



Air Pollution Control Board  
Brian P. Bilbray District 1  
Dianne Jacob District 2  
Pamela Slater District 3  
Leon L. Williams District 4  
John MacDonald District 5

Air Pollution Control Officer  
R. J. Sommerville

DATE: September 27, 1994  
TO: Air Pollution Control Board  
SUBJECT: Adoption of New Rule 69.3 (Stationary Gas Turbine Engines)

### SUMMARY:

Rule 69.3 is a new rule to control oxides of nitrogen emissions from stationary gas turbines. Oxides of nitrogen (NOx) are ozone precursors. The rule was developed to comply with the Reasonably Available Control Technology (RACT) requirements of the federal Clean Air Act. Failure to adopt Rule 69.3 for major industrial sources (currently those emitting 25 tons of NOx per year or more) before October 21, 1994, will result in EPA imposing federal sanctions on San Diego County, including a 2.0 to 1.0 emission offset ratio for major new and modified industrial sources and withholding of up to \$75 million in federal transportation funds.

Rule 69.3 will require existing turbines with a power rating greater than one megawatt to meet specified NOx emissions standards reflecting RACT. It will apply to 160 turbines at 18 facilities. These turbines already meet the proposed emission limits because they meet requirements of District's New Source Review rules or Rule 68. The rule also requires new turbines with power ratings greater than 0.3 megawatts to meet RACT emission limits. No additional emission reductions are expected as a result of adopting Rule 69.3.

Several small turbines located at major NOx sources and new turbines with power ratings of 0.4 megawatts or less used in conjunction with military tactical deployable equipment do not meet the proposed emission limits and are exempted from the rule because it is not technically or economically feasible to control them. The District will submit an Alternative RACT document to EPA justifying these exemptions. Turbines operated exclusively for research, development or testing; and portable turbines are exempt from the rule. Turbines used for emergency purposes; and during startup, shutdown or fuel change are exempt from the NOx emission limits of the rule.

The pending reclassification of San Diego County from a severe to a serious ozone non-attainment area will have no effect on these requirements because all affected turbines are located at facilities which are also major sources under the serious ozone classification.

Adopting Rule 69.3 is consistent with the Board's direction of February 2, 1993, regarding implementing new or revised rules because the federal Clean Air Act mandates adopting RACT requirements for major NOx sources. An assessment of the socioeconomic impacts of the proposed rule has been prepared. No significant adverse economic impacts or significant additional costs to industry are expected.

### **Issue**

Should the Board adopt new Rule 69.3 (Stationary Gas Turbine Engines) to reduce oxides of nitrogen emissions in San Diego County?

### **Recommendation**

#### **AIR POLLUTION CONTROL OFFICER**

Adopt the resolution amending Rule 69.3 and make appropriate findings:

- (1) of necessity, authority, clarity, consistency, non-duplication and reference as required by Section 40727 of the State Health and Safety Code.
- (2) that new Rule 69.3 will alleviate a problem and promote attainment of ambient air quality standards (Section 40001 of the State Health and Safety Code);
- (3) that an assessment of the socioeconomic impact of new Rule 69.3 has been prepared and has been made available for public review and comment, and that the socioeconomic impacts of the proposed rule have been actively considered and the District has made a good faith effort to minimize adverse socioeconomic impacts; and
- (4) that there is no reasonable possibility that the new rule may have a significant effect on the environment, and that the adoption of new Rule 69.3 is categorically exempt from the provisions of the California Environmental Quality Act pursuant to California Code of Regulations, Title 14, Sections 15300 and 15308, as an action taken to assure the maintenance or protection of the environment and where the regulatory process involves procedures for protection of the environment.

### **Advisory Statement**

The Air Pollution Control Advisory Committee recommended adopting the proposed new Rule 69.3 at its August 17, 1994, meeting.

### **Fiscal Impact**

Adopting the proposed rule will have no fiscal impact on the District.

### **Alternatives**

Not adopt new Rule 69.3. The federal Clean Air Act requirement to adopt rules reflecting RACT for NOx major sources would not be met under this alternative. Failure to adopt this rule by October 21, 1994, will result in EPA imposing sanctions (2.0 to 1.0 emission offset ratio for new and expanding major industrial sources and withholding of up to \$75 million in federal transportation funds) on San Diego County. Accordingly, this alternative is not recommended.

SUBJECT: Adoption of New Rule 69.3

**BACKGROUND:**

Rule 69.3 will control NO<sub>x</sub> emissions from stationary gas turbine engines. It applies to existing turbines with a power rating of one megawatt (MW) or greater and to new turbines with a power rating of 0.3 MW or more. It requires facilities to limit NO<sub>x</sub> emissions from units operating on gaseous or liquid fuels to specified levels.

Affected turbines currently meet either the emission standards of Rule 68 (Fuel Burning Equipment - Oxides of Nitrogen) or the New Source Review rules. Because the emission limits of these rules are the same as or more stringent than those of Rule 69.3, these turbines also currently meet the requirements of Rule 69.3. However, the rule is still needed because recent New Source Review rule amendments have not been approved by EPA and, therefore, EPA does not recognize these rules as imposing emission limits reflecting RACT on turbines. Federal enforceability of emission reductions is a RACT requirement.

Some existing turbines (located at major federal sources) with low power ratings are not regulated by Rule 68 or the New Source Review rules and are subject to EPA RACT requirements. The District has investigated the feasibility of applying RACT to these turbines and concluded it is not technically or economically feasible to do so. Accordingly, the rule specifically exempts these turbines from the NO<sub>x</sub> emission limits. The District will provide documentation (Alternative RACT) to EPA to justify these exemptions. Portable gas turbines, stationary gas turbines operated exclusively for research, development or testing are exempt from the rule provided records are kept. New gas turbines with a power rating of 0.4 MW or less used in conjunction with military tactical deployable equipment are exempt from the rule if total cumulative operating hours do not exceed 1,000 hours per year and records are kept. Turbines operating for specified periods during startup, shutdown or fuel change, or exclusively during emergencies (80-hour annual limitation on operation for maintenance) are exempt from the emission standards if records of operating times are kept.

The rule also requires recordkeeping and continuous monitoring of operational parameters such as ammonia injection rate, water or steam injection rate, and exhaust gas temperature for turbines subject to emission standards. In general, annual compliance testing is required using specified methods and a protocol approved by the District. However, flexibility is provided for requesting a change in the testing frequency.

