen, expressed as nitrogen dioxide, from the boiler do not exceed 0.15 pounds per megawatt-hour, and~~

~~(ii) The person has met the compliance schedule specified in Section (e).~~

~~(2) Except as provided in Subsections (d)(3), (d)(4) and (d)(5), no person shall operate one or more of the electrical generating steam boilers listed below unless the emissions of oxides of nitrogen, expressed as nitrogen dioxide, from the boiler do not exceed 0.18 pounds per megawatt-hour and such person has met the compliance schedule specified in Section (e).~~

~~Encina Power Plant Units 1, 2, 3 and 4~~
~~South Bay Power Plant Units 1,2 and 4~~

~~(3) The provisions of Subsection (d)(2) shall not apply and the provisions of Subsection (d)(1) shall apply if the capacity factor of an electrical generating boiler with a maximum heat input rating of equal to or greater than 2100 million Btu's per hour is greater than 0.15 over any calendar year.~~

~~(4)~~ (1) Fuel Oil Firing ~~NOx Emission Rate Limits~~

A person shall not operate an electrical generating steam boiler, replacement unit or new unit when burning fuel oil after January 1, 1997 unless~~:~~

~~(i) The requirements of Subsection (d)(1), (d)(2) or (d)(3), as applicable, are met by the operator of an affected boiler when burning natural gas exclusively in that boiler, and~~

~~(ii) The emissions of oxides of nitrogen, expressed as nitrogen dioxide, from an affected boiler do not exceed 0.40 pounds per megawatt-hour when burning fuel oil exclusively in that boiler, and~~

~~(iii) The emissions of oxides of nitrogen, expressed as nitrogen dioxide, from the boiler when fired on a mixture of fuel oil and natural gas do not exceed the limits prescribed in Subsections (d)(4)(i) and (d)(4)(ii), prorated for the relative heat input from fuel oil and natural gas, as follows:~~

$$\cancel{EL = \frac{[(Lo)(Qo)(HHVo)] + [(Lg)(Qg)(HHVg)]}{(Qo)(HHVo) + (Qg)(HHVg)}}$$

~~where,~~

~~EL~~	~~=~~	~~Emission limit, pounds per megawatt-hour~~
~~Lo~~	~~=~~	~~0.40 pounds per megawatt-hour~~
~~Qo~~	~~=~~	~~Quantity of fuel oil burned, barrels per hour~~
~~HHVo~~	~~=~~	~~Higher heating value of fuel oil, Btu's per barrel~~
~~Lg~~	~~=~~	~~0.15 or 0.18 pounds per megawatt-hour, as applicable~~
~~Qg~~	~~=~~	~~Quantity of natural gas burned, scf per hour~~
~~HHVg~~	~~=~~	~~Higher heating value of natural gas, Btu per scf,~~

~~and~~

~~(iv)~~ the Air Pollution Control Officer has determined that an exceedance of the state ambient air quality standard for ozone is not predicted at any location in the air basin at any time during the fuel oil burning. This paragraph shall not apply when burning of fuel oil is required due to a force majeure natural gas curtailment, ~~. Prior to January 1, 1997, this paragraph shall not apply~~ or to fuel oil burning in the existing South Bay Power Plant Unit 4 boiler on days when fuel oil burning is needed to meet peak electrical generation demand.

~~(5) Low Capacity Factor Boiler NOx Emission Rate Limits~~

~~The provisions of Subsections (d)(1)(i), (d)(2) and (d)(4)(i), (ii) and (iii), shall not apply to the operation of the existing electrical generating steam boilers located at the Silvergate Power Plant nor to the existing Unit 4 boiler at the South Bay Power Plant provided:~~

~~(i) The capacity factor for each such boiler, over each calendar year, does not exceed 0.10, and~~

~~(ii) The emissions of oxides of nitrogen, expressed as nitrogen dioxide, do not exceed 0.60 pounds per megawatt-hour when burning natural gas, and~~

~~(iii) Fuel oil shall not be burned in the Silvergate Power Plant boilers, and may only be burned in the South Bay Unit 4 boiler during force majeure natural gas curtailments on and after January 1, 1997. Prior to January 1, 1997, this limitation shall not apply to fuel oil burning in the South Bay Power Plant Unit 4 boiler on days when fuel oil burning is needed to meet peak electrical generation demand. The emissions of oxides of nitrogen, expressed as nitrogen dioxide, from the South Bay Unit 4 boiler when burning fuel oil shall not exceed 1.20 pounds per~~

