COUNTY NOTICES PURSUANT TO A.R.S. § 49-112

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NOTICE OF FINAL RULEMAKING

MARICOPA COUNTY AIR POLLUTION CONTROL REGULATIONS

RULE 322 – POWER PLANT OPERATIONS
RULE 323 – FUEL BURNING EQUIPMENT FROM INDUSTRIAL / COMMERCIAL / INSTITUTIONAL SOURCES
RULE 324 – STATIONARY INTERNAL COMBUSTION ENGINES

[M07-630]

PREAMBLE

1. Sections affected — **Rulemaking action**

Rule 322	Amend
Rule 323	Amend
Rule 324	Amend

2. Statutory authority for the rulemaking:
Authorizing statutes: A.R.S. §§ 49-474, 49-479, and 49-480
Implementing statute: A.R.S. § 49-112

3. The effective date of the rules:
October 17, 2007

4. List of all previous notices appearing in the Register addressing the final rules:
Rules 322, 323 and 324
Notice of Rulemaking Docket Opening: 12 A.A.R. 4110, November 3, 2006

Rules 322 and 323
Notice of Proposed Rulemaking: 13 A.A.R. 1991, June 8, 2007.

Rule 324
Notice of Proposed Rulemaking: 13 A.A.R.1908, June 1, 2007.

5. Name and address of department personnel with whom persons may communicate regarding the rulemaking:

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6. An explanation of the rules, including the department's reasons for initiating the rules:
Rule 322 – Power Plant Operations
Since Maricopa County has amended Rule 100 (General Provisions and Definitions) on March 15, 2006 by adding a definition for nitrogen oxides (NOx), the County is amending Rule 322, by removing the definition of NOx in Rule 322, thus eliminating duplication of the terms in two different rules. The other significant amendment to the rule is the listing of EPA Reference Method 202 separately from EPA Reference Method 5. Performance of Method 202 will aid in quantifying condensable particulate matter (PM) emissions for emission inventory purposes. Condensable PM contributes to ambient PM levels and significantly to ambient PM 2.5 levels. Even though the particulate standards in

this rule apply to compliance testing using Method 5, testing results per Method 202 will be used by the County to categorize the source and for emission inventory purposes.

Some minor administrative changes are also addressed in the rule such as correcting section references, correcting usage of the term "heat input" in subsection 301.2 and the removal of the "#" sign before the American Society of Test Methods (ASTM) standards listed in Section 500. The definition of three-hour rolling average is changed to clock hour average rather than a 180 minute average since stakeholders commented that a continuous emission monitor may be down at times for calibration so that there may be a minute or two when one does not obtain data. Also the power plant permits contain language that deals with clock hours and for consistency it would be logical to place the same language in the rule as in the permit.

Section 301.3 is being changed for clarity at a stakeholder's request. The phrase "in lieu of manufacturer's recommended procedures" is amended to state that either one of the temperature differential procedures in subsection 301.3 (a) or (b) may be used to prove good combustion practices. Section 305 is clarified to reflect the fact that a 400 ppmv emission limit for carbon monoxide will be the standard at all times and not just at steady state compliance testing. Other changes to the rule are the deletion of sections that have to do with compliance in Sections 303 and 400. Since many of the compliance dates have already passed, Maricopa County is removing these sections from the rule.

Maricopa County has recently adopted Appendix G of the Maricopa County Air Pollution Control Regulations which now contains all of the test methods listed in the rules incorporated by reference; therefore the County is amending Section 504 to reference Appendix G.

Rule 323 – Fuel Burning Equipment from Industrial/Commercial/Institutional Sources

Since Maricopa County has amended Rule 100 (General Provisions and Definitions) on March 15, 2006, by adding a definition for nitrogen oxides, the County is amending Rule 323 by removing the definitions of nitrogen oxides (NOx), thus eliminating duplication of the terms. Another significant amendment to the rule is the listing of EPA Reference Method 202 separately from EPA Reference Method 5. Performance of Method 202 will aid in quantifying condensable particulate matter (PM) emissions for emission inventory purposes. Condensable PM contributes to ambient PM levels and significantly to ambient $PM_{2.5}$ levels. Even though the particulate standards in this rule apply to compliance testing using Method 5, testing results per Method 202 will be used by the County to categorize the source and for emission inventory purposes.

A third major amendment in the rule is the omission of the exemption for agricultural combustion equipment. This omission was recommended by the EPA and will be consistent with the removal of these exemptions in various rules throughout the United States. A fourth major amendment in the rule is the permission to use waste derived fuel gas (landfill or digester gas) for combustion with up to 800 ppm of sulfur (0.08%). This amendment is being added to the rule because there are some waste-to-energy projects in Maricopa County and the County does not want to discourage these environmental projects from being pursued. Landfill and digester gases have been found to be higher in sulfur content than other fuels and after researching levels of sulfur in landfill and digester gases, a decision was made to raise the sulfur concentration allowed in these particular fuels. Due to the inclusion of a limit for these gases, a new test method is added to subsection 504.15 which tests for sulfur in these fuels.

Another amendment to the rule is the language that refers to exemptions in subsection 103.8 of Rule 323. The County is amending the text to reflect the same language used in Rule 322 (Power Plant Operations), subsection 103.1, stating that the exemption applies to "Combustion equipment associated with nuclear power plant operations." Other amendments to the rule are the deletion of subsections that have to do with compliance in Section 400. Since many of the compliance dates have already passed, Maricopa County is removing these sections from Rule 323.

Maricopa County has also recently adopted new Appendix G in the Maricopa County Air Pollution Control Regulations. Appendix G contains all of the test methods incorporated by reference; therefore the County is amending language in Rule 323, Section 504 to reflect this.

There are also some minor administrative amendments in the rule, such as correcting section references, correcting usage of the term "heat input" in subsections 301.1 and removing the "#" sign before the American Society of Test Methods (ASTM) standards listed in Section 500. In addition, subsection 501.2 is amended to clarify record keeping requirements for Emergency Fuel Usage.

Rule 324 – Stationary Internal Combustion Engines

Since Maricopa County has amended Rule 100 (General Provisions and Definitions) on March 15, 2006 by adding a definition for nitrogen oxides, the County is amending Rule 324 by removing the definitions of nitrogen oxides (NOx) in Section 200 of Rule 324, thus eliminating duplication of the terms.

One significant amendment is the deletion of the broad exemption for agricultural equipment in Rule 324. This omission was recommended by the Environmental Protection Agency and is consistent with the removal of these exemptions in various rules throughout the United States. Another significant amendment is the removal of Control Officer discretion in using fuels that are higher than 0.05% sulfur content in subsection 301.2 of Rule 324 and the amendment to limit the sulfur concentration to 800 ppm for landfill and digester gases.

The addition of text to Rule 324 in Subsection 207.3 and 207.4 regarding replacement engines is another significant change. The new text states that with every percentage point increase of the rated brake horsepower there shall be an associated decrease in emissions of nitrogen oxides, expressed as a mass per unit time, equal to or exceeding two percentage points. This amendment was prompted by the EPA. Also a limit of 500 hours is added to the text in Section 205 further defining emergency engines.

Another amendment to the rule is the listing of EPA Reference Method 202 separately from EPA Reference Method 5 in Section 500 of Rule 324. Performance of Method 202 will aid in quantifying condensable particulate matter emissions for emission inventory purposes. Condensable PM contributes to ambient PM levels and significantly to ambient $PM_{2.5}$ levels. Even though the particulate matter standards in these rules apply to compliance testing using Method 5, testing results per Method 202 will be used by the County to categorize the source and also used for emission inventory purposes.

Some minor administrative changes are in the rule such as correcting section references and the removal of the "#" sign before the American Society of Test Methods (ASTM) standards listed in each rule. Another amendment to the rule is the deletion of subsections that have to do with compliance in Section 400. Since many of the compliance dates have already passed, Maricopa County is removing these sections from the rule. The County is also amending the language in subsection 502.4 to state that a monthly rolling 12 month total record of hours of operation shall be maintained by the owner or operator as well as records of the fuel type and the sulfur content of the fuel.

