

EL DORADO COUNTY AIR POLLUTION CONTROL DISTRICT

RULE 232 -- BIOMASS BOILERS

(Adopted October 18, 1994) (Amended January 23, 2001, September 25, 2001)

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BIOMASS BOILERS

232.1 GENERAL

- A. **APPLICABILITY:** This rule applies to boilers and steam generators with rated heat inputs of greater than or equal to 5 million BTU per hour and which have a primary energy source of biomass consisting of a minimum of 75 percent of the total annual heat input.
- B. **FEDERAL REGULATIONS:** Compliance with this rule shall not exempt a person from complying with any federal regulation promulgated pursuant to the Clean Air Act (42 U.S.C. Section 7401 et seq.).
- C. **EXEMPTION, BOILERS, STEAM GENERATORS, AND PROCESS HEATERS:** This rule shall not apply to boilers, steam generators, and process heaters subject to Rule 229 INDUSTRIAL, INSTITUTIONAL, AND COMMERCIAL BOILERS, STEAM GENERATORS, AND PROCESS HEATERS.
- D. **EXEMPTION, MUNICIPAL SOLID WASTE:** This rule shall not apply to combustion units whose primary purpose is to burn municipal solid waste, as defined in Section 232.2 F.
- E. **EXEMPTION, WASTE HEAT RECOVERY BOILERS:** The provisions of this rule do not apply to waste heat recovery boilers 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.

232.2 DEFINITIONS

- A. **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.
- B. **BIOMASS BOILER OR STEAM GENERATOR:** Any combustion equipment used in any industrial, institutional, or commercial operation designed to burn biomass to produce steam, heat water or other fluids, and/or produce electricity.
- C. **BRITISH THERMAL UNIT (BTU):** The amount of heat required to raise the temperature of one pound of water from 59EF to 60EF at one atmosphere.
- D. **HEAT INPUT:** The chemical heat released due to fuel combustion in a boiler, using the higher heating value of the fuel. This does not include the sensible heat of incoming combustion air.
- E. **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. HHV shall be determined by one of the following test methods:

1. ASTM D 2015-85 for solid fuels; or
 2. ASTM D 240-87 or ASTM D 2382-82 for liquid hydrocarbon fuels; or
 3. ASTM D 1826-88 or ASTM D 1945-81 in conjunction with ASTM D 3588-89 for gaseous fuels.
- F. **MUNICIPAL SOLID WASTE:** Household, commercial/retail, and/or institutional waste. Household waste includes material discarded by single or multiple residential dwellings, hotels, motels, and other similar permanent or temporary housing establishments or facilities. Commercial/retail waste includes material discarded by stores, offices, restaurants, warehouses, nonmanufacturing activities at industrial facilities, and other similar establishments or facilities. Institutional waste includes material discarded by schools, hospitals, prisons, and government facilities and other similar establishments or facilities.
- G. **NO_x EMISSIONS:** The sum of nitric oxides and nitrogen dioxide in the flue gas, collectively expressed as nitrogen dioxide (NO₂).
- H. **PARTS PER MILLION BY VOLUME (PPMV):** The ratio of the number of gas molecules of a given species, or group, to the number of millions of total gas molecules.
- I. **RATED HEAT INPUT CAPACITY:** The heat input capacity, in million BTU per hour, 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 input capacity specified on the nameplate, and this alteration or modification has been approved in writing by the Air Pollution Control Officer, then the new maximum heat input shall be considered as the rated heat input capacity.
- J. **RESPONSIBLE OFFICIAL:** An individual with the authority to certify that a source complies with all applicable requirements, including the conditions of permits issued to sources in accordance with Regulation V PERMITS. A "responsible official" means one of the following:
1. For a corporation, a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or a duly authorized representative of such person if the representative is responsible for the overall operation of one or more manufacturing, production, or operating facilities applying for or subject to a permit and either:
 - a. The facilities employ more than 250 persons or have gross annual sales or expenditures exceeding \$25 million (in second quarter 1980 dollars); or
 - b. The delegation of authority to such representative is approved in advance by the Air Pollution Control Officer;
 2. For a partnership or sole proprietorship, a general partner or the proprietor, respectively; or

3. For a municipality, state, federal, or other public agency, either a principal executive officer or a ranking elected official; or
 4. For an acid rain unit subject to Title IV (Acid Deposition Control) of the Clean Air Act, the "responsible official" is the designated representative of that unit for any purposes under Title IV and Rule 522 FEDERAL OPERATING PERMIT PROGRAM.
- K. **SHUTDOWN:** The period of time a unit is cooled from its normal operating temperature to cold or ambient temperature.
- L. **STARTUP:** The period of time a unit is heated from cold or ambient temperature to its normal operating temperature as specified by the manufacturer.
- M. **UNIT:** Any biomass boiler or steam generator as defined in Section 232.2 B.
- N. **WOOD:** Wood, wood residue, bark, or any derivative fuel or residue thereof, in any form, including but not limited to sawdust, sanderdust, wood chips, scraps, slabs, millings, shavings, and processed pellets made from wood or other forest residues.

