

FEATHER RIVER AIR QUALITY MANAGEMENT DISTRICT
MEMORANDUM
08/03/20

TO: FRAQMD BOARD OF DIRECTORS

FROM: Christopher D. Brown AICP, APCO

SUBJECT: Approve Resolution #2020-07 adopting Regulation III, Rule 3.22 – Stationary internal Combustion Engines and authorize the Chairman to execute related documents.

RECOMMENDATION

Approve Resolution #2020-07 which adopts amendments to Regulation III, Rule 3.22 – Stationary Internal Combustion Engines.

ALTERNATIVES

Not adopt the proposed rule amendments and provide direction to staff.

BACKGROUND

Assembly Bill 617 (Garcia, Chapter 136, 2017) (AB 617) was approved on July 26, 2017, and amends California Health and Safety Code section 409020.6. The changes require each air district that includes a nonattainment area for one or more air pollutants, to adopt an expedited schedule for implementation of best available retrofit control technology (BARCT) by December 31, 2023. The requirement applies to each industrial source subject to a market-based compliance mechanism, as of January 1, 2017. The District has facilities subject to the California Greenhouse Gas (GHG) Cap-and-Trade requirements which is considered a market-based compliance mechanism.

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 standard¹. The southern portion of Sutter County is also designated as a moderate nonattainment area for the 2015 8-hour ozone National Ambient Air Quality Standard (NAAQS) effective August 3, 2018². Therefore, The District is required to adopt and implement an expedited BARCT schedule by December 31, 2023.

¹ <https://ww2.arb.ca.gov/resources/california-ambient-air-quality-standards>

² Additional Air Quality Designations for the 2015 Ozone National Ambient Air Quality Standards, 83 FR 25776, June 4, 2018.

In 2018, the District published a Proposed Expedited BARCT Schedule for Industrial Facilities Subject to Cap and Trade. The report evaluated the requirements of AB 617 and proposed to amend Rule 3.22 during the calendar year of 2020. The changes proposed lowering the acceptable emission limit of NOx for natural gas spark ignited prime engines to BARCT requirements.

DISCUSSION

The proposed amendments will require BARCT for prime natural gas spark ignited internal combustion engines (ICE) by lowering the NOx emissions thresholds and make minor editing and formatting changes.

The BARCT emission limits were based on the California Air Resources Board's (CARB) Determination of Reasonably Available Control Technology (RACT) and Best Available Retrofit Control Technology (BARCT) for Stationary Spark-Ignited Combustion Engines [November 2001].

Table 1 lists the new emission limits for prime natural gas spark ignited engines which would become effective on December 31, 2023.

Table 1: Proposed Natural Gas Powered Engine Emission Limits Effective 12/31/2023

	NOx (ppmv @ 15% O2)	VOC (ppmv @ 15% O2)	CO (ppmv @ 15% O2)
Spark Ignited Rich Burn	25	250	4,000
Spark Ignited Lean Burn	65	750	4,000

On May 12, 2020, the District submitted a draft of the rule to the US EPA as well as the CARB for cross-agency review and comment. CARB did not have any comments regarding the rule. The US EPA did provide comments asking for minor typographical error revisions and recommendations for modifying the rule. The District corrected the minor error in section C.6 and revised section D.4 specifying operators must be trained to use an emissions analyzer and adding additional testing conditions. The other recommendations were not implemented due to it not being required by the State Implementation Plan (SIP) or AB 617. The full comments and responses can be found in Attachment C.

The District conducted a public workshop on June 11, 2020, 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. Representatives from the California Resources Production Corporation (CRPC) attended the workshop and their comments and responses can be found in Attachment C. CRPC is subject to the market-based compliance mechanism and operates facilities subject to the proposed amendments.

A public notice was published in the July 3, 2020 edition of the Appeal-Democrat, which invited members of the public and industry to attend the public hearing for the adoption of the amendments to Rule 3.22. The public notice also invited the public to submit written comments on the proposed rule until July 23, 2020. The District received written comments from CRPC asking for clarification on how to establish compliance with the new rule

amendments. The District responded back with an explanation of how to demonstrate compliance. The public comments and responses can be found in Attachment C.

FISCAL IMPACT

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

ATTACHMENTS

- Attachment A: Resolution #2020-07
- Attachment B: Staff Report for Rule 3.22
- Attachment C: Public Comments and Responses
- Attachment D: Proof of Publication

ATTACHMENT A
Resolution #2020-07

**RESOLUTION #2020-07 OF THE BOARD OF DIRECTORS AUTHORIZING THE
ADOPTION OF AMENDMENTS TO REGULATION III, RULE 3.22 – STATIONARY
INTERNAL COMBUSTION ENGINES**

WHEREAS, Assembly Bill 617 (Garcia, chapter 136, 2017) requires air districts that are nonattainment for a California Ambient Air Quality Standard (CAAQS) or a National Ambient Air Quality Standard (NAAQS) to adopt Best Available Retrofit Control Technology (BARCT) by December 31, 2023 for certain sources that are subject to a market based compliance mechanisms; and

WHEREAS, the Feather River Air Quality Management District (District) contains nonattainment areas for the 2015 8-hour Ozone NAAQS and the ozone and coarse particulate matter CAAQS; and

WHEREAS, the District includes sources subject to BARCT requirements of AB 617, and must implement amendments to require BARCT by December 31, 2023; and

WHEREAS, the California Air Resources Board (CARB) has established emission limits for BARCT for the District sources subject to AB 617; and

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 Code of Regulations, 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 August 3, 2020, the Board approves and adopts amendments to Regulation III, Rule 3.22 – Stationary Internal Combustion Engines, 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 3.22 is exempt from CEQA; and

BE IT FURTHER RESOLVED by the Board of Directors of the FEATHER RIVER AIR QUALITY MANAGEMENT DISTRICT that effective August 3, 2020, the Board instructs the District staff to submit the amendments to Regulation III, Rule 3.22 – Stationary Internal Combustion Engines and all necessary supporting documents to CARB for its approval and subsequent submittal to the United States Environmental Protection Agency for final approval as a revision to the State Implementation Plan.