Another change is the addition of the requirement to use a non-resettable, tamperproof hour meter on emergency generators in order to total the hours that the units actually run. This amendment is new to the final rulemaking package and was requested by the EPA during their last review of the Notice of Proposed Rulemaking.

7. Demonstration of compliance with A.R.S. § 49-112:

Under A.R.S.§ 49-112 (A), Maricopa County may adopt a rule that is more stringent than or in addition to a provision of the state, provided that the rule is necessary to address a peculiar local condition; and if it is either necessary to prevent a significant threat to public health or the environment that results from a peculiar local condition and is technically and economically feasible; or if it is required under a federal statute or regulation, or authorized pursuant to an intergovernmental agreement with the federal government to enforce federal statutes or regulations if the county rule is equivalent to federal statutes or regulations; and if any fee adopted under the rule will not exceed the reasonable costs of the county to issue and administer the program. Maricopa County is in compliance with A.R.S.§ 49-112(A) in that the Maricopa County revisions to Rules 322, 323 and 324 are more stringent than a provision of the state in order to address a peculiar local condition, the designation of Maricopa County as a serious non-attainment area for ozone, carbon monoxide and particulate matter at 10 microns. Maricopa County is the only ozone nonattainment county in Arizona. Therefore the county's adoption of more stringent rules is in compliance with A.R.S.§ 49-112.

8. Reference to any study relevant to the rule that the agency reviewed and either relied or did not rely on in its evaluation or justification for the rule; where the public may obtain or review each study; all data underlying each study, and any analysis of the study and other supporting material:

None

9. Showing of good cause why the rule is necessary to promote a statewide interest if the rule will diminish a previous grant of authority of a political subdivision of this state:

Not applicable

10. Summary of the economic, small business and consumer impact:

Maricopa County Costs:

Costs to Maricopa County Air Quality Division are those that accrue for implementation and enforcement of the new standards. There are not any additional costs to the County by the amendments to these three rules. There will be no economic impact on Maricopa County since the changes to this rule are administrative in nature.

Rule 322 Costs:

The sources that may be affected by this rule would be the two power plants operations in Maricopa County and their various sites. The amendments to the rule are all administrative in nature except for one amendment. These

administrative changes that should not cause any increased cost to industry are the following: removal of the definition for nitrogen oxides in Section 216, removal of compliance dates that have already passed in Section 400, removal of the number (#) signs before the test methods listed in Subsections 503.12-503.15 and the addition of a new test method listed in Subsection 503.16 that may be used to test for sulfur. Other amendments are the addition of text to Section 305 stating the conditions to be used for testing for nitrogen oxides, some changes to the definition of "three hour rolling average" and amended language discussing the test methods incorporated by reference in Section 504.

There is only one amendment that is not administrative in nature that may cause a financial impact on stakeholders and that is the mandate to perform additional particulate matter testing per EPA Test Method 202 in Subsection 301.2. There will be an estimated $500 to $700 fee to industry every time the source performs compliance testing once per permit term (which is typically every 5 years) because they will be performing EPA Reference Method # 202 in addition to EPA Reference Method # 5. It is not anticipated that the expenditure of the $500 to $700 per test will cause any effect on revenues or payroll expenditures of the power plants subject to this rule nor on the private employment of businesses subject to this rule.

Small businesses would not be subject to this rule because of the stated purpose in Section 101 of the rule, which only applies to power plant operations which are not small businesses.

There will be no economic impact on Maricopa County since the changes to this rule are administrative in nature. There are no other agencies that are directly affected by the implementation of this rule, thus there will be no economic impact on any other agencies. There is no effect on state revenues from the amendments to this rule.

There is no less intrusive or less costly alternative to achieve a particulate matter concentration result other than actual testing of the equipment in the field, which is the amendment to this rule of requiring the expenditure of $500 to $700 per test every five years.

Rule 323 Costs:

The sources that will be affected by this rule would be those industries where large boilers and turbines would be utilized for power and heat such as manufacturing, semiconductor, power plant operations, military bases, agriculture, hotels, hospitals and universities. The amendments to the rule are all administrative in nature except for two amendments. The administrative changes that should not cause any increased cost to industry are the following: removal of the definition for nitrogen oxides in Section 216, removal of compliance dates that have already passed in Section 400, removal of the number (#) signs before the test methods listed in Subsections 503.12-503.1, and the addition of a new test method listed in Subsection 503.16 that may be used to test for sulfur.

There are two amendments that are not administrative in nature that may cause a financial impact on stakeholders. One of the major issues is the deletion of the agricultural exemption in Subsection 103. Agricultural operations using boilers or cogeneration steam generating units greater than 10 MM Btu/hr, turbines equal to or greater than 2.9 MW, or indirect process heaters with a heat input greater than 10 MM Btu/hr. would be subject to the rule. The EPA suggested that Maricopa County remove the exemption for agriculture to reflect current trends in the country. This would seem to be financially burdensome for agricultural activities, but a review of the sources of agriculture in Maricopa County reflected that there are no operations that involve boilers or turbines of this size. Therefore there would be no cost to agricultural sources in Maricopa County.

The other amendment that would cause any financial impact on sources would be the inclusion of EPA Test Method 202 for testing $PM_{2.5}$ whenever a source test is used. There will be an estimated $500 to $700 fee to industry every time the source performs compliance testing (once per permit term which is typically every 5 years) because they will be performing EPA Reference Method # 202 in addition to EPA Reference Method # 5. It is not anticipated that the expenditure of the $500 to $700 per test will cause any effect on revenues or payroll expenditures of the businesses/operations subject to this rule nor on the private employment of businesses subject to this rule. There is no less intrusive or less costly alternative to achieve a particulate matter concentration result other than actual testing of the equipment in the field, which is the amendment to this rule of requiring the expenditure of $500 to $700 per test every five years per subsection 301.2.

Small businesses more than likely would not be subject to this rule because of the boiler or turbine size required for the rule to be applicable. Even if a small business would use a boiler with a heat input greater than 10 MM Btu/hr., the amendments to this rule would only require the expenditure of the $500 to $700 listed above for particulate testing per Method 202 in addition to Method 5 per subsection 301.2.

There will be no economic impact on Maricopa County since the changes to this rule that effect the County are administrative in nature. There are no other agencies that are directly affected by the implementation of this rule, thus

there will be no economic impact on any other agencies. There is no effect on state revenues from the amendments to this rule.

Rule 324 Costs:
The sources that may be affected by this proposed rule would be those industries where engines would be utilized for power such as manufacturing, semiconductor, power plant operations, military bases, and agriculture. The proposed amendments to the rule are all administrative in nature except for two proposed amendments. The proposed administrative changes that should not cause any increased cost to industry are the following: a limit on the number of hours than an emergency generator shall operate in Section 205, removal of the definition for nitrogen oxides in Section 216, removal of compliance dates that have already passed in Section 400, removal of the number (#) signs before the test methods listed in Subsections 503.12-503.15 and the addition of a new test method listed in Subsection 503.16 that may be used to test for sulfur.

There are three proposed amendments that are not administrative in nature that may cause a financial impact on stakeholders. One of the major issues is the deletion of the agricultural exemption in Subsection 103. Agricultural operations using engines with a brake horsepower of 250 bhp or a combination of IC engines greater than 50 bhp that add up to 250 bhp would be subject to the rule. The EPA suggested that Maricopa County remove the exemption for agriculture to reflect current trends in the country. This would seem to be financially burdensome for agricultural activities, but a review of the sources of agriculture in Maricopa County reflected that there are no operations that involve engines of this size. Therefore there would be no cost to agricultural sources in Maricopa County.

