Enhanced Regulatory Outreach Program
Maricopa County Air Quality Department

Notice of Stakeholder Workshops

Date: Thursday, September 3, 2015
Location: 1001 North Central Avenue, Floor 5 Classroom*

The Maricopa County Air Quality Department will conduct Stakeholder Workshops to discuss proposed rule revisions. The schedule and a description of each rule to be discussed are provided below. Also, the draft rules associated with these workshops are attached to this announcement.

9:00 am – 10:30 am **AQ-2015-002-Rule 322 (Power Plant Operations) and AQ-2015-003-Rule 323 (Fuel Burning Equipment from Industrial/Commercial/Institutional (ICI) Sources)**

This is the second workshop. Staff will discuss proposed rule revisions since the first workshop conducted on June 29, 2015. Regarding draft Rule 322, discussion will focus on:

- Applicability particularly regarding equipment installed prior to 1996
- Emissions limitations for nitrogen oxides (NO_x)
- Reasonably available control technology (RACT) requirements
- Compliance schedule and plan
- Operation and maintenance (O&M) plan record requirements Regarding draft Rule 323, discussion will focus on:
- Emissions limitations for NO_x
- Compliance schedule and determination

1:30 pm – 3:00 pm **AQ-2015-005-Rule 336 (Surface Coating Operations)**

This is the second workshop. Staff will discuss proposed rule revisions since the first workshop conducted on June 29, 2015. Discussion will focus on:

- Proposed Applicability section: Manufacturing and repair operations, industrial adhesives and/or adhesive primers, and surface coating operations
- Proposed Exemptions section: Exemptions for VOC content polyester resin operations, pleasure craft and fiberglass boat manufacturing and repair, industrial adhesives and/or adhesive primers, and surface coating operations
- General standards for emission control systems, application methods, and work practices
- Specific process standards for polyester resin operations, pleasure craft and fiberglass boat manufacturing and repair, industrial adhesives and/or adhesive primers, and surface coating operations
- Compliance schedule
- Recordkeeping requirements
- Relationship of this proposed Rule 336 with other County rules
- Definitions

Additional information about these draft rules is available on the Enhanced Regulatory Outreach Program (EROP) website (http://www.maricopa.gov/regulations).

To enhance the discussion and cost savings, as well as support the county's sustainability initiative, information will be electronically displayed during the workshops. If you prefer a hardcopy of the documentation, please print the information from this announcement.

*When you arrive at 1001 North Central Avenue, please check-in in Suite #125 then proceed to the Floor 5 classroom.

REGULATION III - CONTROL OF AIR CONTAMINANTS

RULE 322
~~POWER PLANT OPERATIONS~~
ELECTRIC UTILITY STATIONARY GAS TURBINES, ELECTRIC UTILITY STEAM GENERATING UNITS

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MARICOPA COUNTY
AIR POLLUTION CONTROL REGULATIONS
REGULATION III - CONTROL OF AIR CONTAMINANTS

RULE 322
~~POWER PLANT OPERATIONS~~
ELECTRIC UTILITY STATIONARY GAS TURBINES, ELECTRIC UTILITY STEAM GENERATING UNITS

SECTION 100 - GENERAL

101 **PURPOSE:** To limit the discharge of nitrogen oxides, sulfur oxides, particulate matter and carbon monoxide emissions into the atmosphere from stationary fossil-fuel-fired equipment at ~~existing power plants and existing cogeneration plants~~ Electrical Utility Stationary Gas Turbines, Electric Utility Steam Generating Units and to limit particulate matter emissions from cooling towers associated with this equipment.

102 **APPLICABILITY:** This rule applies to any of the following types of equipment that burn fossil fuel for which construction commenced prior to May 10, 1996 or when a major modification occurs:

102.1 Each electric utility steam generating unit or cogeneration steam generating unit used to generate electric power that has a heat input of equal to or greater than 100 million (MM) Btu/hour (29 megawatts (MW)).

102.2 Each electric utility stationary gas turbine with a heat input at peak load equal to or greater than 10 MMBtu/hour (2.9 MW) based upon the lower heating value of the fuel.

102.3 Each cooling tower associated with the type of equipment listed in ~~subsections 102.1 and 102.2~~ Sections 102.1 and 102.2 of this rule.

103 **EXEMPTIONS:** This rule shall not apply to the following types of equipment:

103.1 Combustion equipment associated with nuclear power plant operations; or

103.2 Reciprocating internal combustion equipment.

104 **PARTIAL EXEMPTIONS:**

104.1 Stationary gas turbines that meet any of the following criteria listed below are exempt from ~~Sections 304 and 305 and subsections 301.1, 301.2, 306.4, and 501.4~~ Sections 301.1, 301.2, 304, 305, 306.6, and 501.4 of this rule:

a. Used for fire-fighting; or

b. Used for flood control; or

c. Used in the military at military training facilities or military gas turbines for use in other than a garrison; or

d. Engaged by manufacturers in research and development of equipment for either gas turbine emission control techniques or gas turbine efficiency improvements.

104.2 All equipment listed in Section 102 of this rule fired with an emergency fuel that is normally fired with natural gas is exempt from ~~Sections 304 and 305 and subsections 301.1, 301.2, and 306.4, 501.4~~ Sections 301.1, 301.2, 304, 305, 306.6, 501.4 of this rule.

104.3 All equipment listed in Section 102 of this rule shall be exempt from ~~Sections 304 and 305 and subsections 301.1, 301.2, and 306.4~~ 306.6, Sections 301.1, 301.2, 304, 305, 306.6 of this rule for 36

cumulative ~~hrs~~ hours of firing emergency fuel per year, per unit for testing, reliability, training, and maintenance purposes.

SECTION 200 - DEFINITIONS: ~~For the purpose of this rule, the following definitions shall apply: See Rule 100 (General Provisions and Definitions) of these rules for definitions of terms that are used but not specifically defined in this rule.~~ For the purpose of this rule, the following definitions shall apply, in addition to those definitions found in Rule 100 (General Provisions and Definitions) of these rules. In the event of any inconsistency between any of the Maricopa County air pollution control rules, the definitions in this rule take precedence.

201 **COGENERATION STEAM GENERATING UNIT:** A steam or hot water generating unit that simultaneously produces both electrical (or mechanical) and thermal energy (such as heat or steam) from the same primary energy source and supplies more than one-third of its potential electric output to any utility power distribution system for sale.

202 **COMBINED CYCLE GAS TURBINE:** A type of stationary gas turbine wherein heat from the turbine exhaust is recovered by a steam generating unit to make steam for use in a steam-electric turbine.

203 **CONTINUOUS EMISSION MONITORING SYSTEM (CEMS):** The total equipment required to sample and analyze emissions or process parameters such as opacity, nitrogen oxide, and oxygen or carbon dioxide, and to provide a permanent data record.

204 **COOLING TOWERS:** Open water recirculating devices that use fans or natural draft to draw or force air through the device to cool water by evaporation and direct contact.

205 **CORRECTIVE ACTION PLAN (CAP):** A methodical procedure that is used to evaluate and correct a turbine operational problem and that includes, at a minimum, improved preventative maintenance procedures, improved ECS operating practices, possible operational changes, and progress reports.

206 **DISTILLATE OIL:** A petroleum fraction of fuel oil produced by distillation that complies with the specifications for fuel oil numbers 1 or 2, as defined by the American Society for Testing and Materials in ASTM D396-01, “Standard Specification for Fuel Oils.”

207 **DRIFT:** Water droplets, bubbles, and particulate matter that escape from cooling tower stacks.

208 **DRIFT ELIMINATOR:** Device used to remove drift from cooling tower exhaust air, thus reducing water loss by relying on rapid changes in velocity and direction of air-droplet mixtures by impaction on eliminator passage surfaces**.** A drift eliminator is not categorized as an emission control system but is an inherent part of the cooling tower's design requirements.

209 **DRIFT RATE:** Percentage (%) of circulating water flow rate that passes through a drift eliminator on a cooling tower.

210 **ELECTRIC UTILITY STATIONARY GAS TURBINE:** Any stationary gas turbine that is constructed for the purpose of supplying more than 1/3 of its potential electric output capacity to any utility power distribution system for sale. Both simple and combined cycle gas turbines are types of electric utility stationary gas turbines.

211 **ELECTRIC UTILITY STEAM GENERATING UNIT:** Any steam electric generating unit that uses fossil fuel and is constructed for the purpose of supplying more than one-third of its potential electric output capacity and more than 25 MW electric output to any utility power distribution system for sale.

212 **EMERGENCY FUEL:** Fuel fired only during circumstances such as natural gas emergency, natural gas curtailment, or breakdown of delivery system such as an unavoidable interruption of supply that makes it impossible to fire natural gas in the unit. Fuel is not considered emergency fuel if it is used to avoid either

peak demand charges or high gas prices during on-peak price periods or due to a voluntary reduction in natural gas usage by the power company.

213 **EMISSION CONTROL SYSTEM (ECS):** A system approved in writing by the Control Officer, designed and operated in accordance with good engineering practice to reduce emissions.

214 **FOSSIL FUEL:** Naturally occurring carbonaceous substances from the ground such as natural gas, petroleum, coal and any form of solid, liquid, or gaseous fuel derived from such material for the purpose of creating energy.

215 **FUEL SWITCHING STARTUP PROCESS:** The act of changing from one type of fuel to a different type of fuel.

216 **HEAT INPUT:** Heat derived from the combustion of fuel, not including the heat input from preheated combustion air, recirculated flue gases, or exhaust gases from other sources, such as gas turbines, internal combustion engines, and kilns.

217 **HIGHER HEATING VALUE (HHV) OR GROSS HEATING VALUE:** The amount of heat produced by the complete combustion of a unit quantity of fuel determined by a calorimeter wherein the combustion products are cooled to the temperature existing before combustion and all of the water vapor is condensed to liquid.

218 **LOW SULFUR OIL:** Fuel oil containing less than or equal to 0.05 % by weight of sulfur.

219 **LOWER HEATING VALUE (LHV) OR NET HEATING VALUE:** The amount of heat produced by the complete combustion of a unit quantity of fuel determined by a calorimeter wherein the combustion products are cooled to the temperature existing before combustion and all of the water vapor remains as vapor and is not condensed to a liquid. The value is computed from the higher heating value by subtracting the water originally present as moisture and the water formed by combustion of the fuel.

220 **NATURAL GAS CURTAILMENT:** An interruption in natural gas service, such that the daily fuel needs of a combustion unit cannot be met with natural gas available due to one of the following reasons, beyond the control of the owner or operator:

220.1 An unforeseeable failure or malfunction, not resulting from an intentional act or omission that the governing state, federal or local agency finds to be due to an act of gross negligence on the part of the owner or operator; or

220.2 A natural disaster; or

220.3 The natural gas is curtailed pursuant to governing state, federal or local agency rules or orders; or

220.4 The serving natural gas supplier provides notice to the owner or operator that, with forecasted natural gas supplies and demands, natural gas service is expected to be curtailed pursuant to governing state, federal or local agency rules or orders.

221 **OPACITY:** A condition of the ambient air, or any part thereof, in which an air contaminant partially or wholly obscures the view of an observer**.**

222 **PARTICULATE MATTER EMISSIONS:** Any and all particulate matter emitted to the ambient air as measured by applicable state and federal test methods.

223 **PEAK LOAD:** 100% of the manufacturer's design capacity of a gas turbine at 288° Kelvin, 60% relative humidity, and 101.3 kilopascals pressure (ISO standard day conditions).

224 **POWER PLANT OPERATION:** An operation whose purpose is to supply more than one-third of its potential electric output capacity to any utility power distribution system for sale.

225 **RATED HEAT INPUT CAPACITY:** The heat input capacity in million Btu/hr. as 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 heat input capacity on the name plate, the maximum heat input shall be considered the rated heat input capacity.

226 **REGENERATIVE CYCLE GAS TURBINE:** Any stationary gas turbine that recovers thermal energy from the exhaust gases and utilizes the thermal energy to preheat air prior to entering the combustion unit.

227 **RESIDUAL OIL:** The heavier oils that remain after the distillate oils and lighter hydrocarbons are distilled off in refinery operations. This includes crude oil or fuel oil numbers 1 and 2 that have a nitrogen content greater than 0.05 % by weight, and all fuel oil numbers 4, 5, and 6, as defined by the American Society of Testing and Materials in ASTM D396-01, "Standard Specifications for Fuel Oils."

228 **SELECTIVE CATALYTIC REDUCTION (SCR):** A post-combustion NO_x control technique, e.g., a reducing agent, e.g., ammonia, is used in a gas-phase reaction with oxides of nitrogen in the presence of a catalyst to form nitrogen and water.

~~228~~**229** **SIMPLE CYCLE GAS TURBINE:** Any stationary gas turbine that does not recover heat from the gas turbine exhaust gases to preheat the inlet combustion air to the gas turbine, or that does not recover heat from the gas turbine exhaust gases to heat water or generate steam.

~~229~~**230** **STATIONARY GAS TURBINE:** Any simple cycle gas turbine, regenerative gas turbine or any gas turbine portion of a combined cycle gas turbine that is not self-propelled or that is attached to a foundation.

~~230~~**231** **SULFUR OXIDES (SOx):** The sum of the oxides of sulfur emitted from the flue gas from a combustion unit that are directly dependent upon the amount of sulfur in the fuel used.

~~231~~**232** **THIRTY (30) DAY ROLLING AVERAGE:** An arithmetic mean or average of all hourly emission rates for 30 successive combustion equipment operating days and calculated by a CEMS every hour.

~~232~~**233** **THREE (3) HOUR ROLLING AVERAGE:** An arithmetic mean or average of the most recent three one (1) hour tests, or an arithmetic mean or average over a period of three hours which is newly calculated with each hourly measurement.

~~233~~**234** **TOTAL DISSOLVED SOLIDS (TDS):** The amount of concentrated matter reported in milligrams/liter (mg/l) or parts per million (ppm) left after filtration of a well-mixed sample through a standard glass fiber filter. The filtrate is evaporated to dryness in a weighed dish and dried to constant weight at 180° C and the increase in dish weight represents the total dissolved solids.

~~234~~**235** **UNCOMBINED WATER:** Condensed water containing no more than analytical trace amounts of other chemical elements or compounds.

SECTION 300 – STANDARDS

301 LIMITATIONS – PARTICULATE MATTER:

301.1 **Fuel Type:** An ~~owner or operator~~ owner and/or operator of any combustion equipment listed in Section 102 of this rule shall burn only natural gas except when firing emergency fuel per ~~subsections 104.2 and 104.3~~ Sections 104.2 and 104.3 of this rule. An ~~owner or operator~~ owner and/or operator may burn a fuel other than natural gas for non-emergency purposes providing that the fuel shall not cause to be discharged more than 0.007 lbs. of particulate matter per MMBtu, demonstrated and documented through performance testing of this alternate fuel using Test Method 5. This usage of different fuels other than natural gas shall be approved by the Control Officer prior to usage.

301.2 **Particulate Matter Testing:** A backhalf analysis shall be performed, using Reference Method 202 referenced in ~~subsection 504.6~~ Section 504.6 of this rule, each time a compliance test for particulate matter emissions to meet the standard in ~~subsection 301.1~~ Section 301.1 of this rule is performed using Test Method 5.

301.3 **Good Combustion Practices for Turbines:** An ~~owner or operator~~ owner and/or operator of any stationary gas turbine listed in ~~subsection 102.2~~ Section 102.2 of this rule, regardless of fuel type, shall use operational practices recommended by the manufacturer and parametric monitoring to ensure good combustion control as listed below. One of the following procedures may be used:

a. Monitor the maximum temperature differential across the combustion burners or at locations around the back end of the turbine, dependent upon the particular unit, to ensure no more than a 100°F difference using a thermocouple. If a valid maximum temperature differential of greater than 100°F is observed across the burners, investigation and corrective action shall be taken within three hours to reduce the temperature difference to 100°F or less; or

b. If the manufacturer recommends that the maximum numerical temperature differential to ensure good combustion is a temperature that is greater than 100°F, then proof of this maximum alternate temperature shall be submitted to the Control Officer. The procedure to measure the maximum temperature differential listed ~~above~~ in ~~subsection 301.3a~~ Section 301.3 (a) of this rule shall then be followed using this alternate recommended maximum temperature differential after approval by the Control Officer.

c. If the frequency of failure to meet the proper temperature differential of 100°F or to meet the alternate temperature differential recommended by the manufacturer reflects a pattern that the turbine is not being operated in a manner consistent with good combustion practices, then the Control Officer may require the ~~owner or operator~~ owner and/or operator to submit a Corrective Action Plan (CAP).

301.4 **Cooling Towers:** An ~~owner or operator~~ owner and/or operator of a cooling tower associated with applicable units listed in Section 102 of this rule shall:

a. Equip the cooling tower with a drift eliminator. The drift eliminator shall not be manufactured out of wood.

b. The concentration of Total Dissolved Solids (TDS) multiplied by the percentage of drift rate shall not exceed the maximum numerical limit of 20.

c. Visually inspect the drift eliminator on a monthly basis only if the drift eliminator can be viewed safely and does not require an ~~owner or operator~~ owner and/or operator to walk into the tower. If the drift eliminator cannot be safely inspected monthly then ~~subsection 301.4d~~ Section 301.4(d) of this rule shall apply:

d. Visually inspect the drift eliminator for integrity during a regularly scheduled outage when the cooling tower is not operating, if it cannot be inspected on a monthly basis. This visual inspection shall be no less than once per year.

302 LIMITATIONS – OPACITY:

302.1 ~~No person shall~~ An owner and/or operator shall not discharge into the ambient air from any single source of emissions any air contaminant, other than uncombined water, in excess of 20% opacity, except as provided in ~~subsection 302.2~~ Section 302.2 of this rule.

302.2 Opacity may exceed the applicable limits established in ~~subsection 302.1~~ Section 302.1 of this rule for up to one hour during the startup of switching fuels; however, opacity shall not exceed 40% for any six (6) minute averaging period in this one hour period, provided that the Control Officer finds that the ~~owner or operator~~ owner and/or operator has, to the extent practicable, maintained and operated the source of emissions in a manner consistent with good air pollution control practices for minimizing emissions. The one hour period shall begin at the moment of startup of fuel switching.

302.3 Determination of whether good air pollution control practices are being used shall be based on information provided to the Control Officer upon request, which may include, but is not limited to, the following:

a. Monitoring results.

b. Opacity observations.

c. Review of operating and maintenance procedures.

d. Inspection of the source.

303 LIMITATIONS - SULFUR IN FUEL: An ~~owner or operator~~ owner and/or operator of any applicable equipment listed in Section 102 of this rule that burns fuel oil alone or in combination with any other fuel as either emergency fuel or non-emergency fuel that meets the standards in ~~subsection 301.1~~ Section 301.1 of this rule shall use only low sulfur oil.

304 LIMITATIONS – NITROGEN OXIDES: ~~No owner or operator~~ An owner and/or operator of any applicable equipment listed in ~~subsection 102.1~~ Section 102.1, 102.2 and 102.3 of this rule that commenced construction or a major modification after May 30, 1972 shall not cause to be discharged into the atmosphere nitrogen oxides in excess of the following limits:

~~304.1 155 ppmv, calculated as nitrogen dioxide when burning gaseous fossil fuel. During steady state operations, this test result using EPA Reference Method(s) 7 shall be based upon the arithmetic mean of the results of three test runs. Each test run shall have a minimum sample time of one hour. If a Continuous Emission Monitoring System (CEMS) is used, the test result shall be based upon a 30-day rolling average.~~

~~304.2 230 ppmv calculated as nitrogen dioxide when burning liquid fossil fuel. During steady state operations, this test result using EPA Reference Method(s) 7, shall be based upon the arithmetic mean of the results of three test runs. Each test run shall have a minimum sample time of one hour. If a CEMS is used, the test result shall be based upon a 30-day rolling average.~~

~~304.3 The nitrogen oxides concentration shall be measured dry and corrected to 3% oxygen for electric utility steam generating units and cogeneration steam generating units. The nitrogen oxides concentration shall be measured dry and corrected to 15% oxygen for stationary gas turbines.~~

304.1 Emission Limits –Gaseous Fuel Firing:

a. The NO_x emissions from any electrical utility stationary gas turbines, electric utility steam generating units, or associated cooling tower greater than or equal to 2.9 MW operating less than 877 hours per year, shall not exceed 42 parts per million by volume on a dry basis, corrected to 15 percent oxygen (O_2) when firing on gaseous fuels.

b. The NO_x emissions from any electrical utility stationary gas turbines, electric utility steam generating units, or associated cooling tower that is operated 877 hours or more per calendar year with a rated unit size output greater than or equal to 10 MMBtu/hr or 2.9 MW and less than 100 MMBtu/hr or 10 MW shall not exceed 25 parts per million by volume on a dry basis, corrected to 15 percent oxygen (O_2) when firing on gaseous fuels.

c. The NO_x emissions from any electrical utility stationary gas turbines, electric utility steam generating units, or associated cooling tower that is operated 877 hours or more per calendar year with a rated unit size output greater or equal to 100 MMBtu/hr or 10 MW, without SCR installed, shall not exceed 15 parts per million by volume on a dry basis, corrected to 15 percent oxygen (O_2) when firing on gaseous fuels.

d. The NO_x emissions from any electrical utility stationary gas turbines, electric utility steam generating units, or associated cooling tower that is operated 877 hours or more per calendar year with a rated unit size output greater or equal to 100 MMBtu/hr or 10 MW, with SCR installed, shall not exceed 9 parts per million by volume on a dry basis, corrected to 15 percent oxygen (O_2) when firing on gaseous fuels.

