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REGULATION 1 - GENERAL PROVISIONS

RULE 1. Emissions Regulated: Policy; Legal Authority

A. The intent of these Rules and Regulations is to prevent, reduce, control, correct or remove air pollution originating within the territorial limits of Maricopa County and to carry out the mandates of the State Air Pollution Control Law.

B. These Rules and Regulations are adopted pursuant to the authority granted by Section 36-779, Arizona Revised Statutes.

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Rule 2. Definitions - ~~In these rules and regulations, unless the context otherwise requires:~~

For the purposes of these rules and regulations the following definitions will apply unless the context otherwise requires and unless in conflict with definitions given in Rule 36 (NSPS) or Rule 37 (NESHAPS). In such case the definitions given in Rules 36 and 37 shall apply to sources or pollutants covered by these rules and these definitions will govern elsewhere.

B.1. "Accepted" means approved by the Control Officer.

2. "Acid mist" means sulfuric acid mist as measured by Method 8 in the Arizona Source Testing Manual.

3. "Act" means the Clean Air Act, 42 U.S.C.A. §7401 et seq.

4. "Administrator" means the Administrator of the United States Environmental Protection Agency.

B.5. "Advisory Council" means the Maricopa County Air Pollution Control Advisory Council appointed by the Maricopa County Board of Supervisors.

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6. "Affected facility" means, with reference to a stationary source, any apparatus to which a standard is applicable.

B.7. "Air Contaminants" include smoke, vapors, charred paper, dust, soot, grime, carbon, fumes, gases, sulfuric acid mist aerosols, aerosol droplets, odors, particulate matter, windborne matter, radioactive materials, noxious chemicals, or any other material in the outdoor atmosphere.

A.8. "Air Pollution" means the presence in the outdoor atmosphere of one or more air contaminants or combinations thereof in sufficient quantities, which either alone or in connection with other substances, by reason of their concentration and duration are or tend to be injurious to human, plant or animal life, or causes damage to property, or unreasonably interferes with the comfortable enjoyment of life or property, of a substantial part of a community, or obscures visibility, or which in any way degrades the quality of the ambient air below the standards established by the Board of Supervisors.

9. "Air Pollution Control Equipment" means equipment used to eliminate, reduce or control the emission of air pollutants into the ambient air.

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10. "Allowable Emissions" means the more stringent of the following:

a. The applicable new source performance standards or existing source performance standards, or

b. The emission rate agreed to by the source owner or operator of a source as a permit condition. Allowable emissions shall be calculated at the source's maximum rated capacity, unless the source is subject to enforceable permit conditions which limit rate of operation, hours of operation, or the type or amount of materials combusted or processed.

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11. "ALTERATION OR MODIFICATION" MEANS ANY PHYSICAL CHANGE OR CHANGE IN THE METHOD OF OPERATION, WHICH INCREASES OR DECREASES THE AMOUNT OF ANY AIR POLLUTANT EMITTED BY A SOURCE OR RESULTS IN THE EMISSION OF ANY AIR POLLUTANT NOT PREVIOUSLY EMITTED, EXCEPT THAT:

a. ROUTINE MAINTENANCE, REPAIR AND REPLACEMENT SHALL NOT BE CONSIDERED A PHYSICAL CHANGE;

b. THE FOLLOWING SHALL NOT BE CONSIDERED A CHANGE IN THE METHOD OF OPERATION:

i. AN INCREASE OR DECREASE IN PRODUCTION RATE, PROVIDING SUCH INCREASE OR DECREASE DOES NOT EXCEED CONDITIONS CONTAINED IN THE SOURCE'S OPERATING PERMIT;

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ii. AN INCREASE OR DECREASE IN THE HOURS OF OPERATION, PROVIDING SUCH INCREASE OR DECREASE DOES NOT EXCEED CONDITIONS CONTAINED IN THE SOURCE'S OPERATING PERMIT;

iii. USE OF AN ALTERNATIVE FUEL OR RAW MATERIAL BY REASON OF AN ORDER IN EFFECT UNDER SECTION 2(a) AND (b) OF THE ENERGY SUPPLY AND ENVIRONMENTAL COORDINATION ACT OF 1974 (15 U.S.C.A. §§ 792 OR ANY SUPERSEDING LEGISLATION), OR BY REASON OF A NATURAL GAS CURTAILMENT PLAN IN EFFECT PURSUANT TO THE FEDERAL POWER ACT (U.S.C.A. TITLE 16, CHAPTER 12), OR BY REASON OF ANY OTHER FORCED CURTAILMENT OR LACK OF SUPPLY OF NATURAL GAS IF SUCH SOURCE CAN FURNISH TO THE DEPARTMENT A CERTIFIED COPY OF THE FINDING OF A STATE OR FEDERAL GOVERNMENTAL BODY HAVING JURISDICTION OVER SUCH SOURCE THAT ATTESTS TO THE EXISTENCE OF A FORCED CURTAILMENT OR LACK OF SUPPLY OF NATURAL GAS;

iv. USE OF AN ALTERNATIVE FUEL OR RAW MATERIAL, IF PRIOR TO JANUARY 6, 1975, THE SOURCE OR FACILITY WAS CAPABLE OF ACCOMMODATING SUCH FUEL OR MATERIAL;

v. USE OF AN ALTERNATIVE FUEL BY REASON OF AN ORDER OR RULE UNDER SECTION 125 OF THE ACT.

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12. "Ambient Air" means that portion of the atmosphere, external to buildings, to which the general public has access.

E.13. "Approved" means approved in writing, by the Maricopa County Air Pollution Control Officer.

14. "Arizona Testing Manual" means the Arizona Testing Manual for Air Pollutant Emissions.

F.15. "ASME" means the American Society of Mechanical Engineers.

6.16. "ASTM" means the American Society for Testing Materials.

17. "Attainment Area" means an area so designated by the Administrator acting pursuant to Section 107 of the Act as having ambient air pollutant concentration equal to or less than national primary or secondary ambient air quality standards for a particular pollutant or pollutants.

19. "Bureau" means the Bureau of Air Pollution Control within the Maricopa County Health Department.

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20. "Commenced" means that an owner or operator has either:

a. Begun, or caused to begin, a continuous program of physical onsite construction of the source or facility, or

b. Entered into binding agreements or contractual obligations which cannot be cancelled or modified without substantial loss to the owner or operator, to undertake a program of construction of the source or facility to be completed within a reasonable time.

21. "Construction" means replacement, fabrication, erection or installation of an affected facility.

22. "Continuous Monitoring System" means the total equipment required under the emission monitoring subsections in applicable sections, used to sample and condition (if applicable), to analyze, and to provide a permanent record of emission or process parameters.

H.23 "Control Officer" means the director of the Maricopa County Department of Health Services or his authorized representative.

I.24. "Department" means the Maricopa County Department of Health Services.

J.25. "Device, machine, equipment or other articles means any assembly or mechanism, the operation of which may cause or contribute to air pollution or which is used primarily to prevent or control the emission of air pollutants.

K.26. "Discharge" means the release or escape, of emission from the source of an ~~air contaminant~~ effluent into the atmosphere.

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E.27. "Dust" means any solid particulate matter discharged, released into or carried in the atmosphere by natural forces or by any fuel burning, combustion, process equipment, device, construction work or by manual, mechanical or industrial processes including, but not restricted to, crushing, grinding, milling, drilling, demolishing, shoveling, sweeping, bagging, covering, conveying, transporting, transferring and the like.

28. "Effluent" means any air contaminant which is emitted and subsequently escapes into the atmosphere.

29. "Emission" means an air contaminant or gas stream or the act of discharging an air contaminant or a gas stream, visible or invisible.

30. "Emission Standard" means a regulation (or portion thereof) setting forth an allowable rate of emissions, level of opacity, or prescribing equipment or fuel specifications that result in control of air pollution emissions.

31. "Equivalent Method" means any method of sampling and analyzing for an air pollutant which has been demonstrated to the Control Officer's satisfaction to have a consistent and quantitatively known relationship to the reference method, under specified conditions.

32. "Excess Emissions" or "Emissions in excess of an emission limitation" means emissions of an air pollutant in excess of an emission standard as measured by the compliance test method applicable to such emission standard.

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33. "Existing Source" means any source which commenced replacement, erection, installation or making ~~a major~~ alteration ~~of the type described in Rule 21.0 (installation permit)~~ prior to the effective date of these rules and regulations.

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34. "Existing Source Performance Standards" means emission standards applicable to existing sources.

35. "Facility" means an identifiable piece of stationary process equipment and all associated equipment. A stationary source is composed of one or more pollutant-emitting facilities.

M.36. "Flue" means a duct or passage, such as a stack or chimney for air contaminants.

M.37. "Fly Ash" means particulate matter, gasborne or airborne, consisting essentially of fused ash, and/or unburned, or partially burned, material resulting from combustion of fuel or refuse.

38. "Fossil Fuel-Fired Steam Generator" means a furnace or boiler used in the process of burning fossil fuel for the primary purpose of producing steam by heat transfer.

39. "Fuel" means any material which is burned for the purpose of producing energy.

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40."Fugitive Dust" means naturally occurring particles uncontaminated by pollutants resulting from industrial activity. Fugitive dust may include emissions from unpaved roads, paved roads, tilled farm land, exposed surface areas, arid lands, sparsely vegetated lands, unimproved lands, land reclamation, construction sites, mining activities associated with overburden removal, blasting, haul road truck transport and native soil or overburden material which becomes airborne naturally or from any other source.

41."Fugitive Emissions" means emissions not vented to the atmosphere through a stack or stacks.

~~0~~.42."Fume" ~~mean gases and vapors which cause air pollution when released into ambient air~~ means solid particulate matter resulting from the condensation and subsequent solidification of vapors of melted solid materials.

P.43."Gasoline" means any petroleum distillate in liquid form at atmospheric pressure having a Reid vapor pressure four pounds or over.

44."Hazardous Air Pollutant" means air pollutant to which no Maricopa County ambient air quality standard is applicable and which in the judgment of the control officer causes, or contributes to, air pollution which may reasonably be anticipated to result in an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness.

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Q.45. "Hearing Board" means the Maricopa County Air Pollution Control Hearing Board appointed by the Maricopa County Board of Supervisors.

46. "Heat Input" means the quantity of heat in terms of BTU's generated by fuels fed into the fuel burning equipment under condition of complete combustion.

R.47. "Incinerator" means any equipment, machine, device, contrivance or other article and all appurtenances thereof used for the destruction or reduction by burning of refuse, salvage material or any other combustible waste matter.

48. "Lead" means elemental lead or alloys in which the predominant component is lead.

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51. "Major Modification" means a modification to a source which results in any physical change in, or change in the method of operation of, a facility or the construction of a new facility within such source which increases the potential emission rate of any air pollutant to which a standard under these rules and regulations applies by either one hundred (100) or two hundred and fifty (250) tons per year or more, whichever is applicable.

a. The one hundred (100) tons per year limitation for any particular pollutant shall be applicable:

i. Regardless of geographical location of the sources affected by the emissions of that pollutant, to the following sources:

. . . . .

Fossil fuel-fired steam electric plants of more than 250 million British thermal units per hour heat input, coal cleaning plants (with thermal dryers), kraft pulp mills, Portland Cement plants, primary zinc smelters, iron and steel mill plants, primary aluminum ore reduction plants, primary copper smelters, municipal incinerators capable of charging more than 250 tons of refuse per day, hydrofluoric, sulfuric, and nitric acid plants, petroleum refineries, lime plants, phosphate rock processing plants, coke oven batteries, sulfur recovery plants, carbon black plants (furnace process), primary lead smelters, fuel conversion plants, sintering plants, secondary metal production plants,

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chemical process plants, fossil fuel boilers (or combinations thereof) totaling more than 250 million British thermal units per hour heat input, petroleum storage and transfer units with a total storage capacity exceeding 300 thousand barrels, taconite ore processing plants, glass fiber processing plants, and charcoal production plants, and

ii. To sources which will be located in a nonattainment area for such pollutant.

b. The two hundred and fifty (250) tons per year limitation for any particular pollutant shall be applicable to sources under all conditions not enumerated in subparagraph a above.

c. The owner or operator of a source or facility (other than facilities enumerated in a(i) above) undergoing an alteration which it contends is not a major alteration but which will result in the potential emission rate of such source or facility being increased by more than 100 tons per year but less than 250 tons per year shall be required to demonstrate to the Control Officer that subparagraph (a) is not applicable to such source or facility.

d. Routine maintenance, repair and replacement shall not be considered a physical change.

e. The following shall not be considered a change in the method of operation, unless previously limited by enforceable permit conditions:

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i. An increase in production rate, if such increase does not exceed the operating design capacity of the affected facility;

ii. An increase in the hours of operation, subject to conditions contained in the source's operating permit;

iii. Use of an alternative fuel or raw material by reason of an order in effect under Section 2(a) and (b) of the Energy Supply and Environmental Coordination Act of 1974 (15 U.S.C.A. § 792 or any superseding legislation), or by reason of a natural gas curtailment plan in effect pursuant to the Federal Power Act (U.S.C.A. Title 16, Chapter 12), or by reason of any other forced curtailment or lack of supply of natural gas if such source can furnish to the Control Officer a certified copy of the finding of a State or Federal governmental body having jurisdiction over such source that attests to the existence of a forced curtailment or lack of supply of natural gas;

iv. Use of an alternative fuel or raw material, if prior to January 6, 1975, the source or facility was capable of accommodating such fuel or material;

v. Use of an alternative fuel by reason of an order or rule under Section 125 of the Act;

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vi. Change in ownership of the affected facility.

vii. Installation of air pollution control equipment, and all related process equipment and materials necessary for its operation, undertaken for the purpose of complying with any emission standards.

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53. "Malfunction" means any sudden and unavoidable failure of air pollution control equipment or process equipment of a process to operate in a normal and usual manner. Failures that are caused by poor maintenance, careless operation or any other upset condition or equipment breakdown which could have been prevented by the exercise of reasonable care shall not be considered malfunctions.

8.55. "Motor Vehicle" means a self-propelled vehicle for use on the public roads and highways of the State of Arizona, and required to be registered under the Arizona State Uniform Motor Vehicle Act.

56. "New Source" means any source of air pollution the construction of which was commenced after the effective date of these Rules and Regulations.

58. "Nonattainment Area" means an area so designated by the Administrator acting pursuant to Section 107 of the Act (42 U.S.C.A. §7401) as exceeding national primary or secondary ambient air standards for a particular pollutant or pollutants.

59. "Non-point Source" means a source of air contaminants which lacks an identifiable plume or emission point.

8.60. "Odors" mean smells, aromas or stenches commonly recognized as offensive, obnoxious or objectionable to a substantial part of a community.

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V.61. "Opacity" means a condition of the atmosphere, or any part thereof, in which it is partially or wholly impervious to rays of light, and as used in these rules and regulations refers to a condition of the atmosphere which obscures an observer's view.

W.62. "Open Outdoor Fire" means any combustion of material of any type outdoors, where the products of combustion are not directed through a flue.

X.63. "Operation" means any physical action resulting in a change in the location, form or physical properties of a material, or any chemical action resulting in a change in the chemical composition or properties of a material.

Y.64. "Organic Solvent" means any liquid composed wholly or in part of a carbon compound which is capable of dissolving another substance or carrying it in suspension.

65. "Owner or Operator" means any person who owns, leases, operates, controls, or supervises an affected facility or a stationary source of which an affected facility is a part.

Z.66. "Particulate Matter" means any ~~discrete particles of~~ finely divided liquid or solid material, other than uncombined water or sulfur acid mist aerosols ~~which are carried in, suspended in, or discharged into the atmosphere as a liquid or solid~~ as measured by the test methods and procedures described in the Arizona Testing Manual or other test methods or procedures specified in these Rules.

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67. "Percent Opacity" means the degree to which an effluent plume or other emmission obscures the transmission of light.

aa.68. "Permit Unit" means a machine, device or other article, including but not limited to, fuel burning equipment, refuse burning equipment, storage tank and/or process equipment which functions for the processing or storage of material or materials, or a group of such equipment interconnected by conveyor, chute, duct, pipe or hose for the movement of process material or products thereof. A permit unit or grouping may be considered as encompassing all the equipment used from the point or points of initial feed to the point or points of termination where the process flow of material will be or can be interrupted or to the point or points of discharge where such discharge will be stored, go into a different permit group, be physically separated from the equipment of the permit unit group, or be discharged into the atmosphere.

bb.69. "Person" means any public or private corporation, company, partnership, firm, association or society of persons, the Federal Government and any of its departments or agencies, the State and any of its agencies, departments or political subsidivisions, as well as a natural person.

70. "Plume" means visible effluent.

71. "Pollutant" means an air contaminant the emission or ambient concentration of which is regulated pursuant to these rules and regulations.

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72. "Potential to Emit" or "Potential Emission Rate" means the capability to emit or rate at which a pollutant for which a national ambient air quality standard has been established is emitted in the absence of air pollution control equipment, unless such equipment is necessary for the source to produce its normal product or is integral to the normal operation of the source. Potential emissions rates shall be determined at the source's maximum rated capacity or maximum demonstrated capacity, whichever is larger, unless the source is subject to permit conditions limiting the rate of operation, hours of operation or the type or amount of material combusted or processed.

ee.73. "Process and Process Equipment" means any activity, operation or treatment involving the use of any machine, equipment, device or other article for changing any materials or for storage or holding of any materials and all appurtenances thereto including, but not limited to, heat-treating furnaces, cupolas, electric furnaces, ferrous and non-ferrous foundries, hot mix asphalt plants, cement asphalt plants, conceret mix plants, sand and gravel operations, cotton gins, feed mills, chemical plants, cement plants, gypsum plants, refineries, dry cleaners, mining and smelting including equipment used in connection therewith, and all other methods or forms of manufacturing, processing or storage that may cause or contribute to air pollution in Maricopa County, and

all devices used for the control or reduction of air contaminants arising from such processes and process equipment.

dd.74."Process Weight" means the total weight of all materials introduced into any specific process, which materials may in any form be discharged into the atmosphere. Solid fuels which are part of the charge will be considered part of the process weight.

ee.75."Process Weight Rate" ~~per-hour-means-the-total-process-weight-for-a-representative-period-of-operation-or-for-a-continuous-portion-thereof,-divided-by-the-number-of-hours-of-each-period-or-portion-thereof.~~ means a rate established as follows:

a. For continuous or long run, steady-state process sources, the total process weight for the entire period of continuous operation or for a typical portion thereof, divided by the number of hours of such period or portion thereof.

b. For cyclical or batch process sources, the total process weight for a period which covers a complete operation or an integral number of cycles, divided by the hours of actual process operation during such period.

c. The total process weight from all similar units employing a similar type process shall be used in determining the maximum allowable emission of particulate matter.

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76. "Reasonably Available Control Technology" means the applicable existing source performance standard or the lowest emission limitation, promulgated by the Maricopa County Board of Supervisors pursuant to A.R.S. 36-779, that a particular source is capable of meeting by the application of control technology that is reasonably available considering technological and economic feasibility. RACT for a particular source is determined on a case-by-case basis, considering the technological and economic circumstances of the individual source.

77. "Reference Method" means the methods of sampling and analyzing for an air pollutant as described in the Arizona Testing Manual.

78. "Shutdown" means the cessation of operation of any air pollution control equipment or process equipment for any purpose, except routine phasing out of process equipment.

~~ff. Ringlemann Smoke Chart means the Ringelmann Chart with instructions for use as published by the U. S. Bureau of Mines in I. C. 8333.~~

79. "Significance Levels" means the following ambient concentrations for the enumerated pollutants:

Pollutant	Averaging Time				
	Annual	24-Hour	8-Hour	3-Hour	1-Hour
SO2	2 ug/m^3	5 ug/m^3		25 ug/m^3	
TSP	5 ug/m^3	10 ug/m^3			
NO2	2 ug/m^3				
CO			0.5 mg/m^3		3 mg/m^3

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Except for the annual pollutant concentrations, exceedance of significance levels shall occur when the ambient concentrations of the above pollutants will be exceeded more than once per year at any one location. Significance levels shall be deemed not to have been exceeded for any of the above-enumerated pollutants if such concentrations occur at a specific location and at a time when Arizona ambient air quality standards for such pollutant would not be violated.

gg.80."Smoke" means ~~small-visible-gasborne-particles,-other than-water-which-are-discharged-into-the-atmosphere~~ particulate matter resulting from incomplete combustion.

hh.81."Source" means ~~and-refers-to-any-physical-facility,-device,-contrivance,-condition,-or-activity,-from-which air-contaminants-are-or-may-be-emitted~~ any facility, equipment, machine, incinerator, structure, building, device or other article (or combination thereof) which is located on one or more contiguous properties and which is owned or operated by the same person (or by persons under common control) and which emits or may emit an air pollutant. Properties shall not be considered contiguous if they are connected only by property upon which is located equipment utilized solely in transmission of electrical energy.

ii.82."Standard Conditions" means a gas temperature of 60 degrees Fahrenheit and a gas pressure of 14.7 pounds per square inch absolute. When applicable, all analyses and tests shall be calculated and reported at standard gas temperatures and pressure values.

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jj.83."Special Inspection Warrant" means an order, in writing, issued in the name of the State of Arizona, signed by a Magistrate, directed to the Control Officer or his deputies authorizing him to enter into or upon public or private property for the purpose of making an inspection authorized by law.

84."Start-up" means the setting into operation of any air pollution control equipment or process equipment for any purpose except routine phasing in of process equipment.

85."Stationary Source" means any structure, building, facility, equipment, installation or operation (or combination thereof) which is located on one or more contiguous or adjacent properties and which is owned or operated by the same person (or by persons under common control) and which emits or may emit an air pollutant. Properties shall not be considered contiguous if they are connected only by property upon which is located equipment utilized solely in transmission of electrical energy.

kk.86."Submerged Fill Pipe" means a fill pipe, the discharge opening of which is entirely submerged when the liquid level is six (6) inches above the bottom of the tank. Submerged fill pipe, when applied to a tank which is loaded at its side means a fill pipe, the discharge opening of which is entirely submerged when the liquid level is eighteen (18) inches above the bottom of the tank.

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87. "Unclassified Area" means an area which the Administrator, because of a lack of adequate data, is unable to classify as an attainment or nonattainment area for a specific pollutant. For purposes of these rules and regulations unclassified areas are to be treated as attainment areas.

88. "Uncombined Water" means condensed water containing analytical trace amounts of other chemical elements or compounds.

89. "Urban or Suburban Open Area" means an unsubdivided tract of land surrounding a substantial urban development of a residential, industrial, or commercial nature and which, though near or within the limits of some city or town, may be used for agriculture, be uncultivated, or lie fallow.

90. "Vacant Lot" means a subdivided residential or commercial lot which contains no buildings or structures of a temporary or permanent nature.

91. "Vapor" means the gaseous form of a substance normally found in the liquid or solid state.

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Rule 3. Air Pollution Prohibited.

No person shall discharge from any source whatever into the atmosphere air contaminants which exceed in quantity or concentration that specified and allowed in these rules and regulations or the rules and regulations of the Arizona State Department of Health Services or the Arizona Revised Statutes or which cause damage to property or unreasonably interfere with the comfortable enjoyment of life or property of a substantial part of a community, or obscure visibility, or which in any way degrade the quality of the ambient air below the standards established by the Board of Supervisors, or the director of the State Department of Health Services.

3/4/83

RULE 21.0 PROCEDURES FOR OBTAINING AN INSTALLATION PERMIT

A. APPLICATIONS FOR INSTALLATION PERMITS REQUIRED BY A.R.S. § § 36-779.01 AND REGULATION 11, RULE 20, PARAGRAPH (B) OF THESE REGULATIONS SHALL BE SUBMITTED IN A FORMAT WHICH INCLUDES THE FOLLOWING INFORMATION:

1. A PLAN LAYOUT OF THE BASIC OPERATIONAL EQUIPMENT AND CONTROL DEVICES WITH THE FUNCTIONAL DESCRIPTION OF EACH.
2. A LIST OF THE TYPE AND AMOUNT OF RAW MATERIALS, LOCATION OF ALL EMISSION POINTS, AND TYPE AND QUANTITY OF POLLUTANT EMISSIONS ALONG WITH A DESCRIPTION AND ACCOUNTING OF THE METHOD USED TO CALCULATE THE EMISSIONS.
3. OPERATING SCHEDULE STATING HOURS PER DAY, DAYS PER WEEK, WEEKS PER YEAR AND TIME OF DAY FOR STARTUP AND SHUTDOWN.
4. PROJECTED DATE OF COMPLETION.

B. ADDITIONAL INFORMATION OTHER THAN OUTLINED IN PARAGRAPH (A) ABOVE MAY BE REQUIRED BY THE CONTROL OFFICER TO DETERMINE COMPLIANCE.

C. AN INSTALLATION PERMIT MAY COVER NUMEROUS PIECES OF EQUIPMENT, HOWEVER, INSTALLATION OF ADDITIONAL EQUIPMENT NOT ALREADY COVERED UNDER A CURRENT INSTALLATION PERMIT WILL REQUIRE A NEW INSTALLATION PERMIT.

D. INSTALLATION PERMIT REQUIREMENTS FOR MAJOR SOURCES LOCATED IN NONATTAINMENT, ATTAINMENT, OR UNCLASSIFIABLE AREAS

4/17/85

D. Installation permit requirements for major sources located in nonattainment, attainment, or unclassifiable areas:

1. General

Articles R9-3-301, R9-3-302, R9-3-303, R9-3-304, R9-3-305, R9-3-307, of the State of Arizona, Air Pollution Control Administrative Rules and Regulations, including definitions used and articles referenced in said administrative rules and regulations, along with all duly promulgated revisions as of April 30, 1984, are hereby adopted by reference except as follows:

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a. "DIRECTOR" SHALL IN THESE ARTICLES BE TAKEN TO MEAN THE CONTROL OFFICER OF THE MARICOPA COUNTY HEALTH DEPARTMENT, BUREAU OF AIR POLLUTION CONTROL EXCEPT WHERE IT SPECIFICALLY REFERS TO THE ADMINISTRATOR OF THE U.S. ENVIRONMENTAL PROTECTION AGENCY.

b. ARTICLE R9-3-101, DEFINITION 146.b "BUILDING, STRUCTURE, OR FACILITY" MEANS, FOR SOURCES LOCATED IN NONATTAINMENT AREAS, ALL OF THE POLLUTANT-EMITTING ACTIVITIES WHICH BELONG TO THE SAME INDUSTRIAL GROUPING, ARE LOCATED ON ONE OR MORE CONTIGUOUS OR ADJACENT PROPERTIES, AND ARE UNDER THE CONTROL OF THE SAME PERSON (OR PERSONS UNDER COMMON CONTROL). POLLUTANT-EMITTING ACTIVITIES SHALL BE CONSIDERED AS A PART OF THE SAME INDUSTRIAL GROUPING

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IF THEY BELONG TO THE SAME "MAJOR GROUP" (I.E., WHICH HAVE THE SAME TWO-DIGIT CODE) AS DESCRIBED IN THE STANDARD INDUSTRIAL CLASSIFICATION MANUAL, 1972, AS AMENDED BY THE 1977 SUPPLEMENT (U.S. GOVERNMENT PRINTING OFFICE STOCK NUMBERS 4101-0066 and 003-005-00176-0, RESPECTIVELY).

c. ARTICLE R9-3-101, DEFINITION 146.b. "INSTALLATION" MEANS, FOR SOURCES LOCATED IN NONATTAINMENT AREAS, AN IDENTIFIABLE PIECE OF PROCESS EQUIPMENT.

d. "RECONSTRUCTION" OF SOURCES LOCATED IN NONATTAINMENT AREAS WILL BE PRESUMED TO HAVE TAKEN PLACE WHERE THE FIXED CAPITAL COST OF THE NEW COMPONENTS EXCEEDS 50 PERCENT OF THE FIXED CAPITAL COST OF A COMPARABLE ENTIRELY NEW STATIONARY SOURCE. ANY FINAL DECISION AS TO WHETHER RECONSTRUCTION HAS OCCURRED SHALL BE MADE IN ACCORDANCE WITH THE PROVISIONS OF 40 CFR 60.15(f) (1)-(3). A RECONSTRUCTED STATIONARY SOURCE WILL BE TREATED AS A NEW STATIONARY SOURCE FOR PURPOSES OF NONATTAINMENT AREA SOURCE REVIEW. IN DETERMINING LOWEST ACHIEVABLE EMISSION RATE FOR A RECONSTRUCTED STATIONARY SOURCE, THE PROVISIONS OF 40 CFR 60.15(f) (4) SHALL BE TAKEN INTO ACCOUNT IN

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ASSESSING WHETHER A NEW SOURCE PERFORMANCE STANDARD IS APPLICABLE TO SUCH STATIONARY SOURCE.

4/17/85

e. ARTICLE R9-3-304 G. SHALL READ:
THE REQUIREMENTS OF THIS SECTION SHALL NOT APPLY TO A PORTABLE SOURCE WHICH WOULD OTHERWISE BE A NEW MAJOR SOURCE OR MAJOR ALTERATION TO AN EXISTING SOURCE IF SUCH PORTABLE SOURCE:
(1) IS A TEMPORARY SOURCE,
(2) IS UNDER AN INSTALLATION OR OPERATING PERMIT ISSUED UNDER THIS RULE,
(3) IS IN COMPLIANCE WITH THE CONDITIONS OF THAT PERMIT,
(4) AGREES TO NOTIFY THE CONTROL OFFICER PRIOR TO RELOCATION, AND
(5) THE EMISSIONS FROM THE SOURCE WILL NOT IMPACT A CLASS I AREA NOR AN AREA WHERE AN APPLICABLE INCREMENT IS KNOWN TO BE VIOLATED.

f. ARTICLE R9-3-307.B.4.b. SHALL READ: IMPACT ANY CLASS I AREA; OR

g. ARTICLE R9-3-307.B.4.c. SHALL READ: IMPACT ANY AREA WHERE AN APPLICABLE INCREMENT IS KNOWN TO BE VIOLATED.

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E. AN INSTALLATION PERMIT SHALL REMAIN IN EFFECT UNTIL THE OPERATING PERMIT FOR SUCH EQUIPMENT IS GRANTED OR DENIED OR THE APPLICATION IS CANCELED BUT IN NO INSTANCE MORE THAN TWO YEARS (A.R.S. 36-779.05).

5/30/72

F. No permit is valid until the applicable permit fee has been received and the permit issued by the department.

1/18/79

G. NO APPLICATION FOR AN INSTALLATION PERMIT FOR ANY MAJOR SOURCE SUBJECT TO THE PROVISIONS OF THESE REGULATIONS SHALL BE GRANTED PRIOR TO A THIRTY (30) DAY PUBLIC COMMENT PERIOD DURING WHICH:

1. PUBLIC NOTICE IS ACCOMPLISHED BY PUBLISHING IN A NEWSPAPER OF GENERAL CIRCULATION WITHIN MARICOPA COUNTY AT LEAST THREE (3) TIMES AND,
2. PROMINENT DISPLAY IN AT LEAST THREE (3) CONSPICUOUS PLACES IN THE COUNTY AND,
3. THE REQUIRED INFORMATION SUBMITTED BY THE APPLICANT PERTINENT TO THE INSTALLATION PERMIT (WITH THE EXCEPTION OF CONFIDENTIAL MATERIAL), AND THE BUREAU OF AIR POLLUTION CONTROL ANALYSIS, AND PROPOSED ACTION BE MADE AVAILABLE FOR PUBLIC SCRUTINY AT THE MARICOPA COUNTY DEPARTMENT OF HEALTH SERVICES.

~~the annual renewal date of the new permit shall be~~ the anniversary date of the existing permit and the new operating permit fee shall be pro-rated from the date of issuance to that anniversary date.

E. In granting a permit, the Control Officer may require compliance with specific conditions and terms which he deems applicable. Failure to comply shall invalidate the permit.

F. No permit is valid until the applicable permit fee has ~~been received and the permit issued by the department.~~

RULE 22. Permit Denial - Action - Transfer - Posting - Revocation - Compliance - Expiration

A. The Control Officer shall deny an Installation Permit or an Operating Permit if the applicant does not show that every such machine, equipment, incinerator, device or other article, the use of which may cause or contribute to air pollution, or the use of which may eliminate or reduce or control the emission of air pollutants, is so designed, controlled, or equipped with such air pollution control equipment, that it may be expected to operate without emitting or without causing to be emitted air contaminants in violation of the provisions of these Rules and Regulations, or those of the State Board of Health.

(Arizona Revised Statute 36-779.02)

~~B. Prior to acting on an application for an Operating Permit, the Control Officer pursuant to Rule 42 of these Regulations may require the applicant to provide and maintain such facilities as are necessary for sampling and testing purposes in order to secure information that will disclose the nature, extent, quantity or degree of air contaminants discharged into the atmosphere from the machine, equipment, incinerator, device or other article described in the Installation Permit.~~

C. In acting upon an application for an Operating Permit, if the Control Officer finds that such machine, equipment, incinerator, device, or other article described in these Rules and Regulations has been constructed not in accordance with the Installation Permit, he shall deny the application for such Operating Permit. The Control Officer shall not accept any further application for an Operating Permit for such machine, equipment, incinerator, device or other article so constructed until he finds that such machine, equipment, incinerator, device or other article has been reconstructed in accordance with the Installation Permit. (Arizona Revised Statute 36-779.02)

D. Non-Transferable - An Installation Permit or an Operating Permit shall not be transferable, whether by operation of law or otherwise, either from one piece of equipment to another, or from one person to another. (Arizona Revised Statute 36-779.04)

~~E. Expiration - An Installation Permit shall expire two (2) years from the date of its issuance if no action has been initiated on such permit.~~

F. Posting of Permit - A person who has been granted an Operating Permit, shall firmly affix such permit, an approved facsimile of such permit or other approved identification bearing the permit number upon such machine, equipment, incinerator, device or other article for which the Operating Permit is issued in such a manner as to be clearly visible and accessible. In the event that such machine, equipment, incinerator, device or other article is so constructed or operated that such permit cannot be so placed, the permit shall be mounted so as to be clearly visible in an accessible place within a reasonable distance of such machine, equipment, incinerator, device or other article, or maintained readily available at all times on the operating premises. (Arizona Revised Statute 36-779.06)

G. Permit Revocation

1. The Control Officer may revoke a permit if he determines, by competent evidence, that the nature, extent, quantity, or degree of air contaminants discharged into the atmosphere from any equipment covered by the permit is in violation of these Rules and Regulations, or the Rules and Regulations of the State Department of Health.

2. The Control Officer shall notify the permittee of such revocation in writing, giving the reasons therefor, and the revocation shall become final ten (10) days after notification. Notification may be made in person or by Registered or Certified mail.

3. Revocation of a permit may be canceled by the Control Officer anytime before the revocation becomes final if the permittee has corrected the condition responsible for the permit revocation.

4. Revocation of a permit shall be stayed by the permittee's written petition for a hearing, filed in accordance with Regulation VI, Rule 62 of these Regulations.

5. Upon revocation becoming final, an Operating Permit shall be issued only on the basis of an application for a new permit.

H. Compliance with other laws and regulations - The issuance of any permit by the Control Officer shall not relieve any person from compliance with these Rules and Regulations or any other law or ordinance.

~~RULE 23. Permit Classes~~

WHEREAS Section 36-779.01 Arizona Revised Statutes states that any person erecting, installing, replacing or making a major alteration to any machine, equipment, incinerator, device or other article which may cause or contribute to air pollution or the use of which may eliminate or reduce or control the emission of air pollutants, shall first obtain an Installation Permit from the Control Officer and that before any such machine, equipment, incinerator, device, or other article may be operated or used, an Operating Permit shall be obtained in writing from the Control Officer, it is hereby established that the following classes of machines, equipment, devices or other articles may cause or contribute to air pollution or may be used to prevent or control air contaminants and therefore require a permit from ~~the County Air Pollution Control Officer.~~

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RULE 23. Permit Classes

WHEREAS Section 36-779.01 Arizona Revised Statutes states that any person erecting, installing, replacing or making a major alteration to any machine, equipment, incinerator, device or other article which may cause or contribute to air pollution or the use of which may eliminate or reduce or control the emission of air pollutants, shall first obtain an Installation Permit from the Control Officer and that before any such machine, equipment, incinerator, device, or other article may be operated or used, an Operating Permit shall be obtained in writing from the Control Officer, it is hereby established that the following classes of machines, equipment, devices or other articles may cause or contribute to air pollution or may be used to prevent or control air contaminants and therefore require a permit from the County Air Pollution Control Officer.

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A. Fuel Burning Equipment - This class includes any equipment, machine, device contrivance or other article used primarily to burn any fuel for the purpose of heating or heat exchange, and all appurtenances thereto including air pollution control equipment. This class does not include refuse burning equipment and equipment specifically excepted by the Arizona Revised Statutes.

B. Refuse Burning Equipment - This class includes any equipment, machine, device, contrivance or other article used for the destruction or reduction of refuse, salvage material and all other waste matter by burning and all appurtenances thereto including all equipment or devices used for the prevention or control of air contaminants.

C. Process Equipment - This class includes any equipment, machine, device, contrivance or other article used for changing any material whatever or for the storage or holding or processing of any materials and all appurtenances thereto, the use or existence of which may cause or contribute to the discharge of air contaminants into the outdoor atmosphere or are used for the prevention or control of air contaminants. This class does not include that equipment specifically classified as fuel burning or refuse burning equipment in these Rules and Regulations.

D. Petroleum Storage - This class includes any tank, reservoir, or other container with the capacity of 250 gallons or more used for the storage of petroleum products, (Liquid or gas) except those products with vapor pressure below 2.0 psia but does not include vehicles delivering these products.

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E. Miscellaneous - This class includes any machine, device, equipment or other article or process or activity which is not included in the preceding schedules and which requires a permit under the authority of these Rules and Regulations or the Arizona Revised Statutes.

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Rule 25. Emissions Test Methods and Procedures.

A. Except as otherwise specified in these rules and regulations, the applicable testing procedures contained in the Arizona Testing Manual shall be used to determine compliance with the standards established in these rules and regulations or contained in installation or operating permits issued pursuant to this regulation.

B. The heat content of solid fuel shall be determined according to ASTM method D-271, "laboratory sampling and analysis of coal or coke" and ASTM method D-2015, "gross calorific value of solid fuel by the adiabatic bomb calorimeter." These methods shall be used as guides but may be modified, adjusted or added to by the Control Officer to suit specific sampling conditions or needs and shall be based upon good engineering practice, judgment and experience.

C. Compliance with opacity standards in these rules and regulations shall be determined by conducting observations in accordance with Reference Method 9. in the Arizona Testing Manual. Opacity readings of portions of plumes which contain condensed, uncombined water vapor shall not be used for purposes of determining compliance with opacity standards. The results of continuous monitoring by transmissometer which indicate that the opacity at the time visual observations were made was not in excess

of the standard are probative but not conclusive evidence of the actual opacity of an emission, provided that the source shall meet the burden of providing that the instrument used meets (at the time of the alleged violation) Performance Specification 1 in the Arizona Testing Manual, has been properly maintained and (at the time of the alleged violation) calibrated, and that the resulting data have not been tampered with in any way.

D. Equivalent test methods and procedures may be used in lieu of those described in Subsections A and B of this regulation if approved by the Control Officer.

Rule 26. Air Quality Models. 6.23.80

A. Where the Control Officer requires a person requesting an installation or operating permit under these rules and regulations to perform air quality impact modeling to obtain such permit, the modeling shall be performed in a manner consistent with the Guideline on Air Quality Models (hereinafter called the "Guideline") issued by the United States Environmental Protection Agency in April, 1978.

B. Where the person requesting an installation or operating permit can demonstrate that an air quality impact model specified in the Guideline is inappropriate, the model may be modified or another model substituted. However, before such modification or substitution can occur the Control Officer must make a written finding that:

1. No model in the Guideline is appropriate for a particular permit under consideration; or,

2. The data base required for the appropriate model in the Guideline is not available; and,

3. A model proposed as a substitute or modification is likely to produce results equal or superior to those obtained by models in the Guideline.

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RULE 26. Portable Equipment

A. In the case of a permit issued to operate portable equipment including, but not limited to sandblasting equipment, rock crushers, screens and conveyers at more than one location in the County requiring erection or assembly at the site, the permittee shall notify the Control Officer in writing prior to each change of location of the equipment. The permit shall become invalid for failure to notify the Control Officer.

6.23.80

Rule 27. Performance Tests.

A. Within sixty (60) days after a source or facility subject to the installation and operating permit requirements of these rules and regulations has achieved the capability to operate at its maximum production rate on a sustained basis but no later than 180 days after initial start-up of such source or facility and at such other times as may be required by the Control Officer, the owner or operator of such source or facility shall conduct performance test(s) and furnish the Control Officer a written report of the results of the test(s).

B. Performance tests shall be conducted and data reduced in accordance with the test method and procedures contained in the Arizona Testing Manual unless the Control Officer:

1. Specifies or approves, in specific cases, the use of a reference method with minor changes in methodology,

2. Approves the use of an equivalent method,

3. Approves the use of an alternative method the results of which he has determined to be adequate for indicating whether a specific source is in compliance, or

4. Waives the requirement for performance tests because the owner or operator of a source has demonstrated by the other means to the Control Officer's satisfaction that the source or facility is in compliance with the standard.

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Rule 28. Permit Fees

A. Installation Permit Fees

The fee for an installation permit shall be half of the annual operating permit fee or ~~ten dollars ($10.00)~~ $12.00, whichever is greater.

B. Annual Operating Permit Fees

1. One annual operating fee shall be charged from the date of issuance of a permit to use or operate any machine, equipment, device or other article for which a permit is required by these rules and regulations. The total of all annual operating permit fees at one geographical location shall not exceed ~~$1500.00~~ $1875.00 ~~The permit fee shall be due and paid on or before each anniversary date.~~

2. Any processing facility normally operated less than six (6) consecutive months in any annual operating permit period shall be assessed one half the annual operating permit fee.

3. WHEN A PERMIT FEE IS RECEIVED ON OR AFTER THE DELINQUENT DATE INDICATED ON THE PERMIT APPLICATION, A $15.00 DELINQUENT FEE WILL BE CHARGED.

4. All permits shall be issued subject to permit fees in the following schedules.

SCHEDULE FOR PERMIT FEES

SCHEDULE 1*

Fuel Burning Equipment Schedule
(Oil, coal, etc.)
Based on designed fuel consumption,
using gross input heating values
per permit unit

BTU per hour			Annual Operating Permit Fee	
500,000	to	1,499,999.	$ ~~25.00~~	31.00
1,500,000	to	4,999,999.	~~50.00~~	63.00
5,000,000	to	14,999,999.	~~100.00~~	125.00
15,000,000	to	49,999,999.	~~135.00~~	169.00
50,000,000	to	499,999,999.	~~175.00~~	219.00
500,000,000	or	greater.	~~235.00~~	294.00

*Includes equipment items rated at less than 500,000 BTU each which in the aggregate with other such equipment of the applicant at the same location or property, other than a one or two family residence, total 500,000 BTU gross input or more.

SCHEDULE 2*

Fuel Burning Equipment
(Natural Gas or Liquid Petroleum Gas)
Based on design fuel consumption,
using gross input heating
values per permit unit

BTU per hour			Annual Operating Permit Fee	
500,000	to	999,999.	$ ~~10.00~~	12.00
1,000,000	to	4,999,999.	~~25.00~~	31.00
5,000,000	or	greater.	~~60.00~~	75.00

*Includes equipment items rated at less than 500,000 BTU each which in the aggregate with other such equipment of the applicant at the same location or property, other than a one or two-family residence, total 500,000 BTU gross input or more.

SCHEDULE 3

Refuse Burning Equipment
Based on the maximum horizontal inside cross sectional
area of the primary combustion chamber (in square feet)

Area in Square Feet				Annual Operating Permit Fee	
4	or	less	.....	$ ~~40.00~~	50.00
5	to	8	.....	~~60.00~~	75.00
9	to	26	.....	~~150.00~~	188.00
27	to	49	.....	~~200.00~~	250.00
50	or	greater	.....	~~300.00~~	375.00

SCHEDULE 4

Tanks, Reservoirs or other containers
Based on capacities in gallons or cubic equivalent per unit

Gallons			Annual Operating Permit Fee	
250	to	14,999.	$ ~~12.00~~	15.00
15,000	to	39,999.	~~25.00~~	31.00
40,000	to	399,999.	~~45.00~~	56.00
400,000	to	3,999,999.	~~75.00~~	94.00
4,000,000	or	greater.	~~135.00~~	169.00

TANK TRUCK CERTIFICATION STICKER 15.00/TANK/YEAR

SCHEDULE 5

Motors-Engines
(Processing)

Based on total rated horsepower or the equivalent of all motors and engines including but not limited to gasoline, diesel, natural gas, liquid petroleum gas and electricity* included in a permit unit other than those used in mobile equipment.

Horsepower			Annual Operating Permit Fee	
9	or	less	$ ~~15.00~~	19.00
10	to	24	~~25.00~~	31.00
25	to	49	~~50.00~~	63.00
50	to	99	~~85.00~~	106.00
100	to	199	~~125.00~~	156.00
200	to	299	~~175.00~~	219.00
300	to	499	~~225.00~~	282.00
500	+	. . . . .	~~300.00~~	375.00

*Only electric motors used to drive or power any machine, equipment or device or other article that may cause or contribute to air pollution or may be used to prevent or control air contaminants.

SCHEDULE 6

Electric Energy Equipment
(Except Electric Motors)
Based on Total Kilovolt Ampere (KVA)
Ratings per permit unit

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Kilovolt Amperes (KVA)			Annual Operating Permit Fee	
45	or	less	$ ~~10.00~~	12.00
46	to	144	~~20.00~~	25.00
145	to	449	~~30.00~~	38.00
450	to	1,449	~~40.00~~	50.00
1,450	to	2,499	~~60.00~~	75.00
2,500	to	4,499	~~100.00~~	125.00
4,500	to	14,499	~~150.00~~	188.00
14,500	or	greater	~~200.00~~	250.00

SCHEDULE 7

Miscellaneous

Category	Annual Operating Permit fee	
Each	$ ~~25.00~~	31.00

SCHEDULE 8

Installation

	Permit Fee
Each	Half of operating permit fee w/ ~~$10.00~~ $12.00 minimum

SCHEDULE 9

Controlled Open Burning

	Permit Fee	
Temporary	$ ~~10.00~~	12.00
Annual	~~20.00~~	25.00

SCHEDULE 10

Earth Moving Equipment

Total Acreage Being Developed	Permit Fee
SWIMMING POOL EXCAVATING	$10.00
Less than one (1) Acre	~~$10.00~~ 12.00
One (1) to less than five (5) acres	~~20.00~~ 25.00
Five (5) acres or greater	~~20.00 plus~~ ~~$2.00 per acre~~ $2.50 per acre PLUS $25.00

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RULE 32. Odors and Gaseous Emissions

A. No person shall emit gaseous or odorous materials from equipment, operations or premises under his control in such quantities or concentrations as to cause air pollution.

B. No person shall operate or use any machine, equipment or other contrivance for the treatment or processing of animal or vegetable matter, separately or in combination, unless all gases, vapors and gas-entrained effluents from such operation, equipment or contrivance have been:

1. Incinerated to destruction at a temperature of not less than 1,300 degrees Fahrenheit, or processed in a manner determined to be equally or more effective for the control of air pollution.

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2. All persons owning or responsible for any process involving the reduction of animal and/or vegetable matter shall install, use, and maintain such devices as are necessary to prevent or control emissions of air contaminants.

C. Materials including, but not limited to, solvents or other volatile compounds, paints, acids, alkalies, pesticides, fertilizer and manure shall be processed, stored, used and transported in such a manner and by such means that they will not unreasonably evaporate, leak, escape or be otherwise discharged into the ambient air so as to cause or contribute to air pollution; and where means are available to reduce effectively the contribution to air pollution from evaporation, leakage or discharge, the installation and use of such control methods, devices or equipment shall be mandatory.

D. Where a stack, vent or other outlet is at such a level that fumes, gas, mist, odor, smoke, vapor or any combination thereof constituting air pollution are discharged to adjoining property, the Air Pollution Control Officer may require the installation of abatement equipment or the alteration of such stack, vent, or other outlet by the owner or operator thereof to a degree that will adequately dilute, reduce or eliminate the discharge of air pollution to adjoining property.

E. No person shall emit hydrogen sulfide from any location in such manner and amount that the concentration of such emissions into the ambient air at any occupied place beyond the premises on which the source is located exceeds 0.03 parts per million by volume for any averaging period of 30 minutes or more.

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F. No person shall emit into the ambient air any sulfur oxide or sulfuric acid in such manner and amounts as to result in ground level concentrations at any place beyond the premises on which the source is located exceeding those limits shown in the following table:

Concentration of Sulfur Dioxide	Averaging Time
650 ug/m3	1 hour
250 ug/m3	24 hours
120 ug/m3	72 hours

Concentration of Sulfuric Acid and Sulfur Trioxide expressed as Sulfuric Acid	Averaging Time
15 ug So_4 /m3	24 hours

G. Other Industries

1. No person shall discharge into the atmosphere from any other industry not covered in other rules of this section 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 (10) percent of the sulfur entering the process as feed.

Added 10-1-75

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H. Fuel Burning Equipment for Producing Electric Power (Sulfur Dioxide)

1. This rule applies to an installation operated for the purpose of producing electric power with a resulting discharge of sulfur dioxide in the installation's effluent gases.
2. Steam power generating installations which are new sources shall not emit more than 0.80 pounds of sulfur dioxide, maximum two hour average, per million BTU heat input when oil is fired. Steam power generating installations which are existing sources shall not emit more than 1.0 pounds of sulfur dioxide, maximum two hour average, per million BTU heat input when low sulfur oil is fired.
3. Steam power generating installations which are existing

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sources shall not emit more than 2.2 pounds of sulfur dioxide, maximum two hour average, per million BTU heat input when high sulfur oil is fired.

4. 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, except that if the applicant demonstrates to the satisfaction of the control officer: (a) that sufficient quantities of low sulfur oil are not available for use by the source, and (b) that it has adequate facilities and contingency plans to insure that the sulfur dioxide ambient air quality standards set forth in Regulation VII, Rule 70 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, it shall submit to the bureau 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.
5. For purposes of this rule, low sulfur oil means fuel oil containing less than 0.90 percent by weight of sulfur and high sulfur oil means fuel oil containing 0.90 percent or more by weight of sulfur.
6. Steam power generating installations which are new sources shall not emit more than 0.80 pounds of sulfur dioxide, maximum two hour average, per million BTU heat input when coal is fired. Steam power generating installations which are existing sources shall not emit more than 1.0 pounds of sulfur dioxide. Maximum two hour average, per million BTU heat input when coal is fired.

J. No person shall operate an asphalt kettle unless he controls air contaminant emissions by good modern practices including but not limited to: (1) maintenance of temperature below both the asphalt flash point and the maximum temperature recommended by the asphalt manufacturer through the use of automatic temperature controls, (2) operation of the kettle with the lid closed except when charging, (3) pumping the asphalt from the kettle, (4) drawing the asphalt through cocks without dipping, (5) firing of the kettle with a clean burning fuel and (6) maintaining the kettle in clean, properly adjusted and good operating condition.

K. The discharge of carbon monoxide emissions from any process source shall be effectively controlled by means of secondary combustion.

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RULE 35. Incinerators

A. No person shall burn any combustible material in any incinerator within Maricopa County except in a multiple-chamber incinerator, equipped with auxiliary fuel, or in equipment equally effective. No burning shall be conducted between sunset and the following sunrise.

B. For the purposes of these Rules and Regulations, a "multiple-chamber incinerator" is any article, machine, equipment, contrivance, structure or part of a structure, used to dispose of combustible refuse by burning, consisting of three or more refractory lined combustion chambers in series, physically separated by refractory walls, interconnected by gas passage ports or ducts designed for maximum combustion of the material to be burned.

C. No incinerator shall be constructed, remodeled, installed or used until the following information, and such additional information and data as the Control Officer may require, have been filed with and approved by the Control Officer, and then only in compliance with the requirements of these Rules and Regulations.

1. Plans and specifications showing capacity, amount and type of waste to be incinerated, proposed fuel, fire chamber details, stack detail and location with reference to adjacent premises, auxiliary fuel controls;
2. Loading and unloading procedures and equipment;
3. Methods and equipment for preventing the discharge of contaminants into the ambient air;
4. Receptacles for storage and means for disposal of residue.

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D. No person shall burn combustible wastes in any incinerator until it has passed a performance test based on the emission standards of Regulation F and G of this Rule, nor at any time in excess of these standards.

E. Approval of the use of an incinerator by the Control Officer is not intended to exempt the incinerator, its location or operation from the requirements of any public agency exercising proper jurisdiction.

F. No person shall emit into the outdoor atmosphere from any incinerator particulate matter to exceed 0.1 grains per cubic foot of flue gas at standard conditions adjusted to 12 per cent carbon dioxide in the exhaust gases and calculated as if no auxiliary fuel had been used.

G. Notwithstanding the provisions of Regulation III, Rule 30, no person shall emit into the atmosphere from any incinerator for an aggregate of more than thirty (30) seconds in any sixty (60) minutes, smoke the appearance, density, opacity or shade of which is as dark as No. 1 on the Ringelmann Scale.

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REGULATION IV - PRODUCTION OF RECORDS: MONITORING; TESTING AND SAMPLING FACILITIES

RULE 40 Record Keeping and Reporting

A. When the control officer has reasonable cause, based on special studies, compilation of emission or source inventories, or when required by the state or E.P.A. or when he has reasonable cause to believe that any person is violating any provisions of these rules and regulations, the control officer may require the owner or operator of any stationary source to maintain and provide records of the nature and amounts of emissions from such sources or any other information as may be deemed necessary by the control officer to complete such studies and reports or to determine whether the source is in compliance with all provisions of these rules and regulations.

B. The information recorded shall be summarized and reported to the control officer and shall be submitted within forty-five (45) days after the end of the reporting period. Reporting periods are January 1 to June 30 and July 1 to December 31, except that the initial reporting period shall commence on the date the control officer issues notification of the record keeping requirements.

C. Information recorded by the owner or operator and copies of the summarizing reports submitted to the control officer shall be retained by the owner or operator for two (2) years after the date on which the pertinent report is submitted.

D. Any records, reports or information obtained under this regulation shall be available for inspection except as provided in A.R.S. 36-780. In all cases quantitative and qualitative statistics pertaining to the emission of pollutants from any source or sources shall be available for inspection and shall be correlated with applicable emission limitations.

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RULE 41. Monitoring

A. The owner, lessee or operator of a potential air contaminant source shall provide, install, maintain and operate such air contaminant monitoring devices as are reasonable and required to determine compliance in a manner acceptable to the Control Officer, and shall supply monitoring information as directed in writing by the Control Officer. Such devices shall be available for inspection by the Control Officer during all reasonable times. (Arizona Revised Statute 36-780)

B. Continuously Monitoring and Recording Emissions (added)

1.0 For the purpose of this rule, the following definitions shall apply:

mm. "Emission Standard" means a regulation (or portion thereof) setting forth an allowable rate of emissions, level of opacity, or prescribing equipment or fuel specifications that result in control of air pollution emissions.

nn. "Capacity Factor" means the ratio of the average load on a machine or equipment for the period of time considered to the capacity rating of the machine or equipment.

oo. "Excess Emissions" means emissions of an air pollutant in excess of an emission standard.

pp. "Nitric Acid Plant" means any facility producing nitric acid 30 to 70 percent in strength by either the pressure or atmospheric pressure process.

qq. "Sulfuric Acid Plant" means any facility producing sulfuric acid by the contact process by burning elemental sulfur, alkylation acid, hydrogen sulfide, or acid sludge, but does not include facilities where conversion to sulfuric acid is utilized primarily as a means of preventing emissions to the atmosphere of sulfur dioxide or other sulfur compounds.

rr. "Fossil fuel-fired steam generator" means a furnace or boiler used in the process of burning fossil fuel for the primary purpose of producing steam by heat transfer.

1.1 Every owner or operator of an emission source in a category listed in sub-paragraphs below shall:

(1) Install, calibrate, operate, and maintain all monitoring equipment necessary for continuously monitoring the pollutants specified in this rule for the applicable source category; and

(2) Complete the installation and performance tests of such equipment and begin monitoring and recording within eighteen (18) months of PLAN approval or promulgation. The source categories and the respective monitoring requirements are listed below:

1.1.1 Fossil-fuel-fired steam generators, as specified in sub-paragraph 2.1 shall be monitored for opacity, nitrogen oxides emissions, sulfur dioxide emissions and oxygen or carbon dioxide.

1.1.2 Fluid Bed catalytic cracking unit catalyst regenerators, as specified in sub-paragraph 2.4 shall be monitored for opacity.

1.1.3 Sulfuric acid plants, as specified in sub-paragraph 2.3 shall be monitored for sulfur dioxide emissions.

1.1.4 Nitric acid plants, as specified in sub-paragraph 2.2 shall be monitored for nitrogen oxides emissions.

1.2 Exemptions

The provisions of this rule shall not apply to any source which is:

1.2.1 Subject to a new source performance standard promulgated in 40 CFR 60.

1.2.2 Not subject to an applicable emission standard of the approved SIP; or

1.2.3 Scheduled for retirement within five (5) years after inclusion of monitoring requirements for the source in these rules and regulations, provided that adequate evidence and guarantees are provided that clearly show that the source will cease operations prior to such date.

1.3 Extensions

THE CONTROL OFFICER MAY ALLOW a reasonable extension of time for INSTALLATION of monitors for facilities unable to meet the prescribed timeframe, provided the owner or operator of such facility demonstrates that good faith efforts have been made to obtain and install such devices within such prescribed timeframes.

1.4 Monitoring System Malfunction

THE CONTROL OFFICER MAY GRANT temporary exemption from the monitoring and reporting requirements of this rule during any period of monitoring system malfunction, provided that the source owner or operator shows to the satisfaction of the Control Officer that the malfunction was unavoidable and is being repaired as expeditiously as practicable.

2.0 MINIMUM MONITORING REQUIREMENT - SOURCES LISTED IN SUB-PARAGRAPH 1.1 OF THIS RULE SHALL MEET THE FOLLOWING BASIC REQUIREMENTS:

2.1 FOSSIL FUEL-FIRED STEAM GENERATORS

EACH FOSSIL FUEL-FIRED STEAM GENERATOR, EXCEPT AS PROVIDED IN THE FOLLOWING SUB-PARAGRAPHS, WITH AN ANNUAL AVERAGE CAPACITY FACTOR OF GREATER THAN 30 PERCENT, AS REPORTED TO THE FEDERAL POWER COMMISSION FOR CALENDAR YEAR 1974, OR AS OTHERWISE DEMONSTRATED TO THE BUREAU BY THE OWNER OR OPERATOR, SHALL CONFORM WITH THE FOLLOWING MONITORING REQUIREMENTS WHEN SUCH FACILITY IS SUBJECT TO AN EMISSION STANDARD OF AN APPLICABLE PLAN FOR THE POLLUTANT IN QUESTION.

2.1.1 A CONTINUOUS MONITORING SYSTEM FOR THE MEASUREMENT OF OPACITY WHICH MEETS THE PERFORMANCE SPECIFICATIONS OF SUB PARAGRAPH 3.1.1 OF THIS RULE SHALL BE INSTALLED, CALIBRATED, MAINTAINED, AND OPERATED IN ACCORDANCE WITH THE PROCEDURES OF THIS RULE BY THE OWNER OR OPERATOR OF ANY SUCH STEAM GENERATOR OF GREATER THAN 250 MILLION BTU PER HOUR HEAT INPUT EXCEPT WHERE:

2.1.1.1 GASEOUS FUEL IS THE ONLY FUEL BURNED, OR

2.1.1.2 OIL OR A MIXTURE OF GAS AND OIL ARE THE ONLY FUELS BURNED AND THE SOURCE IS ABLE TO COMPLY WITH THE APPLICABLE PARTICULATE MATTER AND OPACITY REGULATIONS WITHOUT UTILIZATION OF PARTICULATE MATTER COLLECTION EQUIPMENT, AND WHERE THE SOURCE HAS NEVER BEEN FOUND, THROUGH ANY ADMINISTRATIVE OR JUDICIAL PROCEEDINGS TO BE IN VIOLATION OF ANY VISIBLE EMISSION STANDARD OF THE APPLICABLE PLAN.

2.1.2 A CONTINUOUS MONITORING SYSTEM FOR THE MEASUREMENT OF SULFUR DIOXIDE WHICH MEETS THE PERFORMANCE SPECIFICATIONS OF SUB-PARAGRAPH 3.1.3 OF THIS RULE SHALL BE INSTALLED, CALIBRATED, MAINTAINED, AND OPERATED ON ANY FOSSIL-FUEL FIRED STEAM GENERATOR OF GREATER THAN 250 MILLION BTU PER HOUR HEAT INPUT WHICH HAS INSTALLED SULFUR DIOXIDE POLLUTANT CONTROL EQUIPMENT.

2.1.3 A CONTINUOUS MONITORING SYSTEM FOR THE MEASUREMENT OF NITROGEN OXIDES WHICH MEETS THE PERFORMANCE SPECIFICATION OF SUB-PARAGRAPH 3.1.2 OF THIS RULE SHALL BE INSTALLED, CALIBRATED, MAINTAINED, AND OPERATED ON FOSSIL FUEL-FIRED STEAM GENERATORS OF GREATER THAN 1000 MILLION BTU PER HOUR HEAT INPUT WHEN SUCH FACILITY IS LOCATED IN AN AIR QUALITY CONTROL REGION WHERE THE ~~CONTROL OFFICER HAS SPECIFICALLY~~ ADMINISTRATOR OF THE U.S. EPA HAS SPECIFICALLY DETERMINED THAT A CONTROL STRATEGY FOR NITROGEN DIOXIDE IS NECESSARY TO ATTAIN THE NATIONAL STANDARDS, UNLESS THE SOURCE OWNER OR OPERATOR DEMONSTRATES DURING SOURCE COMPLIANCE TESTS AS REQUIRED BY THE BUREAU THAT SUCH A SOURCE EMITS NITROGEN OXIDES AT LEVELS 30 PERCENT OR MORE BELOW THE EMISSION STANDARD WITHIN THE APPLICABLE PLAN.

2.1.4 A CONTINUOUS MONITORING SYSTEM FOR THE MEASUREMENT OF THE PERCENT OXYGEN OR CARBON DIOXIDE WHICH MEETS THE PERFORMANCE SPECIFICATIONS OF SUB-PARAGRAPHS 3.1.4 OR 3.1.5 OF THIS RULE SHALL BE INSTALLED, CALIBRATED, OPERATED, AND MAINTAINED ON FOSSIL FUEL-FIRED STEAM GENERATORS WHERE MEASUREMENTS OF OXYGEN OR CARBON DIOXIDE IN THE FLUE GAS ARE REQUIRED TO CONVERT EITHER SULFUR

2.1.4 DIOXIDE OR NITROGEN OXIDES CONTINUOUS EMISSION MONITORING DATA, OR BOTH, TO UNITS OF THE EMISSION STANDARD WITHIN THE APPLICABLE PLAN.

2.2 NITRIC ACID PLANTS

EACH NITRIC ACID PLANT OF GREATER THAN 300 TONS PER DAY PRODUCTION CAPACITY, THE PRODUCTION CAPACITY BEING EXPRESSED AS 100 PERCENT ACID LOCATED IN AN AIR QUALITY CONTROL REGION WHERE THE ~~CONTROL OFFICER~~ ADMINISTRATOR OF THE U.S. EPA HAS SPECIFICALLY DETERMINED THAT A CONTROL STRATEGY FOR NITROGEN DIOXIDE IS NECESSARY TO ATTAIN THE NATIONAL STANDARD SHALL INSTALL, CALIBRATE, MAINTAIN, AND OPERATE A CONTINUOUS MONITORING SYSTEM FOR THE MEASUREMENT OF NITROGEN OXIDES WHICH MEETS THE PERFORMANCE SPECIFICATIONS OF SUB-PARAGRAPH 3.1.2 OF THIS RULE FOR EACH NITRIC ACID PRODUCING FACILITY WITHIN SUCH PLANT.

2.3 SULFURIC ACID PLANTS

EACH SULFURIC ACID PLANT OF GREATER THAN 300 TONS PER DAY PRODUCTION CAPACITY, THE PRODUCTION BEING EXPRESSED AS 100 PERCENT ACID, SHALL INSTALL, CALIBRATE, MAINTAIN AND OPERATE A CONTINUOUS MONITORING SYSTEM FOR THE MEASUREMENT OF SULFUR DIOXIDE WHICH MEETS THE PERFORMANCE SPECIFICATIONS OF 3.1.3 OF THIS RULE FOR EACH SULFURIC ACID PRODUCING FACILITY WITHIN SUCH PLANT.

2.4 FLUID BED CATALYTIC CRACKING UNIT CATALYST REGENERATORS AT PETROLEUM REFINERIES.

EACH CATALYST REGENERATOR FOR FLUID BED CATALYTIC CRACKING UNITS OF GREATER THAN 20,000 BARRELS PER DAY FRESH FEED CAPACITY

Shall install, calibrate, maintain, and operate a continuous monitoring system for the measurement of opacity which meets the performance specifications of 3.1.1 of this rule.

3.0 Minimum Specifications

Owners or operators of monitoring equipment installed TO COMPLY WITH THIS RULE, EXCEPT AS PROVIDED IN SUBPARAGRAPH 3.2, SHALL DEMONSTRATE COMPLIANCE WITH THE FOLLOWING PERFORMANCE SPECIFICATIONS.

3.1 Performance Specifications

THE PERFORMANCE SPECIFICATIONS SET FORTH in Appendix B of Part 60 of Chapter 1, Title 40 OF THE CODE OF FEDERAL REGULATIONS ARE incorporated herein by reference, and SHALL BE USED TO DETERMINE ACCEPTABILITY OF MONITORING EQUIPMENT INSTALLED PURSUANT TO THIS RULE EXCEPT THAT (1) WHERE REFERENCE IS MADE TO THE "ADMINISTRATOR" IN APPENDIX B OF 40 CFR 60, THE TERM "CONTROL OFFICER OF THE MARICOPA COUNTY BUREAU OF AIR POLLUTION CONTROL" SHOULD BE INSERTED FOR THE PURPOSE OF THIS RULE, AND (2) WHERE REFERENCE IS MADE TO THE "REFERENCE METHOD" IN APPENDIX B OF 40 CFR 60, THE CONTROL OFFICER MAY ALLOW THE USE OF EITHER THE STATE OR COUNTY APPROVED REFERENCE METHOD OR THE FEDERALLY APPROVED REFERENCE METHOD PUBLISHED IN 40 CFR 60. THE PERFORMANCE SPECIFICATIONS TO BE USED WITH EACH TYPE OF MONITORING SYSTEM ARE LISTED BELOW.

3.1.1 Continuous monitoring systems for measuring opacity shall comply with Performance Specification 1.

3.1.2 Continuous monitoring systems for measuring nitrogen oxides shall comply with Performance Specification 2.

3.1.3 Continuous monitoring systems for measuring sulfur dioxide shall comply with Performance Specification 2.

3.1.4 Continuous monitoring systems for measuring oxygen shall comply with Performance Specification 3.

3.1.5 Continuous monitoring systems for measuring carbon dioxide shall comply with Performance Specification 3.

3.2 Exemptions

THE CONTROL OFFICER MAY EXEMPT any source which has purchased an emission monitoring system(s) prior to September 11,1974, from meeting such test procedures prescribed in subparagraph 3.1 of this rule for a period not to exceed five (5) years from plan approval or promulgation.

3.3 Calibration Gases

FOR NITROGEN OXIDES MONITORING SYSTEMS INSTALLED ON FOSSIL FUEL-FIRED STEAM GENERATORS, THE POLLUTANT GAS USED TO PREPARE CALIBRATION GAS MIXTURES (SECTION 2.1, PERFORMANCE SPECIFICATION 2, APPENDIX B, PART 60,CHAPTER 1, TITLE 40, CFR) SHALL BE NITRIC OXIDE (NO). FOR NITROGEN OXIDES MONITORING SYSTEMS, INSTALLED ON NITRIC ACID PLANTS, THE POLLUTANT GAS USED TO PREPARE CALIBRATION GAS MIXTURES (SECTION 2.1, PERFORMANCE SPECIFICATION 2, APPENDIX B, PART 60, CHAPTER 1, TITLE 40,CFR) SHALL BE NITROGEN DIOXIDE(NO_2). THESE GASES SHALL ALSO BE USED FOR DAILY CHECKS UNDER PARAGRAPH 3.7 OF THIS RULE AS APPLICABLE. FOR SULFUR DIOXIDE MONITORING SYSTEMS INSTALLED ON FOSSIL FUEL-FIRED STEAM GENERATORS OR SULFURIC ACID PLANTS, THE POLLUTANT GAS USED TO PREPARE CALIBRATION GAS MIXTURES(SECTION 2.1, PERFORMANCE SPECIFICATION 2, APPENDIX B, PART 60, CHAPTER 1, TITLE 40,CFR) SHALL BE SULFUR DIOXIDE (SO_2).

3.3 (continued)

SPAN AND ZERO GASES SHOULD BE TRACEABLE TO NATIONAL BUREAU OF STANDARDS REFERENCE GASES WHENEVER THESE REFERENCE GASES ARE AVAILABLE. EVERY SIX MONTHS FROM DATE OF MANUFACTURE, SPAN AND ZERO GASES SHALL BE REANALYZED BY CONDUCTING TRIPLICATE ANALYSES USING THE REFERENCE METHODS IN APPENDIX A, PART 60, CHAPTER 1, TITLE 40 CFR AS FOLLOWS: FOR SULFUR DIOXIDE, USE REFERENCE METHOD 6; FOR NITROGEN OXIDES, USE REFERENCE METHOD 7; AND FOR CARBON DIOXIDE OR OXYGEN, USE REFERENCE METHOD 3. THE GASES MAY BE ANALYZED AT LESS FREQUENT INTERVALS IF LONGER SHELF LIVES ARE GUARANTEED BY THE MANUFACTURER.

3.4 CYCLING TIMES

CYCLING TIMES INCLUDE THE TOTAL TIME A MONITORING SYSTEM REQUIRES TO SAMPLE, ANALYZE AND RECORD AN EMISSION MEASUREMENT.

3.4.1 CONTINUOUS MONITORING SYSTEMS FOR MEASURING OPACITY SHALL COMPLETE A MINIMUM OF ONE CYCLE OF OPERATION (SAMPLING, ANALYZING, AND DATA RECORDING) FOR EACH SUCCESSIVE 10-SECOND PERIOD.

3.4.2 CONTINUOUS MONITORING SYSTEMS FOR MEASURING OXIDES OF NITROGEN, CARBON DIOXIDE, OXYGEN, OR SULFUR DIOXIDE SHALL COMPLETE A MINIMUM OF ONE CYCLE OF OPERATION (SAMPLING, ANALYZING, AND DATA RECORDING) FOR EACH SUCCESSIVE 15-MINUTE PERIOD.

3.5 MONITOR LOCATION

ALL CONTINUOUS MONITORING SYSTEMS OR MONITORING DEVICES SHALL BE INSTALLED SO THAT REPRESENTATIVE MEASUREMENTS OF EMISSIONS OR PROCESS PARAMETERS (I.E., OXYGEN, OR CARBON DIOXIDE) FROM THE AFFECTED FACILITY ARE OBTAINED.

3.5 (continued)

ADDITIONAL GUIDANCE FOR LOCATION OF CONTINUOUS MONITORING SYSTEMS TO OBTAIN REPRESENTATIVE SAMPLES ARE CONTAINED IN THE APPLICABLE PERFORMANCE SPECIFICATIONS OF APPENDIX B OF PART 60, CHAPTER 1, TITLE 40, CFR.

3.6 COMBINED EFFLUENTS

WHEN THE EFFLUENTS FROM TWO OR MORE AFFECTED FACILITIES OF SIMILAR DESIGN AND OPERATING CHARACTERISTICS ARE COMBINED BEFORE BEING RELEASED TO THE ATMOSPHERE, MONITORING SYSTEMS MAY BE INSTALLED ON THE COMBINED EFFLUENT. WHEN THE AFFECTED FACILITIES ARE NOT OF SIMILAR DESIGN AND OPERATING CHARACTERISTICS, OR WHEN THE EFFLUENT FROM ONE AFFECTED FACILITY IS RELEASED TO THE ATMOSPHERE THROUGH MORE THAN ONE POINT, PROCEDURES TO IMPLEMENT THE INTENT OF THESE REQUIREMENTS SHALL BE SUBMITTED TO THE CONTROL OFFICER FOR HIS APPROVAL, WHICH SHALL INCLUDE BUT NOT BE LIMITED TO THE INSTALLATION OF SEPARATE MONITORS.

3.7 ZERO AND DRIFT

OWNERS OR OPERATORS OF ALL CONTINUOUS MONITORING SYSTEMS INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF THIS RULE SHALL RECORD THE ZERO AND SPAN DRIFT IN ACCORDANCE WITH THE METHOD PRESCRIBED BY THE MANUFACTURER OF SUCH INSTRUMENTS; TO SUBJECT THE INSTRUMENTS TO THE MANUFACTURER'S RECOMMENDED ZERO AND SPAN CHECK AT LEAST ONCE DAILY UNLESS THE MANUFACTURER HAS RECOMMENDED ADJUSTMENTS AT SHORTER INTERVALS, IN WHICH CASE SUCH RECOMMENDATIONS SHALL BE FOLLOWED; TO ADJUST THE ZERO AND SPAN WHENEVER THE 24-HOUR ZERO DRIFT OR 24-HOUR CALIBRATION DRIFT LIMITS OF THE APPLICABLE PERFORMANCE SPECIFICATIONS IN APPENDIX B OF PART 60, CHAPTER 1, TITLE 40, CFR ARE EXCEEDED; AND TO ADJUST CONTINUOUS MONITORING SYSTEMS REFERENCED BY

3.7 (cont'd)

PARAGRAPH 3.2 OF THIS RULE WHENEVER THE 24-HOUR ZERO DRIFT OR 24-HOUR CALIBRATION DRIFT EXCEED 10 PERCENT OF THE EMISSION STANDARD.

3.8 SPAN

INSTRUMENT SPAN SHOULD BE APPROXIMATELY 200 PERCENT OF THE EXPECTED INSTRUMENT DATA DISPLAY OUTPUT CORRESPONDING TO THE EMISSION STANDARD FOR THE SOURCE.

