

Yolo-Solano Air Quality Management District
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PROPOSED AMENDMENTS TO RULE 2.43, BIOMASS BOILERS

FINAL STAFF REPORT

March 31, 2023

Prepared by Paul Hensleigh

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I. EXECUTIVE SUMMARY

On April 12, 2023 the Yolo-Solano Air Quality Management District (District) Board of Directors will consider the proposed amendment to Rule 2.43, BIOMASS BOILERS. Rule 2.43 contains emission standards for biomass fired boilers. The amendment being proposed to Rule 2.43 is to add a numeric emission limit that applies during periods of startup and shutdown.

The proposed amendment will not have a significant or detrimental effect on the environment. Therefore, staff prepared a Notice of Exemption to satisfy the requirements of the California Environmental Quality Act (CEQA). The notice states that the revisions to Rule 2.43 are exempt from the requirements of CEQA pursuant to Section 15308, Actions by Regulatory Agencies for Protection of the Environment.

A. BACKGROUND

History

Rule 2.43 Biomass Boilers was originally adopted by the District on November 10, 2010. This version of the Rule was submitted for State Implementation Plan (SIP) approval in 2011 and was approved into the SIP in 2012. The rule was originally adopted to satisfy a requirement in our Reasonably Available Control Technology State Implementation Plan (RACT SIP) from 2006. The RACT SIP requires that we must have a Rule for all major non Control Technique Guideline (CTG) sources.

In the fall of 2022 the District was notified by EPA Region 9 that they couldn’t approve our RACT SIP because last year EPA returned to their 2015 Startup, Shutdown and Maintenance (SSM) policy, which requires a numeric limit to be in place during periods of startup and shutdown. Our existing rule had work practice requirements in place to limit the duration of startups and shutdowns, but no numeric emission limit.

Overview of source category

This rule applies to biomass fired boilers, of which our District only has 1 permitted source (Woodland Biomass Power Ltd).

II. DISCUSSION OF PROPOSED RULE 2.43 AMENDMENTS

The proposed amendments to Rule 2.43 are as follows:

Section 302.4

The District is proposing to add a limit for Nitrogen Oxides (NOx) and Carbon Monoxide (CO).

NOx	CO
215 ppm, corrected to 3% O2 (block 24 hour average)	400 ppm, corrected to 3% O2 (block 24 hour average)

III. COMPARISON WITH OTHER APPLICABLE REGULATIONS AND REQUIREMENTS

California Health and Safety Code (CH&SC) Section 40727.2 requires districts to perform a comparative alternative analysis of any new control standard. Specifically, the District is required to prepare a written analysis (usually in the form of a matrix) that identifies all existing federal air pollution control requirements, including, but not limited to emission control standards constituting best available control technology (BACT) that applies to the same equipment or source type as the rule or regulation proposed for adoption or modification by the District. In addition, the analysis shall identify any other District rule or regulation that applies to the same equipment or source type. However, as discussed above, since this rule is required to meet RACT guidelines, a RACT determination will be made in place of a BACT analysis.

Reasonably Available Control Technology

There are several other District rules and one Federal Regulation that can be analyzed for comparison with this proposed rule. El Dorado County AQMD, Placer County APCD, and San Joaquin Valley APCD all have District rules that apply to this source category. Also, 40 CFR 60, Subpart Db applies to biomass boilers greater than 100 MMBtu/hr.

During startup and shutdown, the other Districts rules have the following standards.

District	NOx Rule Limit	CO Rule Limit
El Dorado Rule 232	The rule specifies that units shall not be source tested during startup, shutdown, or breakdown periods.	
Placer Rule 233	35 pounds per hours (24 hour block average)	56 pounds per hours (24 hour block average)
	35 pounds per hour (72 hour block average during curing startup)	56 pounds per hour (72 hour block average during curing startup)
San Joaquin Rule 4352	No numeric limits apply during startup, just work practices to minimize emissions.	
Proposed Yolo-Solano 2.43	215 ppm, corrected to 3% O2 (block 24 hour average)	400 ppm, corrected to 3% O2 (block 24 hour average)

Based on the table above, this proposed rule either meets or exceeds RACT since it is the same as the most stringent of the rules.