Section 40001 of the State Health and Safety Code requires the District to determine, prior to adopting any rule to reduce emissions of criteria pollutants, that the rule will alleviate a problem and promote the attainment or maintenance of state or federal air quality standards. San Diego County does not attain the state or federal ambient air quality standard for ozone. Although the proposed rule will not reduce emissions of NO<sub>x</sub>, the rule will ensure that new and existing turbines will not increase emissions. Therefore, proposed Rule 69.3 will help alleviate San Diego County's ozone non-attainment problem by promoting attainment of state and federal ozone standards.

On February 2, 1993, the Air Pollution Control Board directed that, with the exception of a regulation requested by business or a regulation for which a socioeconomic impact assessment is not required, no new or revised regulation shall be implemented unless specifically required by federal or state law. Rule 69.3 is mandated by the federal Clean Air Act requiring all major NO<sub>x</sub> sources

SUBJECT: Adoption of New Rule 69.3

be controlled by RACT. Failure to submit the rule amendments to EPA before October 21, 1994, will result in the imposition of federal sanctions on San Diego County. Accordingly, adopting Rule 69.3 is consistent with the February 2, 1993, Board direction.

### **Socioeconomic Impact Assessment**

Section 40728.5 of the State Health and Safety Code requires the District to perform a socioeconomic impact assessment (SIA) for new and revised rules and regulations significantly affecting air quality or emission limitations. Proposed Rule 69.3 imposes emission limitations on new and existing stationary gas turbines. Accordingly, an SIA was prepared with the assistance of Applied Development Economics of Berkeley, California, and made available for public comments.

The SIA concluded that the rule will not impose significant additional costs on affected industry and will not have a significant impact on the region's economy or employment.

### **California Environmental Quality Act**

The California Environmental Quality Act requires an environmental review for certain actions. No significant adverse impacts on the environment have been suggested; no such impacts are reasonably possible. The adoption of new Rule 69.3 will not have a significant effect on the environment and is categorically exempt from the provisions of the California Environmental Quality Act pursuant to California Code of Regulations, Title 14, Sections 15300 and 15308, as an action taken to assure the maintenance or protection of the environment where the regulatory process involves procedures for protection of the environment.

A public workshop on proposed Rule 69.3 was held on July 25, 1994. The workshop report and Socioeconomic Impact Assessment are attached.

Concurrence:

Respectfully submitted,

DAVID E. JANSSEN  
Chief Administrative Officer



R. J. SOMMERVILLE  
Air Pollution Control Officer

**SEPTEMBER 27, 1994**  
**MEETING DATE**

FINDINGS OF THE SAN DIEGO COUNTY AIR POLLUTION  
CONTROL BOARD IN RESPECT TO ADOPTION OF  
NEW RULE 69.3 (STATIONARY GAS TURBINE ENGINES)

- A. Pursuant to section 40727 of the Health and Safety Code, the Air Pollution Control Board of the San Diego County Air Pollution Control District makes the following findings:
1. (Necessity) The adoption of the proposed new District Rule 69.3 is necessary for the District to satisfy the requirements of subsection (f)(1) of section 182 of the federal Clean Air Act which mandates rules requiring reasonably available control technology for major stationary sources of oxides of nitrogen emissions.
  2. (Authority) The adoption of the new proposed rule is authorized by Health and Safety Code sections 40001 and 40702.
  3. (Clarity) The proposed new rule is written so that its meaning can be easily understood by persons directly affected by the rule.
  4. (Consistency) The proposed rule is in harmony with, and not in conflict with or contrary to, existing statutes, court decisions, and State law and Federal regulations.
  5. (Nonduplication) The proposed rule does not impose the same requirements as an existing state or federal regulation.
  6. (Reference) The adoption of the proposed new rule implements subsection (f)(1) of section 182 of the federal Clean Air Act [42 U.S.C. section 7511a, subsection (f)(1)].
- B. The Air Pollution Control Board further finds that an assessment of socioeconomic impacts of the proposed rule was performed and made available for public comment and review pursuant to Health and Safety Code section 40728.5, and that the socioeconomic impacts of the proposed rule have been actively considered and the District has made a good faith effort to minimize adverse socioeconomic impacts.
- C. The Air Pollution Control Board further finds that there is no reasonable possibility that the proposed rule may have a significant effect on the environment, and that the adoption of the proposed rule is categorically exempt from the provisions of the California Environmental Quality Act pursuant to California Code of Regulations, title 14, sections 15300 and 15308, as an action taken to assure the protection of the environment which will not have a significant effect on the environment and where the regulatory process involves procedures for protection of the environment.
- D. The Air Pollution Control Board further finds in accordance with Health and Safety Code section 40001 that the adoption of the proposed rule is necessary to satisfy federal and state law, and that the proposed rule will promote the attainment of state and federal ambient air quality standards.

APCD Meeting 9/27/94  
Agenda Item #1

Approved and/or authorized by the Board  
of Supervisors of the County of San Diego  
Date: 9-27-94 Minute Order No. APCB-1  
THOMAS J. PASTUSZKA  
Clerk of the Board of Supervisors  
By: [Signature]  
Deputy Clerk

OFFICIAL RECORD

Clerk of the Board of Supervisors

Exhibit No. \_\_\_\_\_ Agenda No. APCD 1

Meeting Date 9-27-94 ( )

By Co. Counsel

Document No. 761024

THOMAS J. PASTUSZKA  
Clerk of the Board of Supervisors

**NEW ADDED RULE**

Re Rules and Regulations of the )  
Air Pollution Control District )  
of San Diego County . . . . . )

**RESOLUTION ADDING RULE 69.3 -  
STATIONARY GAS TURBINE ENGINES  
TO REGULATION IV  
OF THE RULES AND REGULATIONS OF THE  
SAN DIEGO COUNTY AIR POLLUTION CONTROL DISTRICT**

On motion of Member Bilbray, seconded by Member MacDonald  
the following resolution is adopted:

**WHEREAS**, the San Diego County Air Pollution Control Board, pursuant to Section 40702 of the Health and Safety Code, adopted Rules and Regulations of the Air Pollution Control District of San Diego County; and

**WHEREAS**, said Board now desires to amend said Rules and Regulations; and

**WHEREAS**, notice has been given and a public hearing has been had relating to the amendment of said Rules and Regulations pursuant to Section 40725 of the Health and Safety Code.