PASSED AND ADOPTED by the Feather River Air Quality Management District at a meeting on August 3, 2020, by the following vote:

AYES:

NOES:

ABSENT:

ABSTAIN:

Chairman

ATTEST:

APPROVED FOR LEGAL FORM:

Exhibit A

District Regulation III, Rule 3.22 – Stationary Internal Combustion Engines

RULE 3.22 STATIONARY INTERNAL COMBUSTION ENGINES

(Adopted 6/1/2009; Amended 10/6/2014, 08/3/2020)

A. APPLICABILITY

This rule applies to all stationary internal combustion engines with rated brake horsepower greater than or equal to fifty (≥ 50 bhp) used in industrial, institutional, and commercial operations that operate within the boundaries of the District.

B. EXEMPTIONS

B.1 The provisions of this rule shall not apply to the following:

- a. The operation of any engine while being used to preserve or protect property, human life, or public health during the existence of a disaster or state of emergency, such as a fire or flood;
- b. Emergency standby engines whose total annual hours for maintenance and testing purposes do not exceed 100 hours as determined by a non-resettable hour meter. Hours used specifically for emergencies shall not be limited by this rule;
- c. Non-emergency engines whose total annual hours of operation do not exceed 200 hours as determined by a non-resettable hour meter;
- d. Portable engines, as defined in California Health and Safety Code, Section 41751;
- e. Engines used directly and exclusively for the growing of crops or the raising of animals. This exemption does not apply to any engine used at an agricultural source of air pollution that emits in any 12-month period air emissions greater than or equal to 50% of the major source thresholds for regulated air pollutants and/or HAPs;
- f. Engines operated exclusively in research or testing programs;
- g. Gas turbine engines; and
- h. Compression ignition engines with a permitted capacity factor of 15 percent or less.

C. DEFINITIONS

- C.1 **Date of Initial Start-up:** The date in which an engine is operated for the first time within the boundaries of the District.
- C.2 **Emergency Standby Engine:** As defined in the Airborne Toxic Control Measure for Stationary Compression Ignition Engines - CCR Title 17, §93115.
- C.3 **Emergency Use:** As defined in the Airborne Toxic Control Measure for Stationary Compression Ignition Engines - CCR Title 17, §93115.
- C.4 **Lean Burn Engine:** Any spark or compression ignited internal combustion engine that is operated with an exhaust gas stream oxygen concentration of four percent (4%) by volume, or greater. The exhaust gas oxygen content shall be determined from the uncontrolled exhaust gas stream.
- C.5 **Maintenance and Testing:** The operation of an emergency standby engine to:
- a. Evaluate the ability of the engine or its supported equipment to perform during an emergency. "Supported Equipment" includes, but is not limited to, generators, pumps, transformers, switchgear, and breakers; or
 - b. Facilitate the training of personnel on emergency activities; or
 - c. Provide electrical power for the facility when the utility distribution company takes its power distribution equipment offline to service that equipment for any reason that does not qualify as an emergency use.
- C.6 **Natural Gas Powered Engine:** Any spark ignited internal combustion engine that is designed to operate on natural gas.
- C.7 **North FRAQMD:** The area of the Feather River Air Quality Management District which is north of a line connecting the northern border of Yolo County to the southwestern tip of Yuba County, and continuing along the Southern Yuba County border to Placer County.

- C.8 **Permitted Capacity Factor:** The annual permitted fuel use divided by the product of the manufacturer's specified maximum hourly fuel consumption times 8,760 hours per year.
- C.9 **Rated Brake Horsepower (bhp):** The maximum rated brake horsepower specified for the engine by the manufacturer and listed on the nameplate for the unit, regardless of any derating, unless limited by the engine's Permit to Operate.
- C.10 **Rich Burn Engine:** Any spark or compression ignited internal combustion engine that is operated with an exhaust gas stream oxygen concentration of less than four percent (4%) by volume. The exhaust gas oxygen content shall be determined from the uncontrolled exhaust gas stream.
- C.11 **South FRAQMD:** The area of the Feather River Air Quality Management District which is south of a line connecting the northern border of Yolo County to the southwestern tip of Yuba County, and continuing along the southern Yuba County border to Placer County.
- C.12 **Stationary Internal Combustion Engine:** Any spark or compression ignited internal combustion engine that is operated, or intended to be operated, at a specific site for more than twelve (12) consecutive months, is attached to a foundation at that site, or is determined to be stationary by the District.

D. REQUIREMENTS

- D.1 **EMISSION LIMITS:** Each engine shall not operate above the emission limitations according to the area of designation and fuel type, as shown in Tables 1, 2, and 3.

