

FEATHER RIVER AIR QUALITY MANAGEMENT DISTRICT
MEMORANDUM
10/03/16

TO: FRAQMD BOARD OF DIRECTORS

FROM: Christopher D. Brown AICP, APCO

SUBJECT: Approve Resolution #2016-05 adopting Regulation III, Rule 3.23 – Natural Gas-Fired Water Heaters, Small Boilers, and Process Heaters and authorize the Chairman to execute related documents.

RECOMMENDATION

Approve Resolution #2016-05 which adopts Regulation III, Rule 3.23 – Natural Gas-Fired Water Heaters, Small Boilers, and Process Heaters.

ALTERNATIVES

Not adopt the proposed rule, which would result in sanctions on the region and FRAQMD and provide direction to staff.

BACKGROUND

The south Sutter County portion of the District has been designated as a severe nonattainment for the 1997 federal 8-hour ground-level ozone ambient air quality standard¹. The United States Environmental Protection Agency (US EPA) requires the District to implement measures to reduce ozone precursors. The District, along with the nonattainment districts in the Sacramento Region, has committed to implement control measures and reduce emissions in the Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan², a part of the State Implementation Plan (SIP). The SIP is federally enforceable through the US EPA and the Federal Clean Air Act (CAA).

Under the provisions of the California Clean Air Act (CCAA) of 1988, Yuba County and the northern portion of Sutter County have been designated as “nonattainment-transitional” for failing to meet the state ozone standard. The southern portion of Sutter County is designated as “severe” nonattainment for failing to meet the state ozone standard. The District must adopt all feasible measures to attain the state ozone standard as expeditiously as practicable.

Reducing oxides of nitrogen (NO_x) emissions is part of the District’s strategy for reducing ozone formation as NO_x reductions are necessary to attain and maintain the federal and state ambient air quality standards for ozone. NO_x is a precursor to ozone formation. The

¹ 69 FR 84 (April 30, 2004)

² [http://airquality.org/ProgramCoordination/Documents/4\)%202013%20SIP%20Revision%20Report%201997%20Std.pdf](http://airquality.org/ProgramCoordination/Documents/4)%202013%20SIP%20Revision%20Report%201997%20Std.pdf)

District is proposing a new Rule that would establish NOx emission limits for natural gas-fired water heaters, small boilers, and process heaters in the range of 75,000 Btu/hr to less than 1,000,000 Btu/hr which are currently unregulated by the District. These units are typically used to provide hot water and/or steam for large residences, communal buildings, small commercial operations, small industrial operations, and other similar sized buildings with the need for hot water and/or steam. By establishing emission limitations on units that are newly sold or installed, the District aims at reducing the total NOx emissions generated by natural gas combustion within Yuba and Sutter counties. Water heaters, boilers, and process heaters over 1 million Btu/hr but less than 5 million Btu/hr are regulated under District Rule 3.21, adopted in 2006.

DISCUSSION

The proposed Rule 3.23 establishes NOx emission limits for water heaters, boilers, and process heaters ranging in size from 75,000 Btu/hr to less than 1 million Btu/hr. The emission limits are enforced at time of sale, which means that manufacturers, distributors, retailers, and installers are prohibited from selling, distributing, or installing units that are not compliant with the rule. There is no requirement to retrofit or change-out existing units.

New emission limits apply to the following units:

- Natural Gas-Fired Boiler/Process Heater = 75,000 – 999,999 Btu/hr
- Natural Gas-Fired Water Heater = 75,000 – 999,999 Btu/hr
- Natural Gas-Fired Mobile Home Water Heater = 75,000 – 999,999 Btu/hr
- Natural Gas-Fired Pool/Spa Heater = 400,000 – 999,999 Btu/hr

The proposed limits are:

Category	NOx Emission Limit
Boiler, Process Heater, Water Heater, or Pool/Spa Heater	14 ng/J or 20 ppm NOx @ 3% O2 dry
Mobile Home Water Heater	40 ng/J or 20 pmm NOx @ 3% O2 dry

On July 20, 2016, the District staff submitted a draft of the rule to the US EPA as well as the California Air Resources Board (ARB) for cross-agency review and comment. ARB did not provide any comments regarding the rule. The US EPA suggested that the District make two changes prior to pursuing adoption. The first was to expand the applicability of the proposed rule to include units rated at more than 1,000,000 Btu/hr. District staff considered the suggestion but decided to stick to the current scope of 75,000 Btu/hr to less than 1,000,000 Btu/hr which was committed to in the 2009 Sacramento Regional 8-Hour Ozone Attainment and Reasonable Progress Plan. The second comment made by the EPA suggested that the District require manufacturers to provide emission certifications at least 30 days prior to offering for sale, selling, or installing an affected unit to maintain consistency with similar rules from neighboring air districts which have already been accepted into the State Implementation Plan (SIP). The second suggestion was incorporated into the proposed Rule.

The District conducted a public workshop on August 18, 2016, where members of the public and industry were given an opportunity to review the draft rule and provide comments and feedback regarding the rule requirements. The comments and responses can be found in Appendix D.

A public notice was published in the September 3, 2016, edition of the Appeal-Democrat, which invited members of the public and industry to attend the public hearing for the adoption of Rule 3.23 as well as submit written comments on the proposed rule until September 21, 2016. There were no additional written comments received by the deadline.

FISCAL IMPACT

There is no fiscal impact to the District in adopting this rule.

ATTACHMENTS

- Attachment A: Resolution #2016-05
- Attachment B: Staff Report for Rule 3.23
- Attachment C: Public Comments and Responses
- Attachment D: Proof of Publication

ATTACHMENT A
Resolution #2016-05

**RESOLUTION #2016-05 OF THE BOARD OF DIRECTORS AUTHORIZING THE
ADOPTION OF REGULATION III, RULE 3.23 – NATURAL GAS-FIRED WATER
HEATERS, SMALL BOILERS, AND PROCESS HEATERS**

WHEREAS, California Health and Safety Code sections 40000, 40001, 40702, 40716 and 40910 authorize the Feather River Air Quality Management District to adopt this proposed rule and regulation; and

WHEREAS, these proceedings were held in a public hearing and were properly noticed pursuant to Health and Safety Code section 40725; with any evidence having been received concerning the proposed adoption of this Resolution and this Board having duly considered such evidence; and

WHEREAS, District staff has prepared a written analysis of the proposed rules, pursuant to Health and Safety Code section 40727.2, and has maintained a record of the rulemaking proceeding pursuant to Health and Safety Code section 40728 at the District office located at 541 Washington Avenue, Yuba City, CA; and

WHEREAS, there is no indication at this time that the proposed rules are written in such a manner that the persons affected by it could not easily understand it; and

WHEREAS, the proposed rules are in harmony with, and not in conflict with or contradictory to, existing statutes, court decisions, or state or federal regulations and any duplication with existing state or federal regulations is necessary or proper to execute the powers and duties of the Feather River Air Quality Management District; and