~~megawatt- hour and when fired on a mixture of fuel oil and natural gas shall not exceed the limits prescribed in Subsections (d)(5)(ii) and (d)(5)(iii), prorated for the relative heat input from fuel oil and natural gas, as follows:~~

$$\cancel{EL = \frac{[(Lo)(Qo)(HHVo)] + [(Lg)(Qg)(HHVg)]}{(Qo)(HHVo) + (Qg)(HHVg)}}$$

~~where,~~

~~EL~~	~~=~~	~~Emission limit, pounds per megawatt-hour~~
~~Lo~~	~~=~~	~~1.20 pounds per megawatt-hour~~
~~Qo~~	~~=~~	~~Quantity of fuel oil burned, barrels per hour~~
~~HHVo~~	~~=~~	~~Higher heating value of fuel oil, Btu's per barrel~~
~~Lg~~	~~=~~	~~0.60 pounds per megawatt-hour~~
~~Qg~~	~~=~~	~~Quantity of natural gas burned, scf per hour~~
~~HHVg~~	~~=~~	~~Higher heating value of natural gas, Btu per scf,~~

~~and~~

~~(iv) The Air Pollution Control Officer has determined that an exceedance of the state ambient air quality standard for ozone is not predicted at any location in the air basin at any time during the fuel oil burning. This paragraph shall not apply when burning of fuel oil is required due to a force majeure natural gas curtailment.~~

~~(6) Compliance with the standards of Subsections (d)(1) through (d)(5) shall be based on emissions of oxides of nitrogen from an affected boiler averaged over each calendar day of operation, or portion thereof, excluding periods of startups and shutdowns.~~

~~(7) Startups and Shutdowns~~

~~The provisions of Subsections (d)(1)(i), (d)(2)(i), (d)(3), (d)(4) and (d)(5) shall not apply to electrical generating steam boilers during periods of startup or shutdown provided the startup or shutdown does not exceed fifteen hours.~~

~~(8)~~ (2) Replacement Units and New Units NOx Emission Rate Limits

~~Notwithstanding the requirements of Subsections (d)(1) through (d)(7), no~~ A person shall not operate a replacement unit or new unit subject to this rule unless such unit has been built with, and is operated in conjunction with, the Lowest Achievable Emission Rate or Best Available Control Technology as applicable and defined in Rule 20.1 for emissions of oxides of nitrogen. ~~Emissions of oxides of nitrogen from any replacement unit or new unit shall not be greater than the emission rate limit of Subsection (d)(1)(i). For a cogeneration unit which generates process steam as well as electricity, the emissions of oxides of nitrogen per megawatt-hour of electrical energy generated shall be determined by prorating the total unit emissions of oxides of nitrogen by the ratio of the gross electrical energy generated to the total energy produced by the unit.~~

(3) Maximum NOx Emissions Control Performance

A person shall not operate an electrical generating steam boiler, replacement unit or new unit on any calendar day for which the Air Pollution Control Officer has predicted an exceedance of the state ambient air quality standard for ozone at any location in the air basin at any time during that day unless all NOx emissions controls associated with such boiler, replacement unit or new unit are operated in a manner that achieves the maximum NOx emission control performance for that boiler or unit. The Air Pollution Control Officer shall specify maximum allowable NOx emission rates and/or key emission control device and boiler or unit operating parameters for each such boiler, replacement unit or new unit as necessary to ensure compliance with this requirement.

~~(9)~~~~(3)~~(4) Aggregate NOx Emission Limit

Except as provided in Subsection (d)(5)~~(4),~~ ~~(10),~~ no ~~person or company~~ owner or operator which qualifies for the NOx offset waiver provisions of Subsection (d)(6)~~(5)~~~~(11)~~ shall operate any existing electrical generating steam boiler, replacement unit or new unit subject to this rule unless such ~~person or company~~ owner or operator has demonstrated that the aggregate emissions of oxides of nitrogen, expressed as nitrogen dioxide, from all such boilers, replacement units and new units located in San Diego County and owned or operated by such ~~person or company~~ owner or operator, and any electrical generating steam boilers, replacement units and new units located in San Diego County that are owned or operated by ~~a company~~ another entity in which such ~~person or company~~ owner or operator has a controlling interest, are not greater than:

(i) On and after January 1, 1997, 2100 tons during every calendar year.

(ii) On and after January 1, 2001, 800 tons during every calendar year.