304.2 Emission Limit–Liquid Fuel Firing:

a. The NO_x emissions from any electrical utility stationary gas turbines, electric utility steam generating units, or associated cooling tower greater than or equal to 10 MMBtu/hr or 2.9 MW operating less than 877 hours per year, shall not exceed 65 parts per million by volume on a dry basis, corrected to 15 percent oxygen (O_2) when firing on liquid fuels.

b. The NO_x emissions from any electrical utility stationary gas turbines, electric utility steam generating units, or associated cooling tower that is operated 877 hours or more per calendar year with a rated unit size output greater or equal to 100 MMBtu/hr or 10 MW, without SCR installed, shall not exceed 42 parts per million by volume on a dry basis, corrected to 15 percent oxygen (O_2) when firing on liquid fuels.

c. The NO_x emissions from any electrical utility stationary gas turbines, electric utility steam generating units, or associated cooling tower that is operated 877 hours or more per calendar year with a rated unit size output greater or equal to 100 MMBtu/hr or 10 MW, with SCR installed, shall not exceed 25 parts per million by volume on a dry basis, corrected to 15 percent oxygen (O_2) when firing on liquid fuels.

TABLE 1: SUMMARY OF EMISSION LIMITATIONS REQUIREMENTS IN SECTIONS 304.1, 304.2 AND 304.3 OF THIS RULE

Rule Reference	Time of Operation (hr/yr)	Unit Size Rating (MW)	NO_x Emission Limit (ppmv)	
			Gaseous Fuel	Liquid Fuel
304.1(a)	<877	>2.9	42.0	
304.2(a)	<877	≥2.9		65.0
304.1(b)	≥877	≥2.9 to <10	25.0	
304.1(c) And 304.2(b)	≥877	≥10.0 (no SCR)	15.0	42.0
304.1(d) And 304.2(c)	≥877	≥10.0 (w SCR)	9.0	25.0

304.4 The nitrogen oxides concentration shall be measured dry and corrected to 15% oxygen for electric utility steam generating units and cogeneration steam generating units. The nitrogen oxides concentration shall be measured dry and corrected to 15% oxygen for stationary gas turbines.

305 LIMITATIONS - CARBON MONOXIDE: ~~No owner or operator~~ An owner and/or operator of any equipment listed in Section 102 of this rule shall not cause to be discharged into the atmosphere carbon monoxide (CO) measured in excess of 400 ppmv at any time. This test result, using EPA Reference Method 10, and performed during steady state compliance source testing shall be based upon the arithmetic mean of the results of three test runs. Each test run shall have a minimum sample time of one hour. The CO concentration shall be measured dry and corrected to 3% oxygen for electric utility steam generating units and cogeneration steam generating units. The CO concentration shall be measured dry and corrected to 15% oxygen for stationary gas turbines.

306 REQUIREMENTS FOR AIR POLLUTION CONTROL EQUIPMENT AND ECS MONITORING EQUIPMENT:

306.1 An owner and/or operator of any electrical utility stationary gas turbines, electric utility steam generating units, or associated cooling tower with a rated unit size output of less than 29 MW shall install, operate, and maintain in calibration, equipment approved by the Control Officer that continuously measures and records the following: control system operating parameters and elapsed time of operation.

306.2 An owner and/or operator of any electrical utility stationary gas turbines, electric utility steam generating units, or associated cooling tower with a rated unit size output greater or equal to 100 MMBtu/hr or 29 MW and operated for more than 4000 hours in any one calendar year during the three years before November xx, 2016 shall install, operate, and maintain in calibration, equipment approved by the Control Officer that continuously measures and records the following: control system operating parameters, elapsed time of operation, and continuous exhaust gas NO_x concentrations corrected to 15 percent oxygen (O_2) on a dry basis. The NO_x continuous emission monitoring (CEM) system shall meet requirements as specified in 40 CFR Part 60 Appendix B, Specification 2 by November xx, 2018.

306.3 An owner and/or operator of any electrical utility stationary gas turbines, electric utility steam generating units, or associated cooling tower subject to any provision of this rule shall install by November xx, 2017, a non-resettable totalizing hour meter on each turbine.

~~306.1~~**306.4** ~~Emission Control System Required:~~ For affected operations which may exceed any of the applicable standards set forth in Section 300 of this rule, an ~~owner or operator~~ owner and/or operator may comply by installing and operating an emission control system (ECS).

~~306.2~~**306.5** ~~Providing and Maintaining ECS Monitoring Devices: No owner or operator~~ An owner and/or operator required to use an approved ECS pursuant to this rule shall not do so without first properly installing, operating, and maintaining in calibration and in good working order, devices for indicating temperatures, pressures, transfer rates, rates of flow, or other operating conditions necessary to determine if air pollution control equipment is functioning properly and is properly maintained as described in an approved Operation and Maintenance (O&M) Plan.

~~306.3~~**306.6 Operation and Maintenance (O&M) Plan Required For ECS:**

a. General Requirements: An ~~owner or operator~~ owner and/or operator shall provide and maintain an O&M Plan for any ECS, any other emission processing equipment, and any ECS monitoring devices that are used pursuant to this rule or to an air pollution permit.

b. Approval by Control Officer: An ~~owner or operator~~ owner and/or operator shall submit to the Control Officer for approval the O&M Plans of each ECS and each ECS monitoring device that is used pursuant to this rule.

c. Initial Plans: An ~~owner or operator that~~ owner and/or operator who is required to have an O&M Plan pursuant to this rule shall comply with all O&M Plans that the ~~owner or operator~~ owner and/or operator has submitted for approval, but which have not yet been approved, unless notified by the Control Officer in writing. Once the initial plan has been approved in writing by the Control Officer, an ~~owner or operator~~ owner and/or operator shall then comply with the approved plan.

d. Revisions to Plan: If revisions to the initial plan have been approved by the Control Officer in writing, an ~~owner or operator~~ owner and/or operator shall comply with the revisions to the initial plan. If revisions to the plan have not yet been approved by the Control Officer, then an ~~owner or operator~~ owner and/or operator shall comply with the newest recent O&M plan on file at Maricopa County Air Quality Department.

e. Control Officer Modifications to Plan: After discussion with the ~~owner or operator~~ owner and/or operator, the Control Officer may modify the plan in writing prior to approval of the initial O&M plan. An ~~owner or operator~~ owner and/or operator shall then comply with the plan that has been modified by the Control Officer.

~~306.4~~**306.7 Continuous Emission Monitoring Systems (CEMS):**

a. An ~~owner or operator~~ owner and/or operator of a ~~combustion unit~~ electrical utility stationary gas turbines, electric utility steam generating units, or associated cooling tower subject to Section 304 of this rule with a heat input of greater than 250 MMBtu/hr, regardless of fuel type, shall install, calibrate, maintain, and operate a CEMS for measuring nitrogen oxides and recording the output of the system. Where nitrogen oxide emissions are monitored by a CEMS, then a CEMS

shall also be required for the measurement of the oxygen content of the flue gases. All CEMS shall comply with the provisions in 40 CFR Subpart Da, Part 60, 60.47 (a).

b. An ~~owner or operator~~ owner and/or operator of any affected ~~unit~~ electrical utility stationary gas turbines, electric utility steam generating units, or associated cooling tower listed above that requires a CEMS for nitrogen oxides that meets and is continuing to meet the requirements of 40 CFR Part 75 may use that CEMS to meet the requirements of ~~subsection 306.4 a~~ Section 306.7(a) of this rule.

307 EMERGENCY FUEL USE NOTIFICATION: An ~~owner or operator~~ owner and/or operator of a ~~unit~~ electrical utility stationary gas turbines, electric utility steam generating units, or associated cooling tower that is fired with emergency fuel but is normally fired with natural gas shall notify the Control Officer verbally no later than 24 hours after declaration of the emergency that necessitates its use in compliance with ~~subsections 104.2 and 212~~ Section 104.2 of this rule. This verbal report shall be followed by a written report within 48 hours of initial emergency fuel usage. The written report shall also include identification of the nature of the emergency, initial dates of usage, and the expected dates of usage.

SECTION 400 - ADMINISTRATIVE REQUIREMENTS ~~(NOT APPLICABLE)~~

401 COMPLIANCE SCHEDULE:

401.1 The owner and/or operator of any electrical utility stationary gas turbines, electric utility steam generating units, or associated cooling tower in existence on November xx, 2015, subject to the emission limits of Sections 304 of this rule, shall comply with these limits effective January xx, 2017 unless air pollution control equipment is required. When air pollution control equipment is required to achieve these limits, the owner and/or operator shall comply with the increments of progress of Section 401.2 of this rule and be in compliance with the emission limits by the date specified in Section 401.2 of this rule. Interim compliance with the limits of Sections 304 of this rule does not exclude the owner and/or operator from final compliance with the limits of Section 304 of this rule and the increments of progress of Section 401.2 of this rule.

401.2 Increments of Progress: The owner and/or operator of any electrical utility stationary gas turbines, electric utility steam generating units, or associated cooling tower subject to the emissions limits of Section 304 of this rule shall comply with the following increments of progress. The following compliance schedule does not apply to units already compliant with these rules as of November xx, 2016:

a. [Within 2 months of rule adoption]; submit to the Control Officer a compliance plan as specified in Sections 304.2 and 304.3 of this rule.

b. [Within 10 months of rule adoption]; notify the Control Officer prior to construction for the modifications necessary to meet the limits of Section 402 of this rule.

c. [Within 18 months of rule adoption]; begin construction.

d. [Within 24 months of rule adoption]; complete construction.

e. [Within 26 months of rule adoption]; be fully compliant with the emission limits of Section 304 of this rule. This shall include the submittal to the Control Officer of a complete source test report indicating compliance.

401.3 Removal From Service: The owner and/or operator of any electrical utility stationary gas turbines, electric utility steam generating units, or associated cooling tower in existence on November xx, 2016 that is expected to be removed from service by January xx, 2019 shall comply with the following:

a. [Within 2 months of rule adoption], submit to the Control Officer a notification requesting an exemption from the requirements of Section 304 of this rule.

b. [Within 10 months of rule adoption], submit to the Control Officer a complete application for an Authority to Construct for modification of the Permit to Operate.

c. [Within 14 months of rule adoption], discontinue operation of the electrical utility stationary gas turbines, electric utility steam generating units, or associated cooling tower, disconnect the fuel supply line(s), and notify the Control Officer in writing of the removal from service.

401.4 Operation of any electrical utility stationary gas turbines, electric utility steam generating units, or associated cooling tower beyond [14 months of rule adoption], shall be done in compliance with the applicable NOx limits in Sections 304.2 and 304.3 of this rule.

401.5 Emergency Standby Units: The owner and/or operator of any electrical utility stationary gas turbines, electric utility steam generating units, or associated cooling tower in existence prior to [date of adoption] shall, [within 2 months of rule adoption], submit to the Control Officer a notification requesting an exemption from the requirements of Section 300 of this rule.

402 COMPLIANCE PLAN: The owner and/or operator of any electrical utility stationary gas turbines, electric utility steam generating units, or associated cooling tower shall submit, for approval to the Control Officer, a plan for compliance with the provisions of Section 300 of this rule. The plan shall include:

402.1 The following information relative to each electrical utility stationary gas turbines, electric utility steam generating units, or associated cooling tower subject to this rule: the name of the manufacturer, model number, rated shaft power output (MW), hours of operation, fuel type, and fuel consumption rate (MCF/hr or gal/hr).

402.2 A description of the NO_x control system proposed for each electrical utility stationary gas turbines, electric utility steam generating units, or associated cooling tower, including type and manufacturer, as well as the measurement and recording equipment required in Section 306 of this rule. Data on the expected performance of the NO_x control system shall also be included.

402.3 A compliance schedule for each electrical utility stationary gas turbines, electric utility steam generating units, or associated cooling tower, including, but not limited to, specific dates for the following events: final engineering, contract award, starting date of construction, completion date of construction, and the date of final compliance.

SECTION 500 - MONITORING AND RECORDS

501 **RECORDKEEPING AND REPORTING:** Any ~~owner or operator~~ owner and/or operator subject to this rule shall comply with the requirements set forth in this section. Any records and data required by this section shall be kept on site at all times in a consistent and complete manner and be made available without delay to the Control Officer or his designee upon request. Records shall consist of the following information:

501.1 **Operations And Maintenance (O&M) Plan Record Requirements:**

a. Permit number of each gas turbine.

b. Manufacturer, model number and rating in megawatts of each gas turbine.

c. Actual startup and shutdown time, daily hours of operation, and cumulative hours of operation to date for the calendar year. In addition, for emergency standby units, hours of operation shall be listed separately for emergencies and for maintenance operations.

d. Actual daily fuel usage of each electrical utility stationary gas turbines, electric utility steam generating units.

e. Date and results of most recent emission test reported as ppmvat 15% O_2 and pound per unit time.

f. A summary of any emissions corrective maintenance taken.

~~501.1~~**501.2** **Equipment Listed In Section 102 of this Rule:** Type of fuel used, amount of fuel used, amount of sulfur in the fuel if using liquid fuel, and the days and hours of operation.

~~501.2~~**501.3** **Cooling Towers:** Monthly gravimetric testing reports for TDS shall be recorded for six months in succession and thereafter quarterly reports shall be recorded. Results of the monthly or yearly visual

inspection of the drift eliminator shall also be recorded. If the drift eliminator cannot be visually inspected monthly, then documentation of the physical configuration of the drift eliminator shall be submitted to the Control Officer to demonstrate that the drift eliminator cannot be inspected monthly.

~~501.3~~**501.4** **Emergency Fuel Usage:** Type and amount of emergency fuel used, dates and hours of operation using emergency fuel, nature of the emergency or reason for the use of emergency fuel as stated in ~~subsections 104.2 and 104.3~~ Sections 104.2 and 104.3 of this rule.

~~501.4~~**501.5** **Fuel Switching:** Monthly records of fuel switching including stop and start times, monthly records of hours of operation for testing, reliability and maintenance purposes per ~~subsection 104.3~~ Section 104.3 of this rule, and a yearly log total of these hours.

~~501.5~~**501.6** **CEMS:** All CEMS measurements, results of CEMS performance evaluations, CEMS calibration checks, and adjustments and maintenance performed on these systems.

~~501.6~~**501.7** **Good Combustion Practices:** Measurements of the temperature differential across the burners of turbines per ~~subsection 301. 3 a, b, or c~~ Sections 301.3(a), 301.3(b), and 301.3(c) of this rule, results of evaluation and of corrective action taken to reduce the temperature differential or a finding that the temperature differential returned to the range listed in ~~subsection 301.3 a or b~~ Sections 301.3(a) or 301.3(b) of this rule without any action by the ~~owner or operator~~ owner and/or operator.

502 **RECORDS RETENTION:** Copies of reports, logs, and supporting documentation required by the Control Officer shall be retained for at least 5 years. Records and information required by this rule shall also be retained for at least 5 years.

503 **COMPLIANCE DETERMINATION:**

503.1 **Low Sulfur Oil Verification:**

a. An ~~owner or operator~~ owner and/or operator shall submit fuel oil or liquid fuel receipts from the fuel supplier indicating the sulfur content of the fuel or verification that the oil used to generate electric power meets the 0.05% sulfur limit if requested by the Control Officer; or

b. If fuel receipts are not available then an ~~owner or operator~~ owner and/or operator shall submit a statement of certification or proof of the sulfur content of the oil or liquid fuel from the supplier to the Control Officer; or

c. An ~~owner or operator~~ owner and/or operator may elect to test the fuel for sulfur content in lieu of certification from the fuel supplier or fuel receipts using one of the test methods listed in ~~subsections 504.11, 504.12, 504.13 or 504.14~~ Sections 504.11, 504.12, 504.13, or 504.14 of this rule.

503.2 **Drift Rate Verification:** An ~~owner or operator~~ owner and/or operator shall submit design drift rate verification from the manufacturer of the drift eliminator used in the cooling towers to the Control Officer if proof of the design drift rate is requested by the Control Officer.

504 **TEST METHODS INCORPORATED BY REFERENCE:** The EPA test methods as they exist in the Code of Federal Regulations (CFR) (July 1, 2004), as listed below, are incorporated by reference in Appendix G of the Maricopa County Air Pollution Control Regulations. Copies of test methods referenced in this section are available at the Maricopa County Air Quality Department, 1001 N. Central Avenue, Suite ~~595~~125, Phoenix, AZ 85004-1942. The Standard Method~~s~~ listed below (1995) are also incorporated by reference. When more than one test method as listed in ~~subsections 504.11 through 504.14~~Sections 504.11 through 504.14 of this rule is permitted for the same determination, an exceedance of the limits established in this rule determined by any of the applicable test methods constitutes a violation.

504.1 EPA Reference Methods 1 ("Sample and Velocity Traverses for Stationary Sources"), and 1A ("Sample and Velocity Traverses for Stationary Sources with Small Stacks and Ducts") (40 CFR 60, Appendix A).

504.2 EPA Reference Methods 2 ("Determination of Stack Gas Velocity and Volumetric Flow Rate"), 2A ("Direct Measurement of Gas Volume Through Pipes and Small Ducts"), 2C ("Determination of Stack Gas Velocity and Volumetric Flow Rate in Small Stacks or Ducts"), and 2D ("Measurement of Gas Volumetric Flow Rates in Small Pipes and Ducts") (40 CFR 60, Appendix A).

504.3 EPA Reference Methods 3 ("Gas Analysis for the Determination of Dry Molecular Weight"), 3A ("Determination of Oxygen and Carbon Dioxide Concentrations in Emissions From Stationary Sources (Instrumental Analyzer Procedure)"), 3B ("Gas Analysis for the Determination of Emission Rate Correction Factor of Excess Air"), and 3C ("Determination of Carbon Dioxide, Methane, Nitrogen and Oxygen from Stationary Sources") (40 CFR 60, Appendix A).

504.4 EPA Reference Method 4 ("Determination of Moisture Content in Stack Gases") (40 CFR 60, Appendix A).

504.5 EPA Reference Method 5 ("Determination of Particulate Emissions from Stationary Sources") (40 CFR 60, Appendix A).

504.6 EPA Reference Method 202 ("Determination of Condensable Particulate Emissions from Stationary Sources") (40 CFR 51, Appendix M).

504.7 EPA Reference Methods 7 ("Determination of Nitrogen Oxide Emissions from Stationary Sources"), 7A ("Determination of Nitrogen Oxide Emissions from Stationary Sources"), 7B ("Determination of Nitrogen Oxide Emissions from Stationary Sources - Ultraviolet Spectrometry"), 7C ("Determination of Nitrogen Oxide Emissions from Stationary Sources - Alkaline-Permanganate Colorimetric Method"), 7D ("Determination of Nitrogen Oxide Emissions from Stationary Sources – Alkaline-Permanganate Chromatographic Method"), and 7E ("Determination of Nitrogen Oxide Emissions from Stationary Sources – Instrumental Analyzer Method") (40 CFR 60, Appendix A).

504.8 EPA Reference Method 9 ("Visual Determination of the Opacity of Emissions from Stationary Sources") (40 CFR 60, Appendix A).

504.9 EPA Reference Method 10 ("Determination of Carbon Monoxide Emissions from Stationary Sources") (40 CFR 60, Appendix A).

504.10 EPA Reference Method 20 ("Determination of Nitrogen Oxides, Sulfur Dioxide and Diluent Emissions from Stationary Gas Turbines") (40 CFR 60, Appendix A).