The federal regulation, 40 CFR 60, Subpart Db, has a NOx limit of 0.3 lb/MMBtu on a 30 day rolling average, which is equivalent to approximately 215 ppm.

IV. IMPACTS OF THE PROPOSED RULE

Emissions Impacts

The proposed amendment is not expected to result in any emissions impact because the one source currently complies with the new limits. In addition, this rule amendment only changes the requirements during periods of start-up and shutdown, which are already limited in duration by the rule.

Cost Effectiveness

CH&SC Section 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. The amendments to this Rule will not impact emissions and therefore cost effectiveness calculations cannot be performed.

Socioeconomic Impacts

California Health and Safety Code Section 40728.5(a) requires the District, in the process of the adoption of any rule or regulation, to consider the socioeconomic impact if air quality or emission limits may be significantly affected. However, districts with a population of less than 500,000 persons are exempt from the provisions of Section 40728.5(a). The District's population is estimated to be approximately 345,000 and well below the 500,000-person threshold. Therefore, a socioeconomic analysis for this rulemaking is not required.

Incremental Cost Effectiveness

CH&SC Section 40920.6 requires an assessment of the incremental cost-effectiveness for proposed regulations relative to ozone, Carbon Monoxide (CO), Sulfur Oxides (SO_x), Nitrogen Oxides (NO_x), and their precursors. Incremental cost-effectiveness is defined as the difference in control costs divided by the difference in emission reductions between two potential control options that can achieve the same emission reduction goal of a regulation. Again, the District does not expect any emissions changes from these amendments, so no incremental cost-effectiveness analysis can be done.

V. ENVIRONMENTAL IMPACTS OF METHODS OF COMPLIANCE

California Public Resource Code Section 21159 requires the District to perform an environmental analysis of the reasonably foreseeable methods of compliance. The analysis must include the following information:

1. An analysis of the reasonably foreseeable environmental impacts of the methods of compliance.
2. An analysis of the reasonably foreseeable mitigation measures.
3. An analysis of the reasonably foreseeable alternative means of compliance with the rule or regulation.

The District does not expect any change in emissions from this rule amendment. Therefore, an evaluation under this Section cannot be performed.

The proposed rule amendment will not have a significant effect on the environment and is considered to be an action taken to maintain and protect the environment. Therefore, staff has determined that the project is categorically exempt from the requirements of the California Environmental Quality Act (CEQA) pursuant to Section 15308, Actions by Regulatory Agencies for Protection of the Environment. Staff prepared a Notice of Exemption (NOE) to meet the CEQA Guidelines (Attachment B).

VI. REGULATORY FINDINGS

Section 40727(a) of the California Health & Safety Code (H&SC) requires that prior to adopting or amending a rule or regulation, an air district's board make findings of necessity, authority, clarity, consistency, non-duplication and reference. The findings must be based on the following:

1. Information presented in the District's written analysis, prepared pursuant to H&SC Section 40727.2;
2. Information contained in the rulemaking records pursuant to H&SC Section 40728; and
3. Relevant information presented at the Board's hearing for adoption of the rule.

The required findings are:

Necessity: The rule amendment is necessary in order to satisfy EPA's requirements for our RACT SIP.

Authority: The District is authorized to adopt rules and regulations by California Health and Safety Code, Sections 40001, 40702, 40716, 41010 and 41013. [H&SC Section 40727 (b)(2)]

Clarity: The proposed rule is written so that the meaning can be easily understood by the persons directly affected by it. In addition, the record contains no evidence that the persons directly affected by the rule cannot understand the rule. [H&SC Section 40727(b)(3)]

Consistency: The proposed rule does not conflict with and is not contradictory to, existing statutes, court decisions, or state or federal regulations. [H&SC Section 40727(b)(4)]

Non-Duplication: The proposed rule does not duplicate any state laws or regulations, regarding the attainment and maintenance of state and federal air quality limits. [H&SC Section 40727(b)(5)]

Reference: There are no other statutes, court decisions, or other provisions of law that the District implements, interprets, or makes specific by adopting, amending or repealing the rule. [H&SC Section 40727(b)(6)].