Table 1: North FRAQMD Emission Limits

	NOx (ppmv @ 15% O ₂)	VOC (ppmv @ 15% O ₂)	CO (ppmv @ 15% O ₂)
Spark Ignited Rich Burn	90	250	4,000
Spark Ignited Lean Burn	150	750	4,000
Compression Ignited	600	750	4,000

Table 2: South FRAQMD Emission Limits

	NOx (ppmv @ 15% O ₂)	VOC (ppmv @ 15% O ₂)	CO (ppmv @ 15% O ₂)
Spark Ignited Rich Burn	25	250	4,000
Spark Ignited Lean Burn	65	750	4,000
Compression Ignited	80	750	4,000

Table 3: Natural Gas Powered Engine Emission Limits Effective 12/31/2023*

	NOx (ppmv @ 15% O ₂)	VOC (ppmv @ 15% O ₂)	CO (ppmv @ 15% O ₂)
Spark Ignited Rich Burn	25	250	4,000
Spark Ignited Lean Burn	65	750	4,000

*Engines subject to Table 3 must comply with the emission limits specified in Table 1 and 2 until the 12/31/2023 cutoff.

- D.2 INITIAL COMPLIANCE DEMONSTRATION:** Each engine subject to meet the emission limits of D.1 shall demonstrate initial compliance. Initial compliance can be achieved by:
- a. Conducting a source test on the engine as specified in Section E.1; or
 - b. Providing the District with support documentation which demonstrates that the engine is in compliance with the emission limits of this rule.
- D.3 INITIAL COMPLIANCE TIMELINE:** Each engine shall demonstrate initial compliance no later than ninety (90) days after the date of initial startup.
- D.4 ON-GOING COMPLIANCE PROGRAM:** Upon successful demonstration of initial compliance, the owner or operator shall demonstrate on-going compliance as followed:
- a. Each engine shall be source tested at least once every five (5) years, measured from the date of the last source test showing compliance. If initial compliance was satisfied without any source test data, the engine shall be source tested no later than five (5) years after the date of initial startup.
 - b. Effective until December 30, 2023: during any calendar year in which a source test is not performed, the owner/operator shall use an emission analyzer to take

NO_x, CO, and O₂ readings from the engine to verify compliance with the applicable emission limits.

1. The analyzer shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations.
 2. Analyzer test data point intervals shall be no greater than five (5) minutes and data points shall be averaged over no less than fifteen (15) minutes of engine operation.
 3. An analyzer reading in excess of the limits specified in Section D.1 shall not be considered a violation as long as the problem is corrected and a follow-up emission reading is conducted within 15 days of the initial emission reading. If the problem cannot be corrected, the operator shall shutdown the engine and notify the District.
- c. Effective December 31, 2023: during any calendar year in which a source test is not performed, the trained owner/operator shall use an emission analyzer to take NO_x, CO, and O₂ readings from the engine to verify compliance with the applicable emission limits.
1. The analyzer shall be calibrated, maintained, and operated in accordance with the manufacturer's specifications and recommendations.
 2. All emission readings shall be taken with the engine operating either at the highest achievable continuous brake horsepower rating, or under the typical duty cycle or operational mode of the engine.
 3. Analyzer test data point intervals shall be no greater than five (5) minutes and data points shall be averaged over no less than fifteen (15) minutes of engine operation.
 4. At least six (6) calendar weeks shall separate the date of the last emission reading taken or source test conducted in the previous calendar year quarter and the first emission reading taken in the subsequent calendar quarter in which a source test is not preformed.
 5. An analyzer reading in excess of the limits specified in Section D.1 shall not be considered a violation as long as the problem is corrected and a follow-up emission reading is conducted within 15 days of the initial emission reading. If the problem cannot be corrected, the operator shall shutdown the engine and notify the District.

6. A trained operator is a person who has completed an appropriate training program in the operation of portable analyzers, and has received certification from the training program.

D.5 **COMPLIANCE INSPECTION:** For compliance demonstration purposes, the testing of emissions required in Section D.2.a and D.4.a shall be conducted in the presence of District staff unless previous authorization is provided by the District.

E. TEST METHODS AND PROCEDURES

E.1 **TEST METHODS:** Compliance with the emission limits in Tables 1,2, and 3 shall be determined using the following test methods or an equivalent method approved by EPA and/or CARB:

- a. Stack Gas Oxygen - EPA Method 3A or CARB Method 100.
- b. Oxides of Nitrogen - EPA Method 7E or CARB Method 100.
- c. Carbon Monoxide - EPA Method 10 or CARB Method 100.
- d. Volatile Organic Compounds - EPA Method 18, 25A, 25B or CARB Method 100.
- e. NO_x emission limitations shall be expressed as nitrogen dioxide (NO₂).
- f. VOC emission limitations shall be referenced to methane.
- g. All ppmv emission limitations shall be referenced at 15% volume stack gas oxygen on a dry basis.
- h. All emission readings shall be taken with the engine operating either at conditions representative of normal operations or conditions specified in the Permit to Operate.

F. RECORDKEEPING AND REPORTING REQUIREMENTS

F.1 **RECORDKEEPING REQUIREMENTS:** A record of the following information shall be maintained for five years and shall be made available to District personnel upon request:

- a. The monthly and annual hours of operation or quantity of fuel consumed for each engine;
- b. A testing log which includes, but is not limited to, initial and on-going emission source test results and

annual analyzer readings results to verify compliance;
and
c. Date(s) and type of maintenance performed.