504.11 American Society of Testing Materials, ASTM Method D2622-98, ("Standard Test Method for Sulfur in Petroleum Products by Wavelength Disperse X-Ray Fluorescence Spectrometry"), 1998.

504.12 American Society of Testing Materials, ASTM Method D1266-98, ("Standard Test Method for Sulfur in Petroleum Products - Lamp Method"), 1998.

504.13 American Society of Testing Materials, ASTM Method D2880-00, ("Standard Specification for Gas Turbine Fuel Oils"), 2000.

504.14 American Society of Testing Materials, ASTM Method D4294-90 or 98 ("Standard Test Method for Sulfur in Petroleum Products by Energy-Dispersive X-Ray Fluorescence Spectrometry"), 1990 or 1998.

504.15 Standard Methods for the Examination of Water and Wastewater,("Dissolved Solids Dried at 180ºC, Method #2540C"), American Public Health Association, 19th edition, 1995.

Maricopa County Air Quality Dept.
Planning & Analysis Division
1001 N. Central Ave. Ste. 125
Phoenix, AZ 85004

REGULATION III – CONTROL OF AIR CONTAMINANTS

RULE 323
FUEL BURNING EQUIPMENT FROM INDUSTRIAL /COMMERCIAL/ INSTITUTIONAL (ICI) SOURCES

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~~Adopted 07/03/05~~
~~Revised 10/17/07~~

Adopted 07/03/05; Revised 10/17/07; **Revised MM/DD/YY**

MARICOPA COUNTY
AIR POLLUTION CONTROL REGULATIONS
REGULATION III-CONTROL OF AIR CONTAMINANTS

RULE 323
FUEL BURNING EQUIPMENT FROM INDUSTRIAL/COMMERCIAL/INSTITUTIONAL (ICI) SOURCES

~~**INDEX**~~

SECTION 100 – GENERAL

101 **PURPOSE:** To limit the discharge of nitrogen oxides, sulfur oxides, carbon monoxide, and particulate matter emissions into the atmosphere from fuel burning combustion equipment at industrial and/or commercial and/or institutional (ICI) sources.

102 **APPLICABILITY:** This rule applies to any of the following types of ICI combustion equipment that burns either fossil fuels or alternative fuels:

102.1 Each steam generating unit that has a maximum design rated heat input capacity from fuels combusted in the generating unit of greater than 10 million (MM) Btu/hr (2.9 Megawatts (MW)).

102.2 Each stationary gas turbine with a heat input at peak load equal to or greater than 2.9 megawatts (MW).

102.3 Each cogeneration steam generating unit with a heat input of greater than 10 MMBtu/hr.

102.4 Each indirect-fired process heater with a heat input greater than 10 MMBtu/hr.

102.5 NSPS & NESHAP: In addition to this rule, facilities may be subject to New Source Performance Standards (NSPS) in Rule 360 and/or National Emission Standards for Hazardous Air Pollutants (NESHAP) in Rule 370 of these rules.

103 **EXEMPTIONS:** This rule shall not apply to the following types of equipment:

103.1 Incinerators, crematories, or burn-off ovens; or

103.2 Dryers, cement and lime kilns; or

103.3 Direct-fired process heaters; or

103.4 Medical waste incinerators; or

103.5 Reciprocating internal combustion equipment; or

103.6 Combustion equipment used in power plant operations for the purpose of supplying greater than one third of the electricity to any utility power distribution system for sale; or

103.7 Combustion equipment associated with nuclear power plant operations; or

103.8 Water heaters used for the sole purpose of heating hot water for comfort or for radiant heat.

104 **PARTIAL EXEMPTIONS:**

104.1 Stationary gas turbines listed in ~~subsection 102.2~~ Section 102.2 of this rule that are used for any of the following reasons shall be exempt from ~~Sections 304, 305 and subsections 301.1, 301.2, 501.1 and 501.3~~ Sections 301.1, 301.2, 304, 305, 501.1, and 501.3 of this rule:

a. Used for firefighting; or

b. Used for flood control; or

c. Used at military training facilities other than a garrison facility; or

d. Engaged by manufacturers in research and the development of equipment for either gas turbine emission control techniques or gas turbine efficiency improvements; or

e. Fired with emergency fuel that is normally fired with natural gas, or

f. Testing, reliability, maintenance, training, and readiness purposes for a total of 36 hours per year per unit when firing any emergency fuel.

104.2 All steam generating units including cogeneration units and process heaters that are used for any of the following reasons shall be exempt from Sections 301, 304, 305, ~~and subsections~~ 501.1 and 501.3 of this rule:

a. Fired with an emergency fuel that is normally fired with natural gas; or

b. Firing any emergency fuel for testing, reliability, and maintenance purposes up to a maximum total of 36 ~~hrs.~~ hours per unit per year.

SECTION 200 – DEFINITIONS: ~~For the purpose of this rule, the following definitions shall apply. See Rule 100 (General Provisions and Definitions) of these rules for definitions of terms that are used but not specifically defined in this rule.~~ For the purpose of this rule, the following definitions shall apply, in addition to those definitions found in Rule 100 (General Provisions and Definitions) of these rules. In the event of any inconsistency between any of the Maricopa County air pollution control rules, the definitions in this rule take precedence.

201 ALTERNATIVE FUELS: Substitutes for traditional oil-derived and fossil-fuel derived motor vehicle fuels including but not limited to biodiesel, propane, ethanol or methanol.

202 COGENERATION STEAM GENERATING UNIT: A steam or hot water generating unit that simultaneously produces both electrical (or mechanical) and thermal energy (such as heat or steam) from the same primary energy source.

203 CORRECTIVE ACTION PLAN (CAP): A methodical procedure that is used to evaluate and correct a turbine operational problem and that includes, at a minimum, improved preventative maintenance procedures, improved ECS operating practices, possible operational amendments, and progress reports.

204 DISTILLATE OIL: A petroleum fraction of fuel oil produced by distillation that complies with the specifications for fuel oil numbers 1 or 2, as defined by the American Society for Testing and Materials in ASTM D396-01, "Standard Specification for Fuel Oils."

205 EMERGENCY FUEL: Fuel fired by a gas combustion unit, normally fueled by natural gas, only during circumstances of unforeseen disruption or interruption in the supply of natural gas to a unit that normally runs on natural gas. The inability to burn natural gas may be one of the following, but is not limited to, natural gas emergency, natural gas curtailment, or a breakdown of the delivery system.

206 EMISSION CONTROL SYSTEM (ECS): A system approved in writing by the Control Officer, designed and operated in accordance with good engineering practice to reduce emissions.

207 FOSSIL FUEL: Naturally occurring carbonaceous substances from the ground such as natural gas, petroleum, coal, and any form of solid, liquid or gaseous fuel derived from such material for the purpose of creating energy.

208 HEAT INPUT: Heat derived from the combustion of fuel not including the heat input from preheated combustion air, recirculated flue gases, or exhaust gases from other sources, such as gas turbines, internal combustion engines, and kilns.

209 LOW SULFUR OIL: Fuel oil containing less than or equal to 0.05 % by weight of sulfur.

210 NATURAL GAS CURTAILMENT: A shortage in the supply of natural gas, due solely to limitations or restrictions in distribution pipelines by the utility supplying the gas and not due to the cost of natural gas.

211 **OPACITY:** A condition of the ambient air, or any part thereof, in which an air contaminant partially or wholly obscures the view of an observer.

212 **PARTICULATE MATTER EMISSIONS:** Any and all particulate matter emitted to the ambient air as measured by applicable state and federal test methods.

213 **PEAK LOAD:** 100% of the manufacturer's design capacity of a gas turbine at 288 Kelvin, 60% relative humidity, and 101.3 kilopascals pressure (ISO standard day conditions).

214 **PROCESS HEATER:** An enclosed combustion device that uses controlled flame to transfer heat to a process fluid or a process material that is not a fluid or to heat transfer material for use in a process unit (not including the generation of steam). A process heater may be either indirect or direct-fired, dependent upon whether the gases of combustion mix with and exhaust to the same stack or vent (direct-fired) with gases emanating from the process material or not (indirect-fired). Emissions from indirect-fired units consist entirely of products of combustion while emissions from direct-fired units are unique to the given process and may vary widely in any industrial process. A process heater is not an oven or kiln used for drying, curing, baking, cooking, calcining, or vitrifying.

215 **RATED HEAT INPUT CAPACITY:** The heat input capacity in million Btu/hr. as specified on the nameplate of the combustion unit. If the combustion unit has been altered or modified so that its maximum heat input is different than the heat input capacity on the nameplate (design heat capacity), the maximum heat input shall be considered as the rated heat input capacity.

216 **REGENERATIVE CYCLE GAS TURBINE:** Any stationary gas turbine that recovers thermal energy from the exhaust gases and utilizes the thermal energy to preheat air prior to entering the combustor.

217 **RESIDUAL OIL:** The heavier oils that remain after the distillate oils and lighter hydrocarbons are distilled off in refinery operations. This includes crude oil or fuel oil numbers 1 and 2 that have a nitrogen content greater than 0.05% by weight, and all fuel oil numbers 4, 5 and 6, as defined by the American Society of Testing and Materials in ASTM D396-01, "Standard Specifications for Fuel Oils".

218 **SIMPLE CYCLE GAS TURBINE:** Any stationary gas turbine that does not recover heat from the gas turbine exhaust gases to preheat the inlet combustion air to the gas turbine, or that does not recover heat from the gas turbine exhaust gases to heat water or generate steam.

219 **STATIONARY GAS TURBINE:** Any simple cycle gas turbine or regenerative gas turbine that is not self-propelled or that is attached to a foundation.

220 **STEAM GENERATING UNIT:** An external combustion unit or boiler fired by fossil fuel that is used to generate hot water or steam. The hot water or steam is then used as energy for driving another process or piece of equipment.

221 **SULFUR OXIDES (SO_x):** The sum of the oxides of sulfur emitted from the flue gas from a combustion unit that are directly dependent upon the amount of sulfur in the fuel used.

222 **UNCOMBINED WATER:** Condensed water containing no more than analytical trace amounts of other chemical elements or compounds.

223 **WASTE DERIVED FUEL GAS:** Any gaseous fuel that is generated from the biodegradation of solid or liquid waste including but not limited to, sewage sludge, digester gas, and landfill gas.

224 **WATER HEATER:** A closed vessel in which water is heated by combustion of fuel and water is either withdrawn for use external to the vessel (at pressures not exceeding 160 psi with all controls and devices preventing water temperatures from exceeding 210°F) or used for radiant heat. Water heaters are usually no larger than 1 MM Btu/hr as opposed to boilers, do not reach temperatures of 220°F and higher that boilers can reach, and are not manufactured to meet boiler codes.

SECTION 300 – STANDARDS

301 LIMITATIONS – PARTICULATE MATTER:

301.1 Limitation-Liquid Fuels: An ~~owner or operator~~ owner and/or operator shall not discharge, cause or allow the discharge of particulate matter emissions, caused by combustion of non-gaseous liquid fuels or a blend of liquid fuels with other fuels in excess of 0.10 lbs. per MMBtu from any combustion units listed in ~~subsections 102.1, 102.3 and 102.4~~ Sections 102.1, 102.3, and 102.4 of this rule with either a rated heat input capacity or heat input of greater than 100 MM Btu/hr.

301.2 Particulate Matter Testing: A backhalf analysis shall be performed, using Reference Method 202 referenced in ~~subsection 504.6~~ Section 504.6 of this rule, each time a compliance test for particulate matter emissions to meet the standards in ~~subsection 301.1~~ Section 301.1 of this rule is performed using Method 5. (The results of the Method 202 testing shall be used for emissions inventory purposes).

301.3 Good Combustion Practices for Turbines: An ~~owner or operator~~ owner and/or operator of a stationary gas turbine listed in ~~subsection 102.2~~ Section 102.2 of this rule, regardless of fuel type or size, shall use operational practices recommended by the manufacturer and parametric monitoring that ensure good combustion control. One of the following procedures may be used:

a. Monitor the maximum temperature differential across the combustion burners or at locations around the back end of the turbine, dependent upon the particular unit, to ensure no more than a 100° F difference using a thermocouple. If a valid maximum temperature differential of greater than 100° F is observed across the burners, investigation and corrective action shall be taken within three hours to either reduce the temperature difference to 100° F or less, or

b. If the manufacturer recommends that the maximum numerical temperature differential to ensure good combustion is a temperature that is greater than 100°F, then proof of this maximum alternate temperature shall be submitted to the Control Officer. The procedure to measure the maximum temperature differential listed above in ~~subsection 301.3a~~ Section 301.3(a) of this rule shall then be followed using the alternate recommended maximum temperature differential after approval by the Control Officer.

c. If a repetitive pattern of failure to meet the proper temperature differential of 100°F or to meet the alternate temperature differential recommended by the manufacturer indicates that the turbine is not being operated in a manner consistent with good combustion practices, then the Control Officer may require the owner or operator to submit a Corrective Action Plan (CAP).

302 LIMITATIONS – OPACITY:

~~No owner or operator shall~~ An owner and/or operator shall not discharge into the ambient air from any single source of emissions any air contaminant, other than uncombined water, in excess of 20% opacity.

303 LIMITATIONS – SULFUR IN FUEL:

An ~~owner or operator~~ owner and/or operator of any applicable equipment listed in Section 102 of this rule that burns liquid fuel oil or a mixture or blend of fuel oil with any other fuels shall use only low sulfur oil. An owner or operator using waste derived fuel gas shall use only waste derived fuel gas with a sulfur content less than or equal to 800 ppm (0.08%).

304 LIMITATIONS – NITROGEN OXIDES:

304.1 An ~~owner or operator~~ owner and/or operator of any combustion equipment listed in Section 102 of this rule, except gas turbines, with a heat input of greater than 10 MMBtu/hr to 100 MMBtu/hr~~, except gas turbines,~~ shall comply either with ~~(a) or (b) below~~ Sections 304.1(a) or 304.1(b) of this rule. Gas Turbines are subject to both Section 304.1(a) and 304.1(b) of this rule below:

a. Establish initial optimal baseline concentrations for NO_x and CO within 90 days of the first usage of the combustion equipment utilizing the initial design burner specifications or manufacturer's recommendations to ensure good combustion practices. Tune the unit annually in accordance with good combustion practices or a manufacturer's procedure, if applicable, that will include the following at a minimum:

(1) Inspect the burner system and clean and replace any components of the burner as necessary to minimize emissions of NO_x and CO; and

(2) Inspect the burner chamber for areas of impingement and remove if necessary; and

(3) Inspect the flame pattern and make adjustments as necessary to optimize the flame pattern; and

(4) Inspect the system controlling the air-to-fuel ratio and ensure that it is correctly calibrated and functioning properly; and

(5) Measure the NO_x and the CO concentration of the effluent stream after each adjustment was made with a handheld portable monitor to ensure optimal baseline concentrations are maintained or

b. Limit nitrogen oxide emissions to no more than the following amounts:

~~**(1)** 155 ppm calculated as nitrogen dioxide, when burning gaseous fuel. During steady state operations, this test result using EPA Reference Method(s) 7 shall be based upon the arithmetic mean of the results of three test runs. Each test run shall have a minimum sample run time of one hour.~~

~~**(2)** 230 ppm calculated as nitrogen dioxide, when burning liquid fuel. During steady state operations, this test result using EPA Reference Method(s) 7 shall be based upon the arithmetic mean of the results of three test runs. Each test run shall have a minimum sample run time of one hour.~~

(1) **Emission Limits–Gaseous Firing:** An owner and/or operator shall not allow the discharge into the atmosphere, when burning gaseous fuel from any steam generating unit, stationary gas turbine, cogeneration steam generating unit, and indirect- process heater operating less than 877 hours within a calendar year and with an annual heat input rate greater than 10 MMBtu/hr (2.9 MW), oxides of nitrogen (NO_x) emissions in excess of 42 parts per million volume (ppmv) , corrected to 15 percent oxygen (O_2) when firing on gaseous fuels.

(2) The NO_x emissions from any steam generating unit, stationary gas turbine, cogeneration steam generating unit, and indirect- process heater operated 877 hours or more per calendar year with a rated unit size output greater or equal to10 MMBtu/hr (2.9 MW), without SCR installed, shall not exceed 15 parts per million by volume on a dry basis, corrected to 15 percent oxygen (O_2) when firing on gaseous fuels.

(3) The NO_x emissions from any steam generating unit, stationary gas turbine, cogeneration steam generating unit, and indirect- process heater operated 877 hours or more per calendar year with a rated unit size output greater or equal to10 MMBtu/hr (2.9 MW), with SCR installed, shall not exceed 9 parts per million by volume on a dry basis, corrected to 15 percent oxygen (O_2) when firing on gaseous fuels.

(4) **Emission Limits-Nongaseous Fuel Firing:** An owner and/or operator shall not allow the discharge into the atmosphere, when burning nongaseous fuel from any steam generating unit, stationary gas turbine, cogeneration steam generating unit, indirect- process heater operating less than 877 hours within a calendar year and with an annual heat input rate greater than 10 MMBtu/hr (2.9 MW), oxides of nitrogen (NO_x) emissions in excess of 65 parts per million volume (ppmv), corrected to 15 percent oxygen (O_2) when firing on liquid fuels.

(5) The NO_x emissions from any steam generating unit, stationary gas turbine, cogeneration steam generating unit, and indirect- process heater operated 877 hours or more per calendar year with a rated unit size output greater or equal to10 MMBtu/hr (2.9 MW), without SCR installed, shall not exceed 42 parts per million by volume on a dry basis, corrected to 15 percent oxygen (O_2) when firing on liquid fuels.

(6) The NO_x emissions from any steam generating unit, stationary gas turbine, cogeneration steam generating unit, and indirect- process heater operated 877 hours or more per calendar year with a rated unit size output greater or equal to10 MMBtu/hr (2.9 MW),

with SCR installed, shall not exceed 25 parts per million by volume on a dry basis, corrected to 15 percent oxygen (O_2) when firing on liquid fuels.

TABLE 1:
SUMMARY OF LIMITATION REQUIREMENTS IN SECTION 304.1(B) OF THIS RULE

Rule Reference	Time of Operation (hr/yr)	Unit Size Rating MMBtu/hr	NO_x Emission Limit (ppmv)	
			Gaseous Fuel	Liquid Fuel
304.1(b)(1) And 304.1(b)(5)	<877	> 10	42	65
304.1(b)(2) And 304.1(b)(6)	≥877	≥10.0 (no SCR)	15	42
304.1(b)(3) And 304.1(b)(7)	≥877	≥10.0 (w SCR)	9	25

c. For simple gas turbines, the nitrogen oxides shall be measured dry and corrected to 15% oxygen. For all other combustion equipment, the nitrogen oxides shall be measured dry and corrected to 3% oxygen.

304.2 An ~~owner or operator~~ owner and/or operator of any combustion equipment, listed in Section 102 of this rule, with a heat input greater than 100 MMBtu/hr, shall:

a. Tune the equipment every 6 months with good combustion practices or a manufacturer's procedure that at a minimum includes the procedures listed in ~~subsection 304.1a~~ Section 304.1(a) of this rule and;

b. Meet the NO_x emission limits as stated in ~~subsection 304.1b~~ Section 304.1(b) of this rule.

305 LIMITATIONS-CARBON MONOXIDE: ~~No owner or operator~~ An owner and/or operator of any equipment listed in Section 102 of this rule with a heat input greater than 100 MM Btu/hr shall not cause to be discharged into the atmosphere, carbon monoxide (CO), measured in excess of 400 ppmv at any time. This test result, using EPA Reference Method 10, shall be based upon the arithmetic mean of the results of three test runs and shall be measured during steady state compliance source testing. Each test run shall have a minimum sample time of one hour. For simple gas turbines, the CO shall be measured dry and corrected to 15% oxygen. For all other combustion equipment, the CO shall be measured dry and corrected to 3% oxygen.

306 REQUIREMENTS FOR AIR POLLUTION CONTROL EQUIPMENT AND ECS MONITORING EQUIPMENT:

306.1 Emission Control System Required: For affected operations which may exceed any of the applicable standards set forth in Sections 300 of this rule, an owner or operator may comply by installing and operating an emission control system (ECS).

306.2 Providing and Maintaining ECS Monitoring Devices: ~~No owner or operator~~ An owner and/or operator required to use an approved ECS pursuant to this rule shall not do so without first providing, properly installing, operating, and maintaining in calibration and in good working order, devices for indicating temperatures, pressures, transfer rates, rates of flow, or other operating conditions necessary to determine if air pollution control equipment is functioning properly and is properly maintained as described in an approved O&M Plan.

