



Air Pollution Control Board

San Diego County Air Pollution Control District

GOVERNING BODY

GREG COX
First District

DIANNE JACOB
Second District

DAVE ROBERTS
Third District

RON ROBERTS
Fourth District

BILL HORN
Fifth District

AGENDA ITEM

DATE: June 24, 2015

AP01

TO: Air Pollution Control Board

SUBJECT: NOTICED PUBLIC HEARING - ADOPTION OF NEW RULE 69.5.1 – NATURAL GAS-FIRED WATER HEATERS, AND REPEAL OF EXISTING RULE 69.5 – NATURAL GAS-FIRED WATER HEATERS (DISTRICTS: ALL)

Overview

This is a request for the Air Pollution Control Board to adopt proposed new Rule 69.5.1 to reduce the amount of oxides of nitrogen (NO_x) emitted from residential-type natural gas-fired water heaters. When water heaters burn natural gas, NO_x is emitted into the air and reacts with other air pollutants to form ground level ozone, a major component of smog. San Diego County Air Pollution Control District (District) has programs and regulations in place designed to meet the current California or National Ambient Air Quality Standards for ozone, however, the county currently does not meet these standards. As a result, the District is required to update its regulations, as necessary, to reflect the latest advances in technology to further reduce ozone-forming emissions. Adoption of Rule 69.5.1 will help fulfill these State and federal requirements.

If adopted, Rule 69.5.1 will replace existing Rule 69.5, which has not been updated since its adoption in 1998. Since 1998, advances in water heating technology and tighter emission limits in several other California air districts have resulted in the availability of lower-emitting natural gas-fired water heaters. Proposed new Rule 69.5.1 reflects these advancements and will prohibit the sale, distribution, or installation of any new natural gas-fired water heater that does not comply with the proposed emission limits. It will apply only when an existing unit is replaced or a new unit is installed. There will be no immediate impact on existing residences and businesses that presently have water heaters on the premises. Proposed new Rule 69.5.1 will go into effect on July 1, 2016, and existing Rule 69.5 will then be automatically repealed.

The District held a public workshop to discuss and receive comments on the proposed new rule. No significant issues were raised and all known issues have been addressed.

Recommendation(s)

AIR POLLUTION CONTROL OFFICER

1. Find that the adoption of proposed new Rule 69.5.1 and repeal of existing Rule 69.5 are categorically exempt from the provisions of the California Environmental Quality Act pursuant to California Code of Regulations, Title 14, Section 15308, as an action taken to

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assure the protection of the environment, where the regulatory process involves procedures for protection of the environment, and pursuant to California Code of Regulations Title 14, Section 15061(b)(3), since it can be seen with certainty that there is no possibility that the activity in question may have a significant effect on the environment.

2. Adopt the resolution entitled RESOLUTION ADOPTING NEW RULE 69.5.1 – NATURAL GAS-FIRED WATER HEATERS AND REPEALING RULE 69.5 – NATURAL GAS-FIRED WATER HEATERS OF REGULATION IV OF THE RULES AND REGULATIONS OF THE SAN DIEGO COUNTY AIR POLLUTION CONTROL DISTRICT.

Fiscal Impact

There is no fiscal impact associated with the adoption of the resolution. If adopted, there will be no change in net General Fund cost and no additional staff years.

Business Impact Statement

Adopting proposed new Rule 69.5.1 will not adversely impact the business community. Natural gas-fired water heaters complying with the proposed rule are currently available in California. The rule will not affect any facility in San Diego County that currently operates water heaters until the unit is replaced or a new unit is installed. While low-emitting units are somewhat more expensive than standard ones, they are more energy efficient and are therefore cheaper to operate, with a payback period of a few years depending on usage. Also, their cost is expected to decrease over time due to advances in technology and increased production. The one-year sell-through period minimizes impacts, and manufacturers and distributors are already familiar with the rule requirements due to several other California air districts having similar rules in place.

Advisory Board Statement

At its meeting on August 13, 2014, with a quorum present, the Air Pollution Control District Advisory Committee voted unanimously in support of the Air Pollution Control District's recommendations.

Background

San Diego County does not meet the California and National Ambient Air Quality Standards for ozone and therefore is classified as an ozone nonattainment area. Both federal and State laws require the District to adopt and implement rules to control emissions of ozone precursors – volatile organic compounds (VOC) and NOx. In addition, as control technologies advance and new or tighter limits on air pollutant emissions become feasible the District is required to update its rules accordingly and the proposed rule is the result of this requirement.

Existing Rule 69.5 regulates NOx emissions from residential-type natural gas-fired water heaters (units) with a rated heat input capacity of less than 75,000 BTU per hour, and has not been updated since its adoption in 1998. The District is proposing to repeal existing Rule 69.5 and

SUBJECT: NOTICED PUBLIC HEARING - ADOPTION OF NEW RULE 69.5.1 – NATURAL GAS-FIRED WATER HEATERS, AND REPEAL OF EXISTING RULE 69.5 – NATURAL GAS-FIRED WATER HEATERS (DISTRICTS: ALL)

adopt new Rule 69.5.1 that includes similar requirements, but with more stringent NOx emission limits. The proposed emission standards in Rule 69.5.1 are similar to existing rule requirements in several other California air districts and as a result complying units are widely available.

Proposed new Rule 69.5.1 is a point-of-sale rule that applies when an existing natural gas-fired water heater reaches the end of its useful equipment life and is replaced, or when any new unit is installed. It will prohibit the manufacture, sale, offer for sale, or installation within San Diego County of any new unit that does not comply with the specified emission standards. It will require the manufacturer of any such unit offered for sale within San Diego County to submit to the District a statement certifying that each model of water heater complies with all applicable provisions of the rule. As an alternative, a certification statement approved by the South Coast Air Quality Management District may be submitted to avoid duplicative testing and certification costs.

