

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

**PROPOSED RULE 69.2.1 – SMALL BOILERS, PROCESS HEATERS AND  
STEAM GENERATORS**

**WORKSHOP REPORT**

A workshop notice was mailed to owners, operators, manufacturers and distributors of boilers, process heaters and steam generators 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 October 7, 2008, and was attended by 11 people. Written comments were also received after the workshop. The workshop comments and District responses are as follows:

**1. WORKSHOP COMMENT**

The title of Rule 69.2.1 seems to imply that the rule is applicable to units operated for industrial and commercial use only. However, boilers and water heaters in this size category are also used for space heating or hot water supply in residential buildings such as dormitories. If the rule applies to this type of unit as well, the terms “commercial” and “industrial” should be removed from the title to clarify that units rated 600,000 Btu/hr to 2 MMBtu/hr can also be used in residential applications.

**DISTRICT RESPONSE**

The District agrees. The title of the proposed rule has been revised as suggested.

**2. WORKSHOP COMMENT**

Does the District plan to develop a rule that would regulate boilers rated between 2 and 5 MMBtu/hr? If so, when would such a rule become effective?

**DISTRICT RESPONSE**

The District plans to develop a proposed rule to regulate boilers with a heat input rating between 2 and 5 MMBtu/hr. The rule is tentatively scheduled for consideration of adoption in 2010, with an effective date of one year after the date of adoption.

### **3. WORKSHOP COMMENT**

Why does the District propose to adopt Rule 69.2.1 that applies to smaller units rated less than 2 MMBtu/hr, before adopting a rule applicable to larger ones, between 2 and 5 MM Btu/hr?

#### **DISTRICT RESPONSE**

State law requires the District to expeditiously adopt all feasible measures to control emissions of ozone precursors, i.e., volatile organic compounds and nitrogen oxides. Currently, the only rule that regulates emissions from industrial and commercial boilers, process heaters and steam generators in San Diego County is Rule 69.2, which applies to units with a heat input rating of 5 MMBtu/hr or higher. Several air districts in California, including the South Coast Air Quality Management District (SCAQMD), have already adopted rules that control emissions from smaller units. These rules have different compliance requirements, depending on the heat input rating of regulated equipment.

For example, SCAQMD Rule 1146.2 specifies that any unit with a heat input rating of 2 MMBtu/hr or less that is sold, distributed, installed or operated in that district must be certified by a manufacturer for compliance with the rule emission limits, labeling and other requirements. SCAQMD Rule 1146.1, applicable for larger units, specifies NO<sub>x</sub> and CO emission limits, and requires the affected facilities to verify compliance by conducting specified source testing.

At this time, the District proposes the rule regulating units rated at 2 MMBtu/hr or less because these units are currently certified by the equipment manufacturers to comply with SCAQMD Rule 1146.2, which is similar to the District's proposed Rule 69.2.1. Therefore, the District can implement and enforce this rule based on the manufacturer's certifications.

Units rated greater than 2 MMBtu/hr are not presently certified by the manufacturers to meet applicable emission standards and other requirements. In addition, such units that use exclusively gaseous fuel are now exempt from the District's requirements to obtain a Permit to Operate. Therefore, the rule development process to control emissions from these units will take significantly longer time and require more District resources. As stated previously, the District is scheduled to consider adoption in 2010 of a new proposed Rule 69.2.2, which will control emissions from units rated between 2 and 5 MMBtu/hr.

### **4. WORKSHOP COMMENT**

Does the rule apply to pool heaters used at a residence?

#### **DISTRICT RESPONSE**

Residential pool heaters are typically rated less than 400,000 Btu/hr heat input, and units of this size would not be subject to the rule. However, Rule 69.2.1 would apply to a pool heater rated 600,000 Btu/hr or greater installed at a residence.

**5. WORKSHOP COMMENT**

If liquid fuel is used for backup purposes only, for example in case of emergencies, would the unit be subject to the proposed 40 ppm NOx emission limit?

**DISTRICT RESPONSE**

No. The emission standard as proposed in Subsection (d)(1)(ii) does not apply to units that operate with liquid fuel only as a backup. However, the 40 ppm NOx emission limit does apply to units that operate with liquid fuel as a primary fuel. Subsection (d)(1) has been revised to clarify this.