**NOW THEREFORE IT IS RESOLVED AND ORDERED** by the San Diego County Air Pollution Control Board that the Rules and Regulations of the Air Pollution Control District of San Diego County be and hereby are amended as follows:

Proposed new Rule 69.3 is to read as follows:

**RULE 69.3 STATIONARY GAS TURBINE ENGINES**

**(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 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 turbine was located at



a stationary source. These records shall be maintained for a minimum of two calendar years by the owner of such turbine and made available to the District upon request.

(iii) New gas turbines with a power rating less than or equal to 0.4 MW used in conjunction with military tactical deployable 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 turbine was operated. These records shall be maintained for a minimum of two calendar years by the owner of such turbine 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 maintenance 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) and (e)(6) 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)(6) 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 onsite 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 (*date of adoption*).

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

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

(6) "Liquid Fuel" means distillate oils, kerosene and jet fuel.



(7) **"Military Tactical Deployable Equipment"** means equipment operated by the United States armed forces or National Guard 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 maintenance 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 *(date of adoption)*.

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

(10) **"Portable Gas Turbine Engine"** means 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 maintenance and was in the designed holding area the entire calendar day.

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

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

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

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

(d) **STANDARDS**

(1) The emissions concentration of oxides of nitrogen (NO<sub>x</sub>) 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 continuous monitors to allow for monitoring of 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.

(2) An owner or operator of an emergency unit shall maintain an operating log and record the hours of operation for maintenance purposes and during an 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 purposes, and a description of any emergency situation.

(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 of 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.

(5) For any existing unit, continuous emissions monitors which have been installed to measure NOx emissions pursuant to any federal regulation shall be certified, calibrated and maintained in accordance with applicable federal regulations and a protocol approved in writing by the Air Pollution Control Officer.

(6) The owner or operator of any unit subject to this rule shall maintain all records required by Section (e) for a minimum of three 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 ARB Test Method 100, as approved by the U.S. Environmental Protection Agency (EPA).

(2) The averaging period to calculate NOx 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**

(1) Source testing shall be performed at no less than 80% of the power rating. If an owner or operator of 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 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. Test reports shall include the operational characteristics, as described in Subsection (e)(1), of the unit and of all add-on NOx control systems.

(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 all applicable provisions of this rule upon initial installation and commencement of operation.

**IT IS FURTHER RESOLVED AND ORDERED** that the subject addition of Rule 69.3 of Regulation IV shall take effect upon adoption.

**PASSED AND ADOPTED** by the Air Pollution Control Board of the San Diego County Air Pollution Control District, State of California, this 27th day of September, 1994 by the following votes:-

**AYES:** Bilbray, Slater, MacDonald  
**NOES:** None  
**ABSENT:** Jacob, Williams

This is a true certified copy of the original document on file or of record in my office. It bears the seal of the County of San Diego and signature of the Clerk of the Board of Supervisors, imprinted in purple ink.

*Thomas J. Pastorek*  
Clerk of the Board, San Diego County, California

Date: 9/29/94 By Deputy: *[Signature]*



APPROVED AS TO FORM AND LEGALITY  
COUNTY COUNSEL

BY *[Signature]*  
DEPUTY

Resolution No. 94-414  
9/27/94 (APCB 1)

Rule 69.3

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

**RULE 69.3 - STATIONARY GAS TURBINES  
WORKSHOP REPORT**

A workshop notice was mailed to owners and operators of stationary gas turbines in San Diego County. Notices were also mailed to all Economic Development Corporations and Chambers of Commerce in San Diego County, the U.S. Environmental Protection Agency (EPA), the California Air Resources Board (ARB), and other interested parties.

The workshop was held on July 25, 1994 and was attended by 17 people.

**1. WORKSHOP COMMENT**

Turbines operating on landfill gas are exempt under the District's proposed rule because they are rated below 1 MW. However, if the rule is revised to satisfy EPA, the applicability limit will be changed to 0.3 MW. In this case such turbines would not be able to meet RACT limits. Selective Catalytic Reduction is not practical for turbines operating on landfill gas because the gas impurities poison the catalyst. Water or steam injection would also not work because landfill gas contains almost 50% carbon dioxide.

**DISTRICT RESPONSE**

The District agrees with this comment and is planning to provide EPA with documentation justifying the economic and/or technological infeasibility of applying RACT to existing turbines smaller than 1 MW including landfill gas turbines. This documentation will be submitted to EPA as Alternative RACT.

**2. WORKSHOP COMMENT**

Some turbines are equipped with the Best Available Control Technology (BACT) which results in NOx emission concentrations significantly lower than the 42 ppm required by the proposed rule. Current permit conditions based on the BACT requirements, however, allow a limit exceedance during a 90 minute startup period. What requirements will apply to these turbines?

**DISTRICT RESPONSE**

After Rule 69.3 becomes effective, all permit conditions for turbines subject to the rule will be reconsidered, and the most stringent requirements will be incorporated in new permit conditions. Rule 69.3 has been revised to limit NOx emissions to not more than 42 ppm (on gaseous fuel) after the first 120 minutes of startup.

**3. WORKSHOP COMMENT**

EPA provided a comment which recommends correcting the measured NOx concentration to ISO standard conditions. The ISO formula could result in a correction of more than 10% depending on the ambient humidity. However, turbines equipped with water/steam injection have 100% relative humidity in the combustion chamber, and therefore ambient humidity does not affect the combustion process of such turbines.

### **DISTRICT RESPONSE**

The District agrees. The equation for correction to ISO conditions does not appear to be applicable for turbines equipped with water or steam injection. Such turbines comprise the entire population of turbines subject to the rule. Therefore, the rule will not be revised.

#### **4. WORKSHOP COMMENT**

The proposed rule requires that continuous emission monitors (CEMs) comply with a protocol approved by the Air Pollution Control Officer. Would any additional approval be needed for CEMs which have already been approved by the District?

### **DISTRICT RESPONSE**

No additional approval would be required by Rule 69.3 for existing equipment operating according to permit conditions. Future federal EPA regulations may require changes to CEMs or CEMs operations/maintenance and may necessitate reapprovals by the District.

#### **5. WORKSHOP COMMENT**

Is it the District's intent to require monitoring of all listed variables in Subsection (e)(1)?