4.0 Minimum Data Requirements

The following paragraphs set forth the minimum data reporting requirements as necessary with this rule.

4.1 The owners or operators of facilities required to install continuous monitoring systems shall submit a written report of excess emissions for each calendar quarter and the nature and cause of the excess emissions, if known. The averaging period used for data reporting must correspond to the averaging period specified in the emission test method used to determine compliance with an emission standard for the pollutant source category in question. The required report shall, include as a minimum, the data stipulated in this rule.

4.2 For opacity measurements, the summary shall consist of the magnitude in actual percent opacity of all one minute averages of opacity greater than ANY APPLICABLE opacity STANDARDS in these regulations for each hour of operation of the facility. Average values may be obtained by integration over the averaging period, or by arithmetically averaging a minimum of four equally spaced, instantaneous opacity measurements per minute. ANY TIME PERIOD EXEMPTED SHALL BE CONSIDERED BEFORE DETERMINING THE EXCESS AVERAGES OF OPACITY.

4.3 FOR GASEOUS MEASUREMENTS THE SUMMARY SHALL CONSIST OF EMISSION AVERAGES IN THE UNITS OF THE APPLICABLE STANDARD FOR EACH AVERAGING PERIOD DURING WHICH THE APPLICABLE STANDARD WAS EXCEEDED.

4.4 THE DATE AND TIME IDENTIFYING EACH PERIOD DURING WHICH THE CONTINUOUS MONITORING SYSTEM WAS INOPERATIVE, EXCEPT FOR ZERO AND SPAN CHECKS AND THE NATURE OF SYSTEM REPAIR OR ADJUSTMENT SHALL BE REPORTED. THE CONTROL OFFICER MAY REQUIRE PROOF OF CONTINUOUS MONITORING SYSTEM PERFORMANCE WHENEVER SYSTEM REPAIRS OR ADJUSTMENTS HAVE BEEN MADE.

4.5 WHEN NO EXCESS EMISSIONS HAVE OCCURRED AND THE CONTINUOUS MONITORING SYSTEM(S) HAVE NOT BEEN INOPERATIVE, REPAIRED, OR ADJUSTED, SUCH INFORMATION SHALL BE INCLUDED IN THE REPORT.

4.6 OWNERS OR OPERATORS OF AFFECTED FACILITIES SHALL MAINTAIN A FILE OF ALL INFORMATION REPORTED IN THE QUARTERLY SUMMARIES, AND ALL OTHER DATA COLLECTED EITHER BY THE CONTINUOUS MONITORING SYSTEM OR AS NECESSARY TO CONVERT MONITORING DATA TO THE UNITS OF THE APPLICABLE STANDARD FOR A MINIMUM OF TWO YEARS FROM THE DATE OF COLLECTION OF SUCH DATA OR SUBMISSION OF SUCH SUMMARIES.

5.0 DATA REDUCTION

OWNERS OR OPERATORS OF AFFECTED FACILITIES SHALL USE THE FOLLOWING PROCEDURES FOR CONVERTING MONITORING DATA TO UNITS OF THE STANDARD WHERE NECESSARY.

5.1 FOR FOSSIL FUEL-FIRED STEAM GENERATORS THE FOLLOWING PROCEDURES SHALL BE USED TO CONVERT GASEOUS EMISSION MONITORING DATA IN PARTS PER MILLION TO g/MILLION CAL (LB/MILLION BTU) WHERE NECESSARY.

5.1.1 WHEN THE OWNER OR OPERATOR OF A FOSSIL FUEL-FIRED STEAM GENERATOR ELECTS UNDER SUB-PARAGRAPH 2.1.4 OF THIS RULE TO MEASURE OXYGEN IN THE FLUE GASES, THE MEASUREMENTS OF THE POLLUTANT CONCENTRATION

5.1.1 AND OXYGEN CONCENTRATION SHALL EACH BE ON A DRY BASIS AND THE FOLLOWING CONVERSION PROCEDURE USED:

$$E = CF \left(\frac{20.9}{20.9 - \%O_2} \right)$$

5.1.2 WHEN THE OWNER OR OPERATOR ELECTS UNDER SUB-PARAGRAPH 2.1.4 OF THIS RULE TO MEASURE CARBON DIOXIDE IN THE FLUE GASES, THE MEASUREMENT OF THE POLLUTANT CONCENTRATION AND THE CARBON DIOXIDE CONCENTRATION SHALL EACH BE ON A CONSISTENT BASIS (WET OR DRY) AND THE FOLLOWING CONVERSION PROCEDURE USED:

$$E = CF_c \left(\frac{100}{\%CO_2} \right)$$

5.1.3 THE VALUES USED IN THE EQUATIONS UNDER PARAGRAPH 5.1 ARE DERIVED AS FOLLOWS:

E = POLLUTANT EMISSION, g/MILLION, CAL (LB/MILLION BTU);

C = POLLUTANT CONCENTRATION, g/DSCM (LB/DSCF), DETERMINED BY MULTIPLYING THE AVERAGE CONCENTRATION (PPM) FOR EACH HOURLY PERIOD BY 4.16×10^{-5} M g/DSCM PER PPM (2.64×10^{-9} M LB/DSCF PER PPM) WHERE M = POLLUTANT MOLECULAR WEIGHT, g/g-MOLE (LB/LB-MOLE), M = 64 FOR SULFUR DIOXIDE AND 46 FOR OXIDES OF NITROGEN;

$\%O_2, \%CO_2$ = OXYGEN OR CARBON DIOXIDE VOLUME (EXPRESSED AS PERCENT) DETERMINED WITH EQUIPMENT SPECIFIED UNDER ~~PARAGRAPH 4.1.4 OF THIS RULE;~~ SUBPARAGRAPHS 3.1.4 and 3.1.5;

F, F_c = A FACTOR REPRESENTING A RATIO OF THE VOLUME OF DRY FLUE GASES GENERATED TO THE CALORIFIC VALUE OF THE FUEL COMBUSTED (F), AND A FACTOR REPRESENTING A

5.1.3 (contd) RATIO OF THE VOLUME OF CARBON DIOXIDE GENERATED TO THE CALORIFIC VALUE OF THE FUEL COMBUSTED (F_c) RESPECTIVELY. VALUES OF F AND F_c ARE GIVEN IN § 60.45 (f) ~~OF PART 60~~, OF 40 CFR 6 AS APPLICABLE.

5.2 FOR SULFURIC ACID PLANTS THE OWNER OR OPERATOR SHALL:

5.2.1 ESTABLISH A CONVERSION FACTOR THREE TIMES DAILY ACCORDING TO THE PROCEDURES OF § 60.84 (b) OF CHAPTER 1, TITLE 40, CODE OF FEDERAL REGULATIONS:

5.2.2 MULTIPLY THE CONVERSION FACTOR BY THE AVERAGE SULFUR DIOXIDE CONCENTRATION IN THE FLUE GASES TO OBTAIN AVERAGE SULFUR DIOXIDE EMISSION IN Kg/METRIC TON (LB/SHORT TON); AND

5.2.3 REPORT THE AVERAGE SULFUR DIOXIDE EMISSION FOR EACH AVERAGING PERIOD IN EXCESS OF THE APPLICABLE EMISSION STANDARD IN THE QUARTERLY SUMMARY.

5.3 FOR NITRIC ACID PLANTS THE OWNER OR OPERATOR SHALL:

5.3.1 ESTABLISH A CONVERSION FACTOR ACCORDING TO THE PROCEDURES OF § 60.73 (b) OF CHAPTER 1, TITLE 40, CODE OF FEDERAL REGULATIONS;

5.3.2 MULTIPLY THE CONVERSION FACTOR BY THE AVERAGE NITROGEN OXIDES CONCENTRATION IN THE FLUE GASES TO OBTAIN THE NITROGEN OXIDES EMISSIONS IN THE UNITS OF THE APPLICABLE STANDARD;

5.3.3 REPORT THE AVERAGE NITROGEN OXIDES EMISSION FOR EACH AVERAGING PERIOD IN EXCESS OF APPLICABLE EMISSION STANDARD IN THE QUARTERLY SUMMARY.

5.4 THE CONTROL OFFICER MAY ALLOW DATA REPORTING OR REDUCTION PROCEDURES VARYING FROM THOSE SET FORTH IN THIS RULE IF THE OWNER OR OPERATOR OF A SOURCE SHOWS TO THE SATISFACTION OF THE CONTROL OFFICER THAT HIS PROCEDURES ARE AT LEAST AS

5.4 (continued)

ACCURATE AS THOSE IN THIS RULE. SUCH PROCEDURES MAY INCLUDE, BUT ARE NOT LIMITED TO THE FOLLOWING:

5.4.1 ALTERNATIVE PROCEDURES FOR COMPUTING EMISSION AVERAGES THAT DO NOT REQUIRE INTEGRATION OF DATA (E.G., SOME FACILITIES MAY DEMONSTRATE THAT THE VARIABILITY OF THEIR EMISSIONS IS SUFFICIENTLY SMALL TO ALLOW ACCURATE REDUCTION OF DATA BASED UPON COMPUTING AVERAGES FROM EQUALLY SPACED DATA POINTS OVER THE AVERAGING PERIOD).

5.4.2 ALTERNATIVE METHODS OF CONVERTING POLLUTANT CONCENTRATION MEASUREMENTS TO THE UNITS OF THE EMISSION STANDARDS.

5-30-72

RULE 42. Testing and Sampling

A. It shall be the responsibility of the owner or operator of an air contaminant emissions source to, and he shall, provide at his expense necessary and conveniently located utilities, reasonable and necessary test openings in the system or stack or stack extension if necessary for uniformity of gas flow, and safe access thereto to permit technically valid samples and measurements of the emissions to be taken at reasonable times and under reasonable conditions.

B. In the event the existing facilities for sampling or testing and the access thereto are inadequate to permit the taking of technically valid samples and measurements, the Control Officer shall notify the source owner or operator, in writing, of the required size, number, and location of sampling holes; required size and location of the sampling platform; required access to the sampling platform; and the required utilities for operating the sampling and testing equipment and the required schedule for providing these facilities. The source owner or operator shall furnish such facilities as required in accordance with the schedule outlined by the Control Officer.

5 30 12

RULE 43. Right of Inspection

The Air Pollution Control Officer during reasonable hours, for the purpose of enforcing and administering these Regulations, or any provision of the Arizona Revised Statutes relating to the emission or control of air contaminants, or of any order, regulation or rule prescribed pursuant thereto, may enter every building, premises, or other place, except a building designed for and used exclusively as a private residence. Every person is guilty of a misdemeanor pursuant to Arizona Revised Statute 36-789.01 who in any way denies, obstructs, or hampers such entrance or inspection by the Control Officer or his authorized representative.

6.23.80

RULE 71 Anti-degradation

A. These standards shall not be construed as permitting the preventable degradation of air quality in any area of Maricopa County.

5.30.72

REGULATION VIII - VALIDITY AND OPERATION

RULE 80. Validity

A. If any section, subsection, clause or phrase or provision of these Rules and Regulations is held to be invalid for any reason, such decision shall not affect the validity of the remaining portion.

5·30·72

RULE 81. Operation

A. Nothing in these Rules and Regulations shall in any manner be construed as authorizing or permitting the creation or maintenance of a nuisance.

Maricopa Rule 100; section 100; subsection 108

Revised 07/13/88
Revised 10/01/90
Revised 06/22/92
Revised 11/16/92
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Revised 02/15/95
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Revised 03/04/98
Revised 05/20/98
Revised 07/26/00
Revised 03/07/01
Revised 08/22/01
Revised 11/06/02
Revised 03/15/06
Revised 06/06/07
Revised 09/25/13

MARICOPA COUNTY
AIR POLLUTION CONTROL REGULATIONS
REGULATION I – GENERAL PROVISIONS

RULE 100
GENERAL PROVISIONS AND DEFINITIONS

SECTION 100 – GENERAL

101 **DECLARATION OF INTENT:** The Maricopa County Air Pollution Control Regulations prevent, reduce, control, correct, or remove regulated air pollutants originating within the territorial limits of Maricopa County and carry out the mandates of Arizona Revised Statutes (ARS), Title 49-The Environment.

102 **LEGAL AUTHORITY:** These rules are adopted under the authority granted by ARS §49-479.

103 **VALIDITY:** If any section, subsection, clause, phrase, or provision of these rules is held to be invalid for any reason, such decision shall not affect the validity of the remaining portion.

104 **CIRCUMVENTION:** A person shall not build, erect, install, or use any article, machine, equipment, condition, or any contrivance, the use of which, without resulting in a reduction in the total release of regulated air pollutants to the atmosphere, conceals or dilutes an emission which would otherwise constitute a violation of these rules. No person shall circumvent these rules to dilute regulated air pollutants by using more emission openings than is considered normal practice by the industry or activity in question.

105 **RIGHT OF INSPECTION OF PREMISES:** The Control Officer, during reasonable hours, for the purpose of enforcing and administering these rules or any provision of ARS relating to the emission or control prescribed pursuant

thereto, may enter every building, premises, or other place, except the interior of structures used as private residences. In the event that consent to enter for inspection purposes has been refused or circumstances justify the failure to seek such consent, special inspection warrants may be issued by a magistrate. Every person is guilty of a petty offense under ARS §49-488 who in any way denies, obstructs, or hampers such entrance or inspection that is lawfully authorized by warrant.

106 **RIGHT OF INSPECTION OF RECORDS:** When the Control Officer has reasonable cause to believe that any person has violated or is in violation of any provision of this rule, any rule adopted under this rule, or any requirement of a permit issued under this rule, the Control Officer may request, in writing, that such person produce all existing books, records, and other documents evidencing tests, inspections, or studies which may reasonably relate to compliance or non-compliance with rules adopted under this rule. No person shall fail nor refuse to produce all existing documents required in such written request by the Control Officer.

107 **ADVISORY COUNCIL:** An Advisory Council appointed by the Board of Supervisors may advise and consult with the Board of Supervisors, the Maricopa County Air Quality Department, and the Control Officer in effecting the mandates of ARS Title 49.

108 **HEARING BOARD:** The Board of Supervisors shall appoint a 5-member hearing board knowledgeable in the field of air pollution. At least three members shall not have a substantial interest, as defined in ARS § 38-502(11), in any person required to obtain an air pollution permit or subject to enforcement orders issued under these rules. Each member shall serve a term of three years.

109 **ANTI-DEGRADATION:** The standards in these rules shall not be construed as permitting the preventable degradation of air quality in any area of Maricopa County.

110 **AVAILABILITY OF POLLUTION INFORMATION:** The public shall be informed on a daily basis of average daily concentration of three pollutants: particulates, carbon monoxide, and ozone. This information shall be disseminated through the use of newspapers, radio, and television. The levels of each pollutant shall be expressed through the use of the Air Quality Index (AQI) and a written copy of such information shall be made available at the office of the Maricopa County Air Quality Department, 1001 North Central Avenue, Suite 400, Phoenix, Arizona, 85004, 602-506-6010.

111 **ANNUAL REASONABLE FURTHER PROGRESS (RFP) REPORT:** A report on the progress in implementation of nonattainment area plans shall be produced by the Department each year. The primary function of the report is to review the implementation schedules for control measures and emission reduction forecasts in the nonattainment area plans. The annual report will be made available to the public at the offices of Maricopa County Air Quality Department, 1001 North Central Avenue, Suite 400, Phoenix, Arizona, 85004, 602-506-6010.

SECTION 500 - MONITORING AND RECORDS

501 REPORTING REQUIREMENTS: The owner and/or operator of any air pollution source shall maintain records of all emissions testing and monitoring, records detailing all malfunctions which may cause any applicable emission limitation to be exceeded, records detailing the implementation of approved control plans and compliance schedules, records required as a condition of any permit, records of materials used or produced, and any other records relating to the emission of air contaminants which may be requested by the Control Officer.

502 DATA REPORTING: When requested by the Control Officer, a person shall furnish to the Department information to locate and classify air contaminant sources according to type, level, duration, frequency, and other characteristics of emissions and such other information as may be necessary. This information shall be sufficient to evaluate the effect on air quality and compliance with these rules. The owner and/or operator of a source requested to submit information under Section 501 of this rule may subsequently be required to submit annually, or at such intervals specified by the Control Officer, reports detailing any changes in the nature of the source since the previous report and the total annual quantities of materials used or air contaminants emitted.

503 EMISSION STATEMENTS REQUIRED AS STATED IN THE ACT: Upon request of the Control Officer and as directed by the Control Officer, the owner and/or operator of any source which emits or may emit oxides of nitrogen (NO_x) or volatile organic compounds (VOC) shall provide the Control Officer with an emission statement, in such form as the Control Officer prescribes, showing measured actual emissions or estimated actual emissions of NO_x and VOC from that source. At a minimum, the emission statement shall contain all information required by the Consolidated Emissions Reporting Rule in 40 CFR 51, Subpart A, Appendix A, Table 2A, which is incorporated by reference in Appendix G of these rules. The statement shall contain emissions for the time period specified by the Control Officer. The statement shall also contain a certification by a responsible official of the company that the information contained in the statement is accurate to the best knowledge of the individual certifying the statement. Statements shall be submitted annually to the Department. The Control Officer may waive this requirement for the owner and/or operator of any source which emits less than 25 tons per year of oxides of nitrogen or volatile organic compounds with an approved emission inventory for sources based on AP-42 or other methodologies approved by the Administrator.

504 RETENTION OF RECORDS: Information and records required by applicable requirements and copies of summarizing reports recorded by the owner and/or operator and submitted to the Control Officer shall be retained by the owner and/or operator for five years after the date on which the information is recorded or the report is submitted. Non-Title V sources may retain such information, records, and reports for less than five years, if otherwise allowed by these rules.

505 ANNUAL EMISSIONS INVENTORY REPORT:

505.1 Upon request of the Control Officer and as directed by the Control Officer, the owner and/or operator of a business shall complete and shall submit to the Control Officer an annual emissions inventory report. The report is due by April 30, or 90 days after the Control Officer makes the inventory form(s) available, whichever occurs later. These requirements apply whether or not a permit has been issued and whether or not a permit application has been filed.

505.2 The annual emissions inventory report shall be in the format provided by the Control Officer.

505.3 The Control Officer may require submittal of supplemental emissions inventory information forms for air contaminants under ARS §49-476.01, ARS §49-480.03, and Rule 372-Maricopa County Hazardous Air Pollutants (HAPs) Program of these rules.

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MARICOPA COUNTY
AIR POLLUTION CONTROL REGULATIONS

REGULATION I – GENERAL PROVISIONS

RULE 140
EXCESS EMISSIONS

SECTION 100 - GENERAL

101 PURPOSE: To establish affirmative defenses and associated administrative requirements for certain emissions in excess of an emission standard or limitation.

102 APPLICABILITY: Rule 140 applies to all emission standards or limitations, except for standards or limitations described in Section 103 (Exemptions) of this rule.

103 EXEMPTIONS: Rule 140 does not apply to standards and limitations:

103.1 Promulgated pursuant to Section 111 (Standards Of Performance for New Stationary Sources) of the Clean Air Act (Act) or Section 112 (National Emission Standards For Hazardous Air Pollutants) of the Act;

103.2 Promulgated pursuant to Title IV (Acid Deposition Control) of the Act or the regulations promulgated thereunder and incorporated under Rule 371 (Acid Rain) of these rules or Title VI (Stratospheric Ozone Protection) of the Act;

103.3 Contained in any Prevention Of Significant Deterioration (PSD) or New Source Review (NSR) permit issued by the Environmental Protection Agency (EPA);

103.4 Included in a permit to meet the requirements of Rule 240 (Permit Requirements For New Major Sources And Major Modifications To Existing Major Sources), Subsection 308.1(e) (Permit Requirements For Sources Located In Attainment And Unclassified Areas) of these rules.

SECTION 200 - DEFINITIONS (NOT APPLICABLE)

See Rule 100 (General Provisions And Definitions) of these rules for definitions of terms that are used but not specifically defined in this rule.

SECTION 300 – STANDARDS (NOT APPLICABLE)

SECTION 400 - ADMINISTRATIVE REQUIREMENTS

401 Affirmative Defense For Malfunctions: Emissions in excess of an applicable emission limitation due to malfunction shall constitute a violation. The owner and/or operator of a source with emissions in excess of an applicable emission limitation due to malfunction has an affirmative defense to a civil or administrative enforcement proceeding based on that violation, other than a judicial action seeking injunctive relief, if the owner and/or operator of the source has complied with the reporting requirements of Section 500 of this rule and has demonstrated all of the following:

401.1 The excess emissions resulted from a sudden and unavoidable breakdown of the process equipment or the air pollution control equipment beyond the reasonable control of the operator;

401.2 The source's air pollution control equipment, process equipment, or processes were at all times maintained and operated in a manner consistent with good practice for minimizing emissions;

401.3 If repairs were required, the repairs were made in an expeditious fashion when the applicable emission limitations were being exceeded. Off-shift labor and overtime were utilized where practicable to ensure that the repairs were made as expeditiously as possible. If off-shift labor and overtime were not utilized, then the owner and/or operator satisfactorily demonstrated that such measures were impractical;

401.4 The amount and duration of the excess emissions (including any bypass operation) were minimized to the maximum extent practicable during periods of such emissions;

401.5 All reasonable steps were taken to minimize the impact of the excess emissions on ambient air quality;

401.6 The excess emissions were not part of a recurring pattern indicative of inadequate design, operation, or maintenance;

401.7 During the period of excess emissions, there were no exceedances of the relevant ambient air quality standards established in Rule 510 of these rules that could be attributed to the emitting source;

401.8 The excess emissions did not stem from any activity or event that could have been foreseen and avoided, or planned, and could not have been avoided by better operations and maintenance practices;

401.9 All emissions monitoring systems were kept in operation, if at all practicable; and

401.10 The owner's and/or operator's actions in response to the excess emissions were documented by contemporaneous records.

402 Affirmative Defense For Startup And Shutdown:

402.1 Except as provided in subsection 402.2 of this rule, and unless otherwise provided for in the applicable requirement, emissions in excess of an applicable emission limitation due to startup and shutdown shall constitute a violation. The owner and/or operator of a source with emissions in excess of an applicable emission limitation due to startup and shutdown has an affirmative defense to a civil or administrative enforcement proceeding based on that violation, other than a judicial action seeking injunctive relief, if the owner and/or operator of the source has complied with the reporting requirements of Section 500 of this rule and has demonstrated all of the following:

a. The excess emissions could not have been prevented through careful and prudent planning and design;

b. If the excess emissions were the result of a bypass of control equipment, the bypass was unavoidable to prevent loss of life, personal injury, or severe damage to air pollution control equipment, production equipment, or other property;

c. The source's air pollution control equipment, process equipment, or processes were at all times maintained and operated in a manner consistent with good practice for minimizing emissions;

d. The amount and duration of the excess emissions (including any bypass operation) were minimized to the maximum extent practicable, during periods of such emissions;

e. All reasonable steps were taken to minimize the impact of the excess emissions on ambient air quality;

f. During the period of excess emissions, there were no exceedances of the relevant ambient air quality standards established in Rule 510 (Air Quality Standards) of these rules that could be attributed to the emitting source;

g. All emissions monitoring systems were kept in operation, if at all practicable; and

h. The owner's and/or operator's actions in response to the excess emissions were documented by contemporaneous records.

402.2 If excess emissions occur due to a malfunction during routine startup and shutdown, then those instances shall be treated as other malfunctions subject to Section 401 of this rule.

403 Affirmative Defense For Malfunctions During Scheduled Maintenance: If excess emissions occur due to malfunction during scheduled maintenance, then

those instances will be treated as other malfunctions subject to Section 401 of this rule.

404 **Demonstration Of Reasonable And Practicable Measures:** For an affirmative defense under Sections 401 and 402 of this rule, the owner and/or operator of the source shall demonstrate, through submission of the data and information required by Sections 400 and 500 of this rule, that all reasonable and practicable measures within the owner's and/or operator's control were implemented to prevent the occurrence of the excess emissions.

SECTION 500 - MONITORING AND RECORDS

501 The owner and/or operator of any source shall report to the Control Officer any emissions in excess of the limits established by these rules or by the applicable permit. The report shall be in two parts as specified below:

501.1 Notification by telephone or facsimile within 24 hours of the time when the owner and/or operator first learned of the occurrence of excess emissions that includes all available information from Section 502 of this rule.

501.2 Detailed written notification by submission of an excess emissions report within 72 hours of the notification required by subsection 501.1 of this rule.

502 The excess emissions report shall contain the following information:

502.1 The identity of each stack or other emission point where the excess emissions occurred;

502.2 The magnitude of the excess emissions expressed in the units of the applicable emission limitation and the operating data and calculations used in determining the magnitude of the excess emissions;

502.3 The time and duration or expected duration of the excess emissions;

502.4 The identity of the equipment from which the excess emissions emanated;

502.5 The nature and cause of such emissions;

502.6 The steps taken, if the excess emissions were the result of a malfunction, to remedy the malfunction and the steps taken or planned to prevent the recurrence of such malfunctions;

502.7 The steps that were or are being taken to limit the excess emissions; and

502.8 If the source's permit contains procedures governing source operation during periods of startup or malfunction and the excess emissions resulted from startup or malfunction, a list of the steps taken to comply with the permit procedures.

503 In the case of continuous or recurring excess emissions, the notification requirements of this rule shall be satisfied if the source provides the required notification after excess emissions are first detected and includes in the notification an estimate of the time the excess emissions will continue. Excess emissions occurring after the estimated time period or changes in the nature of the emissions as originally reported shall require additional notification pursuant to Section 501 and Section 502 of this rule.

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RULE 220
PERMITS TO OPERATE

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MARICOPA COUNTY
AIR POLLUTION CONTROL REGULATIONS

REGULATION II - PERMITS AND FEES

RULE 220
PERMITS TO OPERATE

SECTION 100 - GENERAL

101 **PURPOSE:** To provide an orderly procedure to control air contaminants through the issuance of Permits to Operate.

SECTION 200 - DEFINITIONS: For the purpose of this rule, the following definitions shall apply:

201 **CATEGORICAL SOURCE** - The following classes of sources: coal cleaning plants (with thermal dryers); kraft pulp mills; portland cement plants; primary zinc smelters; iron and steel mills; primary aluminum ore reduction plants; primary copper smelters; municipal incinerators capable of charging more than 250 tons of refuse per day; hydrofluoric, sulfuric, or nitric acid plants; petroleum refineries; lime plants; phosphate rock processing plants; coke oven batteries; sulfur recovery plants; carbon black plants (furnace process); primary lead smelters; fuel conversion plants; sintering plants; secondary metal production plants; chemical process plants; fossil fuel boilers (or combination thereof) totaling more than 250 million BTU's per hour heat input; petroleum storage and transfer units with a total storage capacity exceeding 300,000 barrels; taconite preprocessing plants; glass fiber processing plants; charcoal production plants; fossil fuel-fired steam electric plants of more than 250 million BTU's per hour heat input.

202 **MAJOR SOURCE (MAJOR STATIONARY SOURCE)** - Any of the following sources of air pollution:

202.1 Any stationary source located in a nonattainment area which emits, or has a potential emission rate of 100 tons per year or more of any pollutant subject to regulation under the Act; or

202.2 Any stationary source located in an attainment or unclassifiable area which emits, or has a potential emission rate of 100 tons per year or more of any

pollutant subject to regulation under the Act if the source is classified as a categorical source, or 250 tons per year or more of any pollutant subject to regulation under the Act if the source is not classified as a categorical source; or

202.3 Any change to a minor source which would increase the emissions to the qualifying levels specified under Sections 202.1 and 202.2 of this rule.

202.4 A major stationary source that is major for volatile organic compounds shall be considered major for ozone.

203 **REASONABLY AVAILABLE CONTROL TECHNOLOGY (RACT)** - The lowest emission limitation that a particular source is capable of achieving by the application of control technology that is reasonably available considering technological and and economic feasibility. Such technology may previously have been applied to a similar, but not necessarily identical, source category. RACT for a particular source is determined on a case-by-case basis, considering the technological feasibility and cost-effectiveness of the application of the control technology to the source category.

SECTION 300 - STANDARDS

301 **PERMIT REQUIREMENTS:** Except as provided in this rule or Rule 100 of these Regulations, no person shall operate any source without first obtaining a Permit to Operate from the Control Officer. When an Installation Permit is required, a Permit to Operate shall not be issued until such time as the Installation Permit has been obtained. In the event a person operating any source unintentionally commences construction, major modification, or major alteration, activities for which an Installation Permit is required without obtaining such Installation Permit, such person shall be required to present to the Control Officer all necessary information which is required to be submitted by an applicant for an Installation Permit and the source shall be made to conform to all applicable standards.

302 **STANDARDS FOR GRANTING PERMITS:** No Permit to Operate will be issued unless:

302.1 The applicant demonstrates that the source will be in compliance with all applicable provisions of these Regulations.

302.2 The owner or operator of an existing source operating in a nonattainment area for any pollutant(s) for which the source is classified as a major source, demonstrates compliance with Reasonably Available Control Technology.

SECTION 400 - ADMINISTRATIVE REQUIREMENTS

401 **APPLICATION PROCEDURES FOR PERMITS TO OPERATE:** An application for a Permit to Operate shall be filed in the manner and form prescribed by the Control Officer and shall include such information as required by these Regulations.

401.1 A separate application is required for each source or facility as required in these Regulations.

401.2 Each application shall be signed by the applicant.

401.3 Each application for an initial Permit to Operate shall be accompanied by plans, descriptions, specifications and drawings showing the design of new source, major modification or major alteration. The application shall also include stack data, and the nature and amount of emissions. An application for a renewal of a Permit to Operate shall be accompanied by plans, descriptions, specifications and drawings showing any changes in the source's configuration from that which existed on the date of issuance of the most recent Permit to Operate.

401.4 Each application shall include information concerning compliance with any conditions on any prior permit.

401.5 The Control Officer may waive the submission by the applicant of any of the data or information required by this rule if such data are determined to be inappropriate or unnecessary.

402 **TESTING REQUIRED:** Within 20 days after the receipt of an application, the Control Officer shall advise the applicant of any additional information or testing required. No application shall be considered complete and properly filed until the applicant has submitted such information or test results.

403 **ADDITIONAL INFORMATION OR MODELING REQUIRED:** The Control Officer may with reasonable cause require the applicant to provide additional information or to provide and maintain such ambient air monitoring facilities or ambient air impact modeling as necessary to secure information that will disclose

the effect that emissions from the major source will have on maintenance and attainment of applicable Arizona or national ambient air quality standards. An item of equipment not covered by a Permit to Operate may be operated for purposes of testing, including accomplishment of new source performance testing under Rule 360 of these Regulations, only if specific written permission has been obtained from the Control Officer designating the dates of such operation for testing.

404 **PROCEDURES FOR SUBMISSION OF CONTROL PLANS DEMONSTRATING RACT:** If the Control Officer determines that an existing major source is subject to Section 302.2 of this rule, the applicant shall be required to submit a control plan demonstrating RACT and a compliance schedule for approval as follows:

404.1 **Applicant Notification:** Following a determination that an existing major source is subject to Section 302.2 of this rule, the Control Officer shall notify the applicant in writing of his determination.

404.2 **Control Plans Required:** The applicant shall develop and submit to the Control Officer for his approval an emission control plan demonstrating RACT and a compliance schedule within six months from the date of written notification.

404.3 **Compliance Schedules Required:** Compliance schedules shall include such increments of progress as are specified by the Control Officer resulting in final compliance within:

a. 12 months following approval of a control plan utilizing materials substitution or process modifications not requiring capital expenditures.

b. 24 months following approval of a control plan utilizing process modifications requiring capital expenditures.

404.4 **Action on Control Plans:** The Control officer shall take final action on the control plan within 30 days of the proper filing of the control plan. The Control Officer shall notify the applicant in writing of his approval or denial.

404.5 **Progress Reports Required:** The Control Officer upon approval of a control plan shall require the applicant to submit progress reports within five days of the date indicated for each increment of progress specified in the compliance schedule.

405 **ACTION ON APPLICATIONS:** The Control Officer shall take final action on the application within 30 days of the proper filing of the completed application. The Control Officer shall notify the applicant in writing of his approval, conditional approval or denial. Such notification shall be made available for public inspection at a location within the county designated by the Control Officer.

406 **PERMIT PROVISIONS:** Each Permit to Operate issued under these Regulations shall include the following provisions:

406.1 A description of the facility and equipment covered and its location, or for a mobile source, the area in which it may operate.

406.2 The name and address of the owner or operator of the source.

406.3 The date the permit is issued and the date it will expire.

407 **INSPECTION OF EQUIPMENT:** An annual inspection shall be conducted by the Control Officer to determine that the permitted equipment has not been altered, relocated or changed ownership, and that the permitted equipment remains in compliance with these Regulations. Additional inspections may be conducted at any time to verify compliance.

408 **PERMIT RENEWAL:** Permits to Operate issued pursuant to this rule shall be issued for a period of one year and will be renewed annually, following a compliance inspection, approval of the application and payment of fees.

409 **ANNUAL RENEWAL DATE:** When a Permit to Operate is granted for equipment erected, installed or replaced on the site location of an existing Permit to Operate of the same permittee, the annual renewal date of the new permit shall be the anniversary date of the existing permit and the new permit fee shall be pro-rated from the date of issuance to that anniversary date.

410 **FEES REQUIRED:** Persons subject to this rule shall pay the fees required as set forth in Rule 280 of these Regulations.

REGULATION II – PERMITS AND FEES

RULE 242

EMISSION OFFSETS GENERATED BY THE VOLUNTARY PAVING OF UNPAVED ROADS

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MARICOPA COUNTY
AIR POLLUTION CONTROL REGULATIONS

REGULATION II – PERMITS AND FEES
RULE 242

EMISSION OFFSETS GENERATED BY THE VOLUNTARY PAVING OF UNPAVED ROADS

SECTION 100 – GENERAL

101 **PURPOSE:** To establish enforceable procedures for calculating emission reductions of particulate matter at 10 microns or less (PM_{10}) created through the voluntary paving of unpaved roads that will be used as offsets to meet New Source Review (NSR) requirements.

102 **APPLICABILITY:** This rule applies to applicants subject to NSR requirements, who need PM_{10} offsets for the construction of new major stationary sources or major modifications to an existing major stationary source in the Maricopa County PM_{10} non-attainment area and those same applicants who also voluntarily elect to generate emission reductions of PM_{10} by paving unpaved roads in the Maricopa County non-attainment area.

SECTION 200 – **DEFINITIONS:** For the purpose of this rule the following definitions shall apply:

201 **EMISSION OFFSETS** – Emission reductions that have occurred and continue to occur within the Maricopa County PM_{10} non-attainment area, used to mitigate emission increases from new or modified major sources.

202 **ENFORCEABLE** – Offsets are enforceable if they are independently verifiable, program violations are defined, those liable can be identified, and the Administrator and the Control Officer can apply penalties and secure appropriate corrective action where applicable.

203 **PERMANENT** – Continuing or enduring for the duration of the New Source Review (NSR) obligation.

204 **QUANTIFIABLE** – Emission reductions that can be reliably and replicably measured by adhering to the quantification protocol set forth in this rule.

205 **ROADWAY SEGMENT** – A section of roadway between two definitive points, including but not limited to intersections, road ends or other demarcation points, which define a change in the roadway structure. The length of such segments shall be expressed in miles and/or fractions thereof.

206 **SURPLUS** – The amount of emission reductions from the paving of an unpaved road that are not:

206.1 Required by federal, state, local law or the Clean Air Act; or

206.2 Included, required or relied upon in the existing federally approved State Implementation Plan (SIP); or

206.3 Included in the Agricultural Best Management Plan; or

206.4 Used by any source to meet any other regulatory requirement including but not limited to, at the time offsets are used, Reasonable Available Control Technology (RACT); or

206.5 Required by any other legal settlement or consent decree; or

206.6 Included in any SIP-related requirements, including but not limited to: Reasonable Further Progress (RFP), milestones, attainment demonstration, conformity regulations, emissions inventories, operating permit regulations, operating permits issued under Maricopa County or Arizona operating permit regulations, any requirement contained in any new source review permits such as Best Available Control Technology (BACT) and Lowest Achievable Emission Rate (LAER) determinations, limitations on operations of raw materials, emission reductions used for offset or netting purposes, and assumptions used in an attainment demonstration; or

206.7 Subject to be included in any of the following as contained in the SIP-approved Plan or in the latest locally-adopted rules or PM plan: Rule 310.01 or Rule 310 of the Maricopa County Air Pollution Control Rules and Regulations, the resolutions listed in 40 CFR 52.120(c) (100), Arizona Revised Statutes Sections 49-457 and 49-504.4, or contingency measures.

SECTION 300 – STANDARDS

301 **OFFSET PLAN REQUIREMENTS:** Applicants who choose to use the provisions of this rule to meet their NSR PM_{10} offset requirements shall submit an Offset Plan. The Offset Plan shall at a minimum contain the information specified in Sections 301.1 through 301.7.

301.1 A statement that the offsets will be generated from the paving of unpaved roads identified within the Offset Plan.

301.2 A statement that the unpaved road(s) will be paved according to state or local government paving standards.

301.3 A list of roads that the generator has proposed for paving including their location and roadway segment identification.

301.4 A copy of a letter or agreement from the appropriate state or local government stating that the public road(s):

a. Has been inspected;

b. Has been described as being either gravel- or non-gravel-surfaced;

c. Will be adopted into the state or local government transportation network, if not already a part of the network; and

d. Will be maintained.

301.5 Calculations that quantify vehicle miles traveled for each roadway segment, including all supporting data from the traffic counts performed pursuant to Section 302.1.

301.6 Calculations that quantify emissions from each roadway segment before and after paving, including all results and supporting data from any source-specific testing performed pursuant to Section 302.2.

301.7 Results of any silt content testing performed on the unpaved roads according to Section 502.

301.8 Photos or video of the public roads to be paved, if they are classified as "non-gravel" roads.

302 CALCULATION METHODOLOGY: Calculations of vehicle miles traveled and the emission(s) reductions from the voluntary paving of roads, for each roadway segment, shall be determined according to the procedures in Sections 302.1 and 302.2.

302.1 Vehicle Miles Traveled (VMT): For the purpose of calculating vmt/day and vmt/year for emission reduction calculations, the applicant shall conduct two traffic counts for each roadway segment.

a. Each traffic count shall measure vehicular traffic over a 48 hour period, which may consist of two non-consecutive 24-hour periods. Vehicular traffic shall be measured continuously during each 24-hour period.

b. The two distinct 24-hour traffic counts shall be conducted on two non holiday weekdays.

c. The vmt/day and vmt/year calculations for each roadway segment shall be based on the time-weighted averages of the two separate traffic counts for that particular roadway segment.

d. The vmt/day shall be calculated by multiplying traffic count results by the length of the roadway segment in miles to the nearest 1/10 of a mile.

e. The average daily traffic count shall be multiplied by the daily and monthly seasonal adjustment factors for paved roads to calculate the annual vehicle miles traveled. For the purpose of the offset program, the adjustment factors shall be obtained from the most recent Freeway Management System data provided by the Arizona Department of Transportation.

f. All future projects must comply with Sections 302.1 listed above, except for a previously permitted modification at the Salt River Project's Santan Generating Plant and a previously permitted modification at the Arizona Public Service's West Phoenix Power Plant, both of which, during the permitting process, specifically relied upon emission reductions from road paving to provide PM_{10} offsets.

302.2 Emissions From Unpaved and Paved Roads:

a. The equations provided in Appendix A shall be used to determine the quantity of PM_{10} emissions (in terms of lbs/VMT) emitted from each unpaved and paved road segment.

b. The default values provided in Appendix A for silt content shall be used to calculate PM_{10} emissions, unless the applicant provides source specific values obtained in accordance with Section 502.

c. The PM_{10} emission reduction associated with paving a segment of unpaved road shall be calculated as the difference, in tons per year, between the emissions from the road in the unpaved condition and the emissions from the road in the paved condition.

d. For the two modifications referenced in Section 302.1 (f.) the silt content of the unpaved road(s) used in calculating the PM_{10} emission reductions shall be that for a gravel road, 6.2%, unless the Arizona government transportation agency responsible for the road(s) provides documentary evidence that the road(s) did not, in fact, have a gravel surface. This documentary evidence must have been created prior to the paving of the road(s).

303 STANDARDS FOR APPROVING OFFSET PLANS:

303.1 The Control Officer will approve an Emission Offset Plan if it complies with Section 301 and demonstrates that the emission reductions are quantifiable, permanent, enforceable, and surplus.

303.2 The Control Officer shall issue a written approval of the Offset Plan, indicating which roadway segment(s) may be paved and the amount of the resulting emission offsets that will be generated for each roadway segment.

303.3 Except for a previously permitted modification at the Salt River Project's Santan Generating Plant and a previously permitted modification at the Arizona Public Service's West Phoenix Power Plant, both of which, during the permitting process, specifically relied upon emission reductions from road paving to provide PM_{10} offsets, the approved Offset Plan shall not generate offsets from roadway segments that were paved before (insert rule adoption date).

304 OFFSET PLAN COMPLETION:

304.1 When the applicant has completed paving any of the roadway segment(s) specified in Section 303.2, the applicant shall submit to the Control Officer a summary report that identifies each roadway segment(s) paved, provides the date(s) paving was completed, and includes a copy of the local or state governments' report evaluating the condition of each roadway segment.

304.2 The Control Officer shall issue an approval in writing for the quantity of emission reductions actually generated, based on data submitted pursuant to Section 304.1.

304.3 The quantity of emission reductions approved by the Control Officer pursuant to Section 304.2, may be used to meet NSR PM_{10} offset requirements.

305 ROAD INTEGRITY RESPONSIBILITIES: After the paving of the roadway segment(s) identified in Section 304.1 is completed, the applicant, for a period of 30 years shall:

305.1 At least once every two years, obtain a copy of the local or state governments' report evaluating the condition of each roadway segment(s) identified in Section 304.1; and

305.2 Review the report upon receipt and determine if any roadway segment(s) identified in Section 304.1 is degraded. The roadway segment shall be considered degraded if the pavement condition score is less than 30% according

to the pavement condition analysis criteria listed in the American Association of State Highway and Transportation Officials (AASHTO); and

305.3 Within 60 days of receipt of the report, submit to the Control Officer a copy of the report and a statement identifying any roadway segment(s) that is degraded.

306 OFFSET INTEGRITY RESPONSIBILITIES:

306.1 If pursuant to Section 305.3 any of the road segments paved and approved by the Control Officer under Section 304.2 are found to be degraded, then within 12 months of the report submittal date, the applicant shall provide replacement offsets.

306.2 Replacement offsets may be provided by:

a. Repaving the degraded road segment(s) identified in Section 305.3, and upon completion submit a report that includes the information specified in Section 304.1 or

b. Generating the appropriate number of PM_{10} offsets pursuant to Rule 242 or

c. Generating the appropriate number of PM_{10} offsets pursuant to Rule 204.

SECTION 400 - ADMINISTRATIVE REQUIREMENTS (NON-APPLICABLE)

SECTION 500 - MONITORING AND RECORDS

501 RECORDKEEPING AND RECORDS RETENTION: After the Control Officer has issued an approval of the emission reductions in writing, copies of the documents submitted pursuant to Sections 301, 303.2, 304.1, 305.1, 305.2 and 306 shall be maintained onsite for a minimum of thirty (30) years and provided to the Control Officer upon request.

502 TEST METHODS: Unless the applicant uses the default silt content values provided in Appendix A, silt content of the unpaved road segments shall be determined using the sampling and laboratory analysis procedures provided in EPA's "Compilation of Air Pollutant Emission Factors," (AP-42), Fifth Edition, Volume 1, Appendix C.1. If the applicant performs any silt content analysis, or has such analysis performed on its behalf, the applicant must use the silt content determined from that analysis to calculate PM_{10} emissions.

APPENDIX A

1. UNPAVED PUBLIC ROADS:

a. For the purposes of this rule, the following empirical expression shall be used to estimate the quantity in pounds (lbs) of particulate emissions from publicly accessible unpaved roads, dominated by light duty vehicles, per vehicle mile traveled (VMT).

Equation #1

$$E = \frac{(s/12) * 1.467}{1.572} - 0.00047 \text{ lb/VMT}$$

E = emission factor (lb/VMT)
s = surface material silt content (%)

b. The default values listed for "s" in Table A below shall be used in Equation 1, as applicable, unless the applicant provides source-specific values for "s" using the methods specified in Section 502.

c. Equation #1 is derived from the following empirical expression:

$$E = \frac{k * (s/12)^a * (S/30)^d}{(M/0.5)^c} - C$$

Where:
E = emission factor (lb/VMT)
s = surface material silt content (%)
M= surface material moisture content (%)
S = mean vehicle speed (mph)
C = emission factor for 1980's vehicle fleet exhaust, brake wear and tear
K, a, c and d = constants

The default values listed in Table A were used for each variable.

TABLE A
DEFAULT VALUES FOR EQUATION #1/UNPAVED PUBLIC ROADS

VARIABLES (Units)	DEFAULT VALUES
s (%) Non-gravel roads	11.0
s (%) Gravel roads	6.2
M (%)	1.0%
S (mph)	20
C (lb/VMT)	0.00047

2. PAVED PUBLIC ROADS:

For the purposes of this rule, the quantity in pounds (lb) of particulate emissions from resuspension of loose material on a road surface due to vehicle travel on a dry paved public road shall be 0.005 lbs/VMT. This value is derived from the following empirical expression:

Equation #2

$$E = k\,(sL/2)^{0.65}\,(W/3)^{1.5} - C$$

where:

E = emission factor (lb/VMT) k = particulate size multiplier for particle size range and units of interest
sL = road surface silt loading (grams per square meter or g/m^2)
W = average weight (tons) of the vehicles traveling the road
C = emission factor for 1980s vehicle fleet exhaust, brake wear and tire wear

The following default values were used for each variable.

VARIABLES (Units)	DEFAULT VALUES
K (lbs /VMT)	0.016
sL (grams/m^2)	0.23
W (tons)	3.74
C (lbs / VMT)	0.00047

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

RULE 300
VISIBLE EMISSIONS

SECTION 100 – GENERAL

101 PURPOSE: To limit the emission of air contaminants into the ambient air by establishing standards for visible emissions and opacity.

102 APPLICABILITY: This rule applies to visible emissions from sources for which no source-specific opacity requirements apply. Exceptions to this rule are described in Section 302 of this rule.

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 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.

202 PERCENT OPACITY – The degree to which an effluent plume or any other emission of air contaminants obscures the transmission of light expressed as a percentage.

203 SHUTDOWN – The cessation of operation of any air pollution control equipment and/or process equipment for any purpose, except routine phasing out of process equipment.

204 STARTUP – The setting into operation of any air pollution control equipment and/or process equipment for any purpose, except routine phasing in of process equipment.

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

SECTION 300 – STANDARDS

301 LIMITATIONS: 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 for a period aggregating more than three minutes in any 60-minute period.

302 EXCEPTIONS:

302.1 Charging Electric Arc Furnaces: When charging or back-charging any electric arc furnace for which construction commenced prior to February 2, 1963, a person may discharge air contaminants, other than uncombined water, in excess of the applicable opacity limit in Section 301 of this rule for no more than an aggregate of three minutes in any 45-minute period; however, visible emissions resulting from such discharge of air contaminants shall not exceed 40% opacity.

302.2 Emergency Diesel Generators (EDGs) and Equipment: When emergency diesel generators (EDGs) and equipment must run for safety reasons and/or for safety and operational tests to meet the requirements legally imposed by the Nuclear Regulatory Commission, a person may discharge air contaminants, other than uncombined water, in excess of the applicable opacity limit in Section 301 of this rule. Any discharge of air contaminants, other than uncombined water, in excess of the opacity limit in Section 301 of this rule should not contribute to a violation of the National Ambient Air Quality Standard.

302.3 Firing of Ordnance at Test Facilities: Visible emissions exceeding the opacity standards for short periods of time resulting from firing test rounds in enclosed bunkers at ordnance test facilities which do not exceed six minutes in length shall not constitute a violation of Section 301 of this rule.

302.4 Opacity Training: Equipment or processes used to train individuals in opacity observations shall be exempt from opacity standards during the preparation for and/or during the actual training session(s).

SECTION 400 – ADMINISTRATIVE REQUIREMENTS (NOT APPLICABLE)

SECTION 500 – MONITORING AND RECORDS

501 COMPLIANCE DETERMINATION – OPACITY: Opacity shall be determined by observations of visible emissions conducted in accordance with EPA Reference Method 9 as modified by EPA Reference Method 203B.

REGULATION III – CONTROL OF AIR CONTAMINANTS

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

RULE 310.01
FUGITIVE DUST FROM NON-TRADITIONAL SOURCES OF FUGITIVE DUST

SECTION 100 – GENERAL

101 PURPOSE: To minimize the amount of fugitive dust entrained into the ambient air from non-traditional sources of fugitive dust by requiring measures to prevent, reduce, or mitigate fugitive dust emissions.

102 APPLICABILITY:

102.1 The provisions of this rule shall apply to non-traditional sources of fugitive dust that are conducted in Maricopa County, except for those dust-generating operations listed in Section 103 of this rule.

102.2 The provisions of this rule shall apply to any open area or vacant lot that is not defined as agricultural land and is not used for agricultural purposes according to Arizona Revised Statutes (A.R.S.) § 42-12151 and A.R.S. § 42-12152.

103 EXEMPTIONS:

103.1 The provisions of this rule shall not apply to normal farm cultural practices according to A.R.S. § 49-457 and A.R.S. § 49-504.4.

103.2 The provisions of this rule shall not apply to dust-generating operations that are subject to the standards and/or requirements described in Rule 310: Fugitive Dust from Dust-Generating Operations of these rules.

103.3 The provisions of this rule shall not apply to emergency activities that may disturb the soil conducted by any utility or government agency in order to prevent public injury or to restore critical utilities to functional status.

103.4 The provisions of this rule do not apply to the establishment of initial landscapes without the use of mechanized equipment, conducting landscape maintenance without the use of mechanized equipment, and playing on or maintaining a field used for non-motorized sports. However, establishing initial landscapes without

the use of mechanized equipment and conducting landscape maintenance without the use of mechanized equipment shall not include grading, or trenching, performed to establish initial landscapes or to redesign existing landscapes.

SECTION 200 – DEFINITIONS: For the purpose of this rule, the following definitions apply, in addition to those definitions found in Rule 100: General Provisions and Definitions of these rules. In the event of any inconsistency between any of the Maricopa County air pollution control rules, the definitions in this rule take precedence.

201 ANIMAL WASTE – Any animal excretions and mixtures containing animal excretions.

202 AREA A – As defined in A.R.S. § 49-541(1), the area in Maricopa County delineated as follows:

Township 8 North, Range 2 East and Range 3 East
Township 7 North, Range 2 West through Range 5 East
Township 6 North, Range 5 West through Range 6 East
Township 5 North, Range 5 West through Range 7 East
Township 4 North, Range 5 West through Range 8 East
Township 3 North, Range 5 West through Range 8 East
Township 2 North, Range 5 West through Range 8 East
Township 1 North, Range 5 West through Range 7 East
Township 1 South, Range 5 West through Range 7 East
Township 2 South, Range 5 West through Range 7 East
Township 3 South, Range 5 West through Range 1 East
Township 4 South, Range 5 West through Range 1 East

203 AREA ACCESSIBLE TO THE PUBLIC – Any paved parking lot or paved roadway that can be entered or used for public travel primarily for purposes unrelated to the dust-generating operation.

204 BULK MATERIAL – Any material, including, but not limited to, the following materials that are capable of producing fugitive dust:

204.1 Earth.
204.2 Rock.
204.3 Silt.
204.4 Sediment.
204.5 Sand.
204.6 Gravel.
204.7 Soil.
204.8 Fill.
204.9 Aggregate less than 2 inches in length or diameter (i.e., aggregate base course [ABC]).
204.10 Dirt.
204.11 Mud.

204.12 Demolition debris.
204.13 Cotton.
204.14 Trash.
204.15 Cinders.
204.16 Pumice.
204.17 Saw dust.
204.18 Feeds.
204.19 Grains.
204.20 Fertilizers.
204.21 Fluff from shredders.
204.22 Dry concrete.

205 **CHEMICAL/ORGANIC STABILIZER** – Any non-toxic chemical or organic dust suppressant, other than water, which meets any specifications, criteria, or tests required by any federal, state, or local water agency and is not prohibited for use by any applicable law, rule, or regulation.

206 **CONTROL MEASURE** – A technique, practice, or procedure used to prevent or minimize the generation, emission, entrainment, suspension, and/or airborne transport of fugitive dust.

207 **DISTURBED SURFACE AREA** – A portion of the earth's surface or material placed on the earth's surface that has been physically moved, uncovered, destabilized, or otherwise modified from its undisturbed native condition if the potential for the emission of fugitive dust is increased by the movement, destabilization, or modification.

208 **DUST-GENERATING OPERATION** – Any activity capable of generating fugitive dust, including but not limited to, the following activities:

208.1 Land clearing, maintenance, and land cleanup using mechanized equipment.
208.2 Earthmoving.
208.3 Weed abatement by discing or blading.
208.4 Excavating.
208.5 Construction.
208.6 Demolition.
208.7 Bulk material handling (e.g., bulk material hauling and/or transporting, bulk material stacking, loading, and unloading operations).
208.8 Storage and/or transporting operations (e.g., open storage piles).
208.9 Operation of any outdoor equipment.
208.10 Operation of motorized machinery.
208.11 Establishing and/or using staging areas, parking areas, material storage areas, or access routes to and from a site.
208.12 Establishing and/or using unpaved haul/access roads to, from, and within a site.
208.13 Disturbed surface areas associated with a site.
208.14 Installing initial landscapes using mechanized equipment.

209 **DUST SUPPRESSANT** – Water, hygroscopic material, solution of water and chemical surfactant, foam, non-toxic chemical stabilizer, or any other dust palliative, which is not prohibited for ground surface application by the Environmental Protection Agency (EPA) or the Arizona Department of Environmental Quality (ADEQ), or any applicable law, rule, or regulation, as a treatment material for reducing fugitive dust emissions.

210 **EMERGENCY** – A situation arising from sudden and reasonably unforeseeable events beyond the control of the source, including acts of God, which situation requires immediate corrective action to restore normal operation, and that causes the source to exceed a limitation in this rule, due to unavoidable increases in emissions attributable to the emergency. An emergency shall not include any noncompliance due to improperly designed equipment, lack of preventative maintenance, careless or improper operation, or operator error.

211 **EMERGENCY ACTIVITY** – Repairs that are a result of an emergency which prevents or hinders the provision of electricity, the distribution/collection of water, and the availability of other utilities due to unforeseen circumstances that are beyond the routine maintenance and repair due to normal wear conducted by a utility or municipality.

212 **FEED LANE ACCESS AREAS** – Roads providing access from the feed preparation areas to and including feed lane areas at a livestock activity. These access roads are typically used to distribute feed from feed trucks to the animals.

213 **FUGITIVE DUST** – The particulate matter not collected by a capture system, that is entrained in the ambient air and is caused from human and/or natural activities, such as, but not limited to, movement of soil, vehicles, equipment, blasting, and wind. For the purpose of this rule, fugitive dust does not include particulate matter emitted directly from the exhaust of motor vehicles and other internal combustion engines, from portable brazing, soldering, or welding equipment, and from piledrivers, and does not include emissions from process and combustion sources that are subject to other rules in Regulation III (Control of Air Contaminants) of these rules.

214 **GRAVEL PAD** – A layer of washed gravel, rock, or crushed rock that is at least one inch or larger in diameter, that is maintained at the point of intersection of an area accessible to the public and a site exit to dislodge mud, dirt, and/or debris from the tires of motor vehicles, prior to leaving the site. Minimum dimensions must be 30 feet wide by 3 inches deep and 50 feet long or the length of the longest motor vehicle, whichever is greater. If an unpaved surface exit does not have adequate width to install a 30-foot wide gravel pad, then the width of the gravel pad must cover the full width of the unpaved surface exit and such shorter width shall be adequate to prevent trackout.

215 **GRIZZLY** – A device (i.e., rails, pipes, or grates) used to dislodge mud, dirt, and/or debris from the tires and undercarriage of motor vehicles prior to leaving the work site.

216 **LIVESTOCK ACTIVITIES** – Any activity directly related to feeding animals, displaying animals, racing animals, exercising animals, and/or for any other such activity

including, but not limited to, livestock arenas, horse arenas, feed lots, and residential activities related to feeding or raising animals.

217 **MOTOR VEHICLE** – A self-propelled vehicle for use on the public roads and highways of the State of Arizona and required to be registered under the Arizona State Uniform Motor Vehicle Act, including any non-motorized attachments, such as but not limited to, trailers or other conveyances which are connected to or propelled by the actual motorized portion of the vehicle.

218 **NON-TRADITIONAL SOURCE OF FUGITIVE DUST** – A source of fugitive dust that is located at a source that does not require any permit under these rules. The following non-traditional sources of fugitive dust are subject to the standards and/or requirements described in Rule 310.01: Fugitive Dust from Non-Traditional Sources of Fugitive Dust of these rules:

218.1 Vehicle use in open areas and vacant lots.
218.2 Open areas and vacant lots.
218.3 Unpaved parking lots.
218.4 Unpaved roadways (including alleys).
218.5 Livestock activities.
218.6 Erosion-caused deposition of bulk materials onto paved surfaces.
218.7 Easements, rights-of-way, and access roads for utilities (electricity, natural gas, oil, water, and gas transmission).

219 **NORMAL FARM CULTURAL PRACTICE** – All activities by the owner, lessee, agent, independent contractor, and/or supplier conducted on any facility for the production of crops and/or nursery plants. Disturbances of the field surface caused by turning under stalks, tilling, leveling, planting, fertilizing, or harvesting are included in this definition.

220 **OFF-ROAD VEHICLE** – Any self-propelled conveyance specifically designed for off-road use, including, but not limited to, off-road or all-terrain equipment, trucks, cars, motorcycles, motorbikes, or motorbuggies.

221 **OPEN AREAS AND VACANT LOTS** – Any of the following described in Sections 221.1 through 221.3 of this rule. For the purpose of this rule, vacant portions of residential or commercial lots that are immediately adjacent and owned and/or operated by the same individual or entity are considered one vacant open area or vacant lot.

221.1 An unsubdivided or undeveloped tract of land adjoining a developed or a partially developed residential, industrial, institutional, governmental, or commercial area.

221.2 A subdivided residential, industrial, institutional, governmental, or commercial lot that contains no approved or permitted buildings or structures of a temporary or permanent nature.

221.3 A partially developed residential, industrial, institutional, governmental, or commercial lot.

222 **OWNER AND/OR OPERATOR** – Any person who owns, leases, operates, controls, or supervises a fugitive dust source subject to the requirements of this rule.

223 **PAVE** – To apply and maintain asphalt, concrete, or other similar material to a roadway surface (i.e., asphaltic concrete, concrete pavement, chip seal, or rubberized asphalt).

224 **PM_{10} NONATTAINMENT AREA** – An area designated by the EPA as exceeding National Ambient Air Quality Standards based upon data collected through air quality monitoring. The geographical boundary of Maricopa County's PM_{10} nonattainment area is defined as the rectangle determined by and including the following townships and ranges: T6N, R3W; T6N, R7E; T2S, R3W; T2S, R7E; and T1N, R8E. Maricopa County's PM_{10} nonattainment area includes the following cities: Surprise, Peoria, Glendale, Phoenix, Scottsdale, Tempe, Mesa, Gilbert, Chandler, Avondale, Buckeye, and Goodyear.

225 **PROPERTY LINE** – The boundaries of an area in which either a person causing the emission or a person allowing the emission has the legal use or possession of the property. Where such property is divided into one or more sub-tenancies, the property line(s) shall refer to the boundaries dividing the areas of all sub-tenancies.

226 **PUBLIC ROADWAYS** – Any roadways that are open to public travel.

227 **TRACKOUT/CARRYOUT** – Any and all bulk materials that adhere to and agglomerate on the surfaces of motor vehicles, haul trucks, and/or equipment (including tires) and that have fallen or been deposited onto an area accessible to the public.

228 **TRACKOUT CONTROL DEVICE** – A gravel pad, grizzly, wheel wash system, or a paved area, located at the point of intersection of an unpaved area and an area accessible to the public that controls or prevents vehicular trackout.

229 **UNPAVED ACCESS CONNECTIONS** – Any unpaved road connection with a paved public road.

230 **UNPAVED PARKING LOT** – Any area that is not paved and that is used for parking, maneuvering, material handling, or storing motor vehicles and equipment. An unpaved parking lot includes, but is not limited to, automobile impound yards, wrecking yards, automobile dismantling yards, salvage yards, material handling yards, and storage yards. For the purpose of this rule, maneuvering shall not include military maneuvers or exercises conducted on federal facilities.

231 **UNPAVED ROADWAY (INCLUDING ALLEYS)** – A road that is not paved and that is owned by federal, state, county, municipal, or other governmental or quasi-governmental agencies. For the purpose of this rule, an unpaved roadway (including

alleys) is not a horse trail, hiking path, bicycle path, or other similar path used exclusively for purposes other than travel by motor vehicles. An unpaved roadway (including alleys) includes designated or opened trail systems and service roads regardless of surface composition.

232 **VACANT LOT** – The definition of vacant lot is included in Section 221: Definition of Open Areas and Vacant Lots of this rule.

SECTION 300 – STANDARDS

301 GENERAL REQUIREMENTS FOR NON-TRADITIONAL SOURCES OF FUGITIVE DUST:

301.1 An owner and/or operator of a non-traditional source of fugitive dust shall be subject to the standards and/or requirements described in this rule. Failure to comply with any such standards and/or requirements is deemed a violation of this rule.

301.2 When an owner and/or operator of a non-traditional source of fugitive dust fails to stabilize disturbed surfaces of vacant lots as required in Sections 302.4 and 302.5 of this rule, the Control Officer shall commence enforcement of those rule provisions regarding the stabilization of disturbed surfaces of vacant lots that include the following:

a. Reasonable written notice to the owner or the owner's authorized agent or the owner's statutory agent that the unpaved disturbed surface of a vacant lot is required to be stabilized. The notice shall be given not less than 30 days before the day set for compliance and shall include a legal description of the property and the estimated cost to the county for the stabilization if the owner does not comply. The notice shall be either personally served or mailed by certified mail to the owner's statutory agent, to the owner at the owner's last known address or to the address to which the tax bill for the property was last mailed.

b. Authority to enter upon any said land/property where such non-traditional source of fugitive dust exists/where such disturbed surface area exists and to take remedial and/or corrective action as may be deemed appropriate to cope with and relieve, reduce, remedy, and/or stabilize such non-traditional source of fugitive dust/such disturbed surface area. Any cost incurred in connection with any such remedial or corrective action by the Maricopa County Air Quality Department or any person acting for the Maricopa County Air Quality Department shall be reimbursed by the owner and/or operator of such non-traditional source of fugitive dust.

302 CONTROL MEASURES FOR NON-TRADITIONAL SOURCES OF FUGITIVE DUST:

302.1 When engaged in the activities described in Sections 302.4 through 302.10 of this rule, the owner and/or operator of a non-traditional source of fugitive dust shall implement control measures as described in Sections 302.4 through 302.10 of this rule, as applicable.

302.2 Control measures shall be implemented to meet the visible emissions requirements and stabilization requirements, as required for each activity, and to achieve the compliance determination in Section 501 of this rule.

302.3 Failure to implement control measures as required by this rule, as applicable, and/or failure to maintain stabilization of a non-traditional source of fugitive dust with adequate surface crusting to prevent wind erosion as measured by the requirements in this rule shall be deemed a violation of this rule.

302.4 Vehicle Use in Open Areas and Vacant Lots: The owner and/or operator of a non-traditional source of fugitive dust that involves vehicle use in open areas and vacant lots shall be subject to the requirements described in Section 302.4(a) of this rule and, unless otherwise specified and/or required, shall comply with the control measures described in Section 302.4(b) of this rule and the additional requirements described in Section 302.4(c) of this rule.

a. Visible Emissions Requirements and Stabilization Requirements:

(1) The owner and/or operator of a non-traditional source of fugitive dust that involves vehicle use in open areas and vacant lots shall not cause or allow visible emissions of particulate matter, including fugitive dust, beyond the property line within which the emissions are generated.

(2) The owner and/or operator of a non-traditional source of fugitive dust that involves vehicle use in open areas and vacant lots shall stabilize the open areas and vacant lots on which vehicles are used to meet one of the following stabilization limitations:

(a) A soil crust; or

(b) A threshold friction velocity (TFV) corrected for non-erodible elements of 100 cm/second or higher; or

(c) Flat vegetative cover (i.e., attached [rooted] vegetation or unattached vegetative debris lying on the surface with a predominant horizontal orientation that is not subject to movement by wind) that is equal to at least 50%; or

(d) Standing vegetative cover (i.e., vegetation that is attached [rooted] with a predominant vertical orientation) that is equal to or greater than 30%; or

(e) Standing vegetative cover (i.e., vegetation that is attached [rooted] with a predominant vertical orientation) that is equal to or greater than 10% and where the threshold friction velocity is equal to or greater than 43 cm/second when corrected for non-erodible elements; or

(f) A percent cover that is equal to or greater than 10% for non-erodible elements; or

(g) An alternative test method approved in writing by the Control Officer and the Administrator.

b. Control Measures:

(1) Prevent motor vehicle and/or off-road vehicle trespassing, parking, and/or access by installing barriers, curbs, fences, gates, posts, shrubs, trees, or other effective control measures;

(2) Prevent motor vehicle and/or off-road vehicle trespassing, parking, and/or access by posting that consists of one of the following:

(a) A sign written in compliance with ordinance(s) of local, County, State, or Federal sign standards.

(b) An order of a government land management agency.

(c) Most current maps approved by a government land management agency.

(d) Virtual posting a government land management agency.

(3) Uniformly apply and maintain surface gravel or chemical/organic stabilizers to all areas disturbed by motor vehicles and/or off-road vehicles; or

(4) Apply and maintain an alternative control measure approved in writing by the Control Officer and the Administrator.

c. Additional Requirements:

(1) If open areas and vacant lots are 0.10 acre (4,356 square feet) or larger and have a cumulative of 500 square feet or more that are disturbed by

being driven over and/or used by motor vehicles, by off-road vehicles, or for material dumping, then the owner and/or operator shall implement one or more of the control measures described in Section 302.4(b) of this rule within 60 calendar days following the initial discovery by the Control Officer of disturbance or vehicle use on open areas and vacant lots.

(2) Within 30 calendar days following the initial discovery by the Control Officer of disturbance or vehicle use on open areas and vacant lots, the owner and/or operator shall provide in writing to the Control Officer a description and date of the control measure(s) to be implemented to prevent such disturbance or vehicle use on open areas and vacant lots.

(3) The owner and/or operator shall implement all control measures necessary to limit the disturbance or vehicle use on open areas and vacant lots in accordance with the requirements of this rule. Control measure(s) shall be considered effectively implemented when the open areas and vacant lots meet the requirements described in Section 302.4(a) of this rule.

(4) Once a control measure in Section 302.4(b) of this rule has been effectively implemented, then such open area or vacant lot is subject to the requirements of Section 302.5: Open Areas and Vacant Lots of this rule.

(5) Use of or parking on open areas and vacant lots by the owner and/or operator of such open areas and vacant lots shall not be considered vehicle use in open areas and vacant lots and shall not be subject to the requirements of Section 302.4(b) and sections 302.4(c)(1) through 302.4(c)(4) of this rule. Such open areas and vacant lots shall still meet the requirements described in Section 302.5 of this rule.

(6) Establishing initial landscapes without the use of mechanized equipment or conducting landscape maintenance without the use of mechanized equipment shall not be considered vehicle use in open areas and vacant lots and shall not be subject to the requirements of Section 302.4(b) and Sections 302.4(c)(1) through 302.4(c)(4) of this rule. Such open areas and vacant lots shall still meet the requirements described in Section 302.5 of this rule.

302.5 Open Areas and Vacant Lots: The owner and/or operator of a non-traditional source of fugitive dust that involves open areas and vacant lots shall be subject to the requirements described in Section 302.5(a) of this rule and, unless otherwise specified and/or required, shall comply with the control measures described in Section 302.5(b) of this rule and the additional requirements described in Section 302.5(c) of this rule.

a. Visible Emissions Requirements and Stabilization Requirements:

(1) The owner and/or operator of a non-traditional source of fugitive dust that involves open areas and vacant lots shall not cause or allow visible emissions of particulate matter, including fugitive dust, beyond the property line within which the emissions are generated.

(2) The owner and/or operator of a non-traditional source of fugitive dust that involves open areas and vacant lots shall stabilize the open areas and vacant lots to meet one of the following stabilization limitations:

(a) A soil crust; or

(b) A threshold friction velocity (TFV) corrected for non-erodible elements of 100 cm/second or higher; or

(c) Flat vegetative cover (i.e., attached [rooted] vegetation or unattached vegetative debris lying on the surface with a predominant horizontal orientation that is not subject to movement by wind) that is equal to at least 50%; or

(d) Standing vegetative cover (i.e., vegetation that is attached [rooted] with a predominant vertical orientation) that is equal to or greater than 30%; or

(e) Standing vegetative cover (i.e., vegetation that is attached [rooted] with a predominant vertical orientation) that is equal to or greater than 10% and where the threshold friction velocity is equal to or greater than 43 cm/second when corrected for non-erodible elements; or

(f) A percent cover that is equal to or greater than 10% for non-erodible elements; or

(g) An alternative test method approved in writing by the Control Officer and the Administrator.

b. Control Measures:

(1) Establish vegetative ground cover on all disturbed surface areas. Such control measure(s) must be maintained and reapplied, if necessary. Stabilization shall be achieved, per this control measure, within eight months after the control measure has been implemented; or

(2) Apply a dust suppressant to all disturbed surface areas; or

(3) Restore all disturbed surface areas within 60 calendar days following the initial discovery by the Control Officer of the disturbance, such that the vegetative ground cover and soil characteristics are similar to adjacent or nearby undisturbed native conditions. Such control measure(s) must be maintained and reapplied, if necessary. Stabilization shall be achieved, per such control measure, within eight months after such control measure has been implemented; or

(4) Uniformly apply and maintain surface gravel; or

(5) Apply and maintain an alternative control measure approved in writing by the Control Officer and the Administrator.

c. Additional Requirements:

(1) If open areas and vacant lots are 0.10 acre (4,356 square feet) or larger and have a cumulative of 500 square feet or more that are disturbed and if such disturbed area remains unoccupied, unused, vacant, or undeveloped for more than 15 days, then the owner and/or operator shall implement one or more of the control measures described in Section 302.5(b) of this rule within 60 calendar days following the initial discovery by the Control Officer of the disturbance on the open areas and vacant lots.

(2) Within 30 calendar days following the initial discovery by the Control Officer of the disturbance on the open areas and vacant lots, the owner and/or operator shall provide in writing to the Control Officer a description and date of the control measure(s) to be implemented.

(3) Control measure(s) shall be considered effectively implemented when the disturbance on the open areas and vacant lots meets the requirements described in Section 302.5(a) of this rule.

302.6 Unpaved Parking Lots: The owner and/or operator of a non-traditional source of fugitive dust that involves unpaved parking lots shall be subject to the requirements described in Section 302.6(a) of this rule and, unless otherwise specified and/or required, shall comply with one of the control measures described in Section 302.6(b) of this rule and the additional requirements described in Section 302.6(c) of this rule.

a. Visible Emissions Requirements and Stabilization Requirements:

(1) The owner and/or operator of a non-traditional source of fugitive dust that involves unpaved parking lots shall not cause or allow visible

emissions of particulate matter, including fugitive dust, beyond the property line within which the emissions are generated.

(2) The owner and/or operator of a non-traditional source of fugitive dust that involves unpaved parking lots shall not cause or allow visible fugitive dust emissions to exceed 20% opacity and shall not allow silt loading equal to or greater than 0.33 oz/ft^2. However, if silt loading is equal to or greater than 0.33 oz/ft^2, then the owner and/or operator shall not allow the silt content to exceed 8%.

b. Control Measures:

(1) For parking, maneuvering, ingress, and egress areas at developments other than residential buildings with four or fewer units that are utilized for more than 35 days during the calendar year:

(a) Install and maintain pavement; or

(b) Apply dust suppressant other than water and install, maintain, and use a suitable trackout control device that controls and prevents trackout and/or removes particulate matter from tires and the exterior surfaces of motor vehicles that traverse the site; or

(c) Uniformly apply and maintain surface gravel.

(2) For parking, maneuvering, ingress, and egress areas at developments other than residential buildings with four or fewer units that are utilized for 35 days or less during the calendar year:

(a) Install and maintain one of the control measures listed in Section 302.6(b)(1) of this rule; or

(b) Apply water and install, maintain, and use a suitable trackout control device that controls and prevents trackout and/or removes particulate matter from tires and the exterior surfaces of motor vehicles that traverse the site.

(3) For parking, maneuvering, ingress, and egress areas 3,000 square feet or more in size at residential buildings with four or fewer units install and maintain a paving or stabilization method authorized by the city, town, or county by code, ordinance, or permit.

c. Additional Requirements:

(1) Control measure(s) shall be considered effectively implemented when the unpaved parking lot meets the requirements described in Section 302.6(a) of this rule.

(2) If trackout occurs, the owner and/or operator shall repair and/or replace the control measure(s) and shall clean-up immediately such trackout from areas accessible to the public including curbs, gutters, and sidewalks when trackout extends a cumulative distance of 25 linear feet or more and at the end of the day for all other trackout.

302.7 **Unpaved Roadways (Including Alleys):** The owner and/or operator of unpaved roadways (including alleys) that are used by 150 vehicle trips or more per day in the PM_{10} nonattainment area shall be subject to the requirements described in Section 302.7(a) of this rule and, unless otherwise specified and/or required, shall comply with one of the control measures described in Section 302.7(b) of this rule and the additional requirements described in Section 302.7(c) of this rule.

a. **Visible Emissions Requirements and Stabilization Requirements**: The owner and/or operator of unpaved roadways (including alleys) shall not cause or allow visible fugitive dust emissions to exceed 20% opacity and shall not allow silt loading equal to or greater than 0.33 oz/ft^2. However, if silt loading is equal to or greater than 0.33 oz/ft^2, then the owner and/or operator shall not allow the silt content to exceed 6%.

b. **Control Measures:**

(1) Pave;

(2) Apply dust suppressants other than water; or

(3) Uniformly apply and maintain surface gravel.

c. **Additional Requirements:**

(1) If a person allows 150 vehicle trips or more per day on an unpaved roadway (including an alley) in the PM_{10} nonattainment area, then such person shall first implement one of the control measures described in Section 302.7(b) of this rule.