306.3 Operation and Maintenance (O&M) Plan Required For ECS:

a. General Requirements: An ~~owner or operator~~ owner and/or operator shall provide and maintain an O&M Plan for any ECS, any other emission processing equipment, and any ECS monitoring devices that are used pursuant to this rule or an air pollution permit.

b. Approval by Control Officer: An ~~owner or operator~~ owner and/or operator shall submit to the Control Officer for approval the O&M Plans of each ECS and each ECS monitoring device that is used pursuant to this rule.

c. Initial Plans: An ~~owner or operator~~ owner and/or operator that is required to have an O&M Plan pursuant to this rule shall comply with all O&M Plans that the ~~owner or operator~~ owner and/or operator has submitted for approval, but which have not yet been approved, unless notified by the Control Officer in writing. Once the initial plan has been approved in writing

by the Control Officer, an ~~owner or operator~~ owner and/or operator shall comply with this approved plan.

d. **Revisions to Plan:** If revisions to the initial plan have been approved by the Control Officer in writing, an ~~owner or operator~~ owner and/or operator shall comply with the revisions to the initial plan. If revisions to the plan have not yet been approved by the Control Officer in writing, then an ~~owner or operator~~ owner and/or operator shall comply with the most recent O&M plan on file at Maricopa County Air Quality Department.

e. **Control Officer Modifications to Plan:** After discussion with the ~~owner or operator~~ owner and/or operator, the Control Officer may modify the plan in writing prior to approval of the initial O&M plan. An ~~owner or operator~~ owner and/or operator shall then comply with the plan that has been modified by the Control Officer.

SECTION 400 – ADMINISTRATIVE REQUIREMENTS ~~(NOT APPLICABLE)~~

401 **COMPLIANCE SCHEDULE:** An owner and/or operator of any steam generating unit, stationary gas turbine, cogeneration steam generating unit, and indirect- process heater subject to Sections 301 or 302 of this rule on or after [date of adoption] shall comply with this rule in accordance with the following schedules.

401.1 Except as provided in Sections 401.2 and 401.3 of this rule, for steam generating units, stationary gas turbines, cogeneration steam generating units, and indirect- process heaters installed prior to [date of adoption] and permit application deemed complete by the Control Officer prior to [date of adoption], or installed after [date of adoption] and permit application deemed complete prior to [date of adoption] shall follow the compliance schedule in Table 2:

TABLE 2:

Number of Units subject to Section 304	Number of these Units required to be in full compliance by [12 months after rule adoption]	Number of these Units required to be in full compliance by [24 months after rule adoption]	Number of these Units required to be in full compliance by [36 months after rule adoption]
1 or 2	1	2	N/A
3	1	2	3
4	2	3	4
5 or 6	2	4	6
More than 6	25% of these units	75% of these units	100% of these units

Note: Full Compliance identifies the date by which the owner shall demonstrate that each steam generating unit, stationary gas turbine, cogeneration steam generating unit, or indirect- process heater is in compliance with this rule.

401.2 For steam generating unit, stationary gas turbine, cogeneration steam generating unit, and indirect-process heater installed after [date of rule adoption] and permit application deemed complete by the Control Officer after [date of rule adoption]: date of installation.

401.3 For steam generating unit, stationary gas turbine, cogeneration steam generating unit, and indirect-process heater installed prior to [date of rule adoption] and permit application deemed complete by the Control Officer after [date of rule adoption]: [12 months after rule adoption].

SECTION 500 – MONITORING AND RECORDS

501 **RECORDKEEPING AND REPORTING:** An ~~owner or operator~~ owner and/or operator subject to this rule shall comply with the requirements set forth in this section. Any records and data required by this section shall be kept on site at all times in a consistent and complete manner and be made available without delay to the Control Officer or his designee upon request. Records shall consist of the following information:

501.1 **Equipment Listed In Section 102 of this Rule:** Type of fuel used, amount of fuel used, and amount of sulfur in the fuel if using liquid fuel, and the days and hours of operation.

501.2 **Emergency Fuel Usage:** Monthly records of: type of emergency fuel used, dates and hours of operation using emergency fuel, and nature of the emergency or purpose for the use of the emergency fuel as stated in ~~subsections 104.1 and 104.2~~ Sections 104.1 and 104.2. Yearly records of the twelve month log of hours of operation in the emergency mode.

501.3 **Good Combustion Practice:** Measurements of the temperature differential across the burners of turbines per ~~subsection 301.3~~ Section 301.3 of this rule, results of evaluation and corrective action taken to reduce the temperature differential or a finding that the temperature differential returned to the range listed in ~~subsection 301.3 (a) or (b)~~ Sections 301.3(a) or 301.3(b) of this rule without any action by the ~~owner or operator~~ owner and/or operator.

501.4 **Tuning Procedure:** Date that the procedure was performed on the particular unit and at a minimum: stack gas temperature, flame conditions, nature of the adjustment and results of the nitrogen oxide and carbon monoxide concentrations obtained by using a handheld monitor after each adjustment.

502 **RECORDS RETENTION:** Copies of reports, logs and supporting documentation required by the Control Officer shall be retained for at least 5 years. Records and information required by this rule shall also be retained for at least 5 years.

503 **COMPLIANCE DETERMINATION:**

503.1 **Low Sulfur Oil Verification:**

a. An ~~owner or operator~~ owner and/or operator shall submit fuel oil receipts from the fuel supplier indicating the sulfur content of the fuel oil or verification that the fuel oil used meets the 0.05% sulfur limit or the 0.08% limit for landfill or digester gas if requested by the Control Officer, or

b. If fuel receipts are not available, an ~~owner or operator~~ owner and/or operator shall submit a statement of certification or proof of the sulfur content of the fuel oil from the supplier to the Control Officer, or

c. An ~~owner or operator~~ owner and/or operator may elect to test the fuel oil for sulfur content in lieu of certification from the fuel supplier or fuel receipts using one of the test methods incorporated by reference in ~~subsections 504.11, 504.12, 504.14 or 504.15~~ Sections 504.11, 504.12, 504.14, or 504.15 of this rule.

503.2 **Gaseous Emissions-Source Test:**

a. Compliance with the NO_x and CO emission requirements and the stack gas oxygen requirements of Sections 301 through 304 of this rule shall be determined using the test methods specified below. All emissions determinations shall be made during normal operating conditions, except no compliance determination shall be established during unit startup or shutdown. Tests shall be conducted while units are operating at a firing rate that is as close as physically possible to the unit's rated heat input capacity. Tests shall be conducted for three 60 minute runs. Results shall be averaged over the three test periods. Test reports shall include the operational characteristics of all flue-gas NO_x reduction equipment.

(1) Oxide of Nitrogen - EPA Method 7E.

(2) Carbon Monoxide - EPA Method 10.

(3) Stack Gas Oxygen - EPA Method 3A.

(4) Carbon Dioxide - EPA Method 3A.

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; or

(2) Failure of an irreplaceable portion of the sampling train; or

(3) Extreme meteorological conditions presenting a hazard to the sampling team; or

(4) Other circumstances beyond the owner or operators control as determined by the Control Officer.

d. A source test not conducted pursuant to the source test methods listed in Section 501.1(a) of this rule may be rejected and the test report determined to be invalid.

503.3 **Gaseous Emissions-Continuous Emission Monitoring System (CEMS):** Compliance with NO_x emission requirements specified in Sections 301 through 304 of this rule may also be determined using CEMS. All emissions determinations shall be made in the as-found operating condition, except no compliance determination shall be established during unit startup or shutdown. Where the unit(s) are equipped with CEMS:

a. **General:** All CEMS must be installed according to the procedures specified in 40CFR60.13g. All CEMS shall be installed such that a representative measurement of emissions is obtained. Additional procedures for the location of CEMS found in 40CFR60 Appendix B shall be used. The data recorder for CEMS shall be in operation at all times the unit is operated.

b. **Cycle Time:** An owner and/or operator of any unit using a continuous emission monitoring system (CEM) shall ensure that the CEM 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 shall be checked once every 24 hours. The CEMS shall be calibrated in accordance with the manufacturer's specifications.

d. **Averaging:** The data recorded during periods of calibration checks, zero and span adjustments shall not be included in averaging for compliance determinations. Compliance shall be determined on an hourly basis using the average of the 3 previous 1 hour average emissions concentrations. The 1-hour average emissions concentration shall be determined from at least two data points recorded by the CEMs.

e. **Accuracy Testing:** Accuracy testing of Continuous Emission Monitoring Systems shall be conducted using a relative accuracy test audit pursuant to 40CFR60 Appendix F.

504 ~~TEST METHODS ADOPTED BY REFERENCE~~ **COMPLIANCE DETERMINATION-TEST METHODS INCORPORATED BY REFERENCE:** The EPA test methods as they exist in the Code of Federal Regulations (CFR) (July 1, 2004), as listed below, are incorporated by reference in Appendix G of the Maricopa County Air Pollution Control Regulations. Copies of test methods referenced in this section are available at the Maricopa County Air Quality Department, 1001 N. Central Avenue, Phoenix, AZ 85004-1942. When more than one test method as listed in ~~subsections 504.11, 504.12, 504.14, or 504.15~~ Sections 504.11, 504.12, 504.14, or 504.15 of this rule is permitted for the same determination, an exceedance of the limits established in this rule determined by any one of the applicable test methods constitutes a violation.

504.1 EPA Reference Methods 1 (“Sample and Velocity Traverses for Stationary Sources”), and 1 A (“Sample and Velocity Traverses for Stationary Sources with Small Stacks and Ducts”) (40 CFR 60, Appendix A).

504.2 EPA Reference Methods 2 (“Determination of Stack Gas Velocity and Volumetric Flow Rate”), 2A (“Direct Measurement of Gas Volume Through Pipes and Small Ducts”), 2C (“Determination of Stack Gas Velocity and Volumetric Flow Rate in Small Stacks or Ducts”), and 2D (“Measurement of Gas Volumetric Flow Rates in Small Pipes and Ducts”) (40 CFR 60, Appendix A).

504.3 EPA Reference Methods 3 (“Gas Analysis for the Determination of Dry Molecular Weight”), 3A (“Determination of Oxygen and Carbon Dioxide Concentrations in Emissions from Stationary Sources (Instrumental Analyzer Procedure)”), 3B (“Gas Analysis for the Determination of Emission Rate Correction Factor of Excess Air”), and 3C (“Determination of Carbon Dioxide, Methane, Nitrogen and Oxygen from Stationary Sources”) (40 CFR 60, Appendix A).

504.4 EPA Reference Method 4 ("Determination of Moisture Content in Stack Gases") (40 CFR 60, Appendix A).

504.5 EPA Reference Method 5 ("Determination of Particulate Emissions from Stationary Sources") (40 CFR 60, Appendix A)

504.6 EPA Reference Method 202 ("Determination of Condensable Particulate Emissions from Stationary Sources") (40 CFR 51, Appendix M).

504.7 EPA Reference Methods 7 ("Determination of Nitrogen Oxide Emissions from Stationary Sources"), 7A ("Determination of Nitrogen Oxide Emissions form Stationary Sources"), 7B ("Determination of Nitrogen Oxide Emissions from Stationary Sources – Ultraviolet Spectrometry"), 7C ("Determination of Nitrogen Oxide Emissions from Stationary Sources – Alkaline-Permanganate Colorimetric Method"), 7D ("Determination of Nitrogen Oxide Emissions from Stationary Sources – Alkaline – Permanganate Chromatographic Method"), and 7E ("Determination of Nitrogen Oxide Emissions from Stationary Sources – Instrumental Analyzer Method"), (40 CFR 60, Appendix A).

504.8 EPA Reference Method 9, ("Visual Determination of the Opacity of Emissions from Stationary Sources") (40 CFR 60, Appendix A).

504.9 EPA Reference Method 10, ("Determination of Carbon Monoxide from Stationary Sources") (40 CFR 60, Appendix A).

504.10 EPA Reference Method 20, ("Determination of Nitrogen Oxides, Sulfur Dioxide, and Diluent Emissions From Stationary Gas Turbines") (40 CFR 60, Appendix A).

504.11 American Society of Testing Materials, ASTM Method D2622-92 or 98, ("Standard Test Method for Sulfur in Petroleum Products by Wavelength Dispersive X-Ray Fluorescence Spectrometry"), 1992 or 1998.

504.12 American Society of Testing Materials, ASTM Method D1266-98, ("Standard Test Method for Sulfur in Petroleum Products (Lamp Method)"), 1998.

504.13 American Society of Testing Materials, ASTM Method D2880-00, ("Standard Specification for Gas Turbine Fuel Oils"), 2000.

504.14 American Society of Testing Materials, ASTM Method D4294-90 or 98, ("Standard Test Method for Sulfur in Petroleum and Petroleum Products by Energy- Dispersive X-ray Fluorescence Spectrometry"), 1990 or 1998.

504.15 American Society of Testing Materials, ASTM Method D5504-01,("Standard Test Method for Determination of Sulfur compounds in Natural Gas and Gaseous Fuels by Gas Chromatography and Chemiluminescence"), 2006.

$$\text{VOC Content of Material} = \frac{W_s - W_w - W_{es}}{V_m}$$

Using consistently either English or metric measures in the calculations, where:

W_s = weight of all volatile material in pounds (or grams) including VOC, water, non-precursor organic compounds and dissolved vapors

W_w weight of water in pounds (or grams)

W_{es} weight of all non-precursor compounds in pounds (or grams)

V_m volume of total material in gallons (or liters)

REGULATION III – CONTROL OF AIR CONTAMINANTS

RULE 322

~~Power Plant Operations~~

ELECTRIC UTILITY STATIONARY GAS TURBINES, ELECTRIC UTILITY STEAM GENERATING UNITS

Adopted 07/02/2003

Revised 10/17/2007

Geoffrey Sylvester
geoffreysylvester@mail.maricopa.gov
(602)506-6016

Maricopa County
Air Quality Department

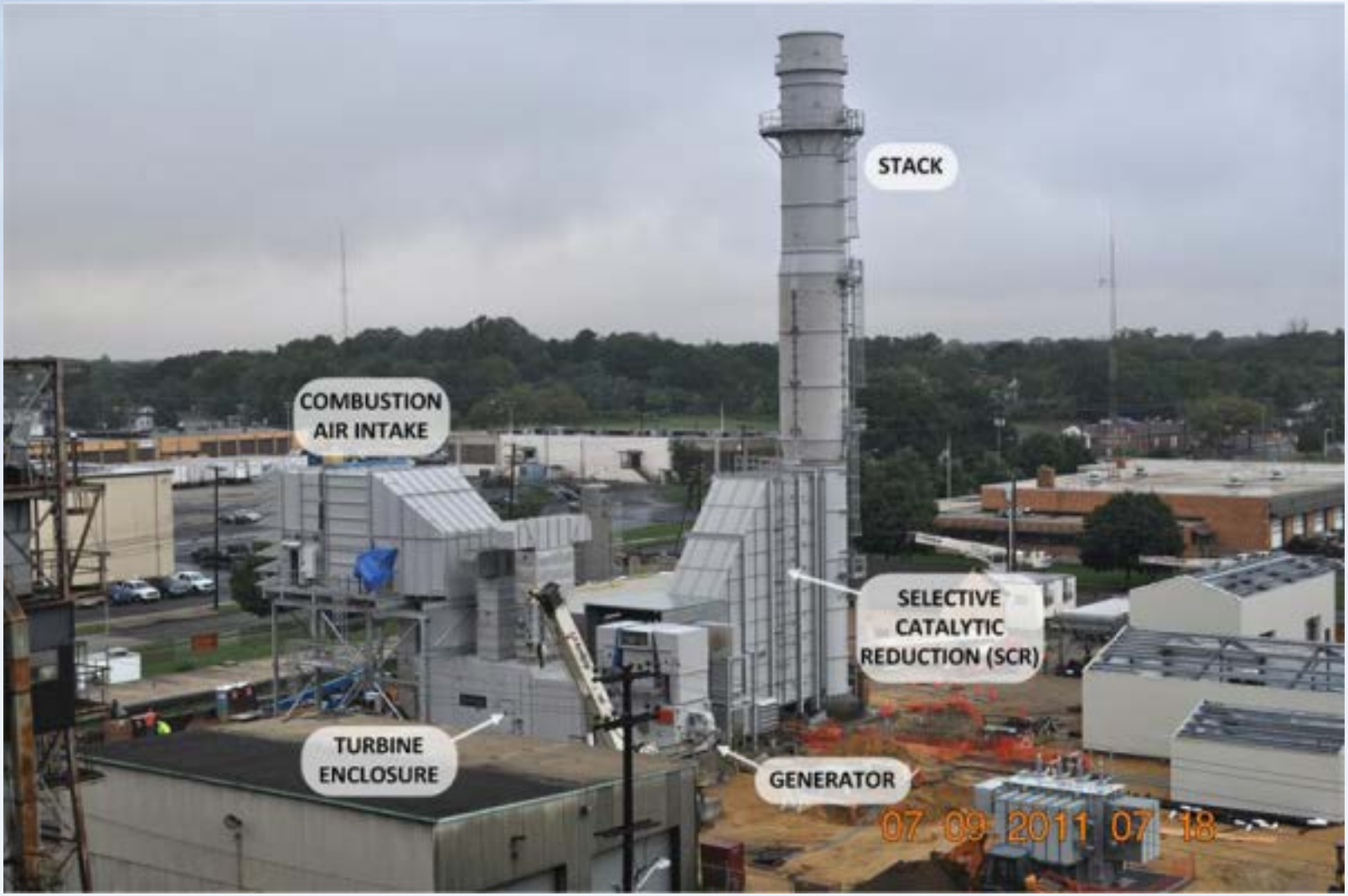
1. Why we are making revisions.

Maricopa County is currently designated as “marginal” classification for nonattainment under the eight-hour ozone National Ambient Air Quality Standard (NAAQS). It is understood that we will be bumped up to “moderate” classification nonattainment area. As a result, Maricopa County must implement reasonably available control technology (RACT). RACT: “the lowest emissions limitation that a particular source is capable of meeting by the application of control technology that is reasonably available considering technological and economic feasibility.” This was not required with a “marginal” classification, but it will be required with a “moderate” classification.

As a result, we have drafted revised rules in an effort to achieve attainment. Through Researching EPA’s Alternative Control Technique Documents (ACT) and multiple rules with comparable agencies across the country, we have made the following draft revisions to Draft Rules 322 in an effort to attain the eight-hour ozone National Ambient Air Quality Standard.

References:

a. EPA- Alternative Control Techniques (ACT)
b. Comparable Agency Rules


STACK
COMBUSTION AIR INTAKE
SELECTIVE CATALYTIC REDUCTION (SCR)
TURBINE ENCLOSURE
GENERATOR
07 09 2011 07 18

Maricopa County
Air Quality Department

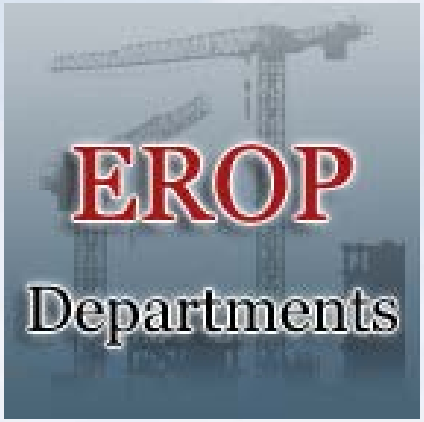
PROPOSED REVISIONS:

1. Title
2. Purpose (no changes, just matching title)
3. Applicability (major modifications)
4. Exemptions (no changes, just review)
5. Section 228: Definitions; Selective Catalytic Reduction (SCR)
6. Section 304 Limitations Nitrogen Oxides
7. Section 306 Requirements for Air Pollution Control Equipment and ECS Monitoring Equipment
8. Section 401 Compliance Schedule
9. Section 402 Compliance Plan
10. Section 501 Recordkeeping and Reporting
11. Draft Rule 322

Review of the proposed revisions:

1. Applicability (major modifications)
2. Exemptions (no changes, just review)
3. Section 228: Definitions; Selective Catalytic Reduction (SCR)
4. Section 304 Limitations Nitrogen Oxides
5. Section 306 Requirements for Air Pollution Control Equipment and ECS Monitoring Equipment
6. Section 401 Compliance Schedule
7. Section 402 Compliance Plan
8. Section 501 Recordkeeping and Reporting

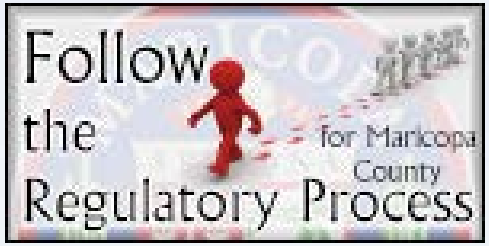
MARICOPA COUNTY
ENHANCED REGULATORY OUTREACH PROGRAM



Maricopa County's Enhanced Regulatory Outreach Program (EROP) Departments seek to ensure the safety and well-being of our community. Because we understand that regulations and rule-making decisions, discussions, and meetings can be confusing, we have developed this web-site to allow citizens to easily monitor and engage in the adoption and amendment of all regulations.