### **DISTRICT RESPONSE**

No. A facility needs to only monitor those operational characteristics of a unit which are needed to ensure compliance with the rule. For example, turbines equipped with water injection would likely need to monitor only water injection rate and fuel flow rate.

#### **6. WORKSHOP COMMENT**

The proposed rule requires that CEMs be installed, maintained and calibrated in accordance with applicable federal regulations. However, some continuous emission monitors do not meet all the requirements of 40 CFR 60, Appendix F.

### **DISTRICT RESPONSE**

The reference to applicable federal regulations is at EPA's request. Whether or not such a reference is included in Rule 69.3, operators of CEMs that are also subject to applicable EPA requirements for CEMs are responsible for compliance with those requirements or alternatives approved by EPA. The District will work with affected facilities in approving protocols to coordinate District and federal requirements.

#### **7. WORKSHOP COMMENT**

Unmanned peaking turbines would need to run significantly longer during the source test if they are required to meet the quality control requirements of 40 CFR 60, Appendix F.

### **DISTRICT RESPONSE**

The District will work with operators of such turbines to seek approval from EPA for alternatives to federal requirements that will eliminate or minimize excess emissions that would result from meeting such requirements.

### **8. WORKSHOP COMMENT**

Some CEMs monitor operational characteristics continuously but record them only at certain time intervals. Would they meet the rule requirements?

### **DISTRICT RESPONSE**

Yes, they would.

### **9. WORKSHOP COMMENT**

How would the proposed rule affect the reporting of a breakdown of the monitoring equipment installed on peaking turbines located at unmanned sites?

### **DISTRICT RESPONSE**

The proposed rule would make no change to the breakdown reporting requirements specified in Rule 98.

### **10. WORKSHOP COMMENT**

The proposed rule requires use of District Test Method 20 rather than EPA Method 20. What is the reason for this?

### **DISTRICT RESPONSE**

District Method 20 includes measurements of NOx, carbon monoxide (CO) and oxygen concentration simultaneously. In cases where a unit is a subject to New Source Review and BACT such measurements are required by permit conditions. The rule has been revised to include an option to use EPA Method 20 for the determination of NOx emission concentration. However, the rule has been revised to refer to ARB Test Method 100. ARB Test Method 100 has been conditionally approved by EPA pending revisions to be made by ARB.

### **11. WORKSHOP COMMENT**

If turbines are equipped with CEMs which are properly calibrated and kept in good working order do they need to be tested annually?

### **DISTRICT RESPONSE**

Currently, periodic source testing of certain emission units is required to verify compliance. Some are tested more than once per year, others less than once per year. Some testing is dictated by EPA requirements. The issue of using emissions data from properly calibrated, operated, maintained and QA/QC 'ed CEMs in lieu of annual source testing is being considered by the District for both NOx and VOC sources.

## **12. WORKSHOP COMMENT**

The proposed rule requires all affected turbines be in compliance by May 31, 1995. What is the reason for choosing this date?

### **DISTRICT RESPONSE**

This Federal Clean Air Act requires that all major sources of NOx emissions be in compliance with rules reflecting RACT by May 31, 1995.

## **13. WORKSHOP COMMENT**

It is unclear whether a test protocol needs to be approved before testing. The protocol may not have been approved before the scheduled renewal testing. Any anticipated delays in approval of these protocols may result in a compliance problem.

### **DISTRICT RESPONSE**

Emissions source testing must be conducted in accordance with a test protocol approved by the District prior to actual testing. Such a protocol may also be usable in subsequent source tests if equipment requirements and tests methods have not been changed significantly. Prior test protocol approval is intended to ensure that the time and cost of testing is not wasted due to faulty and unacceptable methods or procedures. The District will work with affected sources to review protocols in a timely manner.

## **14. WORKSHOP COMMENT**

What is the District's schedule for amending the rule to require the Best Available Retrofit Control Technology (BARCT) of the California Clean Air Act?

### **DISTRICT RESPONSE**

The San Diego 1991 Regional Air Quality Strategy as approved by the Air Pollution Control Board and the Air Resources Board contains a schedule for such a rule to be adopted some time in 1995. It is the District's intent to meet that commitment.

## **15. WRITTEN COMMENT**

Rule 69.3 should exempt gas turbines rated at less than 2 MW burning landfill gas. Turbines burning landfill gas cannot meet the 42 ppmv limit due to technological constraints. If landfill gas turbines were not exempted from the rule, owners of such turbines would be forced to switch to reciprocating internal combustion engines or flare systems.

### **DISTRICT RESPONSE**

There are no existing turbines between 1 and 2 MW that burn landfill gas. New turbines would be subject to New Source Review and require best available control technology (BACT) or lowest achievable emissions reduction (LAER) which may result in emissions concentrations below the levels proposed in Rule 69.3.



## **16. WRITTEN COMMENT**

Subsection (b)(2)(i) provides an exemption for emergency units and specifies a maximum of 80 hours of operation for maintenance purposes. How was the threshold of 80 hours determined?

### **DISTRICT RESPONSE**

District permitting engineers indicate that standby, emergency turbines typically require only about 50 hours of maintenance operation in a year (1 hour of operation per week). The threshold was set at 80 hours to give flexibility to those sources which need some additional hours.

## **17. WRITTEN COMMENT**

It is unclear why peaking units are not considered emergency units. Several of the San Diego Gas and Electric Company (SDG&E) units provide operations in emergency situations, specifically those associated with meeting system needs and related scenarios. Subsection (c)(2) should be revised.

### **DISTRICT RESPONSE**

The District disagrees. The definition of an emergency situation is specific and applies in limited situations. An emergency unit is not expected to operate except in an emergency situation. Peaking units operate in other than emergency situations. Peaking units, by the nature of their function in the utility, are expected to operate in order to fulfill the business of the utility which is the production and sale of electricity.

## **18. WRITTEN COMMENT**

Subsection (e)(1) should be revised to include the control technology along with the operational characteristic to be monitored. The present language of Subsection (e)(1) is unnecessarily broad. It has the potential to require the monitoring of unnecessary parameters and produce wide variations in the contents of approved monitoring protocols.

### **DISTRICT RESPONSE**

Due to the variety of turbines and NOx controls, the District cannot specify operating characteristics to be applicable to every turbine. The District has added clarifying language to Subsection (e)(1).