(2) A person, who allows 150 vehicle trips or more per day on an unpaved roadway (including an alley) in the PM_{10} nonattainment area, shall be responsible for conducting vehicle counts/traffic counts to determine if 150 vehicle trips or more per day occur on an unpaved roadway (including an alley). A traffic count shall measure vehicular traffic over a 48-hour period, which may consist of two non-consecutive 24-hour periods. Vehicular traffic shall be measured continuously during each

24-hour period. The average vehicle counts/traffic counts on the highest trafficked days shall be recorded and provided to the Control Officer in writing within 60 days of verbal or written request by the Control Officer.

(3) Control measure(s) shall be considered effectively implemented under the following conditions:

(a) When the unpaved roadway (including an alley) meets the requirements described in Section 302.7(a) of this rule.

(b) When one of the control measures described in Section 302.7(b) of this rule is implemented on 5 miles of unpaved roadways (including alleys) having vehicle traffic of 150 vehicle trips or more per day within one calendar year beginning in calendar year of 2008. If the control measure described in Section 302.7(b)(2) of this rule is implemented, the unpaved roadways (including alleys) must be maintained so as to comply with Appendix C of these rules.

302.8 **Livestock Activities:** The owner and/or operator of a non-traditional source of fugitive dust that involves livestock activities shall be subject to the requirements described in Section 302.8(a) of this rule and, unless otherwise specified and/or required, shall comply with the control measures described in Section 302.8(b) of this rule and the additional requirements described in Section 302.8(c) of this rule.

a. **Visible Emissions Requirements:**

(1) For unpaved access connections and unpaved feed lane access areas, the owner and/or operator shall not cause or allow visible fugitive dust emissions to exceed 20% opacity.

(2) For corrals, pens, and arenas, the owner and/or operator shall not cause or allow visible fugitive dust emissions to exceed 20% opacity for a period aggregating more than three minutes in any 60-minute period.

(3) The owner and/or operator shall not cause or allow visible emissions of particulate matter, including fugitive dust, beyond the property line within which the emissions are generated.

b. **Control Measures:** The owner and/or operator of a non-traditional source of fugitive dust that involves livestock activities shall implement the control measures described in this section of this rule. When selecting a control measure, the owner and/or operator may consider site-specific logistics of the livestock activities. When doing so, some control measures may be more reasonable to implement than others. Any control measure that is implemented must achieve the applicable standards and requirements

described in Sections 302.8(a) and (c) of this rule, as determined by the corresponding test methods, as applicable, and must achieve other applicable standards set forth in this rule. The owner and/or operator may submit a request to the Control Officer and the Administrator for the use of alternative control measure(s). The owner and/or operator may implement the alternative control measure only after the Control Officer and the Administrator have granted the petition.

(1) For unpaved access connections and unpaved feed lane access areas:

(a) Apply water and install, maintain, and use a suitable trackout control device that controls and prevents trackout and/or removes particulate matter from tires and the exterior surfaces of motor vehicles that traverse the site;

(b) Apply and maintain pavement, gravel (maintained to a depth of four inches), or asphaltic roadbase;

(c) Apply and maintain dust suppressants other than water; or

(d) Limit vehicle trips to no more than 20 per day per road, limit vehicle speeds to no more than 15 miles per hour, and restrict public access to private roads by installing barriers, curbs, fences, gates, posts, or signs written in compliance with ordinance(s) of local, County, State, or Federal sign standards.

(2) For bulk material hauling, including animal waste, off-site and crossing and/or accessing an area accessible to the public:

(a) Load all vehicles used to haul bulk material, including animal waste, such that the freeboard is not less than three inches;

(b) Prevent spillage or loss of bulk material, including animal waste, from holes or other openings in the cargo compartment's floor, sides, and/or tailgate(s);

(c) Cover cargo compartment with a tarp or other suitable closure; and

(d) Install, maintain, and use a suitable trackout control device that controls and prevents trackout and/or removes particulate matter from tires and the exterior surfaces of motor vehicles that traverse the site.

(3) For corrals, pens, and arenas:

(a) Apply water;

(b) Install shrubs and/or trees within 50 feet to 100 feet of corrals, pens, and arenas;

(c) Scrape and/or remove manure;

(d) Apply a fibrous layer (i.e., wood chips) in working areas;

(e) Provide shaded areas; or

(f) Apply and maintain an alternative control measure approved in writing by the Control Officer and the Administrator.

c. Additional Requirements:

(1) The owner and/or operator of livestock activities shall implement at least one of the control measures from each of the following three sections of this rule, as applicable: Section 302.8(b)(1), Section 302.8(b)(2), and Section 302.8(b)(3). In lieu of implementing at least one control measure from each of the following three sections of this rule, as applicable: Section 302.8(b)(1), Section 302.8(b)(2), and Section 302.8(b)(3), the owner and/or operator of livestock activities shall implement an alternative control measure approved in writing by the Control Officer and the Administrator.

(2) Control measure(s) shall be considered effectively implemented when the livestock activities meet the requirements described in Section 302.8(a) of this rule.

(3) If trackout occurs, the owner and/or operator shall repair and/or replace the control measure(s) and shall clean up immediately such trackout from areas accessible to the public including curbs, gutters, and sidewalks when trackout extends a cumulative distance of 25 linear feet or more and at the end of the day for all other trackout.

302.9 Erosion-Caused Deposition of Bulk Materials Onto Paved Surfaces: The owner and/or operator of a non-traditional source of fugitive dust that involves erosion-caused deposition of bulk materials onto paved surfaces shall comply with the control measures described in Section 302.9(a) of this rule and the additional requirements described in Section 302.9(b) of this rule.

a. Control Measures:

(1) Remove any and all such deposits by utilizing the appropriate control measures within 24 hours of the deposits' identification or prior to the

resumption of traffic on pavement, where the pavement area has been closed to traffic; and

(2) Dispose of deposits in such a manner so as not to cause another source of fugitive dust.

b. Additional Requirements:

(1) In the event that erosion-caused deposition of bulk materials or other materials occurs on any adjacent paved roadway, paved parking lot, curb, gutter, or sidewalk, the owner and/or operator of the property from which the deposition eroded shall implement both of the control measures described in Section 302.9(a) of this rule.

(2) Failure to comply with both of the control measures described in Section 302.9(a) of this rule shall constitute a violation of this rule.

302.10 Easements, Rights-of-Way, and Access Roads for Utilities (Transmission of Electricity, Natural Gas, Oil, Water, and Gas): The owner and/or operator of a non-traditional source of fugitive dust that involves easements, rights-of-way, and access roads for utilities (transmission of electricity, natural gas, oil, water, and gas) that are used by 150 vehicle trips or more per day in the PM_{10} nonattainment area shall be subject to the requirements described in Section 302.10(a) of this rule and unless otherwise specified and/or required, comply with one of the control measures described in Section 302.10(b) of this rule and the additional requirements described in Section 302.10(c) of this rule.

a. Visible Emissions Requirements and Stabilization Requirements: The owner and/or operator of a non-traditional source of fugitive dust that involves easements, rights-of-way, and access roads for utilities (transmission of electricity, natural gas, oil, water, and gas) shall not cause or allow visible fugitive dust emissions to exceed 20% opacity and shall not allow silt loading equal to or greater than 0.33 oz/ft^2. However, if silt loading is equal to or greater than 0.33 oz/ft^2, then the owner and/or operator shall not allow the silt content to exceed 6%.

b. Control Measures:

(1) Pave;

(2) Apply dust suppressants other than water;

(3) Uniformly apply and maintain surface gravel; or

(4) Install locked gates at each entry point.

c. Additional Requirements:

(1) If an owner and/or operator allows 150 vehicle trips or more per day to use an easement, right-of-way, and access road for utilities (transmission of electricity, natural gas, oil, water, and gas) in the PM_{10} nonattainment area, then such owner and/or operator shall first implement one of the control measures described in Section 302.10(b) of this rule.

(2) A person, who allows 150 vehicle trips or more per day to use an easement, right-of-way, and access road for utilities (transmission of electricity, natural gas, oil, water, and gas) in the PM_{10} nonattainment area, shall be responsible for conducting vehicle counts/traffic counts to determine if 150 vehicle trips or more per day occur on an easement, right-of-way, and access road for utilities (transmission of electricity, natural gas, oil, water, and gas). A traffic count shall measure vehicular traffic over a 48-hour period, which may consist of two non-consecutive 24-hour periods. Vehicular traffic shall be measured continuously during each 24-hour period. The average vehicle counts/traffic counts on the highest trafficked days shall be recorded and provided to the Control Officer in writing within 60 days of verbal or written request by the Control Officer.

(3) Control measure(s) shall be considered effectively implemented when the easement, right-of-way, and access road for utilities (transmission of electricity, natural gas, oil, water, and gas) meets the requirements described in Section 302.10(a) of this rule.

SECTION 400 – ADMINISTRATIVE REQUIREMENTS (NOT APPLICABLE)

SECTION 500 – MONITORING AND RECORDS

501 COMPLIANCE DETERMINATION: To determine compliance with this rule, the following test methods shall be followed:

501.1 Opacity Observations:

a. Opacity observations to measure visible emissions shall be conducted in accordance with the techniques specified in EPA Reference Method 203B (Visual Determination of Opacity of Emissions from Stationary Sources for Time-Exception Regulations). Emissions shall not exceed the applicable opacity standards of this rule for a period aggregating more than three minutes in any 60-minute period.

b. Opacity observations to determine compliance with Sections 302.6, 302.7, 302.8(a)(1), 302.8(a)(2), and 302.10 of this rule shall be conducted in

accordance with the techniques specified in Appendix C (Fugitive Dust Test Methods) of these rules.

501.2 Stabilization observations for unpaved parking lots and/or unpaved roadways (including alleys) shall be conducted in accordance with Appendix C, Section 2.1 (Test Methods for Stabilization for Unpaved Roads and Unpaved Parking Lots) of these rules.

501.3 Stabilization observations for vehicle use in open areas and vacant lots and/or open areas and vacant lots shall be conducted in accordance with the following:

a. Appendix C, Section 2.3 (Test Methods for Stabilization: Soil Crust Determination: The Drop Ball Test) of these rules; or

b. Appendix C, Section 2.4 (Test Methods for Stabilization: Determination of Threshold Friction Velocity [TFV]: Sieving Field Procedure) of these rules, where the threshold friction velocity (TFV) for disturbed surface areas corrected for non-erodible elements is 100 cm/second or higher; or

c. Appendix C, Section 2.5 (Test Methods for Stabilization: Determination of Flat Vegetative Cover) of these rules, where flat vegetation cover (i.e., attached [rooted] vegetation or unattached vegetative debris lying on the surface with a predominant horizontal orientation that is not subject to movement by wind) is equal to at least 50%; or

d. Appendix C, Section 2.6 (Test Methods for Stabilization: Determination of Standing Vegetative Cover) of these rules, where standing vegetation cover (i.e., vegetation that is attached [rooted] with a predominant vertical orientation) is equal to or greater than 30%; or

e. Appendix C, Section 2.6 (Test Methods for Stabilization: Determination of Standing Vegetative Cover) of these rules, where the standing vegetation cover (i.e., vegetation that is attached [rooted] with a predominant vertical orientation) is equal to or greater than 10% and where the threshold friction velocity, corrected for non-erodible elements, is equal to or greater than 43 cm/second; or

f. Appendix C, Section 2.7 (Test Methods for Stabilization: Rock Test Method) of these rules where a percent cover is equal to or greater than 10% for non-erodible elements.

g. An alternative test method approved in writing by the Control Officer and the Administrator.

502 RECORDKEEPING: Any person subject to the requirements of this rule shall compile and retain records that provide evidence of control measure application (i.e., receipts

and/or purchase records). Such person shall describe, in the records, the type of treatment or control measure, extent of coverage, and date applied. Upon verbal or written request by the Control Officer, such person shall provide the records and supporting documentation as soon as possible but no later than 48 hours, excluding weekends. If the Control Officer is at the site where requested records are kept, such person shall provide the records without delay.

503 RECORDS RETENTION: Copies of the records required by Section 502 (Recordkeeping) of this rule shall be retained for at least two years.

REGULATION III – CONTROL OF AIR CONTAMINANTS

RULE 310
FUGITIVE DUST FROM DUST-GENERATING OPERATIONS

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

RULE 310
FUGITIVE DUST FROM DUST-GENERATING OPERATIONS

SECTION 100 – GENERAL

101 PURPOSE: To limit particulate matter (PM_{10}) emissions into the ambient air from any property, operation or activity that may serve as a fugitive dust source. The effect of this rule shall be to minimize the amount of PM_{10} entrained into the ambient air as a result of the impact of human activities by requiring measures to prevent, reduce, or mitigate particulate matter emissions.

102 APPLICABILITY: The provisions of this rule shall apply to all dust-generating operations except for those dust-generating operations listed in Section 103 of this rule.

103 EXEMPTIONS:

103.1 The provisions of this rule shall not apply to normal farm cultural practices according to Arizona Revised Statutes (A.R.S.) § 49-457 and A.R.S. § 49-504.4.

103.2 The provisions of this rule shall not apply to the following non-traditional sources of fugitive dust that are located at sources that do not require any permit under these rules. These non-traditional sources of fugitive dust are subject to the standards and/or requirements described in Rule 310.01: Fugitive Dust from Non-Traditional Sources of Fugitive Dust of these rules:

a. Vehicle use in open areas and vacant lots.

b. Open areas and vacant lots.

c. Unpaved parking lots.

d. Unpaved roadways (including alleys).

e. Livestock activities.

f. Erosion-caused deposition of bulk materials onto paved surfaces.

g. Easements, rights-of-way, and access roads for utilities (transmission of electricity, natural gas, oil, water, and gas).

103.3 The provisions of this rule shall not apply to emergency activities that may disturb the soil conducted by any utility or government agency in order to prevent public injury or to restore critical utilities to functional status.

103.4 The provisions of this rule do not apply to the establishment of initial landscapes without the use of mechanized equipment, conducting landscape maintenance without the use of mechanized equipment, and playing on or maintaining a field used for non-motorized sports. However, establishing initial landscapes without the use of mechanized equipment and conducting landscape maintenance without the use of mechanized equipment shall not include grading, or trenching performed to establish initial landscapes or to redesign existing landscapes.

103.5 The provisions of this rule shall not apply to rooftop operations for cutting, drilling, grinding, or coring roofing tile when such activity is occurring on a pitched roof.

SECTION 200 – DEFINITIONS: For the purpose of this rule, the following definitions apply, in addition to those definitions found in Rule 100: General Provisions and Definitions of these rules. In the event of any inconsistency between any of the Maricopa County air pollution control rules, the definitions in this rule take precedence.

201 **AREA A** – As defined in A.R.S. § 49-541(1), the area in Maricopa County delineated as follows:

Township 8 North, Range 2 East and Range 3 East
Township 7 North, Range 2 West through Range 5 East
Township 6 North, Range 5 West through Range 6 East
Township 5 North, Range 5 West through Range 7 East
Township 4 North, Range 5 West through Range 8 East
Township 3 North, Range 5 West through Range 8 East
Township 2 North, Range 5 West through Range 8 East
Township 1 North, Range 5 West through Range 7 East
Township 1 South, Range 5 West through Range 7 East
Township 2 South, Range 5 West through Range 7 East
Township 3 South, Range 5 West through Range 1 East
Township 4 South, Range 5 West through Range 1 East

202 **AREA ACCESSIBLE TO THE PUBLIC** – Any paved parking lot or paved roadway that can be entered or used for public travel primarily for purposes unrelated to the dust-generating operation.

203 **BULK MATERIAL** – Any material, including, but not limited to, the following materials that are capable of producing fugitive dust:

203.1 Earth.
203.2 Rock.
203.3 Silt.
203.4 Sediment.
203.5 Sand.
203.6 Gravel.
203.7 Soil.
203.8 Fill.
203.9 Aggregate less than 2 inches in length or diameter (i.e., aggregate base course [ABC]).
203.10 Dirt.
203.11 Mud.
203.12 Demolition debris.
203.13 Cotton.
203.14 Trash.
203.15 Cinders.
203.16 Pumice.
203.17 Sawdust.
203.18 Feeds.
203.19 Grains.
203.20 Fertilizers.
203.21 Fluff from shredders.
203.22 Dry concrete.

204 **BULK MATERIAL HANDLING, STORAGE, AND/OR TRANSPORTING OPERATION** – The use of equipment, haul trucks, and/or motor vehicles, including, but not limited to, for the following activities that are capable of producing fugitive dust:

204.1 Loading.
204.2 Unloading.
204.3 Conveying.
204.4 Transporting.
204.5 Piling.
204.6 Stacking.
204.7 Screening.
204.8 Grading.
204.9 Moving bulk materials.

205 **CONTROL MEASURE** – A technique, practice, or procedure used to prevent or minimize the generation, emission, entrainment, suspension, and/or airborne transport of fugitive dust. Control measures include, but are not limited to:

- **205.1** Curbing;
- **205.2** Paving;
- **205.3** Pre-watering;
- **205.4** Applying dust suppressants;
- **205.5** Physically stabilizing with vegetation, gravel, recrushed/recycled asphalt or other forms of physical stabilization;
- **205.6** Limiting, restricting, phasing and/or rerouting motor vehicle access;
- **205.7** Reducing vehicle speeds and/or number of vehicle trips;
- **205.8** Limiting use of off-road vehicles on open areas and vacant lots;
- **205.9** Utilizing work practices and/or structural provisions to prevent wind and water erosion onto areas accessible to the public;
- **205.10** Appropriately using dust control implements;
- **205.11** Installing one or more grizzlies, gravel pads, and/or wash down pads adjacent to the entrance of an area accessible to the public to control carry-out and trackout;
- **205.12** Keeping open-bodied haul trucks in good repair, so that spillage may not occur from beds, sidewalls, and tailgates; and
- **205.13** Covering the cargo beds of haul trucks to minimize wind-blown dust emissions and spillage.

206 **DISTURBED SURFACE AREA** – A portion of the earth's surface or material placed on the earth's surface that has been physically moved, uncovered, destabilized, or otherwise modified from its undisturbed native condition if the potential for the emission of fugitive dust is increased by the movement, destabilization, or modification.

207 **DUST CONTROL IMPLEMENT** – A tool, machine, equipment, accessory, structure, enclosure, cover, material or supply, including an adequate readily available supply of water and its associated distribution/delivery system, used to control fugitive dust emissions.

208 **DUST CONTROL PLAN** – A written plan describing all control measures to be implemented and maintained in order to prevent or minimize the generation, emission, entrainment, suspension, and/or airborne transport of fugitive dust.

209 **DUST-GENERATING OPERATION** – Any activity capable of generating fugitive dust, including, but not limited to, the following activities:

- **209.1** Land clearing, maintenance, and land clean-up using mechanized equipment.
- **209.2** Earthmoving.
- **209.3** Weed abatement by discing or blading.
- **209.4** Excavating.
- **209.5** Construction.

209.6 Demolition.
209.7 Bulk material handling (e.g., bulk material hauling and/or transporting, bulk material stacking, loading, and unloading operations).
209.8 Storage and/or transporting operations (e.g., open storage piles).
209.9 Operation of any outdoor equipment.
209.10 Operation of motorized machinery.
209.11 Establishing and/or using staging areas, parking areas, material storage areas, or access routes to and from a site.
209.12 Establishing and/or using unpaved haul/access roads to, from, and within a site.
209.13 Disturbed surface areas associated with a site.
209.14 Installing initial landscapes using mechanized equipment.

210 DUST SUPPRESSANT – Water, hygroscopic material, solution of water and chemical surfactant, foam, non-toxic chemical stabilizer or any other dust palliative, which is not prohibited for ground surface application by the U.S. Environmental Protection Agency (EPA) or the Arizona Department of Environmental Quality (ADEQ) or any applicable law, rule, or regulation, as a treatment material for reducing fugitive dust emissions.

211 EARTHMOVING OPERATION – The use of any equipment for an activity that may generate fugitive dust, such as but not limited to, the following activities:

211.1 Cutting and filling.
211.2 Grading.
211.3 Leveling.
211.4 Excavating.
211.5 Trenching.
211.6 Loading or unloading of bulk materials.
211.7 Demolishing.
211.8 Blasting.
211.9 Drilling.
211.10 Adding bulk materials to or removing bulk materials from open storage piles.
211.11 Back filling.
211.12 Soil mulching.
211.13 Landfill operations.
211.14 Weed abatement by discing or blading.

212 EMERGENCY – A situation arising from sudden and reasonably unforeseeable events beyond the control of the source, including acts of God, which situation requires immediate corrective action to restore normal operation, and that causes the source to exceed a limitation in this rule, due to unavoidable increases in emissions attributable to the emergency. An emergency shall not include any noncompliance due to improperly designed equipment, lack of preventative maintenance, careless or improper operation, or operator error.

213 EMERGENCY ACTIVITY – Repairs that are a result of an emergency which prevents or hinders the provision of electricity, the distribution/collection of water, and the

availability of other utilities due to unforeseen circumstances that are beyond the routine maintenance and repair due to normal wear conducted by a utility or municipality.

214 **END OF WORKDAY** – The end of a working period that may include one or more work shifts. If working 24 hours a day, the end of a working period shall be considered no later than 8 pm.

215 **FREEBOARD** – The vertical distance between the top edge of a cargo container area and the highest point at which the bulk material contacts the sides, front, and back of a cargo container area.

216 **FUGITIVE DUST** – The particulate matter not collected by a capture system, that is entrained in the ambient air, and is caused from human and/or natural activities, such as, but not limited to, the movement of soil, vehicles, equipment, blasting, and wind. For the purpose of this rule, fugitive dust does not include particulate matter emitted directly from the exhaust of motor vehicles and other internal combustion engines, from portable brazing, soldering, or welding equipment, and from piledrivers, and does not include emissions from process and combustion sources that are subject to other rules in Regulation III (Control of Air Contaminants) of these rules.

217 **GRAVEL PAD** – A layer of washed gravel, rock, or crushed rock that is at least one inch or larger in diameter, that is maintained at the point of intersection of an area accessible to the public and a work site exit to dislodge mud, dirt, and/or debris from the tires of motor vehicles and/or haul trucks, prior to leaving the work site. Minimum dimensions must be 30 feet wide by 3 inches deep and 50 feet long, or the length of the longest haul truck, whichever is greater. If an unpaved surface exit does not have adequate width to install a 30-foot wide gravel pad, then the width of the gravel pad must cover the full width of the unpaved surface exit and such shorter width must be adequate to prevent trackout.

218 **GRIZZLY** – A device (i.e., rails, pipes, or grates) used to dislodge mud, dirt, and/or debris from the tires and undercarriage of motor vehicles and/or haul trucks prior to leaving the work site.

219 **HAUL TRUCK** – Any fully or partially open-bodied self-propelled vehicle including any non-motorized attachments, such as, but not limited to, trailers or other conveyances that are connected to or propelled by the actual motorized portion of the vehicle used for transporting bulk materials.

220 **MOTOR VEHICLE** – A self-propelled vehicle for use on the public roads and highways of the State of Arizona and required to be registered under the Arizona State Uniform Motor Vehicle Act, including any non-motorized attachments, such as but not limited to, trailers or other conveyances which are connected to or propelled by the actual motorized portion of the vehicle.

221 **NORMAL FARM CULTURAL PRACTICE** – All activities by the owner, lessee, agent, independent contractor, and/or supplier conducted on any facility for the production of crops and/or nursery plants. Disturbances of the field surface caused by turning under stalks, tilling, leveling, planting, fertilizing, or harvesting are included in this definition.

222 **OFF-ROAD VEHICLE** – Any self-propelled conveyance specifically designed for off-road use, including, but not limited to, off-road or all-terrain equipment, trucks, cars, motorcycles, motorbikes, or motorbuggies.

223 **OPEN STORAGE PILE** – Any accumulation of bulk material with a 5% or greater silt content that has a total surface area of 150 square feet or more and that at any one point attains a height of three feet. Silt content shall be assumed to be 5% or greater unless a person can show, by testing in accordance with ASTM Method C136-06 or other equivalent method approved in writing by the Control Officer and the Administrator, that the silt content is less than 5%.

224 **OWNER AND/OR OPERATOR** – The person including, but not limited to, the property owner, lessee, developer, responsible official, Dust Control permit applicant (who may also be the responsible party contracting to do the work), general contractor, prime contractor, supervisor, management company, or any person who owns, leases, operates, controls, or supervises a dust-generating operation subject to the requirements of this rule.

225 **PAVE** – To apply and maintain asphalt, concrete, or other similar material to a roadway surface (i.e., asphaltic concrete, concrete pavement, chip seal, or rubberized asphalt).

226 **PROPERTY LINE** – The boundaries of an area in which either a person causing the emission or a person allowing the emission has the legal use or possession of the property. Where such property is divided into one or more sub-tenancies, the property line(s) shall refer to the boundaries dividing the areas of all sub-tenancies.

227 **ROUTINE** – Any dust-generating operation which occurs more than 4 times per year or lasts 30 cumulative days or more per year.

228 **SILT** – Any aggregate material with a particle size less than 75 micrometers in diameter, which passes through a No. 200 sieve.

229 **TRACKOUT/CARRYOUT** – Any and all bulk materials that adhere to and agglomerate on the surfaces of motor vehicles, haul trucks, and/or equipment (including tires) and that have fallen or been deposited onto an area accessible to the public.

230 **TRACKOUT CONTROL DEVICE** – A gravel pad, grizzly, wheel wash system, or a paved area, located at the point of intersection of an unpaved area and an area accessible to the public that controls or prevents vehicular trackout.

231 **UNPAVED HAUL/ACCESS ROAD** – Any on-site unpaved road used by commercial, industrial, institutional, and/or governmental traffic.

232 **UNPAVED PARKING LOT** – Any area that is not paved and that is designated for parking in the Dust Control Plan or that is used for parking, maneuvering, material handling, or storing motor vehicles and equipment. An unpaved parking lot includes, but is not limited to, automobile impound yards, wrecking yards, automobile dismantling yards, salvage yards, material handling yards, and storage yards. For the purpose of this rule, maneuvering shall not include military maneuvers or exercises conducted on federal facilities.

233 **UNPAVED ROAD** – Any road or equipment path that is not paved. For the purpose of this rule, an unpaved road is not a horse trail, hiking path, bicycle path, or other similar path used exclusively for purposes other than travel by motor vehicles.

234 **WIND-BLOWN DUST** – Visible emissions, from any disturbed surface area, that are generated by wind action alone.

235 **WORK SITE** – Any property upon which any dust-generating operations occur.

SECTION 300 – STANDARDS

301 GENERAL REQUIREMENTS FOR DUST-GENERATING OPERATIONS:

301.1 Any person engaged in a dust-generating operation subject to this rule shall be subject to the standards and/or requirements of this rule before, after, and while conducting such dust-generating operation, including during weekends, after work hours, and on holidays.

301.2 For the purpose of this rule, any control measure that is implemented must achieve the applicable standard(s) described in this rule, as determined by the corresponding test method(s), as applicable, and must achieve other applicable standard(s) set forth in this rule.

301.3 Control measures described in Section 305 of this rule. Regardless of whether a dust-generating operation is in compliance with an approved Dust Control Plan or there is no approved Dust Control Plan, the owner and/or operator of a dust-generating operation shall be subject to all requirements of this rule at all times.

301.4 Failure to comply with the provisions of this rule, as applicable, and/or of an approved Dust Control Plan, shall constitute a violation.

302 PERMIT REQUIREMENTS FOR DUST-GENERATING OPERATIONS:

302.1 No person shall commence construction of, operate, or make a modification to any dust-generating operation when such dust-generating operations disturb a

total surface area of 0.10 acre (4,356 square feet) or more without first obtaining a permit or permit revision from the Control Officer.

302.2 No person shall commence construction of, operate, or make a modification to any dust-generating operation that disturbs a total surface area of less than 0.10 acre (4,356 square feet) under common control that are either contiguous or separated only by a public or private roadway and that cumulatively equal or exceed 0.10 acre in area without first obtaining a permit or permit revision from the Control Officer.

302.3 No person shall commence any routine dust-generating operation that disturbs a surface area of 0.10 acre or greater at a site that has obtained or must obtain a Title V, Non-Title V, or General permit under Regulation II (Permits and Fees) of these rules without first submitting to the Control Officer a Dust Control Plan.

302.4 The property owner, lessee, developer, responsible official, Dust Control permit applicant (who may also be the responsible party contracting to do the work), general contractor, prime contractor, supervisor, management company, or any person who owns, leases, operates, controls, or supervises a dust-generating operation subject to the requirements of this rule shall be responsible for obtaining a permit or permit revision from the Control Officer.

302.5 All permit applications shall be filed in the manner and form prescribed by the Control Officer, which includes, but is not limited to, the requirements of Section 400 of this rule. The application shall contain all the information necessary to enable the Control Officer to make the determination to grant or to deny a permit or permit revision, which shall contain such terms and conditions as the Control Officer deems necessary to assure a source's compliance with the requirements of this rule.

302.6 The issuance of any permit or permit revision shall not relieve any person subject to the requirements of this rule from compliance with any Federal laws, Arizona laws, or these rules.

302.7 Any other law, regulation or permit shall not relieve any person from obtaining a permit or permit revision required under this rule.

303 VISIBLE EMISSIONS REQUIREMENTS FOR DUST-GENERATING OPERATIONS:

303.1 Dust-Generating Operation Visible Emissions Requirement: The owner and/or operator of a dust-generating operation shall not allow visible fugitive dust emissions to exceed the limits listed in either one of the following:

a. The owner and/or operator of a dust-generating operation shall not cause or allow visible fugitive dust emissions to exceed 20% opacity.

b. The owner and/or operator of a dust-generating operation shall not cause or allow visible emissions of particulate matter, including fugitive dust, beyond the property line within which the emissions are generated. Visible emissions shall be determined by a standard of no visible emissions exceeding 30 seconds in duration in any six-minute period as determined by using EPA Reference Method 22.

303.2 Exemptions from Dust-Generating Operation Visible Emissions Requirement:

a. If wind conditions cause fugitive dust emissions to exceed the visible emissions requirements in Section 303.1(a) of this rule, despite implementation of the Dust Control Plan, an owner and/or operator shall:

(1) Ensure that all control measures and requirements of the Dust Control Plan are implemented and the subject violations cannot be prevented by better application, operation, or maintenance of these measures and requirements.

(2) Cease dust-generating operations and stabilize any disturbed surface area consistent with Section 304.3 of this rule.

(3) Compile records consistent with Sections 502 and 503 of this rule and document control measure and other Dust Control Plan requirement implementation.

b. Emergency Maintenance of Flood Control Channels and Water Retention Basins: The visible emissions limits described in Section 303.1 of this rule shall not apply to emergency maintenance of flood control channels and water retention basins, provided that control measures are implemented.

c. Vehicle Test and Development Facilities and Operations: The visible emissions limit described in Section 303.1(a) of this rule shall not apply to vehicle test and development facilities and operations when dust is required to test and validate design integrity, product quality, and/or commercial acceptance, if such testing is not feasible within enclosed facilities. However, all areas used to test and validate design integrity, product quality, and/or commercial acceptance shall be stabilized after such testing, in compliance with Appendix C (Fugitive Dust Test Methods) of these rules. All areas not used to test and validate design integrity, product quality, and/or commercial acceptance shall be stabilized, in compliance with Appendix C (Fugitive Dust Test Methods) of these rules. In addition, vehicle test and development facilities may require a Dust Control permit in accordance with Section 302 of this rule.

d. **Activities Near the Property Line:** The opacity limit described in Section 303.1(b) of this rule shall not apply to dust-generating operations conducted within 25 feet of the property line.

e. **Ceasing Operations at a Solid Waste Management Facility:** The requirement in Section 303.2(a)(2) of this rule to cease dust-generating operations if wind conditions cause fugitive dust emissions to exceed the visible emissions requirements in Section 303.1(a) of this rule shall not apply to daily compaction and covering of refuse if ceasing operations violates Arizona Department of Environmental Quality solid waste management rules or causes or threatens to cause a public health hazard or nuisance. However, the owner and/or operator must comply with all other provisions in Section 303.2(a) of this rule.

304 STABILIZATION REQUIREMENTS FOR DUST-GENERATING OPERATIONS:

304.1 Unpaved Parking Lot: The owner and/or operator of any unpaved parking lot shall not allow visible fugitive dust emissions to exceed 20% opacity and shall not allow silt loading equal to or greater than 0.33 oz/ft^2. However, if silt loading is equal to or greater than 0.33 oz/ft^2, then the owner and/or operator shall not allow the silt content to exceed 8%.

304.2 Unpaved Haul/Access Road:

a. The owner and/or operator of any unpaved haul/access road (whether at a work site that is under construction or at a work site that is temporarily or permanently inactive) shall not allow visible fugitive dust emissions to exceed 20% opacity and shall not allow silt loading equal to or greater than 0.33 oz/ft^2. However, if silt loading is equal to or greater than 0.33 oz/ft^2, then the owner and/or operator shall not allow the silt content to exceed 6%.

b. The owner and/or operator of any unpaved haul/access road (whether at a work site that is under construction or a work site that is temporarily or permanently inactive) shall, as an alternative to meeting the stabilization requirements for an unpaved haul/access road in Section 304.2(a) of this rule, limit vehicle trips to no more than 20 per day per road and limit vehicle speeds to no more than 15 miles per hour. If complying with this section of this rule, the owner and/or operator must include, in a Dust Control Plan, the maximum number of vehicle trips on the unpaved haul/access roads each day (including number of employee vehicles, earthmoving equipment, haul trucks, and water trucks) and a description of how vehicle speeds will be restricted to no more than 15 miles per hour.

304.3 Disturbed Surface Area: The owner and/or operator of any disturbed surface area on which no activity is occurring (whether at a work site that is under construction or a work site that is temporarily or permanently inactive) shall meet

at least one of the standards described in Sections 304.3(a) through 304.3(g) below, as applicable. Should such a disturbed surface area contain more than one type of stabilization characteristic, such as soil, vegetation, or other characteristic, which is visibly distinguishable, then the owner and/or operator shall test each representative surface separately for stability, in an area that represents a random portion of the overall disturbed conditions of the site, in accordance with the appropriate test methods described in Section 501.2(c) of this rule and in Appendix C (Fugitive Dust Test Methods) of these rules. The owner and/or operator of such disturbed surface area on which no activity is occurring shall be considered in violation of this rule if the area is not maintained in a manner that meets at least one of the standards listed below, as applicable. An area is considered to be a disturbed surface area until the activity that caused the disturbance has been completed and the disturbed surface area meets the standards described in this section of this rule.

a. Maintain a soil crust;

b. Maintain a threshold friction velocity (TFV) for disturbed surface areas corrected for non-erodible elements of 100 cm/second or higher;

c. Maintain a flat vegetative cover (i.e., attached [rooted] vegetation or unattached vegetative debris lying on the surface with a predominant horizontal orientation that is not subject to movement by wind) that is equal to at least 50%;

d. Maintain a standing vegetative cover (i.e., vegetation that is attached [rooted] with a predominant vertical orientation) that is equal to or greater than 30%;

e. Maintain a standing vegetative cover (i.e., vegetation that is attached [rooted] with a predominant vertical orientation) that is equal to or greater than 10% and where the threshold friction velocity is equal to or greater than 43 cm/second when corrected for non-erodible elements;

f. Maintain a percent cover that is equal to or greater than 10% for non-erodible elements; or

g. Comply with a standard of an alternative test method, upon obtaining the written approval from the Control Officer and the Administrator.

304.4 Vehicle Test and Development Facilities and Operations: No stabilization requirement shall apply to vehicle test and development facilities and operations when dust is required to test and validate design integrity, product quality, and/or commercial acceptance, if such testing is not feasible within enclosed facilities. However, all areas used to test and validate design integrity, product quality, and/or commercial acceptance shall be stabilized after such testing, in compliance with Appendix C (Fugitive Dust Test Methods) of these rules. All areas not used

to test and validate design integrity, product quality, and/or commercial acceptance shall be stabilized, in compliance with Appendix C (Fugitive Dust Test Methods) of these rules. In addition, vehicle test and development facilities may require a Dust Control permit in accordance with Section 302 of this rule.

305 CONTROL MEASURES FOR DUST-GENERATING OPERATIONS: When engaged in a dust-generating operation, the owner and/or operator shall install, maintain, and use control measures, as applicable. Control measures for specific dust-generating operations are described in Sections 305.1 through 305.12 of this rule. The owner and/or operator of a dust-generating operation shall implement control measures before, after, and while conducting dust-generating operations, including during weekends, after work hours, and on holidays. At least one primary control measure and one contingency control measure must be identified in the Dust Control Plan for all dust-generating sources.

305.1 Off-Site Hauling onto Areas Accessible to the Public: The owner and/or operator of a dust-generating operation that involves off-site hauling shall implement the following control measures:

a. When cargo compartment is loaded:

(1) Load all haul trucks such that the freeboard is not less than three inches;

(2) Load all haul trucks such that at no time shall the highest point of the bulk material be higher than the sides, front, and back of a cargo container area;

(3) Prevent spillage or loss of bulk material from holes or other openings in the cargo compartment's floor, sides, and/or tailgate(s); and

(4) Cover the cargo compartment with a tarp or other suitable closure.

b. When cargo compartment is empty:

(1) Clean the interior of the cargo compartment; or

(2) Cover the cargo compartment with a tarp or other suitable closure.

c. When off-site hauling, install, maintain, and use a suitable trackout control device that controls and prevents trackout and/or removes particulate matter from tires and the exterior surfaces of haul trucks and/or motor vehicles that traverse the site.

305.2 Bulk Material Hauling/Transporting When On-Site Hauling/Transporting Within the Boundaries of the Work Site but not Crossing an Area Accessible to the Public: The owner and/or operator of a dust-generating operation that involves bulk material hauling/transporting when on-site hauling/transporting

within the boundaries of the work site but not crossing an area accessible to the public shall implement one of the following control measures:

a. Limit vehicle speed to 15 miles per hour or less while traveling on the work site;

b. Apply water to the top of the load; or

c. Cover haul trucks with a tarp or other suitable closure.

305.3 Bulk Material Hauling/Transporting When On-Site Hauling/Transporting Within the Boundaries of the Work Site and Crossing and/or Accessing an Area Accessible to the Public: The owner and/or operator of a dust-generating operation that involves bulk material hauling/transporting when on-site hauling/ transporting within the boundaries of the work site and crossing and/or accessing an area accessible to the public shall implement all of the following control measures:

a. Load all haul trucks such that the freeboard is not less than three inches;

b. Load all haul trucks such that at no time shall the highest point of the bulk material be higher than the sides, front, and back of a cargo container area;

c. Prevent spillage or loss of bulk material from holes or other openings in the cargo compartment's floor, sides, and/or tailgate(s); and

d. When crossing and/or accessing an area accessible to the public, install, maintain, and use a suitable trackout control device that controls and prevents trackout and/or removes particulate matter from tires and the exterior surfaces of haul trucks and/or motor vehicles that traverse the site.

305.4 Bulk Material Stacking, Loading, and Unloading Operations: The owner and/or operator of a dust-generating operation that involves bulk material stacking, loading, and unloading operations shall implement the following control measures:

a. Prior to stacking, loading, and unloading:

(1) Mix material with water; or

(2) Mix material with a dust suppressant other than water.

b. While stacking, loading, and unloading:

(1) Apply water; or

(2) Apply a dust suppressant other than water.

305.5 Open Storage Piles: The owner and/or operator of a dust-generating operation that involves an open storage pile shall implement one of the following control measures, as applicable, when not conducting stacking, loading, and unloading operations:

a. Cover all open storage piles with a tarp, plastic, or other material to prevent wind from removing the covering(s) such that the covering(s) will not be dislodged by wind; or

b. Apply water to maintain a soil moisture content at a minimum of 12%, as determined by ASTM Method D2216-05 or other equivalent methods approved by the Control Officer and the Administrator. For areas that have an optimum moisture content for compaction of less than 12%, as determined by ASTM Method D1557-02e1 or other equivalent methods approved by the Control Officer and the Administrator, maintain at least 70% of the optimum soil moisture content; or

c. Maintain a visible crust; or

d. Implement the control measure described in Section 305.5(b) or in Section 305.5(c) of this rule and construct and maintain wind barriers, storage silos, or a three-sided enclosure with walls, whose length is no less than equal to the length of the pile, whose distance from the pile is no more than twice the height of the pile, whose height is equal to the pile height, and whose porosity is no more than 50%.

305.6 Unpaved Staging Areas, Unpaved Parking Areas, and Unpaved Material Storage Areas: The owner and/or operator of a dust-generating operation that involves unpaved staging areas, unpaved parking areas, and unpaved material storage areas shall implement one or more of the following control measures:

a. Apply water so that the surface is visibly moist;

b. Pave;

c. Apply and maintain gravel, recycled asphalt, or other suitable material;

d. Apply and maintain a suitable dust suppressant other than water; or

e. Limit vehicle trips to no more than 20 per day per road and limit vehicle speeds to no more than 15 miles per hour. If complying with this section, the owner and/or operator shall provide to the Control Officer the maximum number of vehicle trips on the staging areas, parking areas, and/or material storage areas each day (including number of employee vehicles, earthmoving

equipment, haul trucks, and water trucks) and a description of how vehicle speeds will be restricted to no more than 15 miles per hour.

305.7 Unpaved Haul/Access Roads: The owner and/or operator of a dust-generating operation that involves unpaved haul/access roads shall implement one or more of the following control measures:

a. Apply water so that the surface is visibly moist;

b. Pave;

c. Apply and maintain gravel, recycled asphalt, or other suitable material;

d. Apply and maintain a suitable dust suppressant other than water; or

e. Limit vehicle trips to no more than 20 per day per road and limit vehicle speeds to no more than 15 miles per hour. If complying with this section of this rule, the owner and/or operator shall provide to the Control Officer the maximum number of vehicle trips on the unpaved haul/access roads each day (including number of employee vehicles, earthmoving equipment, haul trucks, and water trucks) and a description of how vehicle speeds will be restricted to no more than 15 miles per hour.

305.8 Weed Abatement by Discing or Blading: The owner and/or operator of a dust-generating operation that involves weed abatement by discing or blading shall comply with all of the following control measures:

a. Before weed abatement by discing or blading occurs, apply water;

b. While weed abatement by discing or blading is occurring, apply water; and

c. After weed abatement by discing or blading occurs, pave, apply gravel, apply water, apply a suitable dust suppressant other than water, or establish vegetative ground cover.

305.9 Blasting Operations: The owner and/or operator of a dust-generating operation that involves blasting operations shall pre-water and maintain surface soils in a stabilized condition where support equipment and vehicles will operate.

305.10 Demolition Activities: The owner and/or operator of a dust-generating operation that involves demolition activities shall implement all of the following control measures:

a. Apply water to demolition debris immediately following demolition activity; and

b. Apply water to all disturbed soils surfaces to establish a visible crust and to prevent wind erosion.

305.11 Disturbed Surface Areas: The owner and/or operator of a dust-generating operation that involves disturbed surface areas shall implement the following control measures, as applicable:

a. Before disturbed surface areas are created, implement one of the following control measures:

(1) Pre-water site to depth of cuts, allowing time for penetration; or

(2) Phase work to reduce the amount of disturbed surface areas at any one time.

b. While disturbed surface areas are being created, implement one of the following control measures:

(1) Apply water or other suitable dust suppressant other than water to keep the soil visibly moist throughout the process;

(2) Apply water to maintain a soil moisture content at a minimum of 12%, as determined by ASTM Method D2216-05 or other equivalent method as approved by the Control Officer and the Administrator. For areas that have an optimum moisture content for compaction of less than 12%, as determined by ASTM Method D1557-02e1 or other equivalent method approved by the Control Officer and the Administrator, maintain at least 70% of the optimum soil moisture content; or

(3) Implement control measure described in Section 305.11(b)(1) or Section 305.11(b)(2) of this rule and construct fences or three-foot to five-foot high wind barriers with 50% or less porosity adjacent to roadways or urban areas to reduce the amount of wind-blown material leaving a site.

c. When the dust-generating operation is finished for a period of 30 days or longer: For longer than temporary pauses that occur during a dust-generating operation, the owner and/or operator shall implement one or more of the following control measures within ten days following the completion of such dust-generating operation:

(1) Pave, apply gravel, or apply a suitable dust suppressant other than water;

(2) Establish vegetative ground cover;

(3) Implement control measures described in Section 305.11(c)(1) or Section 305.11(c)(2) of this rule and restrict vehicle access to the area;

(4) Apply water and prevent access by fences, ditches, vegetation, berms, or other suitable barrier or means sufficient to prevent trespass as approved by the Control Officer; or

(5) Restore area such that the vegetative ground cover and soil characteristics are similar to adjacent or nearby undisturbed native conditions.

305.12 Easements, Rights-of-Way, and Access Roads for Utilities (Transmission of Electricity, Natural Gas, Oil, Water, and Gas) Associated With Sources That Have a Non-Title V Permit, a Title V Permit, and/or a General Permit Under These Rules: The owner and/or operator of a dust-generating operation that involves an easement, right-of-way, and access road for utilities (transmission of electricity, natural gas, oil, water, and gas) associated with sources that have a Title V permit, a Non-Title V permit, and/or a General permit under these rules shall implement at least one of the following control measures:

a. Inside Area A, limit vehicle speed to 15 miles per hour or less and vehicle trips to no more than 20 per day per road;

b. Outside Area A, limit vehicle trips to no more than 20 per day per road; or

c. Implement control measures described in Section 305.7 of this rule.

306 TRACKOUT, CARRY-OUT, SPILLAGE, AND/OR EROSION: The owner and/or operator of a dust-generating operation shall prevent and control trackout, carry-out, spillage, and/or erosion.

306.1 Trackout Control Device:

a. **Criterion for Trackout Control Device:** Install, maintain and use a suitable trackout control device that prevents and controls trackout and/or removes particulate matter from tires and the exterior surfaces of haul trucks and/or motor vehicles that traverse the site at all exits onto areas accessible to the public from both of the following:

(1) All work sites with a disturbed surface area of two acres or larger, and

(2) All work sites where 100 cubic yards of bulk materials are hauled on-site and/or off-site per day.

b. **Control Measures:** For those work sites identified in Section 306.1(a) of this rule, prevent trackout, carry-out, spillage, and/or erosion by implementing one of the following control measures:

(1) At all exits onto areas accessible to the public, install a wheel wash system;

(2) At all exits onto areas accessible to the public, install a gravel pad to comply with Section 217 of this rule;

(3) At all exits onto areas accessible to the public, install a grizzly or rumble grate that consists of raised dividers (rails, pipes, or grates) a minimum of three inches tall, six inches apart, and 20 feet long, to allow a vibration to be produced such that dust is shaken off the wheels of a vehicle as the entire circumference of each wheel of the vehicle passes over the grizzly or rumble grate; or

(4) Pave starting from the point of intersection with an area accessible to the public and extending for a centerline distance of at least 100 feet and a width of at least 20 feet.

306.2 Clean Up of Trackout:

a. **Criterion for Clean Up of Trackout:** Clean up, trackout, carry-out, spillage, and/or erosion from areas accessible to the public including curbs, gutters, and sidewalks, on the following time-schedule:

(1) Immediately, when trackout, carry-out, or spillage extends a cumulative distance of 25 linear feet or more; and

(2) At the end of the workday, for all other trackout, carry-out, spillage, and/or erosion.

b. **Control Measures:**

(1) Operate a street sweeper or wet broom with sufficient water, or including but not limited to kick broom, steel bristle broom, Teflon broom, vacuum, at the speed recommended by the manufacturer and at the frequency(ies) described in this section of this rule; or

(2) Manually sweep up deposits to comply with this section of this rule.

307 **SOIL MOISTURE:** If water is the chosen control measure in an approved Dust Control Plan, the owner and/or operator of a dust-generating operation shall operate a water application system on-site (e.g., water truck, water hose) while conducting any earth-moving operations on disturbed surface areas 1 acre or larger, unless a visible crust is maintained or the soil is sufficiently damp to prevent loose grains of soil from becoming dislodged.

308 PROJECT INFORMATION SIGN FOR DUST-GENERATING OPERATIONS: For all sites with a Dust Control permit that are five acres or larger, except for routine maintenance and repair done under a Dust Control Block permit, the owner and/or operator shall erect and maintain a project information sign at the main entrance such that members of the public can easily view and read the sign at all times. Such sign shall have a white background, have black block lettering that is at least four inches high, and shall contain at least all of the following information:

308.1 Project name and permittee's name;

308.2 Current Dust Control permit number;

308.3 Name and local phone number of person(s) responsible for dust control matters;

308.4 Text stating: "Dust complaints? Call Maricopa County Air Quality Department – (Insert the accurate Maricopa County Air Quality Department complaint line telephone number)."

309 DUST CONTROL TRAINING CLASSES FOR DUST-GENERATING OPERATIONS:

309.1 Basic Dust Control Training Class:

a. At least once every three years, the persons specified in Section 309.1(b) or Section 309.1(c) of this rule shall successfully complete a Basic Dust Control Training Class conducted or approved by the Control Officer.

b. The following persons present at a site that is subject to a permit issued by the Control Officer requiring control of PM_{10} emissions from dust-generating operations shall complete a Basic Dust Control Training Class as specified in Section 309.1(a) of this rule:

(1) Water truck drivers.

(2) Water-pull drivers.

(3) The site superintendent or other designated on-site representative of the permit holder, if present at a site that has more than one acre of disturbed surface area.

c. A Dust Control Block Permit permittee/holder shall have, at a minimum, one individual trained in accordance with the Basic Dust Control Training Class as specified in Section 309.1(a) of this rule, if present at a site that has more than one acre of disturbed surface area.

d. All persons having successfully completed training during the 2006 and 2007 calendar years shall be deemed to have satisfied the requirement to successfully complete the Basic Dust Control Training Class, if the training that was completed was conducted or approved by the Control Officer. Completion of the Comprehensive Dust Control Training Class, as required in Section 309.2 of this rule, shall satisfy the requirement of this section of this rule.

e. The Control Officer may suspend or revoke for cause including, but not limited to, inappropriate ethical activities or conduct associated with the dust control program or repeated failure to follow the training requirements, a certification issued to a person having successfully completed a Basic Dust Control Training Class conducted or approved by the Control Officer. The Control Officer will provide written notification to such person regarding such suspension or revocation.

309.2 Comprehensive Dust Control Training Class:

a. At least once every three years, the Dust Control Coordinator, who meets the requirements of Section 310 of this rule, shall successfully complete the Comprehensive Dust Control Training Class conducted or approved by the Control Officer.

b. All persons having successfully completed training during the 2006 and 2007 calendar years shall be deemed to have satisfied the requirement to successfully complete the Comprehensive Dust Control Training Class, if the training that was completed was conducted or approved by the Control Officer.

c. The Control Officer may suspend or revoke for cause including, but not limited to, inappropriate ethical activities or conduct associated with the dust control program or repeated failure to follow the training requirements, a certification issued to a person having successfully completed a Comprehensive Dust Control Training Class conducted or approved by the Control Officer. The Control Officer will provide written notification to such person regarding such suspension or revocation.

310 DUST CONTROL COORDINATOR FOR DUST-GENERATING OPERATIONS:

310.1 The permittee for any site of five acres or more of disturbed surface area subject to a permit issued by the Control Officer requiring control of PM_{10} emissions from dust-generating operations shall have on-site at least one Dust Control Coordinator trained in accordance with Section 309.2 of this rule at all times during primary dust-generating operations related to the purposes for which the Dust Control permit was obtained.

310.2 The Dust Control Coordinator shall have full authority to ensure that dust control measures are implemented on-site, including conducting inspections, deployment

of dust suppression resources, and modifications or shut-down of activities as needed to control dust.

310.3 The Dust Control Coordinator shall be responsible for managing dust prevention and dust control on the site.

310.4 At least once every three years, the Dust Control Coordinator shall successfully complete a Comprehensive Dust Control Training Class conducted or approved by the Control Officer.

310.5 The Dust Control Coordinator shall have a valid dust training certification identification card readily accessible on-site while acting as a Dust Control Coordinator.

310.6 The requirement for a Dust Control Coordinator shall lapse when all of the following actions/events/procedures occur:

a. The area of disturbed surface area becomes less than five acres;

b. The previously disturbed surface areas have been stabilized in accordance with/in compliance with the standards and/or requirements of this rule; and

c. The Dust Control permit holder provides notice to the Control Officer of acreage stabilization.

310.7 The Dust Control Block Permit permittee/holder shall have on sites that have more than one acre of disturbed surface area at least one individual, who has been trained in accordance with the requirements of Section 309.1(c) of this rule. One such individual shall be designated by the Dust Control Block Permit permittee/ holder as the Dust Control Coordinator. The Dust Control Coordinator shall be present on-site at all times during primary dust-generating activities that are related to the purposes for which the permit was obtained.

SECTION 400 – ADMINISTRATIVE REQUIREMENTS

401 DUST CONTROL PERMIT REQUIREMENTS:

401.1 To apply for a Dust Control permit, an applicant shall complete a permit application in the manner and form prescribed by the Control Officer. At a minimum, such application shall contain the following information:

a. Applicant information;

b. Project information, which shall include a project site drawing and, if the site is one acre or larger, soil designations; and

c. Dust Control Plan, which shall meet the specifications described in Section 402 of this rule.

401.2 A Dust Control permit shall be granted subject to, but not limited to, the following conditions:

a. The permittee shall be responsible for ensuring that all persons abide by the conditions of the Dust Control permit and these regulations;

b. The permittee shall be responsible for supplying complete copies of the Dust Control permit including the Dust Control Plan, to all project contractors and subcontractors;

c. The permittee shall be responsible for all permit conditions, until a Permit Cancellation Request form has been submitted by the owner and/or operator and approved by the Control Officer;

d. The permittee shall be responsible for providing Dust Control Coordinator's/ Coordinators' name(s) and dust control training certification information/ number(s) to the Control Officer and for keeping such information updated.

401.3 The signature of the permittee on the Dust Control permit application shall constitute agreement to accept responsibility for meeting the conditions of the Dust Control permit and for ensuring that control measures are implemented throughout the project site and during the duration of the project.

402 DUST CONTROL PLAN REQUIREMENTS:

402.1 The owner and/or operator of a dust-generating operation shall submit to the Control Officer a Dust Control Plan with any permit applications that involve dust-generating operations with a disturbed surface area that equals or exceeds 0.10 acre (4,356 square feet) including both of the following situations:

a. When submitting an application for a Dust Control permit involving dust-generating operations that would equal or exceed 0.10 acre (4,356 square feet), and

b. Before commencing any routine dust-generating operation at a site that has obtained or must obtain a Title V, Non-Title V, or General permit under Regulation II (Permits and Fees) of these rules.

402.2 The owner and/or operator of a dust-generating operation shall submit to the Control Officer a Dust Control Plan with any application for a Dust Control permit. Applicants shall describe, in a Dust Control Plan, all control measures to be implemented before, after, and while conducting any dust-generating operation, including during weekends, after work hours, and on holidays.

402.3 A Dust Control Plan shall, at a minimum, contain all of the following information:

a. Name(s), address(es), and phone numbers of person(s) responsible for the submittal and implementation of the Dust Control Plan and responsible for the dust-generating operation.

b. A drawing, on 8½" x 11" paper, that shows:

(1) Entire project site/facility boundaries, including boundaries of areas to be disturbed if less than entire project site/facility boundaries,

(2) Acres to be disturbed with linear dimensions or certification by a licensed engineer or surveyor showing the total square footage to be disturbed,

(3) Nearest public roads,

(4) North arrow,

(5) Planned exit locations onto areas accessible to the public, and

(6) Unpaved parking lot(s).

c. Appropriate control measures, or a combination thereof, as described in Sections 305 and 306 of this rule, for every actual and potential dust-generating operation.

(1) Control measures must be implemented before, after, and while conducting any dust-generating operation, including during weekends, after work hours, and on holidays.

(2) All required control measures and at least one contingency control measure must be identified for all dust-generating operations.

(3) A control measure that is not listed in Section 305 or in Section 306 of this rule may be chosen provided that such control measure is implemented to comply with the requirements of this rule.

(4) If complying with Section 305.7(e) of this rule, the Dust Control Plan must include the maximum number of vehicle trips on the unpaved haul/access roads each day (including number of employee vehicles, earthmoving equipment, haul trucks, and water trucks).

d. Dust suppressants to be applied, including all of the following product specifications or label instructions for approved usage:

(1) Method, frequency, and intensity of application;

(2) Type, number, and capacity of application equipment; and

(3) Information on environmental impacts and approvals or certifications related to appropriate and safe use for ground application.

e. Specific surface treatment(s) and/or control measures utilized to control material trackout and sedimentation where unpaved roads and/or access points join areas accessible to the public.

402.4 The Control Officer shall approve, disapprove, or conditionally approve the Dust Control Plan, in accordance with the criteria used to approve, disapprove or conditionally approve a permit, as described in Rule 200: Permit Requirements of these rules.

402.5 For construction projects one acre or larger, except for routine maintenance and repair done under a Dust Control Block Permit, a statement disclosing which of the four designated texture(s) of soil described in Appendix F of these rules is naturally present at or will be imported to the dust-generating operation. The measured soil content at a particular site shall take precedence over any mapped soil types, and whenever soils have been tested at a particular site, the test results should be relied on rather than the map in Appendix F of these rules.

402.6 Should any primary control measure(s) prove ineffective, the owner and/or operator shall immediately implement the contingency control measure(s). If the identified contingency control measure is effective to comply with all of the requirements of this rule, the owner and/or operator need not revise the Dust Control Plan.

403 DUST CONTROL PLAN REVISIONS:

403.1 If Required by the Control Officer:

a. If the Control Officer determines that an approved Dust Control Plan has been followed, yet fugitive dust emissions from any dust-generating operation still exceed the standards of this rule, then the Control Officer shall issue a written notice to the owner and/or operator of the dust-generating operation explaining such determination.

b. The owner and/or operator of a dust-generating operation shall make written revisions to the Dust Control Plan and shall submit such revised Dust Control Plan to the Control Officer within three working days of receipt of the Control Officer's written notice, unless such time period is extended by the Control Officer, upon request, for good cause. During the time that such owner and/or

operator is preparing revisions to the approved Dust Control Plan, such owner and/or operator must still comply with all requirements of this rule.

403.2 If Requested by the Permittee:

a. If the acreage of a project changes, the owner and/or operator shall request a Dust Control Plan revision. Such Dust Control Plan revision shall be filed in the manner and form prescribed by the Control Officer.

b. If the permit holder changes, the owner and/or operator shall request a Dust Control Plan revision. Such Dust Control Plan revision shall be filed in the manner and form prescribed by the Control Officer.

c. If the name(s), address(es), or phone numbers of person(s) responsible for the submittal and implementation of the Dust Control Plan and responsible for the dust-generating operation change, the owner and/or operator shall request a Dust Control Plan revision. Such Dust Control Plan revision shall be filed in the manner and form prescribed by the Control Officer.

d. If the activities related to the purposes for which the Dust Control permit was obtained change, the owner and/or operator shall request a Dust Control Plan revision. Such Dust Control Plan revision shall be filed in the manner and form prescribed by the Control Officer.

403.3 If Rule 310 is Revised:

a. If any changes to a Dust Control Plan are necessary as a result of the most recent revisions of this rule, such changes to the Dust Control Plan shall not be required until the associated Dust Control permit is required to be renewed.

b. If any changes to a Dust Control Plan associated with a Title V permit or with a Non-Title V permit are necessary as a result of the most recent revisions of this rule, then the owner and/or operator shall submit a revised Dust Control Plan to the Control Officer, according to the minor permit revision procedures described in Rule 210 or in Rule 220 of these rules respectively, no later than six months after the effective date of the most recent revisions to this rule.

404 DUST CONTROL BLOCK PERMIT REQUIREMENTS:

404.1 A Dust Control Block Permit application may be submitted to the Control Officer, if one or more of the activities listed in this section of this rule are conducted and if such activities occur at more than one site (i.e., projects that involve multiple small areas scattered throughout Maricopa County including, but not limited to, fiber optic cable installation and natural gas line extension). New construction shall obtain a separate Dust Control permit.

a. Routine operation (i.e., municipalities, governmental agencies, and utilities that are responsible for the repeat maintenance of infrastructure including, but not limited to, weed control around a prison, canal bank and road grading, and road shoulder grading).

b. Maintenance (i.e., municipalities, governmental agencies, and utilities that are responsible for the repeat maintenance of infrastructure including, but not limited to, weed control around a prison, canal bank and road grading, and road shoulder grading).

c. Expansion or extension of utilities, paved roads, unpaved roads, road shoulders, alleys, and public rights-of-way at non-contiguous sites by municipalities, governmental agencies, and utilities.

404.2 When completing and submitting a Dust Control Block Permit application, the owner and/or operator shall comply with the following requirements:

a. A Dust Control Plan that meets the criteria described in Section 402 of this rule and applies to all sites shall be submitted to the Control Officer with the Dust Control Block Permit application.

b. A description or map of the owner's and/or operator's service areas and a list of all sites that are 0.10 acre (4,356 square feet) or greater, including the location and size of each site, shall be submitted to the Control Officer with the Dust Control Block Permit application.

c. For any project that is 0.10 acre (4,356 square feet) or greater and not listed in the Dust Control Block Permit application, the applicant shall notify the Control Officer in writing at least three working days prior to commencing the dust-generating operation. The notice shall include the site location, size, type of activity, and start date.

404.3 The Dust Control Block Permit will cover crews that work for the municipalities, governmental agencies, and utilities, including subcontractors. However, municipalities, governmental agencies, and utilities shall retain overall authority for dust control on the project.

405 APPROVAL OR DENIAL OF PERMIT APPLICATIONS FOR DUST-GENERATING OPERATIONS: The Control Officer shall take final action on a Dust Control permit application, a Dust Control permit revision, or a Dust Control Block Permit within 14 calendar days of the filing of the complete application. The Control Officer shall notify the applicant in writing of his approval or denial.

406 TERMS FOR PERMITS FOR DUST-GENERATING OPERATIONS: A Dust Control permit issued according to this rule shall be issued for a period of one year from the date of issuance. Should the project last longer than one year from the date the permit

was issued, the permittee shall re-apply for a Dust Control Permit at least 14 calendar days prior to the expiration date of the original permit. For the purpose of this section, a permit is considered expired, if a permit renewal is not applied for at least 14 calendar days prior to the expiration date of the original permit.

407 **DEFACING, ALTERING, FORGING, COUNTERFEITING, OR FALSIFYING PERMITS FOR DUST-GENERATING OPERATIONS**: A person shall not willfully deface, alter, forge, counterfeit, or falsify any Dust Control permit issued under the provisions of this rule.

408 **FEES FOR PERMITS FOR DUST-GENERATING OPERATIONS:** No Dust Control permit is valid until the applicable Dust Control permit fee has been received and until the Dust Control permit is issued by the Control Officer.

409 **POSTING OF PERMITS FOR DUST-GENERATING OPERATIONS**: A Dust Control permit and a Dust Control Plan, as approved by the Control Officer, shall be posted in a conspicuous location at the work site, within on-site equipment, or in an on-site vehicle, or shall otherwise be kept available on-site at all times.

410 **COMPLIANCE SCHEDULE:** The newly amended provisions of this rule become effective upon adoption of this rule. An owner and/or operator of a dust-generating operation subject to this rule shall meet all applicable provisions of this rule upon adoption of the newly amended provisions of this rule and according to the following schedule:

410.1 Basic Dust Control Training Class: No later than December 31, 2008, a site superintendent or other designated on-site representative of the permit holder and water truck and water pull drivers for each site shall have successfully completed the Basic Dust Control Training Class, as described in Section 309.1 of this rule.

410.2 Dust Control Coordinator: No later than June 30, 2008, any site and/or any contiguous site under common control of five acres or more of disturbed surface area subject to a permit shall, at all times during primary dust-generating operations related to the purposes for which the Dust Control permit was obtained, have on-site at least one individual designated by the permit holder as a Dust Control Coordinator, as described in Section 310 of this rule.

SECTION 500 – MONITORING AND RECORDS

501 **COMPLIANCE DETERMINATION:** To determine compliance with the visible emissions requirements in Section 303 of this rule and with the stabilization requirements in Section 304 of this rule, the following test methods shall be followed:

501.1 Opacity Observations:

a. **Dust-Generating Operations:** Opacity observations of dust-generating operations shall be conducted in accordance with Appendix C, Section 3 (Visual Opacity Determination of Emissions from Dust-Generating Operations) of these rules.

b. **Unpaved Parking Lot:** Opacity observations of any unpaved parking lot shall be conducted in accordance with Appendix C, Section 2.1 (Test Methods for Stabilization for Unpaved Roads and Unpaved Parking Lots) of these rules.

c. **Unpaved Haul/Access Road:** Opacity observations of any unpaved haul/access road (whether at a work site that is under construction or at a work site that is temporarily or permanently inactive) shall be conducted in accordance with Appendix C, Section 2.1 (Test Methods for Stabilization for Unpaved Roads and Unpaved Parking Lots) of these rules.

d. **Visible Emissions Beyond the Property Line:** Opacity observations of any visible emissions beyond the property line shall be conducted in accordance with EPA Reference Method 22.

501.2 Stabilization Observations:

a. **Unpaved Parking Lot:** Stabilization observations for unpaved parking lots shall be conducted in accordance with Appendix C, Section 2.1 (Test Methods for Stabilization for Unpaved Roads and Unpaved Parking Lots) of these rules. 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 shall constitute a violation of this rule.

b. **Unpaved Haul/Access Road:** Stabilization observations for unpaved haul/ access roads (whether at a work site that is under construction or at a work site that is temporarily or permanently inactive) shall be conducted in accordance with Appendix C, Section 2.1 (Test Methods for Stabilization for Unpaved Roads and Unpaved Parking Lots) of these rules. 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 shall constitute a violation of this rule.

c. **Disturbed Surface Area:** Stabilization observations for any disturbed surface area on which no activity is occurring (whether at a work site that is under construction, at a work site that is temporarily or permanently inactive) shall be conducted in accordance with at least one of the techniques described in Section 501.2(c)(1) through Section 501.2(c)(7) below, as applicable. The owner and/or operator of such inactive disturbed surface area shall be considered in violation of this rule if such inactive disturbed surface area is not maintained in a manner that meets at least one of the standards described in Section 304.3 of this rule, as applicable.

(1) Appendix C, Section 2.3 (Test Methods for Stabilization: Soil Crust Determination: the Drop Ball Test) of these rules for a soil crust; or

(2) Appendix C, Section 2.4 (Test Methods for Stabilization: Determination of Threshold Friction Velocity [TFV]: Sieving Field Procedure) of these rules for threshold friction velocity (TFV) corrected for non-erodible elements of 100 cm/second or higher; or

(3) Appendix C, Section 2.5 (Test Methods for Stabilization: Determination of Flat Vegetative Cover) of these rules for flat vegetation cover (i.e., attached [rooted] vegetation or unattached vegetative debris lying on the surface with a predominant horizontal orientation that is not subject to movement by wind) that is equal to at least 50%; or

(4) Appendix C, Section 2.6 (Test Methods for Stabilization: Determination of Standing Vegetative Cover) of these rules for standing vegetation cover (i.e., vegetation that is attached [rooted] with a predominant vertical orientation) that is equal to or greater than 30%; or

(5) Appendix C, Section 2.6 (Test Methods for Stabilization: Determination of Standing Vegetative Cover) of these rules for standing vegetation cover (i.e., vegetation that is attached [rooted] with a predominant vertical orientation) that is equal to or greater than 10% and where the threshold friction velocity is equal to or greater than 43 cm/second when corrected for non-erodible elements; or

(6) Appendix C, Section 2.7 (Test Methods for Stabilization: Rock Test Method) of these rules for a percent cover that is equal to or greater than 10%, for non-erodible elements; or

(7) An alternative and equivalent test method approved in writing by the Control Officer and the Administrator.

502 RECORDKEEPING:

502.1 Any person who conducts dust-generating operations that require a Dust Control Plan shall keep a written record of self-inspection on each day dust-generating operations are conducted. Self-inspection records shall include daily inspections for crusted or damp soil, trackout conditions and clean-up measures, daily water usage for dust control measures, and dust suppressant application. Such written record shall also include the following information:

a. Method, frequency, and intensity of application or implementation of the control measures;

b. Method, frequency, and amount of water application to the site;

c. Street sweeping frequency;

d. Types of surface treatments applied to and maintenance of trackout control devices, gravel pads, fences, wind barriers, and tarps;

e. Types and results of test methods conducted;

f. If contingency control measures are implemented, actual application or implementation of contingency control measures and why contingency control measures were implemented;

g. List of subcontractors' names and registration numbers updated when changes are made; and

h. Names of employee(s) who successfully completed dust control training class(es) required by Section 309 of this rule, date of the class(es) that such employee(s) successfully completed, and name of the agency/representative who conducted such class(es).

502.2 Any person who conducts dust-generating operations that do not require a Dust Control Plan shall compile and retain records (including records on any street sweeping, water applications, and maintenance of trackout control devices, gravel pads, fences, wind barriers, and tarps) that provide evidence of control measure application, by indicating the type of treatment or control measure, extent of coverage, and date applied.

502.3 Upon verbal or written request by the Control Officer, the log or the records and supporting documentation shall be provided as soon as possible but no later than 48 hours, excluding weekends. If the Control Officer is at the site where requested records are kept, records shall be provided without delay.

503 **RECORDS RETENTION**: Any person who conducts dust-generating operations that require a Dust Control Plan shall retain copies of approved Dust Control Plans, control measures implementation records, and all supporting documentation for at least six months following the termination of the dust-generating operation and for at least two years from the date such records were initiated. If a person has obtained a Title V Permit and is subject to the requirements of this rule, then such person shall retain records required by this rule for at least five years from the date such records are established.

504 **TEST METHODS INCORPORATED BY REFERENCE:** The test methods listed in this section are incorporated by reference. These incorporations by reference include no future editions or amendments. Copies of the test methods listed in this section are available for review at the Maricopa County Air Quality Department, 1001 North Central Avenue, Phoenix, AZ, 85004.

504.1 ASTM Method C136-06 ("Standard Test Method for Sieve Analysis of Fine and Coarse Aggregates"), 2006 edition.

504.2 ASTM Method D2216-05 ("Standard Test Method for Laboratory Determination of Water [Moisture] Content of Soil and Rock by Mass"), 2005 edition.

504.3 ASTM Method D1557-02e1 ("Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft^3 (2,700 kN-m/m^3)"), 2002 edition.

504.4 EPA Reference Method 22 ("Visual Determination of Fugitive Emissions from Material Sources and Smoke Emissions from Flares"), 2000 edition.

REGULATION III - CONTROL OF AIR CONTAMINANTS

RULE 311
PARTICULATE MATTER FROM PROCESS INDUSTRIES

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Revised 07/13/88
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MARICOPA COUNTY
AIR POLLUTION CONTROL REGULATIONS

REGULATION III - CONTROL OF AIR CONTAMINANTS

RULE 311
PARTICULATE MATTER FROM PROCESS INDUSTRIES

SECTION 100 - GENERAL

101 PURPOSE: To limit the discharge of particulate matter into the atmosphere by establishing emission rates based on process weight.

102 APPLICABILITY: This rule shall apply to any affected operation which is not subject to the provisions of Rule 316 of these Regulations.

SECTION 200 - DEFINITIONS:
For the purpose of this rule, the following definitions shall apply:

201 AFFECTED OPERATION - An operation that emits particulate matter into the ambient air as a result of processing materials.

202 APPROVED EMISSION CONTROL SYSTEM - A system for reducing particulate matter emissions, consisting of collection and/or control devices which are approved in writing by the Control Officer and are designed and operated in accordance with good engineering practice.

203 PARTICULATE MATTER - Any material, except uncombined water, which has a nominal aerodynamic diameter smaller than 100 microns (micrometers), and which exists in a finely divided form as a liquid or solid at actual conditions.

204 PARTICULATE MATTER EMISSIONS - Any and all finely divided solid or liquid materials other than uncombined water, emitted to the ambient air as measured by applicable state and federal test methods.

205 PROCESS WEIGHT - The total weight of all materials introduced into an operation, excluding liquids and gases used solely as fuels, air which is not consumed as a reactant, and combustion air.

206 PROCESS WEIGHT RATE - A rate established as follows:

206.1 For continuous or long-run steady-state operations, the total process weight for the entire period of continuous operation or for a typical portion thereof, divided by the number of hours of such period or portion thereof.

206.2 For cyclical or batch operations, the total process weight for a period which covers a complete operation or an integral number of cycles, divided by the hours of actual process operation during such period.

207 UNCOMBINED WATER - Condensed water containing no more than analytical trace amounts of other chemical elements or compounds.

SECTION 300 - STANDARDS

301 LIMITATIONS - PROCESS INDUSTRIES: No person shall discharge or cause or allow the discharge of particulate matter emissions into the ambient air from any affected operation in excess of the allowable hourly emission rate determined by the following equations:

301.1 Process Weight Rates Less Than or Equal to 60,000 Pounds Per Hour: Determination of the allowable hourly emission rates (E) for process weight rates up to 60,000 lbs/hr shall be accomplished by use of the equation:

$E = 3.59\ P^{0.62}$ (P = less than or equal to 30 tons/hr)

where:

E = Emissions in pounds per hour, and

P = Process weight rate in tons per hour.

301.2 Process Weight Rates Greater Than 60,000 Pounds Per Hour: Determination of the allowable hourly emission rates (E) for process weight rates in excess of 60,000 lbs/hr shall be accomplished by the use of the equation:

$E = 17.31\ P^{0.16}$ (P = greater than 30 tons/hr)

where "E" and "P" have the same meanings as in Section 301.1 of this rule.

302 APPLICABILITY OF EMISSION LIMITS FOR COMBINED EMISSIONS FROM SIMILAR OPERATIONS: The total process weight from all similar operations at a facility, plant or premises shall be used for determining the maximum allowable emissions of particulate matter.