AIR QUALITY • ENVIRONMENTAL SERVICES • FLOOD CONTROL • PLANNING & DEVELOPMENT • PROCUREMENT SERVICES • TRANSPORTATION

http://www.maricopa.gov/regulations/



Maricopa County
Air Quality Department

REGULATION III – CONTROL OF AIR CONTAMINANTS

RULE 323

FUEL BURNING EQUIPMENT FROM INDUSTRIAL/COMMERCIAL/INSTITUTIONAL (ICI) SOURCES

Adopted 07/02/2003

Revised 10/17/2007

Geoffrey Sylvester
geoffreysylvester@mail.maricopa.gov
(602)506-6016

Maricopa County
Air Quality Department

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As a result, we have drafted revised rules in an effort to achieve attainment. Through Researching EPA’s Alternative Control Technique Documents (ACT) and multiple rules with comparable agencies across the country, we have made the following draft revisions to Draft Rules 323 in an effort to attain the eight-hour ozone National Ambient Air Quality Standard.

References:

a. EPA- Alternative Control Techniques (ACT)
b. Comparable Agency Rules

Industrial Boilers

Stack Testing

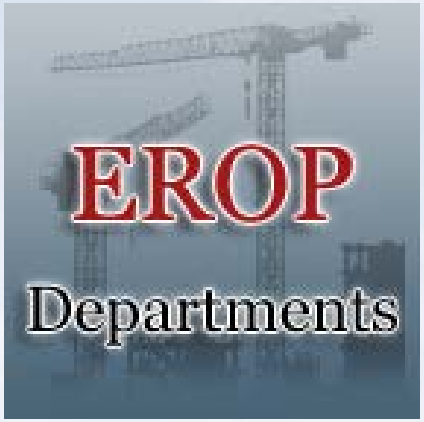
PROPOSED REVISIONS:

1. Purpose (no changes, just review)
2. Applicability (no changes, just review)
3. Exemptions (no changes, just review)
4. Section 304 Limitations Nitrogen Oxides
5. Section 401 Compliance Schedule
6. Section 503 Compliance Determination (Clarification)
    - Source Testing
    - Continuous Emission Monitoring System (CEMS)
7. Draft Rule 323

REVIEW OF THE PROPOSED REVISIONS:

1. Purpose (no changes, just review)
2. Applicability (no changes, just review)
3. Exemptions (no changes, just review)
4. Section 304 Limitations Nitrogen Oxides
5. Section 401 Compliance Schedule
6. Section 503 Compliance Determination (Clarification)
    - Source Testing
    - Continuous Emission Monitoring System (CEMS)

MARICOPA COUNTY
ENHANCED REGULATORY OUTREACH PROGRAM



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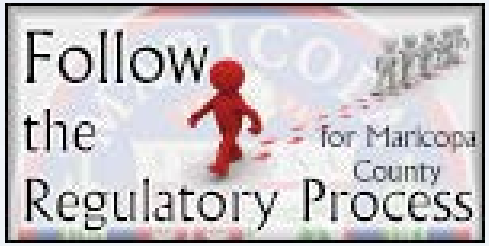

Maricopa County
Air Quality Department

Enhanced Regulatory Outreach Program
Maricopa County Air Quality Department

Stakeholder Workshop: Summary
AQ-2015-002-Rule 322 (Power Plant Operations)
September 3, 2015

Attendees:
12 Stakeholders attended: The Vanguard Group, Geosyntec Consultants, SWCA Environmental Consultants, SRP, Cemex, City of Phoenix, APS, Sysco
6 Staff attended: Henry Krautter-Permitting Division, Scott Treece-Permitting Division, Eric Poole-Compliance Division, Geoff Sylvester-P&A Division, Corky Martinkovic-P&A Division, and Johanna Kuspert-P&A Division

Comments:
1. Retain the current rule title

2. "Other control techniques" should be defined

3. Startup and shutdown should be in this rule

4. Averaging period for NO_x should be in this rule

5. Table 1: How extreme can we go re: NO_x limits? Ask EPA about existing sources being subject to Rule 322 with new NO_x limits. Can we include exemptions or provisions for existing sources? If there are no dates in the Applicability section, then all sources must comply (?) Exiting Reasonably Available Control Technology (RACT) (?) All steam generating units were in-place at the time of May 30, 1972; therefore, the date is in the current rule

6. Table 1: These are BARCT limits without actually using "BARCT" (?) The 9.0 ppmv limit is beyond RACT (?) Sources can't meet 9.0 ppmv limit (?) Clean Power Plan / Rule - combined cycles must be 75% utilization (?); this contradicts 9.0 ppmv (?)

7. In NO_x limitations section, don't use "associated cooling tower". See Sections 304.1 and 304.2

8. Section 102.2: Use "lower heating value" Keep language as written in current rule. Federal regulations say to use "lower heating value"

9. Section 203: Last clause; sources don't keep permanent records (?) Look-into deleting last clause "to provide permanent data records"

10. Section 232: In "30-day rolling average" definition, define "operating days"

11. Section 306.1: Should be "2.9" instead of "29"

12. Sections 306.2 and 306.7: Are asking / requiring the same things; to remove one of these sections; to eliminate repetition

13. Section 306.7(a): Re CEMS, change "60.47(a)"; it is not the correct reference

14. Section 401.1: Will be re-drafted to be more specific

15. Section 401.2: Extensions of increments of progress (?) Longer time period (?)

16. Sections 401.3(c) and 401.3: Adjust the date "January 2019"; it does not jive with date in Section 401.3(c)

17. Section 402: The specificity is hard for Stakeholders to meet (?) especially Section 402.3

18. Section 501: O&M Plan - it is not really an "O&M Plan" that is being asked-for; it's recordkeeping; maybe redundant with other sections (?)

19. Section 501.1(d): For units with CEMS, sources keep daily records of fuel usage. If no CEMS, sources don't keep daily fuel usage (?)

Next Steps:
In addition to re-drafting the rule to address text changes mentioned at the workshop, Maricopa County will do the following:

- NO_x RACT: Maricopa County will do more research re: NO_x RACT to determine if the limits in the table are beyond RACT

- NO_x limits: Maricopa County will benchmark other agencies to see how they regulate NO_x and what their NO_x limits are

- Existing equipment: Maricopa County will prepare a chart that shows existing equipment that is subject to Rule 322 and permitted by Maricopa County

Enhanced Regulatory Outreach Program
Maricopa County Air Quality Department

Stakeholder Workshop: Summary
AQ-2015-003-Rule 323
Fuel Burning Equipment From Industrial/Commercial/Institutional (ICI) Sources
September 3, 2015

Attendees:
12 Stakeholders attended: The Vanguard Group, Geosyntec Consultants, SWCA Environmental Consultants, SRP, Cemex, City of Phoenix, APS, Sysco
6 Staff attended: Henry Krautter-Permitting Division, Scott Treece-Permitting Division, Eric Poole-Compliance Division, Geoff Sylvester-P&A Division, Corky Martinkovic-P&A Division, and Johanna Kuspert-P&A Division

Comments:
1. Section 304.1: Are not changing 10 MMBTU-100 MMBTU. Maybe separate this section to not say "instead" and "and" and "or" (?) Put a separate section for gas turbines but it might make it long and repetitive (?)

2. Section 304.1: Equipment / systems cannot be inspected. A Clayton boiler cannot be inspected; do manufacturer's specifications; in Section 304.1(b), include "as specified in your permit "conditions" (?) or "alternating as approved by the Control Officer"

3. Table 1: Is 9 ppmv beyond Reasonably Available Control Technology (RACT)?

4. Section 503.2: How often must source testing be conducted? Stack testing or CEMS? Hand-held monitoring can be conducted (?) Section 304.1(a) - tuning (?) or Section 304.1(b) - meeting limits (?)

Next Steps:
In addition to re-drafting the rule to address text changes mentioned at the workshop, Maricopa County will do the following:

- NO_x RACT: Maricopa County will do more research re: NO_x RACT to determine if the limits in the table are beyond RACT

- NO_x limits: Maricopa County will benchmark other agencies to see how they regulate NO_x and what their NO_x limits are

- Existing equipment: Maricopa County will prepare a chart that shows existing equipment that is subject to Rule 323 and permitted by Maricopa County

Enhanced Regulatory Outreach Program
Maricopa County Air Quality Department

Notice of Stakeholder Workshops

Date: June 29 And June 30, 2015
Location: 1001 North Central Avenue, Floor 9 Classroom*

The Maricopa County Air Quality Department (department) will conduct a series of Stakeholder Workshops to discuss proposed rule revisions. The schedule is provided below. The draft rules that will be discussed during these workshops are attached to this announcement.

Monday, June 29, 2015

9:30 am – 10:30 am	AQ-2015-002-Rule 322 (Power Plant Operations) And AQ-2015-003-Rule 323 (Fuel Burning Equipment From Industrial/Commercial/Institutional (ICI) Sources)
11:00 am – 12:00 pm	AQ-2015-008-Organic Liquids And Gasoline Rulemaking Re: Organic Liquid Distribution: Rule 350 (Storage Of Organic Liquids At Bulk Plants And Terminals) And Rule 351 (Loading Of Organic Liquids)
1:30 pm – 2:30 pm	AQ-2015-005-Rule 336 (Surface Coating Operations)

Tuesday, June 30, 2015

1:00 pm – 2:00 pm	AQ-2015-008-Organic Liquids And Gasoline Rulemaking Re: Gasoline Bulk Tanks And Bulk Terminals: Rule 350 (Storage Of Organic Liquids At Bulk Plants And Terminals) And Rule 351 (Loading Of Organic Liquids)
2:30 pm –3:30 pm	AQ-2015-008-Organic Liquids And Gasoline Rulemaking Re: Gasoline Dispensing Facilities And Gasoline Cargo Tanks: Rule 352 (Gasoline Delivery Vessel Testing And Use) And Rule 353 (Gasoline In Stationary Dispensing Tanks)

Pending the U.S. Environmental Protection Agency's (EPA's) reclassification of Maricopa County from "marginal" to "moderate" nonattainment for the 2008 eight-hour ozone National Ambient Air Quality Standard (NAAQS), the department is proposing to revise the rules listed above to address the requirements of the State Implementation Plan (SIP).

Additional information about these draft rules is available on the Enhanced Regulatory Outreach Program (EROP) website (http://www.maricopa.gov/regulations). In order to enhance the discussion and cost savings, as well as support the county's sustainability initiative, information will be electronically displayed during the workshops. If you prefer a hardcopy of the documentation, please print the information from this announcement.

Thank you for participating in the rulemaking process.

*****When you arrive at 1001 North Central Avenue, please check-in in Suite #125 then proceed to the Floor 9 classroom.

REGULATION III - CONTROL OF AIR CONTAMINANTS

RULE 322
~~POWER PLANT OPERATIONS~~
ELECTRIC UTILITY STATIONARY GAS TURBINES, ELECTRIC UTILITY STEAM GENERATING UNITS

INDEX

226 REGENERATIVE CYCLE GAS TURBINE

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~~Revised 10/17/07~~

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MARICOPA COUNTY
AIR POLLUTION CONTROL REGULATIONS
REGULATION III - CONTROL OF AIR CONTAMINANTS

RULE 322
~~POWER PLANT OPERATIONS~~
ELECTRIC UTILITY STATIONARY GAS TURBINES, ELECTRIC UTILITY STEAM GENERATING UNITS

SECTION 100 - GENERAL

101 **PURPOSE:** To limit the discharge of nitrogen oxides, sulfur oxides, particulate matter and carbon monoxide emissions into the atmosphere from stationary fossil-fuel-fired equipment at ~~existing power plants and existing cogeneration plants~~ Electrical Utility Stationary Gas Turbines, Electric Utility Steam Generating Units and to limit particulate matter emissions from cooling towers associated with this equipment.

102 **APPLICABILITY:** This rule applies to any of the following types of equipment that burn fossil fuel for which construction commenced prior to May 10, 1996 and for which have been retrofitted:

102.1 Each electric utility steam generating unit or cogeneration steam generating unit used to generate electric power that has a heat input of equal to or greater than 100 million (MM) Btu/hour (29 megawatts (MW)).

102.2 Each electric utility stationary gas turbine with a heat input at peak load equal to or greater than 10 MMBtu/hour (2.9 MW) based upon the lower heating value of the fuel.

102.3 Each cooling tower associated with the type of equipment listed in ~~subsections 102.1 and 102.2~~ Sections 102.1 and 102.2 of this rule.

103 **EXEMPTIONS:** This rule shall not apply to the following types of equipment:

103.1 Combustion equipment associated with nuclear power plant operations; or

103.2 Reciprocating internal combustion equipment.

104 **PARTIAL EXEMPTIONS:**

104.1 Stationary gas turbines that meet any of the following criteria listed below are exempt from ~~Sections 304 and 305 and subsections 301.1, 301.2, 306.4, and 501.4~~ Sections 301.1, 301.2, 304, 305, 306.6, and 501.4 of this rule:

a. Used for fire-fighting; or

b. Used for flood control; or

c. Used in the military at military training facilities or military gas turbines for use in other than a garrison; or

d. Engaged by manufacturers in research and development of equipment for either gas turbine emission control techniques or gas turbine efficiency improvements.

104.2 All equipment listed in Section 102 of this rule fired with an emergency fuel that is normally fired with natural gas is exempt from ~~Sections 304 and 305 and subsections 301.1, 301.2, and 306.4, 501.4~~ Sections 301.1, 301.2, 304, 305, 306.6, 501.4 of this rule.

104.3 All equipment listed in Section 102 of this rule shall be exempt from ~~Sections 304 and 305 and subsections 301.1, 301.2, and 306.4~~ 306.6, Sections 301.1, 301.2, 304, 305, 306.6 of this rule for 36

cumulative ~~hrs.~~hours of firing emergency fuel per year, per unit for testing, reliability, training, and maintenance purposes.

SECTION 200 - DEFINITIONS: ~~For the purpose of this rule, the following definitions shall apply: See Rule 100 (General Provisions and Definitions) of these rules for definitions of terms that are used but not specifically defined in this rule.~~ For the purpose of this rule, the following definitions shall apply, in addition to those definitions found in Rule 100 (General Provisions and Definitions) of these rules. In the event of any inconsistency between any of the Maricopa County air pollution control rules, the definitions in this rule take precedence.

201 **COGENERATION STEAM GENERATING UNIT:** A steam or hot water generating unit that simultaneously produces both electrical (or mechanical) and thermal energy (such as heat or steam) from the same primary energy source and supplies more than one-third of its potential electric output to any utility power distribution system for sale.

202 **COMBINED CYCLE GAS TURBINE:** A type of stationary gas turbine wherein heat from the turbine exhaust is recovered by a steam generating unit to make steam for use in a steam-electric turbine.

203 **CONTINUOUS EMISSION MONITORING SYSTEM (CEMS):** The total equipment required to sample and analyze emissions or process parameters such as opacity, nitrogen oxide, and oxygen or carbon dioxide, and to provide a permanent data record.

204 **COOLING TOWERS:** Open water recirculating devices that use fans or natural draft to draw or force air through the device to cool water by evaporation and direct contact.

205 **CORRECTIVE ACTION PLAN (CAP):** A methodical procedure that is used to evaluate and correct a turbine operational problem and that includes, at a minimum, improved preventative maintenance procedures, improved ECS operating practices, possible operational changes, and progress reports.

206 **DISTILLATE OIL:** A petroleum fraction of fuel oil produced by distillation that complies with the specifications for fuel oil numbers 1 or 2, as defined by the American Society for Testing and Materials in ASTM D396-01, “Standard Specification for Fuel Oils.”

207 **DRIFT:** Water droplets, bubbles, and particulate matter that escape from cooling tower stacks.

208 **DRIFT ELIMINATOR:** Device used to remove drift from cooling tower exhaust air, thus reducing water loss by relying on rapid changes in velocity and direction of air-droplet mixtures by impaction on eliminator passage surfaces**.** A drift eliminator is not categorized as an emission control system but is an inherent part of the cooling tower's design requirements.

209 **DRIFT RATE:** Percentage (%) of circulating water flow rate that passes through a drift eliminator on a cooling tower.

210 **ELECTRIC UTILITY STATIONARY GAS TURBINE:** Any stationary gas turbine that is constructed for the purpose of supplying more than 1/3 of its potential electric output capacity to any utility power distribution system for sale. Both simple and combined cycle gas turbines are types of electric utility stationary gas turbines.

211 **ELECTRIC UTILITY STEAM GENERATING UNIT:** Any steam electric generating unit that uses fossil fuel and is constructed for the purpose of supplying more than one-third of its potential electric output capacity and more than 25 MW electric output to any utility power distribution system for sale.

212 **EMERGENCY FUEL:** Fuel fired only during circumstances such as natural gas emergency, natural gas curtailment, or breakdown of delivery system such as an unavoidable interruption of supply that makes it impossible to fire natural gas in the unit. Fuel is not considered emergency fuel if it is used to avoid either

peak demand charges or high gas prices during on-peak price periods or due to a voluntary reduction in natural gas usage by the power company.

213 **EMISSION CONTROL SYSTEM (ECS):** A system approved in writing by the Control Officer, designed and operated in accordance with good engineering practice to reduce emissions.

214 **FOSSIL FUEL:** Naturally occurring carbonaceous substances from the ground such as natural gas, petroleum, coal and any form of solid, liquid, or gaseous fuel derived from such material for the purpose of creating energy.

215 **FUEL SWITCHING STARTUP PROCESS:** The act of changing from one type of fuel to a different type of fuel.

216 **HEAT INPUT:** Heat derived from the combustion of fuel, not including the heat input from preheated combustion air, recirculated flue gases, or exhaust gases from other sources, such as gas turbines, internal combustion engines, and kilns.

217 **HIGHER HEATING VALUE (HHV) OR GROSS HEATING VALUE:** The amount of heat produced by the complete combustion of a unit quantity of fuel determined by a calorimeter wherein the combustion products are cooled to the temperature existing before combustion and all of the water vapor is condensed to liquid.

218 **LOW SULFUR OIL:** Fuel oil containing less than or equal to 0.05 % by weight of sulfur.

219 **LOWER HEATING VALUE (LHV) OR NET HEATING VALUE:** The amount of heat produced by the complete combustion of a unit quantity of fuel determined by a calorimeter wherein the combustion products are cooled to the temperature existing before combustion and all of the water vapor remains as vapor and is not condensed to a liquid. The value is computed from the higher heating value by subtracting the water originally present as moisture and the water formed by combustion of the fuel.

220 **NATURAL GAS CURTAILMENT:** An interruption in natural gas service, such that the daily fuel needs of a combustion unit cannot be met with natural gas available due to one of the following reasons, beyond the control of the owner or operator:

220.1 An unforeseeable failure or malfunction, not resulting from an intentional act or omission that the governing state, federal or local agency finds to be due to an act of gross negligence on the part of the owner or operator; or

220.2 A natural disaster; or

220.3 The natural gas is curtailed pursuant to governing state, federal or local agency rules or orders; or

220.4 The serving natural gas supplier provides notice to the owner or operator that, with forecasted natural gas supplies and demands, natural gas service is expected to be curtailed pursuant to governing state, federal or local agency rules or orders.

221 **OPACITY:** A condition of the ambient air, or any part thereof, in which an air contaminant partially or wholly obscures the view of an observer**.**

222 **PARTICULATE MATTER EMISSIONS:** Any and all particulate matter emitted to the ambient air as measured by applicable state and federal test methods.

223 **PEAK LOAD:** 100% of the manufacturer's design capacity of a gas turbine at 288° Kelvin, 60% relative humidity, and 101.3 kilopascals pressure (ISO standard day conditions).

224 **POWER PLANT OPERATION:** An operation whose purpose is to supply more than one-third of its potential electric output capacity to any utility power distribution system for sale.

225 **RATED HEAT INPUT CAPACITY:** The heat input capacity in million Btu/hr. as 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 heat input capacity on the name plate, the maximum heat input shall be considered the rated heat input capacity.