WHEREAS, the proposed rule is categorically exempt from the California Environmental Quality Act (CEQA) pursuant to Title 14, California Administrative Code, section 15308, as an action by a regulatory agency for the protection of the environment; and

WHEREAS, the District Board has made the required findings pursuant to Health and Safety Code section 40727, of authority, necessity, clarity, consistency, non-duplication, and reference in regard to the proposed rule;

NOW, THEREFORE, BE IT RESOLVED by the Board of Directors of the FEATHER RIVER AIR QUALITY MANAGEMENT DISTRICT that effective October 3, 2016, the Board approves and adopts Regulation III, Rule 3.23 – Natural Gas-Fired Water Heaters, Small Boilers, and Process Heaters to read in their entirety as set forth in Exhibit A of this resolution, attached hereto and made part hereof; and

BE IT FURTHER RESOLVED that the Air Pollution Control Officer is authorized to make non-substantial changes to the rules in consultation with District Counsel so long as the changes are consistent with the District's mission and goals; and

BE IT FURTHER RESOLVED the adoption of Regulation III, Rule 3.23 is exempt from

CEQA; and

BE IT FURTHER RESOLVED by the Board of Directors of the FEATHER RIVER AIR QUALITY MANAGEMENT DISTRICT that effective October 3, 2016, the Board instructs the District staff to submit Regulation III, Rule 3.23 – Natural Gas-Fired Water Heaters, Small Boilers, and Process Heaters and all necessary supporting documents to the California Air Resources Board for its approval and subsequent submittal to the United States Environmental Protection Agency for final approval as a revision to the State Implementation Plan to satisfy the requirements of Clean Air Act section 172(c)(1).

PASSED AND ADOPTED by the Feather River Air Quality Management District at a meeting on October 3, 2016, by the following vote:

AYES:

NOES:

ABSENT:

ABSTAIN:

Chairman

ATTEST:

APPROVED FOR LEGAL FORM:

Exhibit A

**District Regulation III, Rule 3.23 – Natural Gas-Fired Water Heaters, Small Boilers,
and Process Heaters**

**RULE 3.23 - NATURAL GAS-FIRED WATER HEATERS, SMALL BOILERS, AND
PROCESS HEATERS**

(Adopted xx/xx/xxxx)

A. PURPOSE

The purpose of this rule is to limit the emissions of oxides of nitrogen (NOx) from the use of natural gas-fired water heaters, small boilers, and process heaters.

B. APPLICABILITY

1. The provisions of this rule shall apply to any person in the Feather River Air Quality Management District that offers for sale, sells, or installs any of the following:
 - a. Natural gas-fired boilers, steam generators, process heaters, or water heaters with a rated heat input capacity of greater than or equal to 75,000 British Thermal Units per hour (Btu/hr) and less than 1 million Btu/hr;
 - b. Natural gas-fired pool/spa heaters with a rated heat input capacity of greater than 400,000 Btu/hr and less than 1 million Btu/hr.

C. SEVERABILITY

1. If any section, subsection, sentence, clause, phrase or portion of this rule is, for any reason, held invalid, unconstitutional, or unenforceable by any court of competent jurisdiction, that portion shall be deemed as a separate, distinct and independent provision, and the holding shall not affect the validity of the remaining portions of the rule.

D. EXEMPTIONS

1. The provisions of this rule shall not apply to the following:
 - a. Water heaters, boilers and process heaters using any fuel other than natural gas;
 - b. Water heaters, boilers and process heaters used in recreational vehicles.

E. DEFINITIONS

1. **Boiler or Steam Generator**: An individual piece of combustion equipment fired with any fuel with the primary purpose of producing hot water or steam. Boiler or steam generator does not include any unit that is used exclusively to produce electricity for sale, any waste heat recovery boiler that is used to recover sensible heat from exhaust of combustion or a combustion turbine, nor does it include equipment associated with a chemical recovery cycle.
2. **British Thermal Unit (Btu)**: The amount of heat required to raise the temperature of one pound of water from 59°F to 60°F at one atmosphere.
3. **Gaseous Fuel**: Any fuel which is a gas at standard conditions.
4. **Heat Input**: The heat of combustion released by fuels burned in a unit based on the higher heating value of the fuel. This does not include the enthalpy of incoming combustion air.
5. **Heat Output**: The product obtained by multiplying the recovery efficiency, as defined by Section 6.1.3 of the Code of Federal Regulation, Title 10, Part 430, Subpart B, Appendix E, by the rated heat input capacity of the unit.
6. **Higher Heating Value (HHV)**: The total heat liberated per mass of fuel burned (BTU per pound), when fuel and dry air at standard conditions undergo complete combustion and all resultant products are brought to their standard states at standard conditions.
7. **Mobile Home Water Heater**: A natural gas-fired water heater manufactured exclusively for use in a mobile home.
8. **Nanogram Per Joule (ng/J)**: A standard unit of measure equal to one billionth of a gram per one joule of heat output.
9. **Natural Gas**: A mixture of gaseous hydrocarbons, provided by a regulated public utility, containing at least 80 percent methane by volume as determined according to ASTM Test Method D1945-03.

10. **NOx Emissions**: The sum of nitrogen oxide (NO) and nitrogen dioxide (NO₂) in the flue gas.
11. **Parts Per Million by Volume (ppmv)**: The ratio of the number of gas molecules of a given species, or group of species, to the number of millions of total gas molecules.
12. **Pool/Spa Heater**: A device in which water is heated when pool or spa water circulates through a heat exchanger.
13. **Process Heater**: Any combustion equipment fired with any fuel, and which transfers heat from combustion gases to heat water or process streams. This definition does not include any dryers in which the material being dried is in direct contact with the products of combustion, cement or lime kilns, glass melting furnaces, and smelters.
14. **Rated Heat Input Capacity**: The heat input capacity, in million Btu per hour (MMBtu/hr), specified on the nameplate of the combustion unit. If the combustion unit has been altered or modified such that its maximum heat input is different than the heat input capacity specified on the nameplate, the maximum heat input shall be considered as the rated heat input.
15. **Recreational Vehicle**: Any vehicle used for recreational purposes and designed to include a natural gas-fired water heater and is required to be licensed to be driven or moved on the highways of California.
16. **Standard Conditions**: As used in these Regulations, refers to a gas temperature of sixty (60) degrees Fahrenheit and a gas pressure of fourteen and seven-tenths (14.7) pounds per square inch absolute.
17. **Unit**: Any boiler, steam generator, pool/spa heater, process heater, or water heater as defined in this Rule.
18. **Water Heater**: A vessel in which water is heated and is withdrawn for use external to the vessel, including the apparatus by which heat is generated and all controls and devices necessary to prevent water temperatures from exceeding 210°F (99°C).

F. REQUIREMENTS

1. NOx EMISSION LIMITS: Effective 1/1/2017, no person shall offer for sale, sell, or install any natural gas-fired unit subject to this rule with NOx emissions in excess of the following limits:
 - a. Mobile Home Water Heaters - 40 ng/J or 55 ppmv corrected to 3 percent oxygen.
 - b. All Other Units Subject to This Rule - 14 ng/J or 20 ppmv corrected to 3 percent oxygen.