303 LIMITATIONS - PORTLAND CEMENT PLANTS:

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

306 OPERATION AND MAINTENANCE (O&M) PLAN REQUIRED: No person required to use an approved emission control system to reduce emissions as specified in the conditions of a valid permit in accordance with this rule shall do so without complying with an operation and maintenance plan that has been approved by the Control Officer. This plan shall specify key system operating parameters such as temperatures, transfer rates, pressures and/or flow rates necessary to determine compliance with this rule and describe in detail procedures to maintain the approved emission control system. The Control Officer's written approval of this plan shall be required for compliance with this rule to be achieved.

307 EXEMPTIONS: The provisions of Section 301 of this rule shall not apply to incinerators or fuel burning 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.

SECTION 400 - ADMINISTRATIVE REQUIREMENTS

401 COMPLIANCE SCHEDULE - OPERATION AND MAINTENANCE (O&M) PLAN: Any person employing an approved emission control system on the effective date of this rule shall by December 1, 1993, file an O&M Plan with the Control Officer in accordance with Section 501 of this rule.

SECTION 500 - MONITORING AND RECORDS

501 PROVIDING AND MAINTAINING MONITORING DEVICES: No person required to use an approved emission control system to control particulate emissions 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.

502 RECORDKEEPING AND REPORTING: Any person subject to this rule shall comply with the following requirements. 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.

502.1 De Minimis Limitation for Affected Operations Requiring Records: No person responsible for the operation of any particulate-emitting affected operation which processes more than 50 pounds of material daily shall conduct such operations unless detailed daily records are maintained.

502.2 Minimum Recordkeeping Required: These records shall be updated each day of operation and include at a minimum the following information: a record of the total weight of all process materials including raw materials, additives, fuels, etc., which are put into a process flow at the beginning of each batch process shall be kept on site. This shall include all materials which participate in the process and are changed in mass, form, state or in other characteristics by means of their interaction in the given process. The duration of each separate batch process shall also be recorded.

a. Batch process records: Maintain a record of the total weight of all process materials including raw materials, additives, and fuels which are put into a process flow at the beginning of each batch process shall be kept. This shall include all materials which participate in the process and are changed in mass, form, state or in other characteristics by means of their interaction in the given process. The duration of each separate batch process shall also be recorded.

b. Continuous or semi-continuous process records: Maintain a daily record of the weight of all process material entering into each process including raw materials, additives, fuels, the start time and the duration of each process run. In addition to the foregoing, records shall be kept for processes which run continuously for more than 24 hours. Such records shall include the total weight of any material entering into the process over the entire duration of the process run from start up to shut down and the total elapsed time of operation.

502.3 Operation and Maintenance: Maintain a continuous record of the periods of time an approved emission control system is used to comply with this rule and maintain daily records of the Operation and Maintenance Plan's key system operating parameters. The records shall account for any periods of

production when the control system was not operating and maintain records of all maintenance performed according to the O&M Plan.

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

504 TEST METHODS: The reference methods 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.

504.2 Velocity and volumetric flow rate shall be determined according to EPA Reference Method 2.

504.3 Gas analysis shall be determined according to EPA Reference Method 3.

504.4 Stack gas moisture shall be determined according to EPA Reference Method 4.

504.5 Stack effluent concentration of particulate matter and associated moisture content shall be determined according to EPA Reference Method 5.

504.6 Visible emissions shall be determined according to EPA Reference Method 9.

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RULE 312
ABRASIVE BLASTING

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MARICOPA COUNTY
AIR POLLUTION CONTROL REGULATIONS

REGULATION III - CONTROL OF AIR CONTAMINANTS

RULE 312
ABRASIVE BLASTING

SECTION 100 - GENERAL

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

SECTION 200 - DEFINITIONS: For the purpose of this rule, the following definitions shall apply:

201 ABRASIVE BLASTING - The operation of cleaning or preparing a surface by forcibly propelling a stream of abrasive material against the surface.

202 ABRASIVE BLASTING EQUIPMENT - Any equipment utilized in abrasive blasting operations.

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.

204 HYDROBLASTING - Any abrasive blasting using high pressure liquid as the propelling force.

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

206 WET ABRASIVE BLASTING - Any abrasive blasting using compressed air as the propelling force and sufficient water to minimize the plume.

SECTION 300 - STANDARDS

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.

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.

SECTION 500 - MONITORING AND RECORDS

501 **VISIBLE EMISSION EVALUATION TECHNIQUES:** Visible emission evaluation of abrasive blasting operations shall be conducted in accordance with the following provisions:

501.1 Emissions from unconfined blasting shall be read at the densest point of the emission 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.

501.2 Emissions from unconfined blasting employing multiple nozzles shall be judged as single source unless it can be demonstrated by the owner or operator that each nozzle, evaluated separately, meets the emission standards of this rule.

501.3 Emissions from confined blasting shall be read at the densest point after the air contaminant leaves the enclosure.

REGULATION III – CONTROL OF AIR CONTAMINANTS

RULE 313
INCINERATORS, BURN-OFF OVENS, AND CREMATORIES

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

RULE 313
INCINERATORS, BURN-OFF OVENS AND CREMATORIES

SECTION 100 – GENERAL

101 PURPOSE: To limit particulate emissions from incinerators, burn-off ovens and crematories.

102 APPLICABILITY: This rule applies to the following types of equipment and activities:

102.1 All incinerators except those subject to:

a. Resource Conservation and Recovery Act (RCRA) Subtitle C; or

b. Maricopa County Rule 317 (Hospital/Medical/Infectious Waste Incinerators) and Standards of Performance for Hospital/Medical/Infectious Waste Incinerators for Which Construction Is Commenced After June 20, 1996 (40 CFR Part 60, Subpart Ec); or

c. Standards of Performance for Commercial and Industrial Solid Waste Incineration Units for Which Construction Is Commenced After November 30, 1999 or for Which Modification or Reconstruction Is Commenced on or After June 1, 2001(40 CFR Part 60, Subpart CCCC); or

d. Emissions Guidelines and Compliance Times for Commercial and Industrial Solid Waste Incineration Units that Commenced Construction On or Before November 30, 1999 (40 CFR Part 60, Subpart DDDD).

102.2 Burn-off ovens used in metal salvage operations or used to remove nonmetallic coatings from metal parts by the application of heat and meet one of the following conditions:

a. Charge combustion capacity of greater than 25 lbs per hour; or

b. Internal oven volume greater than one (1) cubic yard; or

c. Fuel burning capacity of primary chamber greater than 200,000 Btu per hour.

102.3 Crematories.

103 EXEMPTIONS: The following types of equipment and activities are exempt from this rule:

103.1 Laboratory ovens;

103.2 Environmental test chambers;

103.3 Ovens used in research facilities;

103.4 Flares;

103.5 Curing or drying ovens that are operated at temperatures lower than 600 °F;

103.6 Electric induction furnaces; and

103.7 Burning-off of pre-cleaned items consisting entirely of metal and containing no debris visible to the naked eye. Pre-cleaning shall be done by flushing with water, solvent and/or mechanical means.

SECTION 200 – DEFINITIONS: For the purpose of this rule, the following definitions shall apply, in addition to those definitions found in Rule 100 (General Provisions and Definition) of these rules. In the event of any inconsistency between any of the Maricopa County air pollution control rules, the definitions in this rule take precedence.

201 **AFTERBURNER** – A heating device associated with an incinerator, burn-off oven or crematory that is designed to provide excess air and heat for complete combustion of the gases in the primary chamber so as to control particulate emissions.

202 **BURN-OFF OVEN** – A heating device intended to remove materials such as oils, greases, paints, coatings, rubber, lacquers, and insulation from other materials or parts by combustion or charring.

203 **COMBUSTIBLE REFUSE** – Any solid or liquid combustible waste material containing carbon in a free or combined state.

204 **CONTINUOUS OPACITY MONITORING SYSTEM (COMS)** – The total equipment necessary for the determination of opacity of emissions which provides a permanent, uninterrupted record of opacity readings.

205 **CREMATION** – The process of reducing human or animal remains to bone fragments and ashes in a controlled retort or furnace using heat and/or flame. The reduction takes place through heat and evaporation. Cremation shall also include the processing and pulverization of the bone fragments.

206 **CREMATORY** – A retort used for the cremation of remains (human or animal), body parts, and associated wrappings. This term may also be used to refer to an establishment wherein these remains are cremated. A crematory may be considered existing or new, dependent upon the date it was constructed. If it was constructed, modified, or commenced operation, including the contractual obligation to undertake and complete an order for a crematory, prior to September 22, 2004, then it is an existing crematory.

207 **ELECTRIC INDUCTION FURNACE** – A furnace or oven that is used to melt metals by use of electricity as the source of power or an alternating current electric furnace in which primary conductor is coiled and generates by electromagnetic induction a secondary current that develops within the metal charge.

208 **FLUE** – A duct or passage, such as a stack or chimney, for air contaminants.

209 **HOSPITAL WASTE** – Discards generated at a hospital or clinic, except unused items returned to the manufacturer. The definition of hospital waste does not include human corpses, remains, and anatomical parts that are intended for interment or cremation.

210 **INCINERATION** – The process of combustion or pyrolysis involving the chemical reaction of combustible waste materials with air in which the primary purpose is the destruction and reduction in size and mass of the combustible material.

211 **INCINERATOR** – Any equipment used for the purpose of reducing the volume and mass by removing combustible matter by direct combustion or the combustion of waste gases from pyrolysis or gasification. Incinerator designs include single chamber and two-chamber. A two-chamber incinerator consists of two or more refractory lined combustion chambers in series, physically separated by refractory walls, interconnected by gas passage ports or ducts designed for maximum combustion of the material to be burned. An "incinerator" does not include devices such as open or screened barrels, drums, or process boilers.

211.1 **Primary Chamber** – The initial compartment of an incinerator wherein the majority of waste volume reduction or heat treatment occurs by combustion. Primary chambers are normally operated at lower temperatures than are secondary chambers or afterburners.

211.2 **Secondary Chamber** – The compartment of an incinerator that operates at excess air conditions wherein destruction of gas-phase combustion products occurs. Passage ports, ducts, flues, chimneys, or stacks with burners shall not be considered controlled secondary chambers unless (1) the combustion zone exhibits design measures for the retention of the gas stream in the chamber, turbulence or mixing, and (2) there is an availability of excess air as determined by engineering analysis.

212 **MEDICAL WASTE** – Any non-gaseous waste, including infectious wastes, which is generated in the diagnosis, treatment, or immunization of human beings or animals, in research pertaining thereto, or in production or testing of biological agents and substances. Medical waste does not include any wastes identified under subtitle C of the Resource Conservation and Recovery Act (RCRA) as hazardous or as household waste, but includes those pharmaceuticals which are not identified as hazardous by subtitle C of RCRA. Medical waste does not include human or animal remains, caskets, containers, clothing or wrappings from crematories. An expanded definition of medical waste is found in 40 CFR 60, Subpart Ec. The definition of "medical waste" includes, but is not limited to:

212.1 Cultures and stocks of infectious agents and human pathological waste;

212.2 Human blood and blood products, ;

212.3 Sharps, needles and broken glass that were in contact with infectious wastes;

212.4 Animal wastes exposed to infectious wastes,;

212.5 Isolation wastes; and

212.6 Unused sharps, needles and syringes.

213 METAL SALVAGE OPERATIONS – Any source operation in which combustion or pyrolysis is carried on for the principal purpose, or with the principal result, of recovering metals which are introduced into the operation as essentially pure metals, or alloys thereof, by oxidation of physically intermingled combustible material. Operations, in which there is a complete fusion of all such metals such as in an electric induction furnace, are not considered "metal salvage operations" for the purpose of this rule.

214 NIGHTTIME COMBUSTION – Combustion that occurs after sundown and before the following sunrise.

215 PARTS RECLAMATION UNIT – A burn-off oven that combusts only paints, lacquers, and varnishes off of items (e.g., tools and equipment) so that these items can be reconditioned and reused. A burn-off oven used to remove plastic, insulation or rubber from items shall not be considered a parts reclamation unit for the purpose of this rule.

216 PATHOLOGICAL WASTE – Waste material that consists of only human or animal remains, anatomical parts and/or tissue, the bags/containers used to collect and transport the waste material, and animal bedding (if applicable).

217 PYROLYSIS/COMBUSTION UNIT – A combustion unit that produces gases, liquids, or solids through the heating of waste, and the gases, liquids, or solids produced are combusted and emissions vented to the atmosphere.

218 RESIDENCE TIME – The average time that gases spend in a defined space, also known as "bulk gas average residence time".

SECTION 300 – STANDARDS

301 CONTROLS REQUIRED: An owner or operator shall comply with the following:

301.1 Incinerators: Combustion of all types of combustible refuse in an incinerator shall be performed in a multiple-chamber incinerator that operates at least at a minimum temperature of 1600 °F in the secondary chamber or afterburner, with a residence time of at least one (1) second in the secondary chamber or afterburner during the period of combustion in order to destroy the combustion products.

301.2 Burn-Off Ovens: Metal salvage operations or removal of materials utilizing a burn-off oven shall employ an oven with at least two chambers. The secondary compartment or afterburner shall operate at a minimum temperature of at least 1400 °F with a residence time of at least one-half (½) second during the period of combustion in order to destruct the combustion products.

301.3 Crematories: A crematory shall consist of an incinerator comprised of at least two chambers and that complies with the following conditions:

a. For an existing crematory the burner in the primary chamber shall not be ignited until the secondary chamber combustion zone temperature is equal to or greater than 800 °F. The secondary compartment or afterburner shall operate at a minimum temperature of at least 1400 °F with a residence time of at least one (1) second during the period of combustion in order to destruct the combustion products.

b. For a new crematory, the burner in the primary chamber shall not be ignited until the secondary chamber combustion zone temperature is equal to or greater than 1000°F. The secondary compartment or afterburner shall operate at a minimum temperature of at least 1600 °F with a residence time of at least one (1) second during the period of combustion in order to destruct the combustion products.

c. Alternate Operating Conditions: If the manufacturer's optimum design specifications for the minimum temperature or residence time of a secondary chamber or afterburner at existing crematories are different from the temperatures or residence times set forth in Section 301.3 (a) of this rule, the manufacturer's specifications may be used instead, providing that the owner or operator demonstrates compliance with the test methods listed in Section 507 of this rule.

d. Additional Operating Conditions for Cremating Large Bodies: Alternate operating temperatures and special procedures may be required for cremation of large bodies (over 300 lbs.) that are different from the temperatures or residence times in the afterburner set forth in Section 301.3 of this rule. These alternate times and temperatures may be followed when cremating large bodies, provided that the owner or operator demonstrates compliance with the test methods listed in Section 507 of this rule.

302 EMISSIONS STANDARD – OPACITY: An owner or operator shall not cause, allow or permit emissions into the atmosphere from any incinerator, burn-off oven, or crematory, for an aggregate of more than 30 seconds in any 60 minutes, for any air contaminant that exceeds 20 percent opacity (Section 507.3 of this rule).

303 EMISSIONS STANDARD – PARTICULATES: An owner or operator shall not cause, allow, or permit particulate matter emissions into the atmosphere from any incinerator, burn-off oven, or crematory, which exceed 0.080 grain per cubic foot of dry flue gas at standard conditions adjusted to 7% oxygen (O_2) in the exhaust gases and calculated as if no auxiliary fuel had been used.

304 NIGHTTIME COMBUSTION: An owner or operator who chooses to conduct combustion operations shall comply with the following conditions:

304.1 Incinerator, Crematory, or Burn-Off Oven Other than a Parts Reclamation Unit: A Continuous Opacity Monitoring System (COMS) shall be operated at all times during nighttime combustion operations and shall comply with the following conditions:

a. The COMS shall be calibrated and maintained in accordance with EPA Performance Specification # 1, described in Section 507.2 of this rule and shall be calibrated at least once per day. The COMS shall be located downstream from all particulate control equipment, where condensed water is not present, free of interference from ambient light (applicable only if transmissometer is responsive to ambient light) and accessible in order to permit routine maintenance in accordance with the test method described in Section 507.2 of this rule.

b. A properly trained COMS operator shall be present at all times during nighttime combustion operations. The operator shall be trained in the proper operation and maintenance of the COMS as well as the shutdown procedures of the incinerator, burn-off oven, or crematory. Therefore if the COMS registers opacity readings that are higher than the opacity limitations in Section 302 of this rule, then the operator has the authority and capability to shut down the operation.

304.2 Parts Reclamation Unit: An owner or operator of a parts reclamation unit who chooses to conduct nighttime combustion operations without the installation and operation of a COMS shall:

a. Not cause, allow or permit any visible emissions during combustion during the nighttime; and

b. Conduct visible emissions observations in compliance with the test method described in Section 507.4 of this rule at least once per hour during each nighttime combustion cycle; and

c. Operate and maintain the parts reclamation unit in accordance with the manufacturer's operations and maintenance manual or other similar written materials supplied by the manufacturer or distributor of the unit to ensure the unit remains in proper operating condition.

d. Operate exclusively with parts reclamation units with an inside stack diameter less than 10 inches.

305 OPERATION AND MAINTENANCE (O&M) PLAN REQUIREMENTS FOR AIR POLLUTION CONTROL EQUIPMENT AND APPROVED EMISSION CONTROL SYSTEM (ECS): An owner or operator subject to this rule operating an ECS shall provide, properly install and maintain in calibration, in good working order and in operation the air pollution control equipment required by this rule. This includes the following:

305.1 Provide and maintain devices that indicate temperatures, pressures, rates of flow, or other operating conditions necessary to determine if the air pollution control equipment is functioning properly and is properly maintained.

305.2 Keep records according to Section 501 of this rule that demonstrate the air pollution control equipment meets the control standards required in Section 300 of this rule.

305.3 Submit an Operation and Maintenance (O&M) Plan if the air pollution control equipment consists of additional equipment other than an afterburner, such as a baghouse or

venturi scrubber according to the following O&M Plan requirements for an Emission Control System (ECS):

a. An owner or operator subject to this rule shall provide and maintain readily available on-site at all times the O&M Plan(s) for any ECS and any ECS monitoring devices that are used under this rule or an air pollution control permit.

b. An owner or operator subject to this rule shall submit to the Control Officer for review the O&M Plan(s) for any ECS including an ECS monitoring device that is required by this rule or required under an air pollution control permit.

c. An owner or operator subject to this rule operating an ECS shall install, maintain and accurately calibrate monitoring devices listed in the O&M Plan(s) including, but not limited to, monitoring devices that measure pressure differentials and other operating conditions necessary to determine if control devices are functioning properly.

d. An owner or operator who is required to have O&M Plan(s) for any ECS including any ECS monitoring devices must fully comply with all elements of the O&M Plan(s) including, but not limited to, every action, schedule, and condition identified in each O&M Plan.

e. An O&M Plan for any ECS including any ECS monitoring devices shall include all of the following information:

(1) ECS equipment manufacturer;

(2) ECS equipment model;

(3) ECS equipment identification number or identifier that owner or operator subject to this rule assigns to such ECS equipment when the manufacturer's equipment identification number is unknown; and

(4) Any other information required by Section 501 of this rule.

f. The owner or operator subject to this rule, who receives a written notice from the Control Officer that an O&M Plan for any ECS including any ECS monitoring devices is deficient or inadequate, must make written revisions to the O&M Plan. The revised O&M Plan must be submitted to the Control Officer within five working days of receipt of the Control Officer's written notice, Such time period can be extended by the Control Officer, upon written request and for good cause. During the time that such owner or operator subject to this rule is preparing revisions to the O&M Plan, such owner or operator shall still comply with all requirement of this rule.

SECTION 400 – ADMINISTRATIVE REQUIREMENTS (NOT APPLICABLE)

SECTION 500 – MONITORING AND RECORDS

501 RECORDKEEPING: An owner or operator subject to this rule shall maintain the records listed below and shall retain these records for five years. These records shall be kept on-site in written or electronic format, in a complete and consistent manner. Written or electronic copies shall be made available to the Control Officer upon request. An owner or operator shall keep the following daily records:

501.1 Times of operation;

501.2 Chamber temperatures: Chamber temperatures shall include operating temperatures for the secondary chamber as well as secondary chamber temperature at the time of the ignition of the primary chamber.

501.3 Weight of the materials incinerated shall be determined as follows:

a. Incinerators: Total weight charged.

b. Crematories:

(1) Human Crematories: Account for the numbers of bodies cremated; or

(2) Animal Crematories: Account for either the number and type of remains charged or the weight of the animal(s) charged; or

(3) Large Bodies: If a human or animal crematory combusts a large body (over 300 lbs.), the approximate weight of the body and any alternative operating conditions shall be recorded.

502 OPACITY OBSERVATIONS: An owner or operator shall keep records of opacity observations used to measure visible emissions from activities regulated by this rule. The records shall be compiled, maintained, and retained for each day or night that any activity capable of generating emissions is conducted. These written records shall include the following information:

502.1 Date, time, and location of all opacity observations; and

502.2 Results of all opacity observations; and

502.3 Corrective action(s) taken, if any.

503 NIGHTTIME COMBUSTION: An owner or operator conducting nighttime combustion operations shall comply with the following requirements:

503.1 Nighttime Combustion With a COMS:

a. Maintain a continuous record of opacity readings generated by the COMS. Records shall include all times that the meter is running properly. Records shall also indicate when the instrument is inoperative or has been adjusted or repaired.

b. Record the date and time identifying each period during which the COMS was inoperative, except for zero and span checks, and the nature of system repair or

adjustment shall be reported. The Control Officer may request proof of COMS performance whenever system repairs or adjustments, other than routine maintenance, have been made.

c. Maintain a file of all data collected by the COMS and as necessary to convert monitoring data to the units of the applicable standard as described for compliance with Section 507.3 of this rule.

503.2 Nighttime Combustion Without a COMS – Parts Reclamation Unit: Maintain records of the visible emissions observations taken at night during each combustion cycle for each parts reclamation unit as required by Section 507.4 of this rule. These records shall include the following:

a. Date, time, and location of all visible emission observations; and

b. Results of all visible emission observations; and

c. Corrective action(s) taken, if any.

504 PREVENTATIVE MAINTENANCE LOG: Maintain a log of equipment preventive maintenance activities performed on all equipment or ECS subject to this rule.

505 ALTERNATE OPERATING CONDITIONS: An owner or operator shall keep records of any alternate operating conditions including temperatures and residence times, as required by Sections 301.3(c) and 301.3(d) of this rule.

506 PERFORMANCE TEST RESULTS: An owner or operator shall maintain records of all exhaust stack performance tests. Such written records shall include the following information:

506.1 Date, start and end times, and location of all performance tests;

506.2 Results of all tests; and

506.3 Corrective action(s) taken, if necessary.

507 COMPLIANCE DETERMINATION – TEST METHODS: When more than one test method is permitted for determining an exceedance of the limits established in this rule, then any exceedance determined using any one of the following applicable test methods shall constitute a violation of this rule.

507.1 Determination of total particulate matter, EPA Methods 1 through 5, or the EPA equivalent methods listed in Sections 507.3 and 507.4 of this rule approved by the Control Officer, shall be used. Both carbon dioxide and oxygen measurements shall be obtained simultaneously with each Method 5 run.

507.2 Determination of visible emissions compliance shall be made by a certified emissions observer or by a continuous emission monitor which is maintained and calibrated in accordance with EPA Performance Specification #1 (40 CFR, Part 60, Appendix B). The observer shall be qualified as an expert visible emissions evaluator and so certified

by the Arizona Department of Environmental Quality or by any other agency that is acceptable to the Control Officer.

507.3 Opacity shall be determined by observations of visible emissions conducted in accordance with EPA Reference Method 9 as modified by EPA Reference Method 203 B.

507.4 The presence or absence of visible emissions shall be detected using EPA Reference Method 22.

508 **TEST METHODS INCORPORATED BY REFERENCE:** The EPA test methods as they exist in the Code of Federal Regulations (CFR) are incorporated by reference in Appendix G of the Maricopa County Air Pollution Control Rules and Regulations.

REGULATION III – CONTROL OF AIR CONTAMINANTS

MARICOPA COUNTY AIR QUALITY DEPARTMENT

RULE 314

OPEN OUTDOOR FIRES AND INDOOR FIREPLACES AT COMMERCIAL AND INSTITUTIONAL ESTABLISHMENTS

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AIR CURTAIN DESTRUCTOR AND FIREBOX PROCEDURES

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

RULE 314
OPEN OUTDOOR FIRES AND INDOOR FIREPLACES AT COMMERCIAL AND INSTITUTIONAL ESTABLISHMENTS

SECTION 100 – GENERAL

101 **PURPOSE:** To limit the emissions of air contaminants produced from open burning and from indoor fireplaces at commercial and institutional establishments.

102 **APPLICABILITY:** Rule 314 is applicable to any open outdoor fire and burning in indoor fireplaces at commercial and institutional establishments that is conducted within Maricopa County.

SECTION 200 – DEFINITIONS: See Rule 100 (General Provisions and Definitions) of these rules for definitions of terms that are used but not specifically defined in this rule. For the purpose of this rule, the following definitions shall apply:

201 **AIR CURTAIN DESTRUCTOR** – A device designed to form a curtain of air over a firebox in which burning occurs that aids in more complete combustion through increases in turbulence and combustion time. Above ground air curtain destructors are the only type of air curtain destructor that are allowed in Maricopa County.

202 **AREA A** – As defined in Arizona Revised Statutes (A.R.S.) § 49-541(1), the area in Maricopa County delineated as follows:

Township 8 North, Range 2 East and Range 3 East
Township 7 North, Range 2 West through Range 5 East
Township 6 North, Range 5 West through Range 6 East
Township 5 North, Range 5 West through Range 7 East
Township 4 North, Range 5 West through Range 8 East
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Township 1 North, Range 5 West through Range 7 East
Township 1 South, Range 5 West through Range 7 East
Township 2 South, Range 5 West through Range 7 East
Township 3 South, Range 5 West through Range 1 East
Township 4 South, Range 5 West through Range 1 East

203 **DANGEROUS MATERIAL** – Any substance or combination of substances that is capable of causing bodily harm or property loss unless neutralized, consumed, or otherwise disposed of in a controlled and safe manner.

204 **DITCHBANK** – A lateral area not to exceed two and one half feet on either side of a ditch.

205 **EMISSION REDUCTION TECHNIQUES (ERTs)** – Methods for controlling emissions from outdoor fires to minimize the amount of emissions output per unit of area burned. Types of ERTs include minimizing the material to be burned, preventing fire from spreading by lining the area and applying fire retardant foam or water, allowing the material to dry before burning, extinguishing the smoldering burns, burning in piles, and burning in the opposite direction of the wind.

206 **FENCE ROW** – A lateral area not to exceed two and one half feet on either side of the centerline of a fence.

207 **FIREBOX** – The chamber or compartment inside of an air curtain destructor wherein materials are burned.

208 **FLUE** – Any duct or passage for air or combustion gases, such as a stack or chimney.

209 **OPEN OUTDOOR FIRE OR OPEN BURNING** – Any combustion of any type of material outdoors, where the products of combustion are not directed through a flue. Open outdoor fires include agricultural, residential and prescribed burning. Purposes for fires can include prevention of a fire hazard, instruction in the methods of fighting fires, watershed rehabilitation, disease and pest prevention.

210 **ORCHARD HEATERS** – A device which helps prevent frost damage to fruit trees by heating. An orchard heater consists of a pipeline heater system operated from a central control from which fuel is distributed by a piping system from a centrally located tank.

211 **PROHIBITED MATERIALS** – Non-paper garbage from the processing, storage, service or consumption of food; books, magazines, fiberboard, packaging, rags, fabrics, office records, chemically treated or soaked wood; lead-painted wood; linoleum flooring, and composite counter tops; tires; animal wastes and carcasses, coal, liquid or gelatinous hydrocarbons tar, explosives or ammunition; oleanders, leaves, grass clippings, refuse; asphalt shingles or asphalt; tar paper; plastic and rubber products, including bottles for household chemicals; plastic grocery and retail bags; waste petroleum products, such as waste crankcase oil, transmission oil, and oil filters; transformer oils; asbestos; batteries; anti-freeze; aerosol spray cans; electrical wire insulation; thermal insulation; polyester products; hazardous waste products such as paints, pesticides, cleaners and solvents, stains and varnishes, and other flammable liquids; plastic pesticide bags and containers; and hazardous material containers including those that contained lead, cadmium, mercury and arsenic compounds.

212 **PUBLIC OFFICER** – Any elected or appointed officer of a public agency established by charter, ordinance, resolution, state constitution or statute, but excluding members of the legislature.

213 **RESTRICTED-BURN PERIOD** – A condition declared by the Control Officer whenever meteorological conditions are conducive to an accumulation of carbon monoxide (CO), ozone, and/or particulate matter in exceedance of the standards or when air quality reaches other limits established by the Control Officer or when there is increased fire danger.

214 **WOOD-BURNING CHIMINEAS** – Chimineas are burning devices made from clay, aluminum, and steel and are used for warmth and aesthetics outside in yards and patios. Chimineas are designed to burn solid fuels.

SECTION 300 – STANDARDS

301 **PROHIBITION – OPEN OUTDOOR FIRES:** It shall be unlawful for any person to ignite, cause or permit to be ignited, allow, maintain any open outdoor fire within the limits of Maricopa County, except as provided in Sections 302, 303, 304, 305 and in the Appendix of this rule.

302 **OPEN OUTDOOR FIRES REQUIRED TO OBTAIN A BURN PERMIT:** The types of fires described in Sections 302.1 and 302.2 of this rule require a burn permit that is obtained from the Control Officer prior to initiating the burn. Even after the Control Officer issues the burn permit, the person conducting the fire shall call both the fire department and the Control Officer to obtain permission to burn for each day. The Control Officer shall base his decision to approve or deny permission to burn on National Weather Service forecasts or other meteorological analyses that are indicative of a Restricted-Burn Period. See Section 402 of this rule for additional requirements regarding burn permits.

302.1 Fires Prohibited During Restricted-Burn Periods in Maricopa County, but Allowed From May 1 through September 30 Each Year in Area A:

a. Open outdoor fires that are declared necessary by the County Agricultural Agent, when such fires have been determined as essential for the purposes of disease and/or pest prevention and certified by actual investigations by the County Agricultural Agent.

b. Open outdoor fires for the control of weeds for the prevention of fire hazards, when such fires are declared necessary by a public officer in the performance of his official duties.

c. Open outdoor fires for fire fighting training and fire fighting training areas and structures. See Section 303.2 (b) of this rule for an exemption to this requirement.

d. Open outdoor fires for the burning of agricultural ditchbanks and fence rows where other reasonable mechanical, chemical, or other methods of removal are not available. In addition:

(1) A high-temperature mechanical burner must be used to burn ditchbanks, canal laterals, and/or fence rows.

(2) Burning ditchbanks and/or fence rows is not allowed during a restricted-burn period from October 1 through February 29, unless such fires are required in the performance of an official duty of any public office, or such fires are necessary to thwart or prevent a hazard that cannot be properly managed by any other means, or are necessary for the protection of public health.

(3) An on-site inspection by the Control Officer must be conducted to verify that only vegetative materials will be burned.

(4) After an initial on-site inspection by the Control Officer has been completed, a Burn Permit may be issued for the same location(s) without having to conduct additional initial on-site inspections. However, periodic unscheduled, on-site inspections may be conducted by the Control Officer on days when such burning has been authorized by the Burn Permit.

e. Open outdoor fires declared necessary by the federal government or any of its departments, agencies, or agents, or the state or any of its agencies, departments, or subdivisions for the purpose of watershed rehabilitation or control through vegetative manipulation.

302.2 Fires Prohibited During Restricted-Burn Periods in Maricopa County and Also Prohibited from May 1 to September 30 Each Year in Area A:

a. Open outdoor fires for the destruction of tumbleweeds for the prevention of fire hazards in cases where other reasonable methods are not available.

(1) Tumbleweeds must be cut, piled, and dried before burning.

(2) A high temperature mechanical burner may be used to burn undried tumbleweeds in situations where it is not feasible to allow natural drying.

(3) A high temperature mechanical burner must be used to burn tumbleweeds growing along canal laterals and fence rows.

b. Open outdoor fires for the burning of indigenous scrub vegetation cleared for the purpose of agricultural operations in non-urban areas of low population where other reasonable methods are not available.

(1) The Control Officer shall issue such Burn Permit only once per geographical location.

(2) An on-site inspection must be conducted to determine removal of all other materials (e.g. wood, rubber, tires, dirt and metal) before the issuance of the Burn Permit.

303 OPEN OUTDOOR FIRES NOT REQUIRED TO OBTAIN A BURN PERMIT: The person conducting any type of fire listed in Section 303 of this rule does not need to obtain a burn permit. However, the person conducting the fire may be required to contact the Control Officer for permission to burn prior to igniting the fire when specified below in Subsections 303.1 through 303.3.

303.1 Fires Allowed at Any Time of the Year in Maricopa County or Area A:

a. Cooking for immediate human consumption.

b. Orchard heaters for frost protection in farming or nursery operations.

c. Proper disposal of flags under 4 U.S.C.§ 8.

d. The display of fireworks for recreational purposes or pyrotechnics for musical or cinematic/theatrical functions.

303.2 Fires Prohibited During Restricted-Burn Periods in Maricopa County: The person conducting any type of fire listed in Section 303.2 of this rule shall first call the County Air Quality Updates Hotline to hear the recorded message or check local government web sites to determine whether a Restricted-Burn Period has been declared each day. If that is the case, then open outdoor burning is prohibited.

a. Fire extinguisher training. This exemption from needing a burn permit applies only when the training is limited to using a small amount of flammable liquid and a small container (i.e. a wastepaper basket or a flat pan).

b. Fire fighting training, training areas and training structures are exempt from needing a permit if the sole source of flame is a burner fueled by either liquefied petroleum gas or natural gas, with a British Thermal Unit (BTU) input per hour rating of less than 2,000,000 BTUs.

c. Testing potentially explosive-containing, flammable, or combustible products (e.g., automotive airbags, rocket motors, gas generators, and vehicular

assemblies) in accordance with Department of Transportation (DOT) or Department of Defense guidelines. This exemption from needing a burn permit refers to testing of hazard classification, packaging performance, propagation, and/or mass fire, but only when testing area is controlled, is relatively small, and when testing is not considered to be nor is associated with the disposal of dangerous material.

d. Testing potentially explosive-containing products for commercial, military, and law enforcement uses. This exemption from needing a burn permit applies only when the testing is controlled, relatively small and not considered to be nor is associated with the disposal of dangerous material.

e. Disposal of dangerous material must be conducted in compliance with the Arizona Department of Environmental Quality's (ADEQ's) regulations.

303.3 Fires Prohibited During Restricted-Burn Periods in Maricopa County and Also Prohibited from May 1 Through September 30 Each Year in Area A: The person conducting any type of fire listed in Section 303.3 of this rule shall first call the County Air Quality Updates Hotline to hear the recorded message or check local government web sites to determine whether a restricted-burn period has been declared. If that is the case, then open outdoor burning is prohibited.

a. Warmth for human beings.

b. Recreational purposes.

c. Wood-burning chimineas and outdoor pits.

d. Branding of animals.

304 OPEN OUTDOOR FIRES IN AN AIR CURTAIN DESTRUCTOR: Prior to conducting an open outdoor fire in an air curtain destructor shall obtain a Title V permit from ADEQ and a site-specific Burn Plan approved by the Control Officer. See the Appendix to Rule 314 for further requirements for the use of air curtain destructors. See Section 406 of this rule for Burn Plan Applications and Conditions.

305 ADDITIONAL REQUIREMENTS FOR OPEN OUTDOOR FIRES ALLOWED PER SECTIONS 302, 303, AND 304:

305.1 Prohibited materials cannot be burned in open outdoor fires except as provided in Sections 303.2(a), 303.2(b), 303.2(c), 303.2(d) and 303.2(e).

305.2 Open outdoor fires cannot be conducted before the hour of 10 a.m. and after 5 p.m. from October 1 to March 31 and before the hour of 6 a.m. and after 6 p.m. from April 1 to September 30 except as provided in Sections 302.1(c), 303.2(b), and 303.3.

305.3 Open outdoor fires cannot be conducted during any weekends or holidays except as provided in Sections 302.1(c), 303.1, 303.2(b), and 303.3.

305.4 Fire extinguishing equipment shall be available at all times during open outdoor fires.

305.5 An attendant shall be present at all times during open outdoor fires for the duration of the burn.

305.6 Open outdoor fires shall never be initiated with items that cause the production of black smoke.

305.7 An air curtain destructor must be used for the burning of certain vegetative materials greater than 6 inches in diameter and an on-site inspection must be conducted before burning.

306 PROHIBITION – BURNING IN INDOOR FIREPLACES: Burning in indoor fireplaces that use any fuels other than gaseous fuels, including gas logs, at commercial and institutional establishments is prohibited during Restricted-Burn Periods in Maricopa County. The owner or operator of a commercial or institutional fireplace shall first call the County Air Quality Updates Hotline to hear the recorded message or check local government web sites to determine whether a Restricted-Burn Period has been declared. If that is the case, then burning is prohibited except if using gaseous fuels.

SECTION 400 – ADMINISTRATIVE REQUIREMENTS FOR BURN PERMITS AND BURN PLANS

401 FEES REQUIRED: A fee shall be charged for a Burn Permit or the approval of each site specific Air Curtain Destructor Burn Plan as set forth in Rule 280 (Fees) of these rules.

402 BURN PERMIT APPLICATION: A person shall file with the Control Officer, on a form prescribed by the Control Officer, a Burn Permit application and the complete application fee as described in Rule 280 (Fees) of these rules. The Control Officer shall act on a Burn Permit application and shall notify the applicant within 14 calendar days of the filing of the completed application.

402.1 A separate Burn Permit application is required for each burn site location not contiguous to the location on the original Burn Permit application.

402.2 The Control Officer shall conduct an on-site inspection before issuing the Burn Permit.

402.3 The issuance of a Burn Permit does not relieve the permittee from any of the requirements of a fire department having jurisdiction, including but not limited to having the Burn Permit validated by such fire department.

402.4 Permission given by a Public Officer for setting any fire given by a public officer in the performance of official duty under Sections 300 through 304 of this rule shall be given in writing and a copy of the written permission shall be transmitted immediately to the Control Officer. The setting of any such fire shall be conducted in a manner and at such times as approved by the Control Officer, unless doing so would defeat the purpose of this exemption.

402.5 If a person has obtained a Title V Permit, a Non-Title V Permit, or a General Permit under Regulation II (Permits and Fees) of these rules that includes condition(s) regarding open outdoor fires, then such person shall not be required to obtain a separate Burn Permit from the Control Officer. An owner or operator of an air curtain destructor that has obtained a Title V permit from the ADEQ shall submit a burn plan for each burn site location to the Control Officer as described in the Appendix to Rule 314.

403 **BURN PERMIT CONDITIONS:** The Control Officer may impose any permit conditions that are necessary to ensure compliance with Federal laws, State laws, or these rules. Burn Permit condition(s) may include, but are not limited to, burning hours, notification of intent to burn, and Burn Permit posting.

404 **BURN PERMIT DENIAL:** The Control Officer shall deny a Burn Permit application if the material or operations do not meet the criteria described in this rule.

405 **BURN PERMIT TERMS:** A Burn Permit shall be issued for the following terms:

- Disease/Pest Prevention: 30 days from date of issuance
- Fire Hazard: 30 days from date of issuance
- Tumbleweeds: 30 days from date of issuance
- Ditchbank/Fence Row: 1 year from date of issuance
- Fire Fighting Training/Structures: 1 year from date of issuance

406 **BURN PLAN APPLICATION AND CONDITIONS:** In order to use an air curtain destructor, a person shall file with the Control Officer, on a form prescribed by the Control Officer, a Burn Plan application and the complete application fee as described in Rule 280 (Fees) of these rules. The Control Officer shall act on a Burn Plan application and shall notify the applicant within 14 calendar days of the filing of the completed application.

406.1 A separate, site-specific Burn Plan application is required for each burn site location not contiguous to the location.

406.2 A Burn Plan Application shall be site-specific and shall list the following, at a minimum:

a. Notification of intent to burn;

b. The anticipated dates and hours of the burn;

c. The type and quantity of fuel that will be used;

d. The type of material burned;

e. The legal location, to the nearest township, range and section or latitude and longitude, to the nearest degree minute, street address, or parcel number;

f. The Burn Plan posting; and

g. The listing of the air curtain destructor's requirements as outlined in Section A of the Appendix to this rule.

406.3 The Control Officer shall conduct an on-site inspection before approving the Burn Plan Application.

406.4 The issuance of a Burn Plan does not relieve the permittee from any of the requirements of a fire department having jurisdiction, including but not limited to having the Burn Plan validated by such fire department.

406.5 The Control Officer may impose any conditions that are necessary to ensure compliance with Federal laws, State laws, or these rules.

406.6 The Control Officer shall deny a Burn Plan application if the material or operations do not meet the criteria described in this rule.

SECTION 500 – MONITORING AND RECORDS

501 RECORDKEEPING AND REPORTING:

501.1 The following information shall be provided to the Control Officer for each time that open burning occurs for persons and operations subject to Sections 302, 304 and Sections 303.2 (c), (d) and (e). This information shall be provided on a daily basis either by writing, fax, or electronically and shall include:

- The date of the burn; and
- The type and quantity of fuel burned for each date open outdoor burning occurs; and
- The fire type such as a pile or windrow for each date that open outdoor burning occurs; and

- The legal location, to the nearest township, range and section, or latitude and longitude, to the nearest degree minute, street address, or parcel number.

502 RECORDS RETENTION:

502.1 Maricopa County shall retain permits issued for open burning available for inspection by the ADEQ for five years.

502.2 For each permit issued, Maricopa County shall have a means of contacting the person authorized by the permit to set an open fire, if an order to extinguish open burning is issued by either the County or ADEQ. Therefore the permit application must contain the name of a contact person and shall list a means of contacting that person.

503 PROGRAM REVIEW:

503.1 Maricopa County shall hold or attend a public meeting annually for interested parties to review operations of the open outdoor fire program and discuss emission reduction techniques.

503.2 Maricopa County shall annually submit to the ADEQ a record of daily burn activity by May 15 of each calendar year.

APPENDIX TO RULE 314

AIR CURTAIN DESTRUCTOR AND FIREBOX PROCEDURES

A. **Air Curtain Destructor Requirements:** The following must be complied with prior to approval of an air curtain destructor by the Control Officer:

1. The length of the firebox must not exceed the length of the plenum.

2. The firebox shall be lined with refractory materials.

3. The depth of the firebox shall be of such a distance to allow all burning material to be below the curtain of air created by the air curtain destructor.

4. The width of the firebox shall not extend beyond the length of the nozzle action.

5. The firebox must have 4 stable, vertical sides.

6. When air curtain destructor locations are changed, an inspection of the newly located air curtain destructor must be made by the Control Officer prior to burning.

B. **Equipment Set-Up:**

1. An owner or operator of an air curtain destructor shall use a firebox and not a pit or trench to conduct open outdoor burning.

2. The equipment must be positioned so as to allow the blower's airflow to strike at a downward angle no less than 24 inches below the opposite rim of the firebox.

3. There shall be at least 1,000 feet between any two air curtain destructors.

4. An air curtain destructor shall be located at least 500 feet from any residence or building structure.

5. An air curtain destructor shall be located at least 500 feet from any pipeline or fuel storage area.

6. An air curtain destructor shall be located at least 250 feet from any power lines.

7. Material that is not being worked or is being stockpiled to be burned at a later date by using an air curtain destructor shall be kept at least 75 feet from the air curtain destructor while the burn is taking place.

C. **Operation of Blower:**

1. The proper blower speed must be maintained according to manufacturer's specifications.

2. The blower must be operating when and as long as any material in the firebox is burning.

D. **Loading of the Firebox:**

1. When loading (feeding) the firebox, the material must not extend above the air curtain (blower airflow).

2. The loading of materials into the firebox must be discontinued at a minimum of 2 hours prior to the end of the designated burning hours. The blower must continue to operate until the end of the burning hours or until combustion is completed.

3. Adequate measures must be taken to assure that no emissions emanate from materials left in the firebox (i.e., when combustion is completed). All materials left in the firebox must be extinguished with water or covered over with a minimum of 1 foot of mineral soil.

E. **Firebox Clean-Out:** All materials removed from the firebox must be completely extinguished and all reasonable precautions taken to control emissions.

F. **Burning Hours for Air Curtain Destructors:** The following burning hours apply:

- April – September 6 a.m. – 6 p.m.
- October – March 10 a.m. – 5 p.m.

While complying with the above schedule, the permittee must also obtain permission from the Control Officer on each day of burning. Burning using an air curtain destructor is not authorized on weekends nor on holidays. Prohibited materials shall never be burned in an air curtain destructor.

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Revised 03/12/08

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

RULE 316
NONMETALLIC MINERAL PROCESSING

SECTION 100 - GENERAL

101 **PURPOSE:** To limit the emission of particulate matter into the ambient air from any nonmetallic mineral processing plant and/or rock product processing plant.

102 **APPLICABILITY:** The provisions of this rule shall apply to any commercial and/or industrial nonmetallic mineral processing plant and/or rock product processing plant. Compliance with the provisions of this rule shall not relieve any person subject to the requirements of this rule from complying with any other federally enforceable New Source Performance Standards. In such case, the more stringent standard shall apply.

SECTION 200 - DEFINITIONS: See Rule 100 (General Provisions and Definitions) of these rules for definitions of terms that are used but not specifically defined in this rule. For the purpose of this rule, the following definitions shall apply:

201 **AFFECTED OPERATION** - An operation that processes nonmetallic minerals or that is related to such processing and process sources including, but not limited to, excavating, crushers, grinding mills, screening equipment, conveying systems, elevators, transfer points, bagging operations, storage bins, enclosed truck and railcar loading stations, and truck dumping.

202 **AGGREGATE TRUCK** - Any truck with an open top used to transport the products of nonmetallic mineral processing plants and/or rock product processing plants.

203 **APPROVED EMISSION CONTROL SYSTEM** - A system for reducing particulate emissions, consisting of collection and/or control devices which are approved in writing by the Control Officer and are designed and operated in accordance with good engineering practice.

204 **AREA ACCESSIBLE TO THE PUBLIC** - Any retail parking lot or public roadway that is open to public travel primarily for the purposes unrelated to the dust generating operation.

205 **ASPHALTIC CONCRETE PLANT/ASPHALT PLANT** - Any facility used to manufacture asphaltic concrete by mixing graded aggregate and asphaltic cements.

206 **BAGGING OPERATION** - The mechanical process by which bags are filled with nonmetallic minerals.

207 **BATCH TRUCK** - Any truck that loads and transports products produced by batch.

208 **BELT CONVEYOR** - A conveying device that transports material from one location to another by means of an endless belt that is carried on a series of idlers and routed around a pulley at each end.

209 **BERMS AND GUARD RAILS** - A pile or mound of material along an elevated roadway capable of moderating or limiting the force of a vehicle in order to impede vehicle's passage over the bank of the roadway.

210 **BULK MATERIAL** - Any material including, but not limited to, earth, rock, silt, sediment, sand, gravel, soil, fill, aggregate less than two inches in length or diameter (i.e., aggregate base course (ABC), dirt, mud, demolition debris, cotton, trash, cinders, pumice, saw dust, feeds, grains, fertilizers, fluff (from shredders), and dry concrete, that is capable of producing fugitive dust.

211 **COHESIVE HARD SURFACE** - Any material including, but not limited to, pavement, recycled asphalt mixed with a binder, or a dust suppressant other than water applied and maintained as a roadway surface.

212 **CONCRETE PLANT** - Any facility used to manufacture concrete by mixing water, aggregate, and cement.

213 **CONVEYING SYSTEM** - A device for transporting materials from one piece of equipment or location to another location within a facility. Conveying systems include, but are not limited to, feeders, belt conveyers, bucket elevators and pressure control systems.

214 **CRUSHER** - A machine used to crush any nonmetallic minerals including, but not limited to, the following types: jaw, gyratory, cone, roll, rod mill, hammermill, and impactor.

215 **DISTURBED SURFACE AREA** - A portion of the earth's surface (or material placed thereupon) which has been physically moved, uncovered, destabilized, or otherwise modified from its undisturbed native condition, thereby increasing the potential for the emission of fugitive dust.

216 **DRY MIX CONCRETE PLANT** - Any facility used to manufacture a mixture of aggregate and cements without the addition of water.

217 **DUST GENERATING OPERATION** - Any activity capable of generating fugitive dust including, but not limited to, land clearing, earthmoving, weed abatement by discing or blading, excavating, construction, demolition, bulk material handling, storage and/or transporting operations, vehicle use and movement, the operation of any outdoor equipment, or unpaved parking lots. For the purpose of this rule, landscape maintenance and playing on or maintaining a field used for non-motorized sports shall not be considered a dust-generating operation. However, landscape maintenance shall not include grading, trenching, or any other mechanized surface disturbing activities performed to establish initial landscapes or to redesign existing landscapes.

218 **DUST SUPPRESSANT** - Water, hygroscopic material, solution of water and chemical surfactant, foam, non-toxic chemical stabilizer, or any other dust palliative, which is not prohibited for ground surface application by the EPA or the Arizona Department of Environmental Quality (ADEQ), or any applicable law, rule, or regulation, as a treatment material for reducing fugitive dust emissions.

219 **ENCLOSED TRUCK OR RAILCAR LOADING STATION** - That portion of a nonmetallic mineral processing plant where nonmetallic minerals are loaded by an enclosed conveying system into enclosed trucks or railcars.

220 **END OF WORK DAY** - The end of a working period that may include one or more work shifts. If working 24 hours a day, the end of a working period shall be considered no later than 8 pm.

221 **FABRIC FILTER BAGHOUSE** - Tube-shaped filter bags - long small-diameter fabric tubes referred to as "bags" arranged in parallel flow paths and designed to separate particles and flue gas.

222 **FREEBOARD** - The vertical distance between the top edge of a cargo container area and the highest point at which the bulk material contacts the sides, front, and back of a cargo container area.

223 **FUGITIVE DUST CONTROL MEASURE** - A technique, practice, or procedure used to prevent or minimize the generation, emission, entrainment, suspension, and/or airborne transport of fugitive dust.

224 **FUGITIVE DUST CONTROL TECHNICIAN** - A person with the authority to expeditiously employ sufficient fugitive dust control measures to ensure compliance with Rule 316 of these rules at an active operation.

225 **FUGITIVE DUST EMISSION** - Particulate matter not collected by a capture system that is entrained in the ambient air and is caused from human and/or natural activities.

226 **GRINDING MILL** - A machine used for the wet or dry fine crushing of any nonmetallic mineral. Grinding mills include, but are not limited to, the following types: hammer,

roller, rod, pebble and ball, and fluid energy. The grinding mill includes the air conveying system, air separator, or air classifier, where such systems are used.

227 **HAUL/ACCESS ROAD** - Any on-site unpaved road that is used by haul trucks to carry materials from the quarry or pit to different locations within the facility. For the purpose of this definition, haul/access roads are not in permanent areas of a facility.

228 **HAUL TRUCK** - Any fully or partially open-bodied self-propelled vehicle including any non-motorized attachments, such as but not limited to, trailers or other conveyances that are connected to or propelled by the actual motorized portion of the vehicle used for transporting bulk materials.

229 **INFREQUENT OPERATIONS** - Operations that have State mine identification, approved reclamation plans and bonding as required by State Mining and Reclamation Act of 1975, and only operate on an average of 52 days per year over the past three years from June 8, 2005.

230 **MATERIAL DELIVERY TRUCK** - Any truck that loads and transports product to customers.

231 **MIXER TRUCK** - Any truck that mixes cement and other ingredients in a drum to produce concrete.

232 **MOTOR VEHICLE** - A self-propelled vehicle for use on the public roads and highways of the State of Arizona and required to be registered under the Arizona State Uniform Motor Vehicle Act, including any non-motorized attachments, such as but not limited to, trailers or other conveyances which are connected to or propelled by the actual motorized portion of the vehicle.

233 **NEW FACILITY** - A facility subject to this rule that has not been operated by such facility prior to June 8, 2005.

234 **NONMETALLIC MINERAL** - Any of the following minerals or any mixture of which the majority is any of the following minerals:

234.1 Crushed and broken stone, including limestone, dolomite, granite, rhyolite, traprock, sandstone, quartz, quartzite, marl, marble, slate, shale, oil shale, and shell.

234.2 Sand and gravel.

234.3 Clay including kaolin, fireclay, bentonite, fuller's earth, ball clay, and common clay.

234.4 Rock salt.

234.5 Gypsum.

234.6 Sodium compounds including sodium carbonate, sodium chloride, and sodium sulfate.

234.7 Pumice.

234.8 Gilsonite.

234.9 Talc and pyrophyllite.

234.10 Boron including borax, kernite, and colemanite.

234.11 Barite.

234.12 Fluorspar.

234.13 Feldspar.

234.14 Diatomite.

234.15 Perlite.

234.16 Vermiculite.

234.17 Mica.

234.18 Kyanite including andalusite, sillimanite, topaz, and dumortierite.

234.19 Coal.

235 **NONMETALLIC MINERAL PROCESSING PLANT** - Any facility utilizing any combination of equipment or machinery that is used to mine, excavate, separate, combine, crush, or grind any nonmetallic mineral including, but not limited to, lime plants, coal fired power plants, steel mills, asphalt plants, concrete plants, Portland cement plants, raw material storage and distribution, and sand and gravel plants. Rock Product Processing Plants are included in this definition.

236 **OPEN STORAGE PILE** - Any accumulation of bulk material with a 5% or greater silt content that has a total surface area of 150 square feet or more and that at any one point attains a height of three feet. Silt content shall be assumed to be 5% or greater unless a person can show, by testing in accordance with ASTM Method C136-06 or other equivalent method approved in writing by the Control Officer and the Administrator, that the silt content is less than 5%. For the purpose of this rule, the definition of open storage pile does not include berms and guard rails that are installed to comply with 30 Code of Federal Regulations (CFR) 56.93000.

237 **OVERBURDEN OPERATION** - An operation that removes and/or strips soil, rock, or other materials that lie above a natural nonmetallic mineral deposit and/or in-between a natural nonmetallic mineral deposit.

238 **PARTICULATE MATTER EMISSIONS** - Any and all finely divided solid or liquid materials other than uncombined water released to the ambient air as measured by the applicable state and federal test methods.

239 **PAVE** - To apply and maintain asphalt, concrete, or other similar material to a roadway surface (i.e., asphaltic concrete, concrete pavement, chip seal, rubberized asphalt, or recycled asphalt mixed with a binder).

240 **PERMANENT AREAS OF A FACILITY** - Areas that remain in-place for 180 d or more in 12 consecutive months. Permanent areas of a facility include the following areas: entrances, exits, parking areas, office areas, warehouse areas, maintenance areas (not including maintenance areas that are in the quarry or pit), concrete plant areas, asphaltic plant areas, and roads leading to and from such areas.

241 **PORTLAND CEMENT PLANT** - Any facility that manufactures Portland Cement using either a wet or dry process.

242 **PRESSURE CONTROL SYSTEM** - System in which loads are moved in the proper sequence, at the correct time, and at the desired speed through use of valves that control the direction of air flow, regulate actuator speed, and respond to changes in air pressure.

243 **PROCESS** - One or more operations including those using equipment and technology in the production of goods or services or the control of by-products or waste.

244 **PROCESS SOURCE** - The last operation of a process or a distinctly separate process which produces an air contaminant and which is not a pollution abatement operation.

245 **PRODUCTION WORK SHIFT** - An eight hour operating period based on the 24-h operating schedule.

246 **PUBLIC ROADWAYS** - Any roadways that are open to public travel.

247 **RETURNED PRODUCTS** - Left-over concrete or asphalt products that were not used a a job site and were returned to the facility.

248 **RUMBLE GRATE** - A system where the vehicle is vibrated while traveling over grates with the purpose of removing dust and other debris.

249 **SCREENING OPERATION** - A device that separates material according to its size by passing undersize material through one or more mesh surfaces (screens) in series and retaining oversize material on the mesh surfaces (screens).

250 **SILO** - An elevated storage container with or without a top that releases material thru the bottom.

251 **SILT** - Any aggregate material with a particle size less than 75 micrometers in diameter, which passes through a No. 200 Sieve.

252 **SPILLAGE** - Any quantity of nonmetallic minerals/materials that spill while being processed or after having been processed by an affected operation, where such spilled nonmetallic minerals/ materials can generate or cause fugitive dust emissions.

253 **STACK EMISSIONS** - The particulate matter emissions that are released to the atmosphere from a capture system through a building vent, stack or other point source discharge.

254 **STAGING AREA** - A place where aggregate trucks and mixer trucks temporarily queue for their loading or unloading.

255 **TEMPORARY FACILITY** - A facility that occupies a designated site for not more than 180 days in a calendar year.

256 **TRACKOUT** - Any and all bulk materials that adhere to and agglomerate on the surfaces of motor vehicles, haul trucks, and/or equipment (including tires) and that have fallen or been deposited onto a paved area accessible to the public.

257 **TRACKOUT CONTROL DEVICE** - A gravel pad, grizzly, wheel washer, rumble grate, paved area, truck washer, or other equivalent trackout control device located at the point of intersection of an unpaved area and a paved area accessible to the public that controls and prevents trackout and/or removes particulate matter from tires and the exterior surfaces of aggregate trucks, haul trucks, and/or motor vehicles that traverse a facility.

258 **TRANSFER POINT** - A point in a conveying operation where nonmetallic mineral is transferred from or to a belt conveyor except for transfer to a stockpile.

259 **TRUCK DUMPING** - The unloading of nonmetallic minerals from movable vehicles designed to transport nonmetallic minerals from one location to another. Movable vehicles include, but are not limited to, trucks, front end loaders, skip hoists, and railcars.

260 **TRUCK WASHER** - A system that is used to wash the entire surface and the tires of a truck.

261 **UNPAVED ROAD** - Any roads, equipment paths, or travel ways that are not covered by typical roadway materials. Public unpaved roads are any unpaved roadway owned by Federal, State, county, municipal, or governmental or quasigovernmental agencies. Private unpaved roads are all other unpaved roadways not defined as public.

262 **VENT** - An opening through which there is mechanically or naturally induced air flow for the purpose of exhausting air carrying particulate matter.

263 **WHEEL WASHER** - A system that is capable of washing the entire circumference of each wheel of the vehicle.

264 **WIND EVENT** - When the 60-minute average wind speed is greater than 25 miles per hour.

SECTION 300 - STANDARDS

301 CRUSHING AND SCREENING - PROCESS EMISSION LIMITATIONS AND CONTROLS:

301.1 Process Emission Limitations: The owner and/or operator shall not discharge or cause or allow to be discharged into the ambient air:

a. Stack emissions exceeding 7% opacity and containing more than 0.02 grains/dry standard cubic foot (gr/dscf) (50 mg/dscm) of particulate matter.

b. Fugitive dust emissions exceeding 7% opacity from any transfer point on a conveying system.

c. Fugitive dust emissions exceeding 15% opacity from any crusher.

d. Fugitive dust emissions exceeding 10% opacity from any affected operation or process source, excluding truck dumping.

e. Fugitive dust emissions exceeding 20% opacity from truck dumping directly into any screening operation, feed hopper, or crusher. Opacity observations to determine compliance with this section of this rule shall be conducted in accordance with the techniques specified in Appendix C-Fugitive Dust Test Methods of these rules.

301.2 Controls: The owner and/or operator shall implement process controls described in Section 301.2(a), Section 301.2(b), and Section 301.2(c) of this rule or shall implement process controls described in Section 301.2(a) and Section 301.2(d) of this rule:

a. Enclose sides of all shaker screens.

b. Permanently mount watering systems (e.g., spray bars or an equivalent control) on the points listed below for crushers, shaker screens, and material transfer points.

(1) Inlet and outlet of all crushers;

(2) Outlet of all shaker screens; and

(3) Outlet of all material transfer points, excluding wet plants.

c. Operate watering systems (e.g., spray bars or an equivalent control) on the points listed in Section 301.2(b) of this rule for crushers, shaker screens, and material transfer points, excluding wet plants, to continuously maintain a 4% minimum moisture content.

(1) The watering systems shall be maintained in good operating condition, as verified by daily inspections.

(2) The owner and/or operator shall investigate and correct any problems before continuing and/or resuming operations.

(3) The owner and/or operator shall conduct soil moisture tests as follows:

(a) If the owner and/or operator is required to have in place a Fugitive Dust Control Technician according to Section 309 of this rule, then soil moisture tests shall be conducted twice daily in accordance with the test methods described in Section 502 of this rule.

(b) If the owner and/or operator is not required to have in place a Fugitive Dust Control Technician according to Section 309 of this rule, then soil moisture tests shall be conducted daily in accordance with the test methods described in Section 502 of this rule.

(c) If the owner and/or operator demonstrates that the 4% minimum moisture content is maintained for a minimum of four weeks, then soil moisture tests may be conducted weekly in accordance with the test methods described in Section 502 of this rule.

(d) If the owner and/or operator fails to comply with the opacity limitations described in Section 301.1, Section 306.1, or Section 306.2 of this rule and/or if two consecutive soil moisture tests are below 4%, then the owner and/or operator shall conduct soil moisture tests in accordance with Section 301.2(c)(3)(a) or Section 301.2(c)(3)(b) of this rule, as applicable.

(e) If the owner and/or operator of a facility complies with both of the following requirements, then the number of sampling points identified in Section 502.3(c)(1) through (3) of this rule may be reduced:

(i) A soil moisture test is conducted in accordance with the test methods described in Section 502 of this rule at the primary crusher, which indicates that at least a 5% minimum moisture content is maintained; and

(ii) A demonstration that complies with Section 502.3(d) of this rule is submitted to and approved by the Control Officer and is complied with in accordance with Section 502.3(d) of this rule.

(4) The owner and/or operator may request in a permit application, with explanation, an alternative plan that justifies a minimum moisture content other than 4% and that justifies conducting fewer soil moisture tests as are required. In the request, the owner and/or operator shall submit to the Control Officer documentation regarding a minimum moisture content other than 4%, including, but not limited to, economics, emissions rates, water availability, and technical feasibility. In addition, the owner and/or operator shall demonstrate that the proposed alternative compliance demonstration plan will be equivalent in determining compliance with the soil moisture content requirements. Prior approval from the Control Officer and the Administrator shall be received before implementing the plan.

d. Enclose and exhaust the regulated process to a properly sized fabric fi... baghouse.

302 ASPHALTIC CONCRETE PLANTS - PROCESS EMISSION LIMITATIONS AND CONTROLS:

302.1 Process Emission Limitations: The owner and/or operator shall not discharge or cause or allow to be discharged into the ambient air:

a. For non-rubberized asphaltic concrete plants, stack emissions exceeding 5% opacity and containing more than 0.04 gr/dscf (90 mg mg/dscm) of particulate matter.

b. For rubberized asphaltic concrete plants (when producing rubberized asphalt only), stack emissions exceeding 20% opacity and containing more than 0.04 gr/dscf (90 mg/dscm) of particulate matter.

c. Fugitive dust emissions exceeding 10% opacity from any affected operation or process source, excluding truck dumping.

302.2 Controls: The owner and/or operator shall, from all drum dryers, control and vent exhaust to a properly sized fabric filter baghouse.

303 RAW MATERIAL STORAGE AND DISTRIBUTION, CONCRETE PLANTS, AND/OR BAGGING OPERATIONS - PROCESS EMISSION LIMITATIONS AND CONTROLS:

303.1 Process Emission Limitations: The owner and/or operator shall not discharge or cause or allow to be discharged into the ambient air:

a. Stack emissions exceeding 5% opacity.

b. Fugitive dust emissions exceeding 10% opacity from any affected operation or process source, excluding truck dumping.

303.2 Controls: The owner and/or operator shall implement the following process controls:

a. On all cement, lime, and/or fly-ash storage silo(s), install an operational overflow warning system/device. The system/device shall be designed to alert operator(s) to stop the loading operation when the cement, lime, and/or fly-ash storage silo(s) are reaching a capacity that could adversely impact pollution abatement equipment.

b. On new cement, lime, and/or fly-ash storage silos, install a properly sized fabric filter baghouse or equivalent device designed to meet a maximum outlet grain loading of 0.01 gr/dscf.

c. On dry mix concrete plant loading stations/truck mixed product, implement one of the following process controls:

(1) Install a rubber fill tube;

(2) Install a water spray;

(3) Install a properly sized fabric filter baghouse or delivery system;

(4) Enclose mixer loading stations such that no visible emissions occur; or

(5) Conduct mixer loading stations in an enclosed process building such that no visible emissions from the building occur during the mixing activities.

d. On cement silo filling processing/loading operations controls, install a pressure control system designed to shut-off cement silo filling processes/loading operations, if pressure from delivery truck is excessive, as defined in O&M Plan.

304 OTHER ASSOCIATED OPERATIONS: All other affected operations or process sources not specifically listed in Sections 301, 302, or 303 of this rule associated with the processing of nonmetallic minerals, all other fugitive dust emission limitations not specifically listed in Section 306 of this rule, all other fugitive dust control measures not specifically listed in Section 307 of this rule, and all overburden operations shall, at a minimum, meet the provisions of Rule 310 of these rules.

305 AIR POLLUTION CONTROL EQUIPMENT AND APPROVED EMISSION CONTROL SYSTEM (ECS): An owner and/or operator of a facility shall provide, properly install and maintain in calibration, in good working order, and in operation air pollution control equipment required by this rule. When selecting air pollution control equipment required by this rule, the owner and/or operator of a facility may consider the site-specific and/or material-specific conditions and logistics of a facility. When doing so some air pollution control equipment may be more reasonable to implement than others. Regardless, any air pollution control equipment that is installed must achieve the applicable standard(s) required by this rule, as determined by the corresponding test method(s), as applicable, and must achieve other applicable standard(s) set forth in this rule. The owner and/or operator of a facility may submit a request to the Control Officer and the Administrator for the use of alternative air pollution control equipment. The request shall include the proposed alternative air pollution control equipment, the air pollution control equipment that the alternative would replace, and a detailed statement or report demonstrating that the air pollution control equipment would result in equivalent or better emission control than the equipment prescribed in this rule. Nothing in this rule shall be construed to prevent an owner and/or operator of a facility from making such demonstration. Following a decision by the Control Officer and the Administrator to grant the petition, the facility shall incorporate the alternative air pollution control equipment in any required Operation and Maintenance (O&M) Plan.

305.1 Operation and Maintenance (O&M) Plan Requirements for ECS:

a. An owner and/or operator of a facility shall provide and maintain, readily available on-site at all times, (an) O&M Plan(s) 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 control permit.

b. The owner and/or operator of a facility shall submit to the Control Officer for approval the O&M Plan(s) for each ECS and for each ECS monitoring device that is used pursuant to this rule.

c. The owner and/or operator of a facility shall comply with all the identified actions and schedules provided in each O&M Plan.

305.2 Operation and Maintenance (O&M) Plan Requirements for Dust Control Measures:

a. An owner and/or operator of a facility shall provide and maintain, readily available on-site at all times, (an) O&M Plan(s) for equipment associated with any process fugitive emissions and fugitive dust control measures (i.e., gravel pads, wheel washers, truck washers, rumble grates, watering systems, and street sweepers) that are implemented to comply with this rule or an air pollution control permit.

b. The owner and/or operator of a facility shall comply with all the identified actions and schedules provided in each O&M Plan.

305.3 Providing And Maintaining ECS Monitoring Devices: An owner and/or operator of a facility operating an ECS pursuant to this rule shall install, maintain, and calibrate monitoring devices described in the O&M Plan(s). The monitoring devices shall measure pressures, rates of flow, and/or other operating conditions necessary to determine if the control devices are functioning properly.

305.4 O&M Plan Responsibility: An owner and/or operator of a facility that is required to have an O&M Plan pursuant to Section 305 of this rule must fully comply with all O&M Plans that the owner and/or operator has submitted for approval, even if such O&M Plans have not yet been approved, unless notified in writing by the Control Officer.

306 FUGITIVE DUST EMISSION LIMITATIONS:

306.1 20% Opacity Limitation: For emissions that are not already regulated by an opacity limit, the owner and/or operator of a facility shall not discharge or cause or allow to be discharged into the ambient air fugitive dust emissions exceeding 20% opacity, in accordance with the test methods described in Section 503 of this rule and in Appendix C-Fugitive Dust Test Methods of these rules.

306.2 Visible Emission Limitation Beyond Property Line: An owner and/or operator of a facility shall not cause or allow fugitive dust emissions from any active operation, open storage pile, or disturbed surface area associated with such facility such that the presence of such fugitive dust emissions remain visible in the atmosphere beyond the property line of such facility.

306.3 Wind Event: The fugitive dust emission limitations described in Section 306.1 and Section 306.2 of this rule shall not apply during a wind event, if the owner and/or operator of a facility meets the following conditions:

a. Has implemented the fugitive dust control measures described in Section 307 of this rule, as applicable;

b. Has compiled and retained records, in accordance with Section 501.4 of this rule, and has documented by records the occurrence of a wind event on the day(s) in question. The occurrence of a wind event must be determined by the nearest Maricopa County Air Quality Department monitoring station, from any other certified meteorological station, or by a wind instrument that is calibrated according to manufacturer's standards and that is located at the site being checked; and

c. Has implemented the following high wind fugitive dust control measures, as applicable:

(1) For an active operation, implement one of the following fugitive dust control measures, in accordance with the test methods described in Section 503 and Section 504 of this rule and in Appendix C-Fugitive Dust Test Methods of these rules:

(a) Cease active operation that may contribute to an exceedance of the fugitive dust emission limitations described in Section 306.1 of this rule for the duration of the wind event and, if active operation is ceased for the remainder of the work day, stabilize the area; or

(b) Before and during active operations, apply water or other suitable dust suppressant other than water to keep the soil visibly moist.

(2) For an inactive open storage pile, implement one of the following fugitive dust control measures, in accordance with the test methods described in Section 503 and Section 504 of this rule and in Appendix C-Fugitive Dust Test Methods of these rules:

(a) Maintain a soil crust by applying water or other suitable dust suppressant other than water or by implementing another fugitive dust control measure, in sufficient quantities to meet the stabilization standards described in Section 505 of this rule.

(b) Cover open storage pile with tarps, plastic, or other material such that wind will not remove the covering, if open storage pile is less than eight feet high.

(3) For an inactive disturbed surface area, implement one of the following fugitive dust control measures, in accordance with the test methods described in Section 503 and Section 504 of this rule and in Appendix C-Fugitive Dust Test Methods of these rules:

(a) Uniformly apply and maintain surface gravel or a dust suppressant other than water; or

(b) Maintain a soil crust by applying water or other suitable dust suppressant other than water or by implementing another fugitive dust control measure, in sufficient quantities to meet the stabilization standards described in Section 505 of this rule.

306.4 **Silt Loading And Silt Content Standards For Unpaved Roads And Unpaved Parking And Staging Areas**: From unpaved roads and unpaved parking and staging areas, the owner and/or operator of a facility shall not discharge or allow to be discharged into the ambient air fugitive dust emissions exceeding 20% opacity, in accordance with the test methods described in Section 502 of this rule and in Appendix C-Fugitive Dust Test Methods of these rules, and one of the following:

a. For unpaved roads, silt loading equal to or greater than 0.33 oz/ft^2 or silt content exceeding 6%.

b. For unpaved parking and staging areas, silt loading equal to or greater than 0.33 oz/ft^2 or silt content exceeding 8%.

306.5 **Stabilization Standards:**

a. An owner and/or operator of a facility with an open area or a disturbed surface area on which no activity is occurring (including areas that are temporarily or permanently inactive) shall be considered in violation of this rule if area is not maintained in a manner that meets at least one of the standards listed below, as applicable.

(1) Maintain a soil crust;

(2) Maintain a threshold friction velocity (TFV) for disturbed surface areas corrected for non-erodible elements of 100 cm/second or higher;

(3) Maintain a flat vegetative cover (i.e., attached (rooted) vegetation or unattached vegetative debris lying on the surface with a predominant horizontal orientation that is not subject to movement by wind) that is equal to at least 50%;

(4) Maintain a standing vegetative cover (i.e., vegetation that is attached (rooted) with a predominant vertical orientation) that is equal to or greater than 30%;

(5) Maintain a standing vegetative cover (i.e., vegetation that is attached (rooted) with a predominant vertical orientation) that is equal to or greater than 10% and where the threshold friction velocity is equal to or greater than 43 cm/second when corrected for non-erodible elements;

(6) Maintain a percent cover that is equal to or greater than 10% for non-erodible elements; or

(7) Comply with a standard of an alternative test method, upon obtaining the written approval from the Control Officer and the Administrator.

b. If no activity is occurring on an open storage pile and material handling or surface soils where support equipment and vehicles operate in association with such facility and if an open storage pile and material handling or surface soils where support equipment and vehicles operate in association with such facility contain more than one type of visibly distinguishable stabilization characteristics, soil, vegetation, or other characteristics, which are visibly distinguishable, the owner and/or operator shall test each representative surface separately for stability, in an area that represents a random portion of the overall disturbed conditions of the site, in accordance with the appropriate test methods described in Section 505 of this rule and in Appendix C-Fugitive Dust Test Methods of these rules.

307 **FUGITIVE DUST CONTROL MEASURES**: The owner and/or operator of a nonmetallic mineral processing plant and/or a rock product processing plant shall implement the fugitive dust control measures described in this section of this rule. When selecting a fugitive dust control measure(s), the owner and/or operator of a facility may consider the site-specific and/or material-specific conditions and logistics of a facility. When doing so, some fugitive dust control measures may be more reasonable to implement than others. Regardless, any fugitive dust control measure that is implemented must achieve the applicable standard(s) described in Section 306 of this rule, as determined by the corresponding test method(s), as applicable, and must achieve other applicable standard(s) set forth in this rule. The owner and/or operator of a facility may submit a request to the Control Officer and the Administrator for the use of alternative control measure(s). The request shall include the proposed alternative control measure,

the control measure that the alternative would replace, and a detailed statement or report demonstrating that the measure would result in equivalent or better emission control than the measures prescribed in this rule. Nothing in this rule shall be construed to prevent an owner and/or operator of a facility from making such demonstration. Following a decision by the Control Officer and the Administrator to grant the petition, the facility shall incorporate the alternative control measure in any required Dust Control Plan. When engaged in the activities described in Section 301 and Section 307.1 through Section 307.9 of this rule, the owner and/or operator of a facility shall install, maintain, and use fugitive dust control measures as described in Section 307.1 through Section 307.9 of this rule, as applicable.