232.3 STANDARDS

A. LIMITATIONS

1. No person shall allow the discharge of NO_x emissions into the atmosphere from a biomass boiler or steam generator in excess of the following standards, whichever is less stringent:
 - a. An exhaust concentration of 115 parts per million (ppmv) corrected to 12 percent by volume stack gas carbon dioxide (CO₂) on a rolling three-hour average dry basis.
 - b. 50 percent of the uncontrolled NO_x emission concentration in the exhaust gas stream. A corresponding controlled concentration limit, expressed in ppmv corrected to 12 percent by volume stack gas CO₂ on a rolling three-hour average dry basis, shall be established in a Permit to Operate for the purpose of demonstrating continuous compliance with the 50 percent emission reduction.
2. A person operating a biomass boiler or steam generator subject to this rule shall establish a carbon monoxide (CO) emission limitation that represents good operating and combustion practices. No person shall allow the discharge of CO into the atmosphere in excess of historical actual averages or 120 percent of the CO exhaust concentration established by an initial compliance test conducted in accordance with Section 232.5 C. The CO concentration in ppmv shall be corrected to 12 percent by volume stack gas CO₂ on a rolling 3-hour average dry basis.

232.4 ADMINISTRATIVE REQUIREMENTS

A. **COMPLIANCE SCHEDULE**

1. Any person operating a unit subject to this rule that does not need to be retrofitted or have new control equipment installed to comply with the emission limitations of Section 232.3, shall demonstrate full compliance by **May 15, 1995**.
2. Any person operating a unit subject to this rule shall demonstrate compliance with the emissions monitoring requirements of Section 232.5 B., in accordance with the following schedule:
 - a. By **April 18, 1995**, submit plans and specifications for the Emissions Monitoring System, including milestones for installation and certification of the proposed system.
 - b. By **October 18, 1996**, achieve full compliance with all requirements of Section 232.5 B. Full compliance shall be achieved no later than 60 days after installation of the Emissions Monitoring System.
3. Any person operating a unit that is required to install emission control equipment to achieve compliance, Section 232.3, shall achieve final compliance with emission limitations by no later than two (2) years after the determination is made that emission control equipment is required.

B. **OPERATION AND MAINTENANCE PLAN:** Any person using an emission control device as a means of complying with the emission limitations of Section 232.3 A., shall submit an Operation and Maintenance Plan with the application for Authority to Construct for the emission control device.

1. The Operation and Maintenance Plan shall specify:
 - a. Operation and maintenance procedures that will demonstrate continuous operation of the emission control device during emission-producing operations; and
 - b. Records that must be kept to document the operation and maintenance procedures.
2. The records must comply with Sections 232.5 A., 232.5 B., and 232.5 C.
3. The Operation and Maintenance Plan shall be implemented upon approval by the Air Pollution Control Officer.
4. After completing the construction of the emission control device, the Operation and Maintenance Plan shall be resubmitted annually for approval.

C. **COMPLIANCE COSTS:** A person operating a unit subject to this rule shall bear all expenses associated with compliance with the monitoring and reporting provisions of this rule.

- D. **CERTIFICATION:** All reports submitted in accordance with this rule shall be signed by a responsible official who shall certify the truth, accuracy, and completeness of the report.

232.5 MONITORING AND RECORDS

- A. **RECORDKEEPING:** A person operating a unit subject to this rule shall keep the following records for each unit:

1. Calendar date of record.
2. Number of hours the unit is operated during each day.
3. Boiler load.
4. Fuel types, including supplementary gaseous or liquid fuels.
5. Duration of startups and shutdowns.
6. Type and duration of maintenance and repairs.
7. Results of compliance tests.
8. Rolling three-hour average NO_x emission concentration (expressed as NO₂ and corrected to 12 percent by volume stack gas CO₂).
9. Rolling three-hour average CO emission concentration (corrected to 12 percent by volume stack gas CO₂).
10. Identification of time periods during which NO_x and CO emission limitations are exceeded, the reason for the exceedance, and a description of corrective action taken.
11. Identification of time periods during which operating condition and pollutant emission data were not obtained, the reason for not obtaining this information, and a description of corrective action taken.