Another amendment that would cause any financial impact on sources would be the inclusion of EPA Test Method 202 for testing particulate matter at 2.5 microns whenever a source test is used. There will be an estimated $500 to $700 fee to industry every time the source performs compliance testing because they will be performing EPA Reference Method # 202 in addition to EPA Reference Method # 5. It is not anticipated that the expenditure of the $500 to $700 per test will cause any effect on revenues or payroll expenditures of the businesses/operations subject to this rule nor on the private employment in businesses. There is no less intrusive or less costly alternative to achieve a particulate matter concentration result other than actual testing of the equipment in the field, which is the amendment to this rule of requiring the expenditure of $500 to $700 per test every five years per subsection 301.2.

Small businesses more than likely would not be subject to this rule because of the engine size required for the rule to be applicable. Operations at small businesses using engines with a brake horsepower of 250 bhp or a combination of IC engines greater than 50 bhp that add up to 250 bhp would be subject to the rule and this is not likely to occur at a small business. Even if a small business would use an engine greater than 250 bhp, the proposed amendments to this rule would only require the expenditure of the $500 to $700 listed above for particulate testing per Method 202 in addition to Method 5 per Section 304.

The third amendment requiring the sources to install hour meters on all emergency engines as stated in Rule 324, Sections 104 and 105, will cost $60- $80 per meter per engine. Many engines already have hour meters since Maricopa County states that these meters may be used as far as tracking hours of operation in emergency generators in Rule 200, Subsection 303. 3 (5)(b) as an alternative to keeping written records. There is no less intrusive or less costly alternative to achieve an accurate tamperproof record of hours that an engine is operating other than using an hour meter. Recordkeeping by hand (written records) can be tampered with and are not as reliable as a mechanical hour meter which cannot be changed or adjusted.

There will be no economic impact on Maricopa County since the changes to this rule are administrative in nature. There are no other agencies that are directly affected by the proposed implementation of this rule thus there will be no economic impact on any other agencies. There is no effect on state revenues from the amendments to this rule.

10. Name and address of department personnel with whom persons may communicate regarding the accuracy of the economic, small business, and consumer impact statement:

Name: Patricia P. Nelson or Jo Crumbaker
Air Quality Department

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11. Description of the changes between the proposed rules, including supplemental notices and final rules:

There was one change to one of the three rules (Rules 324) since the Notice of Proposed Rulemaking was published and it was non-substantive. It was the addition of a requirement to install a tamperproof hour meter on emergency engines in Rule 324 in order to track the time that these engines operate and it was recommended by EPA. There are now limits on the hours of operation of these engines in the rules. The only way to determine (without a doubt) that the engines are running under the maximum amount of hours allowed is to have a record of it that is generated by a piece of tamperproof equipment versus being generated by an owner or operator. The requirement to install these meters was already in Rule 200 (Permit Requirements) as an option to keeping written records, so many of these engines in Maricopa County already have these hour meters. The cost of one of these meters ranges from $60 to $80 which is very affordable. The changes to the Rules are detailed below:

Rule 322 – No changes

Rule 323 – No changes

Rule 324 – The following changes were made after the rule was proposed by the EPA. The change was non-substantive and made to improve recordkeeping provisions.

104.5 Used for reliability-related activities such as engine readiness, calibration, or maintenance or to prevent the occurrence of an unsafe condition during electrical system maintenance, as long as the total number of hours of the operation does not exceed 100 hours per calendar year per engine as evidenced by an installed non-resettable hour meter;

105.1 Each engine rated at or below 1000 bhp that operates less than 200 hours in any 12-consecutive-month period as evidenced by an installed non-resettable hour meter, and

105.2 Each engine rated above 1000 bhp that operates less than 100 hours in any 12-consecutive month period as evidenced by an installed non-resettable hour meter.

205 EMERGENCY ENGINE– Any stationary standby IC engine whose sole function is to provide back-up power when electric power from the local utility is interrupted or when operated solely for any of the reasons listed in Section 104. An emergency engine, for the purposes of this rule, shall not be used to supply standby power due to a voluntary reduction in power by a utility or power company, supply power for distribution or sale to the grid, or supply power at a source in order to avoid peak demand charges or high electric energy prices during on-peak price periods and shall not exceed 500 hours of operation, as evidenced by an installed non-resettable hour meter, including the 100 hours listed in subsection 104.5.

12. A summary of the comments made regarding the rule and the department response to them:

Rule 322: No formal comments were received.

Rule 323: No formal comments were received.

Rule 324: Only one comment was received.

COMMENT (EPA): Since there is now a requirement in the rule to allow emergency generators to operate for a maximum of 500 hours, then there should be a requirement to record the hours of operation with a non-resettable, tamperproof, totalizing hour meter.

RESPONSE: The County had added this requirement to Rule 324. The requirement to monitor the hours of operation by using a non-resettable, tamperproof hour meter is now found in Sections 104.1, 104.2, 104.5 and 205.

13. Any other matters prescribed by the statute that are applicable to the specific department or to any specific rule or class of rules:

No

14. Incorporation by reference and their location in the rules:

New incorporations by reference	Location
ASTM Method D5504-01	Rule 323, Section 504.15
ASTM Method D5504-01	Rule 324, Section 503.16

15. Was this rule previously an emergency rule?

No

16. The full text of the rules follows:

REGULATION III – CONTROL OF AIR CONTAMINANTS

RULE 322
POWER PLANT OPERATIONS

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Adopted 7/02/03
Revised 10/17/07

MARICOPA COUNTY AIR POLLUTION CONTROL REGULATIONS

REGULATION III – CONTROL OF AIR CONTAMINANTS
RULE 322

POWER PLANT OPERATIONS

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 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:

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.

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, ~~401.4~~ 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 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, ~~401.4~~, ~~and~~ 501.4 of this rule.

104.3 All equipment listed in Section 102 shall be exempt from Sections 304 and 305 and subsections 301.1, 301.2, and 306.4, ~~401.4 and 501.4~~ of this rule for 36 cumulative hrs. 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.

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 NITROGEN OXIDES (NOx)** – Oxides of nitrogen calculated as equivalent nitrogen dioxide.~~

~~222~~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.

~~223~~ 222 PARTICULATE MATTER EMISSIONS – Any and all particulate matter emitted to the ambient air as measured by applicable state and federal test methods.

~~224~~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).

~~225~~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.

~~226~~225 RATED HEAT INPUT CAPACITY – The heat input capacity in million Btu/hr. a 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.

~~227~~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.

~~228~~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."

~~229~~228 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.

~~230~~229 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.

~~231~~230 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.

~~232~~231 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.

~~233~~232 THREE (3) HOUR ROLLING AVERAGE – An arithmetic mean or average of the ~~180 most recent 1-minute average values calculated by a CEMS every minute.~~ 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.

~~234~~233 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.

~~235~~234 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 of any combustion equipment listed in Section 102 shall burn only natural gas except when firing emergency fuel per subsection 104.2 and 104.3 of this rule. An owner 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 ~~heat input~~, 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, each time a compliance test for particulate matter emissions to meet the standard in subsection 301.1 of this rule is performed using test Method 5.

301.3 Good Combustion Practices for Turbines: An owner or operator of any stationary gas turbine listed in subsection 102.2, regardless of fuel type, shall use operational practices recommended by the manufacturer and parametric monitoring to ensure good combustion control as listed below. ~~In lieu of a manufacturers' recommended procedure to ensure good combustion practices, one~~ 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 ~~301.2a~~ 301.3a shall then be followed using ~~the~~ 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 to submit a Corrective Action Plan (CAP).

~~301.3~~301.4 Cooling Towers: An owner or operator of a cooling tower associated with applicable units listed in Section 102 shall:

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

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 to walk into the tower. If the drift eliminator cannot be safely inspected monthly then subsection ~~301.3d~~ 301.4d 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 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.