307.1 Open Storage Piles and Material Handling: The owner and/or operator of a facility shall implement all of the following fugitive dust control measures, as applicable. For the purpose of this rule, open storage pile(s) and material handling does not include berms and guard rails that are installed to comply with 30 CFR 56.93000. However, such berms and guard rails shall be installed and maintained in compliance with Section 306.1, Section 306.2, and Section 306.5 of this rule.

a. Prior to, and/or while conducting loading and unloading operations, implement one of the following fugitive dust control measures:

(1) Spray material with water, as necessary; or

(2) Spray material with a dust suppressant other than water, as necessary.

b. When not conducting loading and unloading operations, implement one of the following fugitive dust control measures:

(1) Spray material with water, as necessary;

(2) Maintain a 1.5% or more soil moisture content of the open storage pile(s);

(3) Locate open storage pile(s) in a pit/in the bottom of a pit;

(4) Arrange open storage pile(s) such that storage pile(s) of larger diameter products are on the perimeter and act as barriers to/for open storage pile(s) that could create fugitive dust emissions;

(5) Construct and maintain wind barriers, storage silos, or a three-sided enclosure with walls, whose length is no less than equal to the length of the pile, whose distance from the pile is no more than twice the height of the pile, whose height is equal to the pile height, and whose porosity is no more than 50%; or

(6) Cover open storage piles with tarps, plastic, or other material to prevent wind from removing the coverings.

c. When installing new open storage pile(s) at an existing facility and/or when installing new open storage pile(s) at a new facility, the owner and/or operator shall implement all of the following fugitive dust control measures, only if it is determined to be feasible on a case-by-case basis through the Dust Control Plan by assessing the amount of open land available at the property at the time the new open storage pile(s) are formed:

(1) Install the open storage pile(s) at least 25 feet from the property line; and

(2) Limit the height of the open storage pile(s) to less than 45 ft

d. For existing open storage pile(s) and when installing open storage pile(s) for an existing facility or for a new facility, if such open storage pile(s) will be constructed over eight feet high and will not be covered, then the owner and/or operator shall install, use, and maintain a water truck or other method that is capable of completely wetting the surfaces of open storage pile(s).

307.2 Surface Stabilization Where Support Equipment And Vehicles Operate: The owner and/or operator of a facility shall implement one of the following fugitive dust control measures on areas other than the areas identified in Section 307.3 and Section 307.4 of this rule where loaders, support equipment, and vehicles operate.

a. Apply and maintain water;

b. Apply and maintain a dust suppressant, other than water; or

c. Apply a gravel pad, in compliance with Section 307.6(b)(4) of this r

307.3 Haul/Access Roads That Are Not In Permanent Areas of a Facility:

a. The owner and/or operator of a facility shall implement one of the following fugitive dust control measures, as applicable, before engaging in the use of, or in the maintenance of, haul/access roads. Compliance with the provisions of this section of this rule shall not relieve any person subject to the requirements of this section of this rule from complying with any other federally enforceable requirements (i.e., a permit issued under Section 404 of the Clean Water Act).

(1) Install and maintain bumps, humps, or dips for speed control and apply water, as necessary;

(2) Limit vehicle speeds and apply water, as necessary;

(3) Pave;

(4) Apply and maintain a gravel pad in compliance with Section 307.6(b)(4) of this rule;

(5) Apply a dust suppressant, other than water; or

(6) Install and maintain a cohesive hard surface.

b. For a new facility, if it is determined that none of the fugitive dust control measures described in Section 307.3(a) of this rule can be technically and feasibly implemented, then the owner and/or operator of a new facility shall maintain a minimum distance of 25 feet from the property line for haul/access roads associated with the new facility. Such determination shall be made and approved in writing by the Control Officer and the Administrator and shall be approved in the Dust Control Plan.

307.4 On-Site Traffic:

a. The owner and/or operator of a facility shall require all batch trucks and material delivery trucks to remain on roads with paved surfaces or cohesive hard surfaces.

b. The owner and/or operator of a facility shall require all aggregate trucks to remain on paved surfaces or cohesive hard surfaces, except when driving on roads leading to and from aggregate loading areas/loading operations, as approved in the Dust Control Plan.

c. The owner and/or operator of a facility shall require all batch trucks and material delivery trucks to enter and exit the facility/operation only through entrances that comply with the trackout requirements in Section 307.6 of this rule.

d. The owner and/or operator of a facility shall pave or install a cohesive hard surface on permanent areas of a facility on which vehicles drive, as approved in the Dust Control Plan.

307.5 Off-Site Traffic: When hauling and/or transporting bulk material off-site, the owner and/or operator of a facility shall implement all of the following control measures:

a. Load all haul trucks such that the freeboard is not less than three inches;

b. Prevent spillage or loss of bulk material from holes or other openings in the cargo compartment's floor, sides, and/or tailgate(s); and

c. Cover haul trucks with a tarp or other suitable closure.

307.6 Trackout:

a. **Rumble Grate And Wheel Washer:** The owner and/or operator of a new permanent facility and the owner and/or operator of an existing permanent facility with a minimum of 60 aggregate trucks, mixer trucks, and/or batch trucks exiting a facility on any day onto paved public roadways/paved areas accessible to the public shall install, maintain, and use a rumble grate and wheel washer, in accordance with all of the following conditions, as applicable. For the purpose of this rule, a vehicle wash and/or a cosmetic wash may be substituted for a wheel washer, provided such vehicle wash and/or cosmetic wash has at least 40 pounds per square inch (psi) water spray from the nozzle (owner and/or operator of the facility shall have a water pressure gauge available on-site to allow verification of such water pressure), meets the definition of wheel washer (i.e., is capable of washing the entire circumference of each wheel of the vehicle), is operated in such a way that visible deposits are removed from the entire circumference of each wheel of the vehicle exiting the wash, is installed, maintained, and used in accordance with criteria in Section 307.6(a)(1)-(5) of this rule, and is approved in the Dust Control Plan for the facility.

(1) The owner and/or operator of a facility shall locate a rumble grate within 10 feet from a wheel washer.

(a) The rumble grate and wheel washer shall be located no less than 30 feet prior to each exit that leads to a paved public roadway/paved area accessible to the public and that is used by aggregate trucks, mixer trucks, and/or batch trucks.

(b) The owner and/or operator of a facility may be allowed to install a rumble grate and wheel washer less than 30 feet prior to each exit if the owner and/or operator of a facility can demonstrate to the Control Officer that there is not adequate space to install a rumble grate and wheel washer no less than 30 feet prior to each exit and that a rumble grate and wheel washer at a shorter distance will be adequate to prevent trackout.

(c) A rumble grate shall consist of raised dividers (rails, pipes, or grates) a minimum of three inches tall, six inches apart, and 20 feet long, to allow a vibration to be produced such that dust is shaken off the wheels of a vehicle as the entire

circumference of each wheel of the vehicle passes over the rumble grate.

(2) The owner and/or operator of a facility shall ensure that all aggregate trucks, mixer trucks, and/or batch trucks exit the facility via the rumble grate first and then the wheel washer.

(3) The owner and/or operator of a facility shall post a sign by the rumble grate and wheel washer to designate the speed limit as 5 miles per hour.

(4) The owner and/or operator of a facility shall pave the roads from the rumble grate and wheel washer to the facility exits leading to paved public roadways/paved areas accessible to the public.

(5) The owner and/or operator of a facility shall ensure that all aggregate trucks, mixer trucks, and/or batch trucks remain on the paved roads between the rumble grate and wheel washer and the facility exits leading to paved public roadways/paved areas accessible to the public.

b. **Rumble Grate, Wheel Washer, Or Truck Washer:** The owner and/or operator of a facility not subject to Section 307.6(a) of this rule shall install, maintain, and use a rumble grate, wheel washer, or truck washer in accordance with all of the following:

(1) A rumble grate, wheel washer, or truck washer shall be located no less than 30 feet prior to each exit that leads to a paved public roadway/paved area accessible to the public and that is used by aggregate trucks, mixer trucks, and/or batch trucks.

(a) The owner and/or operator of a facility may be allowed to install a rumble grate, wheel washer, or truck washer less than 30 feet prior to each exit if the owner and/or operator of a facility can demonstrate to the Control Officer that there is not adequate space to install a rumble grate, wheel washer, or truck washer no less than 30 feet prior to each exit and that a rumble grate, wheel washer, or truck washer at a shorter distance will be adequate to prevent trackout.

(b) A rumble grate shall consist of raised dividers (rails, pipes, or grates) a minimum of three inches tall, six inches apart, and 20 feet long, to allow a vibration to be produced such that dust is shaken off the wheels of a vehicle as the entire

circumference of each wheel of the vehicle passes over the rumble grate.

(2) The owner and/or operator of a facility shall ensure that all aggregate trucks, mixer trucks, and/or batch trucks exit the facility via a rumble grate, wheel washer, or truck washer.

(3) The owner and/or operator of a facility shall post a sign by the rumble grate, wheel washer, or truck washer to designate the speed limit as 5 miles per hour.

(4) If haul/access roads are unpaved between the rumble grate, wheel washer, or truck washer and the facility exits leading to paved public roadways/paved areas accessible to the public, a gravel pad shall be installed, maintained, and used from the rumble grate, wheel washer, or truck washer to such paved public roadways/paved areas accessible to the public in accordance with all of the following:

(a) Gravel pad shall be designed with a layer of washed gravel, rock, or crushed rock that is at least one inch or larger in diameter and 6 inches deep, 30 feet wide, and 50 feet long and shall be flushed with water or completely replaced as necessary to comply with the trackout threshold described in Section 307.6(d) of this rule.

(b) Gravel pad shall have a gravel pad stabilizing mechanism/device (i.e., curbs or structural devices along the perimeter of the gravel pad) and shall be flushed with water or completely replaced as necessary to comply with the trackout threshold described in Section 307.6(d) of this rule.

c. **Exemptions for Wheel Washers:** The owner and/or operator of a facility shall not be required to install, maintain, and use a wheel washer, if any one of the following are applicable:

(1) A facility has all paved roads and meters aggregate or related materials directly to a ready-mix or hot mix asphalt truck, with the exception of returned products. The owner and/or operator of the facility shall install, maintain, and use a rumble grate in compliance with Section 307.6(b) of this rule.

(2) A facility is less than 5 acres in land size and handles recycled asphalt and recycled concrete exclusively. The owner and/or operator of the facility shall install, maintain, and use a rumble

grate in compliance with Section 307.6(b) of this rule and shall install a gravel pad in compliance with Section 307.6(b)(4) of this rule on all unpaved roads leading to the facility exits leading to paved public roadways/paved areas accessible to the public.

(3) A facility has a minimum of ¼ mile paved roads leading from a rumble grate to the facility exits leading to paved public roadways/paved areas accessible to the public.

(4) A facility meets the definition of infrequent operations, as defined in Section 229 of this rule. The owner and/or operator of the facility shall install, maintain, and use a rumble grate in compliance with Section 307.6(b) of this rule and shall install a gravel pad in compliance with Section 307.6(b)(4) of this rule. The gravel pad shall be installed for a distance of no less than 100 feet from the rumble grate to the facility exits leading to paved public roadways/paved areas accessible to the public. The owner and/or operator of the facility shall keep records in accordance with Section 500 of this rule, as applicable. The owner and/or operator of the facility shall notify the Control Officer in the event that the facility will operate more than 52 days per year based on the average rolling 3-year period after June 8, 2005 and the owner and/or operator of the facility shall comply with Section 307.6 of this rule, as applicable.

d. **Trackout Distance:** An owner and/or operator of a facility shall not allow trackout to extend a cumulative distance of 25 linear feet or more from all facility exits onto paved areas accessible to the public. Notwithstanding the proceeding, the owner and/or operator of a facility shall clean up all other trackout at the end of the workday.

e. **Cleaning Paved Roads Identified In The Dust Control Plan:** The owner and/or operator of a facility shall clean all paved roads identified in the Dust Control Plan for a facility in accordance with all of the following as applicable:

(1) The owner and/or operator of a facility with a minimum of 60 aggregate trucks, mixer trucks, and/or batch trucks exiting the facility on any day shall sweep the paved roads with a street sweeper by the end of each production work shift, if there is evidence of dirt and/or other bulk material extending a cumulative distance of 12 linear feet or more on any paved road.

(2) The owner and/or operator of a facility with less than 60 aggregate trucks, mixer trucks, and/or batch trucks exiting the facility on any day shall sweep the paved roads with a street sweeper by the end

of every other work day. On the days that paved roads are not swept, the owner and/or operator of a facility shall apply water on at least 100 feet of paved roads or the entire length of paved roads leading to an exit to paved public roadways/paved areas accessible to the public, if such roadways are less than 100 feet long.

(3) The owner and/or operator of a facility, who purchases street sweepers after June 8, 2005, shall purchase street sweepers that meet the criteria of PM_{10}-efficient South Coast Air Quality Management Rule 1186 certified street sweepers.

(4) The owner and/or operator of a new facility shall use South Coast Air Quality Management Rule 1186 certified street sweepers to sweep paved roads.

307.7 **Pad Construction For Processing Equipment**: The owner and/or operator of a facility shall implement, maintain, and use fugitive dust control measures during the construction of pads for processing equipment, so as to meet all of the applicable requirements in this rule, and shall identify, in the Dust Control Plan, such fugitive dust control measures.

307.8 **Spillage:** In addition to complying with the fugitive dust emission limitations described in Section 306 of this rule and implementing fugitive dust control measures described in Section 307.1 through Section 307.9 of this rule, as applicable, the owner and/or operator of a facility shall implement the following fugitive dust control measures, as applicable, when spillage occurs:

a. Promptly remove any pile of spillage on paved haul/access roads/paved roads; or

b. Maintain in a stabilized condition any pile of spillage on paved haul/access roads/paved roads and remove such pile by the end of each day; and

c. Maintain in a stabilized condition all other piles of spillage with dust suppressants until removal.

307.9 **Night-Time Operations:** The owner and/or operator of a facility shall implement, maintain, and use fugitive dust control measures at night, as approved in the Dust Control Plan.

308 **FACILITY INFORMATION SIGN:** The owner and/or operator of a facility subject to this rule shall erect and maintain a facility information sign at the main entrance such that members of the public can easily view and read the sign at all times. Such sign shall have a white background, have black block lettering that is at least four inches high, and shall contain at least all of the following information:

308.1 Facility name and permittee's name;

308.2 Current number of the air quality permit or of authority to operate under a general permit;

308.3 Name and local phone number of person(s) responsible for dust control matters; and

308.4 Text stating: "Dust complaints? Call Maricopa County Air Quality Department - (Insert the accurate Maricopa County Air Quality Department complaint line telephone number)."

309 FUGITIVE DUST CONTROL TECHNICIAN: The owner and/or operator of a facility with a rated or permitted capacity of 25 tons or more of material per hour or with five acres or more of disturbed surface area subject to a permit, whichever is greater, shall have in place a Fugitive Dust Control Technician, who shall meet all of the following qualifications:

309.1 Be authorized by the owner and/or operator of the facility to have full authority to ensure that fugitive dust control measures are implemented on-site and to conduct routine inspections, recordkeeping, and reporting to ensure that all fugitive dust control measures are installed, maintained, and used in compliance with this rule.

309.2 Be trained in accordance with the Comprehensive Dust Control Training Class conducted or approved by the Control Officer, successfully complete, at least once every three years, such Comprehensive Dust Control Training Class, and have a valid dust training certification identification card readily accessible on-site while acting as a Fugitive Dust Control Technician.

309.3 Be authorized by the owner and/or operator of the facility to install, maintain, and use fugitive dust control measures, deploy resources, and shutdown or modify activities as needed.

309.4 Be on-site at all times during primary dust generating operations related to the purposes for which the permit was obtained.

309.5 Be certified to determine opacity as visible emissions in accordance with the provisions of the EPA Method 9 as specified in 40 CFR, Part 60, Appendix A.

309.6 Be authorized by the owner and/or operator of the facility to ensure that the site superintendent or other designated on-site representative of the owner and/or operator of the facility and water truck and water pull drivers for each site be trained in accordance with the Basic Dust Control Training Class conducted or approved by the Control Officer with jurisdiction over the site and successfully complete, at least once every three years, such Basic Dust Control Training Class.

310 BASIC DUST CONTROL TRAINING CLASS:

310.1 At least once every three years, the site superintendent or other designated on-site representative of the permit holder, if present at a site that has more than one acre of disturbed surface area that is subject to a permit issued by the Control Officer requiring control of PM_{10} emissions from dust generating operation, shall successfully complete a Basic Dust Control Training Class conducted or approved by the Control Officer.

310.2 At least once every three years, water truck and water-pull drivers shall successfully complete a Basic Dust Control Training Class conducted or approved by the Control Officer.

310.3 All persons having successfully completed training during the 2006 and 200 calendar years shall be deemed to have satisfied the requirement to successfully complete the Basic Dust Control Training Class, if the training that was completed was conducted or approved by the Control Officer. Completion of the Comprehensive Dust Control Training Class, as required in Section 309.2 of this rule, shall satisfy the requirement of this section of this rule.

311 DUST CONTROL PLAN:

311.1 The owner and/or operator of a facility shall submit, to the Control Officer, a Dust Control Plan that describes all fugitive dust control measures to be implemented, in order to comply with Section 305.2, Section 306, Section 307, and Section 309 of this rule.

311.2 The owner and/or operator of a facility shall submit, to the Control Officer, a Dust Control Plan that describes all equipment associated with any process fugitive emissions to be implemented, in order to comply with Section 301 and Section 305.2 of this rule and that includes all of the information in Section 311.2(a) and Section 311.2(b) of this rule, as applicable. If an alternative plan for conducting required soil moisture tests is approved by the Control Officer, included in a Dust Control Plan, and implemented by the owner and/or operator, as allowed under Section 301.2(c)(6) of this rule, and if the Control Officer determines that such alternative plan included in a Dust Control Plan has been followed, yet fugitive dust emissions still exceed the standards of this rule, then the Control Officer shall issue a written notice to the owner and/or operator explaining such determination. The owner and/or operator shall make written revisions to the Dust Control Plan and shall submit such revised Dust Control Plan to the Control Officer within three working days of receipt of the Control Officer's written notice, unless such time period is extended by the Control Officer, upon request, for good cause. During the time that such owner and/or operator is preparing revisions to the Dust Control Plan, such owner and/or operator must still comply with all requirements of this rule.

a. Documentation for the soil moisture content in order to comply with Section 301.2 of this rule.

b. Documentation of soil moisture analysis for each move notice regarding portable sources.

311.3 The Dust Control Plan shall, in addition, contain all the information described in Rule 310-Fugitive Dust From Dust Generating Operations of these rules.

311.4 All other criteria associated with the Dust Control Plan shall meet the criteria described in Rule 310-Fugitive Dust From Dust Generating Operations of these rules.

311.5 The Control Officer shall approve, disapprove, or conditionally approve the Dust Control Plan, in accordance with the criteria used to approve, disapprove or conditionally approve a permit. Failure to comply with the provisions of an approved Dust Control Plan shall be deemed a violation of this rule.

311.6 With each move notice regarding portable sources, the owner and/or operator of a facility shall submit, to the Control Officer, a Dust Control Plan that meets the requirements of this section of this rule.

312 GENERAL REQUIREMENTS: An owner and/or operator of a facility subject to this rule shall be subject to the standards and/or requirements of this rule at all times. Failure to comply with any one of the following requirements shall constitute a violation.

312.1 Process emission limitations and controls described in Section 301, Section 302, and Section 303 of this rule.

312.2 Operation and maintenance (O&M) plan requirements for an emission control system and for dust control measures described in Section 305 of this rule.

312.3 Fugitive dust emission limitations described in Section 306 of this rule.

312.4 Fugitive dust control measures described in Section 307 of this rule.

312.5 Facility information sign requirement described in Section 308 of this rule.

312.6 Fugitive Dust Control Technician requirements described in Section 309 of this rule.

312.7 Basic Dust Control Training Class requirements described in Section 310.

312.8 Dust Control Plan requirements described in Section 311 of this rule.

312.9 Monitoring and recordkeeping requirements described in Section 500 of this rule.

312.10 Any other requirements of this rule.

SECTION 400 - ADMINISTRATIVE REQUIREMENTS

401 COMPLIANCE SCHEDULE: The newly amended provisions of this rule shall become effective upon adoption of this rule except as follows:

401.1 Process Controls: Process controls required by Section 301.2 of this rule shall be implemented by July 12, 2008.

401.2 O&M Plan:

a. The owner and/or operator of an existing facility shall revise/update all O&M Plans by June 12, 2008.

b. The Control Officer shall take final action on an O&M Plan revision/update to address the newly amended provisions of this rule within 30 calendar days of the filing of the complete O&M Plan revision/update. The Control Officer shall notify the applicant in writing of his approval or denial.

401.3 Dust Control Plan:

a. The owner and/or operator of an existing facility shall revise/update all Dust Control Plans by June 12, 2008.

b. The owner and/or operator of a new facility shall submit to the Control Officer a Dust Control Plan at the time such owner and/or operator submits a permit application to the Control Officer.

c. The Control Officer shall take final action on a Dust Control Plan revision/update to address the newly amended provisions of this rule within 30 calendar days of the filing of the complete Dust Control Plan revision/update. The Control Officer shall notify the applicant in writing of his approval or denial.

401.4 Basic Dust Control Training Class: No later than December 31, 2008, a site superintendent or other designated on-site representative of the permit holder, water truck drivers, and water pull drivers shall have successfully completed the Basic Dust Control Training Class, as described in Section 310 of this rule.

401.5 Comprehensive Dust Control Training Class: No later than June 30, 2008, a Fugitive Dust Control Technician shall have successfully completed the

Comprehensive Dust Control Training Class, as described in Section 309 of this rule.

401.6 Rumble Grates: As of June 12, 2008, new rumble grates or existing rumble grates that are moved or modified must meet the requirements described in Sections 307.6(a)(1)(c) or 307.6(b)(1)(b) of this rule.

SECTION 500 - MONITORING AND RECORDS

501 MONITORING, RECORDKEEPING AND REPORTING: Any owner and/or operator of a facility subject to this rule shall comply with the following requirements. Records shall be retained for five years and shall be made available to the Control Officer upon request.

501.1 Operational information required by this rule shall be kept in a complete and consistent manner on-site and be made available without delay to the Control Officer upon request.

501.2 Records of the following process and operational information, as applicable, are required:

a. General Data: Daily records shall be kept for all days that a facility is actively operating. Records shall include all of the following:

(1) Hours of operation;

(2) Type of batch operation (wet, dry, central);

(3) Throughput per day of basic raw materials including sand, aggregate, cement (tons/day);

(4) Volume of concrete produced per day (cubic yards/day) and volume of asphaltic concrete produced per day (tons/day);

(5) Volume of aggregate mined per day (tons per day); and

(6) Amount of each basic raw material including sand, aggregate, cement, fly ash delivered per day (tons/day).

(7) For facilities that assert to be below the thresholds in Section 307.6(a) and Section 307.6(e)(1) of this rule, number of aggregate trucks, mixer trucks, and/or batch trucks exiting the facility.

b. Additional Data For Dry Mix Concrete Plants And/Or Bagging Operations: Records shall include all of the following:

(1) Number of bags of dry mix produced;

(2) Weight (size) of bags of dry mix produced;

(3) Kind and amount of fuel consumed in dryer (cubic feet/day or gallons/day); and

(4) Kind and amount of any back-up fuel, if any.

c. Control And Monitoring Device Data: Records shall include all of the following:

(1) For a fabric filter baghouse:

(a) Date of inspection;

(b) Date and designation of bag replacement;

(c) Date of service or maintenance related activities; and

(d) Time, date, and cause of fabric filter baghouse failure and/or down time, if applicable.

(2) For a scrubber:

(a) Date of service or maintenance related activities;

(b) Liquid flow rate;

(c) Other operating parameters that need to be monitored to assure that the scrubber is functioning properly and operating within design parameters; and

(d) Time, date, and cause of scrubber failure and/or down time, if applicable.

(3) For watering systems (e.g., spray bars or an equivalent control):

(a) Date, time, and location of each moisture sampling point; and

(b) Results of moisture testing.

501.3 O&M Plan Records: An owner and/or operator of a facility shall maintain all of the following records in accordance with an approved O&M Plan:

a. **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 Control Permit:**

(1) Periods of time that an approved ECS is operating to comply with this rule;

(2) Periods of time that an approved ECS is not operating;

(3) Flow rates;

(4) Pressure drops;

(5) Other conditions necessary to determine if the approved ECS is functioning properly;

(6) Results of visual inspections; and

(7) Correction action taken, if necessary.

b. **For Equipment Associated With Any Process Fugitive Emissions And Any Fugitive Dust Control Measures That Are Implemented To Comply With This Rule Or To An Air Pollution Control Permit:**

(1) A written record of self-inspection on each day that a facility is actively operating. Self-inspection records shall include daily inspections or in compliance with O&M Plan requirements, whichever is more frequent;

(2) Maintenance of street sweepers; and

(3) Maintenance of trackout control devices, gravel pads, wheel washers, and truck washers.

501.4 Dust Control Plan Records: An owner and/or operator of a facility shall compile, maintain, and retain a written record of self-inspection of all fugitive dust control measures implemented, in order to comply with the Dust Control Plan, on each day that the facility is actively operating. Self-inspection records shall include information as described in Rule 310-Fugitive Dust From Dust Generating Operations of these rules.

501.5 Basic Dust Control Training Class Records: An owner and/or operator of a facility shall compile, maintain, and retain a written record for each employee subject to Section 310 of this rule. Such written records shall include the name of the employee, the date of the Basic Dust Control Training Class that such

employee successfully completed, and the name of the agency/representative who conducted such class.

502 COMPLIANCE DETERMINATION - FOR PROCESS EMISSIONS AND CONTROLS: Compliance determinations for activities regulated by Sections 301 (excluding Section 301.1(e)), 302, and/or 303 of this rule shall be made according to the test methods for those subparts of 40 CFR Part 60, Appendix A, adopted as of July 1, 2007, as listed below. Such subparts of 40 CFR Part 60, Appendix A, adopted as of July 1, 2007 and 40 CFR Part 51, Appendix M, adopted as of July 1, 2007, are adopted by reference as indicated. This adoption by reference includes no future editions or amendments. Copies of test methods referenced in Section 502 of this rule are available at Maricopa County Air Quality Department, 1001 North Central Avenue, Phoenix, Arizona, 85004-1942. When more than one test method is permitted for a compliance determination, then an exceedance of the limits established in this rule, determined by any of the applicable test methods, constitutes a violation of this rule.

502.1 Grain Loading: Particulate matter and associated moisture content shall be determined using the applicable EPA Reference Methods 1 through 5, 40 CFR Part 60, Appendix A.

502.2 Opacity Observations: Opacity observations to measure visible emissions from activities regulated by Sections 301 (excluding Section 301.1(e)), 302, and/or 303 of this rule shall be conducted in accordance with the techniques specified in EPA Reference Method 203B (Visual Determination Of Opacity Of Emissions From Stationary Sources For Time-Exception Regulations), 40 CFR Part 51, Appendix M, adopted as of July 1, 2007. Emissions shall not exceed the applicable opacity standards described in Section 301(excluding Section 301.1(e)), Section 302, and Section 303 of this rule for a period aggregating more than three minutes in any 60-minute period.

502.3 Soil Moisture Testing For Watering Systems:

a. If twice daily moisture sampling is required, such sampling shall be conducted within one hour of startup and again at 3 pm or within one hour prior to daily shutdown but no less frequently than once every 8-hour period.

b. If daily moisture sampling is required, such sampling shall be conducted within one hour after startup.

c. Moisture testing shall be conducted on all crushers, shaker screens, and material transfer points (excluding wet plants). Unless prior approval from the Control Officer is granted, moisture testing shall be conducted at the following sample points:

(1) Within 10 feet from the point where crushed aggregate material is placed on the discharge belt conveyor from the crusher;

(2) Within 10 feet from the point where screened aggregate material is placed on the conveyor; and

(3) From each stacker point.

d. The number of sampling points identified in Section 502.3(c)(1) through (3) of this rule may be reduced, if the owner and/or operator of a facility complies with all of the following requirements:

(1) A 5% minimum moisture content, as demonstrated by a soil moisture test conducted in accordance with the test methods described in Section 502 of this rule, is maintained at the primary crusher;

(2) A minimum of 20 soil moisture samples are taken at all of the points identified in Section 502.3(c) of this rule;

(3) A 4% minimum moisture content, as demonstrated by a soil moisture test conducted in accordance with the test methods described in Section 502 of this rule and as demonstrated by the soil moisture samples required by Section 502.3(d)(2) of this rule, is maintained at all of the points identified in Section 502.3(c) of this rule; and

(4) A written request is submitted to and approved by the Control Officer to revise/modify the Dust Control Plan to reflect the change in moisture content and the reduced number of sampling points according to the demonstration made by the owner and/or operator of a facility according to this section of this rule.

e. Moisture testing is not required on a crusher and/or screen plant equipped with a baghouse or fabric filter, electrostatic precipitator, or wet scrubber, excluding wet spray bars, for control of particulate matter.

f. Moisture testing shall include all aggregate material less than 0.25 inch in diameter.

g. Moisture testing shall be conducted in accordance with the requirements of American Society For Testing And Materials C566-97 (2004) "Standard Test Method For Total Evaporable Moisture Content Of Aggregate By Drying" with the exception that smaller sample portions may be used.

503 COMPLIANCE DETERMINATION FOR EMISSIONS AND CONTROLS THAT ARE REGULATED BY SECTION 301.1(E), SECTION 304 AND/OR SECTION 306 OF THIS RULE: To determine compliance with the fugitive dust emission limitations described in Section 301.1(e), Section 304, and/or Section 306 of this rule, opacity observations shall be conducted in accordance with the techniques specified in Appendix C-Fugitive Dust Test Methods of these rules.

504 COMPLIANCE DETERMINATION FOR SOIL MOISTURE CONTENT AND SOIL COMPACTION CHARACTERISTICS TEST METHODS ADOPTED BY REFERENCE:

504.1 ASTM Method D2216-05 ("Standard Test Method for Laboratory Determination of Water (Moisture) Content of Soil and Rock by Mass"), 2005 edition.

504.2 ASTM Method D1557-02e1 ("Test Method for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft^3 (2,700 kN-m/m^3))"), 2002 edition.

505 COMPLIANCE DETERMINATION FOR STABILIZATION STANDARDS TEST METHODS ADOPTED BY REFERENCE: The stabilization standards described in Section 306.5 of this rule shall be determined by using the following test methods in accordance with Appendix C-Fugitive Dust Test Methods of these rules:

505.1 Appendix C, Section 2.1.2 (Silt Content Test Method) of these rules to estimate the silt content of the trafficked parts of unpaved roads (not to exceed 6%) and unpaved parking lots (not to exceed 8%).

505.2 Appendix C, Section 2.3 (Test Methods for Stabilization-Soil Crust Determination (The Drop Ball Test)) of these rules for a soil crust.

505.3 Appendix C, Section 2.4 (Test Methods for Stabilization-Determination Of Threshold Friction Velocity (TFV) (Sieving Field Procedure)) of these rules for threshold friction velocity (TFV) corrected for non-erodible elements of 100 cm/second or higher.

505.4 Appendix C, Section 2.5 (Test Methods For Stabilization-Determination Of Flat Vegetative Cover) of these rules for flat vegetation cover (i.e., attached (rooted) vegetation or unattached vegetative debris lying on the surface with a predominant horizontal orientation that is not subject to movement by wind) that is equal to at least 50%.

505.5 Appendix C, Section 2.6 (Test Methods For Stabilization-Determination Of Standing Vegetative Cover) of these rules for standing vegetation cover (i.e., vegetation that is attached (rooted) with a predominant vertical orientation) that is equal to or greater than 30%.

505.6 Appendix C, Section 2.6 (Test Methods For Stabilization-Determination Of Standing Vegetative Cover) of these rules for standing vegetation cover (i.e., vegetation that is attached (rooted) with a predominant vertical orientation) that is equal to or greater than 10% and where the threshold friction velocity is equal to or greater than 43 cm/second when corrected for non-erodible elements.

505.7 Appendix C, Section 2.7 (Test Methods For Stabilization-Rock Test Method) of these rules for a percent cover that is equal to or greater than 10%, for non-erodible elements.

505.8 An alternative test method approved in writing by the Control Officer and the Administrator.

506 CERTIFIED STREET SWEEPING EQUIPMENT LIST ADOPTED BY REFERENCE: The list of street sweeping equipment (as of July 9, 2004) that has met the South Coast Air Quality Management Rule 1186 certification standards is found in support documents for the South Coast Air Quality Management District Regulation XI-Source Specific Standards, Rule 1186-PM_{10} Emissions From Paved And Unpaved Roads And Livestock Operations and is adopted by reference. A copy of the list of certified street sweeping equipment can also be obtained at Maricopa County Air Quality Department, 1001 North Central Avenue, Phoenix, Arizona, 85004.

REGULATION III - CONTROL OF AIR CONTAMINANTS

RULE 318
APPROVAL OF RESIDENTIAL WOODBURNING DEVICES

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Adopted 10/05/94
Revised 04/21/99

MARICOPA COUNTY
AIR POLLUTION CONTROL REGULATIONS

REGULATION III - CONTROL OF AIR CONTAMINANTS

RULE 318
APPROVAL OF RESIDENTIAL WOODBURNING DEVICES

SECTION 100 - GENERAL

101 PURPOSE: Rule 318 describes the standards for approval of residential woodburning devices.

102 APPLICABILITY: Rule 318 applies to the approval of residential woodburning devices that may be exempted from the restrictions established by the Residential Woodburning Restriction Ordinance.

SECTION 200 - DEFINITIONS: For the purpose of this rule, the following definitions shall apply:

201 APPROVED WOODBURNING DEVICE - The following residential devices shall be approved woodburning devices, even though such devices may burn a solid fuel other than wood:

201.1 A device that has been certified by the Environmental Protection Agency (EPA) as conforming to Phase II EPA Standards for Wood Heaters in 40 Code of Federal Regulations (CFR) 60, Subpart AAA as amended through July 1, 1998.

201.2 Any pellet stove.

201.3 Any gas burning hearth appliances, including a dedicated gas logset permanently installed in any kind of woodburning fireplace.

201.4 Any masonry heater or any other solid fuel burning device that meets performance standards that are equivalent to the standards in 40 CFR 60, Subpart AAA as amended through July 1, 1998, and that is approved by the Control Officer and the Administrator of EPA.

202 FIREPLACE - A chimney-connected, solid fuel or gas burning appliance, with or without glass doors, that is intended primarily for occasional recreational and aesthetic use and only secondarily for incidental or supplemental heating and that ordinarily is permanently installed into the structure of a building.

203 MANUFACTURER - Any person who constructs or imports a residential woodburning device or parts for a residential woodburning device.

204 MASONRY HEATER - A vented, woodburning radiant heating system that is designed to burn rapidly and to capture and store the resultant heat energy in the mass of the appliance through internal heat exchange flue channels. A masonry heater is constructed primarily of masonry materials (brick, stone, tile, concrete, mortar, or refractory), weighs at least 1,754 lbs (800 kgs.), and is either site built or assembled from factory made components.

205 PELLET STOVE - A safety listed appliance, such as an appliance that has been tested in an accredited laboratory (i.e., UL, Warnock Hersey), designed to burn only wood pellets or any naturally pelleted fuel, such as but not limited to, cherry pits, corn, or olive pits. A pellet stove is incapable of burning wood and may or may not be certified under 40 CFR 60.530.

206 RESIDENCE - A residence shall be deemed to include single and multiple dwellings, hotels, motels, dormitories, and mobile homes, and the use of a room or group of rooms for the living, sleeping, and housekeeping activities of persons on a permanent or semi-permanent basis.

207 SOLID FUEL - Includes, but is not limited to, wood, nongaseous fuel, nonliquid fuel, oil, natural gas, electricity, liquid petroleum (LP) gas, and propane.

208 WOODSTOVE, WOODHEATER, OR CONVENTIONAL WOODSTOVE - A wood heating appliance, either free-standing or inserted into a fireplace, belonging to a model line that is not an EPA-certified model line. A woodstove, woodheater, or conventional woodstove does not include a barbecue device, a cookstove, a boiler, nor a furnace, as defined in 40 CFR 60.530(c).

SECTION 300 - STANDARDS

301 DESCRIPTION OF RESIDENTIAL DEVICES APPROVED FOR BURNING WOOD: Effective September 30, 1994, the following residential devices shall be approved for burning wood, even though such devices may burn a solid fuel other than wood:

301.1 A device that has been certified by EPA as conforming to Phase II EPA Standards for Wood Heaters in 40 CFR 60, Subpart AAA as amended through July 1, 1998.

301.2 Any pellet stove.

301.3 Any gas burning hearth appliances, including a dedicated gas logset permanently installed in any kind of woodburning fireplace.

301.4 Any masonry heater or any other solid fuel burning device that meets performance standards that are equivalent to the standards in 40 CFR 60,

Subpart AAA as amended through July 1, 1998, and that is approved by the Control Officer and the Administrator of EPA.

302 REQUIRED INFORMATION FOR MASONRY HEATERS AND ANY OTHER RESIDENTIAL SOLID FUEL BURNING DEVICES: The manufacturer, operator, and/or installer of any device described in subsection 301.4 of this rule shall provide to the Control Officer:

302.1 An affidavit that attests that the device has been certified by another air pollution control agency, provided the certification procedures and testing protocols used by that agency are determined by the Control Officer and the Administrator of EPA to be substantially equivalent to the certification procedures and testing protocols used by the Northern Sonoma County Air Pollution Control District; and

302.2 All other information determined by the Control Officer and the Administrator of EPA to be needed for an adequate evaluation of the device.

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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, 301.2, 306.4, and 501.4 of this rule:

a. Used for fire fighting; or

b. Used for flood control; or

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

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

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

104.3 All equipment listed in Section 102 shall be exempt from Sections 304 and 305 and subsections 301.1, 301.2, and 306.4, of this rule for 36 cumulative hrs. of firing emergency fuel per year, per unit for testing, reliability, training, and maintenance purposes.

SECTION 200 - DEFINITIONS: For the purpose of this rule, the following definitions shall apply: See Rule 100 (General Provisions and Definitions) of these rules for definitions of terms that are used but not specifically defined in this rule.

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

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

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

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

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

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

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

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

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

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

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

212 **EMERGENCY FUEL** - Fuel fired only during circumstances such as natural gas emergency, natural gas curtailment, or breakdown of delivery system

such as an unavoidable interruption of supply that makes it impossible to fire natural gas in the unit. Fuel is not considered emergency fuel if it is used to avoid either peak demand charges or high gas prices during on-peak price periods or due to a voluntary reduction in natural gas usage by the power company.

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

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

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

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

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

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

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

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

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

220.2 A natural disaster; or

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

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

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

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

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

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

225 **RATED HEAT INPUT CAPACITY** – The heat input capacity in million Btu/hr. as specified on the nameplate of the combustion unit. If the combustion unit has been altered or modified such that its maximum heat input is different than the heat input capacity on the name plate, the maximum heat input shall be considered the rated heat input capacity.

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

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

228 **SIMPLE CYCLE GAS TURBINE** – Any stationary gas turbine that does not recover heat from the gas turbine exhaust gases to preheat the inlet

combustion air to the gas turbine, or that does not recover heat from the gas turbine exhaust gases to heat water or generate steam.

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

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

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

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

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

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

SECTION 300 – STANDARDS

301 LIMITATIONS – PARTICULATE MATTER:

301. 1 Fuel Type: An owner or operator of any combustion equipment listed in Section 102 shall burn only natural gas except when firing emergency fuel per subsections 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, demonstrated and documented through performance testing of this alternate fuel using Test Method 5. This usage of different fuels other than natural gas shall be approved by the Control Officer prior to usage.

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

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

a. Monitor the maximum temperature differential across the combustion burners or at locations around the back end of the turbine, dependent upon the particular unit, to ensure no more than a 100°F difference using a thermocouple. If a valid

maximum temperature differential of greater than 100°F is observed across the burners, investigation and corrective action shall be taken within three hours to reduce the temperature difference to 100°F or less; or

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

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

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

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

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

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

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

302 LIMITATIONS – OPACITY:

302.1 No person shall discharge into the ambient air from any single source of emissions any air contaminant, other than uncombined water, in excess of 20% opacity, except as provided in subsection 302.2.

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

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

a. Monitoring results.

b. Opacity observations.

c. Review of operating and maintenance procedures.

d. Inspection of the source.

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

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

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

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

305 LIMITATIONS - CARBON MONOXIDE: No owner or operator of any equipment listed in Section 102 shall cause to be discharged into the atmosphere carbon monoxide (CO) measured in excess of 400 ppmv at any time. This test result, using EPA Reference Method 10, and performed during steady state compliance source testing shall be based upon the arithmetic mean of the results of three test runs. Each test run shall have a minimum sample time of one hour. The CO concentration shall be measured dry and corrected to 3% oxygen for electric utility steam generating units and cogeneration steam generating units. The CO concentration shall be measured dry and corrected to 15% oxygen for stationary gas turbines.

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

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

306.2 Providing and Maintaining ECS Monitoring Devices: No owner or operator required to use an approved ECS pursuant to this rule shall do so without first properly installing, operating, and maintaining in calibration and in good working order, devices for indicating temperatures, pressures, transfer rates, rates of flow, or other operating conditions necessary to determine if air pollution control

equipment is functioning properly and is properly maintained as described in an approved Operation and Maintenance (O&M) Plan.

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

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

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

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

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

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

306.4 Continuous Emission Monitoring Systems (CEMS):

a. An owner or operator of a combustion unit subject to Section 304 with a heat input of greater than 250 MMBtu/hr, regardless of fuel type, shall install, calibrate, maintain, and operate a CEMS for measuring nitrogen oxides and recording the output of the system. Where nitrogen oxide emissions are monitored by a CEMS, then a CEMS shall also be required for the measurement of the oxygen content of the flue gases. All CEMS shall comply with the provisions in 40 CFR Subpart Da, Part 60, 60.47 (a).

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

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

SECTION 400 - ADMINISTRATIVE REQUIREMENTS (NOT APPLICABLE)

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: Monthly records of fuel switching including stop and start times, monthly records of hours of operation for testing,

reliability and maintenance purposes per subsection 104.3, and a yearly log total of these hours.

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

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

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

503 COMPLIANCE DETERMINATION:

503.1 Low Sulfur Oil Verification:

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

b. If fuel receipts are not available then an owner or operator shall submit a statement of certification or proof of the sulfur

content of the oil or liquid fuel from the supplier to the Control Officer; or

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

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

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

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

504.2 EPA Reference Methods 2 ("Determination of Stack Gas Velocity and Volumetric Flow Rate"), 2A ("Direct Measurement of Gas Volume

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

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

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

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

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

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

("Determination of Nitrogen Oxide Emissions from Stationary Sources – Instrumental Analyzer Method") (40 CFR 60, Appendix A).

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

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

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

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

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

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

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

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

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Revised 10/17/07

REGULATION III - CONTROL OF AIR CONTAMINANTS
RULE 323
FUEL BURNING EQUIPMENT FROM INDUSTRIAL /COMMERCIAL/ INSTITUTIONAL (ICI) SOURCES
INDEX

SECTION 100 – GENERAL

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

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

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

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

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

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

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

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

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

103.2 Dryers, cement and lime kilns; or

103.3 Direct-fired process heaters; or

103.4 Medical waste incinerators; or

103.5 Reciprocating internal combustion equipment; or

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

103.7 Combustion equipment associated with nuclear power plant operations; or

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

104 PARTIAL EXEMPTIONS:

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

a. Used for firefighting; or

b. Used for flood control; or

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

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

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

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

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

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

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

SECTION 200 - DEFINITIONS: For the purpose of this rule, the following definitions shall apply. See Rule 100 (General Provisions and Definitions) of these rules for definitions of terms that are used but not specifically defined in this rule.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

221 SULFUR OXIDES (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.

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

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

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

SECTION 300 - STANDARDS

301 LIMITATIONS - PARTICULATE MATTER:

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

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

301.3 Good Combustion Practices for Turbines: An owner or operator of a stationary gas turbine listed in subsection 102.2 of this rule, regardless of fuel type or size, shall use operational practices recommended by the manufacturer and parametric

monitoring that ensure good combustion control. One of the following procedures may be used:

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

b. If the manufacturer recommends that the maximum numerical temperature differential to ensure good combustion is a temperature that is greater than 100°F, then proof of this maximum alternate temperature shall be submitted to the Control Officer. The procedure to measure the maximum temperature differential listed above in subsection 301.3a 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: 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. An owner or operator using waste derived fuel gas shall use only waste derived fuel gas with a sulfur content less than or equal to 800 ppm (0.08%).

304 LIMITATIONS – NITROGEN OXIDES:

304.1 An owner or operator 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 within 90 days of the first usage of the combustion equipment utilizing the initial design burner specifications or manufacturer's recommendations to ensure good combustion practices. Tune the unit annually in accordance with good combustion practices or a manufacturer's procedure, if applicable, that will include the following at a minimum:

(1) Inspect the burner system and clean and replace any components of the burner as necessary to minimize emissions of 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 calculated as nitrogen dioxide, when burning gaseous fuel. During steady state operations, this test result using EPA Reference Method(s) 7 shall be based upon the arithmetic mean of the results of three test runs. Each test run shall have a minimum sample run time of one hour.

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

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

304.2 An owner or operator 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 of this rule and

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

305 LIMITATIONS – CARBON MONOXIDE: No owner or operator of any equipment listed in Section 102 of this rule with a heat input greater than 100 MM Btu/hr shall cause to be discharged into the atmosphere, carbon monoxide (CO), measured in excess of 400 ppmv at any time. This test result, using EPA Reference Method 10, shall be based upon the arithmetic mean of the results of three test runs and shall be measured during steady state compliance source testing. Each test run shall have a minimum sample time of one hour. For simple gas turbines, the CO shall be measured dry and corrected to 15% oxygen. For all other combustion equipment, the CO shall be measured dry and corrected to 3% oxygen.

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

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

306.2 Providing and Maintaining ECS Monitoring Devices: No owner or operator required to use an approved ECS pursuant to

this rule shall do so without first providing, properly installing, operating, and maintaining in calibration and in good working order, devices for indicating temperatures, pressures, transfer rates, rates of flow, or other operating conditions necessary to determine if air pollution control equipment is functioning properly and is properly maintained as described in an approved O&M Plan.

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

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

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

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

d. **Revisions to Plan:** If revisions to the initial plan have been approved by the Control Officer in writing, an owner or operator shall comply with the revisions to the initial plan. If revisions to the plan have not yet been approved by the Control Officer in writing, then an owner or operator shall

comply with the most recent O&M plan on file at Maricopa County Air Quality Department.

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

SECTION 400 - ADMINISTRATIVE REQUIREMENTS (NOT APPLICABLE)

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

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

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

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 or the 0.08% limit for landfill or digester gas if requested by the Control Officer, or

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

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

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

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

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

504.3 EPA Reference Methods 3 ("Gas Analysis for the Determination of Dry Molecular Weight"), 3A ("Determination of Oxygen and Carbon Dioxide Concentrations in Emissions from Stationary

Sources (Instrumental Analyzer Procedure)"), 3B ("Gas Analysis for the Determination of Emission Rate Correction Factor of Excess Air"), and 3C ("Determination of Carbon Dioxide, Methane, Nitrogen and Oxygen from Stationary Sources") (40 CFR 60, Appendix A).

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

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

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

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

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

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

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

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

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

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

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

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

Adopted 10/23/03
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MARICOPA COUNTY
AIR POLLUTION CONTROL REGULATIONS
REGULATION III - CONTROL OF AIR CONTAMINANTS
RULE 324
STATIONARY INTERNAL COMBUSTION (IC) ENGINES

SECTION 100 – GENERAL

101 PURPOSE: To limit carbon monoxide (CO), nitrogen oxides (NO_x), sulfur oxides (SO_x), volatile organic compounds (VOCs), and particulate matter (PM) emissions from stationary internal combustion (IC) engines.

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

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

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

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

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

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

103.5 A compressed gas IC engine used for solar testing and research programs.

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

103.7 An IC engine test stand used for evaluating engine performance; and

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

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

104.1 Used only for power when normal power service fails from the serving utility or if onsite electrical transmission or onsite power generation equipment fails.

104.2 Used only for the emergency pumping of water resulting from a flood, fire, lightning strikes, police action or for any other essential public services which affect the public health and safety.

104.3 Used for lighting airport runways.

104.4 Used for sewage overflow mitigation and/or prevention.

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

104.6 Used as the prime engine when the prime engine has failed, but only for such time as is needed to repair the prime engine; or

104.7 Used to operate standby emergency water pumps for fire control that activate when sensors detect low water pressure.

105 PARTIAL EXEMPTIONS FOR NON-EMERGENCY LOW USAGE PRIME ENGINES: The following non-emergency, low usage, prime engines are exempt from all of the provisions of this rule except for the provisions in Sections 301, 303 and subsections 502.1 and 502.4:

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

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

SECTION 200 – DEFINITIONS: For the purpose of this rule, the following definitions shall apply. See Rule 100 (General Provisions And Definitions) of these rules for definitions of terms that are used but not specifically defined in this rule.

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

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

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

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

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

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

207 **EQUIVALENT REPLACEMENT ENGINE** - An engine that is substituted for a stationary IC engine that is intended to perform the same or similar function as the original engine and where all of the following conditions exist:

207.1 The replacement engine results in equal or lower air contaminant emissions than the existing engine; and

207.2 The replacement engine meets the emission control technology standards contained in either Table 1 or Table 2 of this rule; and

207.3 The rated bhp of the replacement engine does not exceed the rated bhp of the existing engine (or sum of existing engines) by more than 20 percent. For every percentage point increase of the rated brake horsepower, there shall be an associated decrease in emissions of nitrogen oxides, expressed as a mass per unit time, equal to or exceeding two percentage points.

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

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

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

210.1 Any IC engine:

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

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

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

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

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

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

c. The engine otherwise included in paragraph (c) above of this definition remains or will remain at a location for more than 12 consecutive months or a shorter period of time for an engine located at a seasonal source. A location is any single site at a building, structure, facility, or installation. Any engine (or engines) that replaces an engine at a location and that is intended to perform the same or similar function as the engine replaced will be included in calculating the consecutive time period. An engine

located at a seasonal source is an engine that remains at a seasonal source during the full annual operating period of the seasonal source. A seasonal source is a stationary source that remains in a single location on a permanent basis (i.e. at least two years) and that operates at that single location approximately three months (or more) each year. This paragraph does not apply to an engine after the engine is removed from the location.

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

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

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

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

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

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

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

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

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

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

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

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

SECTION 300 – STANDARDS:

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

301.1 Use any fuel that contains no more than 0.05% sulfur by weight, alone or in combination with other fuels.

301.2 Use any waste derived fuel gas that contains no more than 0.08% sulfur by weight, alone or in combination with other fuels.

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

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

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

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

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

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

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

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

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

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

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

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

TABLE 1

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

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

TABLE 2

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

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

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

TABLE 3

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

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

305 EFFICIENCY ALLOWANCE:

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

a. E = (Engine Output) X (100) ÷ (Energy Input)

where energy input is determined by a fuel measuring device accurate to +/- 5 % and is based upon the higher heating value (HHV) of the fuel. Percent efficiency (E) shall be averaged over 15

consecutive minutes and measured at peak load for the applicable engine.

b. E = (Manufacturers Rated Efficiency [Continuous] at (LHV) X (LHV) ÷(HHV) where LHV = the lower heating value of the fuel

Engine efficiency (E) shall not be less than 30 percent; an engine with an efficiency lower than 30 percent shall be assigned an efficiency of 30 percent for the purposes of this rule.

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

SECTION 400 - ADMINISTRATIVE REQUIREMENTS

401 COMPLIANCE SCHEDULE:

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

SECTION 500 - MONITORING AND RECORDS

501 COMPLIANCE DETERMINATION:

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

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

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

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

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

501.4 Low Sulfur Oil Verification: If the Control Officer requests proof of the sulfur content, the owner or operator shall submit fuel receipts, contract specifications, pipeline meter tickets, Material Safety Data Sheets (MSDS), fuel supplier information or purchase records, if applicable, from the fuel supplier, indicating the sulfur content of the fuel oil.

In lieu of these, testing of the fuel oil for sulfur content to meet the 0.05% limit shall be permitted if so desired by the owner or operator for evidence of compliance.

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

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

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

502.1 An owner or operator of any IC engine, including emergency engines, prime engines and low usage engines, shall keep a record that includes an initial one time entry that lists the particular engine combustion type (compression or spark-ignition or rich or lean burn);

manufacturer; model designation, rated brake horsepower, serial number and where the engine is located on the site.

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

1. Hours of operation;
2. Type of fuel used, and
3. Documentation verifying compliance with sulfur fuel content according to subsection 301.1.

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

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

1. Monthly rolling twelve month total of hours of operation, including hours of operation for testing, reliability and maintenance;
2. Fuel type and sulfur content of fuel; and
3. Explanation for the use of the engine if it is used as an emergency engine.

503 TEST METHODS INCORPORATED BY REFERENCE: The Environmental Protection Agency (EPA) test methods as they exist in the Code of Federal Regulations (CFR) (July 1, 2004) and the American Society of Testing Materials International Methods as listed below, are incorporated by reference in Appendix G of the Maricopa County Rules and Regulations. The When more than one test method is permitted for the same determination, as listed in

subsections 503.12, 503.13, 503.14, or 503.15, an exceedance of the limits established in this rule determined by any of the applicable test methods constitutes a violation. Copies of test methods referenced in this section of this rule are available at the Maricopa County Environmental Services Department, 1001 North Central Avenue, Suite 201, Phoenix, Arizona, 85004 -1942.

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

503.2 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).

503.3 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).

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

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

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

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

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

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

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

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

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

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

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

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

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

REGULATION III - CONTROL OF AIR CONTAMINANTS
RULE 325
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Adopted 08/10/05

MARICOPA COUNTY
AIR POLLUTION CONTROL REGULATIONS
REGULATION III - CONTROL OF AIR CONTAMINANTS
RULE 325
BRICK AND STRUCTURAL CLAY PRODUCTS (BSCP) MANUFACTURING

SECTION 100 – GENERAL

101 PURPOSE: To limit particulate matter emissions from the use of tunnel kilns for curing in the brick and structural clay product (BSCP) manufacturing processes.

102 APPLICABILITY: This rule applies to any existing, new or reconstructed tunnel kiln, used in the commercial and industrial brick and structural clay product manufacturing processes. Compliance with the provisions of this rule shall not relieve any person subject to the requirements of this rule from complying with any other federally enforceable New Sources Performance Standards (NSPS). In such cases, the most stringent standard shall apply.

103 EXEMPTIONS: Existing, new or reconstructed tunnel kilns that are used exclusively for research and development and are not used to manufacture products for commercial sale are not subject to this rule.

SECTION 200 – DEFINITIONS: See Rule 100 (General Provisions And Definitions) of these rules for definitions of terms that are used but not specifically defined in this rule. For the purpose of this rule, the following definitions shall apply:

201 BRICK AND STRUCTURAL CLAY PRODUCTS (BSCP) MANUFACTURING FACILITY - A site that manufactures brick including, but not limited to: face brick, structural brick and brick pavers; claypipe; roof tile; extruded floor and wall tile; and/or other extruded, dimensional, clay products. Brick products manufacturing facilities typically process raw clay and shale, form the processed materials into bricks or shapes, and dry and fire the bricks or shapes.

202 CONTINUOUS KILN – A heated chamber that heats dense loads uniformly and efficiently, and can be used without interruption for high volume production. Continuous kilns are kilns that perform well in the consistent high production of wares. Continuous kilns include tunnel kilns, shuttle kilns, fixed-hearth kilns, bee hive kilns, roller kilns, sled kilns, decorating kilns, and pusher slab kilns. Most continuous kilns are tunnel kilns.

203 EXISTING KILN - A kiln that is in operation before the date of adoption of this rule.

204 KILN FEED – All materials except fuel entering the tunnel kiln, including raw feed and recycle dust, measured on a dry basis.

205 **PERIODIC KILN –** A kiln that operates on an intermittent basis to heat wares, holding them at a uniform peak temperature and cool the wares. Periodic kilns are best for inconsistent or low-volume production.

206 **RESEARCH AND DEVELOPMENT TUNNEL KILN -** Any tunnel kiln whose purpose is to conduct research and development for new processes and products and is not engaged in the manufacture of commercial products for sale.

207 **TUNNEL KILN –** Any continuous kiln that is used to fire brick and structural clay products. Tunnel kilns may have two process streams, including a process stream that exhausts directly to the atmosphere or to an Air Pollution Control Device, and a process stream in which the kiln exhaust is ducted to a brick dryer where it is used to dry bricks before the exhaust is emitted to the atmosphere.

SECTION 300 – STANDARDS

301 **OPACITY LIMITATIONS FOR ALL TUNNEL KILNS SUBJECT TO THIS RULE:** 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.

302 **LIMITATIONS FOR EXISTING TUNNEL KILNS AT BRICK OR STRUCTURAL PRODUCT (BSCP) MANUFACTURING FACILITIES:**

302.1 No owner or operator shall emit more than 0.42 lbs. of particulate matter per ton of fired product from a tunnel kiln with a capacity of ≥1 tons per hour throughput.

303 **LIMITATIONS FOR NEW OR RECONSTRUCTED TUNNEL KILNS AT BRICK OR STRUCTURAL PRODUCT (BSCP) MANUFACTURING FACILITIES:**

303.1 No owner or operator shall emit more than 0.42 lbs. of particulate matter per ton of fired product from a tunnel kiln with a capacity of <10 tons per hour throughput.

303.2 No owner or operator shall emit more than 0.12 lbs. of particulate matter per ton of fired product from a tunnel kiln with a capacity of ≥10 tons per hour throughput.

SECTION 400 - ADMINISTRATIVE REQUIREMENTS

401 **COMPLIANCE SCHEDULE:** Any owner or operator of a tunnel kiln subject to this rule shall meet the following milestones:

401.1 Submit a compliance plan, by December 31, 2005, to the Control Officer for approval which describes the method(s) used to achieve full compliance with the rule. This plan shall specify dates for completing increments of progress, such as the contractual arrival date of new control equipment. The Control Officer may require an owner or operator submitting

the compliance plan to also submit subsequent reports on progress in achieving compliance; and

401.2 Attain full compliance with all of the standards in this rule by December 31, 2006.

SECTION 500 - MONITORING AND RECORDS

501 COMPLIANCE DETERMINATION: Compliance shall be demonstrated as follows:

501.1 Compliance with Section 301 shall be demonstrated by performance of Method 9 listed in Section 503.1; and

501.2 Compliance with Sections 302 and 303 shall be demonstrated by performance of the test methods listed in Section 503.2 and 503.3.

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

502.1 Daily records of kiln feed fired and hours of operation; and

502.2 Monthly records of material delivered to the site for processing in the tunnel kiln and the amount of product produced reported in tons.

503 TEST METHODS: The Environmental Protection Agency (EPA) test methods as they exist in the Code of Federal Regulations (CFR) (July 1, 2004), 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 of this rule are available at the Maricopa County Air Quality Department, 1001 North Central Avenue, Suite 695, Phoenix, Arizona, 85004.

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

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

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

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MARICOPA COUNTY
AIR POLLUTION CONTROL REGULATIONS

REGULATION III - CONTROL OF AIR CONTAMINANTS

RULE 331
SOLVENT CLEANING

SECTION 100 - GENERAL

101 PURPOSE: To limit the emissions of volatile organic compounds (VOCs) from cleaning operations.

102 APPLICABILITY: This rule is applicable to operations using VOC-containing solvents to remove impurities from exterior or interior surfaces. Compliance with the provisions of this rule shall not relieve any person subject to the requirements of this rule from complying with any other federally enforceable requirements. In such case, the more stringent requirement shall apply. In any instance where more than one of the requirements set forth in this rule may be applicable, the most restrictive requirement shall apply.

102.1 Solvents regulated by this rule may also be regulated by New Source Performance Standards (NSPS) in Rule 360 of these rules and/or National Emission Standards for Hazardous Air Pollutants (NESHAPs) in Rule 370 of these rules.

102.2 This rule is not applicable to:

a. A solvent cleaning operation that is subject to or specifically exempted by an EPA approved version of another rule within Regulation III of these rules.

b. Janitorial cleaning.

c. Testing for surface cleanliness or the cleaning of laboratory equipment at the laboratory.

d. A cleaning-solvent that meets any of the following:

(1) Is composed of at least 98% water by either weight or volume; or

(2) Contains only water and material which is a dry solid before mixing with water; or

(3) Has a VOC content not exceeding 20 grams per liter (0.17 lb/gal).

102.3 Partial or conditional exemptions from this rule are set forth in Section 308 of this rule.

SECTION 200 – DEFINITIONS: See Rule 100 (General Provisions And Definitions) of these rules for definitions of terms that are used but not specifically defined in this rule. For the purpose of this rule, the following definitions shall apply:

201 AGITATION, AGITATED – A means or state that moves cleaning liquid continuously back and forth, or up and down. This includes such motion created by sound waves, and to the splashing of a rinse stream operated at a pressure that creates a trajectory exceeding 2 feet along the horizontal plane intersecting the nozzle when the nozzle is at a 45° angle above the plane. Liquid motion incidental to a continuous entrance or withdrawal of objects undergoing cleaning is not agitation.

202 BATCH CLEANING MACHINE – A solvent cleaning machine in which individual parts or a set of parts move through the entire cleaning cycle before new parts are introduced into the solvent cleaning machine. A solvent cleaning machine, such as a ferris wheel or a cross-rod degreaser, that cleans multiple batch loads simultaneously and is manually loaded, is a batch cleaning machine.

203 BLASTING/MISTING WITH SOLVENT – Cleaning with an applicator that propels cleaning-solvent through the air with a pressure exceeding 10 psig (516 mm Hg), or that atomizes the solvent into mist and/or droplets.

204 CABINET STYLE CLEANING MACHINES – Cleaning machines typically similar in design to domestic dishwashers that are completely enclosed except for optional stack, and have their own reservoir and sump.

205 CARRY-OUT – Solvent carried out of a cleaning machine along with a part being removed from the cleaning machine. The solvent may exist as a liquid coating the part or the part's hanger, or as a liquid entrapped in cavities and irregular surfaces, or entrapped by capillary action within or on the part.

206 CLEANING-SOLVENT – Solvent used for cleaning that contains more than 2.0% VOC by weight and more than 20 grams of VOC per liter (0.17 lb/gal).

207 CONFORMING SOLVENT - A cleaning-solvent having a total VOC vapor pressure at 68°F (20°C) not exceeding 1 millimeter of mercury column.

208 DEGREASER – See SOLVENT CLEANING MACHINE.

209 DRY SOLID - Any substance that appears and feels dry. Evaporating solids, all of which have a strong odor, are not included.

210 EMISSION CONTROL SYSTEM (ECS) - A system for reducing emissions of volatile organic compounds, consisting of both a capture system and control device(s).

211 FLUSHING WITH SOLVENT - Introducing cleaning-solvent directly into the internal space(s) of an object or assembly using a hose or pipe. Rinsing the outside of an object or assembly and swishing an object or assembly in cleaning-solvent are not considered flushing with solvent. Such activities must comply with Section 303.1 of this rule.

212 FREEBOARD HEIGHT –

212.1 Batch Cleaning Machine: The vertical distance from the solvent/air interface to the least elevated point of the top-rim when the cover is open or removed, measured during idling mode.

212.2 In-Line Cleaning Machine: The vertical distance from the solvent/air interface to the lowest entry/exit point, measured during idling mode.

213 FREEBOARD RATIO – The ratio of the solvent cleaning machine freeboard height to the smaller interior dimension (length, width, or diameter) of the solvent cleaning machine.

214 HEATED SOLVENT - Any cleaning-solvent which is heated by a device to a temperature exceeding 120°F (49°C).

215 IMPERVIOUS – Neither absorbing, adsorbing, nor allowing penetration through, by liquid or vapors.

216 IN-LINE CLEANING MACHINE (CONTINUOUS CLEANING MACHINE) – A solvent cleaning machine that uses an automated handling system, typically a conveyor or automated arm(s), to automatically provide a continuous supply of items to be cleaned. The cleaned item leaves by a route different from its entry route.

217 JANITORIAL CLEANING – The cleaning of building or facility components to keep work areas in clean condition. Building or facility components include, but are not limited to, floors, ceilings, walls, windows, doors, stairs, bathrooms, furnishings, textiles, wash rags, uniforms, and exterior surfaces of office equipment.

218 LEAK – The state or condition in which a cleaning-solvent, excluding a Low-VOC Cleaner, is allowed to seep or drip, or otherwise enters or escapes, at either of the following rate or magnitude:

218.1 Three or more drops of liquid cleaning-solvent per minute; or

218.2 Any puddle of cleaning-solvent greater than 1 square inch.

219 LOW-VOC CLEANER - Any solution or homogeneous suspension that, as used, contains less than 50 grams of VOC per liter of material (0.42 lb VOC/gal) or is at least 95% water by weight or volume as determined by an applicable test method in Section 502 of this rule.

220 MAKE-UP SOLVENT - A cleaning-solvent that replaces solvent lost through evaporation or other means, and that is added to the solvent remaining in a cleaning machine (degreaser) to bring solvent quantity to the desired level.

221 MATERIAL VOC CONTENT – See VOC CONTENT OF MATERIAL.

222 NON-CONFORMING SOLVENT - A cleaning-solvent having a total VOC vapor pressure at 68°F (20°C) exceeding 1 millimeter of mercury column.

223 NON-PRECURSOR ORGANIC COMPOUND – Any of the organic compounds which have been designated by the EPA as having negligible photochemical reactivity. EPA

designates such compounds as "exempt". A listing of the compounds is found in Rule 100.

224 ORGANIC COMPOUND – Any compound of carbon, excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides or carbonates, and ammonium carbonate.

225 REFRIGERATED FREEBOARD CHILLER – A control device which is mounted above any cooling-water jacket or primary condenser coils, consisting of secondary coils which carry a refrigerant to provide a chilled air blanket above the solvent vapor/air interface to reduce emissions from the cleaning machine (degreaser) bath.

226 REMOTE RESERVOIR CLEANING MACHINE (DEGREASER) - Any non-vapor cleaning machine (degreaser) in which the reservoir for storing the cleaning-solvent is completely separated by impervious surfaces from the sink or basin where cleaning is performed, except for a connecting tube through which solvent returns to the reservoir when cleaning is stopped.

227 SEALED SYSTEM - An Air-tight or Airless Cleaning System that is operated and equipped pursuant to Section 304.3 of this rule.

228 SOLVENT – For the purpose of this rule, any liquid or vapor which is used to dissolve, clean, strip, or remove impurities, coatings, contaminants, or films from surfaces or from internal spaces and voids. In addition to VOC-containing solvents, this also includes plain water and mixtures containing water.

229 SOLVENT CLEANING MACHINE (CLEANING MACHINE) (DEGREASER) - Any liquid container and ancillary equipment designed to clean surfaces and/or remove surface contaminants using cleaning-solvents.

230 SOLVENT/AIR INTERFACE –

230.1 Non-Vapor Cleaner: The location of contact between the liquid solvent and the air.

230.2 Vapor Cleaner: The location of contact between the concentrated layer of solvent vapor and the air.

231 SOLVENT/AIR INTERFACE AREA –

231.1 Non-Vapor Cleaner:

a. With Included/Integral Reservoir: The surface area of liquid cleaning-solvent that is exposed to the air.

b. With Remote Reservoir: The surface area of the solvent sink or work area.

231.2 Vapor Cleaner: The area of the horizontal plane that is located halfway between the highest and lowest points of the primary condenser coils and which contacts the interior walls of the cleaning machine.

232 TOTAL VOC VAPOR PRESSURE (VOC COMPOSITE PARTIAL PRESSURE) - Within a solution or homogenous mixture, it is the sum of the partial pressures of all those

components that are defined as VOCs, calculated according to the formula in Section 502.3 of this rule.

233 VAPOR CLEANING MACHINE - Any cleaning machine in which solvent-vapor from boiling cleaning solvent is utilized for cleaning object.

234 VOC CONTENT OF MATERIAL(MATERIAL VOC CONTENT) -

VOC CONTENT OF MATERIAL as a percent = $\frac{W_s - W_w - W_{es}}{W_m}$ X 100%

Using consistently either pounds or grams in the calculations:

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

W_w = weight of water in pounds (or grams)

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

W_m = weight of total material in pounds(or grams)

VOC CONTENT OF MATERIAL in pounds per gallon (g/l) = $\frac{W_s - W_w - W_{es}}{V_m}$

Using consistently either English or metric measures in the calculations

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

W_w = weight of water in pounds (or grams)

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

V_m = volume of total material in gallons (or liters)

235 VOLATILE ORGANIC COMPOUND (VOC) - Any organic compound which participates in atmospheric photochemical reactions, except non-precursor organic compounds.

236 WIPE CLEANING - That method of removing contaminants from a surface by physically rubbing or automatically rubbing with a porous or absorbent material, such as a rag, paper, sponge, or cotton swab, moistened with a solvent.

SECTION 300 - STANDARDS

301 SOLVENT HANDLING REQUIREMENTS: Any person to whom this rule applies must comply with all of the following:

301.1 All cleaning-solvent, including solvent soaked materials, shall be kept in closed, leakfree, impervious containers that are opened only when adding or removing material.

a. Porous or absorbent materials used for wipe cleaning shall be stored in closed containers when not in use.

b. Each container shall be clearly labeled with its contents.

301.2 If any cleaning-solvent escapes from a container:

a. Wipe up or otherwise remove immediately if in accessible areas.

b. For areas where access is not feasible during normal production, remove as soon as reasonably possible.

301.3 Unless records show that VOC-containing cleaning material was sent offsite for legal disposal, it will be assumed that it evaporated on site.

302 EQUIPMENT REQUIREMENTS FOR ALL CLEANING MACHINES: Any person operating a cleaning machine to which this rule applies must comply with all of the following:

302.1 Provide a leakfree, impervious container (degreaser) for the solvents and the articles being cleaned.

a. The VOC-containment portion shall be impervious to VOC-containing liquid and vapors.

b. No surface of any freeboard required by this rule shall have an opening or duct through which VOC can escape to the atmosphere, except as controlled by an ECS, or as required by OSHA.

302.2 Properly maintain and operate all cleaning machine equipment required by this rule and any of its emission controls required by this rule.

303 SPECIFIC OPERATING & SIGNAGE REQUIREMENTS FOR CLEANING MACHINES: Any person who cleans with cleaning-solvent other than a Low-VOC Cleaner must conform to all of the following operating requirements:

303.1 Operating Requirements:

a. Fans: Do not locate nor position comfort fans in such a way as to direct airflow across the opening of any cleaning machine.

b. Cover: Do not remove any device designed to cover the solvent unless processing work in the cleaning machine or maintaining the machine.

c. Draining: Drain cleaned parts for at least 15 seconds after cleaning or until dripping ceases, whichever is later.

d. Spraying: If using a cleaning-solvent spray system,

(1) Use only a continuous, undivided stream (not a fine, atomized, or shower type spray).

(2) Pressure at the orifice from which the solvent emerges shall not exceed 10 psig and shall not cause liquid solvent to splash outside of the solvent container.

(3) In an in-line cleaning machine, a shower-type spray is allowed, provided that the spraying is conducted in a totally confined space that is separated from the environment.

(4) Exceptions to foregoing Sections 303.1d(1), (2), and (3) are provided for in Section 307 of this rule.

e. Agitation: No person shall cause agitation of a cleaning-solvent in a cleaning machine by sparging with air or other gas. Covers shall be placed over ultrasonic cleaners when the cleaning cycle exceeds 15 seconds.

f. No Porous Material:

(1) Do not clean nor use porous or absorbent materials to clean parts or products in a cleaning machine. For the purpose of this rule, porous or absorbent materials include, but are not limited to, cloth, leather, wood, and rope.

(2) Do not place an object with a sealed wood handle, including a brush, in or on a cleaning machine.

(3) Do not place porous or absorbent materials, including, but not limited to, cloth, leather, wood, and rope on a cleaning machine.

g. Vent Rates: The ventilation rate at the cleaning machine shall not exceed 65 cfm per square foot of evaporative surface (20 m^3/min./m^2), unless that rate must be changed to meet a standard specified and certified by a Certified Safety Professional, a Certified Industrial Hygienist, or a licensed professional engineer experienced in ventilation, to meet health and safety requirements.

h. Hoist Speed: Limit the vertical speed of mechanical hoists moving parts in and out of the cleaning machine to a maximum of 2.2 inches per second and 11 ft/min. (3.3 m/min.).

i. Contamination Prevention: Prevent cross contamination of solvents regulated by Section 304 of this rule with solvents that are not so regulated. Use signs, separated work-areas, or other effective means for this purpose. This includes those spray gun cleaning solvents that are regulated by another rule of these rules.

j. Filtration Devices: If a filtration device (e.g., to remove oils, greases, sludge, and fine carbon from cleaning solvent) is inherent in the design of the cleaning machine, then such filtration device shall be operated in accordance with manufacturer's specifications and in accordance with the following requirements:

(1) The filtration device shall be fully submerged in cleaning solvent at all times during filtration.

(2) When the filtration device is completely saturated and must be removed from the cleaning machine, the filtration device shall be

drained until no liquid can flow from the filtration device. Draining and drying such filtration device shall be conducted in a sealed container with no exhaust to the atmosphere or work area.

(3) After the filtration device is dry, the filtration device shall be stored in a closed, leakfree, impervious container that is legibly labeled with its contents and that remains covered when not in use. Disposal of the filtration device shall be done in a manner that inhibits VOC evaporation and that is in compliance with appropriate/legal methods of disposal.

303.2 Signage Requirements: Any person who uses cleaning-solvent, other than Low-VOC Cleaner, in any solvent cleaning machine (degreaser) or dip tank shall provide on the machine, or within 3¼ feet (1 meter) of the machine, a permanent, conspicuous label or placard which includes, at a minimum, each of the following applicable instructions, or its equivalent:

a. "Keep cover closed when parts are not being handled." (This is not required for remote reservoir cleaners.)

b. "Drain parts until they can be removed without dripping."

c. "Do not blow off parts before they have stopped dripping."

d. "Wipe up spills and drips as soon as possible; store used spill rags [or 'wiping material'] in covered container."

e. "Don't leave cloth or any absorbent materials in or on this tank."

f. For cleaning machines with moving parts such as hoists, pumps, or conveyors, post: "Operating instructions can be obtained from _____," listing a person or place where the instructions are available.