VII. PUBLIC COMMENTS AND STAFF RESPONSES

Since the single amendment to this Rule is to add a limit which the one source already complies with and that won't impact emissions, the District did not hold a public workshop.

Staff will hold a public hearing on April 12, 2023 to discuss the proposed amendment to Rule 2.43. Notification was sent to surrounding Air Districts, City Managers within the District, building/planning/community development departments within the YSAQMD, all city and county libraries within the District, all Board members, and the one affected source. The public hearing notice was published in the Woodland Democrat on February 21, 2023.

A copy of the public hearing notice, the proposed staff report, and proposed rule language, were posted on the District's web page prior to the public hearing.

The District received no public comments.

VIII. REFERENCES

None

ATTACHMENT A

**PROPOSED RULE 2.43, BIOMASS BOILERS
STRIKE-OUT UNDERLINE VERSION**

RULE 2.43 BIOMASS BOILERS

~~Adopted~~ **ADOPTED** November 10, 2010
AMENDED April 12, 2023

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~~Adopted~~ Amended November 10, 2010 April 12, 2023
(Draft March 31, 2023)

Reg. II, Rule 2.43, Page 1

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100 GENERAL

- 101 **PURPOSE:** The purpose of this rule is to limit the emissions of oxides of nitrogen (NO_x) and carbon monoxide (CO) from biomass fueled boilers.
- 102 **APPLICABILITY:** The provisions of this rule are applicable to boilers and steam generators with rated heat inputs of greater than or equal to 5 million BTU per hour and which combust biomass as a fuel.
- 110 **EXEMPTIONS:** The provisions of this rule shall not apply to the following:
- 110.1 **Boilers, Steam Generators, and Process heaters:** Boilers, steam generators, and process heaters which are subject to the provisions of District Rule 2.27 - Industrial, Institutional, and Commercial Boilers, Steam Generators, and Process Heaters.
- 110.2 **Solid Waste Incinerators:** Combustion units whose primary purpose is to burn municipal solid waste.
- 110.3 **Waste Heat Recovery Boilers:** Waste heat recovery boilers that are used to recover sensible heat from the exhaust of combustion turbines or unfired waste heat recovery boilers used to recover sensible heat from the exhaust of any combustion equipment.

200 DEFINITIONS

- 201 **BIOMASS:** Any organic material not derived from fossil fuels, such as agricultural crop residues, bark, lawn, yard and garden clippings, leaves, silvicultural residue, tree and brush pruning, wood and wood chips, and wood waste, including these materials when separated from other waste streams. Biomass does not include material containing sewage sludge, industrial sludge, medical waste, hazardous waste, or radioactive waste.
- 202 **BIOMASS FUELED BOILER (BOILER):** Any combustion equipment designed to burn biomass to produce steam, heat water or other fluids, and/or produce electricity, including but not limited to boilers and steam generators.
- 203 **BLOCK 24-HOUR AVERAGE:** the arithmetic average of the hourly NO_x or CO emission rates of a unit as measured over 24 one-hour periods, daily, from 12:00 AM to 11:59 PM, excluding periods of system calibration.

- 204 **BRITISH THERMAL UNIT (BTU):** The amount of heat required to raise the temperature of one pound of water from 59 degrees Fahrenheit to 60 degrees Fahrenheit at one atmosphere.
- 205 **CARBON MONOXIDE (CO) EMISSIONS:** Carbon monoxide in the flue gas.
- 206 **CURING STARTUP:** A startup which includes heating the boiler at a predetermined rate and holding the temperature at several points to allow for insulating materials to cure in the boiler refractory.
- 207 **HEAT INPUT:** The chemical heat released due to fuel combustion in a unit, using the higher heating value of the fuel. This does not include the sensible heat of incoming combustion air.
- 208 **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.
- 209 **NITROGEN OXIDE (NO_x) EMISSIONS:** The sum of nitric oxides and nitrogen dioxide in the flue gas, collectively expressed as nitrogen dioxide (NO₂).
- 210 **RATED HEAT INPUT:** The heat input capacity, in million BTU per hour, specified on the nameplate of the unit. If the unit has been altered or modified such that the 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.
- 211 **SHUTDOWN:** The period of time when fuel feed is curtailed and the unit cools down from its normal operating temperature, to an ambient temperature.
- 212 **STARTUP:** The period of time that a unit is heated to the normal operating temperature, from a shutdown status.
- 213 **UNIT:** Any biomass fueled boiler, as defined in section 202.

