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

Because each county writes rules and regulations in its own unique style, County Notices published in the *Register* do not conform to the standards of the *Arizona Rulemaking Manual*. With the exception of minor formatting changes, the rules (including subsection labeling, spelling, grammar, and punctuation) are reproduced as submitted.

NOTICE OF FINAL RULEMAKING

MARICOPA COUNTY AIR POLLUTION CONTROL REGULATIONS

RULE 311 - PARTICULATE MATTER FROM PROCESS INDUSTRIES

RULE 320 – ODORS AND GASEOUS CONTAMINANTS

RULE 322 – POWER PLANT OPERATIONS

RULE 323 – FUEL BURNING EQUIPMENT FROM INDUSTRIAL / COMMERCIAL / INSTITUTIONAL SOURCES

PREAMBLE

1. Rules Affected — **Rulemaking Action**

Rule 311	Amend
Rule 320	Amend
Rule 322	New Rule
Rule 323	New Rule

2. Statutory authority for the rulemaking:

Authorizing statutes: Arizona Revised Statutes (A.R.S.) § 49-112(A) and § 49-479

Implementing statutes: Arizona Revised Statutes (A.R.S.) § 49-479

3. The effective date of the rules:

Date of Adoption: July 3, 2003

4. List of all previous notices appearing in the Register addressing the final rule:

Notice of Rulemaking Docket Opening: 8 A.A.R. 4108, September 27, 2002

Notice of Proposed Rulemaking: 8 A.A.R. 4697, November 8, 2002

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

Name: Patricia P. Nelson or Jo Crumbaker, Air Quality Division

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Phoenix, AZ 85004

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E-Mail Address: pnelson@mail.maricopa.gov or jcrumbak@mail.maricopa.gov.

6. An explanation of the rule, including the department's reasons for initiating the rule:

Historically the Maricopa County Rules and Regulations have not contained a source specific rule to address fuel burning equipment from power plant operations or equipment from industrial, commercial or institutional (ICI) sources. Existing Rule 320, Odors and Gaseous Contaminants, contains a clause that addresses nitrogen oxide (NOx) and sulfur oxide (SOx) standards from only one type of power plants - steam plants. EPA had a State Implementation Plan (SIP) approvability issue with the SOx provisions in the existing version of Rule 320 because the ambient air SOx limits were eliminated from the rule in the mid 1970s. Also the carbon monoxide (CO) standard in existing Rule 320 was limited to a general statement which said that CO shall be controlled by means of secondary combustion. EPA has also informed Maricopa County that existing Rule 311 is not Best Available Control Technology (BACT) for particulate matter with a nominal aerodynamic diameter smaller than or equal to 10 microns (PM 10) for major sources of fuel burning equipment.

Maricopa County is correcting these deficiencies in both existing Rules 311 and 320 by adopting two additional new rules which combine the emission limitations from two different sources of fuel burning equipment: power plant operations (Rule 322) and industrial/commercial/institutional (ICI) Sources (Rule 323). Maricopa County is protect-

ing the National Ambient Air Quality Standards (NAAQS) for carbon monoxide, ozone and particulate matter by adopting this rule package as well as protecting the NAAQS for SOx by reducing the maximum allowable sulfur content in the fuels. By adopting Rules 322 and 323, Maricopa County will require the implementation of Best Available Control Technology (BACT).

Section-by-Section Explanation for the Amended or Proposed Rules

Rule 311

Section 102 – This change amends and clarifies the applicability clause.

Section 303 – This change amends the portland cement plant provisions to reflect New Source Performance Standards (NSPS).

Section 304 – This change repeals the particulate standard that uses a formula based upon the heat rating of heat burning equipment.

Section 307 – This change repeals the exemption for portland cement plants with process weights in excess of 250,000lb/hr.

Section 503 - This change amends the records retention time requirements to reflect the current Maricopa County standard retention time requirements of five years instead of three years.

Section 504 – This change amends current language to reflect the updated language that Maricopa County now uses in its rules to adopt test methods by reference.

Rule 320

Section 201 - This change repeals the definition of fossil fuel fired steam generator because the term is not included in the text of current Rule 320.

Sections 202 and 203 - These changes amends the definition of high and low sulfur oil by redefining the qualifier of 0.9% sulfur in the current rule to reflect a lower percentage of 0.05% in the new rule.

Section 305 - This change amends the limit on SOx and sulfuric acid mist from sulfuric acid plants because there are no longer any sulfuric acid plants in Maricopa County.

Subsections 306.1-306.3 - This change repeals the limitations on SOx from electrical power plants because these limitations are addressed in new Rule 322.

Subsection 306.4 - This change amends the word “Bureau” and replaces it with Control Officer since the Maricopa County Air Quality Agency is no longer called a Bureau.

Section 307 - This change strikes the word “other” from the text.

Section 308 - This change repeals the limitations on NOx from electrical power plants because they are addressed in the new Rule 322.

Section 310 - This change repeals the general limitation on CO because CO limitations are addressed in new Rules 322 and 323.

Section 311 - This change repeals the exemptions on sulfuric acid plants because the section addressing sulfuric acid plants in section 305 is repealed from the current rule.

Rule 322

Maricopa County regulates existing combustion equipment at power plants for which construction commenced prior to May 1996 with new Rule 322. The rule applies to electric utility steam generating units and co-generation units that have a heat input of equal to or greater than 100 MM Btu/hour and stationary turbines with a heat input at peak load of equal to or greater than 10 MM Btu/hour. Another condition of applicability is that these units must also supply more than 1/3 of their potential electric output capacity to a power distribution system for sale. The rule sets limitations for NOx and CO in Section 300 by replacing the standards that are repealed in current Rule 320. It uses the same year, 1972, that triggers applicability for compliance with the NOx standard in Rule 320. These combustion units are now grandfathered under new Rule 322.

There are partial exemptions in Rule 322 from meeting NOx and CO standards for stationary gas turbines. These include turbines used for firefighting or flood control, used in the military at training facilities and engaged by manufacturers in research and development for testing purposes. There are identical partial exemptions for gas fired combustion equipment fired with an emergency fuel that is normally fired with gas and for 36 hours per year per unit when burning emergency fuel for testing, reliability and maintenance purposes.

The existing 6 power plants in Maricopa County that are affected by this rule produced a total of 435 tons of PM10 and 63 tons of SOx per year according to the Maricopa County 2001 inventory. Rule 322 now sets BACT for PM by

mandating the use of natural gas as the fuel or any other fuel option that meets a particulate matter standard of 0.007 lbs/ MM Btu except when burning emergency fuel. Particulate emissions depend upon the grade and sulfur content of the fuel. Heavier oils with higher ash and sulfur levels produce higher particulate matter emissions. Lighter oils have lower viscosities, which allow better atomization, and the result is more complete combustion and less unburned fuel emitted as particulate. Rule 322 requires the use of low sulfur fuel (< 0.05% sulfur by weight). The empirical correlation between particulate matter and oil sulfur content suggests a quantitative basis for curbing particulate emissions through fuel switching. Reducing the sulfur in fuel to a maximum sulfur content of 0.05% aids in the reduction of both PM and SOx. Rule 322 mandates the use of fuels that meet a particulate standard of 0.007 lbs/ MM Btu. Thus the county limits the types of fuels that can be used to either natural gas or a fuel equivalent to natural gas in emission rate. This measure results in not only a lower particulate emission rate but also a lower SOx emission rate.

Rule 322 also requires the testing of temperature differential across the back of the burners in turbines to ensure good combustion practices. If the manufacturer recommends that the maximum temperature required to ensure good combustion is a different temperature, then proof of this alternative temperature differential shall be submitted to the Control Officer.

Rule 322 also addresses PM emissions from cooling towers by establishing a maximum numerical limit of 20 which is a dimensionless number representing a combination of variables and defined as the total dissolved solids (TDS) of water used in the cooling tower by the percentage of drift rate from cooling towers. This approach, using both parameters in a formula to estimate PM emissions, offers operational flexibility.

Opacity is limited to 20% except for during fuel switching. Fuel switching is limited to a 40% maximum for any six (6) minute averaging period not to exceed 1 hour. Fuel switching is now only allowed under emergency conditions. Fuel switching under emergency conditions often causes more combustion irregularities than planned fuel switching. A justification for this exemption, prepared by the local power plants, has been submitted to EPA according to the EPA memorandum of August 1999 entitled *State Implementation Plans (SIPS): Policy Regarding Excess Emissions During Malfunctions, Startup and Shutdown* submitted by Steven Herman and Robert Perciasepe.

In conclusion, Rules 322 and 323 include both the 1990 and the 1998 versions of the ASTM test method, "Standard Test Method for Sulfur in Petroleum and Petroleum Products by Energy Dispersive X-Ray Fluoresence Spectrometry." Since power plants are already subject to the Acid Rain regulations in 40 CFR Part 75 that reference the 1990 version, Maricopa County decided to include the older versions of the test method in the rules along with the newer version to allow sources the choice of using either method.

Rule 323

New Rule 323 addresses fuel burning equipment at ICI sources which includes boilers, cogeneration units, and indirect-fired process heaters with a heat input of greater than 10 MM Btu/hour. The rule addresses stationary gas turbines with a heat input at peak load greater than 2.9 megawatts. Standards include use of low sulfur oil (max 0.05% sulfur by weight), limits on CO and NOx, and recordkeeping provisions to tune the equipment every 6 months if the heat input is greater than 100 MM Btu/hr.

Rule 323 requires the use of low sulfur fuel (< 0.05% sulfur by weight). The empirical correlation between particulate matter and oil sulfur content suggests a quantitative basis for curbing particulate emissions through fuel switching. Reducing the sulfur in fuel to a maximum sulfur content of 0.05% aids in the reduction of both PM and SOx.