If the owner or operator of an existing electrical generating steam boiler subject to this Subsection does not own or operate, or does not have a controlling interest in the ownership or operation of, all of the existing electrical generating steam boilers subject to this rule, the aggregate emissions of oxides of nitrogen from all existing electrical generating steam boilers, replacement units and new units owned or operated by such person, or in which such person has a controlling interest, shall not exceed the amounts specified above, in the calendar years specfied above, less the annual projected emissions of oxides of nitrogen for all existing electrical generating steam boilers which such person does not own or operate or have a controlling interest in the ownership or operation of. The annual projected emissions of such existing boilers shall be determined by the Air Pollution Control Officer and shall be based on a natural gas-fired oxides of nitrogen emission rate of 0.15 pounds per megawatt-hour, a fuel oil-fired oxides of nitrogen emission rate of 0.40 pounds per megawatt-hours, and the average megawatt-hours generated by each such boiler, when fired on natural gas and on fuel oil, during the five preceding calendar years. This adjustment shall be prorated for the relative heat inputs of fuel oil and natural gas when co-firing both fuels.

The annual oxides of nitrogen emission limits specified in this subsection shall be adjusted to account for fuel oil burning that results from a force majeure natural gas curtailment, or is due to compliance emissions testing, using methods approved by the Air Pollution Control Officer. The adjustment shall be made by adding to the applicable limit the difference between the total pounds of oxides of nitrogen emissions occurring during such fuel oil burning and the total pounds of oxides of nitrogen emissions which would have occurred during the same period had natural gas been fired in that boiler, replacement unit or new unit. ~~product of the megawatt-hours generated by each boiler, replacement unit, or new unit during such fuel oil burning and the difference between the applicable oxides of nitrogen emission rate limits for fuel oil burning and natural gas burning in that boiler, replacement unit or new unit.~~ The adjustment shall be prorated for the relative heat inputs of fuel oil and natural gas when co-firing both fuels.

~~(10)(4)~~(5) Exceedances of an Aggregate NOx Emission Limit

An ~~person or company~~ owner or operator subject to the requirements of Subsection (d)(4)~~(3)(9)~~ may operate its electrical generating steam boilers, replacement units and new units when aggregate oxides of nitrogen emissions exceed the calendar year limits specified in Subsection (d)(4)~~(3)(9)~~ provided:

(i) Such person ~~or company~~ has demonstrated, to the satisfaction of the Air Pollution Control Officer, that the exceedance is due to an unforeseen event, such as a forced outage of one or more ~~generating units~~ boilers, replacement units or new units or a disruption in the supply of imported power, and is not due to an intentional or negligent act or omission on the part of such person or company, and

(ii) The Air Pollution Control Officer has approved the exceedance in advance and has issued modified permits to operate for the affected equipment adding conditions that establish a new, enforceable calendar year aggregate emission limit, and

~~(ii)~~(iii) Such person or company has provided offsetting emission reductions, on an annual basis and at a ~~1.3~~ 1.0 to 1.0 offset ratio, for all emissions of oxides of nitrogen in excess of the calendar year limits specified in Subsection (d)(4)~~(3)(9)~~.

The new calendar year aggregate oxides of nitrogen emission limit established pursuant to ~~Subsection (d)(10)(ii)~~ the above shall be based on the sum of the aggregate emission limit specified in Subsection (d)(4)~~(3)~~ and the emission offsets provided pursuant to Subsection (d)(5)~~(4)(ii)~~. ~~maximum expected calendar year emissions in compliance with this rule. The quantity of offsetting emission reductions required shall be 1.3 times the difference between the new calendar year aggregate oxides of nitrogen emission limit and the applicable calendar year limit specified in Subsection (d)(9).~~ Offsetting emission reductions shall conform to the criteria for emission offsets specified in Rule 20.1.

~~(11)(5)~~(6) Waiver from New Source Review NOx Offset Requirements

On and after January 1, 1997, oxides of nitrogen emission increases from any new, modified or replacement unit subject to and in compliance with Subsections (d)(4)~~(3)(9)~~ and (d)(5)~~(4)(10)~~ of this rule, shall not be subject to the offset provisions of Regulation II, Rules 20.1 ~~through 20.4~~ and 20.9 (New Source Review) of these Rules and Regulations provided that:

(i) The owner or operator of the new, modified or replacement unit has demonstrated, using methods approved by the Air Pollution Control Officer and the U.S. Environmental Protection Agency, the extent to which the NOx emission reductions that have been achieved by the owner or operator from electrical generating steam boilers existing prior to January 18, 1994 ~~(*date of adoption*)~~ by compliance with this rule are in excess of the NOx emission reductions required to demonstrate compliance with Reasonably Available Control Technology, any NOx emission reductions from electrical generating steam boilers contained in SIP Control Measures and any NOx emission reductions from electrical generating steam boilers necessary to demonstrate compliance with Reasonable Further Progress, and

(ii) The excess NOx emission reductions determined in Subsection (d)(6)~~(5)~~(i)~~(11)(i)~~ are greater than ~~1.3~~ 1.2 times the NOx emissions increases from the new, modified or replacement unit that would otherwise be subject to the offset provisions of Regulation II, Rules 20.1 ~~through 20.4~~ and 20.9 (New Source Review) of these Rules and Regulations, and

(iii) The excess NOx emission reductions determined in Subsection (d)(6)~~(5)~~(i)~~(11)(i)~~ are reduced by ~~1.3~~ 1.2 times the NOx emissions increases from the new, modified or replacement unit that would otherwise be subject to the offset provisions of Regulation II, Rules 20.1 ~~through 20.4~~ and 20.9 (New Source Review) of these Rules and Regulations.

Only oxides of nitrogen emission increases associated with generating capacity which the California Energy Commission or the California Public Utilities Commission or their successor, as applicable, has determined a need for shall be eligible for this waiver.

(7) NOx Emission Rate Limits for Existing Boilers Not Subject to an Aggregate NOx Emission Limit

The emissions of oxides of nitrogen from any existing electrical generating steam boiler that is owned or operated by a person that does not qualify for the NOx offset waiver provisions of Subsection (d)(6), and/or the emissions from which are not subject to an aggregate NOx emission limit pursuant to Subsection (d)(4), shall not exceed 0.15 pounds per megawatt-hour when burning exclusively natural gas, 0.40 pounds per megawatt-hour when burning exclusively fuel oil, and a prorated emissions limit, determined as follows, when burning a combination of natural gas and fuel oil:

$$EL = \frac{[(Lo)(Qo)(HHVo)] + [(Lg)(Qg)(HHVg)]}{(Qo)(HHVo) + (Qg)(HHVg)}$$

where,

EL	=	Emission limit, pounds per megawatt-hour
Lo	=	1.20 pounds per megawatt-hour
Qo	=	Quantity of fuel oil burned, barrels per hour
HHVo	=	Higher heating value of fuel oil, Btu's per barrel
Lg	=	0.60 pounds per megawatt-hour
Qg	=	Quantity of natural gas burned, scf per hour
HHVg	=	Higher heating value of natural gas, Btu per scf,

Compliance with the standards of this subsection shall be based on emissions of oxides of nitrogen from an affected boiler averaged over each calendar day of operation, or portion thereof.

~~(12)~~(8)~~(6)~~ Emission Standards for Ammonia

The emissions of ammonia from any electrical generating steam boiler, replacement unit or new unit subject to the requirements of this rule, or from any emissions control device used to achieve compliance with this rule, shall not be greater than the lowest emission rate achievable, consistent with the requirements of this rule, taking into consideration the costs of achieving that emission rate and the potential public health impacts associated with such emissions.

~~(13)~~(9)~~(7)~~ Banking of Excess Emission Reductions

No person shall be eligible to obtain emission reduction credits for emissions of oxides of nitrogen below the limits specified in this Section (d).

(e) **COMPLIANCE SCHEDULE, PLAN ~~/~~ AND REPORT**

(1) ~~Increments of Progress~~ Compliance Schedule

A person subject to the provisions of Section (d) shall comply with the following increments of progress:

(i) Any replacement unit or any new unit shall be in compliance with the applicable requirements of Section (d) on and after initial startup.

(ii) ~~Not later than January 18, 1997, be in compliance with the applicable requirements of Section (d) for not fewer than one electrical generating steam boiler, replacement unit or new unit and each calendar year thereafter bring into compliance a minimum of one additional boiler, replacement unit or new unit owned or operated by such person.~~ Any existing electrical generating steam boiler subject to the requirements of Subsection (d)(7) shall be in compliance with the requirements of this rule within two years after the first change in ownership of such boiler that occurs after (*date of adoption*), whichever is later, but not later than January 1, 2001.