226 **REGENERATIVE CYCLE GAS TURBINE:** Any stationary gas turbine that recovers thermal energy from the exhaust gases and utilizes the thermal energy to preheat air prior to entering the combustion unit.

227 **RESIDUAL OIL:** The heavier oils that remain after the distillate oils and lighter hydrocarbons are distilled off in refinery operations. This includes crude oil or fuel oil numbers 1 and 2 that have a nitrogen content greater than 0.05 % by weight, and all fuel oil numbers 4, 5, and 6, as defined by the American Society of Testing and Materials in ASTM D396-01, "Standard Specifications for Fuel Oils."

228 **RETROFITTING:** Any physical change to an emissions unit necessary for reducing NO_x emissions to comply with the NO_x emissions limits specified in Sections 301 through 302 of this rule, including, but not limited to, burner replacement, and the addition of emissions control equipment. Changes in the method of operation are not considered to be retrofitting.

229 **SELECTIVE CATALYTIC REDUCTION (SCR):** A post-combustion NO_x control technique, e.g., areducing agent, e.g., ammonia, is used in a gas-phase reaction with oxides of nitrogen in the presence of a catalyst to form nitrogen and water.

~~228~~**230** **SIMPLE CYCLE GAS TURBINE:** Any stationary gas turbine that does not recover heat from the gas turbine exhaust gases to preheat the inlet combustion air to the gas turbine, or that does not recover heat from the gas turbine exhaust gases to heat water or generate steam.

~~229~~**231** **STATIONARY GAS TURBINE:** Any simple cycle gas turbine, regenerative gas turbine or any gas turbine portion of a combined cycle gas turbine that is not self-propelled or that is attached to a foundation.

~~230~~**232** **SULFUR OXIDES (SOx):** The sum of the oxides of sulfur emitted from the flue gas from a combustion unit that are directly dependent upon the amount of sulfur in the fuel used.

~~231~~**233** **THIRTY (30) DAY ROLLING AVERAGE:** An arithmetic mean or average of all hourly emission rates for 30 successive combustion equipment operating days and calculated by a CEMS every hour.

~~232~~**234** **THREE (3) HOUR ROLLING AVERAGE:** An arithmetic mean or average of the most recent three one (1) hour tests, or an arithmetic mean or average over a period of three hours which is newly calculated with each hourly measurement.

~~233~~**235** **TOTAL DISSOLVED SOLIDS (TDS):** The amount of concentrated matter reported in milligrams/liter (mg/l) or parts per million (ppm) left after filtration of a well-mixed sample through a standard glass fiber filter. The filtrate is evaporated to dryness in a weighed dish and dried to constant weight at 180° C and the increase in dish weight represents the total dissolved solids.

~~234~~**236** **UNCOMBINED WATER:** Condensed water containing no more than analytical trace amounts of other chemical elements or compounds.

SECTION 300 – STANDARDS

301 LIMITATIONS – PARTICULATE MATTER:

301.1 **Fuel Type:** An ~~owner or operator~~ owner and/or operator of any combustion equipment listed in Section 102 of this rule shall burn only natural gas except when firing emergency fuel per ~~subsections 104.2 and 104.3~~ Sections 104.2 and 104.3 of this rule. An ~~owner or operator~~ owner and/or operator may burn a fuel other than natural gas for non-emergency purposes providing that the fuel shall not cause to be discharged more than 0.007 lbs. of particulate matter per MMBtu,

demonstrated and documented through performance testing of this alternate fuel using Test Method 5. This usage of different fuels other than natural gas shall be approved by the Control Officer prior to usage.

301.2 **Particulate Matter Testing:** A backhalf analysis shall be performed, using Reference Method 202 referenced in ~~subsection 504.6~~ Section 504.6 of this rule, each time a compliance test for particulate matter emissions to meet the standard in ~~subsection 301.1~~ Section 301.1 of this rule is performed using Test Method 5.

301.3 **Good Combustion Practices for Turbines:** An ~~owner or operator~~ owner and/or operator of any stationary gas turbine listed in ~~subsection 102.2~~ Section 102.2 of this rule, regardless of fuel type, shall use operational practices recommended by the manufacturer and parametric monitoring to ensure good combustion control as listed below. One of the following procedures may be used:

a. Monitor the maximum temperature differential across the combustion burners or at locations around the back end of the turbine, dependent upon the particular unit, to ensure no more than a 100°F difference using a thermocouple. If a valid maximum temperature differential of greater than 100°F is observed across the burners, investigation and corrective action shall be taken within three hours to reduce the temperature difference to 100°F or less; or

b. If the manufacturer recommends that the maximum numerical temperature differential to ensure good combustion is a temperature that is greater than 100°F, then proof of this maximum alternate temperature shall be submitted to the Control Officer. The procedure to measure the maximum temperature differential listed ~~above~~ in ~~subsection 301.3a~~ Section 301.3 (a) of this rule shall then be followed using this alternate recommended maximum temperature differential after approval by the Control Officer.

c. If the frequency of failure to meet the proper temperature differential of 100°F or to meet the alternate temperature differential recommended by the manufacturer reflects a pattern that the turbine is not being operated in a manner consistent with good combustion practices, then the Control Officer may require the ~~owner or operator~~ owner and/or operator to submit a Corrective Action Plan (CAP).

301.4 **Cooling Towers:** An ~~owner or operator~~ owner and/or operator of a cooling tower associated with applicable units listed in Section 102 of this rule shall:

a. Equip the cooling tower with a drift eliminator. The drift eliminator shall not be manufactured out of wood.

b. The concentration of Total Dissolved Solids (TDS) multiplied by the percentage of drift rate shall not exceed the maximum numerical limit of 20.

c. Visually inspect the drift eliminator on a monthly basis only if the drift eliminator can be viewed safely and does not require an ~~owner or operator~~ owner and/or operator to walk into the tower. If the drift eliminator cannot be safely inspected monthly then ~~subsection 301.4d~~ Section 301.4(d) of this rule shall apply:

d. Visually inspect the drift eliminator for integrity during a regularly scheduled outage when the cooling tower is not operating, if it cannot be inspected on a monthly basis. This visual inspection shall be no less than once per year.

302 LIMITATIONS – OPACITY:

302.1 ~~No person shall~~ An owner and/or operator shall not discharge into the ambient air from any single source of emissions any air contaminant, other than uncombined water, in excess of 20% opacity, except as provided in ~~subsection 302.2~~ Section 302.2 of this rule.

302.2 Opacity may exceed the applicable limits established in ~~subsection 302.1~~ Section 302.1 of this rule for up to one hour during the startup of switching fuels; however, opacity shall not exceed 40% for any six (6) minute averaging period in this one hour period, provided that the Control Officer finds that the ~~owner or operator~~ owner and/or operator has, to the extent practicable, maintained and

operated the source of emissions in a manner consistent with good air pollution control practices for minimizing emissions. The one hour period shall begin at the moment of startup of fuel switching.

302.3 Determination of whether good air pollution control practices are being used shall be based on information provided to the Control Officer upon request, which may include, but is not limited to, the following:

a. Monitoring results.

b. Opacity observations.

c. Review of operating and maintenance procedures.

d. Inspection of the source.

303 LIMITATIONS - SULFUR IN FUEL: An ~~owner or operator~~ owner and/or operator of any applicable equipment listed in Section 102 of this rule that burns fuel oil alone or in combination with any other fuel as either emergency fuel or non-emergency fuel that meets the standards in ~~subsection 301.1~~ Section 301.1 of this rule shall use only low sulfur oil.

304 LIMITATIONS – NITROGEN OXIDES: ~~No owner or operator~~ An owner and/or operator of any applicable equipment listed in ~~subsection 102.1~~ Section 102.1 of this rule that commenced construction or a major modification after May 30, 1972 shall not cause to be discharged into the atmosphere nitrogen oxides in excess of the following limits:

~~304.1 155 ppmv, calculated as nitrogen dioxide when burning gaseous fossil fuel. During steady state operations, this test result using EPA Reference Method(s) 7 shall be based upon the arithmetic mean of the results of three test runs. Each test run shall have a minimum sample time of one hour. If a Continuous Emission Monitoring System (CEMS) is used, the test result shall be based upon a 30-day rolling average.~~

~~304.2 230 ppmv calculated as nitrogen dioxide when burning liquid fossil fuel. During steady state operations, this test result using EPA Reference Method(s) 7, shall be based upon the arithmetic mean of the results of three test runs. Each test run shall have a minimum sample time of one hour. If a CEMS is used, the test result shall be based upon a 30-day rolling average.~~

~~304.3 The nitrogen oxides concentration shall be measured dry and corrected to 3% oxygen for electric utility steam generating units and cogeneration steam generating units. The nitrogen oxides concentration shall be measured dry and corrected to 15% oxygen for stationary gas turbines.~~

304.1 RACT Emission Limits:

a. **Gaseous Fuel Firing:** The NO_x emissions shall not exceed 42 parts per million by volume on a dry basis, corrected to 15 percent oxygen (O_2) when firing on gaseous fuels.

b. **Liquid Fuel Firing:** The NO_x emissions from any unit shall not exceed 65 parts per million by volume on a dry basis, corrected to 15 percent oxygen (O_2) when firing on liquid fuels.

304.2 Emission Limits –Gaseous Fuel Firing:

a. The NO_x emissions from any unit with a rated unit size output less than 10 MMBtu/hr or 2.9 MW, or any unit greater than or equal to 2.9 MW operating less than 877 hours per year, shall not exceed 42 parts per million by volume on a dry basis, corrected to 15 percent oxygen (O_2) when firing on gaseous fuels.

b. The NO_x emissions from any unit operated 877 hours or more per calendar year with a rated unit size output greater than or equal to 10 MMBtu/hr or 2.9 MW and less than 100 MMBtu/hr or 10 MW shall not exceed 25 parts per million by volume on a dry basis, corrected to 15 percent oxygen (O_2) when firing on gaseous fuels.

c. The NO_x emissions from any unit operated 877 hours or more per calendar year with a rated unit size output greater or equal to 100 MMBtu/hr or 10 MW, without SCR installed, shall not

exceed 15 parts per million by volume on a dry basis, corrected to 15 percent oxygen (O_2) when firing on gaseous fuels.

d. The NO_x emissions from any unit operated 877 hours or more per calendar year with a rated unit size output greater or equal to 100 MMBtu/hr or 10 MW, with SCR installed, shall not exceed 9 parts per million by volume on a dry basis, corrected to 15 percent oxygen (O_2) when firing on gaseous fuels.

304.3 BARCT Emission Limit–Liquid Fuel Firing:

a. The NO_x emissions from any unit with a rated unit size output of less than 10 MW or any unit greater than or equal to 10 MMBtu/hr or 2.9 MW operating less than 877 hours per year, shall not exceed 65 parts per million by volume on a dry basis, corrected to 15 percent oxygen (O_2) when firing on liquid fuels.

b. The NO_x emissions from any unit operated 877 hours or more per calendar year with a rated unit size output greater or equal to 100 MMBtu/hr or 10 MW, without SCR installed, shall not exceed 42 parts per million by volume on a dry basis, corrected to 15 percent oxygen (O_2) when firing on liquid fuels.

c. The NO_x emissions from any unit operated 877 hours or more per calendar year with a rated unit size output greater or equal to 100 MMBtu/hr or 10 MW, with SCR installed, shall not exceed 25 parts per million by volume on a dry basis, corrected to 15 percent oxygen (O_2) when firing on liquid fuels.

TABLE 1: SUMMARY OF RACT AND BARCT REQUIREMENTS

IN SECTIONS 304.1, 304.2 AND 304.3 OF THIS RULE

Rule Reference	Requirements	Time of Operation (hr/yr)	Unit Size Rating (MW)	NO_x Emission Limit (ppmv)	
				Gaseous Fuel	Liquid Fuel
304.1	RACT	any	≥0.3	42.0	65.0
304.2(a)	BARCT	any	<2.9	42.0	
304.3(a)		<877	≥2.9		65.0
304.2(b)		≥877	≥2.9 to <10	25.0	
304.2(c) And 304.3(b)		≥877	≥10.0 (no SCR)	15.0	42.0
304.2(d) And 304.3(c)		≥877	≥10.0 (w SCR)	9.0	25.0

304.4 The nitrogen oxides concentration shall be measured dry and corrected to 3% oxygen for electric utility steam generating units and cogeneration steam generating units. The nitrogen oxides concentration shall be measured dry and corrected to 15% oxygen for stationary gas turbines.

305 LIMITATIONS - CARBON MONOXIDE: ~~No owner or operator~~ An owner and/or operator of any equipment listed in Section 102 of this rule shall not cause to be discharged into the atmosphere carbon monoxide (CO) measured in excess of 400 ppmv at any time. This test result, using EPA Reference Method 10, and performed during steady state compliance source testing shall be based upon the arithmetic mean of the results of three test runs. Each test run shall have a minimum sample time of one hour. The CO concentration shall be measured dry and corrected to 3% oxygen for electric utility steam generating units and cogeneration steam generating units. The CO concentration shall be measured dry and corrected to 15% oxygen for stationary gas turbines.

306 REQUIREMENTS FOR AIR POLLUTION CONTROL EQUIPMENT AND ECS MONITORING EQUIPMENT:

306.1 An owner and/or operator of any unit with a rated unit size output of less than 10 MW shall install, operate, and maintain in calibration, equipment approved by the Control Officer that continuously measures and records the following: control system operating parameters and elapsed time of operation.

306.2 An owner and/or operator of any unit with a rated unit size output greater or equal to 100 MMBtu/hr or 10 MW and operated for more than 4000 hours in any one calendar year during the three years before November xx, 2016 shall install, operate, and maintain in calibration, equipment approved by the Control Officer that continuously measures and records the following: control system operating parameters, elapsed time of operation, and continuous exhaust gas NO_x concentrations corrected to 15 percent oxygen (O_2) on a dry basis. The NO_x continuous emission monitoring (CEM) system shall meet requirements as specified in 40 CFR Part 60 Appendix B, Specification 2 by November xx, 2018.

306.3 An owner and/or operator of any unit subject to any provision of this rule shall install by November xx, 2017, a non-resettable totalizing hour meter on each turbine.

~~306.1~~**306.4** **Emission Control System Required:** For affected operations which may exceed any of the applicable standards set forth in Section 300 of this rule, an ~~owner or operator~~ owner and/or operator may comply by installing and operating an emission control system (ECS).

~~306.2~~**306.5** **Providing and Maintaining ECS Monitoring Devices:** ~~No owner or operator~~ An owner and/or operator required to use an approved ECS pursuant to this rule shall not do so without first properly installing, operating, and maintaining in calibration and in good working order, devices for indicating temperatures, pressures, transfer rates, rates of flow, or other operating conditions necessary to determine if air pollution control equipment is functioning properly and is properly maintained as described in an approved Operation and Maintenance (O&M) Plan.

~~306.3~~**306.6** **Operation and Maintenance (O&M) Plan Required For ECS:**

a. **General Requirements:** An ~~owner or operator~~ owner and/or operator shall provide and maintain an O&M Plan for any ECS, any other emission processing equipment, and any ECS monitoring devices that are used pursuant to this rule or to an air pollution permit.

b. **Approval by Control Officer:** An ~~owner or operator~~ owner and/or operator shall submit to the Control Officer for approval the O&M Plans of each ECS and each ECS monitoring device that is used pursuant to this rule.

c. **Initial Plans:** An ~~owner or operator that~~ owner and/or operator who is required to have an O&M Plan pursuant to this rule shall comply with all O&M Plans that the ~~owner or operator~~ owner and/or operator has submitted for approval, but which have not yet been approved, unless notified by the Control Officer in writing. Once the initial plan has been approved in writing by the Control Officer, an ~~owner or operator~~ owner and/or operator shall then comply with the approved plan.

d. **Revisions to Plan:** If revisions to the initial plan have been approved by the Control Officer in writing, an ~~owner or operator~~ owner and/or operator shall comply with the revisions to the initial plan. If revisions to the plan have not yet been approved by the Control Officer, then an ~~owner or operator~~ owner and/or operator shall comply with the newest recent O&M plan on file at Maricopa County Air Quality Department.

e. **Control Officer Modifications to Plan**: After discussion with the ~~owner or operator~~ owner and/or operator, the Control Officer may modify the plan in writing prior to approval of the initial O&M plan. An ~~owner or operator~~ owner and/or operator shall then comply with the plan that has been modified by the Control Officer.

~~306.4~~**306.7** **Continuous Emission Monitoring Systems (CEMS):**

a. An ~~owner or operator~~ owner and/or operator of a combustion unit subject to Section 304 of this rule with a heat input of greater than 250 MMBtu/hr, regardless of fuel type, shall install, calibrate, maintain, and operate a CEMS for measuring nitrogen oxides and recording the output of the system. Where nitrogen oxide emissions are monitored by a CEMS, then a CEMS shall

also be required for the measurement of the oxygen content of the flue gases. All CEMS shall comply with the provisions in 40 CFR Subpart Da, Part 60, 60.47 (a).

b. An ~~owner or operator~~ owner and/or operator of any affected unit listed above that requires a CEMS for nitrogen oxides that meets and is continuing to meet the requirements of 40 CFR Part 75 may use that CEMS to meet the requirements of ~~subsection 306.4 a~~ Section 306.7(a) of this rule.

307 EMERGENCY FUEL USE NOTIFICATION: An ~~owner or operator~~ owner and/or operator of a unit that is fired with emergency fuel but is normally fired with natural gas shall notify the Control Officer verbally no later than 24 hours after declaration of the emergency that necessitates its use in compliance with ~~subsections 104.2 and 212~~ Section 104.2 of this rule. This verbal report shall be followed by a written report within 48 hours of initial emergency fuel usage. The written report shall also include identification of the nature of the emergency, initial dates of usage, and the expected dates of usage.

SECTION 400 - ADMINISTRATIVE REQUIREMENTS ~~(NOT APPLICABLE)~~

401 COMPLIANCE SCHEDULE:

401.1 RACT Emission Limits: The owner and/or operator of any unit in existence on November xx, 2015, subject to the emission limits of Sections 304.1(a) and 304.1(b) of this rule, shall comply with these limits effective January xx, 2017 unless retrofitting is required. If retrofitting is required to achieve these limits, the owner and/or operator shall comply with the increments of progress of Section 401.3 of this rule and be in compliance with the BARCT limits by the date specified in Section 401.3 of this rule. Interim compliance with the limits of Sections 304.1(a) and 304.1(b) of this rule does not exclude that owner and/or operator from final compliance with the limits of Section 304 of this rule and the increments of progress of Section 401.3 of this rule.

401.2 BARCT Emission Limits: The owner and/or operator of any unit in existence on November xx, 2016, subject to the emission limits of Sections 304.2 and 304.3 of this rule, shall comply with the limits effective November xx, 2019 and shall do so in accordance with the increments of progress of Section 401.3 of this rule.

401.3 Increments of Progress: The owner and/or operator of any unit subject to the emissions limits of Section 304 of this rule shall comply with the following increments of progress. The following compliance schedule in Sections 401.3 and 401.4 of these rules do not apply to units already compliant with these rules as of November xx, 2016:

a. By January xx, 2017, submit to the Control Officer a compliance plan as specified in Sections 304.2 and 304.3 of this rule.

b. By September xx, 2017, submit to the Control Officer a complete application for an authority to construct for the modifications necessary to meet the limits of Section 402 of this rule.

c. By May xx, 2017, begin construction.

d. By October xx, 2017, complete construction.

e. By January xx, 2019, be fully compliant with the emission limits of Section 304 of this rule. This shall include the submittal to the Control Officer of a complete source test report indicating compliance.

401.4 Removal From Service: The owner and/or operator of any unit in existence on November xx, 2016 that is expected to be removed from service by January xx, 2019 shall comply with the following:

a. By January xx, 2017, submit to the Control Officer a notification requesting an exemption from the requirements of Section 304 of this rule.

b. By September xx, 2017, submit to the Control Officer a complete application for an Authority to Construct for modification of the Permit to Operate.

c. By January xx, 2019, discontinue operation of the unit, disconnect the fuel supply line(s), and notify the Control Officer in writing of the removal from service.

401.5 Operation of any unit beyond January xx, 2019, shall be done in compliance with the applicable NOx limits in Sections 304.2 and 304.3 of this rule.

401.6 **Emergency Standby Units:** The owner and/or operator of any unit in existence prior to November xx, 2016 shall, by January xx, 2017, submit to the Control Officer a notification requesting an exemption from the requirements of Section 300 of this rule.