Proposed new Rule 69.5.1 provides a one-year sell-through period to allow time for affected businesses to deplete their existing inventories of noncompliant water heaters. If adopted, proposed new Rule 69.5.1 will take effect on July 1, 2016. On that same date Rule 69.5 will be automatically repealed.

During development of proposed new Rule 69.5.1, District staff conducted a public workshop to discuss the proposed requirements with affected parties. The workshop was attended by seven people, including representatives from the water heater manufacturing and distribution industry. No significant concerns were raised at the workshop and all known issues have been addressed. Additional outreach is planned upon adoption of the proposed rule, including distribution of an advisory to affected parties to enhance awareness of the new requirements.

Socioeconomic Impact Assessment

Section 40728.5 of the State of California Health and Safety Code requires the District to perform an assessment of the socioeconomic impacts when adopting, amending, or repealing a rule that will significantly affect air quality or emission limitations. Proposed new Rule 69.5.1 will affect emission limitations by establishing more stringent NOx emission standards for small water heaters. Accordingly, a Socioeconomic Impact Assessment has been prepared (Attachment B), which shows that proposed new Rule 69.5.1 will not have a significant economic impact on the affected residences or industries, including small businesses in San Diego County.

Environmental Statement

The California Environmental Quality Act (CEQA) requires environmental review for certain actions. The District conducted a preliminary review of whether CEQA applies to the adoption of Rule 69.5.1. Proposed new Rule 69.5.1 is required by State law, which calls for adoption of every feasible control measure to accelerate progress toward achieving the ambient air quality standard for ozone. Proposed new Rule 69.5.1 will reduce NOx emissions from residential-type water heaters in San Diego County by approximately 75%, or 380 tons/year. District staff determined that the adoption of proposed new Rule 69.5.1 and repeal of existing Rule 69.5 are

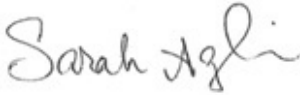
SUBJECT: NOTICED PUBLIC HEARING - ADOPTION OF NEW RULE 69.5.1 – NATURAL GAS-FIRED WATER HEATERS, AND REPEAL OF EXISTING RULE 69.5 – NATURAL GAS-FIRED WATER HEATERS (DISTRICTS: ALL)

categorically exempt from the provisions of CEQA pursuant to California Code of Regulations, Title 14, Section 15308, as an action taken to assure the protection of the environment, where the regulatory process involves procedures for protection of the environment, and pursuant to Section 15061(b)(3), since it can be seen with certainty that there is no possibility that the activity in question may have a significant effect on the environment.

Linkage to the County of San Diego Strategic Plan

Today’s proposed actions support the Sustainable Environments Initiative in the County of San Diego’s 2015 – 2019 Strategic Plan with an objective to enhance the quality of the environment by focusing on sustainability, pollution prevention and strategic planning. Proposed new Rule 69.5.1 will reduce air pollutant emissions and improve air quality in San Diego County.

Respectfully submitted,



SARAH E. AGHASSI
Deputy Chief Administrative Officer



ROBERT J. KARD
Air Pollution Control Officer

ATTACHMENT(S)

- Attachment A – Resolution Adopting New Rule 69.5.1 (Natural Gas-Fired Water Heaters) and Repealing Rule 69.5 (Natural Gas-Fired Water Heaters), of Regulation IV of the Rules and Regulations of the San Diego County Air Pollution Control District.
- Attachment B – Socioeconomic Impact Assessment
- Attachment C – Comparative Analysis
- Attachment D – Incremental Cost-Effectiveness Analysis
- Attachment E – Workshop Report
- Attachment F – Existing Rule 69.5 (Natural Gas-Fired Water Heaters) to be Repealed

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AGENDA ITEM INFORMATION SHEET

REQUIRES FOUR VOTES: Yes No

WRITTEN DISCLOSURE PER COUNTY CHARTER SECTION 1000.1 REQUIRED
 Yes No

PREVIOUS RELEVANT BOARD ACTIONS:

June 17, 1998 (APCB #1), Adoption of New Rule 69.5 – Natural Gas-Fired Water Heaters

BOARD POLICIES APPLICABLE:

N/A

BOARD POLICY STATEMENTS:

N/A

MANDATORY COMPLIANCE:

N/A

ORACLE AWARD NUMBER(S) AND CONTRACT AND/OR REQUISITION NUMBER(S):

N/A

ORIGINATING DEPARTMENT: AIR POLLUTION CONTROL DISTRICT

OTHER CONCURRENCES(S): N/A

CONTACT PERSON(S):

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Resolution No: 15-087
Meeting Date: 06/24/15 (AP1)

RESOLUTION ADOPTING NEW RULE 69.5.1 – NATURAL GAS-FIRED WATER HEATERS AND REPEALING RULE 69.5 – NATURAL GAS-FIRED WATER HEATERS, OF REGULATION IV OF THE RULES AND REGULATIONS OF THE SAN DIEGO COUNTY AIR POLLUTION CONTROL DISTRICT

On motion of Member Jacob, seconded by Member Cox, the following resolution is adopted:

WHEREAS, the San Diego County Air Pollution Control Board (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 held relating to the amendment of said Rules and Regulations pursuant to Section 40725 of the Health and Safety Code and Section 51.102 of the Code of Federal Regulations; and

WHEREAS, pursuant to Section 40727 of the Health and Safety Code, the San Diego County Air Pollution Control Board makes the following findings:

- (1) (Necessity) The adoption of proposed new Rule 69.5.1 is necessary in order to implement State requirements for all feasible control measures to achieve the ambient air quality standards for ozone by further reducing emissions of nitrogen oxides in the County of San Diego, and the repeal of Rule 69.5 is necessary in order to maintain clarity of requirements for those affected;
- (2) (Authority) The adoption of proposed new Rule 69.5.1 and repeal of Rule 69.5 are authorized by Health and Safety Code Section 40702;
- (3) (Clarity) Proposed new Rule 69.5.1 and repeal of Rule 69.5 can be easily understood by persons directly affected by them;
- (4) (Consistency) The adoption of proposed new Rule 69.5.1 and repeal of Rule 69.5 are in harmony with, and not in conflict with or contrary to, existing statutes, court decisions, and State and federal regulations;
- (5) (Non-duplication) The adoption of proposed new Rule 69.5.1 and repeal of Rule 69.5 will not duplicate existing District, state or federal requirements;

- (6) (Reference) The adoption of proposed new Rule 69.5.1 and repeal of Rule 69.5 are necessary to comply with State law, California Health and Safety Code Section 40914(b)(2), which requires adoption of every feasible control measure to reduce ozone-precursor emissions;

WHEREAS, the Air Pollution Control Board further finds pursuant to Health and Safety Code Section 40001 that adoption of proposed new Rule 69.5.1 will facilitate the attainment of ambient air quality standards; and

WHEREAS, the Air Pollution Control Board further finds that Rule 69.5 is now duplicative of proposed new Rule 69.5.1, and will be rendered obsolete upon the effective date of proposed new Rule 69.5.1; and

WHEREAS, the Air Pollution Control Board further finds that an analysis comparing proposed new Rule 69.5.1 with applicable requirements of federal and local regulations has been prepared pursuant to Health and Safety Code Section 40727.2; and

WHEREAS, the Air Pollution Control Board further finds that an incremental cost-effectiveness analysis pursuant to Health and Safety Code Section 40920.6(a) has been prepared for proposed new Rule 69.5.1 and has been made available for public review and comment, and has been actively considered.

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:

1. Proposed new Rule 69.5.1 is to read as follows:

RULE 69.5.1 NATURAL GAS-FIRED WATER HEATERS
(Adopted *(adoption date)*, Effective July 1, 2016)

(a) **APPLICABILITY**

Except as otherwise provided in Section (b), this rule shall apply to any person who manufactures, distributes, sells, offers for sale, or installs, for use in San Diego County, a new water heater operated with natural gas and with a rated heat input capacity of less than 75,000 Btu per hour.

(b) **EXEMPTIONS**

- (1) The provisions of this rule shall not apply to:
- (i) Water heaters used in recreational vehicles;
 - (ii) Water heaters used exclusively to heat swimming pools and hot tubs;
 - (iii) Water heaters using fuels other than natural gas;

- (iv) Instantaneous water heaters;
- (v) Existing or relocated water heaters.

(2) The provisions of Sections (e), (f) and (g) shall not apply to a new water heater used in conjunction with any equipment, product line, system, process line or process that is subject to permit requirements of Rule 10.

(c) **DEFINITIONS**

For the purpose of this rule the following definitions shall apply:

- (1) **“Btu”** means British thermal units.
- (2) **“Existing Water Heater”** means a water heater which was installed and capable of operation before July 1, 2016.
- (3) **“Heat Output”** means the product obtained by multiplying recovery efficiency, as defined by Section 6.1.3 of the Code of Federal Regulations, Title 10, Part 430, Subpart B, Appendix E, by the rated heat input capacity of the water heater.
- (4) **“Installed”** means located onsite at the final destination and capable of operation.
- (5) **“Instantaneous Water Heater”** means a water heater that heats water only when it flows through a heat exchanger.
- (6) **“Mobile Home”** means a structure as defined in Section 18007 or 18008 of the California Health and Safety Code.
- (7) **“Mobile Home Water Heater”** means a water heater manufactured exclusively for mobile home use.
- (8) **“New Water Heater”** means a water heater installed, manufactured, or sold on or after July 1, 2016.
- (9) **“Rated Heat Input Capacity”** means the heat input capacity of a water heater, in Btu per hour, as specified by the manufacturer on the nameplate of the water heater.
- (10) **“Recreational Vehicle”** means the same as defined in Section 18010 of the California Health and Safety Code.
- (11) **“Relocated Water Heater”** means an existing water heater which is moved within San Diego County from one stationary source to another stationary source. A relocated water heater is deemed to maintain the status of an existing water heater at the subsequent stationary source.

(12) **“Stationary Source”** means the same as defined in Rule 2.

(13) **“Water Heater”** means a closed vessel in which water heated by combustion of natural gas is withdrawn for use external to the vessel at pressures not exceeding 160 psig. Water heater consists of the apparatus by which heat is generated and all controls and devices necessary to prevent water temperatures from exceeding 210°F (99°C).

(d) STANDARDS

Except as otherwise provided in Section (b), effective July 1, 2016, no person shall manufacture, distribute, sell, offer for sale, or install, for use within San Diego County:

(1) Any new water heater (not for use in a mobile home) that operates on natural gas and emits more than:

(i) 10 nanograms of nitrogen oxides (calculated as nitrogen dioxide) per joule (23 lbs of nitrogen oxides per billion Btu) of heat output, or

(ii) 15 parts per million by volume nitrogen oxides (calculated as nitrogen dioxide) at 3% oxygen on a dry basis (17.5 lbs per billion Btu of heat input).