2. COMPLIANCE REPORT: A reseller or manufacturer shall submit to the Air Pollution Control Officer a Compliance Report that demonstrates compliance with Section F.1 of this Rule for each unit model subject to the provisions of this Rule. The Compliance Report shall be submitted to the District at least 30 days before the unit is offered for sale, sold, or installed within the District. The Compliance Report shall contain the following information:
 - a. General Information:
 1. Name and address of the manufacturer;
 2. Brand name and model;
 3. Model number (as it appears on the rating plate);
 4. Unit description; and
 5. Rated Heat Input Capacity as defined by Section E.14.
 - b. Test Report:
 1. All compliance test procedures and results for each unit model; and
 2. All calculations for determining compliance of each unit model.
 - c. Compliance Statement: A signed and dated statement attesting to the accuracy of all statements and information in the Compliance Report.

3. CERTIFICATION: In lieu of submitting a Compliance Report in Section F.2, a reseller or manufacturer may submit to the District an approved South Coast Air Quality Management District (SCAQMD) certification pursuant to SCAQMD Rules 1121 or 1146.2. This certification shall be submitted to the District at

least 30 days before the unit is offered for sale, sold, or installed within the District.

4. UNIT LABELING: The reseller or manufacturer shall display the model number of the unit complying with the requirements specified in Section F.1 of this Rule on the unit shipping carton and rating plate.

G. TEST METHODS AND PROCEDURES

1. TEST METHODS: The manufacturer shall have each water heater, boiler, or process heater subject to Section F.1 of this Rule tested in accordance with one of the following:
 - a. South Coast Air Quality Management District Protocol: "Nitrogen Oxides Emission Compliance testing for Natural Gas-Fired Water Heaters and Small Boilers."
 - b. South Coast Air Quality Management District Test Method 100.1.
 - c. EPA Reference Test Method 7E (40 CFR 60, Appendix A).
 - d. A manufacturer that has certified a water heater model to demonstrate compliance with a State or local agency rule that meets the requirements of this Rule may submit the test results to the District in lieu of conducting duplicative testing.

H. RECORDKEEPING AND REPORTING REQUIREMENTS

1. RECORDKEEPING: A manufacturer shall keep certification reports, test reports, and certification statements demonstrating compliance with Section F.1 of this Rule for as long as the water heater, boiler or process heater model is offered for sale, sold, or installed within the District, or five years, whichever is longer. These records shall be made available to the Air Pollution Control Officer upon request.

ATTACHMENT B
Staff Report for Rule 3.23

STAFF REPORT

Rule 3.23 – Natural Gas-Fired Water Heaters, Small Boilers, and Process Heaters

Schedule of Meetings

Public Hearing: October 3, 2016

Feather River AQMD
541 Washington Avenue,
Yuba City, California 95991

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1.0 Executive Summary:

On October 3, 2016, the Feather River Air Quality Management District (District) Board of Directors will consider the adoption of Rule 3.23 – Natural Gas-Fired Water Heaters, Small Boilers, and Process Heaters.

The District is proposing to adopt the rule to fulfill a previous commitment made in the State Implementation Plan (SIP) with the purpose of reducing the emissions of ozone precursors. The intent of the proposed Rule 3.23 is to reduce nitrogen oxides (NOx) emissions from natural gas-fired water heaters, small boilers, and process heaters. The District is proposing the rule to establish NOx emission limits to affected units that have a heat input capacity of less than 1 million Btu/hr to greater than or equal to 75,000 Btu/hr. The proposed emission limits are equal to or similar to those adopted by neighboring air districts within the Sacramento Federal Ozone Nonattainment Area and in other parts of California.

The emission limits proposed for the affected units are in **Table 1** below:

Table 1: Rule 3.23 Proposed Emission Limits

Category	Heat Input Capacity	NOx Emission Limit (as of 1/1/2017)
Boiler / Water Heater	75,000 - <1,000,000	14 ng/J or 20 ppm NOx @ 3% O ₂ Dry
Process Heater	75,000 - <1,000,000	14 ng/J or 20 ppm NOx @ 3% O ₂ Dry
Pool / Spa Heater	>400,000 - <1,000,000	14 ng/J or 20 ppm NOx @ 3% O ₂ Dry
Mobile Home Water Heater	75,000 - <1,000,000	40 ng/J or 55 ppm NOx @ 3% O ₂ Dry

Currently the District does not require an Authority to Construct or Permit to Operate for installations of natural gas fired water heaters with a heat input capacity of less than 1 million Btu/hr. Due to the fact that units affected by this rule do not require permitting when considered independently, enforcement of this proposed rule will be done as a “point of sale” regulation with requirements on manufacturers, retailers, and installers. See Section 4.0 – Proposed Rule Requirements for additional information.

Many manufacturers, retailers and installers already comply with the emissions limits in the proposed rule because of existing regulations elsewhere in California.

The proposed rule will neither have a significant nor detrimental effect on the environment. Therefore, District staff has prepared a Notice of Exemption to satisfy the requirements of the California Environmental Quality Act (CEQA). The notice states that the adoption of the rule is exempt from the requirements of CEQA pursuant to Section 15308, *Actions by Regulatory Agencies for Protection of the Environment*.

2.0 Background:

Feather River Air Quality Management District is a Bi-County agency that administers local, state, and federal air quality management programs for Yuba and Sutter counties. Reducing nitrogen oxides emissions is part of the District's strategy for reducing ozone formation as NO_x reductions are necessary to attain and maintain the federal and state ambient air quality standards for ozone.

Ground level ozone is a secondary pollutant formed from photochemical reactions of NO_x and volatile organic compounds (VOCs) in the presence of sunlight. As an air pollutant, ozone has proven to have detrimental health effects on humans as well as cause damage to crops. Decreased lung function, development of asthma, and increased risk of cardiovascular problems are all adverse health effects correlated to ozone exposure in humans.

Because portions of the District have been designated as nonattainment for failure to meet the federal 8-hour ground-level ozone standard, the United States Environmental Protection Agency (US EPA) requires the District to implement measures to reduce ozone precursors. The District has committed to implement control measures and reduce pollution through the State Implementation Plan (SIP). The SIP is federally enforceable through the US EPA and the Federal Clean Air Act (CAA).

Under the provisions of the California Clean Air Act (CCAA) of 1988, Yuba County and the northern portion of Sutter County have been designated as "nonattainment-transitional" for failing to meet the state ozone standard. The southern portion of Sutter County is designated as "severe" nonattainment for failing to meet the state ozone standard. The District must adopt all feasible measures to attain the state ozone standard as expeditiously as practicable.

The combustion of natural gas from stationary sources is a significant source of NO_x emissions in the Sacramento Federal Ozone Nonattainment Area. Currently, the District has two rules in place that limit NO_x emissions from stationary equipment using natural gas as a fuel source. District Rule 3.21 regulates large boilers, steam generators, and process heaters with a heat input rating greater than 1 million Btu/hr. District Rule 3.22 limits the NO_x emissions from stationary internal combustion engines rated at 50 horsepower or higher.

