

RULE 419 – NO_x FROM MISCELLANEOUS COMBUSTION UNITS**Adopted 07-26-18****(Amended XX-XX-18)****INDEX****100 GENERAL**

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100 GENERAL

- 101 **PURPOSE:** To limit the emissions of nitrogen oxides (NOx) and carbon monoxide (CO) from gaseous and liquid fuel-fired miscellaneous combustion units ~~located at a major stationary source of NOx~~ and cooking units, as defined in this rule.
- 102 **APPLICABILITY:** This rule applies to any miscellaneous combustion unit or cooking unit with a total rated heat input capacity of 2 million Btu per hour or greater that is located at a major stationary source of NOx, and to any miscellaneous combustion unit or cooking unit with a total rated heat input capacity of 5 million Btu per hour or greater that is not located at a major stationary source of NOx.
- 103 **SEVERABILITY:** If any section, subsection, sentence, clause, phrase, or portion of this rule is, for any reason, held invalid, unconstitutional, or unenforceable by any court of competent jurisdiction, such portion is deemed as a separate, distinct, and independent provision, and such holding does not affect the validity of the remaining portions thereof.
- 110 **EXEMPTION – OPERATIONS SUBJECT TO OTHER DISTRICT RULES:** The requirements of this rule do not apply to any unit subject to requirements under the following rules:
- 110.1 Rule 411 – NOX FROM BOILERS, PROCESS HEATERS AND STEAM GENERATORS;
 - 110.2 Rule 412 – STATIONARY IC ENGINES LOCATED AT MAJOR STATIONARY SOURCES OF NOX;
 - 110.3 Rule 413 – STATIONARY GAS TURBINES; and
 - 110.4 Rule 414 – WATER HEATERS, BOILERS AND PROCESS HEATERS RATED LESS THAN 1,000,000 BTU PER HOUR.
- 111 **EXEMPTION – UNITS NOT SUBJECT TO DISTRICT PERMIT:** The requirements of this rule do not apply to any unit exempt from Rule 201 – GENERAL PERMIT REQUIREMENTS.
- 112 **EXEMPTION – AIR POLLUTION CONTROL DEVICES:** The requirements of this rule do not apply to combustion equipment where its primary function is to operate as an air pollution control device including, but not limited to, afterburners, catalytic oxidizers, flares, thermal oxidizers, or vapor incinerators.
- 113 **EXEMPTION – DUCT BURNERS:** The requirements of this rule do not apply to duct burners operating upstream of and controlled by a properly working selective catalytic reduction (SCR) add-on NOx control device that complies with all pertinent permit conditions.
- 114 **EXEMPTION – SPECIFIC COMBUSTION UNITS:** The requirements of this rule do not apply to the following types of combustion units:
- 114.1 Any unit that is used exclusively by an electric utility to generate electricity.
 - 114.2 Gas flares.
 - 114.3 Internal combustion engines.
 - ~~114.4 Cooking units.~~
 - ~~114.5 Crematories.~~
 - ~~114.6 Dryers used in asphalt manufacturing operations.~~
 - ~~114.7 Furnaces.~~
 - ~~114.8 Incinerators.~~
 - ~~114.9 Kilns.~~
 - ~~114.10 Roasters.~~

115 EXEMPTION – LOW FUEL USAGE:

115.1 The requirements of Sections 301, 302, 303.1, and 403 do not apply to any miscellaneous combustion unit or cooking unit that uses less than 30,000 therms per year of fuel, provided all of the following conditions are met:

- a. The unit is not located at a major stationary source of NO_x;
- b. The owner or operator of the unit meets the requirements of sections 303.2, 303.3, and either 502.2 or 502.3 as applicable; and
- c. The owner or operator of the unit submits a permit application to the District pursuant to Rule 201 – GENERAL PERMIT REQUIREMENTS to establish a limitation on the fuel usage. To qualify for the exemption, the permit application must be submitted by (six months after date of adoption).

115.2 If the fuel usage for any unit claiming this exemption equals or exceeds 30,000 therms in any calendar year beginning on or after January 1, 2019, then the owner or operator of the unit must comply with the requirements in Section 402.

116 EXEMPTION – SOURCE TESTING OF INACTIVE UNITS:

116.1 The requirements of Section 403.2 do not apply to any miscellaneous combustion unit or cooking unit that is not operated in a calendar year in which source testing would otherwise be required. This exemption does not apply to a unit located at a major stationary source of NO_x.