F.2 **SOURCE TEST PROTOCOL AND REPORT:** A source test protocol shall be submitted to the District for review and approval at least thirty (30) days prior to any source test. The results from the source test shall be submitted to the District within thirty (30) days after testing.

ATTACHMENT B

Staff Report for Rule 3.22

Staff Report

Rule 3.22: Stationary Internal Combustion Engines

Date of Release: May 12, 2020

Schedule of Meetings

Public Workshop: June 11, 2020

Public Hearing: August 3, 2020

Feather River AQMD

541 Washington Ave

Yuba City, California 95991

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1.0 Executive Summary:

Feather River Air Quality Management District (District) is a Bi-County agency that administers local, state, and federal air quality management programs for Yuba and Sutter counties. 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 standard¹. The southern portion of Sutter County, is also designated as a moderate nonattainment area for the 2015 8-hour ozone national ambient air quality standard (NAAQS) effective August 3, 2018².

Ozone is formed when volatile organic compounds (VOCs) react with nitrogen oxides (NOx) in the presence of sunlight and is one component of smog. It is a strong irritant that attacks the respiratory system and leads to the damage of lung tissues. Exposure to ozone aggravate asthma, bronchitis and maintain the state ambient air quality standard ozone.

Assembly Bill 617 amends California Health and Safety Code (HSC) section 409020.6. The changes require each air district that is a nonattainment area for one or more air pollutions to adopt an expedited schedule for implementation of best available retrofit control technology (BARCT) by December 31, 2023 for industries subject to the GHG Cap-and-Trade requirements.

The proposed amendments to Rule 3.22 would lower the NOx emission limits effective December 31, 2023 for natural gas spark ignited ICE used as a prime power source. The proposed amendments include minor formatting and editing for clarity.

2.0 Background:

Stationary internal combustion engines are typically used as either primary or backup engines to generate electricity or power pumps and compressors. These engines may be fueled by diesel, natural gas, propane (LPG), refinery fuel gas, digester gas, or landfill gas. Some final products of combustion include nitrogen oxides (NOx), volatile organic compounds (VOCs), carbon monoxide (CO), and particulate matter (PM10 and PM2.5), which are all discharged into the atmosphere. NOx and VOCs are recognized as precursors to ground-level ozone formation, and reductions in NOx and VOCs are necessary to attain and maintain the federal and state ambient air quality standard for ozone. Ozone can result in reduced lung function, increased respiratory symptoms, increased airway hyperactivity, and increased airways inflammation. Emissions of VOCs also react in the atmosphere to form PM10 and PM2.5. Inhalation of PM10 and PM2.5 deep into lungs reduces human pulmonary function.

The District originally adopted Rule 3.22 in 2009 to achieve reasonable emission reductions from internal combustion engines to help attain the state and federal ambient air quality standard for ozone. The rule was consistent among the Northern Sacramento Valley Air Basin Districts, where emission standards are based on CARB's document Determination of

¹ <https://ww2.arb.ca.gov/resources/california-ambient-air-quality-standards>

² Additional Air Quality Designations for the 2015 Ozone National Ambient Air Quality Standards, 83 FR 25776, June 4, 2018.

Reasonably Available Control Technology (RACT) and Best Available Retrofit Control Technology (BARCT) for Stationary Spark-Ignited Combustion Engines [November 2001]. Different emission limits were set for North and South FRAQMD based on their attainment statuses. South FRAQMD was given stricter emission limits due to the designation as a federal ozone nonattainment area with a severe classification for the 1997 and 2008 ozone NAAQS. The emission limits set for South FRAQMD are considered to meet BARCT requirements.

The District submitted Rule 3.22 to the SIP, and on March 1, 2012, the US EPA finalized a Limited Approval/Limited Disapproval for the rule. The US EPA could not fully approve the rule because one section allowed for alternate testing procedures for NOx analyzers to be approved by the Air Pollution Control Officer (APCO). The US EPA noted that this section did not have sufficient Quality Assurance/Quality Control requirements. The rule was amended on October 6, 2014 and was approved by the US EPA in December 2014.

In 2018, the District published a Proposed Expedited BARCT Schedule for Industrial Facilities Subject to Cap and Trade. The report evaluated the requirements of AB 617 and proposed to amend rule 3.22 during the calendar year of 2020. The changes proposed lowering the acceptable emission limit of NOx for spark ignited prime engines to BARCT requirements.

3.0 Legal Mandate:

Assembly Bill 617 (AB 617) was approved on July 26, 2017, and amends California Health and Safety Code section 409020.6. The changes require each air district that includes a nonattainment area for one or more air pollutants, to adopt an expedited schedule for implementation of best available retrofit control technology (BARCT) by December 31, 2023. The requirement applies to each industrial source subject to a market-based compliance mechanism, as of January 1, 2017. The District has facilities subject to the California Greenhouse Gas (GHG) Cap-and-Trade requirements which is considered a market-based compliance mechanism. These facilities have natural gas spark ignited internal combustion engines (ICE) used as a prime power source for natural gas compressors and are subject to the expedited BARCT requirements of AB 617. In addition, the facilities include natural gas production equipment such as natural gas dehydrators, condensate tanks, injection wells, and associated equipment. This equipment is subject to the requirements of the Greenhouse Gas Emission Standard for Crude Oil and Natural Gas Facilities and is already implementing BARCT for LDAR requirements. Therefore, the District's requirements under AB 617 to implement BARCT apply to only the natural gas spark ignited ICE used as a prime power source.