Natural gas-fired water heaters, small boilers, and process heaters in the range of 75,000 Btu/hr to less than 1 million Btu/hr are currently unregulated by the District. These units are typically used to provide hot water and/or steam for large residences, communal buildings, small commercial operations, small industrial operations, and other similar sized buildings with the need for hot water and/or steam. By establishing emission limitations on units that are newly sold or installed, the District aims at reducing the total NO_x emissions generated by natural gas combustion within Yuba and Sutter counties.

3.0 Legal Mandates:

The US EPA and Air Resources Board (ARB) have adopted ambient air quality standards to determine outdoor pollutant levels considered safe for the public. The standards are health-based and designed to provide protection for the most sensitive groups. Areas that do not meet the standards are required to adopt control measures to limit emissions of certain pollutants.

Federal Mandate

The Clean Air Act (CAA) requires air districts not attaining the ozone standards to prepare a plan describing how the National Ambient Air Quality Standard (NAAQS) will be met¹. The southern portion of Sutter County is part of the Sacramento Federal Nonattainment Area (SFNA) for ozone. The SFNA was designated as severe nonattainment for the 1997 8-hour Ozone NAAQS and the 2008 8-hour Ozone NAAQS. The District committed as part of the 2009 Sacramento Regional 8-Hour Ozone Attainment and Reasonable Further Progress Plan² (2009 Ozone Plan) to reduce NOx from natural gas-fired water heaters, small boilers, and process heaters.

State Mandate

The California Clean Air Act (CCAA) requires areas designated as nonattainment for ozone to develop a plan to achieve California's ambient air quality standard by the earliest practical date by adopting cost-effective control measures³. The SFNA portion of Sutter County is designated as "severe" nonattainment for the state ozone standard. CH&S Code §40920 requires the District to adopt a control measure that will use Best Available Retrofit Control Technology (BARCT) for all existing stationary sources in this area. BARCT, as defined in the CH&S, is as "an emission limitation that is based on the maximum degree of reduction achievable, taking into account environmental, energy and economical impacts by each class or category of source."

Yuba County and the northern area of Sutter County are designated as "nonattainment-transitional" for the state ozone standard. CH&S Code §40925.5 requires the District to adopt a control measure that will use RACT for all existing stationary sources in these areas.

California Health and Safety Code section 40914 requires the District's plan to demonstrate that it includes "every feasible measure" to control emissions. All feasible control measures are those which have the most effective regulatory emissions standards demonstrated in California's air districts. The District's 2015 Triennial Air Quality Attainment Plan⁴ was adopted by the Board of Directors on December 7, 2015. This Plan includes the District's commitments for adopting feasible control measures. The District committed to adopting the Control Measure in 2016.

¹ <http://www.arb.ca.gov/fcaa/fcaa.htm>

² <http://airquality.org/plans/federal/ozone/8hr1997/index.shtml>

³ California Health and Safety Code section 40913

⁴ <http://www.fraqmd.org/AQPlans.html>

4.0 Proposed Rule Requirements:

The District is proposing Rule 3.23 which will reduce the NOx emissions from the use of natural gas-fired water heaters, small boilers, and process heaters.

The proposed rule will prohibit the sale or installation of any natural gas-fired unit subject to the rule with NOx emissions in excess 14 ng/J (20 ppmv corrected to 3 percent oxygen). The exception to this limit is for mobile home water heaters subject to the rule which will be limited to 40 ng/J (55 ppmv corrected to 3 percent oxygen). The limits established by the proposed rule will take effect on January 1, 2017.

To demonstrate compliance with the NOx emission limits, the reseller or manufacturer of any units subject to the rule will be required to submit to the District's Air Pollution Control Officer (APCO) a report that demonstrates compliance with the emission limits established by the rule. The rule will require that the compliance report be submitted to the APCO at least 30 days prior to the sale or installation of the unit. The compliance report will be required to have the following information:

- General Information:
 - o Name and address of the manufacturer;
 - o Brand name and model/ model number;
 - o Unit description; and
 - o Rated heat input capacity

- Test Report:
 - o All compliance test procedures and results for each unit model; and
 - o All calculations for determining compliance of each unit model.

- Compliance Statement:
 - o A signed and dated statement attesting to the accuracy of all information in the compliance report.

In place of submitting a compliance report with the requirements listed above, the reseller or manufacturer of any unit subject to the rule will have the option to submit to the District a South Coast Air Quality Management District (SCAQMD) certification pursuant to SCAQMD Rules 1121 or 1146.2. Similar to the compliance report, the rule will require that the certification be submitted to the APCO at least 30 days prior to sale or installation of the unit.

Regardless of whether the compliance report or the SCAQMD certification is submitted to the District, each unit will be required to display the model number of the unit complying with the requirements specified in the rule on the shipping carton and rating plate. Additionally, the manufacturer will be required to keep certification reports, test reports, and certification statements demonstrating compliance with the rule for as long as the unit is offered for sale, sold, or installed within the District, or five years, whichever is longer. The rule will require that all records be made available to the APCO upon request.

5.0 Socioeconomic Impact:

California Health and Safety Code §40728.5 requires, in part, that:

“Whenever a district intends to propose the adoption, amendment or repeal of a rule or regulation that will significantly affect air quality or emissions limitations, that agency shall, to the extent that data are available, perform an assessment of the socioeconomic impacts of the adoption, amendment, or repeal of the rule or regulation.”

However, districts with a population of less than 500,000 persons are exempt from the provisions of CH&S §40728.5 (a). The District’s population is estimated to be approximately 170,000, which is well below the 500,000 person threshold. Therefore, a socioeconomic analysis for this rulemaking is not required.

6.0 Estimated Emissions Impact:

The District staff used the ARB CEPAM⁵ emissions inventory to estimate NOx emissions information for units subject to the proposed rule. The inventory for NOx generated by natural gas combustion in the service and commercial industries as well as the residential sector is presented below in **Table 2** for the current year (2016) as well as for every five years starting from 2017 through 2036. Projected emissions data was only available from ARB through 2035; however, District staff linearly extrapolated the data through 2036 in order to approximate a complete reduction estimate.

Table 2: FRAQMD’s NOx Emission Inventory for Natural Gas-Fired Water Heaters, Small Boilers, and Process Heaters

EIC Code	EIC Description	NOx Emission Inventory (tpd)					
		2016	2017	2021	2026	2031	2036
060-005-0110-0000	Service and Commercial	0.0059	0.0059	0.0062	0.0063	0.0065	0.0067
610-608-0110-0000	Residential Fuel Combustion	0.0991	0.0989	0.1008	0.1026	0.1053	0.1068
TOTAL		0.1050	0.1048	0.1070	0.1089	0.1119	0.1135

During the development of Rule 1121 and 1146.2, the South Coast Air Quality Management District conducted surveys of water heaters and small boilers within the South Coast Air Basin and documented the results in their staff reports. In the absence of county specific data, District staff used the data gathered in SCAQMD surveys to break down the emission inventory into the less than 75,000 Btu/hr, 75,000 Btu/hr to less than 400,000 Btu/hr, and 400,000 Btu/hr to less than 1,000,000 Btu/hr ranges.