Exemptions in Rule 323 include direct-fired process heaters, reciprocating internal combustion equipment, combustion equipment associated with nuclear power plant operations, and combustion equipment which supplies greater than 1/3 of the electricity that the equipment generates to any utility power distribution system for sale. Partial exemptions for turbines includes turbines used in fire fighting and flood control and military training facilities. Also exempted are steam generators normally fired with natural gas that are fired with an emergency fuel instead. Additionally there are exemptions for reliability and maintenance testing purposes up to 36 hrs. per unit per year. Rule 323 applies to the combustion equipment that is no longer regulated by Rules 320 and 311 because these sections relating to combustion are repealed. Maricopa County allows a source the option of meeting the NOx numerical standards in the rule or following a tune-up procedure in subsection 304.1 for combustion equipment with a heat input of greater than 10MM Btu/hr to 100 MM Btu/hr. This tuning procedure was fully approved by EPA for New Jersey, N.J.A.C. 7:27.19 (New Jersey Administrative Code). As a rule, a minimum of annual boiler tune-ups does minimize unburned carbon emissions from boilers. Tuning boilers to operate at low excess oxygen levels is a common method of limiting NOx emissions and increasing boiler efficiency. Care in the tuning process ensures than an appropriate excess oxygen level is chosen to minimize particulate emissions and opacity without sacrificing low NOx emissions.

Emissions from oil-fired process heaters depend upon the grade and sulfur content of the oil fired if the process heater is fired with oil. Over 90 percent of process heaters in the U.S. already burn natural gas or refinery gas as reported by a State And Territorial Air Pollution Administrators/Association Of Local And Air Pollution Control Officials (STAPPA/ALAPCO) document entitled *Controlling Particulate Matter Under the Clean Air Act: A Menu of Option* from July 1996. Therefore there are minimal costs to owners/operators using process heaters fired with natural gas because they are already using natural gas.

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 311 and 320 and adoption of new Rules 322 and 323 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:

Controlling Particulate Matter Under The Clean Air Act: A Menu Of Options, July 1996,

State And Territorial Air Pollution Program Administrators / Association of Local Air

Pollution Control Officials (STAPPA/ALAPCO).

This document may be reviewed at Maricopa County Environmental Services Department 1001 North Central Ave. Suite 695, Phoenix, Arizona 85004.

This document may be obtained from STAPPA/ALAPCO, 444 North Capitol Street, NW, Suite 307, Washington, DC 20001 (telephone 202/624/7864; fax 202/624/7863).

EPA memorandum of September 20, 1999 entitled *State Implementation Plans (SIPS): Policy Regarding Excess Emissions During Malfunctions, Startup and Shutdown* submitted by Steven Herman and Robert Perciasepe.

This document may also be reviewed at Maricopa County Environmental Services Department 1001 North Central Ave. Suite 695, Phoenix, Arizona 85004. It may be obtained from the EPA Office of Air and Radiation and the EPA office of Enforcement and Compliance Assurance.

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

Maricopa County is amending current Rule 311 by deleting the fuel burning sections and is amending current Rule 320 by removing certain outdated standards that apply to NOx, SOx and CO emitted from combustion equipment at power plants and ICI sources and replacing these standards with new Rules 322 and 323. Both Rules 322 and 323 are source-specific rules.

Maricopa County Costs:

Costs to Maricopa County Air Quality Division are those that accrue for implementation and enforcement of the new standards. Although there are expected to be some small incremental costs due to this rulemaking such as administrative tasks, distribution costs, and education of inspectors, Maricopa County does not intend to hire any additional employees to implement or enforce these rules.

Rules 311 and 320 Costs:

There are expected to be no additional costs to any agency or stakeholder anticipated from the repealing of certain sections from Rules 311 and 320.

Rule 322 Costs:

Rule 322 affects existing power plants in Maricopa County. All of the boilers at these existing plants were constructed before May of 1972, the date when the NOx standards became applicable in current Rule 320 Therefore there will be no additional costs to the existing power plants from complying with the same NOx emission standards in Rule 322 because they are already in compliance. The 2001 emissions inventory reflects a total of 435 tons of PM10 emitted from the 6 existing power plants in Maricopa County and a total of 63 tons of SOx. per year The strategy for lowering PM emissions from combustion units by mandating use of natural gas is one of the least costly strategies that exists because switching to different fuels is almost always possible at many units without equipment modifications. Switching from other fuels to natural gas requires that natural gas be available onsite. Natural gas already is available to the power plants via pipeline so there are no additional costs for delivery needs. In fact the utilities already are using natural gas. Natural gas (as of October 2002 /year to date) used by electric utilities reflects an average cost of $4.85/ MM Btu from the Department of Energy (DOE) Energy Information Administration (EIA) web site. The same site shows the average cost of low sulfur fuel oils delivered to electric utilities in the Western region to be $4.67/ MM Btu. Currently according to Oil Prices Information Services (OPIS), the costs of low versus high sulfur oil is very minimal – less than one cent per gallon. Of course many scenarios affect oil and gas prices such as: energy policies of

countries, crises in world economies, demographics, transportation costs, turbulence and military threats in the Middle East, supply and demand ratios, and temporary refinery shutdowns due to natural disasters such as hurricanes or floods. Thus while currently the prices of fuel oil are cheaper than the price of gas, the County realizes that prices are volatile and will fluctuate.

An added benefit of using natural gas is that natural gas usage lowers maintenance costs as compared to the usage of fuel oil because natural gas is cleaner than fuel oil. Another drawback to using fuel oil is that the presence of some metals, such as vanadium, cause corrosion of ferrous materials found in most boilers.

Due to Clean Air Act acid rain requirements and Title V monitoring requirements that the affected sources already comply with, the recordkeeping and monitoring provisions of the new rules do not significantly add financial burden to the affected sources.

Rule 323 Costs:

Rule 323 affects fuel burning equipment at industrial/commercial/institutional Sources including boilers, cogeneration units, and indirect-fired process heaters. An inventory of combustion units at these sources reflects the existence of units below 100 MM Btu/hr. The requirement to tune these smaller units is the major cost accrued by this rule. Costs for a tune - up range from $85 to $100 per unit and labor costs of $80 per hour if the source hires an outside contractor to perform the tune-up. 1-2 hours of labor by an outside professional contractor is needed to tune-up most of these units. One stakeholder who tunes their own equipment has indicated that they may have to spend 4-6 hours tuning their equipment by their own staff but still assure the county that the cost is minimal. The other cost that may result from adoption of Rule 322 is the cost of using low sulfur fuel. However, most of the sources are already using the low sulfur fuel because high sulfur fuel (> 500 ppm sulfur) is in minimal supply in this area. If, in fact, a source is using high sulfur fuel and switches to low sulfur fuel, then the costs are less than 1cent per gallon based upon OPIS pricing. According to the key stakeholders, minimal costs are expected to be accrued for recordkeeping provisions.

Health Benefits:

Health benefits accrue to the general public whenever enforcement of environmental laws takes place. Adverse health effects from air pollution result in a number of economic and social consequences, including:

1. Medical Costs: These include personal out-of-pocket expenses of the affected individual (or family), plus costs paid by insurance or Medicare, for example.

2. Work loss: This includes lost personal income, plus lost productivity whether the individual is compensated for the time or not. For example, some individuals may perceive no income loss because they receive sick pay, but sick pay is a cost of business and reflects lost productivity.

3. Increased costs for chores and caregiving: These include special caregiving and services that are not reflected in medical costs. These costs may occur because some health effects reduce the affected individual's ability to undertake some or all normal chores, and she or he may require caregiving.

4. Other social and economic costs: These include restrictions on or reduced enjoyment of leisure activities, discomfort or inconvenience, pain and suffering, anxiety about the future, and concern and inconvenience to family members.

Rules impact reduction on small businesses:

A.R.S. § 41-1055 requires Maricopa County to reduce the impact on small businesses by using certain methods when they are legal and feasible in meeting the statutory objectives of the rulemaking. A small business is defined in A.R.S. § 41-1001 as a "concern, including its affiliates, which is independently owned and operated, which is not dominant in its field and which employs fewer than one hundred full-time employees or which had gross annual receipts of less than four million dollars in its last fiscal year. For purposes of a specific rule, an agency may define small business to include more persons if it finds that such a definition is necessary to adapt the rule to the needs and problems of small businesses and organizations." Rule 322 does not affect any small businesses. It only applies to power plant operations that sell more than 1/3 of their electricity produced and these power plants are all large businesses. However Rule 323 does apply to small businesses. Maricopa County has solicited input from sources that could be small businesses and organizations under this definition regarding the administrative and other costs required for compliance with the rulemaking, and any other information relevant to the economic, small business and consumer impact statement. Small business has indicated that they only expect minimal costs for the time it takes to perform recordkeeping and does not expect to hire any new personnel to perform this task.

Conclusion:

There are no costs to the sources affected by Rules 311 and 320 by the revisions to these rules because these revisions are basically only deletions of text. There are minimal costs to the power plants affected by Rule 322 because of the required usage of fuels that meet a particulate standard of 0.007 lbs/MM Btu and the usage of fuels with a sulfur content of less than 0.05%. The power plants are already using the low sulfur fuel at all of their plants. There are some costs to the industries affected by Rule 323 due to tuning procedure costs and the usage of fuels with a sulfur content of less than 0.05%. There are only minor incremental costs to Maricopa County.

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

Rule 311 (Particulate Matter from Process Industries)

The index was omitted from the notice of proposed rulemaking. It was a non-substantive error of omission. It is now included in this notice of final rulemaking.

Rule 320 (Odors and Gaseous Contaminants)

The index was omitted from the notice of proposed rulemaking. It was a non-substantive error of omission. It is now included in the notice of final rulemaking.