Yuba County and the northern area of Sutter County are designated as "nonattainment-transitional" for the state ozone standard. HSC §40925.54 requires the District to adopt a control measure that will use RACT for all existing stationary sources in these areas.

HSC §40914 requires the District to demonstrate that the plan 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.

4.0 Proposed Rule Requirements:

The proposed amendments will require BARCT for natural gas spark ignited ICE by lowering the NOx emissions thresholds and make minor editing and formatting changes.

Table 1 – Summary of Proposed Amendments

SECTION NUMBER	PROPOSED LANGUAGE
Section C.6	Add definition for Natural Gas Powered Engine
Section D.1 Table 3	Add table with new emission limits for Natural Gas Powered Engines
Rule 3.22 – All	Minor formatting and editing

The BARCT emission limits were based on CARB's Determination of Reasonably Available Control Technology (RACT) and Best Available Retrofit Control Technology (BARCT) for Stationary Spark-Ignited Combustion Engines [November 2001]. A table from the report is listed below with the emission limits for rich and lean burn engines. This is CARB's current determination of BARCT for rich and lean burn engines.

Table II-2 Summary of BARCT Standards for Stationary Spark-Ignited Internal Combustion Engines				
Spark-Ignited Engine Type	% Control of NO _x	ppmv at 15% O ₂ ¹		
		NO _x	VOC	CO
Rich-Burn				
Waste Gas Fueled	90	50	250	4,500
Cyclically-loaded, Field Gas Fueled	--	300	250	4,500
All Other Engines	96	25	250	4,500
Lean-Burn				
Two Stroke, Gaseous Fueled, Less Than 100 Horsepower	--	200	750	4,500
All Other Engines	90	65	750	4,500

1. For NO_x, either the percent control or the parts per million by volume (ppmv) limit must be met by each engine where applicable. The percent control option applies only if a percentage is listed, and applies to engines using combustion modification or exhaust controls. All engines must meet the ppmv VOC and CO limits.

Table 2 contains the proposed BARCT emission limits that would be effective 12/31/2023 for all spark ignited ICE used as prime power in Yuba and Sutter counties.

Table 2: Proposed Natural Gas Powered Engine Emission Limits Effective 12/31/2023

	NOx (ppmv @ 15% O ₂)	VOC (ppmv @ 15% O ₂)	CO (ppmv @ 15% O ₂)
Spark Ignited Rich Burn	25	250	4,000
Spark Ignited Lean Burn	65	750	4,000

The Technical Support Document from the US EPA for the 2014 rule amendment recommended lowering the emission limits to be consistent with South Coast Air Quality Management District Rule 1110.2. The emission limits of the South Coast rule are shown in Table 3.

Table 3 – South Coast Air Quality Management District Rule 1110.2 Emission Limits

NOx (ppmvd)	VOC (ppmvd)	CO (ppmvd)
11	30	70

The District did not adopt the lower emission limit of the South Coast Air Quality Management District as this region is designated an “extreme” ozone nonattainment area whereas the south Sutter County region of the Feather River Air Quality Management District is a “severe” ozone nonattainment classification. The District is only required meet BARCT emissions as specified in AB 617. No revisions were required in the EPA’s Technical Support Document.

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 HSC §4072.5(a). The District’s population is estimated to be approximately 166,892³ which is below the 500,000 person threshold. Therefore, a socioeconomic analysis for this rulemaking is not required.

³ <https://www.census.gov/data/tables/time-series/demo/popest/2010s-counties-total.html>

6.0 Emission Impacts of Proposed Rule:

The proposed amendments to Rule 3.22 will result in a reduction of NOx emissions for the District. The emission reductions have been summarized in Table 4 below. While the rule will initially be implemented in 2020, emission reductions will not be met until after December 31, 2023, when BARCT controls become mandatory. NOx reductions were the only criteria pollutant evaluated since VOC and CO emission limits already meet BARCT requirements.

Table 4 – Emission Impacts from Rule 3.22 Amendments

Current NOx Emissions for Effected Sources (tons/year)	Total NOx Emissions after BARCT Implementation (tons/year)	Potential NOx Emission Reductions (tons/year)
37.98	19.67	18.31

7.0 Estimated Cost Impact:

California HSC §40703 requires the District, in the process of the adoption of any rule or regulation, to consider and make public its findings related to cost effectiveness of the rule.

The reduction of NOx emissions from process equipment, such as internal combustion engines, is mainly accomplished through pre-combustion modifications and/or post-combustions exhaust controls. The application of a specific technique will depend on the type of engine, the characteristic of its primary fuel and method of firing. Table 5 presents a summary of these technologies and other feasible options that includes affected engine type, approximate effectiveness over uncontrolled emissions, cost estimates, and a general description.