## **19. WRITTEN COMMENT**

Subsections (e)(4) and (e)(5) should be revised to cite 40 CFR Part 51, Appendix P and 40 CFR Part 60, Appendix B. The current language is too broad and may be interpreted to require costly and complex quality control procedures such as those for New Source Performance Standards (NSPS), 40 CFR Part 60, Appendix F.

### **DISTRICT RESPONSE**

Please refer to Comments #6 and #7.

## **20. WRITTEN COMMENT**

Steam injection and SCR systems for NO<sub>x</sub> control do not function correctly until the turbine exhaust is close to normal operating temperature. The RACT/BARCT Guidance Document proposes an exemption from emission limits of two hours and some permit conditions allow 90 minutes for start-up. Subsection (b)(2)(iii) should be revised to reflect "90 continuous minutes".

### **DISTRICT RESPONSE**

Subsection (b)(2)(iii) has been changed to "120 continuous minutes" to be consistent with the RACT/BARCT Guidance Document.

## **21. WRITTEN COMMENT**

Subsection (g)(1) requires that source testing be performed at no less than 80% of the power rating. Federal requirements do not mandate a specific percentage of power rating. Subsection (g)(1) should be deleted. How was this percentage determined?

### **DISTRICT RESPONSE**

This percentage was based on the experience and recommendations from District permitting engineers. Combustion equipment should be source tested within a certain range of its usual operating mode which for a gas turbine is usually at its full power rating. When combustion equipment is permitted, it is assumed that the equipment will operate at its full power rating, or within a certain range of that power rating, unless the equipment is specifically limited by permit conditions. Subsection (g)(1) has been revised to allow flexibility for turbines which may not be able to reach full power rating.

## **22. WRITTEN COMMENT**

Because of the operational scenarios of peaking units, "continuous" should be deleted in the definition of "power rating," Subsection (c)(11).

### **DISTRICT RESPONSE**

The District disagrees. The District understands that turbine manufacturers rate their turbines based on the maximum, continuous power output.

## **23. WRITTEN COMMENT**

Section (e) should provide an exemption for monitoring of peaking units. It appears that Rule 69.3 requires some additional monitoring of control system operating parameters not currently specified by Rule 68. Because SDG&E peaking units are remotely dispatched, unmanned and operating at low capacity factor, rigorous monitoring and recordkeeping would be costly and provide no additional air quality benefits.

### **DISTRICT RESPONSE**

Section (e) has been revised to clarify that additional monitoring and recordkeeping requirements would not be required from any unit at this time to satisfy the requirements for federal RACT.

However, the District cannot ensure that these requirements would satisfy state BARCT. In addition, owners of gas turbines should be aware that the enhanced monitoring requirements of future EPA regulations could affect most gas turbines and would apply as well to any District rule or regulation.

#### **24. WRITTEN COMMENT**

Subsections (e)(4) and (e)(5) refer to applicable federal regulations. What are these regulations?

##### **DISTRICT RESPONSE**

An example of an applicable federal regulation would be Subpart GG - New Source Performance Standards for Stationary Gas Turbines, 40 CFR 60. Future regulations may include EPA's Part 64 Enhanced Monitoring Requirements. Applicable federal regulations are distinct from District rules and regulations and are subject to change. For these reasons, the District believes that stating every federal requirement in the rule would not be prudent.

#### **25. WRITTEN COMMENT**

Some existing military turbine engines rated at 0.38 MW are ground support equipment used for starting aircraft engines. They are Military Deployable Emission Units (MDEU) designed specifically to maintain operational readiness of military equipment, and, as installed, easily capable of being moved from one location to another. Complying with the proposed limits would require these engines to be modified. Such modification would make them unusable in other parts of the country or abroad, and would be contrary and detrimental to military readiness. It is recommended that such equipment be exempt from Rule 69.3, or the rule applicability limit for new units be changed from 0.3 to 0.4 MW.

##### **DISTRICT RESPONSE**

The District is planning to provide EPA with documentation justifying the economic and/or technological infeasibility of applying RACT to turbines smaller than 1 MW. This documentation will be submitted to EPA as Alternative RACT.

#### **26. WRITTEN COMMENT**

The compliance date of May 31, 1995 is insufficient time to determine compliance status of gas turbines; and to prepare and implement a compliance plan. If MDEU exemption is not included in the final rule, it is recommended that the compliance date be extended to December 1, 1995.

##### **DISTRICT RESPONSE**

The compliance date of May 31, 1995 is mandated by the 1990 Clean Air Act Amendments. EPA has indicated there is no latitude for accepting a later date.

#### **27. WRITTEN COMMENT**

An explanation of the basis for 42 ppmv for gaseous fuel and 65 ppmv for liquid fuel should be included in the rule.

### **DISTRICT RESPONSE**

The proposed emission standards are required by EPA. They are based on the California RACT/BARCT Guidance Document. Copies of excerpts of this document were provided at the workshop. Copies of the full document are available from the California Air Resources Board.

### **28. WRITTEN COMMENT**

The rule should specify the correlation between the NOx emissions standards and operational characteristics of the NOx control system. This would allow a source to determine its compliance status based on the operational characteristics.

### **DISTRICT RESPONSE**

Such operational parameters can be established in conjunction with the permits for individual turbines. Appropriate parameters will likely differ between turbines and cannot all be incorporated into the rule.

### **29. WRITTEN COMMENT**

If source test protocols have been developed, a schedule of appropriate District fees for protocol review should be published.

### **DISTRICT RESPONSE**

Once standardized protocols have been established, the District will propose including the associated fees in Rule 40, Fee Schedule 92.

### **30. WRITTEN COMMENT**

Do all source tests have to be witnessed by the District?

### **DISTRICT RESPONSE**

This is past and current District policy. District personnel are present during the source test to ensure an acceptable test is conducted in order to avoid uncertainties that will require retesting. In addition, they are available to answer questions regarding testing procedures or source operation, or to approve any changes to the protocol due to unforeseen or unexpected circumstances. The District is open to suggestions to change this policy. However, since this policy affects many sources beyond those subject to Rule 69.3, it should not be addressed solely in conjunction with Rule 69.3.

### **31. WRITTEN COMMENT**

If there are multiple gas turbines of the same model and manufacturer, the rule should allow for one turbine to be source tested for compliance with other turbines using monitoring requirements as a basis for compliance.