**6. WORKSHOP COMMENT**

Will boilers with a certification by the SCAQMD be accepted by the District?

**DISTRICT RESPONSE**

Yes, the District will accept a SCAQMD certification statement as demonstration of compliance with Rule 69.2.1.

**7. WORKSHOP COMMENT**

Section (f) of the rule requires labeling in accordance with the most current requirements of SCAQMD Rule 1146.2. In effect, this provision allows the requirements of SCAQMD rule to supersede those of Rule 69.2.1. The District should not defer its local regulatory authority to another air district with this provision.

**DISTRICT RESPONSE**

The District disagrees. The District has the authority to incorporate a standard by reference, which is a common usage in the development of rules and regulations. Some examples of this included in current District rules are references to other air districts' source test methods approved by the Environmental Protection Agency and the Air Resources Board.

However, the proposed language in Section (f) inadvertently excluded an option for a manufacturer to indicate whether the certification status of a unit offered for sale in San Diego County complies with the requirements of Rule 69.2.1 or with the most recent requirements of SCAQMD Rule 1146.2. The rule has been revised to correct this.

**8. WORKSHOP COMMENT**

SCAQMD Rule 1146.2 exempts units operating with propane. Will Rule 69.2.1 provide a similar exemption?

**DISTRICT RESPONSE**

No. SCAQMD Rule 1146.2 applies only to natural gas-fired units, and thus does not address units operating on propane, or liquefied petroleum gas (LPG) as it is commonly named. A few boiler manufacturers have indicated that it is technologically feasible to achieve 30 ppm NOx emissions when operating with LPG. Thus, the NOx emission limit in the proposed Rule 69.2.1 for units operating on gaseous fuel also applies to units operating on propane. A definition for “gaseous fuel” has been added for clarification.

**9. WORKSHOP COMMENT**

The State Boiler Safety Orders requires units installed in California to have a permit to operate, annual inspection and an onsite attendant. However, units that are rated 400,000 Btu/hr and less are exempt from these requirements. From an economic standpoint, a facility may opt to install units rated 400,000 Btu/hr and less as a means of not incurring the labor costs necessary of having an attendant onsite. Does the rule address the installation of multiple smaller units in lieu of installing a larger unit, as a potential means to circumvent the rule?

**DISTRICT RESPONSE**

No. Proposed Rule 69.2.1 does not address this situation. At this time, there are no emission control requirements for units rated less than 600,000 Btu/hr. However, the District may consider regulating NOx and CO emissions from such equipment in the future.

**10. WORKSHOP COMMENT**

Does Rule 69.2.1 require a unit subject to it to have a registration or a permit to operate? Would any fees be required after the rule goes into effect?

**DISTRICT RESPONSE**

Proposed Rule 69.2.1 does not require a permit to operate, fees or registration for units subject to it. Presently, this equipment is exempt from the permit to operate or registration requirements by other District rules.

**11. WORKSHOP COMMENT**

How many boilers in the applicable size range of this rule are located in San Diego County?

**DISTRICT RESPONSE**

Units of the size specified in the proposed rule are not currently subject to the permit requirements. Thus, the District does not have a complete inventory of the existing units in San Diego County. However, based on natural gas usage data from the local utility company and information from various boiler studies in California, the District estimates that there are approximately 800 existing units, rated between 600,000 Btu/hr and 2 MMBtu/hr, which are presently operating in San Diego County.

**12. WORKSHOP COMMENT**

What impact will this rule have on NOx emissions reductions?

**DISTRICT RESPONSE**

The District estimates approximately 65 tons per year of NOx emissions reductions upon full implementation of Rule 69.2.1.

**13. WORKSHOP COMMENT**

Are boilers that operate with emissions in excess of 40 ppm NOx currently available on the market? What are the typical emissions for this type of unit?

**DISTRICT RESPONSE**

Most manufacturers currently carry units that operate with NOx emissions in excess of 40 ppm. Their emissions will vary depending on manufacturer, but the typical range for NOx emissions from such units is approximately 100 ppm or less when operating with natural gas or liquid fuel.

**14. WORKSHOP COMMENT**

Does the District plan to revise Rule 69.2.1 and apply the revised rule to existing units?