Rule 322

There are some changes to Rule 322 that are not substantively different. The following non-substantive, administrative changes were made between the text of the proposed rule and the text of the final rule either to improve clarity, conciseness, and understandability or because of an error of omission:

Index -Added an Index to the Notice of Final Rulemaking which was omitted in error from the Notice of Proposed Rulemaking.

Section 216 – Changed the term "High Efficiency Drift Eliminator" to "drift eliminator" because not all of the drift eliminators at the older power plants are high efficiency ones.

Subsection 301.3 – Changed the term "High Efficiency Drift Eliminator" to "drift eliminator" because not all of the drift eliminators at the older plants are high efficiency ones.

Subsection 304.1 – Deleted the phrase "per MM / Btu heat input" because ppm per MM Btu heat input is an incorrect unit.

Subsection 304.3 – Deleted the phrase "per MM /Btu heat input" because ppm per MM Btu heat input is an incorrect unit.

Section 306.4 - Deleted the option of measuring the carbon dioxide content of the flue gases per EPA recommendation.

Subsection 501.2 – Deleted the acronym "HEDE" to "drift eliminator" due to the changes per section 216 and subsection 301.2.

Subsection 504.1 – Changed the test method reference of "1a" to "1A" because 1a is an incorrect reference.

Rule 323

There are some changes to Rule 322 that are not substantively different. The following non-substantive, administrative changes were made between the text of the proposed rule and the text of the final rule either to improve clarity, conciseness and understandability or because of an error of omission.

Index -Added an Index to the Notice of Final Rulemaking which was omitted in error from the Notice of Proposed Rulemaking.

Subsection 103.8 – Changed the phrase "combustion equipment used for the generation of nuclear power" to "combustion equipment associated with nuclear power plant operations".

Section 224 – Added the number "1" to the units MM Btu/hr. because it was an error of omission.

Subsection 301.2 b – Added the word "or" to the last sentence because it was an error of omission.

Subsection 304.1 (b)(1) – Deleted the phrase "per MM Btu heat input" because ppm per MM Btu heat input is an incorrect unit.

Subsection 304.1 (b)(2) – Deleted the "per MM Btu heat input" because ppm per MM Btu heat input is an incorrect unit.

Subsection 504.1 – Changed the test method reference of "1a" to "1A" because 1a is an incorrect reference.

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

Rule 311

Maricopa County Environmental Services Department Air Quality Division has not received any written comments from stakeholders regarding the amendments to Rule 311, Particulate Matter From Process Industries.

Rule 320

Maricopa County Environmental Services Department Air Quality Division has not received any written comments from stakeholders regarding the amendments to Rule 320, Odors and Gaseous Contaminants.

Rule 322

Maricopa County Environmental Services Department Air Quality Division has received either written or oral comments from 4 stakeholders regarding new Rule 322, Power Plant Operations. Maricopa County has received 4 comments from the Environmental Protection Agency (EPA) Region 9.

EPA Comment #1:

The NOx emission limitations should have the emission units of ppmv instead of ppmv per MM Btu.

Response #1:

Maricopa County has corrected this error in the final rulemaking

EPA Comment #2:

The NOx emission limitations of 155 ppm and 230 ppm do not meet RACT standards but need not do so because of the RACT NOx waiver for the Maricopa County Environmental Services Dept. (60 FR 18510, April 19,1995). We recommend however that the emission limits be at least as stringent as the analogous New Source Performance Standards (NSPS), which are about 150 ppmv for 10 MM Btu/hr through 100 MM Btu/hr heat input or about 75 ppmv for greater than 100 MM Btu/hr heat input (40 CFR 60.44a and 40 CFR 60.332 (b) and (c)). Therefore we recommend strengthening the emission limitations for electric utility stationary gas turbines in paragraph 304.2 consistent with the NSPS limits.

Response #2:

The combustion equipment affected by this rule was all constructed before the NSPS standards were published. Under A.R.S. § 49-112, Maricopa County may only adopt a rule that is more stringent than the state (see #6 of this document page 12). Initial technical work for the Maricopa County portion of the State Implementation Plan (SIP) still shows a NOx disbenefit. If future technical analysis for the 8-hr.ozone standard or regional haze conclude NOx reductions are necessary, then Maricopa County will be able to require more stringent NOx limits.

EPA Comment #3:

The text of 301.35 could connect more smoothly with 301.35 b.

Response #3:

The subsections have been corrected.

EPA Comment #4:

We suggest that carbon dioxide monitoring not be an option for the Continuous Emission Monitoring System (CEMS) because the carbon dioxide option does not give as direct an indication of malfunction as does the oxygen monitoring option.

Response #4:

Maricopa County has made this change and has deleted the option of testing for carbon monoxide in the flue gas.

Comment #1:

The Arizona Corporation Commission (ACC) has ruled that a certain plant in Gilbert is banned from burning diesel. We are concerned that Rule 322 will overturn the ACC ruling and that the facility will again burn diesel. We have problems with asthmatic children living in the vicinity of the plant. Please add to Rule 322 a phrase stating that this plant will be banned from burning diesel ever again.

Response #1:

Maricopa County Rule 322 is written for all of the existing power plants for which construction commenced prior to May 1996. There will be no conflict with the particular power plant in question to meet both Rule 322 and the ACC ruling because Rule 322 only allows a fuel to be burned that meets a PM standard of 0.007lbs./MM Btu. Diesel fuel cannot meet this standard; therefore it cannot be burned.

Comment #2:

EPA has submitted the comment that the NOx emission limitations should have the units of ppmv solely and not ppmv/MM Btu. in Section 304 of Rule 322.

Response #2:

Maricopa County has corrected this administrative error in this section and in sections where it appears in this Notice of Final Rulemaking.

Comment #3:

There does not seem to be an industry standard for a numerical value for drift rate that indicates high efficiency. We are concerned that someone will claim that the drift eliminators that we have are not high efficiency and thus state

that we are not in compliance. We thought it may be more appropriate to replace the term "High Efficiency Drift Eliminator" with the word "drift eliminator".

Response #3:

Maricopa County has researched to see if there is a difference between the two types of eliminators. The older eliminators are not high efficiency drift eliminators. Therefore Maricopa County has changed the term "High Efficiency Drift Eliminator" with the term "drift eliminator" whenever it is found in Rule 322 in this Notice of Final Rulemaking. This would include Sections 216, 301.3, 501.2 and 503.2. Maricopa County has also removed the acronym "HEDE" whenever it appears in the text of Rule 322.

Rule 323

Maricopa County Environmental Services Department Air Quality Division has received one oral comment from stakeholders regarding Rule 323, Fuel Burning Combustion Equipment From Industrial / Commercial / Institutional Sources.

Comment #1:

We request that the phrase in subsection 103.8 of Rule 323, "Combustion equipment used for the generation of nuclear power" be reworded to reflect parallel language as the same exemption listed in section 103.1 of Rule 322, "Combustion equipment associated with nuclear power plant operations."

Response #1:

Maricopa County has made this change in this Notice of Final Rulemaking.

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

No

13. Incorporations by reference and their location in the rules:

New incorporations by reference	Location
ASTM Method # D1266-98	Rule 322, Section 504 Rule 323, Section 504
ASTM Method # D-2622-98	Rule 322, Section 504 Rule 323, Section 504
ASTM Method # D-2880-00	Rule 322, Section 504 Rule 323, Section 504
ASTM Method # D-4294-90 or 98	Rule 322, Section 504 Rule 323, Section 504
Standard Methods for the Examination of Water and Wastewater # 2540C	Rule 322, Section 504

Incorporations by reference updated to 7/1/01	Location
40 CFR Part 60 Appendix A	Rule 322, Section 504 Rule 323, Section 504

14. Was this rule previously an emergency rule?

No

15. The full text of the rules follows:

REGULATION III –CONTROL OF AIR CONTAMINANTS

RULE 311

PARTICULATE MATTER FROM PROCESS INDUSTRIES

INDEX

SECTION 200 No change
201 No change
202 No change
203 No change
204 No change
205 No change
206 No change
207 No change

SECTION 300 No change
301 No change
302 No change
303 No change
~~304 LIMITATIONS-FUEL BURNING EQUIPMENT~~
~~305~~304 APPROVED EMISSION CONTROL SYSTEM REQUIRED
306305 Renumbered
~~307~~306 Renumbered

SECTION 400 No change
401 No change

SECTION 500 No change
501 No change
502 No change
503 No change
504 ~~TEST METHODS~~ TEST METHODS ADOPTED BY REFERENCE

MARICOPA COUNTY

AIR POLLUTION CONTROL REGULATIONS

REGULATION III -CONTROL OF AIR CONTAMINANTS

RULE 311

PARTICULATE MATTER FROM PROCESS INDUSTRIES

100 No change
101 No change
102 This rule shall apply to any affected operation which is not subject to ~~the provisions of Rule 316 of these Regulations~~ Rules 313, 316, 317, 319, 322, and 323 that regulate particulate matter from specific sources. All sources regulated by this rule shall also comply with Rule 310.
200 No change
201 No change
202 No change
203 No change
204 No change
205 No change
206 No change
207 No change
300 No change
301 No change
302 No change
303 **Limitations – Portland Cement Plants:** Portland cement plants shall be subject to the New Source Performance Standards (NSPS), 40 CFR60, Subpart F, referenced in Rule 360 of these Rules and Regulations.