300 STANDARDS

- 301 **EMISSION LIMITS:** The owner/operator of an affected unit shall limit the emissions of that unit to less than the following, excluding startup/shutdown:

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~~Adopted Amended November 10, 2010~~ April 12, 2023
(Draft March 31, 2023)

Reg. II, Rule 2.43, Page 4

NO _x	CO
90 ppm, corrected to 3% O ₂ (block 24 hour average)	400 ppm, corrected to 3% O ₂ (block 24 hour average)

302 **STARTUP/SHUTDOWN PROVISIONS:** The emission limits of section 301 shall not apply during startup/shutdown, provided the following requirements are met:

302.1 A normal startup shall not exceed 24 hours in duration. A curing startup shall not exceed 96 hours in duration.

302.2 A shutdown shall not exceed 24 hours.

302.3 The frequency and duration of startup/shutdown periods and their associated emissions shall be minimized as much as technologically feasible.

302.4 During startup/shutdown periods, the owner/operator of an affected unit shall limit the emissions of that unit to less than the following:

<u>NO_x</u>	<u>CO</u>
<u>215 ppm, corrected to 3% O₂ (block 24 hour average)</u>	<u>400 ppm, corrected to 3% O₂ (block 24 hour average)</u>

303 **CONTINUOUS EMISSION MONITORING SYSTEM (CEMS):** The owner/operator of an affected unit shall install, calibrate, maintain, and operate a Continuous Emission Monitoring System (CEMS) for measuring NO_x and CO emission concentrations.

303.1 The CEMS shall comply with the requirements specified in 40 Code of Federal Regulations (CFR) Part 60, Appendix B, Specification 2 and Appendix F or other alternative methods approved by the U.S. EPA and the District.

304 **SOURCE TESTING:** The owner/operator of an affected unit subject to the provisions of this rule shall perform a Relative Accuracy Test Audit (RATA) to verify compliance with 40 CFR Part 60, Appendix F at least once every four (4) calendar quarters, in accordance with a District-approved protocol and the procedures listed in Appendix F.

400 ADMINISTRATIVE REQUIREMENTS

- 401 **COMPLIANCE SCHEDULE:** The owner/operator of an affected unit subject to the requirements of this rule shall demonstrate full compliance with all provisions by July 1, 2011.
- 402 **CEMS OPERATING AND MAINTENANCE (O&M) PLAN:** The owner/operator of an affected unit shall submit an O&M Plan for the CEMS to the Air Pollution Control Officer (APCO) for approval. The plan shall include:
- 402.1 The procedures for collecting and recording required data and other information in a form approved by the APCO.
- 402.2 The procedures and schedules for preventive and corrective maintenance performed for the purpose of maintaining the CEMS in proper operating condition.

500 REPORTING AND RECORDKEEPING

- 501 **REPORTING:** All records required by this Rule shall be maintained on-site for a period of five (5) years and made available to the APCO upon request.
- 502 **RECORDKEEPING:** The owner/operator of an affected unit shall maintain an operating log for the unit that includes, on a daily basis:
- 502.1 The actual startup/shutdown time and total operating hours;
- 502.2. Type and amount of each biomass fuel burned;
- 502.3 The exhaust gas CO and NO_x concentrations in parts per million volume (ppmv), corrected to 3% O₂, for block 24-hour average.

600 TEST METHODS

- 601 **GENERAL:** For the purposes of this Rule, the following test methods (or their most recent approved versions) shall be used. Other alternative test methods that are approved in writing by the District and the EPA may also be used.