302.2 Opacity may exceed the applicable limits established in subsection 302.1 for up to one hour during the start-up 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 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 of any applicable equipment listed in Section 102 that burns fuel oil alone or in ~~combo~~ combination with any other fuel as either emergency fuel or non-emergency fuel that meets the standards in subsection 301.1 shall use only low sulfur oil. ~~with one exception. Existing supplies in storage of any fuel oil and/or of any used fuel oil with sulfur content greater than 0.05% by weight may be used by the owner or operator until (1.5 years after adoption of rule) for emergency fuel. This usage shall be reported within 24 hours to the Control Officer, verbally along with the dates of usage. A written report shall follow within 48 hrs. of usage which shall include identification of the nature of the emergency and actual and expected dates of usage.~~

304 LIMITATIONS – NITROGEN OXIDES: No owner or operator of any applicable equipment listed in subsection 102.1 that commenced construction or a major modification after May 30, 1972 shall cause to be discharged into the atmosphere nitrogen oxides in excess of the following limits:

304.1 155 ppmv ~~heat input~~, 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 ~~heat input~~ 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.

305 LIMITATIONS – CARBON MONOXIDE: No owner or operator of any equipment listed in Section 102 shall cause to be discharged into the atmosphere carbon monoxide (CO) measured in excess of 400 ppmv at any time. ~~during steady state compliance source testing~~. 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 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 may comply by installing and operating an emission control system (ECS).

306.2 Providing and Maintaining ECS Monitoring Devices: No owner or operator required to use an approved ECS pursuant to this rule shall 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 Operation and Maintenance (O&M) Plan Required For ECS:

a. General Requirements: An owner 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 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 is required to have an O&M Plan pursuant to this rule shall comply with all O&M Plans that the owner 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 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 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 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, the Control Officer may modify the plan in writing prior to approval of the initial O & M plan. An owner or operator shall then comply with the plan that has been modified by the Control Officer.

306.4 Continuous Emission Monitoring Systems (CEMS):

a. An owner or operator of a combustion unit subject to Section 304 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 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 of this rule.

307 EMERGENCY FUEL USE NOTIFICATION: An owner or operator of a unit that ~~uses~~ is fired with emergency fuel ~~that~~ 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 ~~per subsection~~ subsections 104.2 and 212. This verbal report shall be followed by a written report within 48 ~~hrs.~~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 Operation and Maintenance (O&M) Plan**: Any owner or operator employing an approved ECS on the effective date of this rule shall by (insert 8 mos. after rule is adopted) file an O&M Plan with the Control Officer in accordance with subsection 306.3 of this rule.~~

~~**401.2 Modifications to Existing ECS**: Any owner or operator required to modify their ECS equipment or system by either reconstructing or adding on new equipment for compliance with this rule shall by (insert 6 months after rule is adopted) file a schedule for the modification with the Control Officer. The plan shall show how the ECS is to be used to achieve full compliance and shall specify dates for completing increments of progress. Any and all ECS(s) used to achieve such compliance shall be in operation by (insert 30 months after date of adoption of rule).~~

~~**401.3 ECS Installation:** An owner or operator required to install a new ECS to satisfy the requirements of this rule shall file a schedule for the installation of an ECS by (insert 8 months after the rule is adopted). The plan shall show how the ECS is to be used to achieve full compliance and shall specify dates for completing increments of progress. Any and all ECS(s) used to achieve such compliance shall be in operation by (insert 36 months after adoption of rule).~~

~~**401.4 CEMS Installation**: An owner or operator required to install or modify a CEMS to satisfy the requirements of this rule shall file a schedule for the installation or modification of the CEMS by (insert 8 months after the rule is adopted) and complete the installation of the CEMS by (insert 36 months after date of adoption of rule) .~~

SECTION 500 – MONITORING AND RECORDS

501 RECORDKEEPING AND REPORTING: Any owner 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: 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 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 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.

501.4 Fuel Switching: ~~Duration of fuel switch including stop and start times and monthly totals for twelve-month log of hours of operation for testing, reliability, and maintenance purposes per subsection 302.2~~. 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, and a yearly log total of these hours.

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

501.6 Good Combustion Practices: Measurements of the temperature differential across the burners of turbines per subsection ~~301.2~~ 301. 3 a, b, or c, 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 ~~301.2~~ 301.3 a or b without any action by the owner 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 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 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 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.

503.2 **Drift Rate Verification**: An owner 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 ~~ADOPTED~~ INCORPORATED BY REFERENCE**: The EPA test methods as they exist in the Code of Federal Regulations (CFR) (July 1, ~~2001~~ 2004), as listed below, are ~~adopted~~ incorporated by reference in Appendix G of the Maricopa County Air Pollution Control Regulations. ~~These adoptions by reference include no future editions or amendments.~~ Copies of test methods referenced in this Section are available at the Maricopa County ~~Environmental Services~~ Air Quality Department, 1001 N. Central Avenue, Suite 595,Phoenix, AZ 85004-1942. ~~The ASTM methods (1990, 1998 and 2000)~~ and ~~the~~ The Standard Method~~s~~ listed below (1995) ~~are~~ is also ~~adopted~~ incorporated by reference. When more than one test method as listed in subsections ~~504.10~~ 504.11 through ~~504.13~~ 504.14 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 Method 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 Method 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 Method 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). ~~and possibly, if requested by the Control Officer, EPA Reference Method 202 ("Determination of Condensable Particulate Emissions from Stationary Sources") (40 CFR 51, Appendix M).~~

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

~~504.6~~504.7 EPA Reference Method 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).

~~504.7~~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).

~~504.9~~504.10 EPA Reference Method 20 ("Determination of Nitrogen Oxides, Sulfur Dioxide and Diluent Emissions from Stationary Gas Turbines") (40 CFR 60, Appendix A).

~~**504.10**~~**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.

~~**504.11**~~**504.12** American Society of Testing Materials, ASTM Method #D1266-98, ("Standard Test Method for Sulfur in Petroleum Products – Lamp Method"), 1998.

~~**504.12**~~**504.13** American Society of Testing Materials, ASTM Method #D2880-00, ("Standard Specification for Gas Turbine Fuel Oils"), 2000.

~~**504.13**~~**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.

~~**504.14**~~**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.

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REGULATION III – CONTROL OF AIR CONTAMINANTS
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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 ~~and~~.
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** Combustion equipment used in agricultural operations in the growing of crops or the raising of fowl or animals; or~~
~~**103.3**~~**103.2** Dryers, cement and lime kilns; or
~~**103.4**~~**103.3** Direct-fired process heaters; or
~~**103.5**~~**103.4** Medical waste incinerators; or
~~**103.6**~~**103.5** Reciprocating internal combustion equipment; or
~~**103.7**~~**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
~~**103.8**~~**103.7** Combustion equipment ~~used for the generation of nuclear power~~ associated with nuclear power plant operations; or
~~**103.9**~~**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 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 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. 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.

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** **NITROGEN OXIDES (NOx):** Oxides of nitrogen calculated as equivalent nitrogen dioxide.~~

~~**212**~~**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.

~~**213**~~**212** **PARTICULATE MATTER EMISSIONS –** Any and all particulate matter emitted to the ambient air as measured by applicable state and federal test methods.

~~**214**~~**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).

~~**215**~~**214** **PROCESS HEATERS –** 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). Process heaters 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.

~~**216**~~**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.

~~217~~**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.

~~218~~**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 Specification for Fuel Oils".

~~219~~**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.

~~220~~**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.

~~221~~**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.

~~222~~**221** **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.

~~223~~**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 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 ~~heat input~~ from any combustion units listed in subsections 102.1, 102.3 and 102.4 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 of this rule, each time a compliance test for particulate matter emissions to meet the standards in subsection 301.1 of this rule is performed using Method 5. (The results of the Method 202 testing shall be used for emissions inventory purposes).

~~301.2~~**301.3** **Good Combustion Practices for Turbines**: An owner or operator of a stationary gas turbine listed in subsection 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. ~~In lieu of a manufacturer's recommended procedure to ensure good combustion practices, one~~ 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 ~~301.2a~~301.3a 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 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:

~~**303.1**~~ An owner or operator of any applicable equipment listed in Section 102 that burns liquid fuel oil or a mixture or blend of fuel oil with any other fuels shall use only low sulfur oil ~~with one exception:~~. 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%).