**DISTRICT RESPONSE**

No. As proposed, Rule 69.2.1 applies to new units only, which are defined as those installed, manufactured, or sold on or after one year after the date of adoption. An existing unit would not be subject to the rule unless it is replaced, at which time the replacement unit shall comply with the rule requirements.

**15. WORKSHOP COMMENT**

Does the proposed rule allow the installation of used equipment?

**DISTRICT RESPONSE**

Yes, provided that used equipment comply with the requirements of Rule 69.2.1 on the date of installation. Since units certified according to the requirements of the proposed rule are presently available on the market, such a unit, even if it is used, may be installed after the effective date of the rule.

**16. WORKSHOP COMMENT**

When will the proposed rule become effective?

**DISTRICT RESPONSE**

The rule will become effective one year after the date of adoption by the Air Pollution Control Board, which is tentatively scheduled for March 25, 2009.

**17. WORKSHOP COMMENT**

Most air districts have an effective date for their rules of January 1<sup>st</sup> in a calendar year. Will the District provide a similar effective date?

**DISTRICT RESPONSE**

A one-year period from the date of adoption is a typical timeframe provided for compliance in other District rules. This should provide adequate time for the affected facilities due to the current availability of certified compliant units on the market.

**18. WORKSHOP COMMENT**

Will there be any future workshops after this one?

**DISTRICT RESPONSE**

No, the District does not plan to conduct any additional public workshops for the proposed Rule 69.2.1 unless some new comments would necessitate it.

**19. WORKSHOP COMMENT**

If a unit operates less than 220,000 therms annually, is it exempt from the NO<sub>x</sub> emissions standards in Rule 69.2? Will that exemption limit be changed?

### **DISTRICT RESPONSE**

Rule 69.2, which is applicable to units rated 5 MMBtu/hr and greater, currently exempts from the NOx emissions standards those units that operate with an annual heat input less than 220,000 therms. Based on information available at this time, the District has determined it is not cost-effective to lower the exemption level. Thus, the District does not have any current plans for revising the exemption limit.

### **20. WRITTEN COMMENT**

The rule should be revised to require boiler manufacturers to have their units tested for certification based on a Wobbe Index of 1385, which is the maximum range of natural gas quality allowed in San Diego County by the California Public Utilities Commission. This can be accomplished by using actual test gas with a composition of Wobbe Index of 1385, or simulating a Wobbe Index of 1385 by increasing the gas flow to the tested unit by 5%. This requirement would ensure that the equipment is certified to comply with the emissions standards of the rule for the expected range of natural gas quality in the county.

### **DISTRICT RESPONSE**

The District is not authorized to regulate the quality or chemical composition of natural gas or any other fuel, and proposed Rule 69.2.1 does not address the quality or composition of a gaseous fuel used in boilers sold or installed in San Diego County. Provided the unit is certified by the manufacturer to comply with the emission limits of Section (d)(1) and other rule provisions, it will satisfy the proposed rule requirements.

If the District were to implement the suggestion to regulate the heating value of natural gas used by small boiler manufacturers, then potentially expensive manufacturing facility modifications could be necessary to allow for controlled addition of hydrocarbons and inert gases to their natural gas supplies as necessary to maintain required heating values. Simply increasing the flow of natural gas to the boiler would not necessarily simulate a natural gas with a higher heating value, which typically comprises more propane and ethane and less methane. Facility modifications, if necessary, could be a lengthy process and therefore might raise compliance issues. Further, based on limited discussions with small boiler manufacturers, there are concerns that manufacturers would choose to forego the relatively small San Diego market in order to avoid facility modification costs. If so, a host of unintended adverse consequences for the San Diego region could result.

The District concurs that combustion of natural gas with a higher heating value (compared to the natural gas historically used in San Diego County) could result in emission increases from natural gas-fired combustion equipment. The District encourages Southern California natural gas distribution utilities to work with equipment manufacturers on design modifications that minimize emission impacts of temporal and geographic variations in natural gas composition.

**21. WRITTEN COMMENT**

Section (f) of the rule requires that units offered for sale in San Diego County be labeled to illustrate compliance with the requirements of SCAQMD Rule 1146.2. This provision is inconsistent with Section (e) which requires certification for compliance with the requirements of proposed Rule 69.2.1, or alternatively, of SCAQMD Rule 1146.2.

**DISTRICT RESPONSE**

The District agrees. Section (f) has been revised to provide consistency with Section (e). See also response to Comment No. 7.