304 SOLVENT SPECIFICATIONS FOR NON-VAPOR CLEANING AND DEGREASING: [Operating requirements specifically for vapor cleaning machines are in the Appendix.] All cleaning solvents, except Low-VOC Cleaners, used in non-boiling cleaning machines shall comply with Section 304.1 or Section 304.2 or Section 304.3, as follows:

304.1 Use a cleaning-solvent having a total VOC vapor pressure at 68°F (20°C) not exceeding 1 millimeter of mercury column, as determined by the standards described in Section 500 of this rule.

304.2 ECS: Use an ECS to capture and process VOC emissions in accordance with Section IV of the Appendix within this rule; or

304.3 Sealed System: Use a Sealed System that is an Air-tight or Airless Cleaning System which is operated according to the manufacturer's specifications and, unless otherwise indicated by the manufacturer, meets all of the following requirements:

a. Has a door or other pressure-sealing apparatus that is shut during each cleaning and drying cycle; and

b. Has a differential pressure gauge that always indicates the pressure in the sealed chamber when occupied or in active use; and

c. Any associated pressure relief device(s) shall be so designed and operated as to prevent liquid cleaning-solvents from draining out.

305 NON-VAPOR BATCH CLEANING MACHINES: Equipment requirements for non-vapor batch cleaning machines with remote reservoirs are set forth in Section 305.1 of this rule. Equipment standards applicable to non-vapor batch cleaning machines with internal reservoirs (non-remote) are set forth in Section 305.2 of this rule. Non-vapor batch cleaning machines with either remote or internal reservoirs that use cleaning-solvents that are either heated, agitated or non-conforming are subject to additional provisions set forth in Section 305.3 of this rule. Low-VOC Cleaners are exempt from this section.

305.1 With Remote Reservoir: A batch cleaning machine with remote reservoir, including cabinet type(s), shall be equipped with the following:

a. A sink-like work area or basin which is sloped sufficiently towards the drain so as to prevent pooling of cleaning-solvent.

b. A single, unimpeded drain opening or cluster of openings served by a single drain for the cleaning-solvent to flow from the sink into the enclosed reservoir. Such opening(s) shall be contained within a contiguous area not larger than 15.5 square inches (100 cm^2).

c. Solvent Return: Provide a means for drainage of cleaned parts such that the drained solvent is returned to the cleaning machine.

305.2 With Internal Reservoir (Non-Remote): A batch cleaning machine without a remote reservoir shall be equipped with all of the following:

a. Have and use an internal drainage rack or other assembly that confines within the freeboard all cleaning-solvent dripping from parts and returns it to the hold of the cleaning machine (degreaser); and

b. Have an impervious cover which when closed prevents cleaning-solvent vapors in the cleaning machine from escaping into the air/atmosphere when not processing work in the cleaning machine.

(1) A cover shall be fitted so that in its closed position the cover is between the cleaning-solvent and any lip exhaust or other safety vent, except that such position of cover and venting may be altered by an operator for valid concerns of flammability established in writing and certified to by a Certified Safety Professional or a Certified Industrial Hygienist to meet health and safety requirements.

(2) A cover is not required when an ECS is used in accordance with Section IV of the Appendix within this rule.

c. In the absence of additional applicable freeboard standards, freeboard height shall be not less than 6 inches (15.2 cm); and

d. The freeboard zone shall have a permanent, conspicuous mark that locates the maximum allowable solvent level which conforms to the applicable freeboard requirements.

305.3 Using Cleaning-Solvent That Is Heated, Agitated, Or Is Non-Conforming: If a cleaning machine uses a cleaning-solvent at a temperature above 120°F (49°C), uses non-conforming solvent if allowed by Section 305.3(d) of this rule, or agitates the solvent, then comply with one of the following:

a. Remote Reservoir Cleaning Machines: For a remote reservoir cleaning machine, comply with Section 305.1 of this rule and one of the following:

(1) Use a stopper in the drain whenever the sink or cabinet is empty of solvent and nothing is being handled in the sink; or

(2) Cover the sink or cabinet whenever the sink or cabinet is empty of solvent and nothing is being handled in the sink.

b. Internal Reservoir Cleaning Machines: For an internal reservoir cleaning machine, comply with Section 305.2 of this rule and either Section (1) or (2) that follow:

(1) A Water Cover: A floating layer of water (insoluble in the solvent) at least 1 inch thick, and a freeboard at least 6 inches above the top of the solvent shall be present; or

(2) Freeboard And Cover:

(a) The basin shall have a freeboard ratio of 0.75 or greater and an impervious cover shall cover the basin whenever work is not being processed; and

(b) If a non-conforming solvent is used, the cover shall be of a sliding or rolling type which is designed to easily open and close in a horizontal plane without disturbing the vapor zone.

c. Cabinet Style: Keep a cabinet-style cleaning machine closed at all times that it contains cleaning-solvent, except when introducing or removing work from the machine. If blasting or misting with cleaning-solvent, also conform to the applicable requirements of Section 307 of this rule.

d. Non-Conforming Solvent: A non-conforming solvent may be used in operations to which this rule applies, if at least one of the following is met:

(1) The emissions from the operation shall be controlled by an ECS per Section 304.2 of this rule or by a Sealed System per Section 304.3 of this rule; or

(2) The operation is exempted per Section 308.2 of this rule; or

(3) The operation is both exempted per Section 308.3 of this rule and complies with Section 305.3 of this rule, or for in-line

machines, complies with all of Section 306 of this rule except Section 306.4 of this rule.

305.4 ECS Alternative: An owner and/or operator is allowed to meet the requirements of any one or combination of the requirements of Sections 305.1, 305.2 and/or 305.3 of this rule by operating an ECS in accordance with Section IV of the Appendix within this rule whenever any requirement of Sections 305.1, 305.2 and/or 305.3 of this rule is not met.

306 NON-VAPOR IN-LINE CLEANING MACHINES: No person shall operate a non-vapor in-line cleaning machine using cleaning-solvent unless it complies with Sections 306.1, 306.2, and 306.3 of this rule:

306.1 Features:

a. Carry-Out Prevention: Equip the cleaning machine with either a drying tunnel or another means, such as a rotating basket, sufficient to prevent cleaned parts from carrying out cleaning-solvent liquid or vapor.

b. Enclosed Design: An in-line cleaning machine shall be fully enclosed except for entrance and exit portals.

c. Cover: During shutdown hours or if the cleaning machine is idle for more than 30 minutes, a cover shall be used to close the entrance and exit and any opening greater than 16 square inches (104 cm^2).

306.2 Minimized Openings: Entrances and exits should silhouette workloads so that the average clearance between parts and the edge of the cleaning machine opening is either less than four inches (10 cm), or less than 10% of the width of the opening.

306.3 The machine shall have a freeboard ratio greater than or equal to 0.75.

306.4 ECS Alternative: An owner and/or operator is allowed to meet the requirements of any one or combination of Sections 306.1(b), 306.1(c), 306.2, and/or 306.3 of this rule by operating an ECS that controls VOC vapor from processes addressed by the requirement(s). Such ECS shall be operated in accordance with Section IV of the Appendix within this rule.

307 SPECIAL NON-VAPOR CLEANING SITUATIONS:

307.1 Blasting/Misting With Conforming Solvent: Any person blasting or misting with conforming solvent shall operate and equip the device(s) as follows:

a. Equipment: The device shall have internal drainage, a reservoir or sump, and a completely enclosed cleaning chamber, designed so as to prevent any perceptible liquid from emerging from the device; and

b. Operation: The device shall be operated such that there is no perceptible leakage from the device except for incidental drops from drained, removed parts.

307.2 Blasting/Misting With Non-Conforming Solvent: Any person shall use a Sealed System pursuant to Section 304.3 of this rule for all blasting or misting with a non-conforming solvent.

307.3 High Pressure Flushing: Cleaning systems using cleaning-solvent that emerges from an object undergoing flushing with a visible mist or at a pressure exceeding 10 psig, shall comply as follows:

a. Conforming Solvent: For conforming solvent, use a containment system that is designed to prevent any perceptible cleaning-solvent liquid from becoming airborne outside the containment system, such as a completely enclosed chamber.

b. Non-Conforming Solvent: Use a Sealed System for non-conforming solvent.

307.4 ECS Alternative: An owner and/or operator is allowed to meet the requirement(s) of Section 307.1 and/or Section 307.2 of this rule by operating an ECS that controls VOC vapor from processes addressed by the requirement(s). The ECS shall be operated pursuant to Section IV of the Appendix within this rule.

308 EXEMPTIONS:

308.1 Categorical Exemptions:

a. Industries and cleaning operations that are not regulated by this rule include, but are not limited to, the following EPA approved versions of the VOC rules in Regulation III of these rules:

(1) Dry cleaning with petroleum solvents (Rule 333);

(2) Printing and graphic arts coating (Rule 337);

(3) Semiconductor manufacturing (Rule 338);

(4) Automotive windshield washer fluid (Rule 344); and

(5) Architectural Coating (Rule 335).

b. All operations regulated by the following NESHAPs are exempt from Rule 331:

(1) National Emission Standards for Halogenated Solvent Cleaning (40 CFR 63, subpart T). This includes the de minimis amounts of solvent VOCs that are exempted by subpart T.

(2) National Emission Standards for Perchloroethylene for Dry Cleaning Facilities, (40 CFR 63, subpart M).

c. Exemptions For Qualified Operations:

(1) Cleanup Of Coating-Application Equipment: Operations involving the cleanup of coating-application equipment that are subject to

or specifically exempted by an EPA approved version of another rule in Regulation III of these rules are exempt from Rule 331. Examples include Rule 336 (Surface Coating Operations), Rule 342 (Coating Wood Furniture And Fixtures), and Rule 346 (Wood Coating).

(2) Aerospace: Wipe cleaning of aerospace components is subject to Rule 348 of these rules, whereas the cleaning of aerospace components in a dip tank or a cleaning machine is subject to Rule 331.

308.2 Partial Exemption From Section 300: The following are exempt from sections of Section 300 of this rule as noted:

a. Wipe Cleaning: The provisions of Sections 302 through 307 of this rule do not apply to wipe cleaning. Recordkeeping provisions in Section 500 of this rule do apply to wipe cleaning.

b. Small Cleaners: The provisions of Sections 303 through 307 of this rule shall not apply to any non-vapor cleaning machine (degreaser) or dip-tank fitting either of the following descriptions, except that these shall be covered when work is not being processed:

(1) A small cleaner having a liquid surface area of 1 square foot (0.09 square meters) or less, or

(2) A small cleaner having a maximum capacity of one gallon (3.79 liters) or less.

308.3 Exemptions From Section 304: The U.S. Government Printing Office "Standard Industrial Classification Manual, 1987" (and no future editions) is incorporated by reference and is on file at Maricopa County Environmental Services Department, 1001 N. Central Avenue, Suite 201, Phoenix, Arizona 85004-1942. The following are exempt from Section 304 of this rule:

a. Non-furniture medical devices included in Standard Industrial Classification (SIC) codes 3841, 3843, 3844, or 3845, and products for internal use in 3842;

b. Electronic products for space vehicles and communications equipment in SIC codes 3661, 3663, 3669, 3677, 3678, 3679, and 3769; and

c. Production processes having clean-room standards equal to or more stringent than class 100,000 (particles/m^3); and

d. Low viscosity solvent used to clean an aerospace component if the Federal Aviation Authority, the US Department of Defense, or a US Military specification designates that the cleanliness of the component is critical to the flight safety of a complete aerospace vehicle. By January 1, 2001, any such solvents shall be listed in an MCESD air pollution permit, conditioned upon a sufficient demonstration by the user that no compliant substitute exists.

308.4 Comfort Fans: The Section 303.1(a) prohibition against fans and fan-drafts being close to cleaning machines does not apply to a totally enclosed cleaning machine that cannot be penetrated by drafts.

308.5 Vehicle Refinishing: Dip cleaning of vehicle or mobile equipment surfaces is subject to this rule.

308.6 Aerosol cans, squirt bottles, and other solvent containers intended for handheld use shall meet the requirements in Sections 301 and 500 of this rule.

308.7 A Low-VOC Cleaner is subject only to Sections 301, 302, 307.1, 501.1(a), and 501.2 of this rule.

309 REQUIREMENTS FOR AIR POLLUTION CONTROL EQUIPMENT AND ECS MONITORING EQUIPMENT: For the purpose of this rule, an ECS shall be approved in writing by the Control Officer and shall be designed and operated in accordance with good engineering practices.

309.1 Operation And Maintenance (O&M) Plan Required For ECS:

a. General Requirements: An owner and/or operator shall provide and maintain (an) O&M Plan(s) for any ECS, any other emission processing equipment, and any ECS monitoring devices that are used pursuant to this rule or pursuant to an air pollution control permit. An owner and/or operator shall comply with all the identified actions and schedules provided in each O&M Plan.

b. Approval By Control Officer Of Initial O&M Plan(s): An owner and/or operator shall submit to the Control Officer for written approval the O&M Plan(s) of each ECS and each ECS monitoring device that is used pursuant to this rule. While the Control Officer is reviewing for approval the O&M Plan(s), an owner and/or operator shall comply with all the identified actions and schedules provided in each O&M Plan submitted for approval, unless notified otherwise by the Control Officer. After the Control Officer has issued written approval of the O&M Plan(s), an owner and/or operator shall continue to comply with all the identified actions and schedules provided in each O&M Plan.

e. Owner And/Or Operator Revisions To Initial O&M Plan(s): If an owner and/or operator submits to the Control Officer revisions to the initial O&M Plan(s) and if such revisions have been approved in writing by the Control Officer, an owner and/or operator shall comply with the revisions to the initial O&M Plan(s).

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

309.2 Providing And Maintaining ECS Monitoring Devices: An owner and/or operator incinerating, adsorbing, or otherwise processing VOC emissions pursuant to this rule shall provide, 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 and is properly maintained.

SECTION 400 - ADMINISTRATIVE REQUIREMENTS (NOT APPLICABLE)

SECTION 500 - MONITORING AND RECORDS

501 RECORDKEEPING AND REPORTING: Any person subject to this rule shall comply with the following requirements. Records shall be retained for five years and shall be made available to the Control Officer upon request.

501.1 Current List:

a. Maintain a current list of cleaning-solvents; state the VOC-content of each in pounds VOC per gallon of material or grams per liter of material.

b. A facility using any cleaning-solvent subject to the vapor-pressure limits of Section 304.1 of this rule shall have on site the written value of the total VOC vapor-pressure of each such solvent, in one of the following forms:

(1) A manufacturer's technical data sheet,

(2) A manufacturer's safety data sheet (MSDS), or

(3) Actual test results.

501.2 Usage Records:

a. Monthly: Records of the amount of cleaning-solvent used shall be updated by the end of month for the previous month. Show the type and amount of each make-up and all other cleaning-solvent to which this rule is applicable.

b. Annually:

(1) Certain Concentrates: Use of concentrate that is used only in the formulation of Low VOC Cleaner shall be updated at least annually.

(2) Low-VOC Cleaner: An owner and/or operator need not keep a record of a cleaning substance that is made by diluting a concentrate with water or non-precursor compound(s) to a level that qualifies as a Low VOC Cleaner if records of the concentrate usage are kept in accordance with this rule.

c. Grouping By VOC Content: For purposes of recording usage, an operator may give cleaning-solvents of similar VOC content a single group-name, distinct from any product names in the group. The total usage of all the products in that group is then recorded under just one name. (In such a case, the operator must also keep a separate list that identifies the

product names of the particular solvents included under the group name). To the group name shall be assigned the highest VOC content among the members of that group, rounded to the nearest 10th of a pound of VOC per gallon of material, or to the nearest gram VOC per liter of material.

502 COMPLIANCE DETERMINATION AND TEST METHODS: When more than one test method is permitted for a determination, an exceedance of the limits established in the rule determined by any of the applicable test methods constitutes a violation of this rule.

502.1 Compliance Determination: The following means shall be used to determine compliance with this rule. For routine information collection, the Control Officer may accept a manufacturers' data sheet, data certified by an officer of the supplying company, or test data for the product model of inquiry.

a. VOC Content: The VOC content of solutions, dispersions, emulsions, and conforming solvents (reference Section 207 of this rule) shall be determined by one of the following methods:

(1) South Coast Air Quality Management District Method 313-91 as referenced in Section 502.2(f) of this rule; or

(2) Bay Area Air Quality Management District Method 31 as referenced in Section 502.2(e) of this rule; or

(3) Solids-free windshield washer solutions, in which all organic components are VOCs, may be tested using Maricopa County Reference Method #100, "Total Organic Carbon for Windshield Washer Fluids," Maricopa County Air Pollution Control Rule 344 (April 7, 1999). This method should only be used for water-based solutions containing less than 5% VOC by weight.

b. Vapor Pressure: Pursuant to Sections 304 and 207 of this rule, determination of the total VOC vapor-pressure (VOC composite partial-pressure) in a cleaning solution shall be performed as follows:

(1) For solutions known to be nearly or exactly 100% VOC, vapor pressure shall be determined by ASTM D2879-96 as referenced in Section 502.2(g) of this rule; or

(2) For solutions for which is known the exact quantity and chemical makeup of each evaporating component that is not a VOC, ASTM D2879-96 (referencing Section 502.2(g) of this rule) shall be used (to determine the gross composite vapor pressure) in conjunction with calculations using the vapor-pressure formula in Section 502.3 of this rule.

(3) When a solution's exact species and proportions are known for all ingredients, the Control Officer may use the formula in Section 502.3 of this rule in conjunction with standard reference texts or data-bases that provide the vapor pressure value of each constituent, or a combination of formula use and actual testing on real constituents (referencing Section 502.2(g) of this rule).

c. ECS Compliance:

(1) The VOC content of gaseous emissions entering and exiting an ECS shall be determined by either EPA Method 18 referred to in Section 502.2(b) of this rule, or EPA Methods 25, 25a, and 25b referred to in Section 502.2(c) of this rule.

(2) Capture efficiency of an emission control device used pursuant to Section 304.2, Section 305.4, Section 306.4, and/or Section 307.4 of this rule shall be determined either by the methods in Section 502.2(d) of this rule (EPA Methods 204, 204a, 204b, 204c, 204d, 204e, and 204f) or by using mass balance calculation methods in concert with the methods in Section 502.2(a) of this rule (EPA Methods 2, 2a, 2c, and 2d), and EPA guidance document, "Guidelines For Determining Capture Efficiency", January 9, 1995.

d. Temperature Measurement: Temperature measurements made pursuant to Section 214 of this rule to determine if a cleaning machine contains a "heated solvent" shall be done with an instrument having an accuracy and precision of no less than 1 degree Fahrenheit.

502.2 Test Methods Adopted By Reference: The EPA test methods as they exist in the Code of Federal Regulations (CFR) (July 1, 2003), as listed below, are adopted by reference. The other test methods listed here are also adopted by reference, each having paired with it a specific date that identifies the particular version/-revision of the method that is adopted by reference. These adoptions by reference include no future editions or amendments. Copies of test methods referenced in this Section 502 are available at the Maricopa County Environmental Services Department, 1001 North Central Avenue, Phoenix, AZ, 85004-1942.

a. EPA 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"). All 4 of the foregoing methods are in 40 CFR 60, Appendix A.

b. EPA Method 18 ("Measurement of Gaseous Organic Compound Emissions by Gas Chromatography") (40 CFR 60, Appendix A).

c. EPA Methods 25 ("Determination of Total Gaseous Nonmethane Organic Emissions as Carbon"),25a, and 25b (40 CFR 60, Appendix A).

d. EPA Test Methods 204 ("Criteria For and Verification Of a Permanent or Temporary Total Enclosure"), 204a, 204b, 204c, 204d, 204e, and 204f (40 CFR 51, Appendix M) and EPA guidance document, "Guidelines For Determining Capture Efficiency", January 9, 1995.

e. California's Bay Area Air Quality Management District (BAAQMD) Method 31 (April 15, 1992), "Determination of Volatile Organic Compounds in Paint Strippers, Solvent Cleaners, and Low Solids Coatings."

f. California's South Coast Air Quality Management District (SCAQMD) Method 313-91 (April 1997).

g. American Society for Testing and Materials (ASTM) Method D2879-96 (1996).

h. EPA guidance document, "Guidelines For Determining Capture Efficiency", January 9, 1995.

502.3 FORMULA FOR VOC COMPOSITE PARTIAL PRESSURE: Equivalent to: TOTAL VOC VAPOR-PRESSURE.

$$PP_c = \frac{\sum_{i=1}^{n} (W_i)(VP_i)/M_i}{\frac{W_w}{18} + \sum_{j=1}^{m} \frac{W_e}{M_e} + \sum_{i=1}^{n} \frac{W_i}{M_i}}$$

W_i = Weight of the "i"th VOC compound in grams

W_w = Weight of water in grams

We = Weight of the "j"th non-precursor compound in grams

M_i = Molecular weight of the "i"th VOC compound in grams per gram mole,
e.g., one gram-mole of isopropyl alcohol weighs 60 grams

M_e = Molecular weight of the "j"th non-precursor compound,
e.g., 1 gram-mole of acetone weighs 58 grams

PP_c = VOC composite partial pressure at 20°C in mm mercury (Hg)

VP_i = Vapor pressure of the "i"th VOC compound at 20°C in mm Hg

18 = Weight of one gram-mole of water

APPENDIX TO RULE 331

VAPOR CLEANING MACHINES and EMISSION CONTROL SYSTEMS

I. DEFINITIONS:

(1) VAPOR LEVEL CONTROL SYSTEM – A combination of a coolant sensing system and a vapor sensing system consisting of the following three sets of features:

A. A condenser flow switch and thermostat which shuts off the sump heat if either the condenser coolant stops circulating or becomes warmer than 85°F (29°C); and

B. A manually-reset safety switch which turns off the sump heater if the temperature sensor senses that the temperature is rising above the designed operating level at the vapor/air interface; and

C. A manually-reset switch which turns off the spray-system pump if the level of the vapor/air interface drops more than 4 inches (10 cm).

II. BATCH-LOADED VAPOR CLEANING MACHINES:

(1) No person shall operate a batch vapor cleaning machine, unless the machine meets National Emission Standards for Halogenated Solvent Cleaning (subpart T, Rule 370), as if the cleaning solvent in use were subject to subpart T standards.

(2) No person shall operate a batch vapor cleaning machine, unless the machine has a vapor/air interface Fahrenheit temperature no greater than 30% of the solvent's boiling point temperature or no greater than 40.0°F (4.4°C), whichever is lower.

(3) Sections II(1) and II(2) of this Appendix shall not apply, if a batch vapor cleaning machine is equipped with all of the following:

(A) Cover: An impermeable cover that is a sliding, rolling, fanning, or guillotine (bi-parting) type which is designed to easily open and close without disturbing the vapor zone.

(B) A Vapor Level Control System.

(C) Primary Condenser: A primary condenser that maintains an exit temperature not exceeding 85°F (29°C) or is equipped pursuant to Section II(3)(F)(ii) of this Appendix.

(D) Freeboard Ratio: A freeboard ratio that is greater than or equal to 0.75.

(E) Lip Exhausts: Vapor cleaning machines with lip exhausts shall be controlled by an ECS.

(F) Refrigeration Or ECS: Batch vapor cleaning machines having any of the following descriptors shall comply with Sections II(3)(F)(i), II(3)(F)(ii), or II(3)(f)(iii) of this Appendix:

- an evaporative surface area equal to or greater than 10.75 ft^2 (1.0 m^2); or

- installed or subject to major modification after November 1, 1999; or
- having average monthly VOC emissions exceeding 31 pounds VOC per square foot of solvent surface area:

(i) A refrigerated freeboard chiller for which the chilled air blanket temperature in degrees Fahrenheit at the coldest point on the vertical axis through the horizontal center of the vapor/air interface either shall be no greater than 30% of the initial boiling point of the solvent in degrees Fahrenheit or no greater than 40.0°F (4.4°C); or

(ii) A refrigerated condenser coil (in place of an unrefrigerated coil) having a minimum cooling capacity of 100% of the boiling-sump heat input rate and conforming to the air blanket temperature requirements pursuant to Section II(3)(F)(i); or

(iii) An ECS operated in accordance with Section IV of this Appendix.

(G) Water Separator: Water should not be visually detectable in the VOC containing solvent exiting the water separator.

(4) Sections II(1) and II(2) of this Appendix shall not apply, if a batch vapor cleaning machine meets all of the following:

(A) Workloads:

(i) A workload shall not occupy more than half of the cleaning machine's open-top area.

(ii) The workload shall not be so massive that the vapor level drops more than 4 inches (10 cm), when the workload is removed from the vapor zone.

(iii) The workload shall not be sprayed with cleaning-solvent above the vapor/air interface level.

(B) Carry-Out: Minimize cleaning-solvent carry-out by the following measures:

(i) Orient the items being cleaned in such a way that the items drain easily after cleaning.

(ii) Degrease the workload in the vapor zone at least 30 seconds or until condensation ceases.

(iii) For manual loading/unloading, tip out any pools of solvent on the cleaned parts before removal.

(iv) Allow parts to dry within the batch vapor cleaning machine until visually dry.

(C) Startup And Shutdown: The following sequence shall be used for startup and shutdown:

(i) When starting the batch vapor cleaning machine, the cooling system shall be turned on before, or simultaneously with, the sump heater.

(ii) When shutting down the batch vapor cleaning machine, the sump heater shall be turned off before, or simultaneously with, the cooling system.

(D) Blasting: Blasting in a batch vapor cleaning machine shall be done within a Sealed System or be controlled by an ECS.

(E) Records: An owner and/or operator operating a batch vapor cleaning machine shall keep records pursuant to Section 501 of this rule.

III. IN-LINE VAPOR CLEANING MACHINES:

(1) No person shall operate an in-line vapor cleaning machine, unless the machine meets National Emission Standards for Halogenated Solvent Cleaning (subpart T, Rule 370), as if the cleaning-solvent in use were subject to subpart T standards.

(2) No person shall operate an in-line vapor cleaning machine, unless the machine has a vapor/air interface Fahrenheit temperature no greater than 30% of the solvent's boiling point temperature or no greater than 40.0°F (4.4°C), whichever is lower.

(3) Sections III(1) and III(2) of this Appendix shall not apply, if an in-line vapor cleaning machine is equipped with all of the following:

(A) Cover: Within 10 minutes of turning off the solvent heating system, cover the entrance and exit and any opening greater than 16 square inches (104 cm^2).

(B) Vapor Level Control System.

(C) Primary Condenser: Have a primary condenser that maintains an exit temperature not exceeding 85°F (29°C).

(D) Freeboard Ratio: Have a freeboard ratio greater than or equal to 0.75.

(E) Refrigeration Or ECS: In-line vapor cleaning machines having any of the following descriptors shall comply with Sections III(3)(E)(i), III(3)(E)(ii), or III(3)(E)(iii) of this Appendix:

- an evaporative surface area equal to or greater than 10.75 ft^2 (1.0 m^2); or
- installed or subject to major modification after November 1, 1999, or
- having average monthly VOC emissions exceeding 31 pounds VOC per square foot of solvent surface area:

(i) A refrigerated freeboard chiller for which the chilled air blanket temperature in degrees Fahrenheit at the coldest point on the vertical axis through the horizontal center of the vapor/air interface either shall be no greater than 30% of the initial boiling point of the solvent in degrees Fahrenheit or no greater than 40.0°F (4.4°C); or

(ii) A refrigerated condenser coil (in place of an unrefrigerated coil) having a minimum cooling capacity of 100% of the boiling-sump heat input rate and conforming to the air blanket temperature requirements pursuant to Section III(3)(E)(i) of this Appendix; or

(iii) An ECS operated in accordance with Section IV of this Appendix.

(F) Water Separator: Water should not be visually detectable in the VOC-containing solvent exiting the water separator.

(4) Sections III(1) and III(2) of this Appendix shall not apply, if the in-line vapor cleaning machine meets all of the following:

(A) Workloads: Entrances and exits should silhouette workloads so that the average clearance between parts and the edge of the in-line vapor cleaning machine opening is either less than 4 inches (10 cm) or less than 10% of the width of the opening.

(B) Carry-Out: Equip the in-line vapor cleaning machine with either a drying tunnel or another means, such as a rotating basket, sufficient to prevent cleaned parts from carrying out cleaning-solvent liquid or vapor.

(C) Startup And Shutdown: The following sequences shall be used for startup and shutdown:

(i) When starting the in-line vapor cleaning machine, the cooling system shall be turned on before, or simultaneously with, the sump heater.

(ii) When shutting down the in-line vapor cleaning machine, the sump heater shall be turned off before, or simultaneously with, the cooling system.

(D) Records: An owner and/or operator operating an in-line vapor cleaning machine shall keep records pursuant to Section 501 of this rule.

IV. EMISSION CONTROL SYSTEM REQUIREMENTS:

(1) An Emission Control System (ECS) used pursuant to this rule shall consist of a hood or enclosure to collect emissions, which are vented to a processing device. The overall control efficiency (capture plus processing) of the system shall not be less than 85%. The capture system shall have a ventilation rate no greater than 65 cfm per square foot of evaporative surface (20 $m^3/min./m^2$), unless that rate must be changed to meet a standard specified and certified by a Certified Safety Professional, a Certified Industrial Hygienist, or a licensed professional engineer experienced in ventilation-system design, that concerns health and safety requirements. The ECS shall be approved by the Control Officer.

(2) Operation And Maintenance (O&M) Plan Required For ECS: An owner and/or operator shall create and maintain an O&M Plan for any ECS required by this rule or pursuant to an air pollution control permit in accordance with Section 309 of this rule.

(3) Recordkeeping:

(A) ECS Operation And Maintenance Records: On each day that an ECS is used to comply with any provision of this rule, an owner and/or operator shall make a permanent record of the operating parameters of the key systems described in the O&M Plan. For each day or period in which the O&M Plan requires that maintenance be performed, a permanent record shall be made of the maintenance actions taken, within 24 hours of maintenance completion. An explanation shall be entered for scheduled maintenance that is not performed during the period designated in the O&M Plan.

(B) Other Records Required When Complying Via ECS: An owner and/or operator using an ECS pursuant to this rule shall maintain, in addition to the records required by Section 501.1 of this rule, daily documentation showing the VOC content of the solvent material and the amount added for makeup.

(4) Test Methods For Determining Emission Control System Compliance: Test methods and compliance procedures for an ECS are in Section 502 of this rule.

REGULATION III - CONTROL OF AIR CONTAMINANTS

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PETROLEUM SOLVENT DRY CLEANING

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MARICOPA COUNTY
AIR POLLUTION CONTROL REGULATIONS

REGULATION III - CONTROL OF AIR CONTAMINANTS

RULE 333
PETROLEUM SOLVENT DRY CLEANING

SECTION 100 - GENERAL

101 PURPOSE: To limit the emissions of volatile organic compounds from petroleum solvents used in dry cleaning.

102 APPLICABILITY: This rule applies to petroleum solvent washers, dryers, solvent filters, settling tanks, vacuum stills, and other containers and conveyors of petroleum solvent that are used in petroleum solvent dry cleaning facilities.

SECTION 200 - DEFINITIONS: For the purpose of this rule, the following definitions shall apply:

201 CARTRIDGE FILTER - Any perforated canister containing filtration paper, fabric and/or activated carbon that is used in a pressurized system to remove solid particles and fugitive dyes from soil-laden solvent.

202 CONTAINERS AND CONVEYORS OF SOLVENT - Any piping, ductwork, pumps, storage tanks, and other ancillary equipment that are associated with the installation and operation of washers, dryers, filters, stills and settling tanks.

203 DRY CLEANING - A process for the cleaning of textiles and fabric products in which articles are washed in nonaqueous solvent and then dried by exposure to a heated air stream.

204 PERCEPTIBLE LEAKS - Any petroleum solvent vapor, mist, or liquid leaks that are conspicuous from visual observation, such as pools or droplets of liquid, or buckets or barrels of solvent or solvent-laden waste standing open to the atmosphere.

205 PETROLEUM SOLVENT - Volatile organic compounds commonly produced by petroleum distillation, primarily comprising a hydrocarbon range of 8 to 12 carbon atoms per organic molecule.

206 SOLVENT RECOVERY DRYER - A class of dry cleaning dryers that employs a condenser to liquefy and recover solvent vapors evaporating in a closed-loop, recirculating stream of heated air.

207 VOLATILE ORGANIC COMPOUND (VOC) - Any organic compound, excluding the following organic compounds which have been designated by the EPA as having negligible photochemical reactivity: methane; ethane; methylene chloride (dichloromethane); 1,1,1–trichloroethane; trichlorofluoromethane (CFC–11); dichlorodifluoromethane (CFC–12); chlorodifluoromethane (CFC–22); 1,1,2–trichlorotrifluoroethane (CFC–113); 1,2–dichlorotetrafluoroethane (CFC–114); chloropentafluoroethane (CFC–115); trifluoromethane (FC–23); 2,2–dichloro-1,1,1–trifluoroethane (HCFC–123); 2–chloro-1,1,1,2–tetrafluoroethane (HCFC–124); 1,1–dichloro-1–fluoroethane (HCFC–141b); 1–chloro-1,1–difluoroethane (HCFC–142b); pentafluoroethane (HFC–125); 1,1,2,2–tetrafluoroethane (HFC–134); 1,1,1,2–tetrafluoroethane (HFC–134a); 1,1,1–trifluoroethane (HFC–143a); 1,1–difluoroethane (HFC–152a); all completely fluorinated, completely saturated: alkanes, ethers and tertiary amines.

SECTION 300 - STANDARDS

301 OPERATING REQUIREMENTS - A person shall not operate any petroleum solvent dry cleaning facility unless all of the following requirements are satisfied:

301.1 Liquid and Vapor Leaks: Dry cleaning equipment shall not be operated with perceptible leaks from any portion of the equipment, including but not limited to: hose connections, unions, couplings and valves; machine door gaskets and seating; filter head gaskets and seating; pumps; base tanks and storage containers; water separators; filter sludge recovery; distillation units; divertor valves; solvent-moistened lint from lint basket; and cartridge filters.

301.2 Solvent Storage: Solvents shall be stored in closed containers.

301.3 Access Vents: All washer and dryer traps, access doors, and any other parts of equipment where solvent may be exposed to the atmosphere, shall be kept closed at all times except when required for proper operation or maintenance.

301.4 Solvent Filtration: Any petroleum filtration system shall be installed and operated to comply with at least one of the following:

a. Reduce the volatile organic compounds in all filtration wastes to 2.2 lbs (1 kg) or less per 220 lbs (100 kg) dry weight of articles cleaned, before disposal, and exposure to the atmosphere; or

b. Install and operate a cartridge filtration system, and drain the filter cartridges in their sealed housings for eight hours or more before their removal; or

c. Place all discarded filtration material, including cartridges and particulate filter media, immediately in sealed containers and dispose of according to hazardous waste statutes.

302 CONTROLS REQUIRED - SOLVENT RECOVERY DRYER: Petroleum solvent dry cleaning facilities installed after July 13, 1988, shall have a solvent recovery that recovers at least 85 percent of petroleum solvent by weight. In addition, the recovery cycle for the dryer shall not be terminated until the petroleum solvent flow rate from the water separator is 15 milliliters or less per minute.

SECTION 500 - MONITORING AND RECORDS

501 RECORDKEEPING AND REPORTING: Any person subject to this rule shall comply with the following requirements. Records shall be retained for five years and shall be made available to the Control Officer upon request.

501.1 Current List: Maintain a current list of solvents and any other VOC-containing materials; state the VOC content of each in pounds per gallons or grams per liter.

501.2 Usage Records and Amount of Clothes Cleaned: Maintain monthly records of the weight of clothing cleaned, the amount of solvent-used, and the weight and type of any material disposed of which contains any quantity of cleaning solvent. The name of the company receiving such material shall also be recorded.

502 COMPLIANCE DETERMINATION - TEST METHODS: When more than one test method is permitted for a determination, an exceedance of the limits established in the rule determined by any of the applicable test methods constitutes a violation of this rule.

502.1 Measurements of petroleum-based VOC emissions pursuant to provisions of this rule shall be conducted in accordance with EPA Test Method 25 or its applicable submethod(s) (40 CFR 60, Appendix A). Alternatively, a person may meet the efficiency (85 percent) requirement of Section 302 if 6.6 lbs (3 kg) or less of petroleum solvent is emitted per 220 lbs (100 kg) dry weight of articles cleaned, subject to prior approval of the test protocol by the Control Officer.

502.2 Measurements of VOC content of solvents, waste, recovered or recycled material shall be conducted and reported in accordance with ASTM Standard

Recommended Practices for General Gas Chromatography Procedures, E 260-85 or ASTM General Techniques For Infrared Quantitative Analysis, E 160A-67 or ASTM General Techniques of Ultraviolet Quantitative Analysis, ASTM E 169-63; as approved by the Control Officer.

502.3 Efficiency of the control device shall be determined according to EPA Method 18.

502.4 Ventilation/draft rate shall be determined by EPA Methods 2, 2A, 2C and 2D.

Adopted 08/02/93
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Revised 06/19/96

MARICOPA COUNTY
AIR POLLUTION CONTROL REGULATIONS

REGULATION III - CONTROL OF AIR CONTAMINANTS

RULE 334
RUBBER SPORTS BALL MANUFACTURING

SECTION 100 - GENERAL

101 **PURPOSE:** To limit emission of volatile organic compounds (VOCs) from natural and synthetic rubber adhesives used in the manufacture of non-inflatable rubber balls.

102 **APPLICABILITY:** This rule applies to any rubber sports-ball manufacturing facility with an aggregate emission to atmosphere after December 31, 1989, of 50.0 tons (45.35 Mg) or more of VOC in any year or 8333 pounds (3780 kg) or more of VOC in any month, emitted from handling, using and/or preparing rubber adhesives or their constituents.

SECTION 200 - DEFINITIONS:
For the purpose of this rule, the following definitions shall apply:

201 **ADHESIVE** - An initially fluid material used to fasten or bond two surfaces together by using the intermolecular forces between adhesive and the bonded surface(s) as a principal mechanism effecting the bonding.

202 **APPROVED EMISSION CONTROL SYSTEM** - A system for reducing emissions of organic compounds, consisting of collection and control devices which are approved in writing by the Control Officer and are designed and operated in accordance with good engineering practice.

203 **DAY** - A period of 24 consecutive hours beginning at midnight.

204 **NON-PRECURSOR ORGANIC COMPOUND** - Any of the following organic compounds which have been designated by the EPA as having negligible photochemical reactivity: methane; ethane; methylene chloride (dichloromethane); 1,1,1–trichloroethane; trichlorofluoromethane (CFC–11); dichlorodifluoromethane (CFC–12); chlorodifluoromethane (CFC–22); 1,1,2–trichlorotrifluoroethane (CFC–113); 1,2–dichlorotetrafluoroethane (CFC–114); chloropentafluoroethane (CFC–115); trifluoromethane (FC–23); 2,2–dichloro-1,1,1–trifluoroethane (HCFC–123); 2–chloro-1,1,1,2–tetra-

fluoroethane (HCFC–124); 1,1–dichloro-1–fluoroethane (HCFC–141b); 1–chloro-1,1–difluoroethane (HCFC–142b); pentafluoroethane (HFC–125); 1,1,2,2–tetrafluoroethane (HFC–134); 1,1,1,2–tetrafluoroethane (HFC–134a); 1,1,1–trifluoroethane (HFC–143a); 1,1–difluoroethane (HFC–152a); all completely fluorinated, completely saturated: alkanes, ethers and tertiary amines; sulfur-containing perfluorocarbons with no unsaturations, no hydrogen, and with sulfur bonds only to carbon and fluorine.

205 **PRODUCTION DAY** - Any day in which the total adhesive pumped into any and all adhesive application machines exceeds 100 gallons (379 liters).

206 **RUBBER SPORTS BALL** - A hollow ball having natural and/or synthetic rubber as a principal ingredient, having no pressure adjustment valve, and intended for sports in which it is hit.

207 **VAPOR PROCESSING DEVICE** - The portion of a VOC emission control system that recovers, destroys, or otherwise physically or chemically handles VOC vapor, delivered to it by a capture system, so that most or all of that VOC cannot be emitted to the atmosphere.

208 **VOLATILE ORGANIC COMPOUND (VOC)** - Any organic compound except non-precursor organic compounds.

SECTION 300 - STANDARDS

301 **LIMITATION - ADHESIVES:** By May 31, 1995, no person shall use adhesives in the manufacture of rubber sports balls, including but not limited to tennis and racquet balls, except by:

301.1 **Using Adhesive with a VOC Content** that does not exceed 2.4 pounds of VOC per gallon (288 g/l) as applied, less water and non-precursor compounds, as determined by EPA Method 24; or

301.2 **Using an Approved Emission Control System** having an overall control efficiency, including capture and processing, of at least 81 percent by weight of VOC-reduction for all adhesive application processes using adhesive containing over 2.4 pounds of VOC per gallon (288 g/l), as applied, less water and non-precursor compounds. The control efficiency of an adsorption and recovery system used as an Approved Emission Control System shall be determined using the mass-balance formula in subsection 503.1.

302 **OPERATION AND MAINTENANCE (O&M) PLAN:**

302.1 The owner or operator of an Approved Emission Control System used to meet the requirements of subsection 301.2 of this rule shall provide the Control

Officer with an Operation and Maintenance (O&M) Plan. This O&M Plan shall specify:

a. Key system operating parameters, such as temperatures, pressures, fluid throughputs, and/or flow rates; the stack VOC-concentration monitoring and adsorber sequencing equipment specifications and the set points contained in their programming; and any other critical processes necessary for proper operation and for determining compliance with this rule;

b. All essential maintenance procedures and their frequencies needed to maintain the Approved Emission Control System.

302.2 An Approved Emission Control System must have the O&M Plan approved in writing by the Control Officer.

302.3 **Time Frames For Changes:**

a. Changes involving reduction in the frequency or extent of a Control-Officer approved O&M Procedure must have the written consent of the Control Officer prior to being implemented.

b. **Other Changes:** An updated O&M Plan must be submitted to the Control Officer for review within 10 days of any changes not involving reduction in frequency or extent of an approved O&M procedure. Within five working days of a written disapproval of such changes, either the original O&M Plan shall be reinstituted or an alternative, negotiated with the affected facility and approved in writing by the Control Officer, shall be instituted.

303 **MAINTENANCE:** Any person subject to this rule shall operate and maintain in proper working order when in use all process equipment in which VOC-containing materials are used.

304 **STORAGE AND DISPOSAL OF VOC:** Any person subject to this rule shall store all VOC-containing materials subject to evaporation, including waste adhesive and waste solvent in containers, each of which is legibly labelled with its contents. The presence of content-labels that are required by federal hazardous waste or occupational safety statutes (RCRA or OSHA) will meet this requirement. These containers shall be covered when not in use or, alternatively, they shall be placed beneath a hood ducted to or within an enclosure ducted to an operating Approved Emission Control System until solidified throughout. Such person shall keep records of disposal of VOC-containing materials in accordance with applicable federal, state, and local hazardous waste disposal statutes and rules.

305 EXEMPTIONS:

305.1 Facilities which after December 31, 1989, always emit less than 50 tons (45.4 Mg) per year and less than 8333 pounds (3780 kg) per month of VOC from adhesives used in the manufacture of rubber sportsballs are exempt from this rule, except that those facilities which have the potential to annually emit or which do annually emit more than 25 tons (22.7 Mg) of VOC from such adhesives after December 31, 1989, must keep records in accordance with Section 500.

305.2 Applicability of Other Rules:

a. Facilities exempted from the provisions of this rule pursuant to Section 102 are not exempted from other provisions in other rules of the Maricopa County Air Pollution Control Regulation III.

b. Rules 330 and 336 shall not apply to a facility subject to the standards of this rule.

SECTION 400 - ADMINISTRATIVE REQUIREMENTS

401 COMPLIANCE SCHEDULE: An owner or operator who chooses to meet the requirements of Section 301 by use of an Approved Emission Control System must be in full compliance with all applicable requirements by May 31, 1995. Any owner or operator of an emission control system used to meet the requirements of subsection 301.2 of this rule shall provide the Control Officer with:

401.1 An Operation and Maintenance (O&M) Plan for this system by May 31, 1995.

401.2 A compliance plan by December 1, 1994, listing the dates of completion of increments of progress toward meeting the requirements of subsection 301.2.

SECTION 500 - MONITORING AND RECORDS

501 PROVIDING AND MAINTAINING MONITORING DEVICES: Any person operating an Approved Emission Control System pursuant to this rule shall provide, properly install and maintain in calibration, in good working order and in operation, devices described in an approved O&M Plan for indicating temperatures, pressures, fluid throughputs, rates of flow, and/or other operating conditions necessary to determine if air pollution control equipment is functioning properly and is properly maintained.

502 RECORDKEEPING AND REPORTING: Any person subject to this rule shall comply with the following requirements. Records shall be retained for five years and shall be made available to the Control Officer upon request.

502.1 **Current List:** Maintain a current list of adhesives including their formulations as applied, makeup solvents, and any other VOC-containing materials. State the VOC content of each in pounds per gallon or grams per liter.

502.2 **Usage Records:** Maintain records according to the following schedule, which show the type and amount of each adhesive, makeup solvent, and any other VOC-containing material.

a. **Adhesives, Solvents, and VOC-containing Materials**:

(1) Records shall be updated monthly showing the usage of the separate adhesives, solvents, and other VOC-containing materials.

(2) Yearly update those materials known to be annually used in quantities less than 15 gallons (56 l) or to annually emit less than 75 lb (34 kg).

(3) **Deliveries:** At the time of each delivery of solvent, the amount received, tank designation and time shall be recorded in a log book.

b. **Measuring Instruments and Readings:**

(1) Readings for efficiency determination should be made during the same time period each day.

(2) If volume rather than mass (weight) measures are used as the basis for calculations, then compensate for temperature. A temperature-compensating instrument may be used for this purpose. If two or more such instruments are used in a demonstration of compliance with this rule, log any difference(s) between their respective compensating factors with the temperature range(s) where difference occurs. Show adjustments for such differences when making mass-balance calculations.

(3) Readings of all meters or other instruments measuring throughput on lines to or from such tanks shall be recorded daily with date and time.

(4) Each repair, adjustment, or resetting of flow meters or other instruments measuring cumulative throughput shall be logged with the date, time, purpose, and the reading before and after such an operation. The cumulative, totalizing, throughput readout of such an instrument shall have no resetting feature.

503 COMPLIANCE DETERMINATION - TEST METHODS: 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.

503.1 Mass Balance Determinations — Self Monitoring of Compliance for a Facility Using Carbon Adsorption with Solvent Recovery as a Control Method:

a. Daily Recording: Refer to Figure I of this rule for the location of the mass balance meters — M_B, M_V, and M_R. By midday on the first workday following a completed production-day, the following shall be determined for that completed production day and entered in a hardcopy form acceptable to the Control Officer:

(1) The individual readings given by each of the three mass balance meters at the designated meter-reading time during the production day just completed;

(2) VOC throughputs via those three mass balance flowmeters since both:

(a) the previous production day at the designated meter-reading time; and

(b) since meter-reading time on that production day which is nine production days prior to the most recently completed production day.

(3) Using the Recovery Formula in 503.1,b. and the logged values required by 503.1,a.(2)(a) above, determine the most recent one-day recovery efficiency and record that in the same log. Using the values required by 503.1,a.(2)(b) in the previous paragraph, the 9-day rolling average shall also be calculated and recorded using the same recovery formula in 503.1,b.

b. Recovery Formula: Using the liquid/liquid mass balance method, the following ratio expresses the efficiency of the control system during the period of the 9-day rolling average and for other periods:

$$\text{Recovery}_M = \frac{M_B}{M_V + M_R}$$

Where:
M_B is the solvent throughput indicated by the meter immediately downstream of the buffer tank.

M_V is the solvent throughput indicated by the meter on the output pipe of the virgin solvent tank.

M_R is the solvent throughput indicated by the meter downstream of the junction connecting the output lines from each recovered-solvent storage tank.

(1) **Adjustments for Waste Disposed of Through Statutorily Prescribed Procedures:** When the combined mass of all such waste is less than 0.5 percent of the total mass of solvent metered through meters M_V and M_R during the same 9-day rolling average period as the waste occurred, 95 percent of the mass of contaminated solvent and half the mass of any still fluid adhesive wasted may be subtracted from the denominator ($M_V + M_R$) in the recovery formula when determining efficiency. Except as allowed by the procedure set forth in the next paragraph, no adjustment credit will be given for waste adhesive which is no longer fluid.

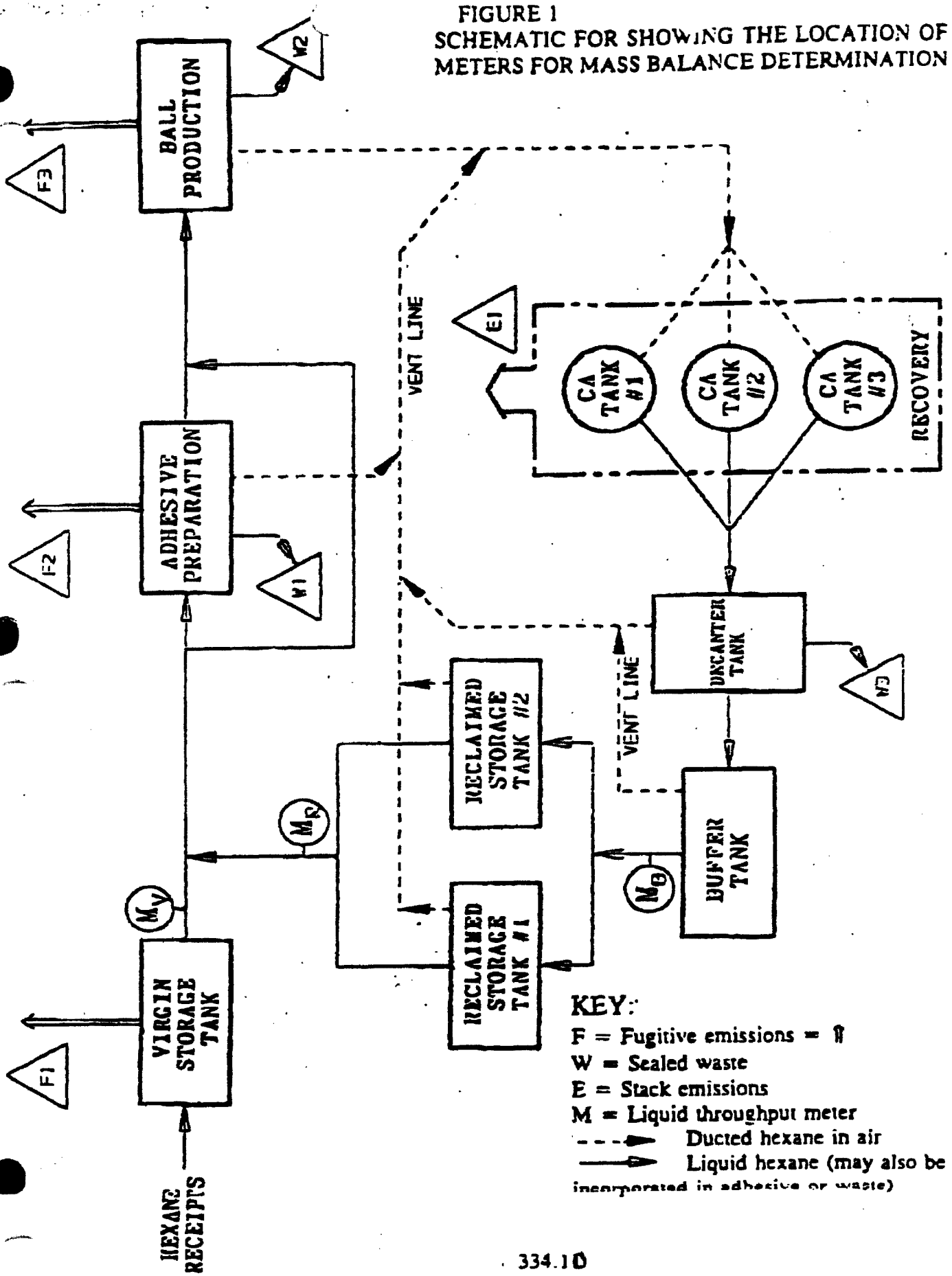
A Method 24 Test determination of VOC content(s) referenced in subsection 503.2 shall be performed if the owner or operator of an affected facility requests adjustment for a larger quantity of fluid and/or non-fluid waste(s). The request for adjustment and the results of the test shall be submitted to the Control Officer for approval.

(2) **Total Shut-downs and Start-ups:** The production statistics for the last production day prior to a complete production shutdown of at least five consecutive days shall not be included in the 9-day rolling average of control efficiency, as long as no adhesive is made on the last production day. At a start-up after a total shutdown "day one" of a 9-day rolling average period begins at the standard meter-reading time on the third production day since start-up.

(3) **Non-production Days:** On days during which a total of 100 gallons or less of adhesive enters adhesive application machines, the readings of meters "M_s", "M_V", and "M_R" shall not be entered in the same log-sector as such readings made during actual production days, irrespective of whether adhesive was made on such days.

503.2 The method of determining both the solids and the volatile content of adhesives, and of determining compliance of an adhesive with the VOC-limit specified in subsection 301.1 shall be the EPA Reference Method 24 (40 CFR, Part 60,Appendix A). Method 24 shall also be used to determine the volatile and non-volatile content of waste adhesive with reference to subsection 503.1,b.(1).

FIGURE 1
SCHEMATIC FOR SHOWING THE LOCATION OF METERS FOR MASS BALANCE DETERMINATION



REGULATION III - CONTROL OF AIR CONTAMINANTS

RULE 335
ARCHITECTURAL COATINGS

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MARICOPA COUNTY
AIR POLLUTION CONTROL REGULATIONS

REGULATION III - CONTROL OF AIR CONTAMINANTS

RULE 335
ARCHITECTURAL COATINGS

SECTION 100 - GENERAL

101 PURPOSE: To limit the emission of volatile organic compounds from architectural coatings.

102 APPLICABILITY OF MULTIPLE STANDARDS: In any instance where more than one of the standards set forth in this rule may be applicable, the most restrictive standard shall apply.

SECTION 200 - DEFINITIONS:

For the purpose of this rule, the following definitions shall apply:

201 ACRYLIC POLYMERS - Polymers resulting from the polymerization of derivatives of acrylic acids, including esters of acrylic acids, methacrylic acid, acrylonitrile, and their copolymers. Also known as acrylic resins and acrylate resins.

202 ALKYDS - Synthetic resins formed by the condensation of polyhydric alcohols with polybasic acids.

203 ARCHITECTURAL COATING - Any coating applied to stationary structures and their appurtenances, to mobile homes, to pavements or to curbs.

204 BELOW GROUND WOOD PRESERVATIVES - Heavy duty coatings formulated solely for the purpose of protecting below ground wood from decay or insect attack and which contain a wood preservative.

205 BITUMINOUS COATING MATERIALS - Black or brownish materials, soluble in carbon disulfide, consisting mainly of hydrocarbons and which are obtained from natural deposits, or as residues from the distillation of crude petroleum oils or of low grades of coal.

206 BOND BREAKERS - Coatings whose sole purpose, when applied between layers of concrete, is to prevent the freshly poured top layer of concrete from bonding to the substrate on which it is poured.

207 **CATALYZED EPOXY -** Crosslinking resins made by the reaction of epoxides with other material such as amines, alcohols, phenols, carboxylic acids and unsaturated compounds.

208 **CONCRETE CURING COMPOUNDS -** Coatings whose sole purpose is to retard the evaporation of water from the surface of freshly cast concrete, thereby strengthening it.

209 **CHLORINATED RUBBER -** Resin formed by the reaction of rubber with chlorine.

210 **DRY FOG COATINGS -** Coatings which are formulated so that when sprayed, overspray droplets dry before falling on floors and other surfaces.

211 **ENAMEL UNDERCOATERS -** Coatings which are designed to be applied to a new surface over a primer or over a previous coat of paint, in order to improve the seal, provide better adhesion and make a smooth base for non-flat coatings.

212 **FIRE RETARDANT COATINGS -** Coatings which are designed to retard fires and which will significantly:

212.1 Reduce the rate of flame spread on the surface of a material to which such a coating has been applied; or

212.2 Resist ignition when exposed to high temperature; or

212.3 Insulate a substrate to which such a coating has been applied and prolong the time required for the substrate to reach ignition temperature.

213 **FLAT COATINGS -** Coatings which register gloss less than 15 on an 85° meter or less than 5 on a 60° meter, or which is labeled as a flat coating.

214 **GENERAL PRIMERS -** Coatings which are intended to be applied to a surface to provide a firm bond between the substrate and subsequent coats.

215 **GENERAL SEALERS -** Coatings which are intended for use on porous substrates to protect the substrate, to prevent subsequent coatings from being absorbed by the substrate, or to prevent harm to subsequent coatings by materials in the substrate.

216 **GENERAL UNDERCOATERS -** Coating which are designed to provide a smooth surface for subsequent coats.

217 **GRAPHIC ARTS COATINGS (SIGN PAINTS) -** Coatings which are marketed solely for application to indoor and outdoor signs and include lettering enamels, poster colors and bulletin colors.

218 **INDUSTRIAL MAINTENANCE PRIMERS -** Coatings which are intended to be applied to a surface prior to the application of an industrial maintenance topcoat, to provide a firm bond between the substrate and subsequent coats.

219 INDUSTRIAL MAINTENANCE TOPCOATS - High performance coatings which are formulated for the purpose of heavy abrasion, water immersion, chemical, corrosion, temperature, electrical or solvent resistance.

220 INORGANIC POLYMERS - Substances whose principle structural features are made of homopolar interlinkages between multivalent elements other than carbon. This does not preclude the presence of carbon-containing groups in the side branches, or as interlinkages between principle structural members. Examples of such polymers are ethyl and butyl silicates.

221 LACQUERS - Clear or pigmented coatings formulated with nitrocellulose or synthetic resins to dry by evaporation without chemical reaction and to provide a quick drying, solid protective film.

222 MASTIC TEXTURE COATINGS - Coatings, except weatherproof mastic coatings, which are formulated to cover holes, minor cracks and to conceal surface irregularities.

223 METALLIC PIGMENTED PAINTS - Any coatings which are formulated with metallic pigment and which contain more than 10 grams of metal particles per liter of coating (0.08 lb/gal) as applied where such metal particles are visible in the dried film.

224 MULTI-COLORED COATINGS - Coatings which exhibit more than one color when applied and which are packaged in a single container and applied in a single coat.

225 NON-FLAT COATINGS - Coatings which register gloss of 15 or greater on an 85° meter or 5 or greater on a 60° meter, or which are identified on the label as gloss, semi-gloss, or eggshell enamel coatings.

Note[1]

226 NON-PRECURSOR ORGANIC COMPOUND - The following organic compounds have been designated by the EPA as having negligible photochemical reactivity: methane; ethane; methylene chloride; l,l,1 trichloroethane; trichlorotrifluoroethane (CFC-113); trichlorofluoromethane (CFC-11); dichlorodifluoromethane (CFC-12); chlorodifluoromethane (CFC-22); trifluoromethane (FC-23); dichlorotetrafluoroethane (CFC-114) and chloropentafluoroethane (CFC-115).

227 OPAQUE STAINS - All stains that are not classified as semitransparent stains.

[1] This note is not part of Rule 335. For the reader's convenience, the current list of non-precursor organic compounds is found in Rule 100, Section 200.

228 OPAQUE WOOD PRESERVATIVES - All wood preservatives that are not classified as semitransparent wood preservatives.

229 ORGANIC COMPOUND - Any compound of carbon excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides and carbonates and ammonium carbonate.

230 QUICK-DRY ENAMELS - Non-flat coatings which comply with the following:

230.1 Should be capable of being applied directly from the container by brush or roller when the ambient temperature is between 60°F and 80°F.

230.2 When tested in accordance with ASTM D1640 they shall: set to touch in two hours or less, dry hard in eight hours or less, and be tack-free in four hours or less by the mechanical method test.

230.3 Shall have a 60° meter dried film gloss of no less than 70.

231 QUICK-DRY PRIMERS AND SEALERS - Primers, sealers and undercoaters which are intended to be applied to a surface to provide a firm bond between the substrate and subsequent coats and which are dry to the touch in one-half hour and can be recoated in two hours (ASTM 1640).

232 ROOF COATINGS - Coatings which are formulated for the sole purpose of preventing penetration of the substrate by water. These coatings include bituminous roof and waterproof mastic coatings.

233 SEMI-TRANSPARENT STAINS - Coatings which are formulated to change the color of a surface but not conceal the surface.

234 SEMI-TRANSPARENT WOOD PRESERVATIVES - Wood preservative stains which are formulated for the purpose of protecting exposed wood from decay or insect attack by the addition of a wood preservative chemical and which change the color of a surface but do not conceal the surface. These coatings perform their function by penetrating into the wood.

235 SHELLACS - Clear or pigmented coatings formulated with natural resins (except nitrocellulose resins), thinned with alcohol, formulated to dry by evaporation without a chemical reaction and intended to provide stain blocking properties as well as a solid protective film.

236 SILICONES - A resin containing silicon unlike organic resins, which all contain carbon. The basic structure of silicones consist of silicon-oxygen linkages.

237 SPECIALTY FLAT PRODUCTS - Self-priming flat products used only to perform one of the following functions: repair fire, smoke or water damage; neutralize odors; block stains; or coat acoustical materials without affecting their acoustical abilities.

238 SPECIALTY PRIMERS, SEALERS, AND UNDERCOATERS - Primers, sealers and undercoaters used only to perform one of the following functions: repair fire, smoke or water damage; neutralize odors; block stains; block efflorescence; condition chalky surfaces; or coat acoustical materials without affecting their acoustical abilities.

239 SWIMMING POOL COATINGS - Coatings specifically formulated to coat the interior of swimming pools and resist swimming pool chemicals.

240 TILE-LIKE GLAZE COATINGS - Coatings which are formulated to provide a tough, extra-durable coating system, which are applied as a continuous (seamless) highbuild film and which cure to a hard glaze finish.

241 TRAFFIC COATINGS - Coatings which are formulated to be applied to public streets, highways, and other surfaces including, but not limited to curbs, berms, driveways, and parking lots.

242 UNIQUE VEHICLES - Generic polymer components not defined by any of the coatings listed in the category of industrial primers and topcoats in Section 305 of this rule, e.g., hypalon, phenoxy.

243 URETHANE POLYMERS - Coating vehicles containing a polyisocyanate monomer reacted in such a manner as to yield polymers containing any ratio, proportion, or combination of urethane linkages, active isocyanate groups, or polyisocyanate monomer.

244 VARNISHES - Clear or pigmented coatings formulated with various resins to dry by chemical reaction or exposure to air. These coatings are intended to provide a durable, transparent or translucent, solid protective film.

245 VINYL CHLORIDE POLYMERS - Polymers made by the polymerization of vinyl chloride or copolymerization of vinyl chloride with other unsaturated compounds, the vinyl chloride being in greatest amount by weight.

246 VOLATILE ORGANIC COMPOUND (VOC) - Any organic compound except non-precursor organic compounds.

247 WATERPROOF MASTIC COATINGS - Weatherproof and waterproof coatings which are formulated to cover holes and minor cracks and to conceal surface irregularities.

248 WATERPROOF SEALERS - Coatings which are formulated for the sole purpose of protecting porous substrates by preventing the penetration of water.

SECTION 300 - STANDARDS

301 PROHIBITION - BITUMINOUS PAVEMENT SEALERS: No person shall apply, sell, offer for sale or manufacture for sale within Maricopa County any architectural coating manufactured after July 13, 1988, which is recommended for use as a bituminous pavement sealer unless it is an emulsion type coating.

302 INTERIM LIMITS - NON-FLAT ARCHITECTURAL COATINGS: No person shall apply, sell, offer for sale or manufacture for sale within Maricopa County any non-flat architectural coating manufactured after July 13, 1989, which contains more than 3.2 lbs (380 g/l) of volatile organic compounds per gallon of coating, excluding water and any colorant added to tint bases. These limits do not apply to speciality coatings listed in Section 305 of this rule.

303 FINAL LIMITS - NON-FLAT ARCHITECTURAL COATINGS: No person shall apply, sell, offer for sale or manufacture for sale within Maricopa County any non-flat architectural coating manufactured after July 13, 1990, which contains more than 2.1 lbs (250 g/l) of volatile organic compounds per gallon of coating, excluding water and any colorant added to tint bases. These limits do not apply to speciality coatings listed in Section 305 of this rule.

304 LIMITS - FLAT ARCHITECTURAL COATINGS: No person shall apply, sell, offer for sale or manufacture for sale within Maricopa County any flat architectural coating manufactured after July 13, 1989, which contains more than 2.1 lbs (250 g/l) of volatile organic compounds per gallon of coating, excluding water and any colorant added to tint bases. These limits do not apply to speciality coatings listed in Section 305 of this rule.

305 LIMITS - SPECIALTY COATINGS: No person shall apply, sell, offer for sale or manufacture for sale within Maricopa County any architectural coating that exceeds the following limits manufactured after the date listed below. Limits are expressed in pounds of VOC per gallon of coating as applied, excluding water and any colorant added to tint bases.

COATING	Effective Dates 7/13/89	7/13/90	7/13/91 (lb/gal)
Concrete Curing Compounds	-	-	2.9
Dry Fog Coating			
Flat	4.6	-	3.5
Non-flat	3.5	-	3.3
Enamel Undercoaters	3.8	-	2.9
General Primers, Sealers and Undercoaters	3.3	-	2.9
Industrial Maintenance Primers and Topcoats			
Alkyds	4.2	3.5	3.5
Catalyzed Epoxy	-	4.2	3.5
Bituminous Coating Materials	-	-	3.5
Inorganic Polymers	-	-	3.5
Vinyl Chloride Polymers	-	-	3.5
Chlorinated Rubbers	-	-	3.5
Acrylic Polymers	-	3.5	3.5
Urethane Polymers	-	3.5	3.5
Silicones	-	-	3.5
Unique Vehicles	-	-	3.5
Lacquers	-	-	5.7
Opaque Stains	3.3	-	2.9
Wood Preservatives	-	-	2.9
Quick Dry Enamels	-	-	3.3
Roof Coatings	-	-	2.5
Semi-transparent Stains	-	-	2.9
Semi-transparent and Clear Wood Preservatives	-	-	2.9
Opaque Wood Preservatives	3.3	-	2.9
Specialty Flat Products	-	-	3.3
Specialty Primers, Sealers & Undercoaters	-	-	2.9
Stains, All	-	-	*2.9*
Traffic Coatings			
Applied to Public Streets and Highways	3.5	-	2.1
Applied to other Surfaces	2.1	-	2.1
Black Traffic Coatings	-	-	2.1
Varnishes	-	4.2	2.9
Waterproof Mastic Coating	-	-	2.5
Waterproof Sealers	-	-	3.3
Wood Preservatives Except Below Ground	-	-	*2.9*

Note[2]

[2] This note is not part of Rule 335. For the reader's convenience, words in italics are not part of this Rule 335, but are alphabetized repeats of listed coatings.

306 EXEMPTIONS - SPECIFIC USE COATINGS: This rule shall not apply to architectural coatings recommended by the manufacturer for use solely as one or more of the following:

306.1 Below ground wood preservative coatings.

306.2 Bond breakers.

306.3 Fire retardant coatings.

306.4 Graphic arts coatings (sign paints).

306.5 Mastic texture coatings.

306.6 Metallic pigmented coatings.

306.7 Multi-colored paints.

306.8 Quick-dry primers, sealers and undercoaters.

306.9 Shellacs.

306.10 Swimming pool paints.

306.11 Tile-like glaze coatings.

307 EXCEPTION - SMALL CONTAINERS: The provisions of this rule shall not apply to architectural coatings supplied in containers having capacities of one quart or less.

SECTION 400 - ADMINISTRATIVE REQUIREMENTS

401 LABELING REQUIRED: Effective July 13, 1989, containers for all coatings subject to this rule shall carry a statement of the manufacturer's recommendation regarding thinning of the coatings. Data may be quantified with either English or metric units. This requirement shall not apply to the thinning of the architectural coatings with water. The recommendation shall specify that the coating is to be employed without thinning or diluting under normal environmental and application conditions, unless the recommended thinning for normal environmental and application conditions does not cause the coating to exceed its applicable standard. Architectural coatings subject to the Federal Insecticide, Fungicide and Rodenticide Act shall not be subject to the labeling requirements of this rule.

402 MANUFACTURE DATE REQUIRED: Containers for all coatings subject to the provisions of this rule shall display the date of manufacture of the contents or a code indicating the date of manufacture. The manufacturers of such coatings shall file with the Control Officer an explanation of each code.

SECTION 500 - MONITORING AND RECORDS

501 DETERMINATION OF COMPLIANCE: Testing procedures to determine compliance with prescribed VOC limits shall be consistent with Reference Methods 24 and 24A in the Arizona Testing Manual for Air Pollutant Emissions.

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REGULATION III - CONTROL OF AIR CONTAMINANTS

RULE 336
SURFACE COATING OPERATIONS

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MARICOPA COUNTY
AIR POLLUTION CONTROL REGULATIONS

REGULATION III - CONTROL OF AIR CONTAMINANTS

RULE 336
SURFACE COATING OPERATIONS

SECTION 100 - GENERAL

101 PURPOSE: To limit the emission of volatile organic compounds (VOCs) from surface coating operations.

102 APPLICABILITY: This rule applies to coating operations listed in Table 1 of this rule that are not more specifically regulated by another rule within Rules 300 to 359 of Regulation III. Examples of coating operations not regulated by this rule appear in subsection 305.1.

102.1 Surface-coating activities regulated under this rule include, but are not limited to, the application of coating, coating preparation/mixing at the facility applying the coating, and the cleanup of coating application equipment.

102.2 Subsections 305.2 through 305.7 set forth partial or conditional exemptions for certain materials or uses employed by a surface coating operation subject to this rule.

102.3 This rule is not applicable to coatings having a VOC content, minus exempt compounds, of less than 0.15 lb VOC/gal (18g/L) nor to solvents having a VOC content of material less than 0.15 lb VOC/gal.

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

SECTION 200 - DEFINITIONS: For the purpose of this rule, the following definitions shall apply:

201 ADHESIVE - A material used for the primary purpose of bonding two or more surfaces together.

202 AEROSOL CAN - A non-refillable hand-held container from which a product is dispensed by means of pressurized propellant packaged within the container.

203 AIR-DRIED COATING - A coating which is dried by the use of air or forced warm air at temperatures up to and including 200°F (93.3°C).

204 **BAKED COATING -** A coating that is dried or cured in an oven in which the oven temperature exceeds 200°F (93.3°C).

205 **CAN COATING -** Any coating used in the production of metal cans.

206 **CAN PRINTING INK -** A fluid or viscous formulation used in can printing that imparts design, pattern, and/or alphanumeric symbols to a can.

207 **CLEAR COAT -** Any coating which lacks color or opacity or is transparent.

208 **COIL COATING -** Any coating applied to the surface(s) of flat metal sheets or strips that are formed into rolls or coils not used to make cans.

209 **DAY -** A period of 24 consecutive hours beginning at midnight.

210 **ELECTROSTATIC SPRAY/SYSTEM -** A method of applying atomized paint by electrically charging the coating and the object being coated with opposing charges. A higher proportion of the coating reaches and coats the object than would occur in the absence of a charge.

211 **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 of volatile organic compounds. Such system consists of an emissions collection subsystem and an emissions processing subsystem.

212 **END SEALING COMPOUND -** A compound which is coated onto can ends and functions as a gasket when the end is attached to the can.

213 **EXEMPT EVAPORATING COMPONENTS (EXEMPT COMPOUNDS) -** The non-VOC, evaporating portion of a coating formulation; this necessarily includes all non-precursor organic compounds, as well as water and other inorganic liquids and gases.

214 **EXTERIOR CAN-BASECOAT -** Any coating applied to the exterior of a can to provide protection for the metal or to provide background for any lithographic or printing operation.

215 **EXTREME PERFORMANCE COATING -** A coating used on a surface where the coated surface in its intended use is at temperatures consistently in excess of 250°F (121°C).

216 **FABRIC -** Textile material. Non-manufactured items from nature are not fabric except for natural threads, fibers, filaments, and similar that have been manufactured into textile fabric.

217 **FABRIC COATING -** Any decorative or protective coating or reinforcing material applied onto or impregnated into textile fabric.

218 **FILM COATING -** Any coating applied in a web coating process on film substrate other than paper or fabric, including, but not limited to, typewriter ribbons, photographic film, magnetic tape and metal foil gift wrap.

219 **FLEXIBLE PLASTIC PART OR PRODUCT -** A plastic part or product designed to withstand significant deformation without damaging it for its intended use. Not included are flexible plastic parts that are found on a can, coil, metal furniture, or large appliance, or that are already a part of an aerospace component, highway vehicle, mobile equipment, architectural building or structure, or a previously coated marine-vessel.

220 **HEAT SENSITIVE MATERIAL -** Materials which cannot consistently be exposed to temperatures greater than 203°F (95°C) without materially affecting desired function, performance, or other characteristics.

221 **HIGHWAY VEHICLE** - Any vehicle that is physically capable of being driven upon a highway including, but not limited to, cars, pickups, vans, trucks, truck-tractors, motor-homes, motorcycles, and utility vehicles.

222 **INTERIOR BASECOAT -** Any coating applied to the interior of a can to provide a protective lining between the intended contents and the metal shell of the can.

223 **INTERIOR BODY SPRAY -** Any coating sprayed onto the interior of a can to provide a protective film between the intended contents and the metal shell of the can.

224 **LARGE APPLIANCE -** A door, case, lid, panel, or interior support part of residential and commercial washers, dryers, ranges, refrigerators, freezers, water heaters, dishwashers, trash compactors, air conditioners, evaporative coolers and other similar products.

225 **LOW PRESSURE SPRAY GUN -** An air-atomized spray gun that, by design, functions best at tip pressures below 10 psig (516 mm Hg), measured according to subsection 503.1d of this rule, and for which the manufacturer makes no claims to the public that the gun can be used effectively above 12 psig (619 mm Hg).

226 **METAL FURNITURE -** Any furniture made of metal or any metal part which will be assembled with other parts made of metal or other material(s) to form a furniture piece.