Table 5 - Summary of NOx Emissions Control Technologies for Stationary IC Engines

Control Technology	Engine Types	Effectiveness	Capital Costs	Description
Non-Selective Catalytic Reduction (NSCR)	Rich Burn Engines	NOx: >98% CO: >97% HC: >80%	\$50-200/bhp	Exhaust Control: Post combustion oxidation of HC & CO by O2 and NOx over a catalyst (Usually a noble metal like platinum, rhodium, or palladium). The HC & CO are converted to CO2 and water, while NOx is reduced to N2.
Selective Catalytic Reduction (SCR)	Lean Burn Engines	NOx: >95% CO: >97% HC: >80%	\$135-510/bhp	Exhaust Control: Ammonia or urea injected in the exhaust before a catalyst. The HC & CO are converted to CO2 and water, while the NOx is reduced to N2.
Post Combustion Oxidation & Selective Non-Catalytic Reduction	CI, Lean Burn, and Rich Burn Engines	NOx: >90% PM: >60% CO: <10 ppm	\$30-155/bhp	Exhaust Control: <ul style="list-style-type: none"> • Non-Catalytic Oxidation of HC, PM, CO • Urea injected to reduce NOx • Ammonia Slip (2ppm)
Lean + Derating	Rich and Lean Burn Engines	NOx: >80%	n/a	Combustion Control: Increase the air -to-fuel ratio toward lean and derate or decrease the cylinder pressures and temperatures which reduces the power output of an engine. The lower pressure and temperature reduces NOx, but may increase HC & CO.
Pre-Stratified Charge	Rich and Lean Burn Engines	NOx: >80%	\$1250-1825/bhp	Combustion Control: Small amounts of air are introduced to the intake manifold create sequential fuel-rich and fuel-lean zone and rapid flame cooling in the fuel-lean zone.
Low-Emissions Combustion	Rich and Lean Burn Engines	NOx: >80%	\$285/bhp	Combustion Control: Lean Burn combined with: <ul style="list-style-type: none"> • Ignited system improvement, • Turbocharging, aftercooling • Air/fuel ratio controller
Engine Replacement	CI, Lean Burn, and Rich Burn Engines	60-100%	Variable	For replacement with an electric motor, emissions are reduced 100% at the IC engine location. For replacement with a newer engine, emissions will drop drastically.

8.0 Environmental Review and Compliance:

The amendments of Rule 3.22 are 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 rule will help improve air quality in Yuba and Sutter county. California Public Resources Code (Section 21159) requires an environmental analysis of the reasonably foreseeable methods of compliance. The District has concluded that no reasonably foreseeable adverse environmental impacts will be caused by adoption of the proposed rule.

9.0 Required Findings:

California Health and Safety Code §40727(a) requires that prior to adoption or amending a rule or regulation, an air district's board must make findings of necessity, authority, clarity, consistency, nonduplication and reference. The findings must be based on the following:

1. Information presented in the District's written analysis, prepared pursuant to HSC §40727.2;
2. Information contained in the rulemaking records pursuant to HSC §40728; and
3. Relevant information presented at the Board's hearing for the rule.

The table below describes each finding and the basis for making the finding:

Required Finding	Finding Determination
Necessity: The District must find that the rulemaking demonstrates a need exists for the rule or for its amendment or repeal. [HSC §40727(b)(1)]	It is necessary for the District to adopt the proposed amendments in order to meet the requirements of HSC 40920.6 by AB 617.
Authority: The District must find that a provision of law or of a state or federal regulation permits or requires the District to adopt, amend, or repeal the rule. [HSC §40727(b)(3)]	The District is authorized to adopt rules and regulations by HSC §40001, 40702, 40919, 41010, and 42300.
Clarity: The District must find that the rule is written or displayed so that its meaning can be easily understood by the persons directly affected by it. [HSC §40727(b)(3)]	The District has reviewed the proposed amendments and determined that they can be easily understood by the affected industry. In addition, the record contains no evidence that the persons directly affected by the rule cannot understand the rule.
Consistency: The rule is in harmony with, and not in conflict with or contradictory to, existing statutes, court decisions, or state or federal regulations. [HSC §40727(b)(4)]	The proposed rule does not conflict with and is not contradictory to existing statutes, court decisions, or state or federal regulations.

<p>Non-Duplication: The District must find that either: 1) The rule does not impose the same requirements as an existing site or federal regulation; or 2) that the duplicative requirements are necessary or proper to execute the powers and duties granted to, and imposed upon the District. [HSC §40727(b)(5)]</p>	<p>The proposed rule does not impose requirements that duplicate existing laws or regulations.</p>
<p>Reference: The district must refer to any statute, court decision, or other provision of law that the District implements, interprets, or makes specific by adopting, amending or repealing the rule. [HSC §40727(b)(6)]</p>	<p>References to statues are noted where applicable.</p>

10.0 Rule Analysis:

Health and Safety Code section 40727.2 requires a written analysis comparing the proposed rules with existing federal regulations, state regulations, and any other AQMD existing or proposed rules and regulations that apply to the same source type.

Comparison of Proposed Rule 3.22 and Feather River AQMD Rules and Regulations

District Rules and Regulations	Does the proposed rule conflict or contradict any provisions?
Regulation 1 – General Provisions	No
Regulation 2 – Open Burning	No
Regulation 3 – Prohibition – Stationary Emissions 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

Federal Regulations for spark ignited (SI) engines fall under the Code of Federal Regulations (CFR), Title 40, Part 60, Subpart JJJJ. Stationary SI engines located at a major source of a HAP or area source of a HAP are subject to the rule. The emission limits for the federal requirements

have been summarized in Table 6 and 7 below. The NOx emission limits for the proposed amendments to Rule 3.22 are more stringent than the federal regulations.

