

Staff Report

Rule 3.22: Stationary Internal Combustion Engines

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Schedule of Meetings

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Public Hearing: October 7, 2024

Feather River AQMD

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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 Sutter County have been designated as “nonattainment-transitional” for failing to meet the state ozone standard¹. The southern portion of Sutter County is also designated as a serious nonattainment area for the 2015 8-hour ozone national ambient air quality standard (NAAQS) effective November 29, 2021².

Ozone is formed when volatile organic compounds (VOCs) react with nitrogen oxides (NO_x) 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 aggravates conditions such as asthma and bronchitis.

The proposed rule amendments are to address United States Environmental Protection Agency’s (US EPA) comments and include minor formatting and editing for clarity. The US EPA comments were regarding the previous rule amendments that were adopted on August 3, 2020. The 2020 rule amendments lowered the NO_x emission limits effective December 31, 2023, for natural gas spark ignited ICE used as a prime power source to comply with AB 617. The 2020 amendments were submitted to the US EPA as State Implementation Plan (SIP) revision. US EPA informed the District that the rule could not be included in the SIP as submitted and recommended removing the word “or” from section E.1.

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 NO_x, VOCs, carbon monoxide (CO), and particulate matter (PM10 and PM2.5), which are all discharged into the atmosphere. NO_x and VOCs are recognized as precursors to ground-level ozone formation, and reductions in NO_x and VOCs are necessary to attain and maintain the federal and state ambient air quality standards for ozone. Ozone can result in reduced lung function, increased respiratory symptoms, increased airway hyperactivity, and increased airway inflammation. Emissions of VOCs also react in the atmosphere to form PM10 and PM2.5. Inhalation of PM10 and PM2.5 deep into the 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 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

¹ <https://ww2.arb.ca.gov/sites/default/files/barcu/regact/2024/areades/isor.pdf>

² Bump up to serious classification approved in Federal Register notice 86 FR 59648, 10/28/2021

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 NO_x 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 amendments to lower the acceptable emission limit of NO_x for spark ignited prime engines to BARCT requirements were adopted by the District Board of Directors on August 3, 2020, and sent to CARB for inclusion in the SIP on December 30, 2020.

CARB approved the rule amendments and sent them to the US EPA as a SIP revision on March 12, 2021.

The US EPA informed the District that the amended rule could not be approved in the SIP because of the “and/or” statement in the Test Methods and Procedures (section E.1) of the rule. The US EPA asked the District to change the statement from:

“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.”

to:

“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** CARB.”

This new amendment is to address US EPA’s comments and also include minor formatting and editing for clarity.

3.0 Legal Mandate:

The amendments to Rule 3.22 that were adopted in 2020 were mandated by AB 617. AB 617 was approved on July 26, 2017, and amends California Health and Safety Code section 409020.6 to require each air district that includes a nonattainment area for one or more air pollutants, to adopt and implement BARCT for each industrial source subject to a market-based compliance mechanism.

The current amendments were requested by US EPA on February 24, 2022 to make the rule approvable in the SIP.

4.0 Proposed Rule Requirements:

The proposed amendments are to address EPA's comments and will include minor formatting and editing for clarity since the December 31, 2023 effective date for BARCT date has passed.

Table 1 – Summary of Proposed Amendments

SECTION NUMBER	PROPOSED LANGUAGE
Section D.1 Table 1	Updated due to the BARCT emission factors are already in effect.
Section D.1 Table 3	Removed due to the BARCT emission factors are already in effect.
Section D.4	Removed language that was only effective until 12/30/2023.
Section E.1	Compliance with the emission limits in Tables 1 and 2 shall be determined using the following test methods or an equivalent method approved by EPA and CARB:"
Rule 3.22 – All	Minor formatting and editing

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.

6.0 Emission Impacts of Proposed Rule:

The proposed amendments to Rule 3.22 will not result in emission impacts.

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 the cost effectiveness of the rule.

There are no expected cost impacts of the proposed amendments.

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

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 as this action is taken by a regulatory agency for the protection of a natural resource. 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 the 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
<p>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)]</p>	<p>It is necessary for the District to adopt the proposed amendments in order for the rule to be approved in the SIP.</p>
<p>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)(2)]</p>	<p>The District is authorized to adopt rules and regulations by HSC §40001, 40702, 40919, and 42300.</p>
<p>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)]</p>	<p>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.</p>
<p>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)]</p>	<p>The proposed rule does not conflict with and is not contradictory to existing statutes, court decisions, or state or federal regulations.</p>
<p>Non-Duplication: The District must find that either: 1) The rule does not impose the same requirements as an existing state or federal regulation; or 2) that the duplicative requirements are necessary or proper to execute the powers</p>	<p>The proposed rule does not impose requirements that duplicate existing laws or regulations.</p>

and duties granted to, and imposed upon the District. [HSC §40727(b)(5)]	
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)]	References to statutes are noted where applicable.

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 with 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 Tables 6 and 7 below. The NO_x 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+NO _x (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.