~~**303.1** No person owning or operating a portland cement plant with a process weight rate in excess of 250,000 lbs/hr shall discharge or cause or allow the discharge of particulate matter emissions from any kiln into the ambient air which is in excess of 0.3 lbs/ton (0.15 kg per metric ton) of feed to the kiln, maximum two-hour average, or greater than ten percent opacity.~~

~~**303.2** No person owning or operating a portland cement plant shall discharge or cause or allow the discharge of particulate matter emissions from the clinker cooler into the ambient air in excess of 0.1 lb/ton (0.05 kg per metric ton) of feed to the kiln, maximum two hour average, or greater than ten percent opacity.~~

~~**303.3** No person owning or operating a portland cement plant shall discharge or cause or allow the discharge into the ambient air of particulate matter emissions from any affected facility, other than the kiln or clinker cooler, which is greater than ten percent opacity.~~

~~**304 LIMITATIONS – FUEL BURNING EQUIPMENT:** No person shall discharge, cause or allow the discharge of particulate matter emissions, caused by combustion of fuel, from any fuel burning operation in excess of amounts calculated by the equations presented in Sections 304.1 and 304.2 of this rule.~~

~~**304.1** For equipment having a heat input rating of 4200 million btu/hr or less, the maximum allowable emissions (E) shall be determined by the following equation:~~

~~$E = 1.02 Q^{0.769}$~~
~~where:~~
~~E = The maximum allowable particulate emission rate in pounds-mass per hour, and~~
~~Q = The heat output in million BTU per hour.~~

~~**304.2** For equipment having a heat input rating greater than 4200 million BTU/hr, the maximum allowable emissions shall be determined by the following equation:~~

~~$E = 17.0 Q^{0.432}$~~

~~where "E" and "Q" have the same meanings as in Section 304.1 of this rule.~~

~~**305**~~**304 APPROVED EMISSION CONTROL SYSTEM REQUIRED:** For affected operations which may exceed the applicable standards set forth in Sections 301 through ~~304~~302 of this rule, an owner or operator may comply by installing and operating an approved emission control system.

~~**306**~~**305** Renumbered

~~**307**~~**306 EXEMPTIONS:** The provisions of Section 301 of this rule shall not apply to incinerators or fuel burning equipment ~~facilities~~. ~~The provisions of Section 301 of this rule shall not apply to portland cement plants having process weights in excess of 250,000 lb/hr.~~

400 No change
401 No change
500 No change
501 No change
502 No change

503 RECORD RETENTION: Copies of reports, logs and supporting documentation required by the Control Officer shall be retained at least ~~three~~ five years. Records and information required by this rule shall also be retained for at least ~~three~~ five years.

504 TEST METHODS ADOPTED BY REFERENCE: The EPA ~~reference~~ test methods as they exist in the Code of Federal Regulations (CFR) (July 1,2001), as listed below, are adopted by reference. 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 Department, 1001 N. Central Avenue, Phoenix, AZ. 85004-1942. ~~in 40 CFR 60, Appendix A, shall be used to determine compliance with the pertinent standards prescribed in this section.~~ When more than one test method is permitted for a determination, an exceedance of the limits established in this rule determined by any of the applicable test methods constitutes a violation of this rule.

504.1 ~~Sample velocity and velocity traverse and selection of sample sites and sample traverses shall be determined according to~~ EPA Reference Method 1 ("Sample and Velocity Traverse for Stationary Sources"), and 1aA ("Sample and Velocity Traverses for Stationary Sources with Small Stacks and Ducts") (40 CFR 60, Appendix A).

504.2 ~~Velocity and volumetric flow rate shall be determined according to~~ 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 ~~Gas analysis shall be determined according to~~ 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 ~~Stack gas moisture shall be determined according to~~ EPA Reference Method 4 ("Determination of Moisture Content in Stack Gases") (40 CFR 60, Appendix A).

504.5 ~~Stack effluent concentration of particulate matter and associated moisture content shall be determined according to~~ 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 ~~Visible emissions shall be determined according to~~ EPA Reference Method 9 ("Visual Determination of the Opacity of Emissions from Stationary Sources") (40 CFR 60, Appendix A).

REGULATION III - CONTROL OF AIR CONTAMINANTS

RULE 320

ODORS AND GASEOUS AIR CONTAMINANTS

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County Notices Pursuant to A.R.S. § 49-112

MARICOPA COUNTY

AIR POLLUTION CONTROL REGULATIONS

REGULATION III - CONTROL OF AIR CONTAMINANTS

RULE 320

ODORS AND GASEOUS CONTAMINANT

100 No change

101 No change

200 No change

~~**201** **FOSSIL-FUEL-FIRED STEAM GENERATOR –** A furnace or boiler used in the process of burning fossil fuel for the primary purpose of producing steam by heat transfer.~~

~~**202**~~

~~**202**~~**201** **HIGH SULFUR OIL -** Fuel oil containing ~~0.9~~0.05 percent or more by weight of sulfur.

~~**203**~~**202** **LOW SULFUR OIL -** Fuel oil containing less than ~~0.9~~0.05 percent by weight of sulfur.

~~**204**~~**203** **ODORS –** Smells, aromas or stenches commonly recognized as offensive, obnoxious or objectionable to a substantial part of a community.

~~**205**~~**204** **REDUCTION -** Any heated process, including rendering, cooking, drying, dehydrating, digesting, evaporating, and protein concentrating.

300 No change

301 No change

302 No change

303 No change

304 No change

~~**305** **LIMITATION – SULFUR DIOXIDE AND SULFURIC ACID MIST FROM SULFURIC ACID PLANTS:** No person shall emit or discharge into the atmosphere more than 4.0 pounds of sulfur dioxide or 0.15 pounds of sulfuric acid mist per ton of sulfuric acid produced (calculated as 100 percent H_2SO_4) maximum two hour average, from facilities that produce sulfuric acid by the contact process by burning elemental sulfur, alkylation acid, hydrogen sulfide, organic sulfides and mercaptans or acid sludge.~~

~~**306** **LIMITATION SULFUR DIOXIDE FROM ELECTRICAL POWER PLANTS:** This section applies to facilities operated for the purpose of producing electric power with a resulting discharge of sulfur dioxide in the facility's effluent gases.~~

~~**306.1** **Steam Plants Using Low Sulfur Oil After May 30, 1972:** Existing steam power generating facilities which commenced construction or a major modification after May 30, 1972, shall not emit more than 0.8 pounds of sulfur dioxide, maximum three hour average, per million BTU heat input when low sulfur oil is fired.~~

~~**306.2** **Steam Plants Using Low Sulfur Oil Prior to May 30, 1972:** Existing steam power generating facilities which commenced construction or a major modification prior to May 30, 1972, shall not emit more than 1.0 pounds of sulfur dioxide, maximum three hour average, per million BTU heat input when low sulfur oil is fired.~~

~~**306.3** **Steam Plants Using High Sulfur Oil:** All existing steam power generating facilities which are subject to the provisions of this rule shall not emit more than 2.2 pounds of sulfur dioxide, maximum three hour average, per million BTU heat input when high sulfur oil is fired.~~

~~**306.4**~~**305 PERMIT CONDITIONS - HIGH SULFUR OIL:** Any permit issued for the operation of an existing source, or any renewal or modification of such a permit, shall include a condition prohibiting the use of high sulfur oil by the permittee. The applicant must demonstrate to the Control Officer that sufficient quantities of low sulfur oil are not available for use by the source and that it has adequate facilities and contingency plans to insure that the sulfur dioxide ambient air quality standards set forth in Rule 510 of these Regulations will not be violated. The terms of the permit may authorize the use of high sulfur oil under such conditions as are justified. In cases where the permittee is authorized to use high sulfur oil, the permittee shall submit to the ~~Bureau~~ Control Officer monthly reports detailing its efforts to obtain low sulfur oil. When the conditions justifying the use of high sulfur oil no longer exist, the permit shall be modified accordingly.

~~**307**~~**306 LIMITATION - SULFUR FROM ~~OTHER~~ INDUSTRIES:** No person shall discharge into the atmosphere from any ~~other~~ industry~~, not covered in other sections of this rule~~ reduced sulfur, which includes sulfur equivalent from all sulfur emissions including but not limited to sulfur dioxide, sulfur trioxide and sulfuric acid, in excess of ten percent of the sulfur entering the process as feed.

~~**308** **LIMITATION - NITROGEN OXIDES FROM ELECTRICAL POWER PLANTS:** This section applies to facilities operated for the purpose of producing electric power with a resulting discharge of nitrogen oxides.~~

~~**308.1** **Steam Plants Using Gaseous Fossil Fuel:** Existing steam power generating facilities which commenced construction or a major modification after May 30, 1972, shall not emit more than 0.2 pounds of nitrogen oxides, maximum three hour average, calculated as nitrogen dioxide, per million BTU heat input when gaseous fossil fuel is fired.~~

~~**308.2** **Steam Plants Using Liquid Fossil Fuel:** Existing steam power generating facilities which commenced construction or a major modification after May 30, 1972, shall not emit more than 0.3 pounds of nitrogen oxides, maximum three hour average, calculated as nitrogen dioxide, per million BTU heat input when liquid fossil fuel is fired.~~

~~**309**~~**307 Renumbered**

~~**310** **CARBON MONOXIDE:** The discharge of carbon monoxide emissions from any process source shall be effectively controlled by means of secondary combustion.~~

~~**311** **EXEMPTIONS:** Section 305 of this rule shall not apply to existing sources nor to metallurgical plants or other facilities where conversion to sulfuric acid is utilized as a means of controlling emissions to the atmosphere of sulfur dioxide or other compounds.~~

REGULATION III - CONTROL OF AIR CONTAMINANTS

RULE 322

POWER PLANT OPERATIONS

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

224 **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 **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 **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 **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 **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 **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 **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 **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 **THIRTY DAY (30) 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 **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.

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

235 **UNCOMBINED WATER –** Condensed water containing no more than analytical 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. This usage of different fuels other than natural gas shall be approved by the Control Officer prior to usage.