(iii) ~~Except as provided in Subsection (e)(1)(iv) below, on and after January 1, 2001, be in compliance with the requirements of Section (d) for all operating electrical generating steam boilers, replacement units and new units owned or operated by such person.~~ The owner or operator of an existing electrical generating steam boiler, replacement unit or new unit subject to the provisions of Subsections (d)(4) and (d)(5) shall be in compliance with the applicable aggregate NOx emission limits specified in Subsections (d)(4) and (d)(5) beginning with calendar year 1997, and each calendar year thereafter.

~~(iv) Be in compliance with Section (d) by January 1, 2003, or upon initial startup, whichever is sooner, for all replacement units, and associated boiler(s), scheduled for initial startup between January 1, 2001 and January 1, 2003.~~

(2) Initial Compliance Plan~~/Report~~

~~(i)~~ The owner or operator of any equipment subject to the provisions of this rule shall submit to the Air Pollution Control Officer, for approval, by ~~July 18, 1994~~ (*date of adoption + 180 days*) a Compliance Plan describing the actions, and contingencies, which are proposed by the owner or operator to meet the requirements of Section (d) ~~and Subsection (e)(1)~~. The Compliance Plan shall contain, at a minimum, the following applicable information for each electrical generating steam boiler, replacement unit and new unit subject to this rule:

- District Permit to Operate number.
- Equipment location.
- Manufacturer.
- Model number.
- Maximum permitted heat input rating.
- Primary and backup fuels to be used.
- Proposed methods to measure, ~~and~~ record and report ~~megawatt-hours~~ ~~pounds~~ emissions of oxides of nitrogen ~~emissions~~, measured as parts per million by volume (ppmv) as nitrogen dioxide at 3% O_2, as pounds per million Btu's of fuel heat input, as pounds per day, as tons per calendar month and as tons per calendar year ~~generated and watt transducer calibration method with supporting documentation~~.
- For existing boilers subject to the provisions of Subsection (d)(7), proposed methods to measure, record and report megawatt-hours generated and watt transducer calibration method with supporting documentation.
- Maximum hourly, daily and annual pre-controlled NOx emission rates.
- Method and type of emission controls to be used.
- Expected performance of the emission controls.
- Proposed schedule for applications for Authorities to Construct, issuing purchase orders for emission controls, commencing construction of emission controls, completing construction,

conducting compliance tests and demonstrating compliance with the provisions of this rule.

- For boilers and replacement units and new units subject to the aggregate NOx emission limits specified in Subsections (d)(4) and (d)(5), a forecast of aggregate emissions of oxides of nitrogen, in tons, for each calendar month of the next calendar year, a forecast of aggregate emissions of oxides of nitrogen, in tons, for each calendar year through the year 2001, and a demonstration of how compliance will be achieved with the aggregate NOx emission limits specified in Subsections (d)(4) and (d)(5).
- All analyses, operating data, emission factors, assumptions and calculations used to develop the forecast of aggregate calendar month and calendar year emissions of oxides of nitrogen
- ~~A forecast of cumulative monthly system mass emissions of oxides of nitrogen for the next calendar year, and a demonstration of comliance with the applicable aggregate NOx emission limit specified in Subsection (d)(3) and (d)(4).~~
- ~~A forecast of the aggregate NOx emissions and a comparison to the aggregate NOx emission limits specified in Subsection (d)(3) and (d)(4).~~

The initial Compliance Plan submittal need not contain detailed information regarding emission control specifications, performance and schedules, but must contain at least preliminary information regarding the type of control equipment and the anticipated ~~final compliance~~ date for installation of any planned emission controls for each affected unit. A copy of the Compliance Plan shall be kept at each affected site and shall be made available for District inspection upon request. Adherence to a Compliance Plan does not relieve the owner or operator from complying with any other provisions of this rule. The owner or operator of any boiler, replacement unit or new unit subject to this rule shall update the Compliance Plan ~~shall be updated~~ annually.

~~(2)~~(3) Compliance Reporting

(i) Annual Compliance Report

~~(ii)~~ The owner or operator of any equipment subject to the provisions of this rule shall submit by the submittal date in 1997 of the Emissions Statement Form(s) required by Rule 19.3, and each year thereafter, a Compliance Report which describes the measures taken in the preceding calendar year to achieve compliance with the requirements of Section (d) ~~and Subsection (e)(1)~~. The Compliance Report shall contain, at a minimum, the following information for the preceding calendar year for each electrical generating steam boiler, replacement unit and new unit subject to Section (d) of this rule:

- District Permit to Operate number.
- Number of hours of operation.
- Types and amounts of fuels consumed, and the number of hours on each fuel type.
- Dates and times of any force majeure natural gas curtailments that occurred.
- Mass emissions of oxides of nitrogen for each calendar ~~day~~ month and for the calendar year for each such boiler and unit and for the aggregate emissions of such boilers and units under common ownership or control.
- Megawatt-hours generated each calendar day and for the calendar year for each boiler subject to the NOx emission rate limits of Subsection (d)(7).
- Indication of whether the ~~unit~~ owner or operator is on schedule to meet the Compliance Plan(s) submitted pursuant to Subsection (e)(1).
- Emissions rate data and/or key emissions control device or boiler or unit operating parameter data, as required pursuant to Subsection (d)(3), for each day that the Air Pollution Control Officer predicted an exceedance of the state ambient air quality standard for ozone during the preceding calendar year.
- Identification of each exceedance of the applicable requirements of Section (d).

The Compliance Report submitted in 1998 for calendar year 1997, and each annual compliance report thereafter, shall contain a demonstration by the owner or operator, in the manner and form prescribed by the Air Pollution Control Officer, that the applicable requirements of Section (d) were met in the preceding calendar year. The Compliance Report shall be certified by the owner or operator as to its accuracy and completeness.

Where the Air Pollution Control Officer has approved emissions monitoring on a common stack that serves more than one electrical generating steam boiler, replacement unit, or new unit subject to this rule, the annual Compliance Report may contain aggregate emissions data from such boilers or units in lieu of emissions data for each such boiler or unit.

The Compliance Report shall also contain any proposed revisions to the Compliance Plan. These revisions shall include the justification for the changes and a demonstration that the changes will ensure compliance with the requirements of Section (d) ~~and Subsection (e)(1)~~.

Documentation and calculations used to prepare the material presented in the Compliance Report shall be maintained by the owner or operator for at least two years and shall be made available to the District upon request.

(ii) Monthly Compliance Reporting

The owner or operator of any boiler, replacement unit or new unit ~~equipment~~ subject to the provisions of Subsections (d)(4)and (d)(5) ~~this rule~~ shall submit monthly, by the 15th day of the calendar ~~following~~ month, a report of the aggregate oxides of nitrogen emissions for the preceding calendar month and cumulatively for the current calendar year from each and all such boilers, replacement units and new units under the control of the owner or operator, and a comparison of oxides of nitrogen emissions during the preceding calendar months for the current calendar year to that forecast in the current Compliance Plan. ~~a comparison of the actual system emissions of the proceeding months for the current calendar year to that forecast in the current Compliance Plan, and a plot of the actual cumulative monthly system emissions versus the forecast for the year-to-date.~~

Where the Air Pollution Control Officer has approved emissions monitoring on a common stack that serves more than one electrical generating steam boiler, replacement unit or new unit subject to this rule, the monthly Compliance Report may contain aggregate emissions data from such boilers or units in lieu of emissions data for each such boiler or unit.

If the actual monthly or cumulative system aggregate emissions exceed that forecast in the current Compliance Plan, the owner or operator shall submit an explanation ~~and,~~ of the exceedance, a description of all emission control and operational steps to be taken to ensure that the applicable calendar year aggregate emission limit of Section (d) will not be exceeded, and a revised forecast of the aggregate oxides of nitrogen emissions from each and all electrical generating steam boilers, replacement units and new units for each calendar month for the remainder of the calendar year. ~~if necessary, a revised forecast shall be submitted to the District.~~

(f) **RECORDKEEPING**

(1) On and after January 1, 1997, no person ~~or company subject to the requirements of Subsection (d)(9)~~ shall operate any electrical generating steam boiler, replacement unit or new unit subject to this rule unless such boiler or unit ~~or if such boilers or units are ducted through a common stack or chimney, such common stack or chinmney~~ is equipped with continuous emission monitors, and associated data collection, processing and storage systems, which record and preserve, on a daily basis and in the manner and form prescribed by the Air Pollution Control Officer, all of the information needed to demonstrate compliance with Subsections (d)(1)~~,~~ (~~d)(3)(9) and~~ through (d)(5)~~(4)(10)~~ and (d)(7) of this rule, as applicable, including but not limited to:

(i) The daily emissions, in pounds, of oxides of nitrogen from each boiler, replacement unit~~,~~ or new unit ~~or common stack or chimney~~.

(ii) The aggregate daily emissions, in pounds, of oxides of nitrogen from all such boilers, replacement units or new units~~, or new unit, and or common stack or chimney~~ under common ownership or control.