**22. WRITTEN COMMENT**

The future NO<sub>x</sub> emission limits for operation on natural gas in proposed Rule 69.2.1 (30 ppm) differ from the limits in SCAQMD Rule 1146.2 (20 ppm). The emission limits of Rule 69.2.1 should be revised to be consistent with those in Rule 1146.2.

**DISTRICT RESPONSE**

The District disagrees. The current NO<sub>x</sub> emission limit in SCAQMD Rule 1146.2 for units rated between 400,000 Btu/hr and 2 MMBtu/hr is 30 ppm, which is consistent with the standard proposed in Rule 69.2.1 and the rules in the majority of California air districts. The more stringent NO<sub>x</sub> emission limit of 20 ppm in Rule 1146.2 will go into effect only in 2010. Since present manufactured equipment can readily comply with the 30 ppm NO<sub>x</sub> emission limit for units operated on gaseous fuel, proposed Rule 69.2.1 will not be revised at this time. However, the District will assess at a future date if the technology available in 2010 will warrant reducing the NO<sub>x</sub> emission limit to 20 ppm.

**23. EPA COMMENT**

The NO<sub>x</sub> emission limits in Subsection (d)(1) are 30 ppm for units operating on gaseous fuel and 40 ppm for those operating on liquid fuel. Ventura County Air Pollution Control District Rule 74.11.1 limits NO<sub>x</sub> emissions to 30 ppm for units with the same rated heat input capacity regardless of fuel. The District should lower the 40 ppm liquid fuel limit for units of this size or explain why more stringent limits are not reasonably available.

**DISTRICT RESPONSE**

Discussions with Ventura County APCD staff have indicated that to the best of their knowledge, there are no units rated less than 2 MMBtu/hr that are permitted to operate with liquid fuel within the county. Other local air districts in California have shared similar findings.



The District also contacted a few boiler manufacturers. They have stated that the NO<sub>x</sub> emission limit of 30 ppm can only be achieved for units operating on natural gas, but not on liquid fuel. Boiler manufacturers have also indicated that it is technologically feasible to achieve a 40 ppm NO<sub>x</sub> emission limit for units operating on liquid fuel as required by the proposed rule by using low-NO<sub>x</sub> burners, flue-gas recirculation or other NO<sub>x</sub> emission reduction techniques. However, because such units are not commonplace in the market, they will be very expensive.

There are presently only three existing boilers in San Diego County permitted to operate on liquid fuel, out of approximately 800 units of the size affected by the proposed Rule 69.2.1. The location where two of these units are operating also has natural gas available, and therefore future replacement units may be fueled by natural gas. The third unit is at a remote location that does not have any access to natural gas, operates only sporadically and may not need a replacement (and therefore may not trigger rule requirements) for a long time considering its age of less than 10 years.

#### **24. EPA COMMENT**

Section (e)(3) should specify where the referenced South Coast Air Quality Management District certification statement is described.

#### **DISTRICT RESPONSE**

The District agrees. Subsection (e)(3) has been revised to reference SCAQMD Rule 1146.2, Section (d).

#### **25. ARB COMMENTS**

ARB staff had no comments on the proposed rule.

NY:RC;jlm  
12/04/08

**RULE 69.2.1 ~~SMALL INDUSTRIAL AND COMMERCIAL BOILERS, PROCESS HEATERS AND STEAM GENERATORS~~**

(Adopted *(date of adoption)*; Effective *(one year from date of adoption)*)

(a) **APPLICABILITY**

Except as otherwise provided in Section (b), this rule shall apply to any person who manufactures, sells, offers for sale or distributes for use within San Diego County, or installs within San Diego County a new unit (boiler, process heater, or steam generator) with a heat input rating from 600,000 Btu per hour to 2 million Btu per hour.

(b) **EXEMPTIONS**

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

(i) Any waste heat recovery boilers that are used to recover heat from the exhaust of gas turbines, internal combustion engines, or other combustion equipment.

(ii) Furnaces, kilns, and any combustion equipment where the material being heated is in direct contact with the products of combustion.

(iii) Thermal oxidizers and associated waste heat recovery equipment.

(c) **DEFINITIONS**

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

(1) **"Boiler" or "Steam Generator"** means any combustion equipment fired with gaseous and/or liquid fuel and used to produce steam or to heat water.