B. **EMISSIONS MONITORING**

1. By the applicable compliance date in Section 232.4 A.2.b., a person operating a unit subject to this rule shall install, calibrate, operate, and maintain a Continuous Emissions Monitoring System (CEMS) in accordance with applicable requirements of Appendices B and F of Title 40 Code of Federal Regulations Part 60 (40 CFR 60), unless an Alternative Emissions Monitoring Plan (AEMP) has been approved by the Air Pollution Control District. Before approving an AEMP, the District shall request approval from the United States Environmental Protection Agency and the California Air Resources Board.
2. The CEMS shall include equipment that measures and records the following on a continuous basis, exhaust gas NO_x and CO concentrations corrected to 12 percent by volume stack gas CO₂ dry basis.

3. An AEMP shall include equipment that measures and records the average NO_x and CO concentrations calculated on a rolling three-hour average basis.
4. A person operating a CEMS shall submit an excess emissions and monitoring systems performance report to the Air Pollution Control Officer within 30 days after the end of each calendar quarter in accordance with 40 CFR 60, Section 60.7(c) and (d) and Section 60.13.

C. INITIAL COMPLIANCE TEST

1. A person who elects to comply with the limitation specified in Section 232.3 A.1.a., shall conduct an initial compliance test no later than the applicable final compliance date in Section 232.4 A.1. The source test shall also be used to establish the CO limitation in accordance with Section 232.3 A.2.
 - a. Each emission test run shall be conducted while the unit is operated at maximum operating capacity. No emission test shall be conducted during startup, shutdown, or under breakdown conditions for the purpose of the initial compliance test.
 - b. The initial compliance test shall be conducted for NO_x and CO using the test methods specified in Section 232.5 D.
2. A person who chooses to comply with the limitation specified in Section 232.3 A.1.b., shall conduct an initial compliance test no later than the applicable final compliance date in Section 232.4 A.1. The source test shall also be used to establish the CO limitation in accordance with Section 232.3 A.2.
 - a. Each emission test run shall be conducted while the unit is operated at maximum operating capacity. No emission test shall be conducted during startup, shutdown, or under breakdown conditions for the purpose of the initial compliance test.
 - b. The initial compliance test shall be conducted for NO_x and CO using the test methods specified in Section 232.5 D.
 - c. The 50 percent NO_x emission reduction specified in Section 232.3 A.1.b., shall be calculated based on the pre- and post-controlled NO_x concentration corrected to 12 percent by volume stack gas CO₂. The pre-controlled concentration to be used in demonstrating the 50 percent reduction shall be obtained using the test methods specified in Section 232.5 D. The pre-controlled concentration shall be submitted to the Air Pollution Control Officer in the application for Authority to Construct specified in Section 232.4 A.2., or in a previously submitted application for Authority to Construct for an existing unit.
3. At least sixty (60) days prior to the initial compliance test, a written test plan detailing the test methods and procedures to be used shall be submitted for approval by the Air Pollution Control Officer. The plan shall cite the test methods to be used for the determination of compliance with the emission limitations of this

rule. The plan shall provide the proposed procedures for the characterization of the representative biomass materials to be burned during testing.

- D. **TEST METHODS:** A person conducting source tests in accordance with Section 232.5 C., shall use the following test methods:
1. Nitrogen Oxides (NO_x) - ARB Test Method 100, Title 17, CCR, Section 94114, Procedures for Continuous Emission Stack Sampling, or EPA Test Method 7E, 40 CFR 60, Appendix A. A violation determined by any of these test methods shall constitute a violation of this rule.
 2. Carbon Monoxide (CO) - ARB Test Method 10, Title 17, CCR, Section 94109, Determination of Carbon Monoxide Emissions from Stationary Sources, or ARB Test Method 100, or EPA Test Method 10, 40 CFR 60, Appendix A. A violation determined by any of these test methods shall constitute a violation of this rule.
 3. Carbon Dioxide (CO₂) - ARB Test Method 100, Title 17, CCR, Section 94114, Procedures for Continuous Emission Stack Sampling, or EPA Test Method 3A, 40 CFR 60, Appendix A. A violation determined by any of these test methods shall constitute a violation of this rule.
- E. **DURATION OF RECORDS:** All records maintained pursuant to this rule shall be retained for at least five years from date of entry. Records shall be made available for inspection by the Air Pollution Control Officer upon request.

ADOPTED: October 18, 1994

RESCINDED:

AMENDED: January 23, 2001, September 25, 2001

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