(iii) The cumulative calendar month and annual emissions, in tons, of oxides of nitrogen, commencing with January 1 of the current calendar year, for each such boiler, replacement unit or new unit~~, or new unit, and or common stack or chimney~~ .

(iv) The cumulative calendar month and annual emissions, in tons, of oxides of nitrogen, commencing with January 1 of the current calendar year, for the aggregate of all such boilers, replacement units or new units under common ownership or control. ~~subject to the provisions of Subsection (d)(3)~~

(v) The hours of operation for each such boiler, replacement unit or new unit.

(vi) For each such boiler, replacement unit or new unit, the following, averaged over each clock hour or portion thereof: ~~or common stack or chimney, the following:~~

(A) NOx emission concentration, in parts per million by volume (ppmv) as nitrogen dioxide at three percent oxygen on a dry basis. ~~which shall be measured and recorded in accordance with 40 CFR Part 75.~~

(B) Diluent concentration (CO_2 or O_2), in percent on a dry basis. ~~which shall be measured and recorded in accordance with 40 CFR Part 75.~~

(C) NOx emission rate, in pounds per million Btu's of fuel heat input. ~~in lbs/MMBTU, which shall be calculated and recorded in accordance with 40 CFR Part 75.~~

(D) Fuel heat input, in millions of Btu's. ~~in MMBTU, which shall be calculated and recorded in accordance with 40 CFR Part 75.~~

(E) NOx mass emission, in pounds. ~~which shall be calculated by multiplying NOx emission rate by heat input for each corresponding clock hour.~~

(F) For boilers subject to the provisions of Subsection (d)(7), NOx emissions per unit of electrical energy generated, in pounds per megawatt-hour, megawatt-hours of electrical energy generated, and the type and amount of fuel being burned.

Oxides of nitrogen emission concentrations shall be measured at equally spaced intervals, not to be less frequent than once every five minutes, or such other period determined by the Air Pollution Control Officer to be necessary to determine compliance with this rule and not inconsistent with monitoring requirements imposed under these rules or state or federal law, and averaged up to each clock hour, or portion thereof. Only the clock hour average data, or portion thereof, must be recorded and preserved.

~~(2) On and after the final compliance date specified in the Compliance Plan, a person shall not operate any electrical generating steam boiler, replacement unit or new unit subject to this rule unless such boiler or unit is equipped with continuous monitors, approved by the Air Pollution Control Officer, which record and preserve all of the information needed to determine compliance with Subsections (d)(1) through (d)(5) and (d)(7), including but not limited to:~~

~~(i) The hours of operation of the unit.~~

~~(ii) The emission concentration of oxides of nitrogen, calculated as parts per million by volume (ppmv) of nitrogen dioxide at three percent oxygen on a dry basis, averaged over every clock hour of operation, or portion thereof. The emission concentration shall be measured at equally spaced intervals, not to be less frequent than once every five minutes, or such other period determined by the Air Pollution Control Officer to be necessary to determine compliance with this rule and not inconsistent with monitoring requirements imposed under these rules or state or federal law, and averaged up to each clock hour, or portion thereof. Only the clock hour average data, or portion thereof, must be recorded and preserved.~~

~~(iii) The unit exhaust flue gas flow rate, calculated as cubic feet per hour at standard conditions and at three percent oxygen on a dry basis, averaged over every clock hour of operation, or portion thereof. The exhaust flue gas flow rate shall be measured at the same interval as emission concentration measurements. If unit exhaust flue gas flow rate is not measured directly but instead calculated from fuel flow rate or other operating parameter, such parameter shall be measured at the specified concentration measurement interval, the parameter measurement shall be recorded, and the exhaust flue gas flow rate shall be calculated for each such interval. The exhaust flue gas flow rate measurements shall be averaged up to each clock hour, or portion thereof. Only the clock hour average data, or portion thereof, must be recorded and preserved.~~

~~(iv) The emissions of oxides of nitrogen shall be calculated, as pounds of nitrogen dioxide, during every interval of emission concentration measurement using the emission concentration and exhaust flue gas flow rate measurements required in Subsections (f)(2)(ii) and (f)(2)(iii) above. The emissions of oxides of nitrogen during every clock hour of operation, or portion thereof, shall be calculated by summing the emissions calculated for each measurement interval, following the methods described in Subsection (g)(4), and shall be recorded.~~

~~(v) The megawatt-hours of electrical energy generated by the unit during every clock hour of operation, or portion thereof shall be measured and recorded.~~