### **DISTRICT RESPONSE**

The District disagrees. Although turbine combustion is generally fairly stable and turbine maintenance is typically good, several factors can influence turbine emissions such as age, operating history, and type of control employed. The frequency and scope of retesting may consider comparable NO<sub>x</sub> and CO control performance of identical turbines. Subsection (g)(2) allows for some flexibility in the frequency of source testing.

### **32. WRITTEN COMMENT**

Annual source testing will be an economic burden. If the monitoring requirements are a valid indication of compliance, annual source testing is not necessary.

### **DISTRICT RESPONSE**

EPA considers the RACT requirements of the ARB RACT/BARCT Guidance Document to be applicable as federal RACT. The ARB RACT/BARCT Guidance Document states that source testing reports shall be submitted annually. This requirement implies annual source testing. The District has provided affected sources with some flexibility as indicated in Subsection (g)(2). In order to adequately determine the frequency of future renewal source testing and the validity of using continuous emissions monitors in lieu of source testing, the District will have to address several issues such as the applicability of other federal EPA requirements, the compliance history of a turbine, and the availability of source testing companies. It should be noted that existing turbines greater than 1 MW and subject to Rule 69.3 have been undergoing annual source testing pursuant to New Source Review requirements and Rule 68 for several years or more.

### **33. EPA COMMENT**

In general, the provisions of Rule 69.3 do not reflect the requirements for RACT according to the California RACT/BARCT document for gas turbines. Furthermore, gas turbines rated at 10 MW and above must satisfy the NSPS requirements of 40 CFR 60, Subpart GG. The District should ensure that Rule 69.3 is consistent with both sets of requirements.

### **DISTRICT RESPONSE**

The District disagrees. The RACT/BARCT Guidance Document has separate requirements for RACT and for BARCT. With the exception of the 1 MW applicability level, the District has incorporated all RACT requirements into Rule 69.3. In addition, the RACT/BARCT Guidance Document, Subsection IV.A.(4), allows for specific exemptions determined by the Districts to be technologically or economically infeasible. The District will provide EPA with justification for alternative RACT.

With regard to NSPS requirements, the District has been granted delegation by EPA to enforce NSPS regulations and has implemented Subpart GG into the District Rules and Regulations as Rules 260.330 through 260.335. Rules 260.330 through 260.335 stand on their own.

### **34. EPA COMMENT**

The de minimis level for all gas turbines is 0.3 MW according to the RACT/BARCT Guidance Document.

#### **DISTRICT RESPONSE**

As discussed in Comment #33 above, the RACT/BARCT Guidance Document allows for specific exemptions determined to be technologically or economically infeasible. The District has proposed to exempt existing turbines less than 1 MW because such turbines cannot be retrofitted with controls to meet the NOx emissions standards. The manufacturer of such turbines has stated that attempts to control NOx emissions have failed and there is no control technology available. The District agrees and will submit documentation to EPA for alternative RACT for existing turbines in this category.

### **35. EPA COMMENT**

Subsection (b)(1)(ii), a portable engine, by definition, is an engine located at a site for 90 days or less.

#### **DISTRICT RESPONSE**

The RACT/BARCT Guidance Document does not explicitly define "portable". The definition of "portable engine" proposed in Rule 69.3 is consistent with the District definition for portable equipment contained in New Source Review rules.

### **36. EPA COMMENT**

In Subsection (b)(2)(i), an annual hourly limit of 200 hours should be specified for emergency units.

#### **DISTRICT RESPONSE**

The District disagrees. The rule limits operations of emergency units to 80 hours for maintenance purposes. The duration of emergency operations cannot be predicted nor should it be limited by this rule.

### **37. EPA COMMENT**

Standards for peaking units should be added including an annual hourly limit. 200 hours is a typical standard for these type of units.

#### **DISTRICT RESPONSE**

The District disagrees. The RACT/BARCT Guidance Document does not impose an annual hourly limitation on peaking units for RACT requirements, but imposes an annual hourly limitation of 877 hours on peaking units for BARCT requirements. In addition, existing peaking units have been required to meet the emissions standards of Rule 68 (125 ppmv on natural gas, 225 ppmv on fuel oil, 3% O<sub>2</sub>) which are equivalent or nearly equivalent to the emissions standard of proposed Rule

oil, 3% O<sub>2</sub>) which are equivalent or nearly equivalent to the emissions standard of proposed Rule 69.3. Thus, peaking units are already in compliance with the NO<sub>x</sub> emissions standards of proposed Rule 69.3 and will be subject to the same NO<sub>x</sub> emissions standards of Rule 69.3 as other gas turbines, regardless of the number of hours operated.

### **38. EPA COMMENT**

NO<sub>x</sub> emissions in Section (d) have to be corrected to International Standards Organization (ISO) standard conditions

#### **DISTRICT RESPONSE**

Please see the response to Comment #3.

### **39. EPA COMMENT**

In Subsection (f)(1), the NSPS test method for gas turbines is EPA Method 20.

#### **DISTRICT RESPONSE**

Subsection (f)(1) has been revised to refer to ARB Test Method 100. ARB Test Method 100 has been conditionally approved by EPA pending revisions to be made by ARB.

### **40. EPA COMMENT**

Other districts restrict annual maintenance operations for emergency units to 50 hours.

#### **DISTRICT RESPONSE**

Please see the response to Comment #16.

### **41. EPA COMMENT**

How are the monitors required in Subsection (e)(4) different from the monitors required in Subsection (e)(5)?

#### **DISTRICT RESPONSE**

Subsection (e)(4) refers to continuous (operational parameter) monitors required by Subsection (e)(1). Subsection (e)(5) refers to emissions monitors installed pursuant to any federal requirement.



# **SOCIOECONOMIC IMPACT ASSESSMENT**

## **PROPOSED RULE 69.3 - STATIONARY GAS TURBINE ENGINES**

**AUGUST 1994**

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# **SOCIOECONOMIC IMPACT ASSESSMENT PROPOSED RULE 69.3 - STATIONARY GAS TURBINES**

## **INTRODUCTION**

Section 40728.5 of the State Health & Safety Code requires the Air Pollution Control District to perform a socioeconomic impact assessment for any new or amended rules that will significantly affect air quality or emissions limitations. This report contains the assessment of the socioeconomic impacts of proposed District Rule 69.3.