(2) Any new mobile home water heater that operates on natural gas and emits more than:

(i) 40 nanograms of nitrogen oxides (calculated as nitrogen dioxide) per joule (93 lbs of nitrogen oxides per billion Btu) of heat output, or

(ii) 55 parts per million by volume nitrogen oxides (calculated as nitrogen dioxide) at 3% oxygen on a dry basis (71 lbs per billion Btu of heat input).

(e) CERTIFICATION

(1) A manufacturer of any new water heater to be offered for sale in San Diego County shall submit to the Air Pollution Control Officer a statement certifying that each model of water heater subject to the requirements of Section (d) complies with all other provisions of this rule.

(i) The statement shall be signed, dated, and attest to the accuracy of all information.

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

(iii) The statement shall include:

(A) Brand name,

(B) Model number,

(C) Rated heat input capacity as specified on the nameplate, and

(D) Test results of emissions of nitrogen oxides for each model being certified.

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

(3) Alternatively, to comply with Subsections (e)(1) or (e)(2), a manufacturer may submit to the Air Pollution Control Officer a certification statement for the water heater model as required in the South Coast Air Quality Management District (SCAQMD) Rule 1121, Section (d).

(f) LABELING

On the shipping carton and the nameplate of every new water heater to be offered for sale in San Diego County, the manufacturer shall display the model number of the new water heater complying with Section (e) requirements, or alternatively, the most current requirements of the SCAQMD Rule 1121.

(g) RECORD KEEPING

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

(h) TEST METHODS

To determine compliance with Section (d), measurement of emissions of nitrogen oxides shall be conducted in accordance with:

(1) San Diego Air Pollution Control District Test Method 100, Test Procedures for the Determination of Nitrogen Oxides, Carbon Monoxide and Diluent Gases by Continuous Emission Monitoring, as approved by the U.S. Environmental Protection Agency (EPA) in May 1995; or

(2) SCAQMD Test Method 100.1, Instrumental Analyzer Procedures for Continuous Gaseous Emission Sampling, as approved by the U.S. EPA in March 1989.

A violation determined by either test method shall constitute a violation of the rule.

(i) **EMISSION TEST REQUIREMENTS**

Emission tests shall be performed in accordance with the procedures and methods outlined in the SCAQMD Protocol: Nitrogen Oxides Emissions Compliance Testing for Natural Gas-Fired Water Heaters and Small Boilers, January 1998.

2. Existing Rule 69.5 is to be repealed in its entirety, effective July 1, 2016

IT IS FURTHER RESOLVED AND ORDERED that proposed new Rule 69.5.1 of Regulation IV shall take effect July 1, 2016.

IT IS FURTHER RESOLVED AND ORDERED that the repeal of Rule 69.5 of Regulation IV shall take effect July 1, 2016.

APPROVED AS TO FORM AND LEGALITY
COUNTY COUNSEL

BY: _____
SENIOR DEPUTY

The foregoing Resolution was passed and adopted by the Air Pollution Control District, County of San Diego, State of California, on this 24th day of June, 2015, by the following vote:

AYES: Cox, Jacob, D. Roberts, R. Roberts, Horn

- - -

STATE OF CALIFORNIA)
County of San Diego)^{SS}

I hereby certify that the foregoing is a full, true and correct copy of the Original Resolution entered in the Minutes of the San Diego County Air Pollution Control Board.

DAVID HALL
Clerk of the Air Pollution Control Board

By: Diana Lopez
Diana Lopez, Deputy



Resolution No. 15-087
06/24/15 (AP1)

SOCIOECONOMIC IMPACT ASSESSMENT

**PROPOSED NEW RULE 69.5.1 -
NATURAL GAS-FIRED WATER HEATERS**

August 2014

Prepared by

**San Diego County Air Pollution Control District
10124 Old Grove Road
San Diego, CA 92131**

**SOCIOECONOMIC IMPACT ASSESSMENT
PROPOSED NEW RULE 69.5.1 –
NATURAL GAS-FIRED WATER HEATERS**

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EXECUTIVE SUMMARY

This report represents the results of a socioeconomic impact assessment (SIA) of the San Diego County Air Pollution Control District's (District) proposed new Rule 69.5.1 – Natural Gas-Fired Water Heaters. The proposed rule will help fulfill the District's commitment in the San Diego Regional Air Quality Strategy to implement all feasible control measures as required by state law.

Proposed new Rule 69.5.1 will regulate nitrogen oxide (NO_x) emissions from small water heaters. It applies to any person who manufactures, sells, offers for sale, distributes for use, or installs within San Diego County a new water heater with a heat input rating less than 75,000 Btu/hr. The rule requires NO_x emissions limit for new water heaters (referred to as ultra low-NO_x units) to be not higher than 10 nanograms per joule or 15 parts per million. For new water heaters used in mobile homes, the NO_x emission limit must not be higher than 40 nanograms per joule or 55 parts per million.

The proposed new rule requires manufacturers of water heaters to provide certification, labeling, and recordkeeping. The owners or operators of new water heaters do not need to obtain a Permit to Operate from the District.

There are approximately one million existing water heaters in San Diego County. Proposed new Rule 69.5.1 will apply when a unit reaches the end of its useful equipment life and is replaced, or when any new unit is installed. Upon full implementation, the rule is expected to reduce total NO_x emissions from all affected water heaters in San Diego County by approximately 75%, or 380 tons per year.

The annualized costs for ultra low-NO_x water heaters, on a per unit basis, are approximately \$24 higher than those for standard non-compliant units. The rule cost-effectiveness is between \$3 to \$6 per pound of NO_x reduced, depending on the heat input rating of the unit.