227 **MINUS EXEMPT COMPOUNDS or MINUS EXEMPT EVAPORATING COMPONENTS -** See ***VOC Content Minus Exempt Compounds*.**

228 **MOBILE EQUIPMENT** - Any equipment that is physically capable of being driven or drawn upon a highway including, but not limited to, the following types of equipment: construction vehicles (such as mobile cranes, bulldozers, concrete mixers); farming equipment (wheel tractor, plow, pesticide sprayer); hauling equipment (truck trailers, utility bodies, camper shells); and miscellaneous equipment (street cleaners, mopeds, golf carts).

229 **NON-PRECURSOR ORGANIC COMPOUND -** Any of the organic compounds which have been designated by the EPA as having negligible photochemical reactivity. EPA designates such compounds as “exempt”. A listing of these compounds is found in Rule 100.

230 **ORGANIC COMPOUND -** Any compound of carbon excluding carbon monoxide, carbon dioxide, carbonic acid, carbonates, and metallic carbides.

231 OTHER METAL PARTS AND PRODUCTS - Any metal part or product, excluding the following items that are made of metal: can, coil, furniture, large appliance, aerospace component, metal foil, metal textile fabric, semiconductor metal, highway vehicle, mobile equipment, an architectural building or structure, a previously coated marine-vessel.

232 OVERVARNISH - Any coating applied to a can to reduce the coefficient of friction, to provide gloss, or to protect the finish against abrasion and/or corrosion.

233 PAPER COATING - Any coating applied on or impregnated into paper, including, but not limited to, adhesive tapes and labels, book covers, post cards, office copier paper, drafting paper and pressure sensitive tapes.

234 PLASTIC - Any solid, synthetic: resin, polymer, or elastomer, except rubber. For the purposes of this rule, plastic film is considered film; fabric and paper made of polymeric plastic fibers are considered fabric and paper, respectively.

235 POLYESTER and POLYESTER RESIN - A complex, polymeric ester containing difunctional acids.

236 POLYESTER COMPOSITE - Cured material made of polyester resin with reinforcing material imbedded in it, such as glass fibers.

237 PRIMER - A coating applied directly to substrate for any one or combination of the following purposes: corrosion prevention, protection from the environment, functional fluid resistance, or adhesion of subsequent coatings.

238 QUALITY CLASS Q - Any system, structure, coating or other component which, if defective or inoperable, could cause or increase the severity of a nuclear incident, thereby imposing undue risk to the health and safety of the public.

239 REFINISHING - Recoating a used object's surface which arrives at the refinisher with a coating or with a previous coating worn away by use.

240 REPAIR COATING - A coating or coating operation used to recoat the portion of a completed finish that suffered post-production damage at the facility where the finish was applied.

241 RESTRICTED SPRAY GUN - Any air-atomizing spray gun that is not a low pressure spray gun, and any other coating gun that is not on the list in subsection 303.1 of this rule.

242 SILICONE RELEASE COATING - Any resin coating, the major cured portion of which is silicone resin, having as its primary function the release of food products from metal surfaces such as baking pans.

243 SMALL SURFACE-COATING SOURCE (SSCS) - A facility from which the total VOC emissions for all surface coating operations that are subject to this rule without, or prior to, any emission control, is less than 15 pounds (6.8 kg) per day and less than 2 tons (1814 kg) per year; as demonstrated by both adequate records of coating and diluent use (pursuant to subsection 501.2) and a separate tally of the number of days each month that such coating operations occur.

244 STRIPPABLE BOOTH COATING - A temporary coating that is applied to spray booth surfaces to receive the overspray and protect the surfaces, and which is designed to readily be pulled off the substrate in strips or sheets, and disposed of.

245 SURFACE COATING - Any liquid, fluid, or mastic composition which is converted to a solid (or semi-solid) protective, decorative, or adherent film or deposit after application as a thin layer. Surface coating is generally distinct and different from impregnation and from applying adhesive for bonding purposes.

246 SURFACE COATING OPERATION - Preparation, handling, mixing, and application of surface coating, and cleanup of application-equipment and enclosures at a facility where surface coating is applied.

247 THREE-PIECE CAN SIDE-SEAM COAT - Any coating sprayed onto the interior and/or exterior of a can body seam on a three-piece can to protect the exposed metal.

248 TOPCOAT - The final, permanent, coating-formulation that completed the finish on a surface.

249 TOTAL VOC VAPOR PRESSURE (VOC COMPOSITE PARTIAL PRESSURE) - The sum of the partial pressures of the compounds defined as VOCs, calculated according to the formula in Section 504 of this rule.

250 TOUCH UP COATING - A coating used to cover minor coating imperfections after the main coating operation. This includes touch-up coating that accompanies the purchase of an object already coated with that coating.

251 TWO-PIECE CAN EXTERIOR END COAT - Any coating applied to the exterior end of a can to provide protection to the metal.

252 VINYL COATING (COATING ON VINYL) - Any decorative or protective coating or reinforcing coating applied over vinyl-coated textile fabric or vinyl sheets.

253 VOC-BORNE COATING - A coating that contains more VOC than water, by weight.

254 VOC-BORNE DILUENT - A solvent or other diluent that contains more VOC than water, by weight.

255 VOC CONTENT - In this rule, VOC content is determined by one of the following two formulas: To determine compliance with Table 1 or the 2.0 lb VOC/gal threshold in Section 302, use the following formula in subsection 255.1; For other purposes, use the formula in subsection 255.2:

255.1 VOC CONTENT MINUS EXEMPT COMPOUNDS (is the same as **VOC CONTENT MINUS EXEMPT EVAPORATING COMPONENTS**) (also known as **"THE EPA METHOD 24 VOC CONTENT"** on manufacturer's data sheets.)

$$\text{VOC Content Minus Exempt Compounds} = \frac{W_s - W_w - W_{es}}{V_m - V_w - V_{es}}$$

Using consistently either English or metric measures in the calculations,

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

W_w = weight of water in pounds (or grams)

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

V_m = volume of total material in gallons (or liters)

V_w = volume of water in gallons (or liters)

V_{es} = volume of all non-precursor compounds in gallons (or liters)

255.2 VOC CONTENT OF MATERIAL (MATERIAL VOC-CONTENT)

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

Using consistently either English or metric measures in the calculations,

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

W_w = weight of water in pounds (or grams)

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

V_m = volume of total material in gallons (or liters)

256 VOLATILE ORGANIC COMPOUND (VOC) - Any organic compound which participates in atmospheric photochemical reactions, except non-precursor organic compounds.

SECTION 300 - STANDARDS

301 SURFACE COATINGS: A person shall comply with one of the following for all applications of surface coatings:

301.1 Meet the limits in Table 1.

301.2 Operate an ECS in accordance with subsection 306.1 when applying a coating that exceeds the VOC limits in Table 1.

301.3 Qualify for an exemption under Section 305.

TABLE 1

SURFACE COATING EMISSION LIMITS		
TYPE OF SURFACE COATING **Column I**	LIMITS AS APPLIED: VOC content minus exempt compounds (see subsection 255.1) **Column II** lbs/gal	g/liter
Can Coating		
Sheet Basecoat (Exterior and Interior) and Overvarnish	2.8	340
Two-Piece Can Exterior (Basecoat and Overvarnish)	2.8	340
Two and Three-Piece Can Interior Body Spray	4.2	510
Two-Piece Can Exterior End (Spray or Roll Coat)	4.2	510
Three-Piece Can Side-Seam Spray	5.5	660
End Sealing Compound	3.7	440
Can Printing Ink	2.5	300
Coil Coating (any coat)	2.6	310
Metal Furniture Coating	3.0	360
Large Appliance Coating	2.8	340
OTHER METAL PARTS AND PRODUCTS COATING (As defined in Section 231) The following includes Non-adhesive Coating, Adhesive, Adhesive Primer, Caulking, and Beaded Sealants:		
Air-Dried Coating	3.5	420
Baked Coating [above 200°F (93°C)]	3.0	360
Silicone Release Coating: Baked or Air-Dried	3.5	420
Fabric Coating	2.9	350
Film Coating	2.9	350
COATING PLASTIC PARTS AND PRODUCTS THAT ARE **Not** Defined as Flexible	3.5	420
COATING FLEXIBLE PLASTIC PARTS AND PRODUCTS		
Primer	4.1	490
Color Topcoat	3.8	450
Basecoat/Clear Coat (Combined System) – Limit for either coat	4.5	540
Paper Coating, including Adhesives	2.9	350
Vinyl Coating (Coating on Vinyl)	3.8	450
STRIPPABLE BOOTH COATINGS	2.0	240

302 APPLICATION METHODS FOR SURFACE COATINGS: A person shall employ one of the following for all applications of surface coating containing more than 2 pounds of VOC per gallon (240 g/L) minus exempt compounds:

302.1 A low pressure spray gun; or

302.2 An electrostatic system; or

302.3 A system that atomizes principally by hydraulic pressure, including "airless" and "air assisted airless"; or

302.4 Non-atomizing or non-spraying application methods, such as but not limited to dipping, rolling, or brushing; or

302.5 Any method which is approved by the Administrator of the Federal EPA and the Control Officer as having a transfer efficiency of 65% or greater.

303 CLEANUP OF APPLICATION EQUIPMENT: A person shall comply with the following when using VOC-containing material to clean application equipment:

303.1 Disassemble any spray gun and other application equipment and clean it in:

a. A container which remains covered at all times, except when the application equipment is being handled in the container, or transferred into or out of the container; or

b. A commercially-sold gun cleaning machine which shall be operated and maintained as stipulated in the Air Pollution Permit's Operation and Maintenance (O&M) Plan, or – in the absence of its mention in the O&M Plan – according to manufacturer's or distributor's instructions.

303.2 Vapor Pressure Limits: Any person subject to this rule using VOC-solvent to clean coating application equipment shall use only solvent which, as used, has a VOC-vapor pressure below 35 mm Hg at 20° C (68° F), except for sprayless equipment exempted pursuant to subsection 305.6.

304 HANDLING AND DISPOSAL OF VOC:

304.1 Use And Storage: A person shall cover and keep covered each VOC-containing material which is not currently in use. A person shall store finishing and cleaning materials in closed or covered leak-free containers.

304.2 Disposal Of VOC And VOC-Containing Material: A person shall store all VOC-containing materials intended for disposal including, but not limited to, rags, waste coatings, waste brushes, waste rollers, waste applicators, waste solvents, and their residues, in closed, leakfree containers which are legibly labeled with their contents and which remain covered when not in use.

305 EXEMPTIONS:

305.1 Categorical Exemptions: This rule does not apply to the following operations:

a. Aerospace coating operations (Rule 348).

b. Architectural coating, including buildings and erected structures (Rule 335).

c. Cleaning: VOC loss from cleaning or stripping a surface for coating or other purpose is regulated by Rule 331.

d. Marine vessel exterior refinishing.

e. Polyester coatings applied to polyester composites.

f. Printing and graphic arts coating (Rule 337).

g. Semiconductor manufacturing (Rule 338).

h. Coating a highway vehicle or mobile equipment (Rule 345).

i. Wood: Coating Wood Furniture (Rule 342); Coating Wood Millwork (Rule 346).

305.2 Exemptions For Qualified Materials: Rule 336 does not apply to the following materials that meet the specific qualification(s) and limitation(s) set forth herein:

a. Leak-Preventing Materials: Sealants, adhesives, caulking, and similar materials used on the following substrates for the primary purpose of leak prevention are exempt from this rule:

(1) Non-metallic substrates; and

(2) Used substrates, post manufacture, such as, but not limited to, old joints and seals on pipe and valve assemblies.

b. Adhesive Use:

(1) Adhesive and adhesive primer applications are exempt from this rule, except for the 2 categories that appear in Table 1, namely adhesive materials applied to other metal parts and products (as defined in Section 231), and adhesives used in paper coating (as defined in Section 233).

(2) Any adhesive exempted by this Rule 336 and to which no other rule in Regulation III specifically applies shall comply with the provisions of Rule 330 (Volatile Organic Compounds) of these Rules & Regulations.

c. Certain Joint Fillers: Caulking and beaded sealants used to fill gaps or to fill joints between surfaces are exempt from this rule, except those used in manufacturing other metal parts and products as defined in Section 231 of this rule, or in the manufacturing of cans.

d. Extreme Performance Coatings: Extreme performance coatings are exempt from the VOC limits of Table 1 when used under the following conditions:

(1) Used on internal combustion engine components that are normally above 250°F (121°C) during use; or

(2) Used at temperatures above 250°F (121°C) on items that are both included under SIC (Standard Industrial Classification, 1987) codes 3661, 3663, 3669, 3677, 3678, 3679, or 3769 and are electronic products in space vehicles and/or are communications equipment. The US Government Printing Office "Standard Industrial Classification Manual, 1987" (and no future editions) is incorporated by reference and is on file at Maricopa County Environmental Services Department, 1001 N. Central Avenue, Suite 201, Phoenix, Arizona 85004-1942.

305.3 ECS Use In Lieu Of Equipment/Practice: In lieu of meeting an equipment or work practice standard within Sections 302, 303, or 304, an owner or operator is allowed to instead use an ECS that has a capture efficiency not less than 90% and meets all ECS requirements in Section 306.

305.4 Spray-Gun And VOC-Limit Exemptions: The following are exempt from subsection 301.1, subsection 301.2, and Section 302 of this rule:

a. Coating with an aerosol can.

b. Touch up or repair-coating operations as defined in Sections 250 and 240.

c. Low usage coatings which in aggregate of all formulations do not exceed 55 gallons (208 liters) per year facility-wide if the operator updates usage-records of these coatings on each day of their use, pursuant to subsection 501.2.

d. A small surface-coating source (SSCS) as defined in Section 243. However, once a small surface-coating source exceeds either the 15 lb per day or the 2 tons per year limits that are required to maintain SSCS status, that facility is permanently subject to the limits of subsection 301.1, subsection 301.2, and Section 302, with the following exception:

(1) For such a facility that does not have either a 15 lb/day or a 2 ton/year VOC-emission limit in an Air Pollution Permit for processes regulated by this rule, an owner or operator may retain the exemption if s/he agrees in writing to enforceable permit conditions that establish these or stricter limits.

(2) However, a facility that violates its permit limit of either 15 lbs VOC/day or 2 tons VOC/yr. for coating process regulated by this Rule 336 is permanently subject to the limits of subsections 301.1 and 301.2, and Section 302.

e. A Quality Class Q protective coating that is used on equipment, structures, and/or components within a containment facility of a nuclear power plant and is approved in accordance with either ANSI standards N101.2 and N101.4 or with ASTM Standards D3911 and D3843.

f. A tactical military-equipment coating that is approved in an MCESD Air Pollution Permit subsequent to a sufficient demonstration by the user that no compliant substitute exists.

305.5 Special Facilities/Operations:

a. Silicone Release Coatings: Silicone release coating operations controlled by an ECS pursuant to subsection 301.2 are exempt from the 85 percent overall control efficiency requirement if the ECS demonstrates at least 70 percent overall control and the coating is applied with a liquid seal air spray system.

b. Bonding Impact Resistant Rubber Lining To Metal: An adhesive and an adhesive-primer are exempt from Table 1 limits, but shall not have a VOC content of material exceeding 850 grams of VOC per liter (7.1 lb/gal), if such adhesive is used to bond sheets/strips of rubber to metal equipment so that such rubber sheathing directly contacts material received by the metal and so protects the metal. This exception does not apply to any other situations where adhesives are used to bond rubber to metal.

305.6 Exemption Of Coating Applicator Cleanup: A person is allowed to use solvent that has at 20° C (68° F) a total VOC vapor pressure above 35 mm Hg for cleaning coating-application equipment, but only if such application equipment does not use spray devices and the same principal solvent is used for cleaning as is used in the coating.

305.7 Low-Usage Allowance For Restricted Guns: A person may employ spray guns otherwise prohibited by Section 302 for use with coatings over 2 lb VOC /gal under the following limited conditions:

a. If VOC emissions from the finishing application station, are captured and directed to an ECS complying with the provisions of Section 306.

b. To coat the inside of pipes and tubes with a wand-style applicator.

c. Using an airbrush or other small gun that has a reservoir capacity not exceeding 250 cc (8.8 fluid ounces) and is used solely for detailing, lettering, touchup, and/or repair.

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

306.1 ECS Control Efficiencies: To meet the requirements pursuant to subsection 301.2, subsection 305.3, or subsection 305.7, an ECS shall be operated as follows:

a. Overall ECS Efficiency: Overall, the ECS shall prevent at least 85% of the mass of the VOC emitted by each coating or process so controlled from entering the atmosphere except as successfully controlled pursuant to the alternative in subsection 306.1c(2).

b. Capture Efficiencies:

(1) For an ECS used pursuant to subsection 301.2 and/or subsection 305.7, capture shall be at least 87%.

(2) For an ECS used pursuant to subsection 305.3, capture shall be at least 90%.

c. Control Efficiency Of The Emissions Processing Subsystem:

(1) The emissions-processing subsystem of the ECS shall reduce the mass of VOC entering it by at least 90 percent; or

(2) **Alternative For Very Dilute Input**: For VOC input-concentrations of less than 100 ppm (as carbon) at the inlet of the ECS emissions-processing subsystem, an ECS' VOC processing subsystem also satisfies the processor efficiency requirements of this rule if:

(a) The VOC output is consistently less than 20 mg VOC/M^3 (as carbon) adjusted to standard conditions; and

(b) The ECS consistently shows an overall control efficiency of at least 85% when tested pursuant to subsection 503.3 at VOC input-concentrations exceeding 100 ppm (as carbon).

d. Coating that exceeds the applicable VOC-limits in Table 1 shall be clearly identified such that coating-operators are informed an ECS must be used.

306.2 Operation And Maintenance (O&M) Plan Required For ECS:

a. An owner or operator shall provide and maintain (an) O&M Plan(s) for any ECS, any other emission processing equipment, and any ECS monitoring devices that are used pursuant to this Rule 336 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 336.

c. The owner or operator shall comply with all the identified actions and schedules provided in each O&M Plan.

306.3 Providing And Maintaining ECS Monitoring Devices: Any person incinerating, adsorbing, or otherwise processing VOC emissions pursuant to this rule shall provide, 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 and is properly maintained.

Records shall kept pursuant to Section 502 which demonstrate that the ECS meets the overall control standard required by subsection 306.1.

306.4 O&M Plan Responsibility: An owner or operator of a facility that is required to have an O&M Plan pursuant to subsection 306.2 must fully comply with all O&M Plans that the owner or operator has submitted for approval, but which have not yet been approved, unless notified otherwise by the Control Officer in writing.

SECTION 400 - ADMINISTRATIVE REQUIREMENTS

401 COMPLIANCE SCHEDULE:

401.1 By August 1, 1999:

a. All new recordkeeping provisions shall be in effect, including subsections 501.1c and 501.2a.

b. The intention to use an Emission Control System (ECS) shall be announced to the Control Officer in writing if:

(1) The ECS is used as an alternative to meeting the spray-gun provisions of Section 302; or

(2) The ECS is used as an alternative to meeting the gun cleaning machine provisions of Section 303.

401.2 By November 1, 1999, the following shall be in continuing use:

a. Spray guns required pursuant to Section 302;

b. Cleaning-solvent(s) having the required vapor pressure pursuant to Section 303, and the data sheet(s) confirming the vapor pressure.

401.3 By May 1, 2000, the ECS announced pursuant to subsection 401.1b shall be in continuing use.

SECTION 500 - MONITORING AND RECORDS

501 RECORDKEEPING AND REPORTING: Any person subject to this rule shall comply with the following requirements of subsections 501.1 and 501.2 that apply to materials regulated by this Rule 336. Records shall be retained for 5 years and shall be made available to the Control Officer upon request.

501.1 Current Lists:

a. Maintain a current list of coatings, adhesives, reducers, thinners, gun-cleaning materials, additives, and any other VOC-containing materials regulated by this rule; give the VOC content of material for each as received (before thinning). A complete, neat assemblage of this data meets the requirements for a list. Express VOC content in 1 of 3 forms: pounds VOC

per gallon, grams VOC per liter, or the percent VOC by weight along with the specific gravity or density,(2 numbers are required).

b. Less Stringent Recordkeeping For Consistently Low Users: An operator of a facility that always uses less than 2 gallons per day total of thinner and coating (listed in Table 1), meets the listing and recording requirements of subsections 501.1a, 501.1c, and 501.2 if:

(1) All purchase receipts/invoices of VOC-containing material that is regulated by this rule for the most recent 12 months are kept together; and

(2) Current data sheets show the VOC content of material for every VOC-containing substance currently used that is regulated by this rule.

c. Facilities That Are Not Small Surface-Coating Sources: Facilities that are not small surface-coating sources shall do the following:

(1) Coatings: For all coatings (except those recorded under the subsection 305.4c low usage allowance), make the following listings for coatings and adhesives that have VOC limits in Table 1:

(a) VOC Before Reducing: The VOC content of each coating as received, minus exempt compounds. (This figure is sometimes called the "EPA Method 24" VOC content on manufacturer's data sheets). If the coating is a multi-part coating, list the VOC content which the manufacturer states the coating will have once you have mixed all the necessary parts together in the proportions specified by the manufacturer.

(b) List Maximum VOC Content Of Coating As Applied: For each coating that you thin/reduce or add any additive to, record in a permanent log either of the following:

(i) The maximum number of fluid ounces thinner/reducer that you ever add to a gallon of unreduced coating (or maximum g/liter), and the maximum fluid ounces of every other additive you mix into a gallon of the coating; or

(ii) The VOC content of the coating, after adding the maximum amount of thinner/reducer and other additives that you would ever add, as determined by the formula in subsection 255.1.

(2) Applicator Cleanup Solvent: Have a hardcopy of the VOC vapor pressure (VP) at 20°C (68°F) of solvent(s) used to clean spray guns, hoses, reservoirs, and any other coating application equipment. Any one of the following ways of providing the VP data is sufficient:

(a) A current manufacturer's technical data sheet;

(b) A current manufacturer's safety data sheet (MSDS);

(c) Actual test results; or

(d) A letter signed by an official or lab manager of the supplying facility.

501.2 Frequency Of Updating Usage Records: Update your records, showing the type and amount used of each VOC-containing coating or adhesive which is regulated by name or type in Table 1, and update each VOC-containing material, related to surface coating, that is not addressed by Table 1. This includes, but is not limited to, thinners, surfacers, and diluents. Maintain records according to the following schedule:

a. Small Surface-Coating Sources: Small surface-coating sources shall update each month's records of coating use by the end of the following month.

b. All Other Sources: For a source that does not meet the definition of small surface-coating source:

(1) Monthly: Monthly update records of each coating used that complies with the VOC limits in Table 1. Complete a month's update by the end of the following month.

(2) Daily: Daily update the usage of each coating that exceeds its limits in Table 1, including coating exempted by subsection 305.4c.

501.3 Grouping By VOC Content: For purposes of recording usage, coatings and adhesives that are in the same category in Table 1, and have similar VOC content, may be recorded under a name that includes the category name. The highest VOC content among the members of that grouping shall be assigned to that grouping, rounded to the nearest 10th of a pound. To identify what products belong within each group, after each group name and the group's VOC content of material must appear the name of each product in the group and its VOC content of material. **For example:** For flexible plastic parts, you use 20 gallons of primer that has 3.04 lb VOC/gal., 30 gallons of primer having 3.14 lb VOC/gal., and 40 gallons of primer having 2.89 lb VOC/gal. You may record usage as 90 gallons of flexible plastic primer containing 3.1 lb VOC/gal. If grams VOC per liter is used to record VOC content, round off to the nearest whole number of grams.

502 ECS RECORDING REQUIREMENTS:

502.1 On each day an ECS is used at a facility pursuant to this rule, an owner or operator of the facility shall:

a. Record the amount and VOC content of coating, the amount of catalyst/hardener, and the amounts of solvent, reducer, and diluent used that were subject to ECS control pursuant to this Rule 336; and

b. Make a permanent record of the operating parameters of the key systems as required by the O&M Plan; and

c. Make a permanent record of the maintenance actions taken, within 24 hours of the action's completion, for each day or period in which the O&M Plan requires that maintenance be done.

502.2. An explanation shall be entered for scheduled maintenance that is not performed during the period designated for it in the O&M Plan.

503 COMPLIANCE DETERMINATION AND TEST METHODS: When more than one test method is permitted for a determination, an exceedance of the limits established in the rule determined by any of the applicable test methods constitutes a violation of this rule.

503.1 Compliance Determination: The following means shall be used to determine compliance with this rule:

a. Measurement of VOC content of materials subject to Section 301 or Section 302 of this rule shall be conducted and reported using one of the following means:

(1) VOC content of coatings, solvents, and other substances having less than 5% solids will be determined by the test method in subsection 503.2f (BAAQMD Method 31 [April 15, 1992]) or 503.2g (SCAQMD Method 313-91 [April 1997]).

(2) The VOC content of coatings or other materials having 5% or more solids will be determined by the test method in subsection 503.2c (EPA Method 24), 503.2f (BAAQMD Method 31 [April 15, 1992]) or 503.2g (SCAQMD Method 313-91 [April 1997]).

(a) Plastisols, powder coatings, and radiation-cured coatings shall be cured according to the procedures actually used in the coating process being tested before final VOC-emission determinations are made.

(b) In the case of multi-component, polymerizing coatings tested according to 503.1a, Method 24 shall be modified to eliminate the post-mixing dilution-step (that employs toluene or other solvent). Instead, the mixture shall be spread by appropriate technique to form a thin layer, occupying the entire bottom of the foil pan. Techniques included in the method referenced in 503.1b can be used as a guide for such spreading.

b. The VOC content of gaseous emissions entering and exiting an ECS shall be determined by either EPA Method 18 referred to in subsection

503.2b, or EPA Method 25 and its submethod, referred to in subsection 503.2d.

c. Capture efficiency of an ECS shall be determined either by the methods in 503.2e (EPA Method 204 and its submethods), or by using mass balance calculation methods in concert with the methods in 503.2a (EPA Methods 2, 2a, 2c, and 2d).

d. Measurement of air pressure at the center of the spray gun tip and air horns of an air-atomizing spray gun (reference subsection 302.1 and Section 225) shall be performed using an attachable device in proper working order supplied by the gun's manufacturer for performing such a measurement.

e. Temperature measurements shall be done with an instrument with an accuracy and precision of less than one-half degree Fahrenheit (0.25°C) for temperatures up to 480°F (250°C).

503.2 Test Methods Adopted By Reference: The EPA test methods as they exist in the Code of Federal Regulations (CFR) (July 1, 1998), as listed below, are adopted by reference. The other test methods listed here are also adopted by reference, each having paired with it a specific date that identifies the particular version/revision of the method that is adopted by reference. These adoptions by reference include no future editions or amendments. Copies of test methods referenced in this Section 503 are available at the Maricopa County Environmental Services Department, 1001 North Central Avenue, Phoenix, AZ, 85004-1942.

a. EPA 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”). All 4 of the foregoing methods are in 40 CFR 60, Appendix A.

b. EPA Method 18 (“Measurement of Gaseous Organic Compound Emissions by Gas Chromatography”) and its submethods (40 CFR 60, Appendix A).

c. EPA Test Method 24 (“Determination of Volatile Matter Content, Water Content, Density, Volume Solids, and Weight Solids of Surface Coatings”) (40 CFR 60, Appendix A).

d. EPA Method 25 (“Determination of Total Gaseous Nonmethane Organic Emissions as Carbon”) and its submethods (40 CFR 60, Appendix A).

e. EPA Test Methods 204 (“Criteria For and Verification Of a Permanent or Temporary Total Enclosure”), 204a, 204b, 204c, 204d, 204e, and 204f (Appendix M, 40 CFR 51).

f. California's Bay Area Air Quality Management District (BAAQMD) Method 31 (April 15, 1992), "Determination of Volatile Organic Compounds in Paint Strippers, Solvent Cleaners, and Low Solids Coatings."

g. California's South Coast Air Quality Management District (SCAQMD) Method 313-91 (April 1997).

503.3 Test Methods For ECS: For coatings/adhesives controlled pursuant to subsection 302.1 or subsection 305.3:

a. Measurements of VOC emissions from an ECS shall be conducted in accordance with EPA Methods 18 or its submethods, or by Method 25 or its submethods (40 CFR 60, Appendix A).

b. Capture efficiency of an ECS shall be determined by mass balance in combination with ventilation/draft rate determinations done in accordance with subsection 503.3c or with US EPA Test Methods 204, 204a, 204b, 204c, 204d, 204e, and 204f (Appendix M, 40 CFR 51).

c. Ventilation/draft rates shall be determined by EPA Methods 2, 2a, 2c, and 2d (40 CFR 60, Appendix A).

504 FORMULA FOR TOTAL VOC VAPOR PRESSURE: Equivalent to: **VOC COMPOSITE PARTIAL PRESSURE.** Reference subsection 303.2

$$PP_c = \frac{\sum_{i=1}^{n} (W_i)(VP_i) / MW_i}{\frac{W_w}{18} + \sum_{i=1}^{m} \frac{W_{ej}}{MW_{ej}} + \sum_{i=1}^{n} \frac{W_i}{MW_i}}$$

W_i = Weight of the "i"th VOC compound in grams

W_w = Weight of water in grams

W_{ej} = Weight of the "j"th non-precursor compound in grams

MW_i = Molecular weight of the "i"th VOC compound in grams per gram mole, e.g., one gram-mole of isopropyl alcohol weighs 60 grams

MW_{ej} = Molecular weight of the "j"th non-precursor compound, e.g., 1 gram-mole of acetone weighs 58 grams

PP_c = VOC composite partial pressure at 20°C in mm mercury (Hg)

VP_i = Vapor pressure of the "i"th VOC compound at 20°C in mm Hg

18 = Weight of one gram-mole of water

REGULATION III - CONTROL OF AIR CONTAMINANTS

RULE 337
GRAPHIC ARTS

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Adopted 04/06/92
Revised 04/03/96
Revised 11/20/96

MARICOPA COUNTY
AIR POLLUTION CONTROL REGULATIONS

REGULATION III - CONTROL OF AIR CONTAMINANTS

RULE 337
GRAPHIC ARTS

SECTION 100 - GENERAL

101 PURPOSE: To limit the emissions of volatile organic compounds to the ambient air from graphic arts operations and associated coating processes.

SECTION 200 - DEFINITIONS: For the purpose of this rule, the following definitions shall apply:

201 ALCOHOL - A volatile organic compound – such as isopropanol, normal-propanol, and ethanol – of alkane structure consisting of fewer than 6 carbon atoms and having a single OH- (hydroxyl) group and no other non-alkane attachments.

202 ALCOHOL SUBSTITUTE - A wetting agent, used to replace some or all of the alcohol in fountain solutions, and usually containing inorganic phosphates and volatile organic compounds such as glycols.

203 CIRCUITRY PRINTING - Any graphic arts operation which either uses ink(s) with specific electrical properties to print an electrical circuit, or prints a circuit pattern that is made into an electrical circuit through further processing.

204 CLEANING SOLUTION - Any liquid, including blanket wash and roller wash, used to remove ink and debris from the operating surfaces of a printing press or from any of the attached parts of a press.

205 COATING - A layer of material applied to a substrate in a relatively unbroken film.

206 EMISSION CONTROL SYSTEM (ECS) - A system for reducing emissions of organic compounds, consisting of both collection and control devices which are approved in writing by the Control Officer and are designed and operated in accordance with good engineering practice.

207 FLEXOGRAPHIC PRINTING - The application of words, designs or pictures by roll-printing technique in which the image-carrying surface is raised above the surface of the printing roll and the image carrier is made of flexible rubber or other elastomeric material.

208 GRAPHIC ARTS - All screen, gravure, letterpress, flexographic and lithographic printing processes, including related coating and laminating processes.

209 **GRAPHIC ARTS FACILITY -** All the graphic arts processes and activities which are located on one or more contiguous or adjacent properties and are under the control of the same person (or persons under common control).

210 **GRAPHIC ARTS MATERIAL -** Any ink, varnish, coating or adhesive, including added thinner or retarder, used in printing or related coating or laminating processes.

211 **GRAPHIC ARTS VARNISH -** A transparent material, applied by printing press, that is used to adjust gloss, to adjust color, or to protect printed material or printing substrate.

212 **GRAVURE PRINTING -** An intaglio process in which the ink is carried in minute, etched or engraved wells on a roll or cylinder, excess ink being removed from the surface by a doctor blade.

213 **LAMINATION -** A process of fusing two or more layers of material together to form a single sheet by using adhesive.

214 **LETTERPRESS PRINTING -** A method in which the image area is raised relative to the non-image area and the ink is transferred to the paper directly from the image surface.

215 **LITHOGRAPHIC PRINTING -** A printing process where the image and non-image areas of the printing plate are chemically differentiated; the image area is oil receptive and the non-image area is water receptive. This method differs from other printing methods, where the image is on a raised or recessed surface.

216 **NON-PRECURSOR ORGANIC COMPOUND -** Any of the organic compounds, listed in subsection a. of Appendix A, which have been designated by the EPA as having negligible photochemical reactivity.

217 **PRINTING -** An operation that imparts color, design, pattern, alphabet or numerals onto a substrate. It differs from coating in that its principal intent is to accomplish such visual/spatial outcome(s) rather than for other purposes commonly accomplished by using coatings.

218 **PRINTING INK -** A fluid or viscous formulation used in printing, impressing or transferring an image onto a substrate.

219 **SCREEN PRINTING -** A process of passing printing ink through a screen (a taut web or fabric) to make an imprint on a substrate. A refined form of stencil has been applied to the screen such that the stencil openings determine the form and dimensions of the imprint.

220 **UNITS PER PRINTING PRESS** - The number of printing surfaces per printing press.

221 **VAPOR PRESSURE -** The pressure exerted at a uniform temperature by the gas of a substance when the gas is in equilibrium with the liquid (or solid) phase of that substance. Example: At 68°F the vapor pressure of toluene vapor in equilibrium with undiluted liquid toluene is 23 millimeters of mercury.

222 **VOC VAPOR PRESSURE:** The total vapor pressure exerted by VOC at an even temperature. It distinguishes the vapor pressure of VOC from the vapor pressures of other fluids when a liquid contains both VOC and non-VOC fluids.

223 **VOLATILE ORGANIC COMPOUND (VOC) -** Any organic compound which participates in atmospheric photochemical reactions, except a non-precursor organic compound.

224 **WEB-FEED -** An automatic system which supplies substrate from a continuous roll or from a continuous extrusion process.

SECTION 300 - STANDARDS

301 **GRAPHIC ARTS MATERIALS:** VOC emissions from graphic arts materials shall be limited as follows:

301.1 **Limits of VOC Content:** No person shall apply any inks, varnishes, coatings, or adhesives unless the VOC content as applied is equal to or less than 2.5 pounds per gallon (300 grams per liter), less water and non-precursor organic compounds.

301.2 **Emission Control System for Offset Lithographic Printing:** As an alternative to the provisions of subsection 301.1, a person may comply by using an Emission Control System with a control device efficiency which reduces the VOC emissions from the dryer exhaust vent by at least 90 percent by weight. The dryer pressure shall be maintained lower than the press room air pressure such that air flows into the dryer at all times when the press is operating.

301.3 **Emission Control System for All Other Graphic Arts Printing:** As an alternative to the provisions of subsection 301.1, a person may comply by using an Emission Control System which reduces the VOC emissions from the dryer exhaust vent by at least 90 percent by weight, and an overall capture and control efficiency of at least 65 percent by weight.

302 **FOUNTAIN SOLUTION VOC LIMITS:** After March 27, 1997, an owner or operator of an offset lithographic printing press shall limit the combined total volume of alcohol, alcohol substitute, and any other VOC in each fountain solution source to the limits in column A of Table 1 whenever the press is on; except that a fountain solution source refrigerated below 60°F and having a properly indicating temperature monitor is subject to the limits in column B of Table I.

TABLE 1
VOC LIMITS BY VOLUME FOR FOUNTAIN SOLUTION *

Column A	Column B	Column C
	Limit for a Source Refrigerated	
General Limit	Below 60°F	Compliance Date
15 percent	25.5 percent	March 28, 1997
10 percent	17 percent	March 28, 1998
5 percent	8.5 percent	March 28, 1999

*(Appendix A Table AP-I gives equivalent limits)

303 CLEANING SOLUTIONS: Any person who owns or operates an offset lithographic printing press shall reduce VOC emissions from cleaning solutions by using cleaning solutions with a vapor pressure at 20°C compliant with the standards in Table 2. In addition, all VOC-containing materials used for cleaning and cleanup, including rags and towels, shall be stored in closed containers when not in use.

TABLE 2
VOC-VAPOR-PRESSURE LIMITS FOR CLEANING SOLUTIONS

Vapor Pressure	Compliance Date
33 mm Hg	March 28, 1997
25 mm Hg	March 28, 1998
10 mm Hg	March 28, 1999

304 LABELING REQUIREMENT: No person shall sell, offer for sale, or manufacture for sale within Maricopa County any ink, coating, adhesive, fountain solution or fountain solution concentrate for use in graphic arts operations unless such material includes a designation of VOC content on data sheet(s), expressed in pounds per gallon or grams per liter.

305 OPERATION AND MAINTENANCE (O&M) PLAN: The owners or operators of an emission control system used to meet the requirements of this rule shall provide the Control Officer with an O&M Plan. This plan shall specify key system operating parameters, such as temperatures, pressures and/or flow rates, necessary to determine compliance with this rule, and describe in detail procedures to maintain the emission control system. The Control Officer's written approval of this plan and the implementation of this plan shall be required for compliance with this section to be achieved.

306 EXEMPTIONS:

306.1 Exemption From Section 301: The provisions of Section 301 of this rule shall not apply to any graphic arts facility which emits less than the threshold amounts of 25 tons (22,680 kg) per calendar year and 4200 pounds (1909 kg) per month of VOC from all graphic arts and related coating operations prior to control. Except as otherwise directed by air pollution permit, any facility that becomes subject to the provisions of Section 301 by exceeding either threshold amount will remain subject to these provisions even if annual emissions later fall below these thresholds.

306.2 Total Exemption:

a. Circuitry printing is exempt from this rule. This exemption includes other associated printing performed for labeling, logo, or identification purposes on a printed circuit, its substrate, its immediate covering, or its immediate encapsulant by a circuitry printer.

b. Any printing operation in which no printing press has over two units, and the combined impression area of all presses together does not exceed 500 square inches (3226 cm^2) is exempt from this rule.

SECTION 400 - ADMINISTRATIVE REQUIREMENTS

401 EFFECTIVE DATE: This rule is effective May 3, 1996.

SECTION 500 - MONITORING AND RECORDS

501 PROVIDING AND MAINTAINING MONITORING DEVICES: Any person operating an Emission Control System pursuant to this rule shall install, maintain, and calibrate monitoring devices described in an O&M Plan. The monitoring devices shall measure temperatures, pressures, rates of flow, or other operating conditions necessary to determine if air pollution control equipment is functioning properly.

502 MONITORING FOUNTAIN SOLUTION CONTAINING ALCOHOL: The owner or operator of any printing press shall monitor the alcohol concentration of each fountain solution source containing any alcohol with a refractometer, a hydrometer or a conductivity meter. The instrument shall have a visual readout (analog or digital) with an accuracy of either ±2 percent of the meter's full scale, or ±0.5 percent absolute (such as for meter readings given in percent.)

502.1 Weekly Entry of Monitoring Data If Any Alcohol Is Used:

a. A weekly entry shall be made of the results of an instrument reading, required by Section 502, for each fountain solution source containing any alcohol; and

b. Weekly, for each fountain solution source, record the names and the most current mixing ratio of all alcohol, alcohol-substitutes, and water used in making fountain solution in that source.

502.2 Monthly Entries for Presses Which Never Use Any Alcohol: Monthly, record the names of all alcohol-substitutes and the mixing ratio of all alcohol-substitutes to water, for each fountain solution source on a press which never uses alcohol.

503 RECORDKEEPING AND REPORTING: Any person subject to this rule shall comply with the following requirements. Any records required by this rule shall be retained for five years and shall be made available to the Control Officer upon request.

503.1 Current List: Maintain a current list of inks, coatings, adhesives, fountain-solution alcohol(s) and alcohol substitutes, thinners, cleaners, and any other VOC-containing materials used at the facility; state the VOC content of each in pounds per gallon or grams per liter. In addition, for each blanket wash and other cleaning solution, list the VOC vapor pressure at 20°C (68°F).

503.2 Usage Records of Graphic Arts Materials and Cleaning Solutions: In compliance with the schedule in subsections 503.2 a. and 503.2 b. below, update records showing the type, and amount of each graphic-arts ink, varnish, coating, adhesive, fountain solution, blanket wash, and all other cleaning solutions.

a. Daily Records for 25 Ton Sources: Daily, an operator of a graphic arts facility shall update usage records of materials specified in subsection 503.2 if, facility-wide, such

facility emits 25 tons or more of VOC emissions per calendar year or 4200 pounds or more of VOC emissions per month from all graphic arts and related coating operations prior to any control. However, the operator may maintain *monthly* records of materials complying with subsection 301.1 VOC limits or Section 303 vapor pressure limits, if each material served by a control device is identified as such.

b. Monthly Usage Records: Monthly records of materials' usage shall be maintained pursuant to subsection 503.2 by any facility except for the (≥25 TPY) facilities subject to subsection 503.2 a..

503.3 ECS Operation and Maintenance: Maintain a continuous record of the times an Emission Control Device is used to comply with this rule. Maintain daily records of the O&M Plan's key system operating parameters. Maintain records of all maintenance performed according to the O&M Plan.

504 COMPLIANCE DETERMINATION - TEST METHODS

504.1 Sample Analysis: VOC content of graphic arts materials regulated by Section 301 or Section 302 shall be determined using the applicable EPA Reference Method 24 or 24A, Title 40, CFR, Part 60, Appendix A. Calculation of the VOC content of fountain solutions (reference Section 302) shall place the entire volume of the sample in the denominator, e.g., including water, alcohol, non-precursors, and all other solutes, such that the entire volume of the sample is included in the calculations.

504.2 Test Method For Determining Minimum VOC Content Of A Fountain Solution Via Density And Specific Gravity: The test method procedure, which employs an ASTM-rated hydrometer, is found in this rule's Appendix A, subsection b. ASTM is the American Society for Testing and Materials.

504.3 Emission Testing: Control efficiency of an emissions control device shall be determined according to EPA Reference Method 25, 25A, or 25B, Title 40, CFR Part 60, Appendix A. Capture efficiency of an Emissions Control System shall be determined according to "Guidelines for Determining Capture Efficiency" January 9, 1995, Candace Sorrell, Source Characterization Group A, Office of Air Quality Planning and Standards, US EPA. This document is incorporated by reference and is available at 2406 South 24 Street, Suite E-214, Phoenix, Arizona, or call (602)-506-6700 for information.

504.4 Vapor Pressure: The total partial vapor pressure of all VOC in a cleaning solution shall be determined by ASTM D2879-92 or by calculations using certified data from a laboratory or manufacturer revealing the exact formulation.

APPENDIX A TO RULE 337

a. Definition.

NON-PRECURSOR ORGANIC COMPOUND - Any of the following organic compounds which have been designated by the EPA as having negligible photochemical reactivity: acetone; methane; ethane; methylene

chloride (dichloromethane); 1,1,1-trichloroethane; trichlorofluoromethane (CFC-11); dichlorodifluoromethane (CFC-12); chlorodifluoromethane (CFC-22); 1,1,2-trichloro-1,2,2-trifluoroethane (CFC-113); 1,2-dichlorotetrafluoroethane (CFC-114); chloropentafluoroethane (CFC-115); trifluoromethane (HFC-23); 2,2-dichloro-1,1,1-trifluoroethane (HCFC-123); 2-chloro-1,1,1,2-tetrafluoroethane (HCFC-124); 1,1-dichloro-1-fluoroethane (HCFC-141b); 1-chloro-1,1-difluoroethane (HCFC-142b); pentafluoroethane (HFC-125); 1,1,2,2-tetrafluoroethane (HFC-134); 1,1,1,2-tetrafluoroethane (HFC-134a); 1,1,1-trifluoroethane (HFC-143a); 1,1-difluoroethane (HFC-152a); parachlorobenzotrifluoride (PCBTF); perchloroethylene (tetrachloroethylene); 3,3-dichloro-1,1,1,2,2-pentafluoropropane (HCFC-225ca); 1,3-dichloro-1,1,2,2,3-pentafluoropropane (HCFC-225cb); 1,1,1,2,3,4,4,5,5,5-decafluoropentane (HFC 43-10mee); cyclic, branched, or linear completely methylated siloxanes; all completely fluorinated, completely saturated: alkanes, ethers and tertiary amines; sulfur-containing perfluorocarbons with no unsaturations, no hydrogen, and with sulfur bonds only to carbon and fluorine.

b. Test Method for Determining the Density and Specific Gravity of a Fountain Solution:

(1) Procedure: Gently invert or shake a covered container of fluid to be tested several times to assure adequate mixing. No foam should be present where hydrometers are inserted. Readings should be taken as quickly as is practicable to avoid unnecessary evaporation of VOC content. Conduct 6 successive readings with 2 different hydrometers, 3 readings apiece. Each hydrometer shall be accurate within 2 percent of full scale and conform to ASTM requirements. A thermometer, accurate to $\pm 0.5°F$ and conforming to ASTM requirements, shall be used and the temperature of the fountain solution being tested shall be noted. The thermometer may be an integral part of a combined form hydrometer. The density of water at that temperature shall be obtained from a standard table such as is found in the CRC reference.

(2) Findings: The quotient of the density of the fluid divided by the density of water shall be determined for each of the 6 pairs of numbers. If none of the 6 results equals or exceeds (is larger than) the applicable specific gravity limit in Table AP-1, then the percent of VOC in the tested fountain solution exceeds the limit. In other words, it is not a violation of the limit unless each of the total of six results is below the limit.

c. Equivalent Expressions of VOC Limit:

Table AP-I*

VOC LIMIT (by volume)	Limit: Maximum pounds of VOC per gallon of fountain solution	Limit: Metric equivalent	Specific Gravity of IPA & water at VOC volume limit
15%	1.1 lb/gal	130 g/liter	0.9800
10%	0.75 lb/gal	90 g/liter	0.9860
5%	0.43 lb/gal	52 g/liter	0.9920
25.5%	1.75 lb/gal	210 g/liter	0.9690
17%	1.16 lb/gal	140 g/liter	0.9790
8.5%	0.58 lb/gal	70 g/liter	0.9890

*(This table references Table 1, Section 302)

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Adopted 11/16/92
Revised 06/19/96

MARICOPA COUNTY
AIR POLLUTION CONTROL REGULATIONS

REGULATION III - CONTROL OF AIR CONTAMINANTS

RULE 338
SEMICONDUCTOR MANUFACTURING

SECTION 100 - GENERAL

101 **PURPOSE:** To limit the emission of volatile organic compounds from semiconductor manufacturing.

SECTION 200 - DEFINITIONS: For the purpose of this rule, the following definitions shall apply:

201 **APPROVED EMISSION CONTROL SYSTEM** - A system for reducing emissions of organic compounds, consisting of both emissions collection and processing devices which are approved in writing by the Control Officer and are designed and operated in accordance with good engineering practice.

202 **MASKING** - Applying a photoresist maskant material or overlaying a stencil to apply, impress, transfer, or otherwise effect a pattern on or into another substance.

203 **NEGATIVE PHOTORESIST OPERATION** - A process for the application of negative photoresist masking solution/material on a wafer or other substrate which hardens when exposed to light or other process-radiation. This includes preparation, soft bake, hard bake, developing, stripping and edge bead removal, as well as any intermediate operations.

204 **NON-PRECURSOR ORGANIC COMPOUND** - Any of the following organic compounds which have been designated by the EPA as having negligible photochemical reactivity: methane; ethane; methylene chloride (dichloromethane); 1,1,1–trichloroethane; trichlorofluoromethane (CFC–11); dichlorodifluoromethane (CFC–12); chlorodifluoromethane (CFC–22); 1,1,2–trichlorotrifluoroethane (CFC–113); 1,2–dichlorotetrafluoroethane (CFC–114); chloropentafluoroethane (CFC–115); trifluoromethane (FC–23); 2,2–dichloro-1,1,1–trifluoroethane (HCFC–123); 2–chloro-1,1,1,2–tetrafluoroethane (HCFC–124); 1,1–dichloro-1–fluoroethane (HCFC–141b); 1–chloro-1,1–difluoroethane (HCFC–142b); pentafluoroethane (HFC–125); 1,1,2,2–tetrafluoroethane (HFC–134); 1,1,1,2–tetrafluoroethane (HFC–134a); 1,1,1–trifluoroethane (HFC–143a); 1,1–difluoroethane (HFC–152a); all completely fluorinated, completely saturated: alkanes, ethers and tertiary amines.

205 **PHOTORESIST MASKANT, MASKANT, OR PHOTORESIST** - A coating applied directly to a component to protect surface areas when chemical milling, etching, or other chemical surface operations are performed on the component.

206 **POSITIVE PHOTORESIST OPERATION** - A process for the application of positive photoresist masking solution/material on a wafer or other substrate which softens when exposed to light or other process-radiation. This includes preparation, soft bake, hard bake, developing, stripping and edge bead removal, as well as any operations intermediate to such processes. Positive photoresist equipment cleaning operations are not included.

207 **SEMICONDUCTOR MANUFACTURE** - Any process or operation performed to produce semiconductor devices or related solid state devices, including but not limited to diodes, zeners, stacks, rectifiers, integrated microcircuits, transistors, solar cells, light-sensing devices, and light-emitting devices.

208 **SOLVENT** - Any material which contains VOC and/or any non-precursor organic compound and which can dissolve or hold in suspension another substance. This includes but is not limited to developers and stripping agents.

209 **STRIPPING** - The removal of spent photoresist maskant from the product after etching, or the removal of oxide or other stencil agent from the product after diffusion.

210 **VOLATILE ORGANIC COMPOUND (VOC)** - Any organic compound except the non-precursor organic compounds.

SECTION 300 - STANDARDS

301 NEGATIVE PHOTORESIST OPERATIONS: No person shall allow negative photoresist operations at a semiconductor manufacturing facility annually emitting more than 25 tons (22.7 Mg) of VOC from all negative photoresist operations combined unless such VOC-containing vapors are vented to an Approved Emission Control System which reduces their total weight by at least 80 percent (capture with processing). The emission reduction will be determined for the sum of all VOC emissions from negative photoresist operations before any of these emissions enter an emissions control device.

302 POSITIVE PHOTORESIST OPERATIONS: No person shall allow positive photoresist operations at a semiconductor manufacturing facility annually emitting more than 50 tons (45.4 Mg) of VOC from all non-exempt positive photoresist operations combined, unless VOC-containing vapors are vented to an Approved Emission Control System which reduces the weight of VOC emissions from all such non-exempt operations combined by at least 80 percent (capture with processing). The emission reduction will be determined for the sum of all non-exempt VOC emissions from positive photoresist operations before any of these emissions enter an emissions control device. Non-exempt refers to VOC emissions that are not specifically exempted by Section 307 of this rule.

303 OPERATION AND MAINTENANCE PLAN: The owners or operators of an Emission Control System required by this rule shall provide the Control Officer with an Operation and Maintenance (O&M) Plan. This plan shall specify key system operating parameters, such as temperatures, pressures and/or flow rates, necessary to determine compliance with this rule and describe in detail procedures to maintain the Emission Control System. The Control Officer's written approval of this plan shall be required for compliance with this rule to be achieved.

304 MAINTENANCE: All active process equipment in which VOC-containing materials are used shall be operated and maintained in proper working order.

305 STORAGE AND DISPOSAL OF VOC: All storage of VOC-containing materials subject to evaporation, including the storage of waste solvent and waste solvent residues, shall at all times be in closed containers which are legibly labelled with their contents. Records of disposal/recovery of VOC-containing materials shall be kept in accordance with hazardous waste disposal statutes.

306 **CLEANING AND CLEANUP:** A cleaning or cleanup operation using solvents over 10 percent VOC by weight must conform at a minimum to the applicable provisions of Rule 331 if such operation is not served by an external control device which reduces the overall weight of VOC emissions from such an operation by at least 80 percent (capture with processing). This applies to the cleaning of parts and products as well as to the cleaning of those materials and assemblies that are intermediate to them. This also applies to the cleaning of production equipment, to general cleanup, and to stripping operations using solvents over 10 percent VOC by weight.

307 **EXEMPTIONS:**

307.1 Liquids in positive photoresist processes which contain less than 10 percent VOC by weight and never exceed a temperature of 104°F (40°C) are allowed the following exemptions. VOC emissions from such liquids:

a. Are not included in the calculations determining if positive photoresist operations are subject to the control device provisions of Section 302;

b. Are exempt from any requirement that they be controlled by an Approved Emission Control System;

c. Are not included in determining the efficiency of a required Approved Emission Control System unless (optionally) captured by such a System.

307.2 **Quality Control Operations:** Except for this rule's Sections 305, and 306, and subsections 502.1 and 502.2, this rule shall not apply to those operations within a semiconductor manufacturing facility which are used exclusively for chemical or physical analysis, or determination of product quality and commercial acceptance. Such operations may be exempted until the sum of daily emissions from all exempted operations reaches but does not exceed 40 pounds (18.1 kg). This exemption shall not apply to a particular operation if:

a. The operation is an integral part of the production process; or

b. The exemption is denied in writing by the Control Officer.

SECTION 400 - ADMINISTRATIVE

401 COMPLIANCE SCHEDULE: By February 14, 1993, any person subject to Section 301 or 302 who does not comply with all provisions of Section 301 or 302 shall submit for the Control Officer's approval an emission control plan describing the method to be used to achieve full compliance. Facilities emitting over 100 tons (90.7 Mg) per year of VOC emissions must achieve compliance by November 15, 1993. Other affected facilities emitting less than 100 tons (90.7 Mg) per year of VOC must achieve compliance by May 15, 1994. The plan shall specify dates for completing increments of progress, such as the contractual arrival date of new control equipment. The Control Officer may require a person submitting such emission control plan to submit subsequent reports on progress in achieving compliance.

402 COMPLIANCE WITH RULE 331: Any operation or facility which is exempt from all or a portion of this rule shall comply with the applicable provisions of Rule 331 as well as any other applicable rules of these Rules and Regulations.

SECTION 500 - MONITORING AND RECORDS

501 PROVIDING AND MAINTAINING MONITORING DEVICES: Any person operating an Approved Emission Control System pursuant to this rule shall provide, properly install and maintain in calibration, in good working order and in operation, devices described in an approved O&M Plan for indicating temperatures, pressures, rates of flow, or other operating conditions necessary to determine if air pollution control equipment is functioning properly and is properly maintained.

502 RECORDKEEPING AND REPORTING: Any person subject to this rule shall comply with the following requirements. Records shall be retained for five years and shall be made available to the Control Officer upon request.

502.1 Current List: Maintain a current list of coatings, adhesives, maskants, solvents, and any other VOC-containing materials. State the VOC content of each in pounds per gallon or grams per liter.

502.2 Usage Records: Maintain monthly records showing the type and amount of all VOC-containing material in photoresist operations. This includes, but is not limited to strippers, maskants, solvent materials and cleanup materials

502.3 Operation and Maintenance: Maintain a continuous record of the times an Emission Control Device is used to comply with this rule. Maintain daily records of the O&M Plan's key system operating-parameters. Maintain records of all maintenance performed according to the O&M Plan.

503 **COMPLIANCE DETERMINATION - TEST METHODS:** 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.

503.1 Sample Analysis: VOC content of materials shall be determined using the applicable EPA Reference Method 24 or 24A (40 CFR, Part 60, Appendix A).

503.2 Emission Testing: Control efficiency of an emissions control device shall be determined according to EPA Reference Method 25 or an applicable submethod of Method 25 (Title 40, CFR Part 60, Appendix A).

503.3 Capture Efficiency: Capture efficiency shall be determined by mass balance in combination with ventilation/draft rate determinations "Using a Temporary Total Enclosure For Capture Efficiency Testing," EPA-450/4-91-020.

503.4 Ventilation/Draft Rates: Ventilation/draft rates shall be determined by EPA Methods 2, 2A, 2C, or 2D.

REGULATION III - CONTROL OF AIR CONTAMINANTS

RULE 339
VEGETABLE OIL EXTRACTION PROCESSES

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Adopted 11/16/92

MARICOPA COUNTY
AIR POLLUTION CONTROL REGULATIONS

REGULATION III - CONTROL OF AIR CONTAMINANTS

RULE 339
VEGETABLE OIL EXTRACTION PROCESSES

SECTION 100 - GENERAL

101 PURPOSE: To limit the emissions of volatile organic compounds (VOCs) from the extraction of vegetable oil using solvents.

102 APPLICABILITY: This rule applies to any vegetable oil extraction facility which has emitted 600 pounds (272 kg) or more of VOC in a day or 100 tons (90.7 Mg) or more of VOC in a year, or which would emit at such levels in the absence of existing VOC control measures, or reasonably could be expected to emit at such levels at current or proposed production rates.

SECTION 200 - DEFINITIONS:

For the purpose of this rule, the following definitions shall apply:

201 APPROVED EMISSION CONTROL SYSTEM - A system for reducing emissions of organic compounds, consisting of both collection and control devices which are approved in writing by the Control Officer and are designed and operated in accordance with good engineering practice.

202 CONVEYOR - Any device which moves material from one location to another location.

203 COOLER - A device which reduces the temperature and/or moisture from meal being processed.

204 DESOLVENTIZER-TOASTER (D-T) - A heated process unit in which air and/or steam are applied to solvated vegetable matter to volatilize the extraction solvent.

205 EQUIPMENT IN SOLVENT SERVICE - Any pump, valve, pressure relief valve, sight glass, sample connection, open-ended valve, connector, or other component which handles extraction solvent or material containing such solvent.

206 EXTRACTOR- Equipment which removes vegetable oil from vegetable material through the use of solvent.

207 LEAK - Any dripping or indication of dripping of liquid from equipment in solvent service, or an emission of gaseous VOC which exceeds 10,000 ppm (expressed as methane) above background when measurements are made using EPA Method 21.

208 MEAL - Pulverized vegetable matter from which oil has been extracted and which might still contain some extraction solvent.

209 MINERAL-OIL SCRUBBER - A packed tower which uses mineral oil as a sorbent for the extraction solvent.

210 SOLVENT - The extraction medium used to extract oil from seeds, beans or other vegetable matter.

211 SOLVENT EXTRACTION - Removal of vegetable oil from vegetable matter using a liquid solvent in a contact system to dissolve and suspend the oil.

212 VEGETABLE OIL PLANT - Any facility or section of a facility engaged in the extraction or refining of vegetable oil through the use of solvent.

Note[1]

213 VOLATILE ORGANIC COMPOUND (VOC) - Any organic compound, excluding the following organic compounds which have been designated by the EPA as having negligible photochemical reactivity: methane; ethane; methylene chloride (dichloromethane); 1,1,1–trichloroethane; trichlorofluoromethane (CFC–11); dichlordifluoromethane (CFC–12); chlorodifluoromethane (CFC–22); 1,1,2–trichlorotrifluoroethane (CFC–113); 1,2–dichlorotetrafluoroethane (CFC–114); chloropentafluoroethane (CFC–115); trifluoromethane (FC–23); 2,2–dichloro-1,1,1–trifluoroethane (HCFC–123); 2–chloro-1,1,1,2–tetrafluoroethane (HCFC–124); 1,1–dichloro-1–fluoroethane (HCFC–141b); 1–chloro-1,1–difluoroethane (HCFC–142b); pentafluoroethane (HFC–125); 1,1,2,2–tetrafluoroethane (HFC–134); 1,1,1,2–tetrafluoroethane (HFC–134a); 1,1,1–trifluoroethane (HFC–143a); 1,1–difluoroethane (HFC–152a); all completely fluorinated, completely saturated: alkanes, ethers and tertiary amines.

SECTION 300 - STANDARDS

[1] This note is not part of Rule 339, but is included for the reader's convenience. The current list of exempt organic compounds is in Rule 100, Section 200, in the definition of Non-Precursor Organic Compound.

301 LIMITATION - VOC EMISSIONS: No person shall operate a vegetable oil extraction plant or facility unless the emissions do not exceed either of the following:

301.1 2.5 pounds of VOC per ton of processed seed (1.13 kg/Mg) for any 30 consecutive days of operation; and

301.2 3.0 pounds of VOC per ton of processed seed (1.36 kg/Mg) for any seven consecutive days of operation.

302 EXTRACTORS AND DESOLVENTIZER-TOASTERS: No person shall operate any extractor or desolventizer-toaster unless VOC emissions are controlled by both a condenser and a mineral-oil scrubber. Such scrubber shall have an overall VOC-control efficiency (capture with processing) of at least 90 percent by weight.

303 DESOLVENTIZER-TOASTER CONVEYOR: No person shall operate a vegetable oil plant unless the desolventizer-toaster discharge conveyor is vented to a mineral oil scrubber having an overall VOC-control efficiency (capture with processing) of at least 90 percent by weight.

304 OPERATION AND MAINTENANCE PLAN: Owners or operators shall provide the Control Officer with an Operation and Maintenance (O&M) Plan. This Plan shall specify key system operating parameters, such as temperatures, pressures and/or flow rates, necessary to determine compliance with this rule and describe in detail procedures to maintain the Approved Emission Control System. The Control Officer's written approval of this plan shall be required for compliance with this rule to be achieved.

305 EQUIPMENT IN SOLVENT SERVICE: The owner or operator of a vegetable oil extraction plant shall inspect at least once a month all equipment in solvent service for any indication of VOC leakage in accordance with EPA Method 21. If the detected gaseous leakage level exceeds 10,000 ppm (expressed as methane) or if leak(s) are visible, the leak shall be tagged with a weatherproof tag. The date and time of the leak's discovery shall be recorded in a permanent logbook. The operator shall attempt to repair such leak(s) as soon as possible. The operator shall notify the Control Officer by the Division's next working day of leak(s) which cannot be fixed within 24 hours of discovery. No leak shall remain unrepaired by the end of any plant shutdown.

Note[2]

306 EXEMPTIONS: In determining compliance with subsection 301.2 of this rule, the Division shall exclude from calculations a startup day and the VOC added on that day, subsequent to purging the extractor and/or the refinery of all solvent.

SECTION 400 - ADMINISTRATIVE

[2] This note is not part of Rule 339, but is provided as a convenience to the reader. What is referred to as "the Division" is, in 1997, the Maricopa County Environmental Services Department.

401 COMPLIANCE SCHEDULE: By February 14, 1993, any person subject to Section 301, 302, or 303, who does not comply with all provisions of said section(s) shall submit to the Control Officer for approval an emission control plan describing the method to be used to achieve full compliance by November 15, 1993. The plan shall specify dates for completing increments of progress, such as the contractual arrival date of new control equipment. The Control Officer may require a person submitting such emission control plan to submit subsequent reports on progress in achieving compliance.

SECTION 500 - MONITORING AND RECORDS

501 PROVIDING AND MAINTAINING MONITORING DEVICES: Any person sorbing or otherwise processing VOC emissions to reduce them pursuant to this rule, shall provide, properly install and maintain in calibration, in good working order and in operation, devices described in an approved O&M Plan for indicating temperatures, pressures, rates of flow, or other operating conditions necessary to determine if air pollution control equipment is functioning properly and is properly maintained.

502 RECORDKEEPING AND REPORTING: Any person subject to this rule shall comply with the following requirements. Any records and lists required by this section shall be kept in a consistent and complete manner.

502.1 Material Usage: Maintain a current list of solvents, mineral oil and any other VOC-containing materials such as paints and cleaning liquids which annually exceed 20 gallons and state the VOC content of each in pounds per gallon or grams per liter. Daily record the amount of makeup solvent, the tons of vegetable matter subject to extraction, the amount of vegetable oil produced, and amount of mineral oil added.

502.2 Operation and Maintenance: Maintain a record of the times an Approved Emission Control Device is used to comply with this rule. Maintain daily records of the O&M Plan's key system operating-parameters. Maintain records of all maintenance performed according to the O&M Plan.

502.3 Calculations: By the end of each day-shift, calculate both the seven-day and the thirty-day rolling averages yielding daily VOC-consumption figures, using data gathered up to and including the previous shift.

502.4 Logbook: A permanent logbook shall be kept of dates, times, and locations of all: leak-detection activities, leaks found, leaks repaired, shutdowns and startups. During operating hours the logbook, as well as entries required under the preceding subsections 502.1, 502.2 and 502.3, shall immediately be made available to the Control Officer upon request.

503 RECORDS RETENTION: Copies of reports and supporting documentation required by the Control Officer shall be retained at least three years after the date of submittal. Records and information required by this rule shall be retained for at least three years.

504 COMPLIANCE DETERMINATION - TEST METHODS: An exceedance of the limits established in the rule determined by any of the applicable test methods constitutes a violation of this rule.

504.1 Control efficiency of an emissions control device shall be determined according to EPA Reference Method 25 or its applicable submethods, Title 40, CFR Part 60, Appendix A.

504.2 Gaseous leaks shall be tested for using EPA Method 21.

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REGULATION III - CONTROL OF AIR CONTAMINANTS

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CUTBACK AND EMULSIFIED ASPHALT

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Revised 07/13/88
Revised 06/22/92
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MARICOPA COUNTY
AIR POLLUTION CONTROL REGULATIONS

REGULATION III - CONTROL OF AIR CONTAMINANTS

RULE 340
CUTBACK AND EMULSIFIED ASPHALT

SECTION 100 - GENERAL

101 PURPOSE: To limit emissions of volatile organic compounds (VOCs) from the use of cutback and emulsified asphalt and other bitumens.

102 APPLICABILITY: The provisions of this rule apply to the use and application of cutback and emulsified asphalt or tar materials for the paving, construction or maintenance of highways, streets, roads, parking lots, and driveways, and to the application of such materials onto soil and earthworks.

SECTION 200 - DEFINITIONS:
For the purpose of this rule, the following definitions shall apply:

201 ASPHALT CEMENT - The dark brown to black cementitious material (solid, semi-solid, or liquid in consistency), of which the main constituents are naturally occurring bitumens or bitumens resulting from petroleum refining.

202 ASPHALT RUBBER - An asphaltic binder made with asphalt cement and at least three percent of ground tire rubber by weight.

203 BITUMEN - A class of black or dark-colored (solid, semi-solid or viscous) cementitious substances, natural or manufactured, composed principally of high molecular weight hydrocarbons, of which asphalts, tars, pitches and asphaltites are typical.

204 CUTBACK ASPHALT - An asphalt cement liquified with any solvent-VOC.

205 CUTBACK TAR - A tar liquified with any solvent-VOC.

206 DUST PALLIATIVE - A light application of cutback or emulsified asphalt for controlling loose dust.

207 EMULSIFIED ASPHALT/EMULSIFIED TAR - Any liquified asphalt or tar produced by dispersing asphalt cement or tar into water by means of high speed agitation and an emulsifying agent.

208 MEDIUM CURE CUTBACK ASPHALT - A cutback asphalt which meets ASTM specification D 2027.

209 PENETRATING PRIME COAT - The low viscosity liquid asphalt or tar applied to a relatively absorbent surface to prepare it for new superimposed construction. Prime coats do not include dust palliatives or tack coats.

210 RAPID CURE CUTBACK ASPHALT - A cutback asphalt which falls generally within the specifications of ASTM designation D 2028-76 and which generally cures more quickly than medium cure cutback asphalt.

211 SOLVENT-VOC - For the purposes of this rule, any volatile organic compound which is used with an asphalt or tar to give fluidity and other desired properties and which volatilizes at 500°F (260°C) or less.

212 TACK COAT - An application of liquified asphalt to an existing, relatively nonabsorbent surface to provide a thorough bond between that surface and the superimposed layer.

213 TAR - For the purposes of this rule, any non-asphalt bitumen. This includes road tar produced by distilling coal tar or blending coal-tar pitch with lighter coal-tar fractions.

Note[1]

214 VOLATILE ORGANIC COMPOUND (VOC) - Any organic compound, excluding the following organic compounds which have been designated by the EPA as having negligible photochemical reactivity: methane; ethane; methylene chloride (dichloromethane); 1,1,1–trichloroethane; trichlorofluoromethane (CFC–11); dichlorodifluoromethane (CFC–12); chlorodifluoromethane (CFC–22); 1,1,2–trichlorotrifluoroethane (CFC–113); 1,2–dichlorotetrafluoroethane (CFC–114); chloropentafluoroethane (CFC–115); trifluoromethane (FC–23); 2,2–dichloro-1,1,1–trifluoroethane (HCFC–123); 2–chloro-1,1,1,2–tetrafluoroethane (HCFC–124); 1,1–dichloro-1–fluoroethane (HCFC–141b); 1–chloro-1,1–difluoroethane (HCFC–142b); pentafluoroethane (HFC–125); 1,1,2,2–tetrafluoroethane (HFC–134); 1,1,1,2–tetrafluoroethane (HFC–134a); 1,1,1–trifluoroethane (HFC–143a); 1,1–difluoroethane (HFC–152a); all completely fluorinated, completely saturated: alkanes, ethers and tertiary amines.

SECTION 300 - STANDARDS

[1] This note is not part of Rule 340, but is provided as a convenience to the reader. The current list of exempted organic compounds is in Rule 100, Section 200, in the definition of Non-Precursor Organic Compound.

301 LIMITATIONS: No person shall sell, offer for sale, use or apply the following materials for paving, construction, or maintenance of highways, streets, driveways, parking lots or for any other use to which this rule applies:

301.1 Rapid cure cutback asphalt.

301.2 Any cutback asphalt material, road oils, or tar which contains more than 0.5 percent by volume VOCs which evaporate at 500°F (260°C) or less using ASTM Test Method D 402-76.

301.3 Any emulsified asphalt or emulsified tar containing more than 3.0 percent by volume VOCs which evaporate at 500°F (260°C) or less as determined by ASTM Method D 244-89.

302 EXEMPTIONS: The provisions of this rule shall not apply to:

302.1 Asphalt that is used solely as a penetrating prime coat and which is not a rapid cure cutback asphalt. Penetrating prime coats do not include dust palliatives or tack coats.

302.2 Any asphalt/bituminous material sold in Maricopa County for shipment and use outside Maricopa County if the person claiming such exemption clearly labels each container of materials entitled to such exemption or upon request (during normal business hours) immediately provides the Control Officer with shipping records demonstrating the asphalt material is not for use within Maricopa County.

302.3 A person may use up to 3.0 percent solvent-VOC by volume for batches of asphalt rubber which cannot meet paving specifications by adding heat alone only if request is made to the Control Officer, who shall evaluate such requests on a case-by-case basis. The Control Officer shall not approve such requests unless complete records are kept and full information is supplied including savings realized by using discarded tires. The Control Officer shall not approve such requests when it would cause a person to exceed 1100 lbs (500 kg) usage of solvent-VOC in asphalt rubber in a calendar year unless the applicant can demonstrate that in the previous 12 months no solvent-VOC has been added to at least 95 percent by weight of all the asphalt rubber binder made by the person or caused to be made for the person. This subsection (302.3) does not apply to batches which yield 0.5 percent or less solvent-VOC evaporated using the test in subsection 502.1.

303 LABELING REQUIREMENT: On or after December 22, 1992, no person shall sell, offer for sale, manufacture or store for sale or for use within Maricopa County any emulsified or cutback asphalt product which contains more than 0.5 percent by volume

solvent-VOC unless such material lot includes a designation of solvent-VOC content on data sheet(s) expressed in percent solvent-VOC by volume.

SECTION 500 - MONITORING AND RECORDS

501 RECORDKEEPING AND REPORTING: The owner or operator of any facility subject to this rule which manufactures, mixes, stores, ships, uses or applies any asphaltic/bituminous material containing more than 0.5 percent by volume solvent-VOC shall keep daily records of the amount and type received, used and shipped, as well as the solvent-VOC content of this material. Safety data (MSDS) or technical data sheets shall be kept available. These records must be maintained in a readily accessible location for a minimum of three years and must be made available to the Control Officer upon verbal or written request.

502 COMPLIANCE DETERMINATION - TEST METHODS:

502.1 Solvent-VOC content of non-emulsified asphalts and tars shall be determined by American Society for Testing and Materials (ASTM) Method D 402-76. For the purposes of this rule, the end point of the distillation shall be at 500°F (260°C).

502.2 Solvent-VOC content of emulsified asphalts and tars shall be determined using ASTM Method D 244-89. The end point of the distillation shall be at 500°F (260°C).

502.3 Measurement of exempt compound content in cutback and emulsified asphalts shall be conducted and reported in accordance with ASTM Test Method D 4457-85.

502.4 Tests to assist in determining the solvent-VOC content of the asphaltic binder of an asphaltic concrete are: ASTM Method D 2172 "Test For Quantitative Extraction of Bitumen From Bituminous Paving Mixtures" and ASTM Method D 1856 "Test for Recovery of Asphalt from Solution by Abson Method."

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MARICOPA COUNTY
AIR POLLUTION CONTROL REGULATIONS

REGULATION III - CONTROL OF AIR CONTAMINANTS

RULE 341
METAL CASTING

SECTION 100 - GENERAL

101 PURPOSE: To limit the amount of volatile organic compounds (VOCs) emitted by organic binder materials used in metal investment-casting molds made of sand and/or other finely divided refractory material.

102 APPLICABILITY: This rule applies to any metal investment-casting facility with an aggregate emission to atmosphere after December 31, 1989, of 600 pounds (272 kg) or more of VOC in any day or 100 tons (90.7 Mg) or more of VOC in any year from metal investment-casting operations, including cleaning processes.

SECTION 200 - DEFINITIONS: For the purpose of this rule, the following definitions shall apply:

201 APPROVED EMISSION CONTROL SYSTEM - A system for reducing emissions of organic compounds, consisting of both collection and control devices which are approved in writing by the Control Officer and are designed and operated in accordance with good engineering practice.

202 BINDER - Any material which is used to bind casting sand or other refractory particles into a cohesive mold or part of a mold.

203 BINDER-VOC EMISSIONS - VOC emissions from binder operations which include but are not limited to VOC that is emitted during binder formulation and mixing at the casting facility, cold-box gassing, binder setting, mold storage, metal pouring, mold cooling, and/or binder/sand recycling. This also includes VOC released through thermal vaporization, combustion, and pyrolysis of binder material.