Table 6 NSPS emissions standards for SI stationary NG and lean burn LPG engines (25-100 hp)

BHP	Date of Manufacture	HC+NOx (g/hp-hr)	CO (g/hp-hr)
25< bhp <100	July 2008	2.8	4.8

Table 7 NSPS emissions standards for NG and lean burn LPG engines > 100 hp

Engine Type	Bhp	Date of manufacture	NOx ppmvd @15% O2	CO ppmvd @ 15% O2	VOC ppmvd @ 15% O2
SI Natural Gas	100 ≤ hp < 500	July 2008	160	540	86
		January 2011	82	270	60
SI lean burn natural gas	500 ≤ hp < 1350	January 2011	160	540	86
		January 2011	82	270	60
SI natural gas	hp ≥ 500	July 2007	160	540	86
		July 2010	82	270	60

There are no state regulations for stationary SI natural gas engines. Stationary natural gas engines are the only category of engines subject to the Rule 3.22 amendments.

ATTACHMENT C
Public Comments and Responses

US EPA Rule 3.22 Comments and FRAQMD (District) Responses

- Section B.1.e provides an exemption for engines used in agricultural operations unless at a source with emissions that are greater than or equal to 50% of the major source threshold in a 12 month period. We recommend that the District consider eliminating this exemption for agricultural operations, as SJV Rule 4702, SC Rule 1110.2, and MD Rule 1160.1 do not contain exemptions for engines used in agricultural operations.

Response: The District disagrees. The existing exemption in Rule 3.22 section B.1 for engines used exclusively in agricultural operations was approved into the SIP in 2014. Additionally, these engines are currently regulated under District Rule 4.16 and require compression ignited engines to meet the Airborne Toxic Control Measure (ATCM) for Stationary Compression Ignition Engines. Suggestion was not implemented.

- Section C contains a new definition for “Natural Gas Powered Engine.” It is missing a section number, “C.x” and contains a typographical error. The definition should say, “Any spark ignited internal combustion engine that is or has the capability to be powered by natural gas.”

Response: The District has corrected the typographical error found in the above comment. However, the District was unable to locate the missing section number. All section numbers are present in the rule document.

- Rule 3.22 has been amended to adopt BARCT level emission standards as required by AB617. We recommend the District consider the BARCT level emission standards San Diego APCD Rule 69.4.1 has adopted for “New or Replacement Non-Emergency Engines” in section (d)(1)(ii)(C) of Rule 69.4.1.

Response: The District disagrees. The current amended emission limits for spark ignited natural gas engines meets the standards specified by the California Air Resources Board (CARB) for BARCT. Assembly Bill 617 (AB 617) and the State Implementation Plan (SIP) do not require the further emission reductions. Additionally, the table referenced in SDAPCD’s Rule 69.4.1 is specified for “New or Replacement Non-Emergency Engines” and Table 3 in Rule 3.22 is for both new and existing engines. The emissions limits specified for “Existing Non-Emergency Engines” in SDAPCD Rule 69.4.1 section (d)(1)(ii)(A) corresponds with the emission limits proposed in Rule 3.22. Suggestion was not implemented.

- Section D.4.b describes requirements for using an emission analyzer to take NO_x, CO, and O₂ readings. We recommend the District add language to require that the operator of the emission analyzer be trained as it done in SDAPCD Rule 69.4.1 section (e)(5) and (e)(5)(v).

Response: The District agrees. Section D.4.b was revised to require a trained operator to use the emission analyzers in the on-going compliance program. However, the District did not specify that the training program must be done through SCAQMD, but it must be an “appropriate training program”.

Additionally, the District added the remaining subsections from SDAPCD Rule 69.4.1 (e)(5) to Rule 3.22 section D.4.b to provide further guidance on use of the emission analyzer.

- Section E.1 contains added language that may provide a director's discretion if not amended. The language should say, "or any equivalent method approved by EPA and CARB."

Response: The District disagrees. EPA and CARB develop different testing methods for testing the same compounds and are labeled under different naming conventions i.e. EPA Method 10 and CARB Method 100 for testing for Carbon Monoxide (CO). These testing methods are not approved by both EPA and CARB but are considered equivalent. The District did revise the rule language to include "EPA and/or CARB" to the referenced section instead of listing it as "EPA or CARB".



15 July 2020

Mr. Christopher Brown, APCO
Feather River AQMD
541 Washington Ave
Yuba City, CA 95991

Subject: Rule 3.22, Stationary Internal Combustion Engines
Comments Regarding the Proposed Draft Modifications

Dear Mr. Brown,

Please forward CRC's thanks to your staff for hosting a meeting to review the proposed changes to Rule 3.22. The information transfer during such meetings is invaluable.

One comment is a clarification of Section D.2.b regarding existing permitted equipment within the District. It is clear the only change to the Rule is addition of Natural Gas Powered Engines and the related emission limits; it is further clear that only the NOx limit is changing from the current 2014 SIP Rule. Regarding support documentation to demonstrate compliance with the revised Rule limit: a) Will the District accept a manufacturer's guarantee of performance (engine, catalyst, air-fuel controller, etc.) and corresponding portable analyzer report as sufficient supporting documentation until the next scheduled 3rd party source test; b) If a previous (12/31/2018 to 12/30/2020) 3rd party source test demonstrated compliance with applicable limits, will the addition of a portable analyzer report to demonstrate ongoing compliance with the revised NOx limit be sufficient documentation of compliance until the next scheduled 3rd party source test?