301.2 **Good Combustion Practices:** 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. In lieu of a manufacturers' recommended procedure to ensure good combustion practices, 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 shall then be followed using the 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 **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.

b. Insure that 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 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. The owner or operator must maintain and operate the source of emissions in a manner consistent with good air pollution control practices for minimizing emissions, to the extent practicable. 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 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.

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 during steady state compliance source testing. This test result, using EPA Reference Method 10, 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 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.

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 306.4a of this rule.

307 **EMERGENCY FUEL USE NOTIFICATION –** An owner or operator of a unit that uses emergency fuel that 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 per subsection 104.2. This verbal report shall be followed by a written report within 48 hrs. of initial usage which shall also include identification of the nature of the emergency, initial dates of usage, and the expected dates of usage.

SECTION 400 - ADMINISTRATIVE REQUIREMENTS

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.

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, 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 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.

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 BY REFERENCE:** The EPA test methods as they exist in the Code of Federal Regulations (CFR) (July 1, 2001), as listed below, are adopted by reference. 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 Department, 1001 N. Central Avenue, Phoenix, AZ 85004-1942. The ASTM methods (1990, 1998 and 2000) and the Standard Methods listed below (1995) are also adopted by reference. When more than one test method as listed in subsections 504.10 through 504.13 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 Methods1 ("Sample and Velocity Traverses for Stationary Sources"), and 1A ("Sample and Velocity Traverses for Stationary Sources with Small Stacks and Ducts") (40 CFR 60, Appendix A).

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

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

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

504.5 EPA Reference Method 5 ("Determination of Particulate Emissions from Stationary Sources") (40 CFR 60, Appendix A) 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 Methods 7 ("Determination of Nitrogen Oxide Emissions from Stationary Sources"), 7A ("Determination of Nitrogen Oxide Emissions from Stationary Sources"), 7B ("Determination of Nitrogen Oxide Emissions from Stationary Sources - Ultraviolet Spectrometry"), 7C ("Determination of Nitrogen Oxide Emissions from Stationary Sources - Alkaline-Permanganate Colorimetric Method"), 7D ("Determination of Nitrogen Oxide Emissions from Stationary Sources – Alkaline-Permanganate Chromatographic Method"), and 7E ("Determination of Nitrogen Oxide Emissions from Stationary Sources – Instrumental Analyzer Method") (40 CFR 60, Appendix A).

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

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

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

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

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

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

REGULATION III - CONTROL OF AIR CONTAMINANTS

RULE 323

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

INDEX

MARICOPA COUNTY

AIR POLLUTION CONTROL REGULATIONS

REGULATION III - CONTROL OF AIR CONTAMINANTS

RULE 323

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

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 and Regulations.

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 Dryers, cement and lime kilns; or

103.4 Direct-fired process heaters; or

103.5 Medical waste incinerators; or

103.6 Reciprocating internal combustion equipment; or

103.7 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 Combustion equipment used for the generation of nuclear power, or

103.9 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 that are used for any of the following reasons shall be exempt from Sections 304, 305 and subsections 301.1, 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 changes, 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 **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 **PARTICULATE MATTER EMISSIONS -** Any and all particulate matter emitted to the ambient air as measured by applicable state and federal test methods.

214 **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 **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 **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 **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 **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".

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

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

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

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

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 subsection 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 **Good Combustion Practices:** An owner or operator of a stationary gas turbine listed in subsection 102.2, 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 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 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:

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). 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:

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

1. Inspect the burner system and clean and replace any components of the burner as necessary to minimize emissions of 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.

304.2 An owner or operator of any combustion equipment, listed in Section 102, 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. and

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

305 LIMITATIONS – CARBON MONOXIDE: No owner or operator of any equipment listed in Section 102 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, 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. 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 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 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.

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

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 8 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 used to achieve such compliance shall be in operation by (insert 24 months date of adoption of rule).

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) file a schedule for the installation with the Control Officer. The ECS shall then be installed and in compliance by (36 months after adoption of the rule).

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, and monthly totals for 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, 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 a or b 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.

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 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 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.

504 **TEST METHODS ADOPTED BY REFERENCE:** The EPA test methods as they exist in the Code of Federal Regulations (CFR) (July 1, 2001), as listed below, are adopted by reference. 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 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 subsection 504.10 to 504.13 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.

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

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

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

504.10 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 or1998.

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

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

504.13 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.

NOTICE OF FINAL RULEMAKING

MARICOPA COUNTY AIR POLLUTION CONTROL REGULATIONS

RULE 312 – ABRASIVE BLASTING

PREAMBLE

1. Sections Affected **Rulemaking Action**
Rule 312 Amend

2. The specific authority for the rulemaking, including both the authorizing statute (general) and the statutes the rule is implementing (specific):

Authorizing and implementing statutes: Arizona Revised Statutes (A.R.S.) § 49-473(B), A.R.S. § 49-479, and A.R.S. § 49-480

3. The effective date of the rule:

The date the Maricopa County Board of Supervisors adopts the rule.

4. A list of all previous notices appearing in the register addressing the final rule:

Notice of Rulemaking Docket Opening: 8 A.A.R. 5178, December 20, 2002

Notice of Proposed Rulemaking: 9 A.A.R. 41 January 3, 2003

5. The name and address of agency personnel with whom persons may communicate regarding the rulemaking:

Name:	Jo Crumbaker, Air Quality Division
Address:	1001 N. Central Avenue, Suite #695 Phoenix, AZ 85004
Telephone:	(6020 506-6705
Fax Number:	(602) 506-6179
E-mail Address:	jcrumbak@mail.maricopa.gov

6. An explanation of the rule, including the agency's reasons for initiating the rule:

Maricopa County revised Rule 312 in order to correct deficiencies identified in the Environmental Protection Agency's (EPA's) final limited approval and limited disapproval of Rule 312 that was published in the Federal Register (66 FR 730) on January 4, 2001. Rule 312 was evaluated for enforceability and consistency with the following three documents: the Clean Air Act (CAA) as amended in 1990, 40 CFR part 51, and EPA's PM_{10} policy.

Description of Rule Revisions

Maricopa County revised the following sections in Rule 312 in order to correct Rule 312 deficiencies and to incorporate revisions requested by Maricopa County personnel and stakeholders. Maricopa County has requested that the Maricopa County Board of Supervisors adopt these revisions during a Public Hearing on June 18, 2003. Once adopted, Maricopa County will submit Rule 312 to EPA as a SIP revision for EPA's full approval.

Section 101– This change clarifies what is being limited.

Section 102 - This change adds an applicability clause.

Section 103 – This change adds an exemption clause.

Section 200 – This change allows for use of definitions from Rule 100 to apply to this rule.

Section 201 - This change repeals the definition of abrasive blasting and replaces it with the definition of abrasive.

Section 202 - This change repeals the definition of abrasive blasting equipment and replaces it with the definition of abrasive blasting operation.

Section 203 – This change repeals the definition of confined blasting and replaces it with confined enclosure in Section 204. The definition of certified abrasives is added.

Section 204 - This change adds the definition of confined enclosure.

Section 205 - This change adds the definition of emission control system.

Section 206 - This change renumbers and amends the definition of hydroblasting.

Section 207 - This change renumbers and amends the definition of multiple nozzles.

Section 208 - This change adds the definition of opacity.

Section 209 - This change adds the definition of unconfined blasting.

Section 210 - This change adds the definition of vacuum blasting.

Section 211 – This change renumbers and amends the definition of wet abrasive blasting.

Section 212 - This change adds the definition of wind event.

Section 301 – This change amends the controls required (previously Section 302) of any abrasive blasting operation by limiting blasting to a confined enclosure and providing conditions when unconfined blasting can occur.

Section 302 - This change outlines the requirements if unconfined blasting is to occur.

Section 303 - This change requires confined blasting with a forced air exhaust either to use CARB certified media or vent emissions through an ECS.

Section 304 - This change requires an Operation and Maintenance Plan for those applicable blasting operations that are permitted with a required ECS.

Section 305 - This change renumbers and amends the opacity limitation for abrasive operations.

Section 306 - This change limits blasting from occurring during wind events.

Section 307 - This change outlines limitations to blasting traffic markers.

Section 308 - This change adds work practices for blasting.

Section 400 – This change adds an administrative requirement clause.

Section 401 - This change adds a compliance schedule for operations subject to this rule.

Section 501 - This change requires records to be kept onsite summarizing blasting operations. Different recordkeeping is required according to whether the blasting is periodic, or a daily activity.

Section 502 - This change requires retention of records in a time frame according to whether it's a Title V or Non-Title V source.

Section 503 - This change adds compliance determinations for control device efficiency and testing requirements for lead in paint.

Section 504 - This change adds a list of certified abrasives adopted by reference that are required to be used during unconfined dry abrasive blasting.

Section 505 - This change renumbers and amends opacity observations.

Section 506 - This change reflects the current language that Maricopa County now uses in its rules to adopt test methods adopted by reference and includes appropriate test methods.

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 that permit program. Maricopa County is in compliance with A.R.S. § 49-112(A) in that Maricopa County proposes to adopt revisions to Rules 312 that are more stringent than a provision of the state in order to address a peculiar local condition, that is, the designation of Maricopa County as a serious non-attainment area for particulate matter less than or equal to 10 microns.

8. A reference to any study that the agency proposes to rely on in its evaluation of or justification for the proposed rule and where the public may obtain or review the study, all data underlying each study, and analysis of the study and other supporting material:

No studies were reviewed in reference to this rulemaking action.