(2) **"Btu"** means British thermal unit.

(3) **"Furnace"** means any enclosed structure in which heat is produced by the combustion of any fuel.

(4) **"Gaseous Fuel"** means natural gas or liquefied petroleum gas.

(45) **"Heat Input Rating"** means the maximum steady state heat input capacity of a unit, in Btu per hour, as specified by the manufacturer.

(56) **"Kiln"** means an oven, furnace, or heated enclosure used for processing a substance by burning, firing, or drying.

(7) **"Liquefied Petroleum Gas (LPG)"** means a gas, consisting primarily of propane, propylene, butane, and butylene in various mixtures, that is stored as a liquid at high pressure.

(8) **"Liquid Fuel"** means any fuel which is a liquid at standard conditions, including distillate oils.

(69) **"New Unit"** means a unit installed, manufactured, or sold on or after *(one year after date of adoption)*.

(710) **"Process Heater"** means any combustion equipment fired with liquid and/or gaseous fuel and which transfers heat from the combustion gases to water or process streams. Heaters used for swimming pools, spas and/or therapy pools shall be considered process heaters.

(811) **"Thermal Oxidizer"** means combustion equipment fired with gaseous fuel and used to control emissions of air contaminants from industrial or commercial processes.

(912) **"Unit"** means any boiler, steam generator, or process heater.

(d) **STANDARDS**

Except as otherwise provided in Section (b), effective *(one year after date of adoption)*, no person shall manufacture, distribute, sell, offer for sale, or install within San Diego County any new unit that has:

(1) Emissions of oxides of nitrogen, calculated as nitrogen dioxide at 3% oxygen on a dry basis, that exceed the following levels:

(i) 30 parts per million by volume when operated on a gaseous fuel as a primary fuel.

(ii) 40 parts per million by volume when operated on a liquid fuel as a primary fuel.

(2) Emissions of carbon monoxide, calculated at 3% oxygen on a dry basis, that exceed 400 parts per million by volume.

(e) **CERTIFICATION STATEMENT**

(1) A manufacturer of any unit to be offered for sale within San Diego County shall submit to the Air Pollution Control Officer a statement certifying that each model of boiler,

process heater, or steam generator subject to the requirements of Section (d) of this rule complies with the provisions of this rule.

(i) The statement shall be signed, dated, and attested to the accuracy of all information by a representative of the manufacturer.

(ii) The statement shall be submitted at least 30 days before the unit model is offered for sale, sold, or installed within San Diego County.

(iii) The statement shall include:

(A) Brand name,

(B) Model number,

(C) Heat input rating as specified on the nameplate, and

(D) Oxides of nitrogen and carbon monoxide emission test results of each model being certified.

(2) A manufacturer shall submit to the Air Pollution Control Officer a new certification statement for any unit model whose design is changed in any manner which may alter oxides of nitrogen or carbon monoxide emissions.

(3) Alternatively, to comply with Subsections (e)(1) or (e)(2), a manufacturer may submit to the Air Pollution Control Officer a ~~South Coast Air Quality Management District~~ certification statement for the unit model as required in the South Coast Air Quality Management District (SCAQMD) Rule 1146.2, Section (d).

(f) **LABELING**

A manufacturer shall display on the shipping carton and the nameplate of every unit to be offered for sale within San Diego County, the model number and certification status of the unit complying with Section (e) of this rule, or alternatively, the most current requirements of the ~~South Coast Air Quality Management District~~ SCAQMD Rule 1146.2.

(g) **RECORDKEEPING**

A manufacturer shall keep test records for oxides of nitrogen and carbon monoxide emissions and certification records for as long as the unit model is offered for sale or sold within San Diego County, or for three calendar years after date of manufacture, whichever is longer. Such records shall be provided to the San Diego County Air Pollution Control District upon request.

(h) **TEST METHODS**

To determine compliance with Section (d) of this rule, the manufacturer shall ~~conduct~~ obtain measurements of oxides of nitrogen and carbon monoxide contents conducted by an independent testing laboratory in accordance with:

(1) San Diego County Air Pollution Control District Test Method 100 as approved by the federal Environmental Protection Agency, or

(2) ~~South Coast Air Quality Management District~~ SCAQMD Test Method 100.1 as approved by the federal Environmental Protection Agency.