402 **COMPLIANCE PLAN:** The owner and/or operator of any unit shall submit, for approval to the Control Officer, a plan for compliance with the provisions of Section 300 of this rule. The plan shall include:

402.1 The following information relative to each unit subject to this rule: the name of the manufacturer, model number, rated shaft power output (MW), hours of operation, fuel type, and fuel consumption rate (MCF/hr or gal/hr).

402.2 A description of the NO_x control system proposed for each unit, including type and manufacturer, as well as the measurement and recording equipment required in Section 306of this rule. Data on the expected performance of the NO_x control system shall also be included.

402.3 A compliance schedule for each unit, including, but not limited to, specific dates for the following events: final engineering, contract award, starting date of construction, completion date of construction, and the date of final compliance.

SECTION 500 - MONITORING AND RECORDS

501 **RECORDKEEPING AND REPORTING:** Any ~~owner or operator~~ owner and/or operator subject to this rule shall comply with the requirements set forth in this section. Any records and data required by this section shall be kept on site at all times in a consistent and complete manner and be made available without delay to the Control Officer or his designee upon request. Records shall consist of the following information:

501.1 **Operations And Maintenance (O&M) Plan Record Requirements:**

a. Permit number of each gas turbine.

b. Manufacturer, model number and rating in megawatts of each gas turbine.

c. Actual startup and shutdown time, daily hours of operation, and cumulative hours of operation to date for the calendar year. In addition, for emergency standby units, hours of operation shall be listed separately for emergencies and for maintenance operations.

d. Actual daily fuel usage of each unit.

e. Date and results of most recent emission test reported as ppmvat 15% O_2 and pound per unit time.

f. A summary of any emissions corrective maintenance taken.

~~501.1~~**501.2** **Equipment Listed In Section 102 Of This Rule:** Type of fuel used, amount of fuel used, amount of sulfur in the fuel if using liquid fuel, and the days and hours of operation.

~~501.2~~**501.3** **Cooling Towers:** Monthly gravimetric testing reports for TDS shall be recorded for six months in succession and thereafter quarterly reports shall be recorded. Results of the monthly or yearly visual inspection of the drift eliminator shall also be recorded. If the drift eliminator cannot be visually inspected monthly, then documentation of the physical configuration of the drift eliminator shall be submitted to the Control Officer to demonstrate that the drift eliminator cannot be inspected monthly.

~~501.3~~**501.4** **Emergency Fuel Usage:** Type and amount of emergency fuel used, dates and hours of operation using emergency fuel, nature of the emergency or reason for the use of emergency fuel as stated in ~~subsections 104.2 and 104.3~~ Sections 104.2 and 104.3 of this rule.

~~501.4~~**501.5** **Fuel Switching:** Monthly records of fuel switching including stop and start times, monthly records of hours of operation for testing, reliability and maintenance purposes per ~~subsection 104.3~~ Section 104.3 of this rule, and a yearly log total of these hours.

~~501.5~~**501.6** **CEMS:** All CEMS measurements, results of CEMS performance evaluations, CEMS calibration checks, and adjustments and maintenance performed on these systems.

~~501.6~~**501.7** **Good Combustion Practices:** Measurements of the temperature differential across the burners of turbines per ~~subsection 301. 3 a, b, or c~~ Sections 301.3(a), 301.3(b), and 301.3(c) of this rule, results of evaluation and of corrective action taken to reduce the temperature differential or a finding that the temperature differential returned to the range listed in ~~subsection 301.3 a or b~~ Sections 301.3(a) or 301.3(b) of this rule without any action by the ~~owner or operator~~ owner and/or operator.

502 **RECORDS RETENTION:** Copies of reports, logs, and supporting documentation required by the Control Officer shall be retained for at least 5 years. Records and information required by this rule shall also be retained for at least 5 years.

503 **COMPLIANCE DETERMINATION:**

503.1 **Low Sulfur Oil Verification:**

a. An ~~owner or operator~~ owner and/or operator shall submit fuel oil or liquid fuel receipts from the fuel supplier indicating the sulfur content of the fuel or verification that the oil used to generate electric power meets the 0.05% sulfur limit if requested by the Control Officer; or

b. If fuel receipts are not available then an ~~owner or operator~~ owner and/or operator shall submit a statement of certification or proof of the sulfur content of the oil or liquid fuel from the supplier to the Control Officer; or

c. An ~~owner or operator~~ owner and/or operator may elect to test the fuel for sulfur content in lieu of certification from the fuel supplier or fuel receipts using one of the test methods listed in ~~subsections 504.11, 504.12, 504.13 or 504.14~~ Sections 504.11, 504.12, 504.13, or 504.14 of this rule.

503.2 **Drift Rate Verification:** An ~~owner or operator~~ owner and/or operator shall submit design drift rate verification from the manufacturer of the drift eliminator used in the cooling towers to the Control Officer if proof of the design drift rate is requested by the Control Officer.

504 **TEST METHODS INCORPORATED BY REFERENCE:** The EPA test methods as they exist in the Code of Federal Regulations (CFR) (July 1, 2004), as listed below, are incorporated by reference in Appendix G of the Maricopa County Air Pollution Control Regulations. Copies of test methods referenced in this section are available at the Maricopa County Air Quality Department, 1001 N. Central Avenue, Suite ~~595~~125, Phoenix, AZ 85004-1942. The Standard Method~~s~~ listed below (1995) are also incorporated by reference. When more than one test method as listed in ~~subsections 504.11 through 504.14~~Sections 504.11 through 504.14 of this rule is permitted for the same determination, an exceedance of the limits established in this rule determined by any of the applicable test methods constitutes a violation.

504.1 EPA Reference Methods 1 ("Sample and Velocity Traverses for Stationary Sources"), and 1A ("Sample and Velocity Traverses for Stationary Sources with Small Stacks and Ducts") (40 CFR 60, Appendix A).

504.2 EPA Reference Methods 2 ("Determination of Stack Gas Velocity and Volumetric Flow Rate"), 2A ("Direct Measurement of Gas Volume Through Pipes and Small Ducts"), 2C ("Determination of Stack Gas Velocity and Volumetric Flow Rate in Small Stacks or Ducts"), and 2D ("Measurement of Gas Volumetric Flow Rates in Small Pipes and Ducts") (40 CFR 60, Appendix A).

504.3 EPA Reference Methods 3 ("Gas Analysis for the Determination of Dry Molecular Weight"), 3A ("Determination of Oxygen and Carbon Dioxide Concentrations in Emissions From Stationary Sources (Instrumental Analyzer Procedure)"), 3B ("Gas Analysis for the Determination of Emission

Rate Correction Factor of Excess Air"), and 3C ("Determination of Carbon Dioxide, Methane, Nitrogen and Oxygen from Stationary Sources") (40 CFR 60, Appendix A).

504.4 EPA Reference Method 4 ("Determination of Moisture Content in Stack Gases") (40 CFR 60, Appendix A).

504.5 EPA Reference Method 5 ("Determination of Particulate Emissions from Stationary Sources") (40 CFR 60, Appendix A).

504.6 EPA Reference Method 202 ("Determination of Condensable Particulate Emissions from Stationary Sources") (40 CFR 51, Appendix M).

504.7 EPA Reference Methods 7 ("Determination of Nitrogen Oxide Emissions from Stationary Sources"), 7A ("Determination of Nitrogen Oxide Emissions from Stationary Sources"), 7B ("Determination of Nitrogen Oxide Emissions from Stationary Sources - Ultraviolet Spectrometry"), 7C ("Determination of Nitrogen Oxide Emissions from Stationary Sources - Alkaline-Permanganate Colorimetric Method"), 7D ("Determination of Nitrogen Oxide Emissions from Stationary Sources – Alkaline-Permanganate Chromatographic Method"), and 7E ("Determination of Nitrogen Oxide Emissions from Stationary Sources – Instrumental Analyzer Method") (40 CFR 60, Appendix A).

504.8 EPA Reference Method 9 ("Visual Determination of the Opacity of Emissions from Stationary Sources") (40 CFR 60, Appendix A).

504.9 EPA Reference Method 10 ("Determination of Carbon Monoxide Emissions from Stationary Sources") (40 CFR 60, Appendix A).

504.10 EPA Reference Method 20 ("Determination of Nitrogen Oxides, Sulfur Dioxide and Diluent Emissions from Stationary Gas Turbines") (40 CFR 60, Appendix A).

504.11 American Society of Testing Materials, ASTM Method D2622-98, ("Standard Test Method for Sulfur in Petroleum Products by Wavelength Disperse X-Ray Fluorescence Spectrometry"), 1998.

504.12 American Society of Testing Materials, ASTM Method D1266-98, ("Standard Test Method for Sulfur in Petroleum Products - Lamp Method"), 1998.

504.13 American Society of Testing Materials, ASTM Method D2880-00, ("Standard Specification for Gas Turbine Fuel Oils"), 2000.

504.14 American Society of Testing Materials, ASTM Method D4294-90 or 98 ("Standard Test Method for Sulfur in Petroleum Products by Energy-Dispersive X-Ray Fluorescence Spectrometry"), 1990 or 1998.

504.15 Standard Methods for the Examination of Water and Wastewater,("Dissolved Solids Dried at 180ºC, Method #2540C"), American Public Health Association, 19th edition, 1995.

REGULATION III – CONTROL OF AIR CONTAMINANTS

RULE 323
FUEL BURNING EQUIPMENT FROM INDUSTRIAL /COMMERCIAL/ INSTITUTIONAL (ICI) SOURCES

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~~Adopted 07/03/05~~
~~Revised 10/17/07~~

Adopted 07/03/05; Revised 10/17/07; **Revised MM/DD/YY**

MARICOPA COUNTY
AIR POLLUTION CONTROL REGULATIONS
REGULATION III-CONTROL OF AIR CONTAMINANTS

RULE 323
FUEL BURNING EQUIPMENT FROM INDUSTRIAL/COMMERCIAL/INSTITUTIONAL (ICI) SOURCES

~~**INDEX**~~

SECTION 100 – GENERAL

101 **PURPOSE:** To limit the discharge of nitrogen oxides, sulfur oxides, carbon monoxide, and particulate matter emissions into the atmosphere from fuel burning combustion equipment at industrial and/or commercial and/or institutional (ICI) sources.

102 **APPLICABILITY:** This rule applies to any of the following types of ICI combustion equipment that burns either fossil fuels or alternative fuels:

102.1 Each steam generating unit that has a maximum design rated heat input capacity from fuels combusted in the generating unit of greater than 10 million (MM) Btu/hr (2.9 Megawatts (MW)).

102.2 Each stationary gas turbine with a heat input at peak load equal to or greater than 2.9 megawatts (MW).

102.3 Each cogeneration steam generating unit with a heat input of greater than 10 MMBtu/hr.

102.4 Each indirect-fired process heater with a heat input greater than 10 MMBtu/hr.

102.5 NSPS & NESHAP: In addition to this rule, facilities may be subject to New Source Performance Standards (NSPS) in Rule 360 and/or National Emission Standards for Hazardous Air Pollutants (NESHAP) in Rule 370 of these rules.

103 **EXEMPTIONS:** This rule shall not apply to the following types of equipment:

103.1 Incinerators, crematories, or burn-off ovens; or

103.2 Dryers, cement and lime kilns; or

103.3 Direct-fired process heaters; or

103.4 Medical waste incinerators; or

103.5 Reciprocating internal combustion equipment; or

103.6 Combustion equipment used in power plant operations for the purpose of supplying greater than one third of the electricity to any utility power distribution system for sale; or

103.7 Combustion equipment associated with nuclear power plant operations; or

103.8 Water heaters used for the sole purpose of heating hot water for comfort or for radiant heat.

104 **PARTIAL EXEMPTIONS:**

104.1 Stationary gas turbines listed in ~~subsection 102.2~~ Section 102.2 of this rule that are used for any of the following reasons shall be exempt from ~~Sections 304, 305 and subsections 301.1, 301.2, 501.1 and 501.3~~ Sections 301.1, 301.2, 304, 305, 501.1, and 501.3 of this rule:

a. Used for firefighting; or

b. Used for flood control; or

c. Used at military training facilities other than a garrison facility; or

d. Engaged by manufacturers in research and the development of equipment for either gas turbine emission control techniques or gas turbine efficiency improvements; or

e. Fired with emergency fuel that is normally fired with natural gas, or

f. Testing, reliability, maintenance, training, and readiness purposes for a total of 36 hours per year per unit when firing any emergency fuel.

104.2 All steam generating units including cogeneration units and process heaters that are used for any of the following reasons shall be exempt from Sections 301, 304, 305, ~~and subsections~~ 501.1 and 501.3 of this rule:

a. Fired with an emergency fuel that is normally fired with natural gas; or

b. Firing any emergency fuel for testing, reliability, and maintenance purposes up to a maximum total of 36 ~~hrs.~~ hours per unit per year.

SECTION 200 – DEFINITIONS: ~~For the purpose of this rule, the following definitions shall apply. See Rule 100 (General Provisions and Definitions) of these rules for definitions of terms that are used but not specifically defined in this rule.~~ For the purpose of this rule, the following definitions shall apply, in addition to those definitions found in Rule 100 (General Provisions and Definitions) of these rules. In the event of any inconsistency between any of the Maricopa County air pollution control rules, the definitions in this rule take precedence.

201 **ALTERNATIVE FUELS:** Substitutes for traditional oil-derived and fossil-fuel derived motor vehicle fuels including but not limited to biodiesel, propane, ethanol or methanol.

202 **COGENERATION STEAM GENERATING UNIT:** A steam or hot water generating unit that simultaneously produces both electrical (or mechanical) and thermal energy (such as heat or steam) from the same primary energy source.

203 **CORRECTIVE ACTION PLAN (CAP):** A methodical procedure that is used to evaluate and correct a turbine operational problem and that includes, at a minimum, improved preventative maintenance procedures, improved ECS operating practices, possible operational amendments, and progress reports.

204 **DISTILLATE OIL:** A petroleum fraction of fuel oil produced by distillation that complies with the specifications for fuel oil numbers 1 or 2, as defined by the American Society for Testing and Materials in ASTM D396-01, “Standard Specification for Fuel Oils.”

205 **EMERGENCY FUEL:** Fuel fired by a gas combustion unit, normally fueled by natural gas, only during circumstances of unforeseen disruption or interruption in the supply of natural gas to a unit that normally runs on natural gas. The inability to burn natural gas may be one of the following, but is not limited to, natural gas emergency, natural gas curtailment, or a breakdown of the delivery system.

206 **EMISSION CONTROL SYSTEM (ECS):** A system approved in writing by the Control Officer, designed and operated in accordance with good engineering practice to reduce emissions.

207 **FOSSIL FUEL:** Naturally occurring carbonaceous substances from the ground such as natural gas, petroleum, coal, and any form of solid, liquid or gaseous fuel derived from such material for the purpose of creating energy.

208 **HEAT INPUT:** Heat derived from the combustion of fuel not including the heat input from preheated combustion air, recirculated flue gases, or exhaust gases from other sources, such as gas turbines, internal combustion engines, and kilns.

209 **LOW SULFUR OIL:** Fuel oil containing less than or equal to 0.05 % by weight of sulfur.

210 **NATURAL GAS CURTAILMENT:** A shortage in the supply of natural gas, due solely to limitations or restrictions in distribution pipelines by the utility supplying the gas and not due to the cost of natural gas.

211 **OPACITY:** A condition of the ambient air, or any part thereof, in which an air contaminant partially or wholly obscures the view of an observer.

212 **PARTICULATE MATTER EMISSIONS:** Any and all particulate matter emitted to the ambient air as measured by applicable state and federal test methods.

213 **PEAK LOAD:** 100% of the manufacturer's design capacity of a gas turbine at 288 Kelvin, 60% relative humidity, and 101.3 kilopascals pressure (ISO standard day conditions).

214 **PROCESS HEATER:** An enclosed combustion device that uses controlled flame to transfer heat to a process fluid or a process material that is not a fluid or to heat transfer material for use in a process unit (not including the generation of steam). A process heater may be either indirect or direct-fired, dependent upon whether the gases of combustion mix with and exhaust to the same stack or vent (direct-fired) with gases emanating from the process material or not (indirect-fired). Emissions from indirect-fired units consist entirely of products of combustion while emissions from direct-fired units are unique to the given process and may vary widely in any industrial process. A process heater is not an oven or kiln used for drying, curing, baking, cooking, calcining, or vitrifying.

215 **RATED HEAT INPUT CAPACITY:** The heat input capacity in million Btu/hr. as specified on the nameplate of the combustion unit. If the combustion unit has been altered or modified so that its maximum heat input is different than the heat input capacity on the nameplate (design heat capacity), the maximum heat input shall be considered as the rated heat input capacity.

216 **REGENERATIVE CYCLE GAS TURBINE:** Any stationary gas turbine that recovers thermal energy from the exhaust gases and utilizes the thermal energy to preheat air prior to entering the combustor.

217 **RESIDUAL OIL:** The heavier oils that remain after the distillate oils and lighter hydrocarbons are distilled off in refinery operations. This includes crude oil or fuel oil numbers 1 and 2 that have a nitrogen content greater than 0.05% by weight, and all fuel oil numbers 4, 5 and 6, as defined by the American Society of Testing and Materials in ASTM D396-01, "Standard Specifications for Fuel Oils".

218 **RETROFITTING:** Any physical change to an emissions unit necessary for reducing NO_x emissions to comply with the NOx emissions limits specified in Sections 301 of this rule, including, but not limited to, burner replacement, and the addition of emissions control equipment. Changes in the method of operation are not considered to be retrofitting.

~~218~~**219** **SIMPLE CYCLE GAS TURBINE:** Any stationary gas turbine that does not recover heat from the gas turbine exhaust gases to preheat the inlet combustion air to the gas turbine, or that does not recover heat from the gas turbine exhaust gases to heat water or generate steam.

~~219~~**220** **STATIONARY GAS TURBINE:** Any simple cycle gas turbine or regenerative gas turbine that is not self-propelled or that is attached to a foundation.

~~220~~**221** **STEAM GENERATING UNIT:** An external combustion unit or boiler fired by fossil fuel that is used to generate hot water or steam. The hot water or steam is then used as energy for driving another process or piece of equipment.

~~221~~**222** **SULFUR OXIDES (SO_x):** The sum of the oxides of sulfur emitted from the flue gas from a combustion unit that are directly dependent upon the amount of sulfur in the fuel used.

~~222~~**223** **UNCOMBINED WATER:** Condensed water containing no more than analytical trace amounts of other chemical elements or compounds.

~~223~~**224** **WASTE DERIVED FUEL GAS:** Any gaseous fuel that is generated from the biodegradation of solid or liquid waste including but not limited to, sewage sludge, digester gas, and landfill gas.

~~224~~**225** **WATER HEATER:** A closed vessel in which water is heated by combustion of fuel and water is either withdrawn for use external to the vessel (at pressures not exceeding 160 psi with all controls and devices preventing water temperatures from exceeding 210°F) or used for radiant heat. Water heaters are usually no larger than 1 MM Btu/hr as opposed to boilers, do not reach temperatures of 220°F and higher that boilers can reach, and are not manufactured to meet boiler codes.

SECTION 300 – STANDARDS

301 LIMITATIONS – PARTICULATE MATTER:

301.1 Limitation-Liquid Fuels: An ~~owner or operator~~ owner and/or operator shall not discharge, cause or allow the discharge of particulate matter emissions, caused by combustion of non-gaseous liquid fuels or a blend of liquid fuels with other fuels in excess of 0.10 lbs. per MMBtu from any combustion units listed in ~~subsections 102.1, 102.3 and 102.4~~ Sections 102.1, 102.3, and 102.4 of this rule with either a rated heat input capacity or heat input of greater than 100 MM Btu/hr.

301.2 Particulate Matter Testing: A backhalf analysis shall be performed, using Reference Method 202 referenced in ~~subsection 504.6~~ Section 504.6 of this rule, each time a compliance test for particulate matter emissions to meet the standards in ~~subsection 301.1~~ Section 301.1 of this rule is performed using Method 5. (The results of the Method 202 testing shall be used for emissions inventory purposes).