116.2. When an owner or operator resumes operation of a unit that was not source tested pursuant to the exemption in Section 116.1, an emission source test must be conducted within 60 days of resuming operation of the unit. Periodic source testing must then be conducted once every second calendar year from resuming operation pursuant to Section 403.2.

117 EXEMPTION – SOURCE TESTING OF INFRARED BURNERS: The source testing requirements in Section 403 do not apply provided all of the following conditions are met:

117.1 The unit is not located at a major stationary source of NO_x; and

117.2 The unit is heated solely with infrared burners.

200 DEFINITIONS

- 201 **BRITISH THERMAL UNIT (BTU):** The amount of heat required to raise the temperature of one pound of water from 59 °F to 60 °F at one atmosphere of pressure.
- 202 **COOKING UNIT:** Any oven or dryer used to heat, cook, dry, roast, or prepare food, or products for making beverages, for human consumption.
- 203 **CREMATORY:** Any unit that reduces human or animal remains to bone fragments and ashes through heat and evaporation.
- 204 **DEHYDRATOR:** Any unit that drives free water from products like fruits, vegetables, and nuts at an accelerated rate without damage to the product.
- 205 **DRYER:** Any unit in which material is dried or cured in direct contact with the products of combustion.
- 206 **DUCT BURNER:** Any combustion equipment installed on existing ductwork and designed to further heat exhaust gases, to promote process drying or to preheat exhaust prior to a selective catalytic reduction (SCR) control device.
- 207 **FURNACE:** Any unit with an enclosed chamber in which heat is produced by a combustion source, typically used for metallurgy, pyrolysis, ashing, calcining, sintering, and other high temperature processes.

- 208 **GAS FLARE:** Any unit primarily used for burning off flammable gas released by pressure relief valves during unplanned over-pressuring of equipment. Gas flares are also often used for the planned combustion of gases over relatively short periods during startup and shutdown, and to control landfill gas emissions, sewage treatment digester gas emissions, and oilfield waste gas emissions.
- 209 **HEATER:** Any unit that transfers heat from combusted fuel to materials or air contained in the unit or in an adjoining cabinet, container, or structure. Heater does not include any unit defined elsewhere in this rule.
- 210 **HEAT INPUT:** The heat of combustion released by fuels burned in a unit based on the higher heating value of the fuel. This does not include the enthalpy of incoming combustion air.
- 211 **HEAT OUTPUT:** The enthalpy of the working fluid output of a burner.
- ~~212~~ **HIGHER HEATING VALUE (HHV):** The total heat liberated per mass or volume of fuel burned (Btu per pound, cubic foot, or gallon), when fuel and dry air undergo complete combustion and all resultant products are brought to their standard states. If certification of the HHV is not provided by the third party fuel supplier, it must be determined by one of the test methods specified in Section 501.4.
- 213 **INFRARED BURNER:** Any unit with all of the following:
- 213.1 A ceramic, metal fiber, sintered metal, or perforated metal flame-holding surface;
 - 213.2 More than 50% of the heat output as infrared radiation and operated in a manner where the zone including and above the flame-holding surface is red and does not produce observable blue or yellow flames in excess of one-half inch in length; and
 - 213.3 A rated heat input capacity per square foot of flame holding surface of 100,000 Btu per hour or less.
- ~~214~~ **INCINERATOR:** Any unit that with an enclosed chamber in which heat, produced by combustion, is used to combust waste or oxidize contaminants to less harmful forms.
- ~~215~~ **INTERNAL COMBUSTION ENGINE:** A heat engine in which the combustion that generates the heat takes place inside the engine proper instead of in a furnace, including engines used for control of VOC emissions.
- ~~216~~ **KILN:** Any unit that has a thermally insulated chamber which produces temperatures sufficient to complete a process, such as hardening, drying, vitrification, or chemical change.
- ~~217~~ **MAJOR STATIONARY SOURCE OF NITROGEN OXIDES~~NOx~~:** A stationary source whose potential to emit is 25 tons per year or greater of nitrogen oxides (NOx).
- 218 **METAL HEAT TREATING FURNACE:** Any furnace used in metallurgical operations to alter the physical, and sometimes chemical, properties of a metal. Examples of metal heat treating include, but are not limited to, annealing, case hardening, precipitation strengthening, tempering, normalizing and quenching.
- 219 **METAL MELTING FURNACE:** Any furnace in which scrap metal, ingots, and/or other forms of metals are charged and melted, with the melted metal tapped or poured into a ladle or directly into a mold or other shape forming receptacle.
- ~~220~~ **MISCELLANEOUS COMBUSTION UNIT:** Any crematory, dehydrator, dryer, furnace, heater, ~~or incinerator, kiln, oven, roaster, or other combustion equipment~~ not specifically required to comply with requirements of other District Regulation 4 – Prohibitory Rules. Miscellaneous combustion unit does not include any cooking unit.