⁵ <https://www.arb.ca.gov/app/emsinv/fcemssumcat2009.php>

Once the affected units were categorized, the emissions from each category group were calculated based off of the emission factors and unit capacity factors for each category. The capacity factors were determined by calculating the ratio of fuel actually burned to the rated heat input capacity. The capacity factors and emission factors used in the calculations were obtained from the above-mentioned SCAQMD staff reports.

District staff estimated the useful lives of the units between 75,000 Btu/hr and less than 400,000 Btu/hr to be 15 years and the units greater than 400,000 Btu/hr to less than 1,000,000 Btu/hr to be 20 years. Based on the estimated lifespans, District staff assumed a unit replacement rate of 6.67% and 5% per year, respectively, beginning in 2017. It was assumed that the emissions of mobile home water heaters greater than 75,000 Btu/hr are negligible due to the fact that mobile home water heaters are typically much smaller than 75,000 Btu/hr. **Table 3** below summarizes the various factors and assumptions used to calculate the reductions from Rule 3.23.

Table 3: Emission Factors and Emission Distribution Data by Unit Size for Natural Gas Fired Water Heaters, Small Boilers, and Process Heaters

Unit Size (Btu/hr)	% of Emissions	Capacity Factor ^a	Uncontrolled Emission Factor lbs/MMBtu (ppm @ 3% O ₂)	Useful Lifetime (years)
<75,000 (EXEMPT)	56.3	0.061	0.067 (55)	N/A
75,000 to <400,000	25.3	0.215	0.140 (115)	15
400,000 to <1,000,000	18.4	0.215	0.174 (143)	20

^a Capacity Factors are used to determine the % of emissions for each size category (See appendix B of SMAQMD's Rule 414 Staff Report)

Using the ARB emissions inventory information from **Table 2** in conjunction with the emission factors and emission distribution data from **Table 3**, District staff calculated the potential emission reductions from Rule 3.23 beginning in the implementation year, 2017, through 2036 which is the projected year that 100% of the affected units will be replaced with Rule compliant units. **Table 4** below summarizes the NOx emission reductions in five year increments.

Table 4: Estimated NOx Emission Reductions by Unit Size Ranges

Unit Size (Btu/hr)	NOx Emission Reductions (tpd)				
	2017	2021	2026	2031	2036
<75,000 (EXEMPT) ^c	0.0000	0.0000	0.0000	0.0000	0.0000
75,000 to <400,000	0.0015	0.0075	0.0152	0.0234	0.0237
400,000 to <1,000,000	0.0023	0.0042	0.0086	0.0133	0.0180
TOTAL	0.0023	0.0117	0.0238	0.0367	0.0417

^c Units less than 75,000 Btu/hr are not subject to Rule 3.23; therefore no reductions are calculated

7.0 Estimated Cost Impact:

CH&SC §40703 requires the District, in the process of the adoption of any rule or regulation, to consider and make public its findings related to the cost effectiveness of the rule. Cost effectiveness for rulemaking purposes is calculated by dividing the cost of air pollution controls required by the rule by the amount of air pollution reduced.

District staff compiled a cost estimate for natural gas-fired units subject to Rule 3.23 in the size range of 75,000 Btu/hr to less than 400,000 Btu/hr (see Appendix A). Cost data for units in the size range of 400,000 Btu/hr to less than 1,000,000 Btu/hr was not readily available for retailers in the Feather River Air Quality Management District; therefore, District staff used cost estimate data from Sacramento Metropolitan Air Quality Management District's Rule 414 Staff Report for units in that size range. It is assumed that the cost data used from SMAQMD's Rule 414 Staff Report is cost conservative due to the fact that production and availability of units capable of meeting the "Ultra Low NOx" capabilities has substantially increased since January of 2010 when SMAQMD's Rule 414 Staff Report was published. Table 5 below summarizes the additional costs of Rule 3.23 compliant units.

Table 5: Additional Costs of a Rule 3.23 Compliant Unit

Unit Size (Btu/hr)	Average Additional Cost
75,000 to <400,000	\$984
400,000 to <1,000,000 ^d	\$7,359 ^d

^d Cost data for this size range is from SMAQMD's Rule 414 Staff Report (January 2010) and has not been adjusted for inflation or other economic factors.

The cost effectiveness was calculated by dividing the annualized additional cost of the new units purchased by the annual emission reduction achieved by those units. For the calculation, a Capital Recovery Factor (CRF) of 0.078 was used for the units with a 15 year lifespan and a CRF of 0.061 was used for the units with a 20 year lifespan. These CRFs correspond to 2.00% interest rate (i) with a period (n) in years as shown below in Equation 1.

$$\text{Equation 1} \quad - \quad CRF = \frac{i(1+i)^n}{(1+i)^n - 1}$$

In order to estimate the annual NOx reductions per unit, a midpoint unit size was selected for each size category. For units greater than or equal to 75,000 Btu/hr and less than 400,000 Btu/hr, a midpoint size of 240,000 Btu/hr was selected. For units greater than or equal to 400,000 Btu/hr and less than 1,000,000 Btu/hr, a midpoint size of 700,000 Btu/hr was selected. Using the midpoint size for each category, the NOx inventory, emission factor, and the capacity factor, District staff estimated the annual emission reductions per unit. The overall cost effectiveness of the proposed rule is

\$1.82 per pound of NO_x reduced and the total cost per year of replacing the affected units is estimated to be \$2,499.

8.0 Environmental Review and Compliance:

The proposed rule 3.23 – Natural Gas-Fired Water Heaters, Small Boilers, and Process Heaters is categorically exempt from the California Environmental Quality Act (CEQA) under Sections 15307 and 15308 of the State CEQA Guidelines and no exceptions to these exemptions apply. This exemption is allowed when the proposed rule will help improve air quality in Yuba and Sutter counties. California Public Resources Code (Section 21159) requires an environmental analysis of the reasonably foreseeable methods of compliance. The District has determined that the adoption of Rule 3.23 will not have significant effect on the environment. In addition, the proposed Rule 3.23 is considered an affirmative action to protect the environment. Therefore, staff has determined that the project is categorically exempt from the requirements of the CEQA pursuant to Section 15308, Actions by Regulatory Agencies for Protection of the Environment.

9.0 Required Findings:

The California Health and Safety Code, Division 26, Air Resources, requires local Districts to comply with a rule adoption protocol as set forth in Section 40727 of the Code. This section has been revised through legislative mandate to contain 6 findings that the District must make when developing, amending, or repealing a rule. These findings and their definitions are listed in the following table.