~~**303.2** Existing supplies in storage of the fuel with a sulfur content greater than 0.05% by weight may be used by the owner or operator until (insert 1.5 years after adoption of rule) January 2, 2005. This usage shall be reported to the Control Officer along with the dates of usage within 72 hrs. of usage in writing. In the case of continuous or recurring high sulfur fuel use, the notification requirements of this rule shall be satisfied if the source provides the required notification and includes in the notification an estimate of the time for which the high sulfur fuel will be used. High sulfur fuel use that occurs after the estimated time period as originally reported shall require additional notification pursuant to this subsection.~~

304 LIMITATIONS – NITROGEN OXIDES:

304.1 An owner or operator of any combustion equipment listed in Section 102 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:~~ the following procedure:

a. Establish initial optimal baseline concentrations for NOx and CO within 90 days of the first usage of the combustion equipment by testing the unit using EPA Test Method 7 and Method 10 for CO. ~~utilizing the initial design burner specifications or manufacturer's recommendations to ensure good combustion practices.~~ Thereafter measure annually the NOx and CO emissions with a handheld monitor. If the unit does not meet the NOx and CO emissions limits listed in subsection 304.1(b) and Section 305 of this rule, then ~~Tune~~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 NOx 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 NOx 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 ~~heat input~~, 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 ~~heat input~~, 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.

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.

304.1 An owner 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 of this rule and

b. Meet the NOx emission limits as stated in subsection 304.1b of this rule.

305 LIMITATIONS – CARBON MONOXIDE: No owner or operator of any equipment listed in Section 102 of this rule with a heat input greater than 100 MM Btu/hr shall cause to be discharged into the atmosphere, carbon monoxide (CO), measured in excess of 400 ppmv at any time. ~~during steady state source testing.~~. 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 required to use an approved ECS pursuant to this rule shall 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 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 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 is required to have an O&M Plan pursuant to this rule shall comply with all O&M Plans that the owner 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 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 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 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, the Control Officer may modify the plan in writing prior to approval of the initial O&M plan. An owner 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**~~

~~**401.1 Operation and Maintenance (O&M) Plan**: Any owner or operator employing an approved ECS on the effective date of this rule shall by (insert 8 mos. after rule is adopted) March 2, 2004 file an O&M Plan with the Control Officer in accordance with subsection 306.3 of this rule.~~

~~**401.2 Modifications to Existing ECS**: Any owner or operator required to modify their ECS equipment or system by either reconstructing or adding on new equipment for compliance with this rule shall by (insert 8 months after rule is adopted) March 2, 2004 file a schedule for the modification with the Control Officer. The plan shall show how the ECS is to be used to achieve full compliance and shall specify dates for completing increments of progress. Any and all ECS used to achieve such compliance shall be in operation by (insert 24 months date of adoption of rule) July 2, 2005.~~

~~**401.3 ECS Installation**: An owner or operator required to install a new ECS for compliance with this rule shall by (insert 8 months after rule is adopted) March 2, 2004 file a schedule for the installation with the Control Officer. The ECS shall be installed and in compliance by (36 months after adoption of the rule) July 2, 2006.~~

SECTION 500 – MONITORING AND RECORDS

501 RECORDKEEPING AND REPORTING: An owner 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: 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 Emergency Fuel Usage: – ~~Type of emergency fuel used, dates and hours of operation using emergency fuel, nature of the emergency or purpose for the use of emergency fuel as stated in subsections 104.1 and 104.2 of this rule, and monthly totals for twelve-month log of hours of operation in the emergency mode~~. 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 of this rule. 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 ~~301.2,~~ 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 ~~301.2~~ 301.3 (a) or (b) of this rule without any action by the owner 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.

~~501~~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.

~~502~~503 COMPLIANCE DETERMINATION:

503.1 **Low Sulfur Oil Verification:**

a. An owner 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 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 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, ~~504.13~~, 504.14 or 504.15 of this rule.

504 TEST METHODS ~~ADOPTED~~ INCORPORATED BY REFERENCE: The EPA test methods as they exist in the Code of Federal Regulations (CFR) (July 1, ~~2001~~ 2004), as listed below, are ~~adopted~~ incorporated by reference in Appendix G of the Maricopa County Air Pollution Control Regulations. ~~These adoptions by reference include no future editions or amendments.~~ Copies of test methods referenced in this ~~section~~ Section are available at the Maricopa County ~~Environmental Services~~ Air Quality Department, 1001 N. Central Avenue, Phoenix, AZ 85004-1942. ~~The ASTM methods (1990, 1992, 1998 and 2000) are also adopted by~~ reference. When more than one test method as listed in subsections ~~504.10~~ 504.11, 504.12, ~~to~~ ~~504.13~~ 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 Method 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 Method 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 Method 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~~) and possibly, if requested by the Control Officer, EPA Reference Method 202 ("Determination of Condensable Particulate Emissions from Stationary Sources") (40 CFR 51, Appendix M)~~.

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

~~504.6~~504.7 EPA Reference Method 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).

~~**504.7**~~**504.8** EPA Reference Method 9, ("Visual Determination of the Opacity of Emissions from Stationary Sources") (40 CFR 60, Appendix A).

~~**504.8**~~ **504.9** EPA Reference Method 10, ("Determination of Carbon Monoxide from Stationary Sources") (40 CFR 60, Appendix A).

~~**504.9**~~ **504.10** EPA Reference Method 20, ("Determination of Nitrogen Oxides, Sulfur Dioxide, and Diluent Emissions From Stationary Gas Turbines") (40 CFR 60, Appendix A).

~~**504.10**~~**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.

~~**504.11**~~**504.12** American Society of Testing Materials, ASTM Method #~~-~~D1266-98, ("Standard Test Method for Sulfur in Petroleum Products (Lamp Method)"), 1998.

~~**504.12**~~**504.13** American Society of Testing Materials, ASTM Method #~~-~~D2880-00, ("Standard Specification for Gas Turbine Fuel Oils"), 2000.

~~**504.13**~~**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.

REGULATION III – CONTROL OF AIR CONTAMINANTS
RULE 324
STATIONARY INTERNAL COMBUSTION (IC) ENGINES

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MARICOPA COUNTY
AIR POLLUTION CONTROL REGULATIONS
REGULATION III – CONTROL OF AIR CONTAMINANTS
RULE 324
STATIONARY INTERNAL COMBUSTION (IC) ENGINES

SECTION 100 – GENERAL

101 **PURPOSE:** To limit carbon monoxide (CO), nitrogen oxides (NO_x), sulfur oxides (SO_X), volatile organic compounds (VOCs), and particulate matter (PM) emissions from stationary internal combustion (IC) engines~~, including stationary IC engines used in cogeneration~~.

102 **APPLICABILITY:** The provisions of this rule apply to any single existing or new stationary spark or compression-ignited reciprocating IC engine ~~or~~ including stationary IC engines used in cogeneration, with a rating of greater than 250 brake horsepower (bhp). The provisions of this rule also apply to a combination of IC engines each with a rated brake horsepower greater than 50 bhp used at a single source, whose maximum aggregate rated brake horsepower is greater than 250 bhp.

103 **EXEMPTIONS**: The following types of stationary IC engines are exempt from all of the requirements of this rule but shall comply with Rule 300:

103.1 Any rotary engine, including gas turbines, jet engines,

103.2 An IC engine operated as a non-road engine,

~~**103.3** An IC engine used directly and exclusively by the owner and/or operator for agricultural operations necessary for the growing of crops or the raising of fowl or animals,~~

~~**103.4**~~**103.3** A laboratory IC engine used directly and exclusively for engine research including engine development, and subsequent engine performance verification for the purpose of either engine emission control techniques or engine efficiency improvements,

~~**103.5**~~**103.4** A prime engine when it is operated for purposes of performance verification and testing by the owner or operator or by a manufacturer or distributor of such equipment for the purpose of performance verification and testing at the production facility,

~~**103.6**~~**103.5** A compressed gas IC engine used for solar testing and research programs,

~~**103.7**~~**103.6** An IC engine operated as an emergency generator or other equipment at a nuclear power plant that must run for safety reasons and/or operational tests to meet requirements imposed by the Nuclear Regulatory Commission,

~~**103.8**~~**103.7** An IC engine test stand used for evaluating engine performance, and

~~**103.9**~~**103.8** An IC engine used for training purposes as long as the total number of hours of the operation does not exceed 100 hours per calendar year per engine.