Additionally, CRC is requesting clarification regarding application filing fees to accommodate this change. It is clear the emission limits will be reduced from the current permitted level; however, CRC can demonstrate that affected emission units are operating below the revised proposed standard. Therefore, this change could be viewed as an administrative correction in our case and should not be subject permit application or filing fees.

Please contact the undersigned via telephone at (661) 412-5452 or by mail to the address below if you have any questions or need additional information.

Sincerely,

Wm. Douglas Shaffer, PE
HSE Environmental Consultant
William.Shaffer@crc.com
California Resources Production Corporation



Serving Sutter and Yuba Counties

July 22, 2020

Mr. Wm. Douglas Shaffer
California Resources Production Corporation
900 Old River Road
Bakersfield Ca, 93311

**RE: RULE 3.22, STATIONARY INTERNAL COMBUSTION ENGINES
COMMENTS REGARDING THE PROPOSED DRAFT MODIFICATIONS**

Dear Mr. Shaffer,

The District has received your written comments on July 15, 2020, regarding the proposed amendments to Rule 3.22 and provides the following responses.

To clarify Section D.2.b regarding the initial compliance determination for existing permitted engines subject to the rule, the District will accept support documentation which demonstrated that the engine is in compliance with the new limits. The District will also accept a previous source test (2018 to 2023) that demonstrate the engine complies with the rule. Please notify the District in writing if a previously submitted source test or manufacturer's documentation demonstrates compliance with the rule and you want the District to use this test/document as initial compliance with the new limits. Once the notification is submitted, the District will revise the permit and engineering evaluation to show compliance with the new rule amendments. The time to revise the permit and engineering evaluation will be billed at the current hourly rate. No Authority to Construct (ATC) application will need to be submitted. The notification for each facility must be submitted before the December 31, 2023 deadline.

For existing engines that do not meet the new emission limits, you must submit an ATC application specifying the equipment specification and/or new engine proposed to comply with the rule. The District will accept new catalysts or other new devices with the manufacture's emission data as proof of compliance with the rule amendments. The District will charge fees associated will be the current application filing fee, and the hourly rate to complete the ATC according to Regulation VI, Fees. The proposed equipment must be installed and inspected before the December 31, 2023 deadline. The District recommends beginning the application process at least 90 to 120 days prior to the end of the year.

If you have any further questions, please contact me at (530) 634-7659 ext. 208 or rdemma@fraqmd.org.

Sincerely,


Robin Demma
Air Quality Engineer I

541 Washington Avenue
Yuba City, CA 95991
(530) 634-7659
FAX (530) 634-7660
www.fraqmd.org

Christopher D. Brown AICP
Air Pollution Control Officer

ATTACHMENT D
Proof of Publication

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

RECEIVED

JUL 08 2020

APPEAL-DEMOCRAT

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:

July 3, 2020

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

July 3, 2020

Kathy Stannhill

Date

Signature

Feather River Air Quality Management District

Public Hearing

COPY:

PUBLIC HEARING

PLEASE TAKE NOTICE that the Feather River Air Quality Management District (District) will conduct a public hearing on Monday, August 3, 2020 at 4:00 p.m. The purpose of the hearing is to receive comments and consider the following actions: the adoption of amendments to Rule 4.8 Further Information; the adoption of amendments to Rule 3.22 Stationary Internal Combustion Engines; and the Reasonably Available Control Technology (RACT) analysis and negative declarations.

Due to the COVID-19 outbreak, the Public Hearing may be held virtually or at 541 Washington Avenue, Yuba City. In the event of a virtual hearing, we ask that the public attend remotely via a video link or telephone. Additional information, including the video link and telephone instructions will be posted at FRAQMD's website, www.fraqmd.com, under the Public Notices icon.

The proposed amendments to Rule 4.8 Further Information would bring the rule into compliance with the Federal Clean Air Action (FCAA) section 182(a)(3)(B).

The purpose of proposed amendments to Rule 3.22 is to adopt new emission limits for prime natural gas well engines per Assembly Bill 617 (Garcia, Chapter 136, 2017).

The RACT analysis reviewed the Control Technique Guidelines (CTG), the District rules and regulations, and existing stationary sources in the Sutter County portion of the Sacramento Federal Nonattainment Area for Ozone pursuant to Sections 182 (b)(2) of FCAA. The RACT analysis has identified one applicable CTG. The District's rules and regulations were determined to be as stringent as the CTG and current RACT. The District is proposing to adopt a negative declaration for the remaining CTGs.

The amendments to Rule 4.8, Rule 3.22, RACT analysis, and negative declarations will be submitted to the California Air Resources Board for submittal to the United States Environmental Protection Agency as a State Implementation Plan revision.

The rule amendments and RACT analysis are available on District's website: www.fraqmd.org.

By this notice, the public is invited to comment on the actions. Written comments can be submitted by mail to Christopher Brown, APCO, FRAQMD, 541 Washington Avenue, Yuba City, CA 95991, by email to: sspaethe@fracmd.org, or by FAX to 530-634-7660. Written comments should be received no later than 5:00 p.m. on July 23, 2020. Comments may also be presented at the public hearing on August 3, 2020. For more

information, contact the District at (530) 634-7659 or visit www.fraqmd.org.

July 3, 2020

Ad #00257310