~~(vi) The cumulative emissions of oxides of nitrogen, expressed as pounds of nitrogen dioxide; the total megawatt-hours of electrical energy generated; and, the average emission rate of oxides of nitrogen, expressed as pounds of nitrogen dioxide per megawatt-hour of energy generated, for every calendar day of operation, or portion thereof, shall be calculated and recorded.~~

(2) For each electrical generating steam boiler, replacement unit or new unit, emissions of oxides of nitrogen, and megawatt-hours of electrical energy produced, if applicable, shall be measured, and the resultant data processed and reported, in accordance with a protocol prepared by the owner or operator of such boiler or unit and approved by the Air Pollution Control Officer. The protocol shall specify the

maintenance, calibration and quality assurance procedures to be followed for each emission or energy measurement device and all data processing and associated equipment.

The Air Pollution Control Officer may approve continuous emissions monitoring on a common stack that serves more than one electrical generating steam boiler, replacement unit, or new unit subject to this rule provided that the owner or operator of such boilers or units demonstrates, to the satisfaction of the Air Pollution Control Officer, that such monitoring will be sufficient to determine compliance with the applicable requirements of this rule.

The records required by this section shall be retained on site for at least three years and shall be made available to the District upon request. Records of aggregate daily emissions required by Subsection (f)(1)(ii) shall be available within two working days of a request. Records of cumulative emissions required by Subsections (f)(1)(iii) and (f)(1)(iv) shall be available within ~~20~~ 15 working days of a request.

(g) **TEST METHODS**

The following methods shall be used to determine compliance with the requirements of this rule:

(1) Oxides of nitrogen emissions shall be measured utilizing District ~~modified~~ Method ~~20~~ 100 as it exists on ~~January 18, 1994~~ (*date of adoption)*. This method shall not apply to continuous emission monitors required by Subsection~~s~~ (f)(1) ~~and (f)(2)~~.

~~(2) Total energy generation in megawatt-hours shall be measured using watt transducers calibrated according to methods approved by the Air Pollution Control Officer. The methods shall be submitted by the owner or operator of a boiler or unit as part of the compliance plan required by Subsection (e)(2), and shall include a description of the principal of measurement, the frequency of measurement and basis therefore, and the calculations used to determine the megawatt hours (MW-hr) generated. The method shall also include the techniques and procedures used to calibrate each measurement device. Each measurement device shall be calibrated against standards which are based on the National Institute of Standards and Technology (NIST) standards or equivalent if no NIST standards exist. The calibration accuracy tolerance of each measurement device shall be (+/-) 0.5 percent of each measured value.~~

~~(3)~~ (2) The oxides of nitrogen (NOx) emission rate, in pounds, in pounds per megawatt-hour ~~million BTU~~, if applicable, and in pounds per million Btu's of fuel heat input for each clock hour of operation, or portion thereof, for each boiler, replacement unit or new unit subject to the requirements of ~~Subsections~~ Section (d)~~(1) or (d)(2)~~, shall be calculated ~~as follows:~~ in accordance with procedures approved by the Air Pollution Control Officer. ~~required by 40 CFR Part 75.~~

$$\cancel{NOx_{lb/MW\text{-}hr} = \frac{NOx_{lb}}{MW\text{-}hr_{Total}}}$$

~~where,~~

~~$NOx_{lb/MW\text{-}hr}$ = NOx emission rate in lb/MW-hr, for each clock hour of operation, or portion thereof.~~

~~NOx_{lb} = NOx emissions in pounds during each clock hour, as calculated in Subsection (g)(4) below.~~

~~$MW\text{-}hr_{Total}$ = Total megawatt-hours generated for each clock hour.~~

~~(4) The emissions of oxides of nitrogen (NOx) for each applicable unit during each clock hour, or portion thereof, shall be calculated as follows:~~

$$\cancel{NOx_{lb} = \sum_{i=1}^{n} NOx_i}$$

~~where,~~

~~NOx_{lb} = Emissions of oxides of nitrogen, in pounds, during each clock hour of operation.~~

~~NOx_i = Emission of oxides of nitrogen, in pounds, calculated for each five minute or approved alternative time interval within each clock hour, or portion thereof.~~

~~n = Number of valid data points during each clock hour of operation, or portion thereof. There shall not be fewer than four valid data points during each clock hour.~~

~~Emissions occurring during periods of no electrical generation shall not be included when calculating oxides of nitrogen emissions per megawatt-hour but shall be included when calculating aggregate oxides of nitrogen emissions for a calendar year.~~