104 **PARTIAL EXEMPTIONS FOR EMERGENCY ENGINES**: Any stationary IC engine operated as an emergency engine for any of the following reasons is exempt from all of the provisions of this rule, except for the provisions in Sections 301, 303, and subsections 502.1 and 502.4:

104.1 Used only for power when normal power service fails from the serving utility or if onsite electrical transmission or onsite power generation equipment fails;
104.2 Used only for the emergency pumping of water resulting from a flood, fire, lightning strikes, police action or for any other essential public services which affect the public health and safety;
104.3 Used for lighting airport runways;
104.4 Used for sewage overflow mitigation and/or prevention;
104.5 Used for reliability-related activities such as engine readiness, calibration, or maintenance or to prevent the occurrence of an unsafe condition during electrical system maintenance, as long as the total number of hours of the operation does not exceed 100 hours per calendar year per engine as evidenced by an installed non-resettable hour meter;
104.6 Used as the prime engine when the prime engine has failed, but only for such time as is needed to repair the prime engine; or
104.7 Used to operate standby emergency water pumps for fire control that activate when sensors detect low water pressure.

105 PARTIAL EXEMPTIONS FOR NON-EMERGENCY LOW USAGE PRIME ENGINES: The following non-emergency, low usage, prime engines are exempt from all of the provisions of this rule except for the provisions in Sections 301, 303 and subsections 502.1 and 502.4:
105.1 Each engine rated at or below 1000 bhp that operates less than 200 hours in any 12-consecutive-month period as evidenced by an installed non-resettable hour meter, and
105.2 Each engine rated above 1000 bhp that operates less than 100 hours in any 12-consecutive month period as evidenced by an installed non-resettable hour meter.

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.

201 AFTERCOOLER / INTERCOOLER– A system that cools the engine intake air or air/fuel mixture after the air exits the turbocharger and prior to the introduction into the cylinder, thereby lowering NOx emissions.

202 COGENERATION UNIT– Internal combustion engine unit that burns fuel to simultaneously produce electricity and heat in a single thermodynamic process and is usually located in close proximity to the equipment requiring the heat energy.

203 COMPRESSION – IGNITION ENGINE – A reciprocating internal combustion engine with operating characteristics wherein the principal mechanism of igniting the fuel and air mixture in the cylinders is the compression of air in the cylinder until it is so hot that any fuel injected into the air or mixed with the air ignites. In this type of engine, a separate ignition source, such as a spark plug, is not used.

204 DIESEL ENGINE – A type of compression- ignited IC engine.

205 EMERGENCY ENGINE– Any stationary standby IC engine whose sole function is to provide back-up power when electric power from the local utility is interrupted or when operated solely for any of the reasons listed in Section 104. An emergency engine, for the purposes of this rule, shall not be used to supply standby power due to a voluntary reduction in power by a utility or power company, supply power for distribution or sale to the grid, or supply power at a source in order to avoid peak demand charges or high electric energy prices during on-peak price periods and shall not exceed 500 hours of operation, as evidenced by an installed non-resettable hour meter, including the 100 hours listed in subsection 104.5.

206 ENGINE FAMILY – A group of engines with similar design features such as fuel type, cooling medium, method of air aspiration, combustion chamber design including cylinder bore and stroke, exhaust aftertreatment (if any), method of fuel admission, and method of control. These engines are also expected to have similar emission and operating characteristics throughout their useful lives.

207 EQUIVALENT REPLACEMENT ENGINE – An engine that is substituted for a stationary IC engine that is intended to perform the same or similar function as the original engine and where all of the following conditions exist:
207.1 The replacement engine results in equal or lower air contaminant emissions than the existing engine;
207.2 The replacement engine meets the emission control technology standards contained in either Table 1 or Table 2 of this rule, and
207.3 The rated bhp of the replacement engine does not exceed the rated bhp of the existing engine (or sum of existing engines) by more than 20 percent. For every percentage point increase of the rated brake horsepower, there shall be an associated decrease in emissions of nitrogen oxides, expressed as a mass per unit time, equal to or exceeding two percentage points.

208 **EXISTING ENGINE –** An engine that commenced operation prior to October 22, 2003 or an engine on which the construction or modification has commenced prior to October 22, 2003, including the contractual obligation to undertake and complete an order for an engine.

209 **IDENTICAL REPLACEMENT ENGINE -**An engine that is substituted for an existing stationary IC engine that has the same manufacturer type, model number, manufacturer's maximum rated capacity, bhp, and that is intended to perform the same or similar function as the original stationary IC engine that it replaces and has equal or lower emissions or meets the emission control technology requirements in Section 304, Table 1, 2, or 3.

210 **INTERNAL COMBUSTION (IC) ENGINE, NONROAD**

210.1 Any IC engine:

a. In or on a piece of equipment that is self-propelled or serves a dual purpose by both propelling itself and performing another function (such as garden tractors, off-highway mobile cranes and bulldozers);

b. In or on a piece of equipment that is intended to be propelled while performing its function (such as lawnmowers and string trimmers); or

c. That, by itself or in or on a piece of equipment, is portable or transportable, meaning designed to be and capable of being carried or moved from one location to another. Indicia of transportability include but are not limited to, wheels, skids, carrying handles, dollies, trailers, or platforms.

210.2 An internal combustion engine is not a nonroad engine if:

a. The engine is used to propel a motor vehicle or a vehicle used solely for competition, or is subject to standards promulgated under Section 202 of the Clean Air Act;

b. The engine is regulated by a federal New Source Performance Standard promulgated under Section 111 of the Clean Air Act;

c. The engine otherwise included in paragraph (c) above of this definition remains or will remain at a location for more than 12 consecutive months or a shorter period of time for an engine located at a seasonal source. A location is any single site at a building, structure, facility, or installation. Any engine (or engines) that replaces an engine at a location and that is intended to perform the same or similar function as the engine replaced will be included in calculating the consecutive time period. An engine located at a seasonal source is an engine that remains at a seasonal source during the full annual operating period of the seasonal source. A seasonal source is a stationary source that remains in a single location on a permanent basis (i.e. at least two years) and that operates at that single location approximately three months (or more) each year. This paragraph does not apply to an engine after the engine is removed from the location.

211 **INTERNAL COMBUSTION (IC) ENGINE, STATIONARY –** Any reciprocating, piston-driven IC engine that is operated or intended to be operated at one specific location for more than 12 consecutive months or that is attached to a foundation at the location. Any engine that replaces an engine at a location and is intended to perform the same or similar function as the engine being replaced will be included in calculating the consecutive time period. A stationary IC engine is not a non-road engine.

212 **LEAN-BURN ENGINE** – A spark-ignited engine with an air-to-fuel operating range that has more air present than is needed to burn the fuel present and cannot be adjusted to operate with an exhaust oxygen concentration of less than or equal to 2 %.

213 **LOCATION –** Any single site at a building, structure, facility or installation.

214 **LOW SULFUR OIL** – Fuel oil containing less than or equal to 0.05 % sulfur by weight.

215 **NEW ENGINE -**An engine that is not an existing engine.

~~**216** **NITROGEN OXIDES (NOx)** – Oxides of nitrogen calculated as equivalent nitrogen dioxide.~~

~~**217**~~**216** **PART(S) PER MILLION, DRY VOLUME (ppmdv) –** A unit of proportion equal to 10^{-6} that is measured on a dry basis (minus water) at 15% oxygen.

~~**218**~~**217** **PRIME ENGINE** – A principal or main use engine that is dedicated to a process or processes for the purpose of supplying primary mechanical or electrical power as opposed to an emergency engine.

~~**219**~~**218** **RATED BRAKE HORSEPOWER –** The maximum brake horsepower (bhp) specified by the engine manufacturer for the engine application, usually listed on the nameplate of the engine. If the engine has been altered so that the maximum brake horsepower is different than the rated brake horsepower on the nameplate, then the maximum brake horsepower shall be considered the rated brake horsepower.