- ~~221~~¹⁷ **OVEN:** Any unit with a thermally insulated chamber supplied with heat from combusted fuel in which material is heated, baked, dried, or cured in direct contact with the products of combustion.
- ~~222~~⁴⁸ **PROCESS TEMPERATURE:** For the purpose of this rule, the process temperature of a unit is considered to be the maximum operating temperature of the unit under maximum designed production rate.
- ~~223~~⁴⁹ **RATED HEAT INPUT CAPACITY:** The heat input capacity in million Btu per hour specified on the nameplate of the miscellaneous combustion unit ~~or cooking unit~~. If the heat input capacity on the nameplate of the combustion unit's burner is different from the heat input capacity on the nameplate of the unit, the heat input capacity of the burner will be used to determine rated heat input capacity. If the combustion unit has been altered or modified such that its maximum heat input capacity is different than the heat input capacity specified on the nameplate, the new maximum heat input capacity will be considered as the rated heat input capacity.
- ~~224~~⁰ **ROASTER:** Any oven used to dry roast nuts, coffee beans, or other plant seeds.
- ~~225~~⁴ **SHUTDOWN:** The period of time a unit is cooled from its normal operating temperature. The shutdown period is limited to two hours.
- ~~226~~ **SOYBEAN ROASTER:** Any oven used to dry roast soybeans or other similar legumes where the soybeans or other legumes travel directly through the burner flame.
- ~~227~~² **STARTUP:** The period of time, not to exceed two hours, in which a unit is brought to its operating temperature and pressure immediately after a period in which the fuel flow is shut off for a continuous period of 30 minutes or longer.
- ~~228~~³ **STATIONARY SOURCE:** Any building, structure, facility, or emissions unit that emits or may emit any regulated air pollutant directly or as a fugitive emission.
- ~~228~~^{3.1} Building, structure, facility, or emissions unit includes all pollutant emitting activities that:
- belong to the same industrial grouping, and
 - are located on one property or on two or more contiguous properties, and
 - are under the same or common ownership, operation, or control or are owned or operated by entities that are under common control.
- ~~228~~^{3.2} Pollutant emitting activities are considered a part of the same industrial grouping if:
- they belong to the same two-digit standard industrial classification (SIC) code, or
 - they are part of a common production process. (Common production process includes industrial processes, manufacturing processes and any connected processes involving a common material).
- ~~229~~ **THERM:** One hundred thousand (100,000) British Thermal Units.

300 STANDARDS

- 301 **EMISSION LIMITS – MISCELLANEOUS COMBUSTION UNITS:** Except as provided in Sections ~~113~~ and ~~115~~, the NO_x and CO emissions from any miscellaneous combustion unit may not exceed the limits specified in Table 1. The NO_x and CO emissions must be determined pursuant to Section 501. The owner or operator may choose to comply with the limits expressed as parts per million by volume on a dry basis, corrected to three percent oxygen, or expressed as pounds per million Btu.