Rule 69.3 is a new rule designed to reduce oxides of nitrogen (NOx) emissions from new and existing stationary gas turbines. It reflects Reasonably Available Control Technology (RACT) for these sources as required by the Federal Clean Air Act (FCAA). The rule applies to any existing stationary gas turbine in San Diego County that has a power rating of 1 megawatt (MW) or greater and to any new stationary gas turbine that has a power rating of 0.3 MW or more. It exempts portable gas turbines, stationary gas turbines operating exclusively for research, development or testing, and stationary gas turbines used exclusively for emergency situations. It also exempts turbines operating during startup, shutdown or fuel change, and new turbines with power ratings of 0.4 MW or less used in conjunction with military tactical deployable equipment. Specifically, the rule will:

- Require owners or operators of new or existing turbines subject to the rule to limit NOx emissions to 42 ppmv when operated on a gaseous fuel, or 65 ppmv when operated on a liquid fuel, both calculated at 15% oxygen, dry.
- Require the installation of meters and continuous monitors to measure and record various operational parameters of the turbine and any NOx emissions reduction system.
- Require recordkeeping of turbine startups and shutdowns, fuel usage and operation on alternate fuels.
- Require annual source testing unless otherwise specified by the Air Pollution Control Officer.
- Specify test methods for determining compliance with the rule.
- Specify that any existing turbine be in compliance with all provisions of the rule by May 31, 1995. New turbines will be required to comply with all applicable provisions upon initial installation and startup.

Proposed Rule 69.3 will affect 163 stationary turbines throughout San Diego County. Of these turbines, 28 are in cogeneration applications, 19 are peaking turbines, 22 are emergency standby units and 94 turbines are used in conjunction with military deployable equipment units. All these turbines currently have a District Permit to Operate. They are located at 21 establishments which represent a number of service and utility industries as well as local government services, health care and educational institutions. NOx emissions in 1990 from all affected turbines were approximately 630 tons. Nine of the 21 establishments are federal major sources of NOx emissions.

Rule 69.3 is expected to have minimal, if any, impacts on the affected turbines. Under the provisions of the rule, the proposed emissions standards would only apply to 47 turbines employed in cogeneration applications or as peaking turbines. These turbines currently meet the emission limits of Rule 69.3 because they have been required to comply either with the NOx emissions standards of Rule 68 (Fuel Burning Equipment - Oxides of Nitrogen) or with the more stringent standards of

New Source Review rules. The rest of the turbines will be exempt from the emission standards. In addition, all existing, affected turbines are currently in compliance with the recordkeeping requirements of the proposed rule. No additional costs for recordkeeping are expected.

### **THE NECESSITY OF ADOPTING RULE 69.3**

The Federal Clean Air Act (FCAA) requires the District to adopt rules reflecting Reasonably Available Control Technology (RACT) for major stationary sources of ozone precursors. For San Diego County, currently identified as a 'Severe' federal ozone non-attainment area, a major source is defined as any stationary facility which directly emits or has a potential to emit 25 tons per year or more of VOC's or NOx.

A number of businesses and public agencies in San Diego County have stationary turbine engines that contribute to oxides of nitrogen (NOx) emissions in the region. The rule was developed to comply with RACT requirements of the Federal Clean Air Act. Failure to adopt Rule 69.3 for major industrial sources of NOx emissions before October 21, 1994, will result in EPA imposing federal sanctions on San Diego County, including a 2.0 to 1.0 emission offset ratio for major new and modified industrial sources and withholding of up to \$75 million in federal transportation funds.

The pending reclassification of San Diego County from a 'Severe' to a 'Serious' ozone non-attainment area will have no effect on the requirements of Rule 69.3. All affected turbines are located at facilities which are also major sources under the 'Serious' ozone classification and subject to federal RACT requirements.

Although the majority of affected turbines currently meet the emission limits of Rule 69.3 by being either subject to Rule 68 or to the New Source Review, Rule 69.3 is needed to ensure EPA will accept the NOx control levels currently required by the New Source Review rules as federal RACT requirements for turbines. This is necessary because the New Source Review rules are not yet approved by EPA, and, therefore, the emission reductions required by these rules are not considered by EPA to be federally enforceable. Federal enforceability of emissions reductions is a RACT requirement.

In addition, some existing turbines with low power ratings, located at major federal sources, are not regulated by Rule 68 or the New Source Review rules, yet are subject to EPA RACT requirements. The District has investigated the feasibility of applying RACT to these turbines and concluded that it is not technologically or economically feasible to do so. Accordingly, the rule specifically exempts these turbines from the NOx emission limits. The District will provide documentation (Alternative RACT) to EPA to justify these exemptions.

### **IMPACT ASSESSMENT**

As specified by the Health and Safety Code, "socioeconomic impact" means the following:

- (1) The type of industries or business, including small business, affected by the rule or regulation.
- (2) The range of probable costs, including costs to industry or business, including small business, of the rule or regulation.

- (3) The impact of the rule or regulation on employment and the economy of the region affected by the adoption of the rule or regulation.
- (4) The availability and cost-effectiveness of alternatives to the rule or regulation being proposed or amended.
- (5) The emission reduction potential of the rule or regulation.
- (6) The necessity of adopting, amending, or repealing the rule or regulation in order to attain state and federal ambient air quality standards.

Item 6 is discussed in the preceding section. The remaining items are discussed below.

### **The Type of Industries Affected by Rule 69.3**

The proposed rule affects 21 business and public institutions representing 14 different industries as shown in Table 1. Overall, the affected businesses and public agencies are estimated to have gross revenues in excess of \$3.8 billion and to employ approximately 29,000 workers, nearly 2% of the total employment in San Diego County.

TABLE 1 Industries Affected by Rule 69.3				
SIC	Industries	Affected Establishments	Estimated Employment [a]	Estimated Revenues [a] (000's)
2711	Newspaper	1	1,700	\$164,309
2833	Medicinals & Botanicals	1	600	329,693
3728	Aircraft Engines and Parts	1	600	9,700
4813	Telephone Services (*)	1	1,500	N/A
4931	Electric & Other Services	4	4,170	2,047,750
6022	Banks	1	NA	NA
7011	Hotels	1	400	18,000
7373	Computer Systems	1	40	3,313
7999	Amusement & Rec. Services	1	10	414
8062	Hospitals	2	1200	70,000
8221	Universities (*1)	2	17,300	1,126,317
9199	General Government (*)	1	215	14,500
9223	Correctional Institutions	1	1,110	49,000
9711	Military Installations	3	NA	NA
	Total	21	28,845	\$3,832,996
[a] These figures are estimated by Applied Development Economics and have not been verified in every case by the companies.				
* Company has emergency standby turbines.				
Source: ADE based on U.S. Department of Commerce and Dun & Bradstreet Information Services.				