FINDING	DEFINITION	REFERENCE
Authority	A district shall adopt rules and regulations and do such acts as may be necessary or proper to execute the powers and duties granted to, and imposed upon, the district by this division and other statutory provisions.	California Health and Safety Code, Sections 40000, 40001, and 40702 are provisions of law that provide air districts with the authority to adopt these proposed rules.
Necessity	The District has demonstrated that a need for the rule, or for rule amendment or repeal.	It is necessary for the District to adopt this rule to achieve emission reductions to attain ambient air quality standards.
Clarity	The rule is written or displayed so that its meaning can easily be understood by the persons directly affected by it.	There is no indication, at this time, that the proposed rule is written in such a manner that it cannot be easily understood by persons affected by the rule.
Consistency	This rule is in harmony with, and not in conflict with or contradictory to, existing statutes, court decisions, or State or federal regulations.	The rule is not in conflict with existing statutes, court decisions, or State or Federal regulations.
Non-Duplication	The rule does not impose the same requirements as an existing State or federal regulation, unless the District finds that the requirements are necessary and proper to execute the powers and duties granted to, and imposed upon, the district.	The proposed rule does not impose requirements that duplicate existing laws or regulations.
Reference	Any statute, court decision, or other provision of law that the district implements, interprets, or makes specific by adopting, amending, or repealing a regulation.	In adopting the proposed rule, the District is implementing the requirements of Clean Air Act section 172(c)(1), and California Health and Safety Code sections 40914(b)(2) and 40918(a)(2).

10.0 Rule Analysis

Section 40727.2 requires a written analysis comparing the proposed rules with existing federal regulations, state regulation, and any other AQMD existing or proposed rules and regulations that apply to the same source type. The analysis compared the following air pollution control requirements as directed by 40727.2(d): Averaging provisions, units, and other pertinent provisions associated with emission limits; Operating parameters and work practice requirements; and monitoring, reporting, and recordkeeping requirements, including test methods, format, content and frequency.

Comparison of Proposed Rule 3.23 and Feather River AQMD Rules and Regulations

District Rules and Regulations	Does proposed rule conflict or contradict any provisions?
Regulation 1 – General Provisions	No
Regulation 2 – Open Burning	No
Regulation 3 – Prohibition – Stationary Emission Sources	No
Regulation 4 – Stationary Emission Sources Permit System and Registration	No
Regulation 5 – Hearing Board Procedures	No
Regulation 6 – Variances	No
Regulation 7 – Fees	No
Regulation 8 – Penalties and Abatement	No
Regulation 9 – Enforcement Procedures	No
Regulation 10 – New Source Review	No
Regulation 11 – Air Toxic Control Measure	No

Comparison of Proposed Rules and other Federal and State Regulations

There are no existing federal or state regulations regarding the limitations of NO_x emissions from natural gas-fired water heaters, small boilers, and process heaters with a heat input capacity of less than 1 million Btu/hr to greater than or equal to 75,000 Btu/hr that would be in conflict with or are contradictory to the proposed rule.

References

1. CEPAM: 2009 Almanac – Standard Emission Tool, www.arb.ca.gov/app/emsinv/fcemssumcat2009.php
2. Feather River Air Quality Management District Rule 3.21 (Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters) – Adopted 06/05/2006
3. Feather River Air Quality Management District Rule 3.22 (Stationary Internal Combustion Engines) – Last Amended 10/06/2014
4. Sacramento Metropolitan Air Quality Management District Rule 414 (Natural Gas-Fired Water Heaters) – Adopted August 1, 1996.
5. Sacramento Metropolitan Air Quality Management District – *Staff Report for Proposed Amended Rule 414 (Natural Gas-Fired Water Heaters)*, January 15, 2010.
6. South Coast Air Quality Management District Rule 1121 (Control of Nitrogen Oxides from Residential Type Natural Gas-Fired Water Heaters) – Amended September 3, 2004.
7. South Coast Air Quality Management District – *Staff Report for Proposed Amended Rule 1121 (Control of Nitrogen Oxides from Residential Type Natural Gas-Fired Water Heaters)*, November 1999.
8. South Coast Air Quality Management District Rule 1146.2 (Emissions of Oxides of Nitrogen from Large Water Heaters and Small Boilers and Process Heaters) – Amended May 5, 2006.
9. South Coast Air Quality Management District – *Staff Report for Proposed Amended Rule 1146.2 (Emissions of Oxides of Nitrogen from Large Water Heaters and Small Boilers and Process Heaters)*, April 2006.
10. U.S. EPA, Compilation of Air Pollutant Emission Factors, Volume I Stationary Point and Area Sources, AP-42
11. The Home Depot, www.homedepot.com, September 2016
12. Lowe's Home Improvement, www.lowes.com, September 2016
13. Sears, www.sears.com, September 2016

APPENDIX A

EMISSION INVENTORY AND REDUCTION CALCULATIONS

As mentioned in the Rule 3.23 Staff Report, SCAQMD conducted surveys of water heaters and small boilers within the South Coast air basin, and documented those survey results in their staff reports for Rules 1121 and 1146.2. The following data was also used by SMAQMD when developing Rule 414 which required similar emission inventory and reduction calculations. It is assumed that the results of these surveys are expected to be applicable to Yuba and Sutter counties, as they were for Sacramento County, since the demand for hot water is not very sensitive to ambient temperatures. The following information was obtained from the SCAQMD staff reports regarding natural gas-fired water heaters, small boilers, and process heaters:

- 98.7 % of the units have capacities less than 75,000 Btu/hr (exempt from Rule 3.23 but required for the purpose of emission inventory calculations)
- 1.06 % of the units have capacities between 75,000 and 400,000 Btu/hr
- 0.215% of the units have capacities between 400,000 and 1,000,000 Btu/hr
- The capacity factors (the ratio of fuel actually burned to the maximum capacity) are 0.061 for units less than 75,000 Btu/hr and 0.215 for units greater than 75,000 Btu/hr
- The uncontrolled emission factors for NO_x are 0.14 lb/MMBtu for units between 75,000 and 400,000 Btu/hr, and 0.17 lb/MMBtu for units between 400,000 and 1,000,000 Btu/hr

EMISSION INVENTORY CALCULATIONS

Calculation of % of emissions due to each size range (as per Appendix B of SMAQMD Rule 414 Staff Report)

Basis: 100,000 affected units

of units < 75,000 Btu/hr = $0.987 \times 100,000 = 98,700$

of units 75,000 – 400,000 Btu/hr = $.0106 \times 100,000 = 1,060$

of units 400,000 – 1,000,000 Btu/hr = $0.00215 \times 100,000 = 215$

Typical unit input ratings assumed for each size range

<75,000 Btu/hr: 40,000 Btu/hr typical

75,000 – 400,000 Btu/hr: 237,500 Btu/hr typical

400,000 – 1,000,000 Btu/hr: 700,000 Btu/hr typical

Fuel Consumed = (# of units) x (typical input rating) x (capacity factor) x (24 hrs/day)