TABLE 1: MISCELLANEOUS COMBUSTION UNITS EMISSION LIMITS EXPRESSED AS PPMV @ 3% O ₂			
Equipment Category	NOx Limit ppmv @ 3% O ₂ (lb/MMBtu)		CO Limit ppmv @ 3% O ₂ (lb/MMBtu)
	Effective (see Section 401)		
	Process Temperature		
Gaseous Fuel-Fired Equipment	< 1200 °F	≥ 1200 °F	
Asphalt Manufacturing Operation	<u>40</u> (0.049)	<u>40</u> (0.049)	<u>400</u> (0.30)
Incinerator or Crematory	<u>60</u> (0.073)	<u>60</u> (0.073)	<u>400</u> (0.30)
Metal Heat Treating or Metal Melting Furnace	<u>60</u> (0.073)	<u>60</u> (0.073)	<u>400</u> (0.30)
Other Furnace	<u>30</u> (0.036)	<u>60</u> (0.073)	<u>400</u> (0.30)
Oven, Dehydrator, Dryer, Heater, or Oven/Kiln	<u>30</u> (0.036)	<u>60</u> (0.073)	<u>400</u> (0.30)
Soybean Roaster	<u>45</u> (0.055)	<u>60</u> (0.073)	=
Other miscellaneous combustion unit not listed above	<u>30</u> (0.036)	<u>60</u> (0.073)	<u>400</u> (0.30)
Liquid Fuel-Fired Equipment	< 1200 °F	≥ 1200 °F	
All miscellaneous combustion units when liquid fuel-fired	<u>40</u> (0.051)	<u>60</u> (0.077)	<u>400</u> (0.31)

302 **EMISSION LIMITS – COOKING UNITS:** Except as provided in Section 115, the NOx and CO emissions from any cooking unit may not exceed the limits specified in Table 2. The NOx and CO emissions must be determined pursuant to Section 501. The owner or operator may choose to comply with the limits expressed as parts per million by volume on a dry basis, corrected to three percent oxygen, or expressed as pounds per million Btu.

TABLE 2: COOKING UNITS EMISSION LIMITS EXPRESSED AS PPMV @ 3% O ₂			
Equipment Category	NOx Limit ppmv @ 3% O ₂ (lb/MMBtu)		CO Limit ppmv @ 3% O ₂ (lb/MMBtu)
	Effective (see Section 401)		
	Process Temperature		
	< 500 °F	≥ 500 °F	
Cooking Unit	<u>40</u> (0.049)	<u>60</u> (0.073)	<u>800</u> (0.60)

303.2 **EQUIPMENT REQUIREMENT – FUEL CONSUMPTION:**

303.2.1 The owner or operator of any unit demonstrating compliance with an emission limit of ~~in~~ Sections 301 or 302 expressed as pounds per million Btu must install and maintain in service a non-resetting, totalizing fuel meter for each fuel prior to the compliance demonstration. The owner or operator of any unit with a combustion system that operates at only one firing rate who is demonstrating compliance with an emission limit expressed as pounds per million Btu must install and maintain in service a non-resetting, totalizing time or fuel meter for each fuel.

303.2 The owner or operator of any unit exempt from the NOx and CO emission limits in

Sections 301 or 302 pursuant to Section 115 must comply with one of the following conditions:

- a. Install and maintain in service a non-resetting, totalizing fuel meter in the fuel line for each fuel burned. Each unit serviced by the fuel line must have a meter installed to monitor fuel consumption; or
- b. Install and maintain in service a non-resetting, totalizing hour meter. This requirement applies to each unit relying on an hour meter to estimate fuel usage. In this case, the fuel usage must be calculated by multiplying the number of operating hours for the unit by the rated heat input capacity for the unit; or
- c. Install and maintain in service a computerized tracking system that maintains a continuous daily record of hours of operation and/or fuel consumption rate. If only hours of operation are recorded, the fuel usage must be calculated by multiplying the number of operating hours for the unit by the rated heat input capacity for the unit. If both hours of operation and fuel consumption rate are recorded, the actual recorded fuel consumption rate must be integrated over the actual number of hours operated to determine total fuel usage.

~~303~~2.32 Meters that require electric power to operate must be provided a permanent supply of electric power that cannot be unplugged, switched off, or reset except by the main power supply circuit for the building and associated equipment or the unit's safety shut-off switch. Any person operating any unit subject to this rule may not shut off electric power to a unit meter unless the unit is not operating and is shut down for maintenance or safety.

~~304~~3 **EQUIPMENT REQUIREMENT – MAINTENANCE:** The owner or operator of any unit subject to this rule must perform combustion system maintenance in accordance with the manufacturer's schedule and specifications as identified in the manual or other written materials supplied by the manufacturer, distributor, installer, or maintenance company. Records of maintenance must be maintained as provided in Section 502.1.