301.3 Good Combustion Practices for Turbines: An ~~owner or operator~~ owner and/or operator of a stationary gas turbine listed in ~~subsection 102.2~~ Section 102.2 of this rule, regardless of fuel type or size, shall use operational practices recommended by the manufacturer and parametric monitoring that ensure good combustion control. One of the following procedures may be used:

a. Monitor the maximum temperature differential across the combustion burners or at locations around the back end of the turbine, dependent upon the particular unit, to ensure no more than a 100° F difference using a thermocouple. If a valid maximum temperature differential of greater than 100° F is observed across the burners, investigation and corrective action shall be taken within three hours to either reduce the temperature difference to 100° F or less, or

b. If the manufacturer recommends that the maximum numerical temperature differential to ensure good combustion is a temperature that is greater than 100°F, then proof of this maximum alternate temperature shall be submitted to the Control Officer. The procedure to measure the maximum temperature differential listed above in ~~subsection 301.3a~~ Section 301.3(a) of this rule shall then be followed using the alternate recommended maximum temperature differential after approval by the Control Officer.

c. If a repetitive pattern of failure to meet the proper temperature differential of 100°F or to meet the alternate temperature differential recommended by the manufacturer indicates that the turbine is not being operated in a manner consistent with good combustion practices, then the Control Officer may require the owner or operator to submit a Corrective Action Plan (CAP).

302 LIMITATIONS – OPACITY:

~~No owner or operator shall~~ An owner and/or operator shall not discharge into the ambient air from any single source of emissions any air contaminant, other than uncombined water, in excess of 20% opacity.

303 LIMITATIONS – SULFUR IN FUEL:

An ~~owner or operator~~ owner and/or operator of any applicable equipment listed in Section 102 of this rule that burns liquid fuel oil or a mixture or blend of fuel oil with any other fuels shall use only low sulfur oil. An owner or operator using waste derived fuel gas shall use only waste derived fuel gas with a sulfur content less than or equal to 800 ppm (0.08%).

304 LIMITATIONS – NITROGEN OXIDES:

304.1 An ~~owner or operator~~ owner and/or operator of any combustion equipment listed in Section 102 of this rule, except gas turbines, with a heat input of greater than 10 MMBtu/hr to 100 MMBtu/hr~~, except gas turbines,~~ shall comply either with ~~(a) or (b) below~~ Sections 304.1(a) or 304.1(b) of this rule. Gas Turbines are subject to both Section 304.1(a) and 304.1(b) of this rule below:

a. Establish initial optimal baseline concentrations for NO_x and CO within 90 days of the first usage of the combustion equipment utilizing the initial design burner specifications or manufacturer's recommendations to ensure good combustion practices. Tune the unit annually in accordance with good combustion practices or a manufacturer's procedure, if applicable, that will include the following at a minimum:

(1) Inspect the burner system and clean and replace any components of the burner as necessary to minimize emissions of NO_x and CO; and

(2) Inspect the burner chamber for areas of impingement and remove if necessary; and

(3) Inspect the flame pattern and make adjustments as necessary to optimize the flame pattern; and

(4) Inspect the system controlling the air-to-fuel ratio and ensure that it is correctly calibrated and functioning properly; and

(5) Measure the NO_x and the CO concentration of the effluent stream after each adjustment was made with a handheld portable monitor to ensure optimal baseline concentrations are maintained or

b. Limit nitrogen oxide emissions to no more than the following amounts:

~~**(1)** 155 ppm calculated as nitrogen dioxide, when burning gaseous fuel. During steady state operations, this test result using EPA Reference Method(s) 7 shall be based upon the arithmetic mean of the results of three test runs. Each test run shall have a minimum sample run time of one hour.~~

~~**(2)** 230 ppm calculated as nitrogen dioxide, when burning liquid fuel. During steady state operations, this test result using EPA Reference Method(s) 7 shall be based upon the arithmetic mean of the results of three test runs. Each test run shall have a minimum sample run time of one hour.~~

(1) **Emission Limits–Gaseous Firing:** An owner and/or operator shall not allow the discharge into the atmosphere, when burning gaseous fuel from any steam generating unit, stationary gas turbine, cogeneration steam generating unit, indirect- process heater operating less than 877 hours within a calendar year and with an annual heat input rate greater than 10 MMBtu/hr (2.9 MW), oxides of nitrogen (NO_x) emissions in excess of 42 parts per million volume (ppmv) , corrected to 15 percent oxygen (O_2) when firing on gaseous fuels.

(2) The NO_x emissions from any unit operated 877 hours or more per calendar year with a rated unit size output greater or equal to10 MMBtu/hr (2.9 MW), without SCR installed, shall not exceed 15 parts per million by volume on a dry basis, corrected to 15 percent oxygen (O_2) when firing on gaseous fuels.

(3) The NO_x emissions from any unit operated 877 hours or more per calendar year with a rated unit size output greater or equal to10 MMBtu/hr (2.9 MW), with SCR installed, shall not exceed 9 parts per million by volume on a dry basis, corrected to 15 percent oxygen (O_2) when firing on gaseous fuels.

(4) **Emission Limits-Nongaseous Fuel Firing:** An owner and/or operator shall not allow the discharge into the atmosphere, when burning nongaseous fuel from any steam generating unit, stationary gas turbine, cogeneration steam generating unit, indirect- process heater operating less than 877 hours within a calendar year and with an annual heat input rate greater than 10 MMBtu/hr (2.9 MW), oxides of nitrogen (NO_x) emissions in excess of 65

parts per million volume (ppmv), corrected to 15 percent oxygen (O_2) when firing on liquid fuels.

(5) The NO_x emissions from any unit operated 877 hours or more per calendar year with a rated unit size output greater or equal to10 MMBtu/hr (2.9 MW), without SCR installed, shall not exceed 42 parts per million by volume on a dry basis, corrected to 15 percent oxygen (O_2) when firing on liquid fuels.

(6) The NO_x emissions from any unit operated 877 hours or more per calendar year with a rated unit size output greater or equal to10 MMBtu/hr (2.9 MW), with SCR installed, shall not exceed 25 parts per million by volume on a dry basis, corrected to 15 percent oxygen (O_2) when firing on liquid fuels.

TABLE 1:
SUMMARY OF LIMITATION REQUIREMENTS IN SECTION 304.1(B) OF THIS RULE

Rule Reference	Time of Operation (hr/yr)	Unit Size Rating MMBtu/hr	NO_x Emission Limit (ppmv)	
			Gaseous Fuel	Liquid Fuel
304.1(b)(1) And 304.1(b)(5)	<877	> 10	42	65
304.1(b)(2) And 304.1(b)(6)	≥877	≥10.0 (no SCR)	15	42
304.1(b)(3) And 304.1(b)(7)	≥877	≥10.0 (w SCR)	9	25

c. For simple gas turbines, the nitrogen oxides shall be measured dry and corrected to 15% oxygen. For all other combustion equipment, the nitrogen oxides shall be measured dry and corrected to 3% oxygen.

304.2 An ~~owner or operator~~ owner and/or operator of any combustion equipment, listed in Section 102 of this rule, with a heat input greater than 100 MMBtu/hr, shall:

a. Tune the equipment every 6 months with good combustion practices or a manufacturer's procedure that at a minimum includes the procedures listed in ~~subsection 304.1a~~ Section 304.1(a) of this rule and;

b. Meet the NO_x emission limits as stated in ~~subsection 304.1b~~ Section 304.1(b) of this rule.

305 LIMITATIONS-CARBON MONOXIDE: ~~No owner or operator~~ An owner and/or operator of any equipment listed in Section 102 of this rule with a heat input greater than 100 MM Btu/hr shall not cause to be discharged into the atmosphere, carbon monoxide (CO), measured in excess of 400 ppmv at any time. This test result, using EPA Reference Method 10, shall be based upon the arithmetic mean of the results of three test runs and shall be measured during steady state compliance source testing. Each test run shall have a minimum sample time of one hour. For simple gas turbines, the CO shall be measured dry and corrected to 15% oxygen. For all other combustion equipment, the CO shall be measured dry and corrected to 3% oxygen.

306 REQUIREMENTS FOR AIR POLLUTION CONTROL EQUIPMENT AND ECS MONITORING EQUIPMENT:

306.1 Emission Control System Required: For affected operations which may exceed any of the applicable standards set forth in Sections 300 of this rule, an owner or operator may comply by installing and operating an emission control system (ECS).

306.2 Providing and Maintaining ECS Monitoring Devices: ~~No owner or operator~~ An owner and/or operator required to use an approved ECS pursuant to this rule shall not do so without first providing, properly installing, operating, and maintaining in calibration and in good working order, devices for indicating temperatures, pressures, transfer rates, rates of flow, or other operating conditions necessary to determine if air pollution control equipment is functioning properly and is properly maintained as described in an approved O&M Plan.

306.3 Operation and Maintenance (O&M) Plan Required For ECS:

a. General Requirements: An ~~owner or operator~~ owner and/or operator shall provide and maintain an O&M Plan for any ECS, any other emission processing equipment, and any ECS monitoring devices that are used pursuant to this rule or an air pollution permit.

b. Approval by Control Officer: An ~~owner or operator~~ owner and/or operator shall submit to the Control Officer for approval the O&M Plans of each ECS and each ECS monitoring device that is used pursuant to this rule.

c. Initial Plans: An ~~owner or operator~~ owner and/or operator that is required to have an O&M Plan pursuant to this rule shall comply with all O&M Plans that the ~~owner or operator~~ owner and/or operator has submitted for approval, but which have not yet been approved, unless notified by the Control Officer in writing. Once the initial plan has been approved in writing by the Control Officer, an ~~owner or operator~~ owner and/or operator shall comply with this approved plan.

d. Revisions to Plan: If revisions to the initial plan have been approved by the Control Officer in writing, an ~~owner or operator~~ owner and/or operator shall comply with the revisions to the initial plan. If revisions to the plan have not yet been approved by the Control Officer in writing, then an ~~owner or operator~~ owner and/or operator shall comply with the most recent O&M plan on file at Maricopa County Air Quality Department.

e. Control Officer Modifications to Plan: After discussion with the ~~owner or operator~~ owner and/or operator, the Control Officer may modify the plan in writing prior to approval of the initial O&M plan. An ~~owner or operator~~ owner and/or operator shall then comply with the plan that has been modified by the Control Officer.

SECTION 400 – ADMINISTRATIVE REQUIREMENTS ~~(NOT APPLICABLE)~~

401 COMPLIANCE SCHEDULE: An owner and/or operator of any unit subject to Sections 301 or 302 of this rule on or after November 2016 shall comply with this rule in accordance with the following schedules.

401.1 Except as provided in Sections 401.2 and 401.3 of this rule, for units installed prior to November 2016 and permit application deemed complete by the Control Officer prior to November 2016, or installed after November 2016 and permit application deemed complete prior to November 2016:

TABLE 2:

Number of Units subject to Section 304	Number of these Units required to be in full compliance by 01/xx/2017	Number of these Units required to be in full compliance by 01/xx/2018	Number of these Units required to be in full compliance by 01/xx/2019
1 or 2	1	2	N/A
3	1	2	3
4	2	3	4
5 or 6	2	4	6
More than 6	25% of these units	75% of these units	100% 0f these units

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

401.2 For units installed after November 2016 and permit application deemed complete by the Control Officer after November 2016: date of installation.

401.3 For units installed prior to November 2016 and permit application deemed complete by the Control Officer after November 2016: November 2017.

SECTION 500 – MONITORING AND RECORDS

501 RECORDKEEPING AND REPORTING: An ~~owner or operator~~ owner and/or operator subject to this rule shall comply with the requirements set forth in this section. Any records and data required by this section shall be kept on site at all times in a consistent and complete manner and be made available without delay to the Control Officer or his designee upon request. Records shall consist of the following information:

501.1 Equipment Listed In Section 102 Of This Rule: Type of fuel used, amount of fuel used, and amount of sulfur in the fuel if using liquid fuel, and the days and hours of operation.

501.2 Emergency Fuel Usage: Monthly records of: type of emergency fuel used, dates and hours of operation using emergency fuel, and nature of the emergency or purpose for the use of the emergency fuel as stated in ~~subsections 104.1 and 104.2~~ Sections 104.1 and 104.2. Yearly records of the twelve month log of hours of operation in the emergency mode.

501.3 Good Combustion Practice: Measurements of the temperature differential across the burners of turbines per ~~subsection 301.3~~ Section 301.3 of this rule, results of evaluation and corrective action taken to reduce the temperature differential or a finding that the temperature differential returned to the range listed in ~~subsection 301.3 (a) or (b)~~ Sections 301.3(a) or 301.3(b) of this rule without any action by the ~~owner or operator~~ owner and/or operator.

501.4 Tuning Procedure: Date that the procedure was performed on the particular unit and at a minimum: stack gas temperature, flame conditions, nature of the adjustment and results of the nitrogen oxide and carbon monoxide concentrations obtained by using a handheld monitor after each adjustment.

502 RECORDS RETENTION: Copies of reports, logs and supporting documentation required by the Control Officer shall be retained for at least 5 years. Records and information required by this rule shall also be retained for at least 5 years.

503 COMPLIANCE DETERMINATION:

503.1 Low Sulfur Oil Verification:

a. An ~~owner or operator~~ owner and/or operator shall submit fuel oil receipts from the fuel supplier indicating the sulfur content of the fuel oil or verification that the fuel oil used meets the 0.05% sulfur limit or the 0.08% limit for landfill or digester gas if requested by the Control Officer, or

b. If fuel receipts are not available, an ~~owner or operator~~ owner and/or operator shall submit a statement of certification or proof of the sulfur content of the fuel oil from the supplier to the Control Officer, or

c. An ~~owner or operator~~ owner and/or operator may elect to test the fuel oil for sulfur content in lieu of certification from the fuel supplier or fuel receipts using one of the test methods incorporated by reference in ~~subsections 504.11, 504.12, 504.14 or 504.15~~ Sections 504.11, 504.12, 504.14, or 504.15 of this rule.

503.2 Gaseous Emissions-Source Test:

a. Compliance with the NO_x and CO emission requirements and the stack gas oxygen requirements of Sections 301 through 304 of this rule shall be determined using the test methods specified below. All emissions determinations shall be made during normal operating conditions, except no compliance determination shall be established during unit startup or shutdown. Tests shall be conducted while units are operating at a firing rate that is as close as physically possible to the unit's rated heat input capacity. Tests shall be conducted for three 60 minute runs. Results shall be averaged over the three test periods. Test reports shall include the operational characteristics of all flue-gas NO_x reduction equipment.

(1) Oxide of Nitrogen - EPA Method 7E.

(2) Carbon Monoxide - EPA Method 10.

(3) Stack Gas Oxygen - EPA Method 3A.

(4) Carbon Dioxide - EPA Method 3A.

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; or

(2) Failure of an irreplaceable portion of the sampling train; or

(3) Extreme meteorological conditions presenting a hazard to the sampling team; or

(4) Other circumstances beyond the owner or operators control as determined by the Control Officer.

d. A source test not conducted pursuant to the source test methods listed in Section 501.1(a) of this rule may be rejected and the test report determined to be invalid.

503.3 **Gaseous Emissions-Continuous Emission Monitoring System (CEMS):** Compliance with NO_x emission requirements specified in Sections 301 through 304 of this rule may also be determined using CEMS. All emissions determinations shall be made in the as-found operating condition, except no compliance determination shall be established during unit startup or shutdown. Where the unit(s) are equipped with CEMS:

a. **General:** All CEMS must be installed according to the procedures specified in 40CFR60.13g. All CEMS shall be installed such that a representative measurement of emissions is obtained. Additional procedures for the location of CEMS found in 40CFR60 Appendix B shall be used. The data recorder for CEMS shall be in operation at all times the unit is operated.

b. **Cycle Time:** An owner and/or operator of any unit using a continuous emission monitoring system (CEM) shall ensure that the CEM 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 shall be checked once every 24 hours. The CEMS shall be calibrated in accordance with the manufacturer's specifications.

d. **Averaging:** The data recorded during periods of calibration checks, zero and span adjustments shall not be included in averaging for compliance determinations. Compliance shall be determined on an hourly basis using the average of the 3 previous 1 hour average emissions concentrations. The 1-hour average emissions concentration shall be determined from at least two data points recorded by the CEMs.

e. **Accuracy Testing:** Accuracy testing of Continuous Emission Monitoring Systems shall be conducted using a relative accuracy test audit pursuant to 40CFR60 Appendix F.

504 ~~TEST METHODS ADOPTED BY REFERENCE~~ **COMPLIANCE DETERMINATION-TEST METHODS INCORPORATED BY REFERENCE:** The EPA test methods as they exist in the Code of Federal Regulations (CFR) (July 1, 2004), as listed below, are incorporated by reference in Appendix G of the Maricopa County Air Pollution Control Regulations. Copies of test methods referenced in this section are available at the Maricopa County Air Quality Department, 1001 N. Central Avenue, Phoenix, AZ 85004-1942. When more than one test method as listed in ~~subsections 504.11, 504.12, 504.14, or 504.15~~ Sections 504.11, 504.12, 504.14, or 504.15 of this rule is permitted for the same determination, an exceedance of the limits established in this rule determined by any one of the applicable test methods constitutes a violation.

504.1 EPA Reference Methods 1 (“Sample and Velocity Traverses for Stationary Sources”), and 1 A (“Sample and Velocity Traverses for Stationary Sources with Small Stacks and Ducts”) (40 CFR 60, Appendix A).

504.2 EPA Reference Methods 2 (“Determination of Stack Gas Velocity and Volumetric Flow Rate”), 2A (“Direct Measurement of Gas Volume Through Pipes and Small Ducts”), 2C (“Determination of Stack Gas Velocity and Volumetric Flow Rate in Small Stacks or Ducts”), and 2D (“Measurement of Gas Volumetric Flow Rates in Small Pipes and Ducts”) (40 CFR 60, Appendix A).

504.3 EPA Reference Methods 3 ("Gas Analysis for the Determination of Dry Molecular Weight"), 3A ("Determination of Oxygen and Carbon Dioxide Concentrations in Emissions from Stationary Sources (Instrumental Analyzer Procedure)"), 3B ("Gas Analysis for the Determination of Emission Rate Correction Factor of Excess Air"), and 3C ("Determination of Carbon Dioxide, Methane, Nitrogen and Oxygen from Stationary Sources") (40 CFR 60, Appendix A).

504.4 EPA Reference Method 4 ("Determination of Moisture Content in Stack Gases") (40 CFR 60, Appendix A).

504.5 EPA Reference Method 5 ("Determination of Particulate Emissions from Stationary Sources") (40 CFR 60, Appendix A)

504.6 EPA Reference Method 202 ("Determination of Condensable Particulate Emissions from Stationary Sources") (40 CFR 51, Appendix M).

504.7 EPA Reference Methods 7 ("Determination of Nitrogen Oxide Emissions from Stationary Sources"), 7A ("Determination of Nitrogen Oxide Emissions form Stationary Sources"), 7B ("Determination of Nitrogen Oxide Emissions from Stationary Sources – Ultraviolet Spectrometry"), 7C ("Determination of Nitrogen Oxide Emissions from Stationary Sources – Alkaline-Permanganate Colorimetric Method"), 7D ("Determination of Nitrogen Oxide Emissions from Stationary Sources – Alkaline – Permanganate Chromatographic Method"), and 7E ("Determination of Nitrogen Oxide Emissions from Stationary Sources – Instrumental Analyzer Method"), (40 CFR 60, Appendix A).

504.8 EPA Reference Method 9, ("Visual Determination of the Opacity of Emissions from Stationary Sources") (40 CFR 60, Appendix A).

504.9 EPA Reference Method 10, ("Determination of Carbon Monoxide from Stationary Sources") (40 CFR 60, Appendix A).

504.10 EPA Reference Method 20, ("Determination of Nitrogen Oxides, Sulfur Dioxide, and Diluent Emissions From Stationary Gas Turbines") (40 CFR 60, Appendix A).

504.11 American Society of Testing Materials, ASTM Method D2622-92 or 98, ("Standard Test Method for Sulfur in Petroleum Products by Wavelength Dispersive X-Ray Fluorescence Spectrometry"), 1992 or 1998.

504.12 American Society of Testing Materials, ASTM Method D1266-98, ("Standard Test Method for Sulfur in Petroleum Products (Lamp Method)"), 1998.

504.13 American Society of Testing Materials, ASTM Method D2880-00, ("Standard Specification for Gas Turbine Fuel Oils"), 2000.

504.14 American Society of Testing Materials, ASTM Method D4294-90 or 98, ("Standard Test Method for Sulfur in Petroleum and Petroleum Products by Energy- Dispersive X-ray Fluorescence Spectrometry"), 1990 or 1998.

504.15 American Society of Testing Materials, ASTM Method D5504-01,("Standard Test Method for Determination of Sulfur compounds in Natural Gas and Gaseous Fuels by Gas Chromatography and Chemiluminescence"), 2006.