The proposed rule is not anticipated to have a significant economic impact on affected industries. The SIA demonstrates that the emission limits proposed in the rule are feasible considering the commercial availability and cost of compliant units.

I. INTRODUCTION

California law requires air pollution control districts (with populations of 500,000 people or higher) to perform a SIA when adopting, amending, or repealing rules and regulations that will significantly affect air quality and emission limitations.

The Health and Safety Code section 40728.5 specifies the following elements to be included in the SIA:

1. The necessity of adopting, amending, or repealing the rule or regulation in order to attain state and federal ambient air quality standards.
2. The type of business, including small business, affected by the rule or regulation.
3. The range of probable costs, including costs to industry or business, including small business, of the rule or regulation.
4. The emission reduction potential of the rule or regulation.
5. The impact of the rule or regulation on employment and the economy of the region affected by the adoption of the rule or regulation.
6. The availability and cost-effectiveness of alternatives to the rule or regulation.

This report presents the results of an of the District's proposed new Rule 69.5.1 (Natural Gas-Fired Water Heaters).

II. NECESSITY OF PROPOSED NEW RULE 69.5.1

San Diego County Air Basin does not attain the National and State Ambient Air Quality Standards for ozone. Both federal and state laws require the District to implement rules that control emissions of ozone precursors – volatile organic compounds and nitrogen oxides (NO_x).

State law requires air districts in nonattainment areas to adopt every feasible measure to control ozone precursors in order to attain the Ambient Air Quality Standard for ozone at the earliest practicable date. Many air districts in California have already adopted rules regulating natural gas-fired water heaters with a more stringent NO_x emission standard (10 nanograms/Joule (ng/J) for ultra low-NO_x water heaters) than the standard in current District Rule 69.5. The San Diego Regional Air Quality Strategy identifies the 10 ng/J standard as a feasible measure to further control NO_x emissions from water heaters contingent on the commercial availability of compliant equipment. Since compliant equipment is now readily available, the District is proposing the repeal of current Rule 69.5 and the adoption of proposed new Rule 69.5.1, which includes the 10 ng/J of NO_x emission standard as a feasible measure.

III. SUMMARY OF PROPOSED NEW RULE 69.5.1

The new proposed rule will:

- Specify NO_x emission limits of 10 nanograms per joule or 15 parts per million (ppmv) for new residential-type water heaters, and 40 nanograms per joule or 55 ppmv for new mobile home water heaters.
- Prohibit the manufacture, sale, offer for sale, distribution, or installation, for use within San Diego County, of any new unit with a rated heat input capacity of less than 75,000 Btu/hr that does not comply with the emission standards of the rule.
- Require a manufacturer of any new unit to be offered for sale within San Diego County, to submit to the District a statement certifying that each model of water heater complies with the provisions of the rule.
- Require a manufacturer to display on the shipping carton and the nameplate of every new unit to be offered for sale within San Diego County, the model number of the unit in compliance with proposed new Rule 69.5.1 or, alternatively, the most current requirements of the South Coast Air Quality Management District (SCAQMD) Rule 1121 (Control of Nitrogen Oxides from Residential Type, Natural Gas-Fired Water Heaters).
- Require a manufacturer to keep emissions test records 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 manufacture, whichever is longer.
- Provide a twelve-month period after the date of adoption before the new rule takes effect.

IV. TYPE OF INDUSTRIES AFFECTED BY PROPOSED NEW RULE 69.5.1

Proposed new Rule 69.5.1 will affect manufacturers (NAICS 335228), distributors and wholesalers (NAICS 423720), and installers (NAICS 238220) of water heaters. These units are used throughout the residential and commercial sectors in San Diego County that need a supply of hot water.

V. ESTIMATED NO_x EMISSIONS IN SAN DIEGO COUNTY AFFECTED BY THE PROPOSED NEW RULE

Existing natural gas-fired water heaters rated less than 75,000 Btu/hr are currently exempt from District requirements for a permit to operate. Thus, the District does not have a comprehensive inventory of existing units operating in San Diego County within the applicable size rating. However, based on natural gas fuel usage,¹ and natural gas consumption by end use², the total NO_x emissions from existing units are estimated to be about 500 tons per year.

VI. EMISSION REDUCTION POTENTIAL AND COST-EFFECTIVENESS OF THE PROPOSED NEW RULE

Ultra low-NO_x units that comply with the proposed emission standards of the rule are currently available on the market. This availability is due to similar rules that have already been adopted by other California air districts. Full implementation of proposed new Rule 69.5.1 is expected to reduce annual NO_x emissions by approximately 380 tons per year, or by 75% of the original controlled emission level, with the cost-effectiveness ranging between \$3 and \$6 per pound of NO_x emissions reduced.

VII. RANGE OF PROBABLE COSTS TO INDUSTRY INCLUDING SMALL BUSINESS

A variety of ultra low-NO_x units are now commercially available as a result of rules adopted by the South Coast, Ventura County, San Joaquin Valley, and other California air districts. Therefore, compliance with proposed new Rule 69.5.1 is not expected to increase costs for manufacturers for developing new technology.

There will be no immediate impact on existing residences and businesses that presently have water heaters on the premises. The rule requirements, which are effective 12 months after the date of adoption, will apply only when an existing unit is replaced or a new unit is installed.

The current average cost of an ultra low-NO_x unit is in general somewhat higher than the cost of a conventional unit. Table 1 below shows the annualized cost of ultra low-NO_x and conventional units of different sizes for persons who will need to replace an old unit or install a new one. The costs of equipment are based on information obtained from various manufacturers and include installation expenses. The annualized costs were calculated assuming 12 years of useful equipment life, and 6% interest.