400 ADMINISTRATIVE REQUIREMENTS

401 **COMPLIANCE SCHEDULE:** Except as provided in Sections 115 and 402, Aan owner or operator of any unit subject to Section 301 or 302 must demonstrate compliance with this rule by the following dates.

401.1 For any unit located at a major stationary source of NOx:

a. ~~For units~~ Unit installed after July 26, 2018: within 60 days after initial operation.

~~b.401.2 For units~~ Unit installed on or before July 26, 2018: October 26, 2018.

401.2 For any unit not located at a major stationary source of NOx:

a. Unit installed after (date of adoption): within 60 days after initial operation.

b. Unit installed on or before (date of adoption): in accordance with the schedule in Table 3.

<u>TABLE 3: COMPLIANCE SCHEDULE</u>			
<u>Number of units subject to Sections 301 or 302</u>	<u>Number of these units required to be in full compliance by (12 months after date of adoption)</u>	<u>Number of these units required to be in full compliance by (24 months after date of adoption)</u>	<u>Number of these units required to be in full compliance by (36 months after date of adoption)</u>
<u>1 or 2</u>	<u>1</u>	<u>2</u>	<u>N/A</u>
<u>3 or more</u>	<u>1</u>	<u>2</u>	<u>All</u>

Note: Full Compliance identifies the date by which the owner or operator must demonstrate that each unit is in compliance with this rule.

402 **LOSS OF EXEMPTION – LOW FUEL USAGE:** Effective January 1, 2019 for any unit that loses its exemption pursuant to Section 115.2, the owner or operator must conduct an initial source test and demonstrate compliance with the requirements of Section 301 or 302 within one year from the end of the calendar year in which the unit first did not meet the requirements for exemption in Section 115. The unit subsequently will not qualify for exemption pursuant to Section 115.

403~~2~~ **SOURCE TESTING FREQUENCY:** Except as provided in Sections 115 and 402, the owner or operator of any unit subject to the emissions limits set forth in Section 301 or 302 must perform emission source testing using the test methods specified in Section 501 of this rule according to the following schedule and maintain records as provided in Section 502:

403.1 **Initial source test:** ~~a~~An initial source test to verify compliance on or before ~~prior~~ ~~to~~ the applicable compliance date specified in Section 401.

403.2 **Periodic source testing:** A periodic ~~and must perform an~~ emissions source test once every second calendar year ~~after the initial source test using the test methods specified in Section 501 and maintain records as provided in Section 502.~~

403~~2.3~~4 Any unit that is equipped with a continuous emissions monitoring system (CEMS) must conduct accuracy testing using the methods specified in Section 501 of this rule once every calendar year.

404~~3~~ **SOURCE TESTING PROTOCOL:** At least 30 days prior to the scheduled source test date, the owner or operator of any unit subject to this rule must submit a source test plan to the Air Pollution Control Officer. At least seven days prior to the source test date, the owner or operator must notify the Air Pollution Control Officer of the exact date and time of the source test. A final source test report, and the applicable source test observation and evaluation fee as authorized under Rule 301, must be submitted to the Air Pollution Control Officer within 60 days following the actual source test date.

500 MONITORING AND RECORDKEEPING

501 TEST METHODS

501.1. GASEOUS EMISSIONS – SOURCE TEST:

- a. Compliance with the NO_x and CO emission requirements and the stack oxygen requirements in Section 301 or 302 must be determined using the test methods specified below. All emissions determinations must be made in the as-found operating condition, except no compliance determination may be established during unit startup as defined in Section ~~227~~2, or shutdown as defined in Section ~~225~~4. Tests must be conducted while the unit is operating at a firing rate that is as close as physically possible to the unit's rated heat input capacity. Tests must be conducted for three 40-minute runs. The Air Pollution Control Officer may grant written approval to conduct shorter test periods if the owner or operator demonstrates that the design of the unit prevents operation for 40 consecutive minutes. Results must be averaged over the three test periods.
 1. Oxides of Nitrogen – ARB Method 100 or EPA Method 7E.
 2. Carbon Monoxide – ARB Method 100 or EPA Method 10.
 3. Stack Gas Oxygen – ARB Method 100 or EPA Method 3A.
 4. Any alternative source test method considered equivalent and that has been approved before the test in writing by the Air Pollution Control Officer, the California Air Resources Board, and the United States Environmental Protection Agency.
- b. A scheduled source test may not be discontinued solely due to the failure of one or more runs to meet applicable standards.