<75,000 Btu/hr: $98,700 \times 0.04 \text{ MMBtu/hr} \times 0.061 \times 24 \text{ hrs/day} = 5,780 \text{ MMBtu/day}$
75,000 – 400,000 Btu/hr: $1,060 \times 0.2375 \text{ MMBtu/hr} \times 0.215 \times 24 \text{ hrs/day} = 1,299 \text{ MMBtu/day}$
400,000 – 1,000,000 Btu/hr: $215 \times 0.7 \text{ MMBtu/hr} \times 0.215 \times 24 \text{ hrs/day} = 777 \text{ MMBtu/day}$

Emissions = (fuel consumed) x (emission factor)

<75,000 Btu/hr: $5,780 \text{ MMBtu/day} \times 0.07 \text{ lb/MMBtu} = 405 \text{ lb/day}$
75,000 – 400,000 Btu/hr: $1,299 \text{ MMBtu/day} \times 0.14 \text{ lb/MMBtu} = 182 \text{ lb/day}$
400,000 – 1,000,000 Btu/hr: $777 \text{ MMBtu/day} \times 0.17 \text{ lb/MMBtu} = 132 \text{ lb/day}$
Total: 719 lb/day

Percentage of Emissions for Each Size Range

<75,000 Btu/hr: $100\% \times 405 \text{ lb}/719 \text{ lb} = 56.3\%$
75,000 – 400,000 Btu/hr: $100\% \times 182 \text{ lb}/719 \text{ lb} = 25.3\%$
400,000 – 1,000,000 Btu/hr: $100\% \times 132 \text{ lb}/719 \text{ lb} = 18.4\%$

Inventory allocation: sample calculation for 2021 emission inventory

Total inventory

Residential Natural Gas Water Heating: 0.0062 tpd
Service/Commercial Natural Gas Water Heating: 0.1008 tpd
Total: 0.1070 tpd

Emission inventory allocation to each size range = (fraction of emissions) x (total emissions)

75,000 – 400,000 Btu/hr: $0.253 \times 0.1070 \text{ tpd} = 0.0271 \text{ tpd}$
400,000 – 1,000,000 Btu/hr: $0.184 \times 0.1070 \text{ tpd} = 0.0197 \text{ tpd}$

EMISSION REDUCTIONS

Emission reduction percentages are calculated using the following assumptions:

- Current uncontrolled emission factor for units 75,000 – 400,000 Btu/hr is 115 ppm based on SCAQMD estimates
- Current uncontrolled emission factor for units 400,000 – 1,000,000 Btu/hr is 143 ppm based on SCAQMD estimates
- The average lifetimes of units are 15 years for units 75,000 Btu/hr and 20 years for units 400,000 – 1,000,000 Btu/hr
- Based on the average lifetimes, each year the following percentages of units get replaced: 6.67% for units 75,000 – 400,000 Btu/hr and 5% for units 400,000 – 1,000,000 Btu/hr.

Emission reduction percentages

Emission reduction percentages for each year were calculated using the percentage of units affected for that year, the uncontrolled emission factor, and the controlled emission factor (i.e., after the Rule limits take effect).

Emission reduction % = % of units affected x [1-(controlled emission factor) / (uncontrolled emission factor)]

Sample calculation for 2021

75,000 – 400,000 Btu/hr: 33.33% x (1 – 20/115) = 27.54%
 400,000 – 1,000,000 Btu/hr: 25.0% x (1 – 20/143) = 21.5%

The emission reduction percentages for the implementation year as well as the following 5-year increments are presented in the table below.

Size	Emission Reduction Percentages				
	2017	2021	2026	2031	2036
75,000 – 400,000	5.51%	27.54%	55.07%	82.61%	82.61%
400,000 – 1,000,000	4.30%	21.50%	43.01%	64.51%	86.01%

Emission Reductions

Emission reductions for each year were calculated by multiplying the emission inventory for that year by its corresponding emission reduction fraction.

Sample calculation for 2021

75,000 – 400,000 Btu/hr: 0.2754 x 0.0271 tpd = 0.0075 tpd
 400,000 – 1,000,000 Btu/hr: 0.2150 x 0.0197 tpd = 0.0042 tpd
 Total: 0.0117 tpd

The emission reductions for the implementation year as well as the following 5-year increments are presented in the table below.

Size	Emission Reductions (tpd)				
	2017	2021	2026	2031	2036
75,000 – 400,000	0.0015	0.0075	0.0152	0.0234	0.0237
400,000 – 1,000,000	0.0008	0.0042	0.0086	0.0133	0.0180
Total	0.0023	0.0117	0.0238	0.0367	0.0417

APPENDIX B

COST INFORMATION AND CALCULATIONS

District staff estimated increased costs for water heaters and boilers that comply with the proposed limits of Rule 3.23. Such units are currently being sold in multiple Air Quality/Pollution Control Districts throughout California including Bay Area, Sacramento, San Joaquin, South Coast, and San Diego.

Units between 75,000 Btu/hr and less than 400,000 Btu/hr

District staff was able to compile a list of standard and ultra-low NOx units in the range of 75,000 Btu/hr to less than 400,000 Btu/hr from multiple online retailers including The Home Depot, Lowe’s Home Improvement, and Sears. Based on the information compiled, the average cost increase varies greatly from unit to unit; however, staff was able to calculate an average increase as shown in the table below.

Cost of Ultra Low NOx Units Required By Rule 3.23 (75,000 Btu/hr to <400,000 Btu/hr)				
NOx Type	Btu Rating	Description	Retail Cost	Increase
Standard	75,100	Residential, (75 gal)	\$791.99	
Ultra-Low NOx	75,000	Residential, (75 gal)	\$1,111.00	\$319.01
Standard	75,100	Commercial, (75 gal)	\$2,762.25	
Ultra-Low NOx	75,100	Commercial, (75 gal)	\$2,546.45	-\$215.80
Standard	76,000	Residential, (75 gal)	\$1,248.00	
Ultra-Low NOx	76,000	Residential, (60 gal)	\$2,604.87	\$1,356.87
Standard	76,000	Residential, (98 gal)	\$1,469.00	
Ultra-Low NOx	76,000	Residential, (80 gal)	\$3,058.07	\$1,589.07
Standard	125,000	Commercial, 75 gal	\$4,294.50	
Ultra-Low NOx	125,000	Commercial, 75 gal	\$4,949.91	\$655.41
Standard	156,000	Commercial, 82 gal	\$4,756.50	
Ultra-Low NOx	156,000	Commercial, 82 gal	\$6,101.00	\$1,344.50
Standard	199,900	Commercial, 75 gal	\$4,294.50	
Ultra-Low NOx	199,900	Commercial, 76 gal	\$6,299.61	\$2,005.11
Standard	199,900	Commercial, 100 gal	\$5,699.99	
Ultra-Low NOx	199,900	Commercial, 100 gal	\$6,415.50	\$715.51
Standard	250,000	Commercial, 100 gal	\$7,050.00	
Ultra-Low NOx	250,000	Commercial, 100 gal	\$7,112.23	\$62.23
Standard	270,000	Commercial, 100 gal	\$6,999.99	
Ultra-Low NOx	270,000	Commercial, 100 gal	\$9,385.01	\$2,385.02
Standard	360,000	Commercial, 65 gal	\$7,899.99	
Ultra-Low NOx	360,000	Commercial, 65 gal	\$8,399.99	\$500.00
Standard	399,000	Commercial, 100 gal	\$9,567.75	
Ultra-Low NOx	399,900	Commercial, 100 gal	\$10,660.96	\$1,093.21
Average				\$984.18

Units between 400,000 Btu/hr and less than 1,000,000 Btu/hr

District staff was not able to find readily available cost data for units in the range of 400,000 Btu/hr to less than 1,000,000 Btu/hr; therefore, staff used data compiled by SMAQMD staff in the Rule 414 Staff Report. Based on the information compiled, the average representative cost increase for units in this size range was \$7,359.