~~**220**~~**219** **RICH-BURN ENGINE –** Any spark-ignited IC engine that is not a lean-burn engine.

~~**221**~~**220** **SPARK-IGNITION ENGINE** – An IC engine wherein the fuel is usually mixed with intake air before introduction into the combustion chamber resulting in a relatively homogeneous air/fuel mixture in the combustion chamber, at which time a spark plug then ignites the air/fuel mixture.

~~**222**~~**221** **SULFUR OXIDES (SOx) –** Oxides of sulfur calculated as equivalent sulfur dioxide.

~~223~~222 **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.

SECTION 300 – STANDARDS:

301 LIMITATIONS FOR NEW AND EXISTING STATIONARY IC ENGINES: An owner or operator of any engine that meets the criteria listed in Section 102 shall comply with either of the following:

301.1 Use any fuel that contains no more than 0.05% sulfur by weight, alone or in combination with other fuels. ~~, with the following exception: Existing supplies in storage as of October 23, 2003 of any fuel containing greater than 0.05% of sulfur by weight may be used by the owner or operator until April 22, 2005. This usage shall be reported to the Control Officer along with the dates of usage.~~

301.2 ~~Obtain prior approval from the Control Officer as a provision in individual permits when using any waste derived fuel gas that contains sulfur in a concentration greater than 0.05% sulfur by weight.~~ Use any waste derived fuel gas that contains no more than 0.08% sulfur by weight, alone or in combination with other fuels.

302 GOOD COMBUSTION PRACTICES / TUNING PROCEDURE: An owner or operator shall conduct preventative maintenance or tuning procedures recommended by the engine manufacturer to ensure good combustion practices to minimize NOx emissions. A handheld monitor may be used if so desired by the owner or operator for measurement of NOx, CO, and concentrations in the effluent stream after each adjustment is made. This may assist in determining that the proper adjustment has been made to ensure NOx and CO minimization. In lieu of a manufacturer's procedure, a different procedure specified by any other maintenance guideline may be used as a default procedure. The tuning procedure shall include all of the following, if so equipped, and appropriate to the type of engine.

302.1 Lubricating Oil and Filter: change once every three months or after no more than 300 hours of operation, whichever occurs last;

302.2 Inlet Air Filter: clean once every three months or after no more than 300 hours of operation and replace every 1,000 hours of operation or every year, whichever occurs last;

302.3 Fuel Filter: clean once every year or replace (if cartridge type) once every 1,000 hours of operation, whichever occurs last;

302.4 Check and adjust the following once every year or after no more than 1,000 hours of operation, whichever occurs last:

- **a.** intake and exhaust valves
- **b.** spark plugs (if so equipped)
- **c.** spark timing and dwell or fuel injection timing (if adjustable), and
- **d.** carburetor mixture (if adjustable).

302.5 Spark Plugs and Ignition Points: replace after 3,000 hours of operation or every year whichever occurs last;

302.6 Coolant: change after 3,000 hours of operation or every year whichever occurs last; and

302.7 Exhaust System: check for leaks and/or restrictions after 3,000 hours of operation or every year whichever occurs last.

303 LIMITATIONS – OPACITY: No owner or operator shall discharge into the ambient air from any single source of emissions any air contaminant, other than uncombined water, in excess of 20% opacity.

304 ADDITIONAL LIMITATIONS FOR PRIME ENGINES > 250 RATED bhp: In addition to meeting the standards in Sections 301, 302, and 303, each existing or new prime engine greater than 250 rated bhp that is not listed in Sections 103, 104, or 105, shall comply with the emission limits or control technology requirements listed in Section 304, Table 1, 2, or 3, dependent upon the type of engine.

TABLE 1. NOx EMISSION LIMITS OR CONTROL TECHNOLOGY REQUIREMENTS FOR EXISTING COMPRESSION-IGNITION ENGINES > 250 bhp

RATED BRAKE HORSEPOWER (bhp)	ENGINE REQUIREMENTS
250-399	770 ppmdv or 10 g/bhp-hr.NOx or turbocharger with aftercooler/intercooler or 4-degree injection timing retard
400 plus	550 ppmdv or 7.2 g/bhp-hr.NOx or turbocharger with aftercooler/intercooler or 4-degree injection timing retard

TABLE 2. EMISSION LIMITS OR CONTROL TECHNOLOGY REQUIREMENTS FOR EXISTING APPLICABLE SPARK- IGNITION ENGINES > 250 RATED bhp

OXIDES OF NITROGEN (NOx)	VOLATILE ORGANIC COMPOUNDS (VOC)	CARBON MONOXIDE (CO)
280 ppmdv or 4.0 b/bhp-hr or three-way catalyst *	800 ppmdv or 5.0 g/bhp-hr or three-way catalyst *	4,500 ppmdv or three-way catalyst *

* The three-way catalyst shall provide a minimum of 80% control efficiency for NOx and CO for those engines fueled with natural gas, propane or gasoline. In addition the three-way catalyst shall also provide a minimum of at least 50% control efficiency for VOC for those engines fueled by gasoline.

TABLE 3. EMISSION LIMITS FOR NEW SPARK OR COMPRESSION-IGNITION ENGINES > 250bhp

ENGINE TYPE	NOx	PM*	CO
LEAN BURN (SPARK)	110 ppmdv or 1.5 g/bhp-hr.	Not Applicable	4,500 ppmdv
RICH BURN (SPARK)	20 ppmdv or 0.30 g/bhp-hr.	Not Applicable	4,500 ppmdv
COMPRESSION	530 ppmdv or 6.9 g/bhp-hr.	0.40 g/bhp-hr	1,000 ppmdv

* A backhalf analysis shall be performed using reference Method 202 (referenced in subsection 504.6) each time a compliance test for particulate matter emissions to meet the limitations listed in Table 3 is performed using Method 5. The results of the Method 202 testing shall be used for emissions inventory purposes.

305 EFFICIENCY ALLOWANCE: Each emission limit expressed in Tables 1, 2 or 3 may be multiplied by X, where X equals the engine efficiency (E) divided by a reference efficiency of 30 percent. Engine efficiency shall be determined by one of the following methods whichever is higher:

a. **E = (Engine Output) × (100) ÷ (Energy Input)**
where energy input is determined by a fuel measuring device accurate to +/- 5 % and is based upon the higher heating value (HHV) of the fuel. Percent efficiency (E) shall be averaged over 15 consecutive minutes and measured at peak load for the applicable engine.

b. **E = (Manufacturer's Rated Efficiency [Continuous] at (LHV) × (LHV) ÷ (HHV)**
where LHV = the lower heating value of the fuel. Engine efficiency (E) shall not be less than 30 percent; an engine with an efficiency lower than 30 percent shall be assigned an efficiency of 30 percent for the purposes of this rule.

306 EQUIVALENT OR IDENTICAL ENGINE REPLACEMENT: An equivalent or identical replacement engine that replaces an existing engine shall be treated as an existing engine for the purposes of compliance with this rule, unless the engine commenced operation or was constructed or modified after October 22, 2003, including the contractual obligation to undertake and complete an order for an engine and then it will be considered a new engine for purposes of meeting the standards for a new engine in this rule.

SECTION 400 – ADMINISTRATIVE REQUIREMENTS

401 COMPLIANCE SCHEDULE:

~~**401.1** An owner or operator of an existing or new stationary IC engine that becomes subject to any of the emission limits listed in Section 300 of this rule and that does not need modification or add-on controls to meet these emission standards shall be in compliance by April 22, 2004.~~

~~**401.2** An owner or operator of an existing stationary IC engine that must be rebuilt, modified, or retrofitted with add-on control equipment to meet emission limits listed in Section 300 of this rule shall submit a compliance plan for such unit by October 22, 2004 and shall be operating in full compliance by October 22, 2006.~~

~~**401.3**~~**401.1** An owner or operator of an existing stationary IC engine that must be replaced with a new engine to meet emission limits listed in Section 300 ~~and~~ shall be in compliance with the emission limits listed in Section 304, Table 3 by October 22, 2007.