9. The summary of the economic, small business, and consumer impact:

There will be small incremental costs to the sources affected by Rule 312 by the proposed revisions to the rule. Permitted facilities are currently using CARB-certified media as a condition of their permits. The requirement of using CARB-certified abrasive blasting media when performing uncontrolled confined and unconfined blasting codifies provisions that have been included in permit conditions, therefore the requirement is not an additional cost. In addition, most media sold now is CARB- certified and is comparable in cost to uncertified media. If the source has an

Emission Control System (ECS) on the abrasive blasting equipment, the requirement for and Operation and Maintenance (O&M) Plan is now included. The majority of permits issued by the department already include a condition that requires an O&M plan for ECS. For those sources that haven't submitted an O&M plan, the majority of which are small businesses, the sole cost to the source would be taking the time to write the plan and implement it.

There will be a small increase in costs associated with keeping the appropriate records that are required under this rule. The lack of recordkeeping was a structural oversight when the county rules were recodified and reformatted in 1988. The generic recordkeeping provision for all sources was eliminated at the time and the county failed to incorporate the appropriate recordkeeping in some of the county rules, including Rule 312. Adding recordkeeping now will rectify this oversight. The amount of time required determining the compliance status of the blasting equipment by recording proper information, will be a minor to de minimus cost. [Maricopa County solicited input from sources that are considered small businesses and organizations on the administrative and other costs required for compliance with the proposed rulemaking, and any other information relevant to the economic, small business and consumer impact statement. Maricopa County has not received any examples of how this may affect certain categories of sources.]

Maricopa County

Projected costs to Maricopa County Environmental Services Division are those that accrue for implementation and enforcement of the new standards. Although there are some small incremental costs due to this rulemaking, Maricopa County does not intend to hire any additional employees to implement or enforce these rules.

Health Benefits

Health benefits accrue to the general public whenever enforcement of environmental laws takes place. Adverse health effects from air pollution result in a number of economic and social consequences, including:

1. Medical Costs: These include personal out-of-pocket expenses of the affected individual (or family), plus costs paid by insurance or Medicare, for example.

2. Work loss: This includes lost personal income, plus lost productivity whether the individual is compensated for the time or not. For example, some individuals may perceive no income loss because they receive sick pay, but sick pay is a cost of business and reflects lost productivity.

3. Increased costs for chores and caregiving: These include special caregiving and services that are not reflected in medical costs. These costs may occur because some health effects reduce the affected individual's ability to undertake some or all normal chores, and she or he may require caregiving.

4. Other social and economic costs: These include restrictions on or reduced enjoyment of leisure activities; and discomfort or inconvenience, pain and suffering, anxiety about the future, and concern and inconvenience to family members.

Rules impact reduction on small businesses:

A.R.S. § 41-1055 requires Maricopa County to reduce the impact of regulation on small businesses by using certain methods when they are legal and feasible in meeting the statutory objectives of the rulemaking. A small business is defined in A. R. S. § 41-1001 as a "concern, including its affiliates, which is independently owned and operated, which is not dominant in its field and which employs fewer than one hundred full-time employees or which had gross annual receipts of less than four million dollars in its last fiscal year. For purposes of a specific rule, an agency may define small business to include more persons if it finds that such a definition is necessary to adapt the rule to the needs and problems of small businesses and organizations." Rule 312 applies to small businesses. Maricopa County solicited input from sources that are considered small businesses and organizations under this definition, however no examples were received on how this may impact these sources.

10. A description of the changes between the proposed rules, including supplemental notices, and final rules, if applicable:

There were changes made to Rule 312 that are not substantive. The following non-substantive administrative changes were made between the text of the proposed rule and the text of the final rule either to improve clarity, or make the rule more concise or easier to understand:

Section 103.1- Added "to the building exterior" for clarification.

Section 202- Removed "forcibly", "either high" and changed "pressure" to "pressurized" for clarification.

Section203- Changed the last sentence to read, "An abrasive purchased during the certified period remains certified for use following its expiration date" for clarification.

Section 204- Changed the definition to read, "A structure that is used, in whole or in part, for abrasive blasting operations. The structure consists of three or four sides, a roof or cover, with or without an exhaust to the atmosphere. The blasting must be directed away from the open side of the structure" for clarification

Section 206- Changed "high pressure" to "pressurized" for consistency.

Section 207- Changed the definition to read, "Two or more nozzles positioned in such close proximity that their separate plumes are indistinguishable" for clarification.

Section 211- Added "adds a" before "liquid" for clarification.

Section 212- Added "An occurrence" for clarification.

Section 301.1- Replaced "that" with "the surface" for clarification.

Section 302.3- Replaced all terms that referred to certified CARB abrasive to "certified abrasive" to match the definition. Subsection "c" now reads, "Blast only paint that is lead free", and subsection "e" was changed for clarification to, "Use the certified abrasive not more than once unless contaminants are separated from the abrasive through filtration and the abrasive conforms to its original size".

Section 303- Restructured to read, "Dry abrasive blasting in a confined enclosure with a forced air exhaust shall be conducted by implementing either of the following: a. Using a certified abrasive, or b. Venting to an ECS" for clarification.

Section 304- Added "and requires a Maricopa County permit under Rule 200 of these rules" to the first sentence and restructured the rest of the wording to read, "Buildings and/or enclosures are not considered control equipment. Equipment that meets the following two criteria and is operated and maintained in accordance with manufacturer's specifications, is exempt from the requirements of this section: a. Is self-contained and the total internal volume of the blast section is 50 cubic feet or less, and b. Is vented to a required ECS", to clarify the language as requested by the stakeholder.

Section 305- Changed "one hour" and "clock hour" to "sixty minute" for clarification.

Section 308- Changed "good housekeeping" to "work", "likely" to "with potential", and removed "of a source" and "in order to prevent air contaminants from being emitted into the atmosphere" for clarification.

Section 401- Clarified the language to read, "All abrasive blasting operations shall be conducted in compliance with this rule upon adoption".

Section 501.1- All of the following changes were made for clarification. Subsection "a" changed "operations" to "equipment", subsection "b" changed wording to read "as confined, unconfined, sand, wet, or other", subsection "c" changed wording to read, "the locations of the blasting equipment or specify if the equipment is portable", changed subsection "d" to read, "a description of the ECS associated with the blasting operations", and subsection "f" changed "typical" to "normal".

Section 501.2: Under subsection "b" changed source to "equipment" and modified subsection "d" to read, "a description of the ECS associated with the blasting operations" for clarification.

Section 502- Changed "the Control Officer" to "this rule".

Section 503.1- Added, "testing results" and reworded to read, "…submitted upon request of the Control Officer".

Section 503.2- Restructured the section for clarification to read, "Paint Lead Level– Prior to unconfined blasting of paint, the owner or operator must be the generator with firsthand knowledge of lead content in the paint, or retain evidence of the lead level from the material MSDS or from a lead test performed in accordance with Section 506 of this rule. Unconfined blasting is prohibited if the lead content of the material is >0.1 percent."

Section 505- Revised first sentence for clarification to read, "OPACITY OBSERVATIONS: Opacity shall be determined by observations of visible emissions conducted in accordance with EPA Reference Method 9 and with the following provisions."

Section 506- Changed "and 506.2" to "through 506.7" as an administrative change to incorporate the additional text listed below.

Added the following equivalent methods to increase a source's flexibility for testing lead in paint:

"506.4 EPA Test Method for Testing Lead, SW-846 Method 3050B (Acid Digestion of Sediments, Sludges and Soils)"

"506.5 EPA Test Method for Testing Lead, SW-846 Method 7420 (Lead (Atomic Absorption, Direct Aspiration)"

"506.6 OSHA Method ID-121 (Metal and Metalloid Particulates in Workplace Atmospheres [Atomic Absorption])"

"506.7 OSHA Method ID-125G (Metal and Metalloid Particulates in Workplace Atmospheres [ICP Analysis])"

11. A summary of the comments made regarding the rule and the agency response to them:

Maricopa County Environmental Services Department Air Quality Division has received either written or oral comments from two stakeholders regarding Rule 312, Abrasive Blasting.

Comment #1: Section 304 – Requirements for ECS and Monitoring Devices: In the October 3, 2002 draft, self-contained, enclosed blasting equipment with a total internal volume of 50 cubic feet or less was exempted from the requirements of this section. The latest version now requires this equipment to be operated and maintained in accordance with manufacturer's specifications. To clarify that the self-contained, enclosed blasting equipment referred to in this section is still exempt from the requirements for ECS and monitoring devices, we ask that you add "…and they are not subject to any other requirements of this section." to the end of the last sentence.

Response #1: Included "and are therefore not subject to the requirements of this section".

Comment #2: Section 304.1 – Operation & Maintenance (O&M) Plan Required for Emission Control System (ECS): Although these requirements may be manageable for owner operated blasting equipment located at a permitted facility, we are concerned with the application of this section to unpermitted stationary and portable abrasive blasting equipment. This concern is based on the fact that we are unaware of any existing process that would allow an unpermitted source to submit an O&M plan to the County for written approval. Because the O&M planning requirement applies to both owners and operators, the operator of a piece of rental equipment would be required to prepare and submit an O&M plan for approval if the owner of the rental equipment has not already done so. It is illogical to require the user of such equipment to agree to *maintain* the equipment in accordance with an O&M plan under these circumstances, because typically the equipment has already left the site before any "maintenance" under the O&M plan would be required. Moreover, to impose maintenance requirements only on a short-term renter of the equipment absolves the owner of the equipment from any maintenance obligations for his own equipment. For these reasons, we believe that the O&M requirements of the proposed rule *should not apply to operators of rental equipment.* Instead, this section should apply only to the *owner* of applicable equipment. This revision would appropriately result in only one O&M plan per piece of equipment, and would reasonably require the owner of the equipment to maintain the equipment.