Total Cost and Cost Effectiveness

Uncontrolled Emissions per Unit

Size Range	Midpoint Size (MMBtu/hr)	NOx Emission Factor (lb/MMBtu)	Capacity Factor	NOx Emissions (lb/day)	NOx Emissions (lb/yr)
75,000 - <400,000	0.24	0.140	0.215	0.173	63.282
400,000 - <1,000,000	0.70	0.174	0.215	0.628	229.398

Controlled Emissions per Unit

Size Range	Midpoint Size (MMBtu/hr)	NOx Emission Factor (lb/MMBtu)	Capacity Factor	NOx Emissions (lb/day)	NOx Emissions (lb/yr)
75,000 - <400,000	0.24	0.0243	0.215	0.0301	10.9840
400,000 - <1,000,000	0.70	0.0243	0.215	0.0878	32.0366

Capital Recovery Factor Calculations

	CRF 15 year	CRF 20 year
Interest	2.00%	2.00%
Years (lifetime)	15	20
CRF	0.078	0.061

Total Cost and Cost Effectiveness

Size Range	NOx Reduction per unit (lbs/yr)	Annualized Cost Per Unit (\$/yr)	Number of Units Replaced per Year	Total Emission Reductions (lb/year)	Total Cost per Year	Cost Effectiveness (\$ / lb NOx)
75,000 - <400,000	52.30	\$76.59	15	784	\$1,149	
400,000 - <1,000,000	197.36	\$450.05	3	592	\$1,350	
Total				1,377	\$2,499	\$1.82

ATTACHMENT C

Public Comments and Responses

PUBLIC COMMENTS AND RESPONSES

Public Workshop (August 18, 2016)

Participants: Michael Mitchener – Beale Air Force Base
Eric Maresh – Beale Air Force Base
Susan Stewart – Beale Air Force Base

Comment #1: Representatives from Beale AFB stated a concern with the Rule as currently written. The Base typically procures these devices from out of state in bulk. They use a supply chain, not a specific retailer.

Response: District staff suggested that they ask other Air Force bases located in nonattainment areas that have already adopted a similar rule, how they comply with the rule.

The commenter noted that there was a naval base near Fresno that they could check with.

Comment #2: Representatives from Beale AFB stated a concern with the procedure of having certification submitted 30 days prior to installation. Sometimes, units are ordered months prior to actual delivery. Also, the on-base installers have not been informed of the new procedure to provide the District with certification 30 days prior to installing the devices and they will need to be informed.

Response: District staff recommended sharing the certification requirement information with the on-base installers. Additionally, District staff stated that if the 30 day requirement would be a hardship to the base, the base could provide comments to the District prior to the end of the public comment period on October 3, 2016.

(As of September 9, 2016, the District has not received any additional comments regarding the proposed rule.)

ATTACHMENT D
Proof of Publication

AFFIDAVIT OF PUBLICATION
(2015.5 C.C.P.)

RECEIVED

APPEAL-DEMOCRAT

SEP 09 2016

1530 Ellis Lake Drive, Marysville, CA 95901 * (530) 749-4700

FEATHER RIVER
AQMD

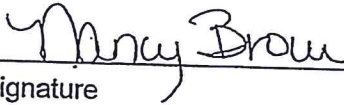
STATE OF CALIFORNIA * Counties of Yuba and Sutter

I am not a party to, nor interested in the above entitled matter. I am the principal clerk of the printer and publisher of THE APPEAL-DEMOCRAT, a newspaper of general circulation, printed & published in the City of Marysville, County of Yuba, to which Newspaper has been adjudged a newspaper of general circulation by The Superior Court of the County of Yuba, State of California under the date of November 9, 1951, No. 11481, and County of Sutter to which Newspaper has been adjudged a newspaper of general circulation by the Superior Court of the County of Sutter, State of California under the date of May 17, 1999, Case No.CV PT99-0819. The Notice, of which the annexed is a copy, appeared in said newspaper on the following dates:

September 3, 2016

I declare under penalty of perjury that the foregoing is true and correct.

September 6, 2016



Date

Signature

FRAQMD

Notice of Public Hearing

COPY:

NOTICE OF PUBLIC HEARING

Proposed Rule 3.23 - Natural Gas-Fired Water Heaters, Small Boilers, and Process Heaters

PLEASE TAKE NOTICE that the Feather River Air Quality Management District ("District") will conduct a public hearing on Monday, October 3, 2016 at 4:00 p.m. in the Wheatland Conference Room located at 915 8th Street, Marysville, CA. The purpose of the hearing is to consider adoption of the proposed District Rule 3.23 - Natural Gas-Fired Water Heaters, Small Boilers, and Process Heaters.

The purpose of proposed District Regulation III, Rule 3.23 is to limit emissions of Nitric Oxide (NO) and Nitrogen Dioxide (NO2), also known as NOx, from natural gas-fired water heaters, small boilers, and process heaters that range in size from 75,000 British Thermal Units per hour (Btu/hr) to 1,000,000 Btu/hr.

The analysis for the proposed Rule(s), as required by California Health & Safety Code section 40727.2, a copy of the staff report(s), the proposed Rule(s), and all supporting documentation are available on the District website: www.fraqmd.org, or upon request from the District.

NOTICE IS FURTHER GIVEN that should the proposed rule be adopted, Rule 3.23 - Natural Gas-Fired Water Heaters, Small Boilers, and Process Heaters will be submitted to the California State Air Resources Board and the United States Environmental Protection Agency for inclusion into the State Implementation Plan. This notice, the public hearing, and the proposed Rule 3.23 are intended to satisfy the requirements of the Clean Air Act Sections 110, 172, 182, and Title 40 of the Code of Federal Regulation Part 51.

By this notice, the public is invited to comment on the proposed rule. All written comments must be addressed to Christopher D. Brown AICP, APCO, 541 Washington Avenue, Yuba City, CA 95991 or emailed to fracmd@fracmd.org and must be received no later than 5:00 p.m. on September 21, 2016. Comments may also be presented during the public hearing. For more information, please contact District Engineer, Emmanuel Orozco at (530) 634-7659 ext. 208 or visit <http://www.fraqmd.org>.

September 3, 2016

Ad #00194141