- c. In the event that a sample is accidentally lost or conditions occur in which one of the three runs must be discontinued because of one of the following reasons, then compliance may be determined using the average of the other two runs:
1. Forced shutdown;
 2. Failure of an irreplaceable portion of the sampling train;
 3. Extreme meteorological conditions presenting a hazard to the sampling team; or
 4. Other circumstances beyond the owner's or operator's control as determined by the Air Pollution Control Officer.
- d. A source test not conducted pursuant to the source test methods listed in Section 501.1a may be rejected and the test report determined to be invalid.
- 501.2 **COMPLIANCE CALCULATION USING POUNDS PER MILLION BTU:** For any owner or operator who chooses to comply with the emission limits in Section 301 [or 302](#) using pounds per million Btu, NOx and CO emissions in pounds per million Btu of heat input must be calculated using the procedures in EPA Method 19.
- 501.3 **GASEOUS EMISSIONS: CONTINUOUS EMISSIONS MONITORING SYSTEM (CEMS):** Compliance with NOx and CO emission requirements specified in Section 301 [or 302](#) may also be determined using CEMS. All emissions determinations must be made in the as-found operating condition, except no compliance determination may be established during unit startup as defined in Section 2272, or shutdown as defined in Section 2254. Where the unit(s) are equipped with CEMS:
- a. **General:** All CEMS must be installed according to the procedures specified in 40 CFR 60.13g. All CEMS must be installed such that a representative measurement of emissions is obtained. Additional procedures for the location of CEMS found in 40 CFR 60, Appendix B must be used. The data recorder for CEMS must be in operation at all times the unit is operated.
 - b. **Cycle time:** The owner or operator of any unit using CEMS must ensure that the CEMS system completes a minimum of one cycle of operation (sampling, analyzing, and data recording) for each successive 15 minute period.
 - c. **Calibration:** Zero and span must be checked once every 24 hours. The CEMS must be calibrated in accordance with the manufacturer's specifications.
 - d. **Averaging:** The data recorded during periods of calibration checks, zero and span adjustments must not be included in averaging for compliance determinations. Compliance must be determined on an hourly basis using the average of the three previous 1-hour average emissions concentrations. The 1-hour average emissions concentration must be determined from at least two data points recorded by the CEMS.
 - e. **Accuracy Testing:** Accuracy testing of CEMS must be conducted using a relative accuracy test audit pursuant to 40 CFR 60, Appendix F.
- 501.4 **HIGHER HEATING VALUE:** HHV must be determined by one of the following test methods:
- a. ASTM D240-02 or ASTM D3282-98 for liquid hydrocarbon fuels; or
 - b. ASTM D1826-94, or ASTM D1945-03 in conjunction with ASTM D3588-98 for gaseous fuels; or
 - c. Any alternative test method considered equivalent and that has been approved before the test in writing by the Air Pollution Control Officer, the California Air Resources Board, and the United States Environmental Protection Agency.
- 501.5 **MULTIPLE TEST METHODS:** When more than one test method or set of test methods is specified for any testing, a violation of any requirement of this rule established by any one of the specified test methods or set of test methods will constitute a violation of this rule.

502 **RECORDKEEPING**

- 502.1 The owner or operator of any unit subject to the requirements of Section 304~~3~~ must maintain on-site records of maintenance and a copy of the manufacturer's maintenance schedule and specifications in a manual or other written materials supplied by the manufacturer, distributor, installer, or maintenance company.
- 502.2 The owner or operator of any unit exempt pursuant to Section 115 and subject to the requirements of Section 303.2 for fuel usage must record, for each unit, the calendar year gaseous and non-gaseous fuel usage, the HHV of each fuel used, and the total therms of fuel used in the calendar year.
- 502.3 The owner or operator of any unit exempt pursuant to Section 115 and subject to the requirements of Section 303.2 for hours of operation must record, for each unit, the calendar year hours of operation, and the calendar year calculated therms of fuel used.
- 502.~~4~~2 The owner or operator of any unit subject to Section 501 must keep copies of all CEMS data and final source test reports as applicable.
- 502.~~5~~3 Records must be maintained on site for a continuous 5-year period and made available for review by the Air Pollution Control Officer upon request.