SECTION 500 – MONITORING AND RECORDS

501 COMPLIANCE DETERMINATION:

501.1 Existing Engines: Existing IC engines or engine families shall demonstrate compliance with Section 300 by recordkeeping according to Section 502. Emission testing using the applicable test methods listed in Section 503 shall be performed if the Control Officer requests.

501.2 Existing Engine Families at a Source: When testing an engine family at one source, the number of engines tested should be the greater of either one engine or one third of all identical engines in the group. If any of the representative engines exceed the emission limits, each engine in the group shall demonstrate compliance by emissions testing.

501.3 **New Engines / New Engine Families:** Compliance with the limitations listed in Section 304, Table 3 shall be demonstrated by either:

a. A statement from the manufacturer that the engine meets the most stringent emissions standards found in 40 CFR Part 89 or 90 applicable to the engine and its model year at the time of manufacture or

b. Performance of emission testing using the test methods listed in Section 503.

501.4 **Low Sulfur Oil Verification:** If the Control Officer requests proof of the sulfur content, the owner or operator shall submit fuel receipts, contract specifications, pipeline meter tickets, Material Safety Data Sheets (MSDS), fuel supplier information or purchase records, if applicable, from the fuel supplier, indicating the sulfur content of the fuel oil. In lieu of these, testing of the fuel oil for sulfur content to meet the 0.05% limit shall be permitted if so desired by the owner or operator for evidence of compliance.

501.5 **Waste–Derived Fuel Sulfur Verification:** The owner or operator shall submit documentation of the concentration of the sulfur level of the waste- derived fuel to the Control Officer.

501.6 **Test Method Conditions:** The owner or operator shall use the test methods listed in Section 503 to determine compliance with the limitations in Section 304, Tables 1-3. Testing for stationary IC engines shall be completed under steady state conditions at either the maximum operating load or no less than 80% of the rated brake horsepower rating. If the owner or operator of an engine demonstrates to the Control Officer that the engine cannot operate at these conditions, then emissions source testing shall be performed at the highest achievable continuous brake horsepower rating or under the typical duty cycle or typical operational mode of the engine.

502 **RECORDKEEPING / RECORDS RETENTION:** The owner or operator of any stationary IC engine subject to this rule shall comply with the following requirements and keep records for a period of 5 years:

502.1 An owner or operator of any IC engine, including emergency engines, prime engines and low usage engines, shall keep a record that includes an initial one time entry that lists the particular engine combustion type (compression or spark-ignition or rich or lean burn); manufacturer; model designation, rated brake horsepower, serial number and where the engine is located on the site.

502.2 An owner or operator of a prime engine shall maintain a monthly record for prime engines which shall include:

1. Hours of operation;

2. Type of fuel used, and

3. Documentation verifying compliance with sulfur fuel content according to subsection ~~103~~ 301.1.

502.3 An owner or operator of a prime engine shall maintain an annual record of good combustion procedures according to Section 302.

502.4 An owner or operator of an emergency engine and a non-emergency low-usage engine that meets the exemptions listed in Sections 104 and 105 shall keep an ~~annual~~ engine record that includes:

1. Monthly rolling twelve month total ~~record~~ of ~~Hours~~ hours of operation, including hours of operation for testing, reliability and maintenance; and

2. Fuel type and sulfur content of fuel; and

3. Explanation for the use of the engine if it is used as an emergency engine.

503 **TEST METHODS ~~ADOPTED~~ INCORPORATED BY REFERENCE**: The Environmental Protection Agency (EPA) test methods as they exist in the Code of Federal Regulations (CFR) (July 1, ~~2002~~ 2004) and the American Society of Testing Materials International Methods as listed below, are ~~adopted~~ incorporated by reference in Appendix G of the Maricopa County Rules and Regulations. The ~~American Society of Testing Materials International (ASTM International) methods listed below are also adopted by reference, each having paired with it a specific date(s) that identifies the particular version/revision of the method that is adopted by reference. These adoptions by reference include no future editions or amendments~~. When more than one test method is permitted for the same determination, as listed in subsections ~~503.11,~~ 503.12, 503.13, ~~or~~ 503.14, or 503.15, an exceedance of the limits established in this rule determined by any of the applicable test methods constitutes a violation. Copies of test methods referenced in this section of this rule are available at the Maricopa County Environmental Services Department, 1001 North Central Avenue, Suite 201, Phoenix, Arizona, 85004 -1942.

503.1 EPA Reference Method 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).

503.2 EPA Reference Method 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).

503.3 EPA Reference Method 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).

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

503.5 EPA Reference Method 5 ("Determination of Particulate Emissions from Stationary Sources") (40 CFR 60, Appendix A) ~~and possibly, if requested by the Control Officer, EPA Reference Method 202 ("Determination of Condensable Particulate Emissions from Stationary Sources") (40 CFR 51, Appendix M).~~

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

~~**503.6**~~**503.7** EPA Reference Method 7 ("Determination of Nitrogen Oxide Emissions from Stationary Sources"), 7A ("Determination of Nitrogen Oxide Emissions form Stationary Sources – Ion chromatographic method"), 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).

~~**503.7**~~**503.8** EPA Reference Method 9 ("Visual Determination of the Opacity of Emissions from Stationary Sources") (40 CFR 60, Appendix A).

~~**503.8**~~**503.9** EPA Reference Method 10 ("Determination of Carbon Monoxide from Stationary Sources") (40 CFR 60, Appendix A).

~~**503.9**~~**503.10** EPA Reference Method 18 ("Measurement of Gaseous Organic Compound Emissions by Gas Chromatography") (40 CFR 60, Appendix A).

~~**503.10**~~**503.11** EPA Reference Method 25A ("Determination of Total Gaseous Organic Concentration Using a Flame Ionization Analyzer") (40 CFR 60, Appendix A).

~~**503.11**~~**503.12** American Society of Testing Materials International, ASTM Method #D1266-98 ("Standard Test Method for Sulfur in Petroleum Products (Lamp Method)"), 1998.

~~**503.12**~~**503.13** American Society of Testing Materials International, ASTM Method #D2622-98 ("Standard Test Method for Sulfur in Petroleum Products by Wavelength Dispersive X-Ray Fluorescence Spectrometry"), 1998.

~~**503.13**~~**503.14** American Society of Testing Materials International, ASTM Method #D2880-71, 78 or 96 ("Standard Specification for Gas Turbine Fuel Oils"), 1971 or 1978 or 1996.

~~**503.14**~~**503.15** American Society of Testing Materials International, ASTM Method #D4294-98 ("Standard Test Method for Sulfur in Petroleum Products by Energy-Dispersive X-Ray Fluorescence Spectroscopy") 1990 or 1998.

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

NOTICE OF RULEMAKING DOCKET OPENING

MARICOPA COUNTY AIR QUALITY DEPARTMENT

[M07-629]

1. Title and its heading: Maricopa County Air Pollution Control Regulations
Rule and its heading: Rule 351, Loading and Unloading of Organic Liquids Including Gasoline

2. The subject matter of the proposed rule:
Rule 351 applies to the loading and unloading of organic liquids including gasoline and other petroleum fuels with a true vapor pressure of 1.25 psia or greater. The proposed amendments to the rule will include new standards for loading and unloading and expanded definitions.

3. A citation to all published notices relating to this proceeding:
None

4. The name and address of department personnel with whom persons may communicate regarding the proposed rule(s):

Name:	Patricia P. Nelson
Address:	1001 N. Central Ave., Suite 595 Phoenix, AZ 85004
Telephone:	(602) 506-6709
Fax:	(602) 506-6179
E-mail:	pnelson@mail.maricopa.gov

5. The time during which the department will accept written comments and the time and place where oral comments may be made:

To be announced in the Notice of Proposed Rulemaking

6. A timetable for department decisions or other action on the proceeding, if known:

To be announced in the Notice of Proposed Rulemaking