The table shows that the difference in annualized costs is estimated at \$24 per year. It should be noted that newer ultra low-NO_x units have a higher efficiency than conventional units, resulting in fuel cost savings and help offset the increase in cost of ultra low-NO_x units. Furthermore, the cost differential is anticipated to reduce as demand for ultra low-NO_x units increases over time and per-unit manufacturing costs fall, while demand for non-compliant conventional units decreases and per-unit manufacturing costs rise. Therefore, proposed new Rule 69.5.1 will not have a negative economic impact on industry including small business in San Diego County.

TABLE 1 – Total Installed and Annualized Costs of Combustion Units Subject to Proposed Rule 69.5.1

<i>Size Range of Units Heat Input Rating (Btu/hr)</i>	<i>Ultra Low-NOx Unit Average Installed Cost (\$)</i>	<i>Non-compliant Unit Average Installed Cost (\$)</i>	<i>Ultra Low-NOx Unit Average Annualized Cost (\$ /yr)</i>	<i>Non-compliant Unit Average Annualized Cost (\$/yr)</i>
32,000	900	700	112	88
36,000	1,000	800	121	97
40,000	1,200	1,000	145	121
65,000	1,400	1,200	160	137
75,000	1,700	1,500	202	178

VIII. IMPACT OF THE PROPOSED NEW RULE ON EMPLOYMENT AND THE REGIONAL ECONOMY

The District is required by state law to incorporate every feasible measure to control ozone precursors and to attain the Ambient Air Quality Standard for ozone at the earliest practicable date. The California Air Resources Board interprets “every feasible measure” to mean that, at a minimum, an air district should follow similar regulations that have been successfully implemented elsewhere. Various air districts in California have already demonstrated feasibility through the adoption of rules that are similar to proposed new Rule 69.5.1. For example, the SCAQMD Rule 1121 emission standards have applied to the type of equipment that would be subject to proposed new Rule 69.5.1 since early 2008.

The proposed rule will require retail establishments and contractors to distribute, sell or install units with ultra low-NOx burners. It is a point-of-sale rule in which new, ultra low-NOx units will replace existing higher emission units gradually over time. The rule will provide a twelve month sell-through period for conventional non-compliant units currently in business inventories to be sold or installed before new compliant ultra low-NOx units are required. Therefore, the rule will not have a negative impact on manufacturers or distributors of this equipment.

As noted previously, while ultra low-NOx units are typically more expensive than standard non-compliant units, it is anticipated that equipment costs will decrease over time due to advances in technology and increase in demand for lower emission units, and thus, combined with fuel cost savings relative to conventional units, the economic impact on the equipment users will be minimal.

In its socioeconomic impact assessment of Rule 74.11,³ the Ventura County Air Pollution Control District concluded that there would be no impact of the rule on employment and the regional economy. It is reasonable to assume that a similar conclusion can be made as a result of the adoption of proposed new Rule 69.5.1, considering that complying equipment is widely available and the cost differential will not significantly affect residences or businesses in San Diego County.

IX. AVAILABILITY AND COST-EFFECTIVENESS OF ALTERNATIVES

There are mainly two possible alternatives for proposed new Rule 69.5.1 – adopt a less stringent rule or adopt a more stringent rule.

The first alternative of adopting a less stringent rule is not a reasonable alternative. Other air districts in California currently have adopted rules that regulate units to the same emission standards as those in proposed new Rule 69.5.1. Thus, a less stringent rule would be inconsistent with State law that requires the District to adopt all feasible control strategies to reduce NOx emissions.

The second alternative of adopting a more stringent rule is not technologically feasible. There are no water heaters commercially available at this time that can operate with a NOx emissions limit significantly less than the 10 ng/J proposed in proposed new Rule 69.5.1.

X. CONCLUSION

Proposed new Rule 69.5.1 will not negatively impact affected residences or industries, including small businesses. It will not affect employment or the economy of San Diego County, but will bring considerable environmental benefits by reducing emissions of nitrogen oxides that are precursors of ground level ozone, a major component of photochemical smog.

References

1. California Energy Demand 2010-2020 Commission – Adopted Forecast, December 2009.
2. California Energy Commission, Demand Analysis Office.
3. Ventura County Air Pollution Control District, Rule 74.11 – Natural Gas-Fired Water Heaters, Staff Report, November 2009.

COMPARATIVE ANALYSIS

RULE 69.5.1 – NATURAL GAS-FIRED WATER HEATERS

Statutory Requirements

Prior to adopting, amending, or repealing a rule or regulation, California Health and Safety Code Section 40727 requires findings of necessity, authority, clarity, consistency, non-duplication, and reference. As part of the consistency finding to ensure proposed rule requirements do not conflict with or contradict other San Diego County Air Pollution Control District (District) or federal regulations, Health and Safety Code Section 40727.2(a) requires the District to perform a written analysis identifying and comparing the air pollution control standards and other provisions of proposed new Rule 69.5.1 with existing or proposed District rules and guidelines and existing federal rules, requirements, and guidelines applying to the same source category.

Analysis

Proposed new Rule 69.5.1 applies to manufacturers, sellers, distributors, or installers of natural gas-fired water heaters with a heat input rating of less than 75,000 Btu per hour. The proposed new rule will replace current District Rule 69.5, which applies to the same source category. There are no other existing or proposed District rules or guidelines that apply to the natural gas-fired water heaters mentioned above.

There are no applicable existing or proposed federal regulations for combustion equipment subject to proposed new Rule 69.5.1. The District does not intend to submit proposed new Rule 69.5.1 to be included in the federal State Implementation Plan. Thus, proposed new Rule 69.5.1 will not be a federally-applicable or enforceable requirement.