Most of the affected establishments are in the utility and service sectors, which will benefit from strong population growth in the San Diego area.<sup>1</sup> However, some of these industries have had to

face various economic pressures in recent years. Possible changes in government regulations affecting electrical service may result in increased competition for San Diego Gas & Electric Company, the gas and electric utility serving San Diego County. The tourism industry has been hit hard by recessionary pressures in San Diego which has had an impact on amusement and recreation services. Government services are constrained by tax and revenue limits despite increasing service demands from population growth, and public universities in California are suffering from reduced expenditures for education.

Computer services systems (SIC 7373) is an industry that has enjoyed strong growth in California. In San Diego County, overall computer services (SIC 737) increased its employment 23% between 1987 and 1991. It is estimated that the specific business services affected by Rule 69.3 grew even faster.<sup>2</sup> Nationally, the software industry has continued strong growth through the recession and growth in this industry is expected to be healthy through the 1990's.<sup>3</sup>

While newspapers have remained relatively profitable, the industry is dealing with complex market trends on the local and national levels. Newspapers have had to increasingly compete for advertising dollars and audience, and at the same time focus on ways to become providers of information services.<sup>4</sup> The business in the medicinals and botanicals category affected by proposed Rule 69.3 is Kelco, a division of Merck, Inc. Kelco manufactures food additive products from kelp harvested in the San Diego Area and from corn syrup (bio-polymer). Fat free and low fat food products frequently use the kinds of materials made at Kelco, and the market is expected to expand significantly. Kelco has facilities in a number of U.S. locations and worldwide.<sup>5</sup>

### **Economic and Employment Impacts and Range of Probable Costs**

All requirements of Rule 69.3, including recordkeeping and source testing, are currently being met by the affected sources under the provisions of Rule 68 or New Source Review. Therefore, no additional costs would be imposed by Rule 69.3. The emissions standards may increase the cost of new turbines as small as 0.3 MW, but most available turbine designs incorporate the modifications necessary to comply with the rule and no significant cost increases are anticipated. Rule 69.3 would also not affect employment in San Diego County.

### **Availability and Cost-Effectiveness of Alternatives to Rule 69.3**

There are three basic alternatives to Rule 69.3: not adopt the rule, adopt a less stringent rule, and adopt a more stringent rule.

The first two alternatives are not viable options. A less stringent rule, or no rule at all, would not be consistent with the FCAA which requires Reasonably Available Control Technology for major NOx sources. San Diego County is currently a non-attainment area for ozone, for which NOx is a precursor.

There are two options in adopting a more stringent rule. The first option would be to propose NOx emission standards lower than federal RACT levels. EPA has established RACT limits only for electrical utility boilers<sup>6</sup>, and stated that NOx emission limits for other source categories of combustion equipment must be equivalent to those for boilers. The proposed standards in Rule 69.3 meet this requirement. Imposing more stringent NOx emission standards would require many sources to install expensive add-on control equipment such as selective catalytic reduction which may be technologically or economically infeasible. This is not recommended at this time without further study.

The second option for creating a more stringent rule would be to remove the exemption for existing turbines less than 1 MW. This option would affect 14 turbines used in cogeneration applications, 94 turbines used in conjunction with military deployable equipment units (MDEU) and 5 emergency standby turbines. This option would have the greatest impact on the 14 cogeneration turbines, because emergency standby turbines and MDEU turbines will likely be subject to an additional exemption from the rule based on low annual usage. As shown in Table 2, these 14 cogeneration turbines are located at 6 establishments employing an estimated 8,790 employees. In addition to utilities, the more stringent alternative would affect the hotel and health care industries. Both of these industries may be expected to prosper over the long term due to strong population growth in the San Diego Area. However, the hotel industry is currently weathering not only the recession but also recent overbuilding which has increased competition in the area. The health care industry may face difficulties as cost cutting pressures mount in the face of the national health care debate. Incidentally, the financial institution which owns one of the small cogeneration turbines is already scheduled to discontinue operations at the affected facility. However, it is possible that another financial institution may take over that facility.

The primary difficulty with this rule alternative is that the control technology does not currently exist for retrofitting turbines less than 1 MW to meet the emissions standards proposed in the rule. Therefore, the loss of the exemption would mean removing these turbines from service and discontinuing the cogeneration operations. This would result in higher energy costs for these facilities and the facilities' investments in the cogeneration plants could be rendered useless constituting a potentially significant financial burden. In addition, employment losses could occur since personnel would no longer be needed to operate and maintain the turbine.

**TABLE 2**  
**Industries Affected by a More Stringent Alternative to Rule 69.3**  
**(not recommended)**

SIC	Industries	Affected Establishments	Estimated Employment [a]	Estimated Revenues [a] (000's)
4931	Electric & Other Services	1	<10	2,400
6120	Financial Institution	1	300	NA
7011	Hotels	1	140	6,000
8062	Hospitals	2	2,370	189,940
9711	Military Installations (Hospitals)	1	3,470	NA
	<b>Total</b>	<b>6</b>	<b>6,290</b>	<b>\$198,340</b>

[a] These figures are estimated by Applied Development Economics and have not been verified in every case by the companies.

Source: ADE based on U.S. Department of Commerce and Dun & Bradstreet Information Services.

### **Emission Reduction Potential**

In 1990, NOx emissions from turbines that would be affected by the rule were about 630 tons. Since all the affected turbines currently meet the standards in Rule 69.3, no additional emissions reduction would occur under proposed Rule 69.3.

## CONCLUSIONS

Based on the above analysis, Rule 69.3 is expected to have no impacts on employment and the economy in San Diego County. The rule is not expected to cause any undue financial hardship on any of the affected businesses or public agencies and institutions. Rule 69.3 will not reduce NOx emissions from existing turbines, but it will ensure that new turbines as small as 0.3 MW will meet the NOx emissions standards. In addition, Rule 69.3 will meet the federal RACT requirements for turbines which includes the federal enforceability of emissions reductions.

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