Response #2: The following language was included in Section 304, "and requires a Maricopa County permit under Rule 200 of these rules". All sources that are required to obtain a permit are to submit an O&M plan along with the permit application. Therefore, the permit owner is responsible for filing and maintaining the O&M plan for their equipment. If the owner decides to rent or lease that equipment, it is up to the permit holder to supply the operation requirements of the ECS that are within the O&M plan to the company renting or leasing the equipment so they properly operate the ECS. It is the responsibility of the owner and operator to determine who will be taking care of the maintenance requirements within the ECS' O&M plan in the renting agreement.

Comment #3: Section 506 – Test Methods Adopted by Reference: This section limits lead in paint testing, required by Section 503.2, to only two methods. As there are other methods used by labs for lead testing, we request that these other equivalent methods be included. Limiting the allowable methods to only these two EPA methods will require additional sampling and increased lab costs. Other methods that are in common use and are equivalent to the EPA methods in Sections 506.2 and 506.3 are OSHA ID-121 and 125, NIOSH 7082 and EPA SW-846 Method 3050B or SW-7420. We ask that you include these methods in this section and also allow the use of portable or field x-ray fluorescence devices to determine in-situ lead concentrations.

Response #3:

Upon review of the above test methods requested to be included in Rule 312, Maricopa County has included the following test methods: OSHA ID-121 and ID-125G, EPA SW-846 Method 3050B and EPA SW-7420. The NIOSH test method will not be included since it is for sampling exposures. The method requires the blasting to occur, and since that would contradict the rule's requirement to test the paint before blasting occurs, the method is not viable.

Comment #4: Section 102 – Applicability- The applicability is extremely broad. Does this include homeowners?

Response #4: Most abrasive blasting operations are subject to this rule, including abrasive blasting performed outside of residential buildings. Any abrasive blasting operation performed inside residential premises are not subject to this rule.

Comment #5: Section 103 – Exemptions- Clarify the term atmosphere or define.

Response #5: The term atmosphere is commonly used through out air pollution regulations meaning the unconfined air that is external to buildings, or the open, surrounding air. Both EPA and ADEQ do not require or list a separate definition for atmosphere, and they use it throughout their terminology. This is used in this rule, in contrast to the more restrictive ambient air definition in Maricopa County's Rule 100, which states, "the portion of the atmosphere, external to buildings to which the general public has access."

Comment #6: Section 201 – Abrasive- The definition of abrasive is unclear. This definition should include "A solid or semi-solid that is used in forced gas/air or water blasting operations to clean, polish, condition, remove or prepare a surface. This includes…"

Response #6: The requested definition is what is defined for abrasive blasting operation. When the two definitions are used in conjunction, the purpose of the abrasive is clear. "Semi-solid" is covered by the choices contained in the rule, therefore doesn't require to be included separately as it hasn't been required or used in other rules.

Comment #7: Section 203 – Certified Abrasives- What is the certified period and is it defined elsewhere? Section 504 – Do not use the December 26, 2000 date in the rule, it effectively eliminates all blast media that are released and meet the CARB requirements after this date.

Response #7: All adoptions by reference are required to include a date as instructed by the Secretary of State's Rule-making Manual in order to provide guidance in determining which document is permissible. Each abrasive is certified by the California Air Resources Board (CARB), who puts out a list of certified abrasives with the date they expire. As long as the abrasive is purchased before the expiration date, i.e. within the certified period, the abrasive is still considered to be compliant. The certified abrasive list is effective **as of** December 26, 2000, not **until** that date. Therefore, abrasive media that is effective after the Dec. 2000 date and purchased before the expiration date is what should be used. A copy of the certification list will be made available at Maricopa County's Environmental Services Department, 1001 N Central Avenue, Suite 201, Phoenix, AZ 85004.

Comment #8: Sections 303/304 – There are no sections for confined blasting, instead, only those with a confined cabinet with an exhaust are regulated. Nor are there regulations for blasting inside of a building.

Response #8: Section 301 addresses the fact that blasting shall occur in a confined enclosure, which includes inside of a building, and explains when unconfined blasting is allowed. Section 303 is included to specifically address a source that has no installed control on a forced air exhaust, and Section 304 is included to address those sources with a control device.

Comment #9: Section 305 – Opacity Limitations described are really confusing for the general public to understand. Are calibrated eyes required for this opacity determination?

Response #9: The opacity limitation is the same as was required in the initial rule, except that a clarifying sentence was added. Basically, a source is limited to an observed opacity less than 20% for any three minutes in one clock hour. Observations are taken in 15-minute increments as outlined in EPA Method 9, which is the standard methodology for evaluating the visible emissions of a source. Many sources use uncertified observers by applying general guidelines that require corrective action if a significant plume is observed.

Comment #10: Section 308.1- There is no Rule 310 in this document.

Response #10: "Rule 310 of these rules" is the reference used to address the provisions of Maricopa County Air Pollution Control Regulation, Rule 310 that apply to Rule 312 regulated sources. As a common citation, "these rules" refers to the Maricopa County's Air Pollution Control Regulations. EPA approved Rule 310 on July 25, 2002 in 60 Fed. Reg. 48718 and, therefore, it is appropriate to cite Rule 310 within another Maricopa County rule.

Comment #11: Section 308.2- Confined blasting by its definition, should not have any major amounts of abrasive material exposed to a "wind event".

Response #11: A confined source doesn't necessarily mean complete and total enclosure, as seen by its definition. This requirement is mainly addressing those confined sources located outside of a building that are stand-alone. In these situations there is an elevated possibility of trackout and/or a door opening causing wind to carry out abrasive. Therefore, there are possibilities for adverse effects caused by winds. The wind event was incorporated during the rulemaking process to be used as a measure for when clean up should occur.

Comment #12: Section 401- It is suggested that a grace period be established to allow for O&M preparation and be in line with the 6-month grace period in 304.1.

Response #12: The sources that are required to have an O&M are required to have a permit as clarified in Response #2 above. However a 6-month period has been included as requested by stakeholders to allow for compliance. Since it is stated as such under Section 304.1, it is unnecessary to repeat it under Section 400.

12. Any other matters prescribed by statute that are applicable to the specific agency or to any specific rules or class of rules:

Not applicable

13. Incorporations by reference and their location in the rules:

New incorporations by reference	Location
40 CFR Part 60 Appendix A	Rule 312, Section 506
SW-846 Method 6010B	Rule 312, Section 506
Method 0239.2	Rule 312, Section 506

SW-846 Method 3050B	Rule 312, Section 506
SW-846 Method 7420	Rule 312, Section 506
OSHA Method ID-121	Rule 312, Section 506
OSHA Method ID-125G	Rule 312, Section 506

14. Were these rules previously adopted as emergency rules?

No

15. The full text of the rules follows:

REGULATION III- CONTROL OF AIR CONTAMINANTS

RULE 312 ABRASIVE BLASTING

INDEX

100 No change

101 **PURPOSE:** To limit particulate matter emissions from abrasive blasting operations.

102 **APPLICABILITY:** This rule applies to abrasive blasting operations.

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

103.1 Self-contained, enclosed abrasive blasting equipment that is not vented to the atmosphere or is vented inside a building with the exhaust directed away from any opening to the building exterior, or

103.2 Hydroblasting.

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 ABRASIVE BLASTING –** The operation of cleaning or preparing a surface by forcibly propelling a stream of abrasive material against the surface.~~

201 ABRASIVE – A solid substance used in a blasting operation. This includes but is not limited to sand, slag, steel, shot, garnet, walnut shells, or carbon dioxide pellets.

~~**202 ABRASIVE BLASTING EQUIPMENT –** Any equipment utilized in abrasive blasting operations.~~

202 ABRASIVE BLASTING OPERATION – Cleaning, polishing, conditioning, removing or preparing a surface by propelling a stream of abrasive with pressurized liquid or compressed air against the surface.

~~**203 CONFINED BLASTING –** Any abrasive blasting conducted in an enclosure which significantly reduces air contaminants from being emitted to the ambient atmosphere, including but not limited to shrouds, tanks, buildings and structures.~~

203 CERTIFIED ABRASIVES – An abrasive, that has been certified by the California Air Resources Board (CARB) in accordance with Section 92530 of Title 17, Division 3, Chapter 1, Subchapter 6, Article 4 of the California Code and Regulations effective as of December 26, 2000. An abrasive purchased during the certified period remains certified for use following its expiration date.

~~**204 HYDROBLASTING** – Any abrasive blasting using high pressure liquid as the propelling force.~~

204 CONFINED ENCLOSURE – A structure that is used, in whole or in part, for abrasive blasting operations. The structure consists of three or four sides, a roof or cover, with or without an exhaust to the atmosphere. The blasting shall be directed away from the open side of the structure.

205 EMISSION CONTROL SYSTEM (ECS)– A system for reducing particulate matter emissions, consisting of both collection and control devices, that is designed and operated in accordance with good engineering practice, and, if permitted, is approved in writing by the Control Officer.

206 HYDROBLASTING – Any abrasive blasting ~~using~~ operation that uses a ~~high-pressure~~ pressurized liquid as the propelling force.

~~**205**~~**207 MULTIPLE NOZZLES** – ~~A group of two~~ Two or more nozzles ~~being used for abrasive cleaning of the same surface in such~~ positioned in such close proximity that their separate plumes are indistinguishable.

208 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.

209 UNCONFINED BLASTING – Any abrasive blasting operation that is not performed in a confined enclosure.

210 VACUUM BLASTING – Any abrasive blasting operation in which the spent abrasive, surface material, and dust are immediately collected by a vacuum device.

~~**206**~~**211 WET ABRASIVE BLASTING –** Any abrasive blasting operation ~~using~~ that uses compressed air as the propelling force ~~and sufficient water~~, abrasive, and adds a liquid to minimize the plume.