INCREMENTAL COST-EFFECTIVENESS ANALYSIS

PROPOSED NEW RULE 69.5.1 – NATURAL GAS-FIRED WATER HEATERS

Health and Safety Code Section 40920.6(a) requires air pollution control districts to identify one or more potential control options that achieve at least the same benefit as the proposed rule, assess the cost-effectiveness of those options, and calculate the incremental cost-effectiveness of each identified option. Incremental cost-effectiveness is defined as the difference in control costs divided by the difference in emission reductions between two potential control options achieving the same emission reduction goal.

Proposed new Rule 69.5.1 will reduce nitrogen oxide (NO_x) emissions from residential-type natural gas-fired water heaters with a rated heat input capacity of less than 75,000 Btu per hour. The rule requires the use of ultra low-NO_x burners that reduce emissions by approximately 75%, or 380 tons per year, with the cost-effectiveness between \$3 and \$6 per pound of NO_x reduced.

One other technology that will provide a higher NO_x emission reduction than proposed in the new rule is a catalytic reduction process. However, catalytic reduction that requires add-on control equipment is significantly more expensive and not practicable for small water heaters that will be regulated by proposed new Rule 69.5.1. In addition, all equipment subject to proposed new Rule 69.5.1 and complying with its requirements by using ultra low-NO_x burners is currently available in the marketplace.

There are no other potential control options that will achieve the same emission reduction goals and the same benefit as the proposed rule. Therefore, the incremental cost analysis requirement is not applicable to proposed new Rule 69.5.1.

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

**PROPOSED NEW RULE 69.5.1 – NATURAL GAS-FIRED WATER HEATERS AND
REPEAL OF EXISTING RULE 69.5 – NATURAL GAS-FIRED WATER HEATERS**

WORKSHOP REPORT

A workshop notice was mailed to manufacturers, distributors and installers of water heaters for use 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 January 16, 2014, and was attended by 7 people. Written comments were also received after the workshop. The workshop comments and District responses are as follows:

1. WORKSHOP COMMENT

Proposed Rule 69.5.1 should include an explicit date, e.g. January 1, 2015, after which water heater manufacturers cannot ship non-compliant equipment for distribution and use in San Diego County. In addition, distributors (wholesalers and retailers) should be allowed a sell-through period of three months after the manufacturer shipment date, e.g. April 1, 2015, to sell their inventory of non-compliant equipment. Contractors should also purge their inventory and have all non-compliant equipment installed by the same date (April 1, 2015). After the sell-through date, any excess inventory can only be sold for use outside of the County.

The aforementioned distribution and sell-through dates are suggested, so that manufacturers can adequately forecast and plan for shipment of non-compliant water heaters that can be sold during the sell-through period.

DISTRICT RESPONSE

The District disagrees. The suggestion to include in the rule a specific shipping deadline for non-compliant equipment is not feasibly enforceable by the District, and therefore cannot be added to the rule as suggested.

Instead, the proposed rule has been revised to take effect 12 months after the rule adoption date. This 12-month period, which is an extension of the 6-month period as originally proposed in the workshopped draft version of the rule, provides additional time and flexibility to adequately plan for the shipment, sale and installation of non-compliant equipment prior to the rule's effective date.

2. WORKSHOP COMMENT

Non-compliant water heaters should be allowed to be stored in San Diego County, if they are to be sold outside the County.

DISTRICT RESPONSE

Proposed Rule 69.5.1 does not preclude the storage of non-compliant water heaters in San Diego County if such units are to be sold for use only outside the County.

3. WRITTEN COMMENT

Proposed Rule 69.5.1 should also apply to larger residential and commercial units with a rated heat capacity of 75,000 Btu/hr to less than 600,000 Btu/hr. This size of equipment is already regulated by other California air districts. In San Diego County, there are approximately more than 100,000 of such units currently installed. Also, because these larger units typically operate more frequently than the smaller residential water heaters, there would be an additional reduction in air pollution.

DISTRICT RESPONSE

The District disagrees. Water heaters subject to the proposed rule (with a heat capacity of less than 75,000 Btu/hr) are typically used at residences. Larger units rated between 75,000 Btu/hr and 600,000 Btu/hr are mostly used in commercial or small industrial installations, and therefore would be more appropriately regulated under a separate rule. In the future, the District will consider the feasibility of regulating water heaters rated between 75,000 and 600,000 Btu/hr.

4. EPA COMMENT

EPA recommends revising an exemption in Subsection (b)(iv), for instantaneous water heaters. For example, San Joaquin Valley APCD Rule 4902 requires that instantaneous water heaters comply with the emission limit of 14 nanograms of NO_x per joule of heat output.

DISTRICT RESPONSE

The District disagrees. A review of product information from instantaneous water heater manufacturers indicates that the majority of units currently available are rated above 75,000 Btu/hr. Only two manufacturers were found to produce instantaneous water heaters rated below 75,000 Btu/hr (the applicability level of the proposed rule).

Small instantaneous water heaters (rated below 75,000 Btu/hr) are designed primarily to quickly provide hot water supply on demand to a single point of use, such as a water faucet. Unlike storage tank water heaters, small instantaneous water heaters do not have the heating capacity to

provide an adequate supply of hot water to serve multiple points of use at the same time. Due to their limited and infrequent use, and substantially smaller portion of the market compared to larger instantaneous water heaters and storage tank water heaters, any excess emissions that may result by the exemption of small instantaneous water heaters rated less than 75,000 Btu/hr are expected to be minimal.