- 602 NO_x EMISSION CONCENTRATION: NO_x emission concentrations shall be determined in accordance with U.S. EPA Method 7.
- 603 CO EMISSION CONCENTRATION: CO emission concentrations shall be determined in accordance with U.S. EPA Method 10.
- 604 STACK GAS OXYGEN: The oxygen content of the stack gas shall be determined in accordance with U.S. EPA Method 3.
- 605 STACK GAS VELOCITY (FLOW): Velocity of the stack gases shall be determined in accordance with U.S. EPA Method 2.
- 606 STACK GAS MOISTURE CONTENT: Moisture content of the stack gases shall be determined in accordance with U.S. EPA Method 4.
- 607 FUEL HHV: The HHV of solid fuels shall be determined in accordance with ASTM E 711-87 or ASTM D 2015-96.

ATTACHMENT B

NOTICE OF EXEMPTION FROM CEQA GUIDELINES

ATTACHMENT C

RESOLUTION NO. 23-03

RESOLUTION NO. 23-03

RESOLUTION AMENDING YOLO-SOLANO AIR QUALITY MANAGEMENT DISTRICT RULE 2.43

WHEREAS, California Health and Safety Code section 40702 provides that an air quality management district shall adopt rules and regulations as may be necessary or proper to execute the powers and duties granted to, and imposed upon, the district by Division 26 of the Health and Safety Code; and

WHEREAS, Health and Safety Code section 40727 provides that before adopting, amending, or repealing a rule or regulation, a district board shall make findings of necessity, authority, clarity, consistency, non-duplication, and reference, based upon information developed pursuant to section 40727.2, information in the rulemaking record maintained pursuant to section 40728, and relevant information presented at the public hearing required by section 40725; and

WHEREAS, Section 15308 of the CEQA Guidelines provides that actions taken by regulatory agencies as authorized by state law to assure the maintenance, restoration, or enhancement of the environment where the regulatory process involves procedures for protection of the environment, are categorically exempt from CEQA review (Class 8 Categorical Exemption); and

WHEREAS, Yolo-Solano Air Quality Management District staff identified requirements within Rule 2.43, Biomass Boilers, which required updating for consistency with federal policy.

NOW, THEREFORE, BE IT RESOLVED that the Board of Directors of the Yolo-Solano Air Quality Management District hereby finds, authorizes, directs and declares as follows:

1. The Board of Directors has considered and hereby adopts by reference the staff report prepared in this matter.
2. The Board of Directors makes the following findings pursuant to Health and Safety Code section 40727:
 - a. Necessity: Information in the District's rulemaking record maintained pursuant to Health and Safety Code section 40728 demonstrates a need for amending District Rule 2.43; and
 - b. Authority: Health and Safety Code section 40702 permits the District to amend District Rule 2.43; and
 - c. Clarity: District Rule 2.43 as amended is written so that its meaning can be easily understood by the persons directly affected by it; and

- d. Consistency: District Rule 2.43 as amended is in harmony with, and not in conflict with or contradictory to, existing statutes, court decisions, or state or federal regulations; and
 - e. Non-Duplication: District Rule 2.43 as amended does not impose the same requirements as an existing state or federal regulation; and
 - f. Reference: There are no other statutes, court decisions, or other provisions of law that the District implements, interprets, or makes specific by adopting, amending or repealing the rule.
3. The Board of Directors finds that the District has complied with the procedural requirements set forth in Chapters 6 and 6.5 of Part 3 of Division 26 of the Health and Safety Code.
4. The Board of Directors finds that amending District Rule 2.43 is an action taken by a regulatory agency as authorized by state law to assure the maintenance, restoration or enhancement of the environment where the regulatory process involves procedures for protection of the environment, and is therefore categorically exempt from CEQA review as a Class 8 Categorical Exemption.
5. The Board of Directors hereby amends District Rule 2.43, Biomass Boilers, as set forth in Exhibit 1 (Attachment A of the Staff Report), which is attached and incorporated by reference. The amendment shall become effective immediately upon adoption.

PASSED AND ADOPTED by the Board of Directors of the Yolo-Solano Air Quality Management District this 12th day of April, 2023, by the following vote:

Ayes:

Noes:

Absent:

Abstain:

Gloria Partida, Chair Board of Directors
Yolo-Solano Air Quality Management District

Attest:

Approved as to Form:

Denise Almaguer, Clerk
Board of Directors

Hope P. Welton, District Counsel