212 WIND EVENT – An occurrence when the 60-minute average wind speed is greater than 25 miles per hour.

300 No change

~~**301 LIMITATIONS – 20 PERCENT OPACITY:** No person shall discharge into the atmosphere from any abrasive blasting any air contaminant for a period or periods aggregating more than three minutes in any one-hour period which is a shade or density darker than 20 percent opacity.~~

301 LIMITATIONS FOR BLASTING: All abrasive blasting operations shall be performed in a confined enclosure, unless one of the following conditions are met, in which case unconfined blasting according to Section 302 of this rule may be performed:

301.1 The item to be blasted exceeds 8 ft. in any one dimension, or

301.2 The surface being blasted is fixed in a permanent location cannot easily be moved into a confined enclosure, and the surface is not normally dismantled or moved prior to abrasive blasting.

~~**302 CONTROLS REQUIRED:** Any abrasive blasting operation shall use at least one of the following control measures:~~

~~**302.1** Confined blasting.~~

~~**302.2** Wet abrasive blasting.~~

~~**302.3** Hydroblasting.~~

~~**302.4** A control measure that is determined by the Control Officer to be equally effective to control particulate emissions.~~

302 REQUIREMENTS FOR UNCONFINED BLASTING: At least one of the following control measures shall be used:

302.1 Wet abrasive blasting,

302.2 Vacuum blasting, or
302.3 Dry abrasive blasting, provided that all of the following conditions are met:
a. Perform only on a metal substrate.
b. Use only certified abrasive for dry unconfined blasting.
c. Blast only paint that is lead free (i.e. the lead content is less than 0.1%).
d. Perform the abrasive blasting operation directed away from unpaved surfaces.
e. Use the certified abrasive not more than once unless contaminants are separated from the abrasive through filtration and the abrasive conforms to its original size.
303 **REQUIREMENTS FOR CONFINED BLASTING:** Dry abrasive blasting in a confined enclosure with a forced air exhaust shall be conducted by implementing either of the following:
a. Using a certified abrasive, or
b. Venting to an ECS.
304 **REQUIREMENTS FOR ECS AND MONITORING DEVICES:** The following requirements apply to blasting equipment that vents through a required ECS and requires a Maricopa County permit under Rule 200 of these rules. Buildings and/or enclosures are not considered control equipment. Equipment that meets the following two criteria and is operated and maintained in accordance with manufacturer's specifications, is exempt from the requirements of this section:
a. Is self-contained and the total internal volume of the blast section is 50 cubic feet or less, and
b. Is vented to an ECS.
304.1 Operation and Maintenance (O&M) Plan Required for Emission Control System (ECS)-
a. An owner or operator shall provide and maintain, readily available at all times, an O&M Plan for any ECS, other emission processing equipment, and ECS monitoring devices that are used pursuant to this rule or to an air pollution control permit.
b. The 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. If the O&M plan has not been filed, any owner or operator employing an approved existing ECS on the effective date of this rule shall by (insert 6 mos. after rule is adopted) have an O&M plan filed with the Control Officer.
c. The owner or operator shall comply with all the identified actions and schedules provided in each O&M Plan.
304.2 **Installing And Maintaining ECS Monitoring Devices –** An owner or operator operating an ECS pursuant to this rule shall properly install and maintain in calibration, in good working order and in operation, devices described in the facility's O&M Plan that indicate temperatures, pressures, rates of flow, or other operating conditions necessary to determine if air pollution control equipment is functioning properly.
~~301~~**305** **OPACITY LIMITATION:** No owner or operator shall discharge into the atmosphere from any abrasive blasting operation any air contaminant for an observation period or periods aggregating more than three minutes in any sixty minute period an opacity equal to or greater than 20 percent. An indicated excess will be considered to have occurred if any cumulative period of 15-second increments totaling more than three minutes within any sixty minute period was in excess of the opacity standard.
306 **WIND EVENT –** No dry unconfined abrasive blasting operation shall be conducted during a wind event.
307 **TRAFFIC MARKERS –** Surface preparation for raised traffic delineating markers and pavement marking removal using abrasive blasting operations shall be performed by wet blasting, hydroblasting or vacuum blasting. Dry blasting may be performed using only certified abrasives when:
307.1 Removing pavement markings of less than 1,000 square feet.
307.2 Performing surface preparation for raised traffic delineating markers of less than 1,000 square feet.
308 **WORK PRACTICES:**
308.1 **Unconfined Blasting:** The owner or operator of a source shall clean up spent abrasive material with a potential to be transported during a wind event and, until removal occurs, shall, at a minimum, meet the provisions of Rule 310 of these rules regarding work practices.
308.2 **Confined Blasting:** At the end of the work shift the owner or operator shall clean up spillage, carry-out, and/or track-out of any spent abrasive material with a potential to be transported during a wind event in order to prevent air contaminants from being emitted into the atmosphere.

400 **ADMINISTRATIVE REQUIREMENTS**
401 **COMPLIANCE SCHEDULE:** All abrasive blasting operations shall be conducted in compliance with this rule upon adoption.

500 No change
501 **RECORDKEEPING AND REPORTING:** At a minimum, an owner or operator subject to this rule shall keep the following records onsite, that are applicable to all abrasive blasting operations. Additional reporting may be required by an air quality permit:

501.1 If blasting operations occur daily or are part of a facility's primary work activity, then the following shall be kept as a record:
a. A list of the blasting equipment,
b. The description of the type of blasting as confined, unconfined, sand, wet, or other,
c. The locations of the blasting equipment or specify if the equipment is portable,
d. A description of the ECS associated with the blasting operations,
e. The days of the week blasting occurs, and
f. The normal hours of operation.
501.2 If blasting operations occur periodically, then the following shall be kept as a record:
a. The date the blasting occurs,
b. The blasting equipment that is operating,
c. A description of the type of blasting, and
d. A description of the ECS associated with the blasting operations.
501.3 Type and amount of solid abrasive material consumed on a monthly basis. Include name of certified abrasive used, as applicable.
501.4 Material Safety Data Sheets (MSDS) or results of any lead testing that was performed on paint that is to be removed via unconfined blasting, as applicable.
502 **RECORDS RETENTION:** Copies of reports, logs, and supporting documentation required by this rule shall be retained for at least 5 years at permitted Title V sources and for at least 2 years at Non-Title V sources.
503 **COMPLIANCE DETERMINATION:**
503.1 **Control Device Efficiency –** Manufacturer's specifications, testing results, or engineering data that demonstrate control efficiency shall be submitted upon request to the Control Officer.
503.2 **Paint Lead Level–** Prior to unconfined blasting of paint, the owner or operator must be the generator with firsthand knowledge of lead content in the paint, or retain evidence of the lead level from the material MSDS or from a lead test performed in accordance with Section 506 of this rule. Unconfined blasting is prohibited if the lead content of the material is >0.1 percent.
504 **CERTIFIED ABRASIVES LIST ADOPTED BY REFERENCE:** The list of abrasives certified for permissible dry unconfined blasting is found in Executive Order G-00-066 in accordance with the California Code of Regulations, Subchapter 6, Title 17, Section 92530, Exhibit A effective as of December 26, 2000 and is adopted by reference. A copy of the list of currently certified abrasives can also be obtained at Maricopa County Environmental Services, 1001 North Central Avenue, Phoenix, AZ 85004-1942.
~~501~~**505** ~~**VISIBLE EMISSION EVALUATION TECHNIQUES**~~ **OPACITY OBSERVATIONS:** ~~Visible emissions of abrasive blasting operations shall be conducted~~ Opacity shall be determined by observations of visible emissions conducted in accordance with EPA Reference Method 9 and with the following provisions:
505.1 Emissions from unconfined blasting shall be ~~read~~ observed at the densest point of the emission from the closest point of discharge, after a major portion of the spent abrasives has fallen out ~~at a point not less than five feet nor more than 25 feet from the impact surface from any single abrasive blasting nozzle~~.
505.2 Emissions from unconfined blasting employing multiple nozzles shall be ~~judged as~~ considered a single source unless it can be demonstrated by the owner or operator that each nozzle, evaluated separately, meets the emission standards of this rule.
505.3 Emissions from confined blasting shall be ~~read~~ observed at the densest point after the air contaminant leaves the enclosure or associated ECS.
506 **TEST METHODS ADOPTED BY REFERENCE:** The EPA test methods as they exist in the Code of Federal Regulations (CFR), July 1, 2001, as listed below, are adopted by reference. This adoption by reference includes no future editions or amendments. Copies of these test methods may be obtained at the Maricopa County Environmental Services Department – Air Quality Division, 1001 North Central Avenue Suite 200, Phoenix, AZ 85004-1942. When more than one test method as listed in Section 506.2 through 506.7 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.
506.1 EPA Test Method 9 ("Visual Determination of the Opacity of Emissions from Stationary Sources") (40 CFR 60, Appendix A).
506.2 EPA Test Method for Evaluating Solid Wastes (Lead), SW-846 Method 6010B (Inductively Coupled Plasma-Atomic Emission Spectrometry).
506.3 EPA Test Method for Testing Lead by Atomic Absorption, Direct Aspiration, Method 0239.2 (EPA Report 600/4-79-020).
506.4 EPA Test Method for Testing Lead, SW-846 Method 3050B (Acid Digestion of Sediments, Sludges and Soils).
506.5 EPA Test Method for Testing Lead, SW-846 Method 7420 (Lead (Atomic Absorption, Direct Aspiration).
506.6 OSHA Method ID-121 (Metal and Metalloid Particulates in Workplace Atmospheres [Atomic Absorption]).
506.7 OSHA Method ID-125G (Metal and Metalloid Particulates in Workplace Atmospheres [ICP Analysis]).