For these reasons, the instantaneous water heater exemption in proposed Rule 69.5.1 has not been revised. However, in the future, the District will consider the feasibility of regulating large instantaneous water heaters rated above 75,000 Btu/hr.

5. EPA COMMENT

EPA recommends revising Subsection (b)(ii) – Exemption, for water heaters used exclusively for swimming pools and hot tubs. San Joaquin Valley APCD Rule 4902 requires that pool heaters comply with the emission limit of 40 nanograms of NO_x per joule of heat output.

DISTRICT RESPONSE

The District disagrees. A review of product information from pool and hot tub manufacturers indicates that units rated below 75,000 Btu/hr (the applicability level of the proposed rule) are currently not available. However, in the future, the District will consider the feasibility of regulating water heaters for pools and hot tubs.

6. EPA COMMENT

It is recommended to include the full title of the EPA-approved test methods in Section (h)(1) and (h)(2), according to EPA's Guidance Document for Correcting Common VOC & Other Rule Deficiencies (The Little Bluebook).

DISTRICT RESPONSE

The District agrees. Subsections (h)(1) and (h)(2) have been revised as suggested.

7. EPA COMMENT

Section (h) of the proposed rule should contain the statement, "A violation determined by either test method shall constitute a violation of the rule," as recommended in the Little Bluebook.

DISTRICT RESPONSE

The District agrees. Section (h) has been revised as suggested.

8. ARB COMMENTS

ARB reviewed and had no comments on the proposed rule.

RC:RR:jlm
08/07/14

RULE 69.5. NATURAL GAS-FIRED WATER HEATERS

(Adopted June 17, 1998; Effective January 1, 1999)

TO BE REPEALED (July 1, 2016)

(a) **APPLICABILITY**

Except as otherwise provided in Section (b), this rule shall apply to any person who manufactures, distributes, sells, offers for sale, or installs natural gas-fired water heaters for use in San Diego County.

(b) **EXEMPTIONS**

The provisions of this rule shall not apply to:

- (1) Water heaters with a rated heat input capacity of 75,000 Btu per hour or greater;
- (2) Water heaters used in recreational vehicles; or
- (3) Water heaters used exclusively to heat swimming pools and hot tubs.

(c) **DEFINITIONS**

For the purpose of this rule the following definition shall apply:

- (1) **“Btu”** means British thermal units.
- (2) **“Heat Output”** means the product obtained by multiplying recovery efficiency, as defined by Section 6.1.3 of the Code of Federal Regulations, Title 10, Part 430, Subpart B, Appendix E, by the rated heat input capacity of the water heater.
- (3) **“Mobile Home”** means a structure as defined in Section 18008 of the California Health and Safety Code.
- (4) **“Mobile Home Water Heater”** means a water heater manufactured exclusively for mobile home use.
- (5) **“Rated Heat Input Capacity”** means the heat input capacity of a water heater, in Btu per hour, as specified by the manufacturer on the nameplate of the water heater.
- (6) **“Recreational Vehicle”** means a motor vehicle designed and equipped for human habitation as defined in Section 362 of the California Vehicle Code.

(7) **“Water Heater”** means a closed vessel in which water is heated by combustion of natural gas and is withdrawn for use external to the vessel at pressures not exceeding 160 psig, including the apparatus by which heat is generated and all controls and devices necessary to prevent water temperatures from exceeding 210°F (99°C).

(d) **STANDARDS**

Except as otherwise provided in Section (b), effective January 1, 1999, no person shall manufacture, distribute, sell, offer for sale, or install within San Diego County any:

(1) Natural gas-fired water heater that emits more than 40 nanograms of oxides of nitrogen (calculated as nitrogen dioxide) per joule (93 lbs of oxides of nitrogen per billion Btu) of heat output, or

(2) Natural gas-fired mobile home water heater that emits more than 50 nanograms of oxides of nitrogen (calculated as nitrogen dioxide) per joule (116 lbs of oxides of nitrogen per billion Btu) of heat output.

(e) **CERTIFICATION**

(1) A manufacturer of any new water heater to be offered for sale in San Diego County shall submit to the Air Pollution Control Officer a statement certifying that each model of water heater 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 attest to the accuracy of all information.

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

(iii) The statement shall include:

(A) Brand name,

(B) Model number,

(C) Rated heat input capacity as specified on the nameplate, and

(D) Oxides of nitrogen 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 water heater model whose design is changed in any manner which may alter oxides of nitrogen emissions.

(3) 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 water heater model.

(f) **LABELING**

On the shipping carton and the nameplate of every water heater to be offered for sale in San Diego County, the manufacturer shall display the model number of the water heater complying with Section (e) of this rule.

(g) **RECORDKEEPING**

A manufacturer shall keep oxides of nitrogen emission test records and certification records for as long as the water heater model is offered for sale or sold within San Diego County, or for three calendar years after manufacture, whichever is longer. Such records shall be provided to the District upon request.

(h) **TEST METHODS**

To determine compliance with Section (d) of this rule, measurement of oxides of nitrogen shall be conducted in accordance with:

(1) San Diego Air Pollution Control District Test Method 100 as approved by the federal Environmental Protection Agency in May 1995, or

(2) South Coast Air Quality Management District Test Method 100.1 as approved by the federal Environmental Protection Agency in March 1989.

(i) **EMISSION TEST REQUIREMENTS**

Emission tests shall be performed in accordance with the procedures and methods outlined in the South Coast Air Quality Management District Protocol: Nitrogen Oxides Emissions Compliance Testing for Natural Gas-Fired Water Heaters and Small Boilers as it exists on June 17, 1998.