204 DAY - A period of 24 consecutive hours beginning at midnight.

205 INVESTMENT CASTING - A type of metal casting in which a mold is built up around a fusible model by alternately dipping the model into adhesive binder and then causing fluidized refractory particles to adhere to the binder to form a cemented shell. After several such cycles, the model is melted and poured out of the shell-mold. After curing at high temperature and then receiving molten metal, the mold must be broken away to recover the metal casting.

206 MASKANT - A product used to cover or protect a surface, so as to shield the surface covered from participating in a process such as chemical milling, anodizing, coating, bonding, plating, etching, etc.

207 NON-PRECURSOR ORGANIC COMPOUND - Any of the following organic compounds which have been designated by the EPA as having negligible photochemical reactivity: methane; ethane; methylene chloride (dichloromethane); 1,1,1-trichloroethane; trichlorofluoromethane (CFC-11); dichlorodifluoromethane (CFC-12); chlorodifluoromethane (CFC-22); 1,1,2-trichlorotrifluoroethane (CFC-113); 1,2-dichlorotetrafluoroethane (CFC-114); chloropentafluoroethane (CFC-115); trifluoromethane (FC-23); 2,2-dichloro-1,1,1-trifluoroethane (HCFC-123); 2-chloro-1,1,1,2-tetrafluoroethane (HCFC-124); 1,1-dichloro-1-fluoroethane (HCFC-141b); 1-chloro-1,1-difluoroethane (HCFC-142b); pentafluoroethane (HFC-125); 1,1,2,2-tetrafluoroethane (HFC-134); 1,1,1,2-tetrafluoroethane (HFC-134a); 1,1,1-trifluoroethane (HFC-143a); 1,1-difluoroethane (HFC-152a); all completely fluorinated, completely saturated: alkanes, ethers and tertiary amines; sulfur-containing perfluorocarbons with no unsaturations, no hydrogen, and with sulfur bonds only to carbon and fluorine.

208 VOLATILE ORGANIC COMPOUND (VOC) - Any organic compound except non-precursor organic compounds.

SECTION 300 - STANDARDS

301 CONTROLS REQUIRED: No person shall operate a metal investment-casting facility subject to this rule unless binder-VOC emissions are controlled by:

301.1 An Approved Emission Control System which through capture and control reduces the total, facility-wide binder-VOC emissions by at least 81 percent as determined by the test methods referred to in Subsections 505.3 and 505.4, whenever there are binder-VOC emissions; or,

301.2 A limit of 420 grams VOC per liter (3.5 lb/gal) of binder, less water and non-precursor organic compounds, as determined by test methods referred to in Subsections 505.1 and 505.2; or,

301.3 A daily-weighted average not exceeding 420 grams VOC per liter (3.5 lb/gal) of binder, less water and non-precursor organic compounds, using calculations specified in Subsection 505.6.

302 **OPERATION AND MAINTENANCE (O&M) PLAN:**

302.1 The owner or operator of an Approved Emission Control System used to meet the requirements of Section 301.1 of this rule shall provide the Control Officer with an Operation and Maintenance (O&M) Plan. This O&M Plan shall specify:

a. Key system operating parameters, such as temperatures, pressures and/or flow rates, necessary to determine compliance with this rule;

b. Detailed procedures and their frequencies needed to maintain the Approved Emission Control System.

302.2 An Approved Emission Control System must have the O&M Plan approved in writing by the Control Officer before the system begins operation.

302.3 **Time Frames for Changes:**

a. Changes involving reduction in the frequency or extent of Control Officer approved O&M procedures must have the written consent of the Control Officer prior to being implemented.

b. **Other Changes:** An updated O&M Plan must be submitted to the Control Officer for review within 10 days of any changes not involving reduction in frequency or extent of an approved O&M procedure. Within 5 working days of a written disapproval of such changes, either the original O&M Plan shall be reinstituted or an alternative, negotiated with the affected facility and approved in writing by the Control Officer, shall be instituted.

303 MAINTENANCE: Any person subject to this rule shall operate and maintain in proper working order all process equipment in which VOC-containing materials are used or stored.

304 STORAGE AND DISPOSAL OF VOC: Any person subject to this rule shall store all VOC-emitting materials, including but not limited to waste binders, waste solvents and their residues, in closed containers which are legibly labelled with their contents. Such person shall keep records of disposal/recovery of VOC-containing materials in accordance with applicable federal, state, and local hazardous waste disposal statutes and rules.

305 INVESTMENT CASTING EXEMPTION: An owner or operator of an investment casting facility, subject to this rule, using the daily-weighted average, is not required to meet the daily standard in Subsection 301.3 on a day when total facility-wide binder-VOC emission is less than 45 kilograms (100 lb) or when total use of all binders having individual as-applied formulations exceeding 400 grams VOC per liter of solids is less than 83 liters (22 gal). Each day this exemption is claimed, all computations and records needed to verify compliance with the above limits shall be entered in the daily weighted-average computation log and a notation made that a Section 305 exemption applies.

SECTION 400 - ADMINISTRATIVE REQUIREMENTS

401 COMPLIANCE SCHEDULE: By September 1, 1994, any person subject to this rule must comply with all of its provisions.

SECTION 500 - MONITORING AND RECORDS

501 PROVIDING AND MAINTAINING MONITORING DEVICES: Any person operating an Approved Emission Control System pursuant to this rule shall provide, properly install and maintain in calibration, in good working order and in operation, devices described in an approved O&M Plan for indicating temperatures, pressures, rates of flow, or other operating conditions necessary to determine if air pollution control equipment is functioning properly and is properly maintained. On each day of operation of an Approved Emission Control System, a continuous, permanent record shall be maintained of the times such system was used to comply with this rule.

502 RECORDKEEPING AND REPORTING: Any person subject to this rule shall keep the following records and lists in a consistent and complete manner and shall make them available to the Control Officer without delay during normal business hours.

502.1 Current List: A current list of all VOC-containing materials as received by the facility such as binders and/or binder components, maskants, coatings, cleaning solvents, lubricants and any other VOC-containing substances, including the VOC content of each in pounds per gallon or grams per liter, shall be maintained.

502.2 Materials: Records shall be maintained which show the type, amount used, and content, expressed in either pounds per gallon or grams per liter, of each VOC-containing material. Records shall be updated according to the following schedule depending on the amounts used or mass of VOC contained in those materials. Materials differing only in brand or

manufacturer but having the same composition and formula shall be totalled as a single material.

a. Daily update: More than 3 gallons or 15 lb (7.2 kg) in any day or more than 100 gallons or 500 lb (227 kg) in any year.

b. Monthly update: 15 gallons or 75 lb (34 kg) through 100 gallons or 500 lb (7.2 kg) in any year. Facilities which only use binders containing no more than 420 grams VOC per liter (3.5 lb/gal), less water and non-precursor organic compounds, shall update binder records each month.

c. Yearly update: Less than 15 gallons or 75 lb (34 kg) in any year.

502.3 **Operation and Maintenance:** On each day that an Approved Emission Control System is used to comply with this rule, a record shall be made of the operating parameters of the key systems described in the O&M Plan. For each day or period in which the O&M Plan requires that maintenance be performed, a record shall be made of the maintenance actions taken, within 24 hours of maintenance completion. An explanation shall be entered for scheduled maintenance that is not performed during the period designated in the O&M Plan.

503 **AVERAGING:** For investment casting facilities using daily-weighted averaging to comply with Section 301.3, the following practices shall be observed:

503.1 **Emission Computation Schedule:** Each workday's VOC emissions and the daily-weighted average expressed in grams of VOC per liter of binder (or lb/gal) shall be computed and recorded no later than 12 hours after the end of that workday. Binder used in any day shall have all its emitted VOC ascribed to that day even if evaporation is not complete until a following day. At the end of a day, the numerical quantity of any leftover binder which will not be used again shall be added to the sum of the total binder used of that same formulation used on that day, unless such leftover is stored in sealed container(s), and a determination of VOC content is made by Method 24 and recorded in the log, prior to removal from the site.

503.2 **Bulk Accounting:** A separate account shall be kept and updated as bulk binder ingredients arrive and as such ingredients are used up. This account shall include deliveries of VOC-containing diluents such as alcohol and other make-up solvents. Purchase order and inventory records can suffice for this if they are at all times kept complete, in a form usable for such accounting, and available to the Control Officer.

503.3 **Averaging Schedule:** A list shall be kept current containing the name/designation of each binder formulation and the amount of each constituent in each formulation, and including the mass of VOC per unit volume of binder, less water and non-precursor organic compounds. The amounts of each binder formulation used, including make-up formulations, shall be recorded at the end of each mold-making shift. The daily-weighted average expressed in grams VOC per liter of binder (or lb/gal), less water and non-precursor organic compounds, shall be computed and recorded no later than 12 hours after the end of each workday.

504 **RECORDS RETENTION:** Any person subject to this rule shall retain records and information required by this rule for at least three years. Such person shall retain copies of reports and supporting documentation required by the Control Officer for at least three years after the date of submittal.

505 **COMPLIANCE DETERMINATION - TEST METHODS:** 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.

505.1 Quantification of VOC and solids content of binders, required in order to comply with Subsections 301.2 and 301.3, shall be determined using the EPA Reference Method 24 (40 CFR, Part 60, Appendix A). The owner or operator shall sample each binder formulation at least once per year and record the VOC content.

505.2 Calculations pursuant to Subsections 301.2 and 301.3, of the VOC content of binders containing water and/or non-precursor organic compounds shall be performed in accordance with ASTM Designation: D3960-93, "Standard Practice for Determining Volatile Organic Compound (VOC) Content of Paints and Related Coatings."

505.3 Control efficiency of an emission control device required by Section 301.1 shall be determined according to EPA Reference Method 25 or an applicable submethod of Method 25 (Title 40, CFR Part 60, Appendix A).

505.4 Capture efficiency of an emission control device required by Section 301.1 shall be determined by mass balance in combination with ventilation/draft rate determinations referenced in Subsection 505.5, or by a Control Officer approved method set forth in the EPA document, "Using a Temporary Total Enclosure For Capture Efficiency Testing," EPA-450/4-91-020.

505.5 Ventilation/draft rates of an emission control device required by Section 301.1 shall be determined by EPA Reference Methods 2, 2A, 2C, or 2D (40 CFR Part 60, Appendix A).

505.6 **Daily-Weighted Average:** The daily-weighted average VOC content of all the binders used in a day facility-wide, a quantification required in order to comply with Subsection 301.3, shall be calculated using the following equation and be expressed in units of mass of VOC per unit volume of binder excluding any water and any non-precursor organic compounds (non-precursors).

$$VOC_w = \frac{V_1C_1 + V_2C_2 + \ldots\ldots\ldots + V_nC_n + M_{va}}{V_1 + V_2 + \ldots\ldots\ldots\ldots V_n + V_{va} + V_{sa}}$$

where:

VOC_w = The daily-weighted average VOC content of all "n" binder formulations ("a" through "n") used during a day throughout the facility expressed in grams of VOC per liter of binder (or lb/gal) after water and non-precursors are excluded.

C_1 = The VOC content of the first formulation used on a production day in grams per liter of binder (lb/gal), excluding water and non-precursors.

C_2 = The VOC content of the second binder-formulation used on a production day, in grams per liter of binder (or lb/gal), excluding water and non-precursors.

C_n = The VOC content of the very last binder formulation used on a production day when a total of "n" formulations were used, and the only formulation remaining to be accounted for. It is expressed in grams VOC per liter of binder-formulation "n" (or lb/gal), excluding water and non-precursors.

M_{va} = The total mass of VOC added to any previously formulated binder used during the course of this day expressed in grams (or lbs). This includes the VOC portion of added materials which also contain non-VOC components.

V_1 = The total volume used throughout the day of the first binder formulation used that day, expressed in liters (or gal), excluding the volume of any water and the volume of any non-precursors.

V_2 = The total volume used throughout the day of the second binder formulation used that day, in liters (or gal), excluding the volume of water and non-precursors.

V_n = The total volume used throughout the day of the very last binder formulation used that day, when a total of "n" formulations were used. It is expressed in liters (or gal) of formulation "n" not including the volume of any water and non-precursors.

V_{va} = The total volume of VOC in liters (or gal) added to any and all previously formulated binders during the course of this day for make-up, viscosity reducing, or other purpose(s). If such VOC is used in a mixture containing non-VOC components, the volume of the non-VOC portion is excluded when making calculations.

V_{sa} = The total volume of solids in liters (or gal) added during a day to any already formulated binders used during the day such solids are added. Such volume shall be equivalent to the volume of solid material remaining after any volatile material has been removed by the drying oven under the conditions specified in a Method 24 test, as referenced in Subsection 505.1.

REGULATION III - CONTROL OF AIR CONTAMINANTS

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MARICOPA COUNTY
AIR POLLUTION CONTROL REGULATIONS

REGULATION III - CONTROL OF AIR CONTAMINANTS

RULE 342
COATING WOOD FURNITURE AND FIXTURES

SECTION 100 - GENERAL

101 PURPOSE: To limit emissions of volatile organic compounds from the surface preparation and coating of wood furniture and fixtures.

102 APPLICABILITY: The provisions of this rule apply to any facility in Maricopa County applying finishing material to furniture or fixtures made of wood or wood-derived material. Simplified provisions of Appendix B in this rule may be used by facilities which agree to a permit limit of less than 10 tons of VOC emissions per year. For sources emitting less than 2 tons of VOC per year, consult subsection 307.2d. This rule does not apply to the coating of any millwork included under SIC #2431.

SECTION 200 - DEFINITIONS: For the purpose of this rule, the following definitions shall apply:

201 ADHESIVE - Any substance, usually having a fluid phase during application, used principally to bond two or more surfaces into close proximity with one another.

202 AEROSOL-SPRAY COATING - A coating which is sold in a hand-held, pressurized, non-refillable container, usually of less than 22 fluid ounces (0.66 liter) capacity, and which is expelled from the container in a finely divided form when a valve on the container is depressed.

203 AIR-ATOMIZED SPRAY (GUN) - Equipment used to apply coatings in which the chief means of atomizing the coating is via pressurized air which also mixes into the cloud of coating particles after expulsion from a spray nozzle.

204 ARCHITECTURAL COATING - Any coating applied to stationary structures and their appurtenances, to mobile homes, to pavements or to curbs.

205 BASECOAT - A coat of colored material, usually opaque, that is applied before graining inks, glazing coats, or other high-hiding finishing materials. A basecoated surface usually receives a topcoat also.

206 CERTIFIED PRODUCT DATA SHEET - A document, signed by an officer of a coating-supplying operation, stating precisely the maximum VOC content of a particular coating as supplied.

207 COATING - Any liquid, fluid, or mastic composition which is converted to a solid (or semi-solid) protective, decorative, or adherent film or deposit after application to a substrate as a thin layer.

208 CONVENTIONAL AIR-ATOMIZED SPRAY Any spray coating method in which the coating is atomized principally by mixing it with compressed air at an air pressure greater than 10 pounds per square inch (gauge) at the point of atomization, and which is not used with an electrostatic transfer system. Airless and air-assisted airless spray technologies are not conventional air-atomized spray because the principal means of atomizing the coating is via hydraulic pressure and not by mixing the coating with compressed air.

209 CUSTOM REPLICA FURNITURE - Furniture individually produced or repaired after an order has been received from a client specifying a particular style and period, using both the style and the methods of construction, including materials, joinery, and finishes, which are authentic to the period.

210 DAY - A period of 24 consecutive hours beginning at midnight.

211 DILUENT - For the purpose of this rule, any fluid in or added to a coating such as thinner, retarder, reducer, solvent, or drying accelerator which solubilizes, adjusts concentration, viscosity, flow, or drying rates and which evaporates as the coating film solidifies and cures.

212 ELECTROSTATIC APPLICATION - A method of applying coating by electrically charging coating droplets or particles causing their deposition onto a substrate by electrostatic attraction.

213 EMISSION CONTROL SYSTEM (ECS) - A system for reducing emissions of organic compounds, consisting of both collection and control devices which are approved in writing by the Control Officer and are designed and operated in accordance with good engineering practice.

214 FACILITY - For the purpose of this rule, all the pollutant-emitting activities located on one or more contiguous or adjacent properties, under the control of the same person or

persons under common control, and described by one or more of the industrial groupings listed in Section 238 of this rule.

215 FAUX FINISH - A finish intended to simulate a surface other than wood, including, but not limited to, stone, sand, metal, fur and leather.

216 FINISHING MATERIAL - A coating other than one designed solely or principally as an adhesive, temporary maskant, and/or preservative. For wood furniture and fixtures, finishing materials include, but are not limited to, topcoats, sealers, primers, stains, basecoats, washcoats, enamels, toners, glazes, and graining inks.

217 HIGH SOLIDS STAINS - Stains which are formulated to enhance wood grain and change wood color, but not conceal surface grain. For the purpose of this rule, high solids stains are stains that contain at least 120 grams of solids per liter (1 lb/gal) of stain as applied, and can include wiping stains and glazes.

218 KILOGRAMS VOC PER KILOGRAM OF COATING SOLIDS - A measurement that is used in this rule to express the VOC content of a coating. For any coating, kilograms VOC per kilogram coating solids is numerically identical to both pounds of VOC per pound of coating solids and to grams VOC per gram of coating solids. Abbreviations used include kg VOC/kg solids (lb VOC/lb solids) or simply kg/kg (lb/lb).

219 LOW PRESSURE SPRAY GUN - An air-atomized spray gun which by design functions best at tip pressures below 10 psig (0.7 bar) measured according to subsection 502.2 of this rule, and for which the manufacturer makes no public claims that the gun can be used effectively above 12 psig (0.8 bar).

220 LOW SOLIDS STAINS - Stains which are formulated to enhance wood grain and change wood color, but not conceal surface grain. For the purpose of this rule, low solids stains are stains that contain up to 120 grams of solids per liter (1 lb/gal) of stain as applied, and include sap stain, toner, and non-grain-raising (NGR) stains.

221 NONPERMANENT FINAL FINISH - A material such as wax, polish, non-oxidizing oil or similar substance which retains its effect only temporarily and must be periodically reapplied to a surface to maintain or restore the material's intended effect.

222 NON-PRECURSOR ORGANIC COMPOUND - Any of the following organic compounds which have been designated by the EPA as having negligible photochemical reactivity: acetone; methane; ethane; methylene chloride (dichloromethane); 1,1,1-trichloroethane; trichlorofluoromethane (CFC-11); dichlorodifluoromethane (CFC-12); chlorodifluoromethane (HCFC-22); 1,1,2-trichloro-1,2,2-trifluoroethane (CFC-113); 1,2-dichlorotetrafluoroethane (CFC-114); chloropentafluoroethane (CFC-115); trifluoromethane (HFC-23); 2,2-dichloro-1,1,1-trifluoroethane (HCFC-123); 2-chloro-

1,1,1,2-tetrafluoroethane (HCFC-124); 1,1-dichloro-1-fluoroethane (HCFC-141b); 1-chloro-1,1-difluoroethane (HCFC-142b); pentafluoroethane (HFC-125); 1,1,2,2-tetrafluoroethane (HFC-134); 1,1,1,2-tetrafluoroethane (HFC-134a); 1,1,1-trifluoroethane (HFC-143a); 1,1-difluoroethane (HFC-152a); parachlorobenzotrifluoride (PCBTF); perchloroethylene (tetrachloroethylene); 3,3-dichloro-1,1,1,2,2-pentafluoropropane (HCFC-225ca); 1,3-dichloro-1,1,2,2,3-pentafluoropropane (HCFC-225cb); 1,1,1,2,3,4,4,5,5,5-decafluoropentane (HFC 43-10mee); cyclic, branched or linear completely methylated siloxanes; all completely fluorinated, completely saturated: alkanes, ethers and tertiary amines; sulfur-containing perfluorocarbons with no unsaturations, no hydrogen, and with sulfur bonds only to carbon and fluorine.

223 POUNDS VOC PER POUND OF COATING SOLIDS - A measurement of a coating's VOC content identical with kilograms VOC per kilogram of coating solids.

224 REPAIR COATING - A coating used to recoat portions of a previously coated product to cover mechanical damage to that previous coating following normal painting operations.

225 RESTRICTED-USE GUN - Any spray gun which atomizes coating using compressed air, such that in normal use or a use advertised by the manufacturer or distributor, the tip pressure exceeds 12 psig (0.8 bar) in measurements done pursuant to subsection 502.2. Restricted-use gun also includes, but is not limited to, all conventional air-atomized spray guns.

226 SEALER OR PRIMER - A film-building finishing material used to seal the pores of wood or wood-derived material before additional coats of finishing material are applied. Finishing materials used primarily to alter the appearance or color of the substrate, such as stains, washcoats, glazes, inks, and toners, are not sealers.

227 SINGLE RESIN-LAYER FINISH - A completed, consumer ready finish, which has received only one application of resin-based coating serving as both sealer and topcoat, and having a total average dry finish thickness from the top of the finish to the surface of the wood-product substrate not exceeding 3 mils (0.076 mm) before sanding, as determined pursuant to the test method in subsection 502.3. If a washcoat is also used, the finish is not a single resin-layer finish.

228 STAIN - A coating, excluding sealers and topcoats, that is formulated to enhance wood grain and change wood color, but not conceal surface grain. Stain includes all high solids stains and all low solids stains.

229 STRIPPABLE COATING - A coating which is applied to spray booth surfaces to receive the overspray and protect the substrate, and which is designed to be readily pulled off in strips or sheets and disposed of.

230 STRIPPING OPERATION - Any operation in which organic solvent is used to remove coating from a substrate.

231 TOPCOAT - The last permanent, functional film-building finishing material applied to a manufactured wood product. When the wood-product substrate is already sealed with sealer, any further coats that build a functional film are topcoats. Finishing materials used primarily to alter the appearance or color of the substrate, such as stains, washcoats, glazes, inks, and toners are not topcoats. A nonpermanent final finish is not a topcoat.

232 TOUCH UP COATING - A coating used to cover minor coating imperfections after the main coating operation.

233 TRANSFER EFFICIENCY - The ratio of the weight of coating solids deposited on an object to the total weight of coating solids used in a coating application step or series of such steps, expressed as a percentage.

234 VOC-BORNE COATING - A coating in which the volatile portion contains, by weight, more VOC than water.

235 VOC-SOLVENT - A solvent or diluent, used to solvate, dilute, reduce, thin, clean or strip, in which the weight-percent of VOC exceeds the weight percent of water.

236 VOLATILE ORGANIC COMPOUND (VOC) - Any organic compound which participates in atmospheric photochemical reactions, except a non-precursor organic compound.

237 WASHCOAT - A transparent special purpose coating having a solids content by mass of 12.0 percent or less, and which is used to seal wood-product surfaces for any of the following purposes: to prevent undesired staining, to control penetration of subsequent finishes, to provide a barrier when paper laminates are applied to the wood-product, to seal glazes, and to improve adhesion of a waterborne topcoat.

238 WOOD FURNITURE AND FIXTURES - All furnishings made of wood-product that are included in Standard Industrial Classification (SIC) numbers 2434, 2511, 2512, 2517, 2519, 2521, 2531, 2541, or 2599 as well as wood-product on convertible furniture under SIC number 2515.

239 WOOD-PRODUCT - Wood or wood-derived material, such as chipboard, particle board, fiberboard, pressed board, paper, and any other material derived from wood, bamboo, cane, or rattan, that retains some of the physical structure(s) of such original material(s), even if only at a microscopic level.

240 WORKING DAY - A day, or any part of a day, in which a facility is engaged in manufacturing.

SECTION 300 - STANDARDS

301 LIMITATIONS – VOC CONTENT:

301.1 No person shall apply a topcoat or sealer to wood furniture or fixtures unless VOC content is limited either to the pounds of VOC per pound of solids (kg VOC/kg solids) in Column A or to the grams of VOC per liter in column B:

a. General VOC Limits of Coatings

Table 1

	Column A lb VOC/lb solids	Column B grams VOC/liter **
Topcoat	1.8	635
Sealer	1.9	645
Acid-cured, alkyd amino topcoat	2.0	655
Acid-cured, alkyd amino vinyl sealer	2.3	680
		**less non-precursor compounds & water

b. Option: Lower VOC topcoat and unlimited sealer: There is no VOC limit on sealer when the sealer's topcoat does not exceed 0.8 lb VOC/lb (0.8 kg/kg).

c. Coatings with no VOC limits: Stains, washcoats, glazes, toners, inks, and other coatings not specified in this subsection 301.1 nor in subsection 301.2 have no VOC limits.

301.2 Strippable Booth Coatings: No person shall use a strippable booth coating unless, as applied, the coating has either no more than 0.8 lb VOC/lb solids or no more than 3.0 lb/gal (360 g/l) less non-precursor volatile compounds.

301.3 Emission Control System (ECS) As An Alternative Control: A facility may meet the VOC limits of either or both subsections 301.1 and 301.2 if the owner or operator complies with all provisions in this rule's Appendix C and with the other applicable provisions of this rule.

301.4 Averaging: An owner or operator of a larger furniture coating facility meeting the applicability requirements of subsection b., in this rule's Appendix A, may comply with subsection 301.1a. of this rule by complying with Averaging-Formula 1 or Averaging-Formula 2 in Appendix A and by complying with all other applicable provisions of Appendix A.

301.5 Smaller Source Option: The owner or operator of a facility that has emitted 2 or more tons but less than 10 tons per year of VOC from all wood coating and associated operations is exempted from all provisions under Sections 300, 400, and 501 (but not Sections 100, 200, and 502) if all provisions are complied with in this rule's Appendix B. Sources emitting less than 2 tons of VOC per year may be allowed exemptions pursuant to subsection 307.2d.

302 LIMITATION OF CONVENTIONAL AIR-ATOMIZED SPRAY AND OTHER SPRAY METHODS ATOMIZING WITH HIGH-PRESSURE AIR:

302.1 Evidence of Transfer-Efficient Spray Equipment: No person shall spray wood furniture with coating exceeding 1 lb VOC/lb solids (1 kg VOC/kg solids) without providing evidence of possession and use of a low pressure spray gun or system, an electrostatic system, or a system in which the energy for atomization is provided principally via hydraulic pressure; this includes air assisted airless and ultra-low-volume-air assisted technologies. Such requirement does not apply to any facility, activity or person specifically exempted by applicable subsections of Section 307 of this rule, or to any specific system which is approved by the Administrator as having a transfer efficiency consistently exceeding 64%.

302.2 Limitation Of Air-Atomized Spray Other Than Low Pressure: No person shall use a conventional air-atomized spray gun or other *restricted use gun*, except:

a. To apply finishing materials that have a VOC content not exceeding 1.0 lb VOC/lb solids (1.0 kg/kg).

b. If VOC emissions from the finishing application station, employing such a gun, are captured and directed to an ECS, pursuant to the provisions of Appendix C.

c. For touch-up and repair under either of the following conditions:

(1) such application is performed after completion of the entire finishing operation; or

(2) such application is performed after applying stain, and before any further coating, by equipment having a total capacity not exceeding 2.1 gallons (8 liters).

d. To apply less than 5% of all coating pursuant to subsection 307.2e.

303 OPERATION AND MAINTENANCE: Any person subject to this rule shall operate and maintain in proper working order all process equipment in which VOC-containing materials are used or stored.

304 CLEANUP AND CLEANING SUPPLY AND APPLICATION EQUIPMENT:

304.1 Booth Cleaning: No person shall clean spray booth components using a solvent containing more than 8.0 percent by weight of VOC, including water and non-precursor compounds, except for: conveyors; continuous coaters and their enclosures; and metal filters. If the spray booth coating is being replaced, a person shall use no more than 1.0 gallon (3.8 liters) VOC-solvent to clean the booth.

304.2 Cleaning Guns and Lines: A person shall collect all solvent used to clean spray guns and shall pump or drain all solvent used for line cleaning into non-leaking container(s). Such containers shall be immediately closed or covered after all the solvent has been collected, and shall remain so except when in use.

305 HANDLING AND DISPOSAL OF VOC

305.1 Use and Storage: A person shall cover and keep covered each VOC-containing material intended for the day's production, which is not currently in use. A person shall store finishing and cleaning materials in closed containers.

305.2 Disposal Of VOC And VOC-Containing Material: A person shall store all VOC-containing materials, including, but not limited to, rags, waste coatings, waste solvents and their residues, in closed containers which are legibly labeled with their contents and which remain covered when not in use.

306 DESIGNATION OF VOC-CONTENT REQUIREMENT: Effective May 3, 1996, a manufacturer of wood-furniture coatings which are subject to this rule shall provide on each coating container or as an accompanying specification of each coating container a designation of VOC content. For topcoats and sealers, this shall be in pounds of VOC per pound of coating solids (g/g) or in pounds VOC per gallon (g/l) less water and non-precursor volatile compounds. This requirement shall not apply to containers having a capacity of one liter (1.05 quart) or less.

307 EXEMPTIONS:

307.1 Total Exemption: The following materials are exempt from this rule: adhesives, architectural coatings, printing ink, and coatings not applied on or over a wood-product substrate.

307.2 Partial Exemptions:

a. Touch-up cans: Coatings in aerosol spray cans not exceeding 22 fl. oz. (0.66 liter) capacity used exclusively for touch-up and/or repairs are subject only to the recording requirements of this rule.

b. The following shall be exempt from subsection 301.1 and Section 302:

(1) The use of the following coating types when the annual total use of all such types together is less than 250 gallons (948 liters): prepackaged aerosol spray cans which are not used for touch-up or repair, metal leaf finishes, and faux finishes.

(2) Refinishing, replacement, and custom replica furniture operations: Any refinishing operation necessary for preservation, to return the furniture or fixture to original condition, to replace missing furniture to produce a matching set, or to produce custom replica furniture.

c. The coating for a single resin-layer finish which does not exceed a VOC limit of 3 lb VOC/lb solids for completed finishes up to 3 dry mils thickness or does not exceed 2.3 lb/lb for finishes over 3 dry mils is exempt from the VOC-limits of subsection 301.1 if all of the following conditions are met:

(1) The containers are clearly marked "FOR USE IN SINGLE RESIN-LAYER FINISH";

(2) Facility records clearly identify this material: "DOES NOT MEET THE VOC LIMITS OF SECTION 301, RULE 342. - FOR USE ONLY IN SINGLE RESIN-LAYER FINISHES"; and

(3) The booth used to apply a single resin-layer finish above 2.3 lb VOC/lb solids is dedicated to that operation only, and is clearly labeled "FOR SINGLE RESIN-LAYER FINISHES ONLY".

d. Small Source Status: A furniture coating facility which at any time demonstrates that it currently meets all the requirements in subsections 307.2d. (1) and (2) following, is exempt from all provisions of this rule except for Section 303 “Operation & Maintenance” and Section 305 "Handling and Disposal of VOC". An operator of such an exempted facility

shall keep on the premises current records of all coating related materials currently used, and their VOC content. For this purpose, a complete, updated set of receipts/invoices and Material Safety Data Sheets (MSDSs) will suffice if each receipt/invoice is retained on the premises at least two years.

(1) Facility records demonstrate that no more than a total of 55 gallons (209 liters) of VOC-borne wood-product coatings plus VOC-solvent are used in any month and that such monthly total divided by that month's number of days of coating application does not exceed 3.0 gallons (11.4 liters); and

(2) The facility emits less than 1814 kg (4000 lb) VOC, facility-wide per year from all wood-product coating operations including VOC in both solvent-borne and water-borne coatings, all VOC diluent added to coatings, all solvent cleaning and stripping, and VOC solvent used for coating equipment cleanup.

e. Using Conventional and other Restricted Use Guns; Red Tag: In addition to the uses of restricted-use guns allowed under subsections 302.2 a., b., and c., a person may use a conventional air-atomized or other restricted use gun to apply coatings exceeding 1 lb VOC/lb if all the following conditions are met:

(1) The volume of such coating applied in this way is less than 5% of the total volume of coating applied at the facility;

(2) Each gun has a red tag when spraying materials exceeding 1 lb VOC/lb. Requirements for gun tagging are in Section 403;

(3) A log shall be kept pursuant to subsection 501.2c. of the amount of coating used by each such gun. This shall be done daily or each time coating is added to the gun's coating reservoir; and semi-annual calculation shall be made, pursuant to subsection 501.2.

Errata Note[1]

e. Using a Conventional or other Restricted Use Gun Identified by a Red Tag: In addition to uses allowed under subsections 302.2 a., b., and c., a person may use a conventional air-atomized or other restricted use gun to apply coatings exceeding 1 lb VOC/lb on the following limited basis:

[1] This errata note is not part of Rule 342. For the reader's convenience, the second subsection 307.2e. was an earlier draft of the section not intended to be left in the rule. It will be removed for the next revision of this rule.

(1) The volume of such coating applied in this way is less than 5% of the total volume of coating applied at the facility.

(2) Each gun always has a red tag when applying coatings exceeding 1 lb/lb. Tag requirements are in Section 403.

(3) A log shall be kept pursuant to subsection 501.2c. of the amount of coating used by each such gun. This shall be done daily or each time coating is added to the gun's coating reservoir; and semi-annual calculation shall be made, pursuant to subsection 501.2c.

SECTION 400 - ADMINISTRATIVE REQUIREMENTS

401 COMPLIANCE SCHEDULE: The following schedule applies, with exceptions for an Emission Control System provided in Appendix C.

401.1 Sources Emitting 50 TPY: Each facility which has applied for or received a Title V permit, or a permit with an annual VOC limit of 50 tons or more, or which has had an aggregate VOC emission to atmosphere after December 31, 1989, of 50.0 tons (45.35 Mg) or more in any calendar year or 300 pounds (136 kg) or more in any day, emitted from wood coating operations and associated cleaning processes shall by May 3, 1996, be in compliance with all requirements of this rule and have submitted a Control Plan. The Control Plan shall set forth the maximum VOC content of each coating-as-applied and provide documentation showing how these values were determined.

401.2 Other Sources: The schedule follows for any wood furniture and/or fixture facility with total VOC emissions to atmosphere in each of the years 1990 through 1995 of no more than 300 pounds (136 kg) in any day and 50.0 tons (45.35 Mg) in any calendar year, emitted from wood coating operations and associated cleaning processes:

a. A facility shall be in compliance with all applicable provisions of this rule, except for Section 301 and Section 302 by May 3, 1996. Such facility shall be in compliance with Section 301 and Section 302 of this rule by November 15, 1996.

b. Control Plan: A facility which has emitted more than 25 tons of VOC from coating operations in any of the years 1993 through 1995 must submit a Control Plan by August 1, 1996, setting forth the maximum VOC content and copies of the documentation showing how the coating-as-applied values were determined.

402 REGULATORY CLARIFICATION

402.1 Status With Respect To Rules 330 And 336: No wood furniture or fixture-coating operation is subject to Rule 330 or to Rule 336.

402.2 Component Materials That Were Subject To Prior Regulation: The regulatory status of facilities, owners or operators is not affected by the fact that component materials, such as wood composites or paneling, may have been subject to Reasonably Available Control Technology (RACT) or other regulatory requirements in their original manufacture, before their subsequent use by a facility in Maricopa County.

402.3 Other Rules: Nothing in this rule exempts a person from complying with the NESHAP (National Emission Standards for Hazardous Air Pollutants) for coating wood furniture and fixtures or from complying with any other applicable Federal, states, and local laws or regulations.

402.4 Coating Over Wood Coating(s) The Same As Coating Onto Wood: The VOC-limits for finishing materials given in subsection 301.1 of this rule apply to such coatings whether applied directly onto any area of wood-product substrate or on any intermediate layer(s) of coating on the wood-product substrate.

403 GUN TAGGING REQUIREMENTS: An owner or operator shall use a red 4 square-inch vivid, durable tag, sticker, or painted emblem/label visible on the gun or within 3 ft of the gun on the gun's hose to meet the tagging/labeling requirements of subsection 307.2e.

SECTION 500 - MONITORING AND RECORDS

501 RECORDKEEPING AND REPORTING: An owner or operator shall keep the following records and lists in a consistent and complete manner and shall make them available to the Control Officer without delay during normal business hours. Each record shall be maintained a minimum of five years.

501.1 Current List:

a. VOC-containing materials: A current list of all VOC-containing material shall be maintained which contains their name or code and their VOC content. Any qualified single resin-layer finish shall be identified as such.

b. How to express VOC content:

(1) Non-coatings: Use grams VOC/liter or lb VOC/gal. for reducers, thinners, cleaners, etc.

(2) Stains: Use grams VOC/liter or lb VOC/gal.

(3) Topcoats and Sealers: Use either lbs VOC/lb solids or g VOC/liter (lb VOC/gal), except:

(a) Any topcoat or sealer sprayed with a conventional or other restricted use gun shall be expressed in lbs VOC/lb solids.

(b) *Two VOC content values* must appear for each topcoat and each sealer that is expressed as grams VOC per liter or pounds VOC per gallon: both grams VOC/liter (lb VOC/gal) *including* water and non-precursor organic compounds, *and* grams VOC/liter (lb VOC/gal) *less* water and non-precursor organic compounds.

(4) Other Coatings: Use grams/liter (or lb/gal), or lbs VOC/lb solids for coatings that are neither sealers nor topcoats, such as washcoats, glazes, etc.

c. Acceptable Format: VOC-containing materials shall be listed neatly and completely. The following is an example of an acceptable method:

Example: Identify and list each VOC-containing material in one of the following 6 categories: 1. topcoats; 2. sealers; 3. catalyst/hardeners; 4. diluents, such as reducers, coating solvents and thinners; 5. cleaning and stripping solvents; and 6. other VOC-containing materials. Next to each material, record the VOC-content found on the container, an MSDS, an invoice, or other source.

d. Mix ratios: A current list shall be maintained of the manufacturer's recommended mix ratio of components, including but not limited to adding reducers and catalyst/hardeners, except when the manufacturer has no recommendations for any additions.

501.2 Schedule For Recording Material Usage:

a. Daily Updates For Non-Compliant Material: The amount of each day's use of each topcoat, sealer or booth material that exceeds applicable VOC limits of Section 301 or Section 304 shall be totaled and logged by the end of the following workday. VOC content shall be entered for each such material.

b. Monthly Update For Materials Compliant with Sections 301 and 304: By the end of the following month, an owner or operator shall update the following records for each month:

(1) For each topcoat and sealer to which reducer is added at any time after its arrival at a facility, enter the VOC content in lb VOC/lb solids or in grams/liter (lb/gal) less water and non-precursor organic compounds**.**

(2) The amount of coating, the amount of catalyst/hardener, and the amount of reducer/coating diluent used.

(3) The quantity and type of organic solvent used each month for stripping and cleaning.

(4) The quantity of organic solvent disposed of offsite during the month just ended.

(5) Exception: Update yearly the totals of the usage of each VOC-containing material known to be used in amounts less than 15 gallons (57 liters) per year.

c. Semi-Annual Updates of Coatings Applied with Restricted Use Gun: Records associated with the Section 302 limitations on the use of conventional air-atomized spray equipment and other restricted-use guns shall be kept. These records shall show for each semi-annual period the volume (VR) of finishing materials exceeding solids (1 lb VOC/ lb solids) (1 kg VOC/kg solids) applied with conventional air-atomized spray guns and other restricted use guns. In addition, the total volume of all finishing material (AMV) used throughout the facility shall be determined. The total volume (VR) so applied over the previous six-months is divided by the total of all coatings used in the same period (AMV) and these calculations and the result are entered in the log.

501.3 Disposal/Recovery: An owner or operator shall keep records of disposal/ recovery of all VOC-containing materials.

502 COMPLIANCE DETERMINATION - TEST METHODS: When more than one test method is permitted for a determination, an exceedance of the limits established in this rule, as determined by any of the applicable test methods, constitutes a violation of this rule.

502.1 Measurement of VOC content, pursuant to the VOC-limits of subsections 301.1, 301.2, and 302.2, and subsections 304.1 and 307.2c., shall be conducted and reported in accordance with EPA Test Method 24 (40 CFR 60, Appendix A). Acetone content shall be determined within the context of Method 24 by EPA Method 311 or other method acceptable to EPA. Multi-part coatings including those with reactive diluent(s) shall be tested by Method 24 procedures.

502.2 Measurement of air pressure at the center of the spray gun tip and air horns of a conventional air-atomized spray gun (reference Section 302) shall be performed using a device in proper working order supplied by the gun's manufacturer for performing such a measurement.

502.3 Measurement of mil thickness to determine compliance with single resin-layer finish parameters in Section 227 and subsection 307.2c. shall be performed by draw bar and calculations using the weight and area of the film and the density of the cured coating solids, by a Tooke Inspection Gage according to the instructions of its manufacturer, or by other means used for the purpose by a major coating manufacturer's laboratory or quality control.

APPENDIX A TO RULE 342

AN AVERAGING ALTERNATIVE

a. Purpose: The averaging provisions of this Appendix to Rule 342 allow the owner or operator of a furniture coating facility, which meets eligibility requirements, increased options in choosing coating types. These provisions expand the range of the allowable VOC contents of coatings while limiting overall VOC emissions to amounts less than would be emitted at the VOC-content limits of subsection 301.1 of this rule.

b. Eligibility to apply: The owner or operator of any furniture coating operation, reasonably capable of annually emitting more than 25 tons of VOC and having at least one of the following four statuses with respect to VOC emissions, may apply to average:

(1) Has emitted more than 25 tons (21.7 Mg) of VOC in any year since 1989 and has a Maricopa County Air Quality Permit or is under consideration for such permit by the Control Officer;

(2) Has in its permit a VOC-emissions limit of 50 tons or more;

(3) Has applied for or received Title V status.

c. How to apply: An applicant shall submit a request for eligibility to the Control Officer. This request shall include a summary of the chief reasons for requesting eligibility for averaging.

(1) The Control Officer shall provide a brief questionnaire eliciting responses intended to reveal whether the operator has sufficient understanding and preparation to successfully average. This questionnaire shall require a sample of their intended recordkeeping format along with calculations containing the expected amount and VOC-contents of coatings intended to be used in averaging.

(2) The Control Officer may request confirmation, correction, or clarification from the owner or operator for responses to the questionnaire that are questionable; that appear unclear, erroneous, incomplete, or non-pertinent, or for which there is contrary evidence.

(3) The owner or operator shall submit a correctly completed questionnaire, signed by a responsible officer of the facility, no later than 14 calendar days prior to the first day of averaging.

(4) Control Officer approval of the completed questionnaire shall constitute an acceptance of application for minor permit revision. The Control Officer may request additional information characteristically required for minor revisions to the permits of wood furniture coaters as a class.

(5) Control Officer approval does not necessarily constitute satisfaction of all federal requirements nor preempt the EPA Administrator's asserting a right of approval.

d. Definitions of terms used in an averaging regime:

(1) CREDIT CONSUMING COATING (EXCEEDING COATING) - In an averaging regime, coating with average VOC content exceeding the neutral point for its particular coating type, such as topcoat, sealer, etc. A credit consuming coating requires the use of credit generating coating(s) in order that the combination of all coatings in use will not exceed the limit set by the left side of the averaging formula.

(**2) CREDIT CONSUMING PIECE/EXCEEDING PIECE -** In an averaging regime, a piece of furniture which is a member of a model-line of furniture receiving such a high proportion of credit-consuming coating that when the VOC contents and coating quantities received by the model-line, are entered into an averaging formula of Section i., the sum yielded by the right side of the formula is consistently larger than the sum yielded by the left side of the formula.

(3) CREDIT GENERATING COATING - A coating which has VOC content well below the neutral point and, thus, is used in an averaging regime to create surplus VOC credit(s) to offset the excess emissions of particular credit consuming coating(s).

(**4) CREDIT GENERATING PIECE -** In an averaging regime, a piece of furniture which is a member of a model-line of furniture receiving so much credit generating coating that when the VOC contents and coating quantities, received by the model-line, are entered into an averaging formula, the sum yielded by the right side of the formula is consistently less than the sum yielded by the left side of the formula.

(**5) NEUTRAL POINT -** The particular number representing the VOC content of a particular coating type having the mathematical property that if it is included in an

averaging formula it has no effect on the numerical results of the formula, regardless of how much of the coating is used. The neutral point VOC content for each affected coating-type is as follows:

Using Formula 1:
Topcoat neutral point - 0.72 kg VOC/kg coating solids. (Stains, sealers, etc. do not appear in Formula 1)

Using Formula 2:
The neutral point VOC content for each of the 5 types of coating in Formula 2 is as follows:
Topcoat - 1.62 kg VOC/kg solids; sealer coat - 1.71; washcoat - 8.1; basecoat - 1.08

The neutral point for stains is expressed in kilograms VOC per liter of coating - 0.712 kg VOC/liter

e. Basic requirements for all averaging regimes:

(1) Entire workdays: Averaging regimes must be in place for no less than an entire 24 hour period and at all times during such 24-hour period. Normally, a workday will be the calendar day in which work commences. However, an owner or operator may designate in writing a workday schedule beginning and ending at a specific time between 12 midnight and 4:30 AM if the last shift normally ends between midnight and 4:30 AM, unless the Control Officer issues written disapproval. The times of the averaging workday may be changed if written notification has been given the Control Officer at least five workdays before the start of the intended new schedule, and no communication of disapproval has been issued within this time by the Control Officer.

(2) Averaging applies plant-wide: An averaging regime applies throughout a facility to all production furniture coating occurring during all 24 hours of a workday for which an averaging regime is declared.

(3) No exemption for single resin-layer finishes or acid-cured, alkyd amino coatings:

(a) In averaging regimes using Formula 2, for surfaces which receive in total only one application of film building coating, the neutral point for that coating shall be the same as that for a sealer, 1.71 kg VOC/kg solids, and it shall be totaled with sealers in the averaging formula.

(b) Acid-cured, alkyd amino coatings, with or without vinyl chemistry, shall have the same neutral points in Formula 2 as do other sealers and topcoats (1.71 and 1.62, respectively) and shall be totaled in with the other sealers and topcoats in Formula 2.

(4) Identifying credit consuming models: Each furniture/finish model must be identified which on average does not by itself (i.e., by the combination of all coatings it receives) meet the applicable averaging formula (and must be offset by models whose coatings generate VOC credits). The model name and/or code of each credit consuming model must be identified in a permanent record for that purpose, along with a designation indicating that the model produces excess emissions. This designation can be the average grams of VOC above the formula limit, the maximum grams above the limit, number of exceeding grams at the first standard deviation, relative risk, or other term(s) created by the owner or operator that fulfill this purpose for the facility**.**

(5) Exemption for physically separated lines:

(a) At the Control Officer's discretion, an exemption from the requirement that the entire facility participate when an averaging regime is in effect can be granted for an additional coating line if: Such a coating line is both physically separate from the operations involving averaging and all monitoring, recordkeeping, and coating equipment including coating reservoirs are kept separate from the monitoring, recordkeeping and coating equipment participating in an averaging regime. The burden of demonstration is on the owner or operator that there is no significant risk of confounding enforcement, monitoring, recordkeeping, and equipment activities between the lines.

(b) Dual averaging regimes: A facility which has received such a subsection e.(5)(a) exemption has the option of running each separated line using an averaging regime. However, all requirements of this rule must be complied with by each separated line.

(6) Declaration of averaging: On any day of a Control Officer presence at a facility permitted to average, the owner or operator shall correctly announce without delay whether an averaging regime is currently in effect, and on an averaging day shall also forthwith supply a listing of each coating participating in the averaging formula, along with the VOC content and the coating category of each.

f. Recordkeeping and monitoring: In addition to the requirements of Section 501 of this rule, an owner or operator shall do the following:

(1) Daily list the components: Prior to applying any coating on an averaging day, a list shall be made of each coating name/code to be used that day in the averaging formula and its expected VOC content as applied. This list shall be available to the Control Officer without delay.

(2) Daily calculation deadline: After each day using averaging, an owner or operator shall determine the results of averaging for that completed production day by midday on the next workday. These results shall be put into hardcopy in the same format that the

owner or operator used in the approved application questionnaire. Some other format may be used if the Control Officer has given the format approval before beginning averaging.

(3) Log in: An owner or operator shall arrange and keep the hardcopy results of each day's averaging in a form that allows the results of each averaging day within the 13 months prior to a Control Officer visit to be accessed by the Control Officer without delay.

(4) Content of weekly summary of production-coating: By the end of the first shift of the workweek, totals for the workweek just completed shall be compiled as follows:

(a) For each model and color, the total number of furniture pieces coated;

(b) The name and quantity applied for each stain, washcoat, basecoat, sealer, topcoat, and diluent recorded. The quantity of stain shall be expressed in liters; the quantity of the other coatings expressed in kilograms;

(c) The VOC content for each such coating and diluent, expressed in kg VOC/kg solids; and the non-precursor organic compound (NP) content of each, expressed either in kg NP/kg solids or kg NP/kg coating-including-NP shall be recorded, except that the VOC content of each stain shall be expressed in kg VOC per liter of coating, including any water or non-precursors.

(d) Monthly totals for non-averaged coatings: For coatings that do not participate in the averaging formulas, the total kilograms used shall be updated monthly. Coatings of the same type may be totaled together under a single VOC-content value if their VOC contents are within ± 2% of that value.

(5) Handling unavoidable data loss and data processing equipment malfunctions: An owner or operator shall put an accounting system in continual effect that allows the retrieval or reconstruction of data. When data required by this rule is lost, the Control Officer shall be notified forthwith and such data shall be reconstructed and due calculations completed within two facility workdays. The Control Officer may request that a hardcopy of the retrieved information be provided him/her by the same clock time, two workdays hence.

(6) Report submittal schedule:

(a) Semi-annual reports: An owner or operator shall submit a summary of the records, including all exceedances, by July 20 for the first half of the year and by January 20 of the following year for the second half. Included shall be certified data sheets for coatings whose VOC content is determined by the supplier and not directly by the facility, and a statement that the coatings for which certified data

sheets are submitted were the coatings actually used. All the foregoing shall be certified to and signed by a responsible official of the facility.

(b) Initial compliance report: Within 60 days after the third day ever of averaging, an owner or operator shall submit a report to the Control Officer containing all the elements required by subsection f.(6)(a) above.

g. Test procedures and requirements:

(1) An owner or operator shall cause to be performed EPA Method 24 tests on a sample of each coating intended to be used in an averaging regime, prior to using such coating in any averaging regime. These samples shall be taken at three levels of dilution: prior to adding any diluent; with the minimum weight of solvent/diluent typically used; and with the maximum weight of solvent/diluent expected ever to be needed.

(2) An acetone determination shall be made in conjunction with Method 24 using EPA Method 311 or other method approved by EPA at the three dilution levels stipulated in subsection g.(1).

(3) The status of Certified Product Data Sheets: After the initial Method 24 tests pursuant to subsection g.(1), an owner or operator may substitute the specific certified product data sheet, based on Method 24, for any coating for any of the three levels of dilution stipulated in subsection g.(1), in lieu of directly overseeing the Method 24 tests.

(a) However, a certified product data sheet is not valid and shall not be submitted if it is neither for a dilution level in subsection g.(1) nor for the actual dilution level of a coating as applied during averaging.

(b) When the results of a Method 24 test, performed pursuant to a Control Officer initiative or directive, differ from the certified product data sheet, the Control Officer may require an owner or operator to have Method 24 tests conducted at a testing facility agreed to by the Control Officer and may require that the results of such tests be the values used in calculating averages.

h. Sanctions:

(1) If an exceedance of the limits of an averaging formula is determined to be in violation of this rule, at least two violations may be charged: at least one violation for exceeding the limits in subsection 301.1 and a separate violation for exceeding the limit determined by the averaging formula in Section i. of this Appendix. Unless the Control Officer chooses otherwise, the number of violations issued for an exceedance of an averaging limit shall be one greater than the number of exceeding coatings participating in the averaging formula. Each day the average is exceeded will be counted as a separate incident.

(2) Continuance: The Control Officer may disallow an owner or operator the continuance of averaging at a facility which has failed to comply with one or more provisions of this Appendix on three separate days in any period of 12 consecutive months, or which has been found guilty of a major violation of such provisions, except as prohibited by other rule or statute.

i. Two averaging formulas: The following are the two mathematical formulas from which one may be chosen to be used for an averaging regime.

(1) If topcoats consistently average less than 0.72 kg VOC per kg solids on a mass-solid basis, an owner or operator may use Formula 1.

$$[S_{i=1 \to N}\ 0.72\ (TC_i)] \leq S_{i=1 \to N}\ ER_{TC_i}(Tc_i) \quad \text{Formula 1}$$

(2) For other coating systems using averaging, Formula 2 shall be used.

$$\frac{[S_{i=1 \to N} 1.62(TC_i)+1.71(SE_i)+8.1(WC_i)+1.08(BC_i)+0.712(ST_i)]^3}{S_{i=1 \to N} ER_{TC_i}(TC_i)+ER_{SE_i}(SE_i)+ER_{WC_i}(WC_i)+ER_{BC_i}(BC_i)+ER_{ST_i}(ST_i)} \quad \text{Formula 2}$$

where:

N	=	number of finishing materials participating in averaging;
Tc_i	=	kilograms of solids of topcoat "i" used;
SE_i	=	kilograms of solids of sealer "i" used;
WC_i	=	kilograms of solids of washcoat "i" used;
Bc_i	=	kilograms of solids of basecoat "i" used;
ST_i	=	liters of stain "i" used (water and any non-precursor content are not subtracted);
ER_{TC_i}	=	VOC content of topcoat "i" in kg VOC/kg solids, as applied;
ER_{SE_i}	=	VOC content of sealer "i" in kg VOC/kg solids, as applied;
ER_{WC_i}	=	VOC content of washcoat "i" in kg VOC/kg solids, as applied;
ER_{BC_i}	=	VOC content of basecoat "i" in kg VOC/kg solids, as applied; and
ER_{ST_i}	=	VOC content of stain "i" in kg VOC/liter, as applied.

j. Pre-RACT coating use is limited: If a coating was used before 1993, and is still used for the same purposes, and it had a VOC content then which is lower than the neutral point for that coating type, then that coating may only be used in the averaging equation if the coating is now lower in VOC than before 1993. If that coating is used in averaging, the left side of the averaging formula must reflect the pre-RACT VOC content and not the current RACT neutral point for that type of coating. To effect this, additional mathematical terms must be added, one on the left and one on the right side of the formula.

For example, if one can prove one used a high solids topcoat at 1.5 kg VOC/kg solids before 1993 (the year regulation negotiations began) and now thin the same product less so that it is consistently less than 1.5 kg/kg, one can enter it as a separate term. It appears in the formula below as "1.5(TU)" where "TU" stands for the total kilograms of solids of this unique topcoat used during an averaging day. "TU" appears on both sides of the inequality sign. ER_u is the actual VOC content that was in this unique topcoat on a particular averaging day. Along with this, the meaning of the term (TC_i) becomes slightly altered to mean the total topcoat solids used of every other topcoat beside the unique topcoat "U":

$$*\Sigma_{i=1\rightarrow N}1.62(TC_i)+1.5(TU)+1.71(SE_i)+8.1(WC_i)+1.08(BC_i)+0.712(ST_i)*\geq$$

$$*\Sigma_{i=1\rightarrow N}ER_{TC_i}(Tc_i)+ER_u(TU)+ER_{SE_i}(SE_i)+ER_{WC_i}(WC_i)+ER_{BC_i}(BC_i)+ER_{ST_i}(ST_i)*$$

Similarly, any other unique coatings that meet such requirements and are used in averaging must each have its own set of two terms inserted into the averaging formula. Moreover, once a pre-RACT coating is used in averaging, the term for its VOC content must stay in the equation as long as that pre-RACT coating is used, even if one later needs to raise the VOC content of the pre-RACT coating to a level above its historical VOC content.

APPENDIX B -- A SHORT-FORM OPTION

a. Applicability: This Appendix B to Rule 342 only applies to operators of facilities which have a permit or permit modification limiting VOC emissions from all wood furniture and millwork coating to less than 10 tons, and the permit or Control Officer states in writing that this Appendix B applies. For those facilities for which this Appendix B does apply, no provisions within Sections 301 through 501, inclusive, shall be used to substitute for provisions in this Appendix B. Facilities subject to this Appendix B are also subject to all of Sections 100, 200, and 502.

b. Definitions: For the purposes of this Appendix B, the following definition shall apply:

(1) MINUS EXEMPT MATERIALS (MINUS EXEMPTS) - Means the same as "less water and non-precursor organic compounds" in specifying VOC content.

c. VOC Limits for Topcoats and Sealers

(1) The Principal VOC Limits – Meet either the lbs VOC/lb solids limit or the lbs VOC/gal, minus exempts, limit: **All sealers and topcoats**: **2 lbs VOC/lb** OR **5.45 lb VOC/gal**

(2) VOC Tradeoff Options: These 2 options each requires special conditions.

(a) Low VOC topcoat with Higher VOC Sealer:
Low VOC topcoat: 0.8 lb/lb OR 3.83 lb/gal limit for topcoat
Higher VOC sealer: no VOC limit for sealer under such topcoat.

(b) One-step finish:
Higher VOC combination sealer and topcoat: **3 lb/lb** OR **6.0 lb/gal limit**

The 2 Conditions:
I. A single wet application of either sealer or topcoat (not both)
II. Thickness of the dry finish cannot exceed 3 dry mils, as determined by the test method in subsection 502.3.

d. Spray Method Requirements:

(1) Have guns with higher transfer: If you spray coating having over 1 lb VOC/lb you must use and have in evidence for an inspector at least one of the following onsite:

- ❷ Low pressure gun with less than 12 psig at tip. Examples: pure HVLP gun; a turbine gun.
- ❷ Airless; includes air-assisted airless.
- ❷ An electrostatic system.

(2) Green Tag Option – Restriction on conventional guns and other restricted use guns:

(a) Green Tag Requirements: A conventional air-atomized or other restricted use gun shall have a durable and visible green tag, sticker, or painted emblem, no less than 4 square inches in area on the gun or within 3 ft of the gun on the gun's hose, or the facility is in violation. *But*, such a tag is not required at a facility having and using only coatings which contain less than 1 lb VOC/lb solids as applied. Coatings which have less than 4.30 lb VOC/gal (515 g/l) minus exempt materials also meet this requirement.

(b) Prohibition: No coating over 1 lb VOC/lb solids may be applied with a conventional air-atomized or other restricted use gun. This prohibition includes, but is not limited to, traditional lacquers, washcoats, and low-solids stains. ("Conventional air-atomized gun" is defined in Section 208. "Restricted use gun" is defined in Section 225.)

(3) Exemptions From VOC and Spray-Method Limits: Prepackaged aerosol spray in cans under 22 fl. oz., faux & metal-leaf finish are exempt from Appendix B's subsections c.(1) and (2) and d.(1) and (2) as is any refinishing operation necessary for preservation, to return furniture to original condition, to replace missing furniture items to complete a matching set, or to produce custom replica furniture. But nothing exempted by the

previous sentence is exempt from inventory of VOC emissions or from other provisions of this Appendix B.

e. Housekeeping Functions:

(1) Keep Coatings, Cleaners, & Waste-materials Covered: Coatings and cleaners not in use, as well as waste coatings, cleaning materials including solvent-dipped rags, and solvent used to clean spray equipment must be collected into a closed container or a container which is closed immediately after receiving such material.

(2) Booth Cleaning: If booth/components other than *metal* filters are cleaned with solvent, no solvent which is more than 3.8 lb/VOC per gallon (455 g/l) shall be used. However, up to 1 gallon of solvent over 3.8 lb VOC/gal may be used for cleaning a booth as part of replacing coating on the booth.

f. Records: Keep a list of all VOC containing material with the name and amount of VOC in each: Express VOC content either as lb/lb or lb/gal. For topcoat and sealer contents which are expressed in lb VOC/gal, this must be minus water and non-precursors.

(1) If you ever do your own reducing or thinning of a sealer or topcoat:
Keep a list of the maximum VOC content of any material after you thin it or add any additives at your facility.

(2) Keep receipts for 5 years of the amount received for each VOC-containing material *and* of the amount of all VOC-*waste materials* sent for recycling or hazardous waste collection.

(3) What To Record And How Often: Record the amount in the following 4 categories, (a) to (d), noting either the amount "used" or the amount "received" since your last records update:

(a) All coatings including topcoats, sealers, stains, etc., including all parts, catalysts, activators, additives, hardeners; (*not* reducers). If you use conventional guns at all, total *separately* the coatings having less than 1 lb VOC/lb;

(b) All reducers and diluents to be used for reducing or diluting coatings (not cleaning);

(c) All solvents, strippers, thinners, and VOC-containing materials used for cleaning and cleanup (not reducing); and

(d) All other VOC containing materials connected with wood coating. Omit janitorial & building maintenance.

(e) How Often to Update Your Records: Update the above items in (a), (b), (c), and (d) weekly if your total monthly *use* of all coatings and diluents [(a) + (b)] is 250 gallons or more. Otherwise, update monthly. You may record just once a year those types of materials you use less than 15 gallons of.

Example: I use 5 kinds of graining ink. Added all together, I use 14 gallons of all graining ink combined: I only have to update my graining inks once a year.

APPENDIX C TO RULE 342

ALTERNATIVE COMPLIANCE WITH SECTION 301 VOC-LIMITS AND/OR SECTION 302 SPRAY-METHOD RESTRICTIONS BY USING AN EMISSIONS CONTROL DEVICE

a. Eligibility: A person is allowed to meet the VOC limits of either or both subsections 301.1 and 301.2 by using an ECS which reduces VOC emissions overall, including capture and processing, by at least 81 percent by weight. Such an ECS may also be used to comply with subsection 302.2 spray method provisions.

b. Operation and Maintenance (O&M) Plan Required for ECS:

(1) The owner or operator of an emission control system (ECS) used to meet the requirements of Section 301 of this rule shall provide the Control Officer with an Operation and Maintenance (O&M) Plan. This O&M Plan shall specify key system operating parameters, such as temperatures, pressures and/or flow rates, necessary to determine compliance with this rule, and describe in detail procedures and their frequency of implementation needed to maintain the ECS.

(2) The Control Officer's written approval of the O&M Plan is required. The owner or operator shall consistently implement all provisions of the O&M Plan.

(3) Changes in frequency: Changes involving reduction in the frequency or extent of procedures or parameters in a Control Officer-approved O&M Plan shall have the written consent of the Control Officer prior to being implemented.

(4) Other Changes: An updated O&M Plan must be submitted to the Control Officer for review within 10 days of any changes not involving reduction in frequency or extent of procedures or parameters of an approved O&M Plan. Within five working days of a written disapproval of such changes, either the original O&M Plan shall be reinstituted or an alternative plan, negotiated with the affected facility and approved in writing by the Control Officer, shall be instituted.

c. Providing And Maintaining ECS Monitoring Devices: Any person operating an emission control system (ECS) pursuant to subsection 301.3 of this rule shall install, maintain, and

calibrate monitoring devices described in the O&M Plan submitted to the Control Officer pursuant to subsection b. of this appendix. The monitoring devices shall measure temperatures, pressures, rates of flow, or other operating conditions necessary to determine if air pollution control equipment is functioning properly.

(1) ECS Operation and Maintenance Records: On each day that an ECS is used to comply with Section 301 of this rule, an owner or operator shall make a permanent record of the operating parameters of the key systems described in the O&M Plan. For each day or period in which the O&M Plan requires that maintenance be performed, a permanent record shall be made of the maintenance actions taken, within 24 hours of maintenance completion. An explanation shall be entered for scheduled maintenance that is not performed during the period designated in the O&M Plan.

(2) Other Records Required When Complying Via ECS: An owner or operator choosing to meet the requirements of Section 301 through the use of an ECS shall maintain, in addition to the monthly records required by subsection 501.2:

(a) Daily documentation showing the VOC content of the finishing material, as applied, in pounds VOC/pound solids when solvent or other VOC is added to the finishing material before application.

(b) Daily records showing the amount of coating, the amount of catalyst/hardener, and the amount of solvent, reducer, and/or diluent used.

d. Compliance Schedule For ECS: An owner or operator of a furniture coating facility shall have such facility in compliance per the following schedule. Total VOC emissions is the total VOC from all wood coating operations and associated cleaning processes. It includes millwork coating.

(1) Sources Emitting 50 TPY: Full compliance with all applicable requirements of this rule shall be by November 15, 1996 if such facility has applied for or received a Title V permit, its permit has a VOC-emissions limit of 50 tons or more, or which has had an aggregate VOC emission to atmosphere after December 31, 1989, of 50.0 tons (45.35 Mg) or more in any calendar year or 300 pounds (136 kg) or more in any day. In addition, an owner or operator shall provide the Control Officer with:

(a) Both proof of a binding contract for an ECS and a compliance plan by June 3, 1996, listing dates of completion of increments of progress toward meeting the requirements of subsection 301.3 of this rule.

(b) An O&M Plan for the ECS by November 15, 1996.

(2) Other Sources: A facility shall be in compliance with Section 302 by November 15, 1996 and with Section 301 by January 15, 1997 if its total VOC in each of the years

1990 through 1995 of less than 300 pounds (136 kg) in any day and 50.0 tons (45.35 MG) in any calendar year. In addition, the owner or operator shall provide the Control Officer with:

(a) Both proof of a binding contract for an ECS and a compliance plan by June 3, 1996, listing the dates of completing the increments of progress toward meeting the requirements of the subsection 301.3; and

(b) An O&M Plan for the ECS by January 2, 1997.

e. Test Methods for an ECS

(1) Control efficiency of an emission control device used to meet the requirements of Section 301 shall be determined according to EPA Reference Method 25 or an applicable submethod of Method 25 (Title 40, CFR Part 60, Appendix A).

(2) EPA Method 18 shall be used if specified by the Control Officer when a non-precursor organic compound is present in the input of a control device used to meet the requirement of Section 301.

(3) Capture efficiency of an emission control device used to meet the requirements of Section 301 shall be determined by mass balance in combination with ventilation/draft rate determinations done in accordance with subsection e.(4), following, or according to "Guidelines for Determining Capture Efficiency" January 9, 1995, Candace Sorrell, Source Characterization Group A, Office of Air Quality Planning and Standards, US EPA. This EPA document is available at 2406 South 24 Street, Suite E-214, Phoenix, Arizona, 85034, or call (602) 506-6700 for information.

(4) Ventilation/draft rates of an emission control device used to meet the requirements of Section 301 shall be determined by EPA Methods 2, 2A, 2C, or 2D.

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Adopted 02/15/95

MARICOPA COUNTY
AIR POLLUTION CONTROL REGULATIONS

REGULATION III - CONTROL OF AIR CONTAMINANTS

RULE 343
COMMERCIAL BREAD BAKERIES

SECTION 100 - GENERAL

101 PURPOSE: To limit the emission of volatile organic compounds (VOCs) from bread ovens at commercial bread bakeries.

102 APPLICABILITY: The provisions of this rule shall apply only to commercial bread bakeries whose total VOC emissions exceed 25 tons per year after December 31, 1989. This rule shall not apply to any facility or equipment used exclusively for the production of bakery products leavened chemically in the absence of yeast.

SECTION 200 - DEFINITIONS:

For the purpose of this rule, the following definitions shall apply:

201 AFFECTED FACILITY - With reference to a stationary source, any apparatus to which a standard is applicable.

202 APPROVED EMISSION CONTROL SYSTEM - A system for reducing emissions of organic compounds, consisting of both collection and control devices which are approved in writing by the Control Officer and are designed and operated in accordance with good engineering practice.

203 AVERAGE DAILY EMISSIONS - The product of the total calendar year emissions divided by the number of days the oven was employed for production during that year.

204 BASE YEAR - The calendar year 1990 or any subsequent calendar year in which the average daily emissions equal or exceed 192 lbs. or more per day.

205 BREAD - A perishable foodstuff prepared from yeast-leavened dough whose primary ingredients are flour, water, and yeast which is baked into loaves, buns, or rolls.

206 CONTROL PLAN - A written report describing the method to be used to achieve full compliance. The control plan shall, at a minimum, contain all information required in Section 402 of this rule.

207 EXISTING OVEN - Any oven which was installed before May 1, 1995.

208 LEAVEN - To raise a dough by causing gas to thoroughly permeate it through the use of a fermentation-producing agent such as yeast or baking powder.

209 NEW OVEN - Any oven which was installed on or after May 1, 1995.

210 OVEN - A chamber used to bake by means of heat, typically from the combustion of natural gas or propane. This does not include proof boxes.

211 PROOF BOXES - A warm, typically 100° Fahrenheit, humid chamber where yeast-leavened dough is allowed to rise to the volume desired for baking.

Note[1]

212 VOLATILE ORGANIC COMPOUND (VOC) - Any organic compound, excluding the following organic compounds which have been designated by the EPA as having negligible photochemical reactivity: methane; ethane; methylene chloride (dichloromethane); 1,1,1-trichloroethane; trichlorofluoromethane (CFC-11); dichlorodifluoromethane (CFC-12); chlorodifluoromethane (CFC-22); 1,1,2-trichlorotrifluoroethane (CFC-113); 1,2-dichlorotetrafluoro ethane (CFC-114); chloropentafluoroethane (CFC-115); trifluoromethane (CFC-23); 2,2-dichloro-1,1,1-trifluoroethane (HCFC-123); 2-chloro-1,1,1,2-tetrafluoroethane (HCFC-124); 1,1-dichloro-1-fluoroethane (HCFC-141b); 1-chloro-1,1-difluoroethane (HCFC-142b); pentafluoroethane (HFC-125); 1,1,2,2-tetrafluoroethane (HFC-134); 1,1,1,2-tetrafluoroethane (HFC-134a); 1,1,1-trifluoroethane (HFC-143a); 1,1-difluoroethane (HFC-152a); parachlorobenzotrifluoride (PCBTF); cyclic, branched, or linear completely methylated siloxanes; all completely fluorinated, completely saturated: alkanes, ethers and tertiary amines; sulfur-containing perfluorocarbons with no unsaturations, no hydrogen, and with sulfur bonds only to carbon and fluorine.

[1] This note is not part of Rule 343, but is included for the reader's convenience. The current list of exempt organic compounds is in Rule 100, Section 200, in the definition of Non-Precursor Organic Compound.

SECTION 300 - STANDARDS

301 LIMITATIONS - EXISTING BAKERY OVENS: On or after November 15, 1995, no person shall use an existing oven, with annual VOC emissions of 25 tons and/or a base year average daily VOC emissions of greater than 192 lbs., unless the VOC emissions from the oven are reduced by at least 81 percent. This may be accomplished through the use of an approved emission control device or bread-making and/or baking process changes.

302 LIMITATIONS - NEW OR MODIFIED BAKERY OVENS: No person shall operate a new or modified oven with potential, annual VOC emissions of 25 tons and/or average daily VOC emissions of 192 lbs., unless the VOC emissions from the oven are reduced by at least 81 percent. This may be accomplished through the use of an approved emission control device or bread-making and/or baking process changes. A person choosing to comply with this rule through the use of bakery process changes shall use a VOC E.F. value of 5.5 pounds per ton (Reference Figure 1.)

Note[2]

303 OPERATION AND MAINTENANCE (O&M) PLAN: The owners or operators of an approved emission control system used to meet the requirements of this rule shall provide the Control Officer with an O&M Plan. This Plan shall specify key system operating parameters, such as temperatures, pressures and/or flow rates, necessary to determine compliance with this rule and describe in detail procedures to maintain the approved emission control system. The Control Officer's written approval of this Plan and the implementation of this Plan shall be required for compliance with this rule to be achieved.

SECTION 400 - ADMINISTRATIVE REQUIREMENTS

Note[3]

401 COMPLIANCE SCHEDULE:

401.2 By May 1, 1995, any person subject to Section 301 shall submit for the Control Officer's approval an emission control plan describing the method to be used to achieve full compliance by November 15, 1995. The plan shall, at a minimum, include all information required in Section 402 of this rule. The Control Officer may require a person submitting such emission control plan to submit subsequent reports on progress in achieving compliance.

402 INFORMATION REQUIRED TO BE INCLUDED IN AN EMISSION CONTROL PLAN:

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[2] This note is not part of Rule 343, but is included for the reader's convenience. An "approved emission control device" is the same as an "approved emission control system" as defined in Section 202 of this rule. The abbreviation "E.F." means "emission factor".

[3] This note is not part of Rule 343, but is included for the reader's convenience. There is a formatting error: there is no subsection 401.1; subsection 401.2 should be simply Section 401.

402.1 Name(s), address(es), and phone number(s) of the owner of the bakery, of person(s) responsible for the preparation, submittal and implementation of the emission control plan and of person(s) responsible for the baking operations; and

402.2 Complete and accurate calculations of the bakery's base year total VOC emissions from each affected oven by following emissions inventory calculations provided by the equation in Figure 1; and

402.3 Complete and accurate calculations of the bakery's total VOC emissions from each affected oven after the proposed breadmaking and/or baking process changes found in the emission control plan. These calculations shall be done by following the emissions inventory estimation provided by the equation in Figure 1. The emission control plan shall demonstrate that the reduction in emissions is a result of the breadmaking and/or proposed baking process changes' effect on the variables in the equation in Figure 1; or

402.4 Complete and accurate calculations of the bakery's total VOC emissions from each affected oven based on the proposed emission control system described in the emission control plan. The emission control plan shall also specify dates for completing increments of progress, such as the contractual arrival date of new control equipment.

403 EFFECTIVE DATE: The provisions of this rule shall become effective on May 1, 1995.

SECTION 500 - MONITORING AND RECORDS

501 PROVIDING AND MAINTAINING MONITORING DEVICES: Any person operating an approved emission control system pursuant to this rule shall properly install and maintain in calibration, in good working order and in operation, devices described in an approved O&M Plan for indicating temperatures, pressures, rates of flow, or other operating conditions necessary to determine if air pollution control equipment is functioning properly and is properly maintained.

502 RECORDKEEPING AND REPORTING: Any person subject to this rule shall maintain records which comply with the following requirements. Any records required by this rule shall be kept in a legible, consistent and complete manner.

502.1 Records for operation and maintenance of an approved emission control system shall include a record of the times an approved emission control system is operating, daily records of the O&M Plan's key system operating parameters and a log of all maintenance performed according to the O&M Plan.

502.2 Records for the institution shall include:

a. Formula number;

b. Initial baker's percent of yeast, Y_i (nearest one-tenth of a percent);

Note[4]

c. Total ferment time (in hours, nearest one-tenth of an hour - begins with first mixing of yeast with the dough or sponge);

d. Yeast spike as baker's percent of yeast (nearest one-tenth of a percent);

e. Spike time (in hours, nearest one-tenth of an hour);

f. Ethanol emission factor (lbs/ton);

g. Daily records of production (tons) and corresponding formula;

h. Quarterly records of ethanol emissions (tons).

503 RECORDS RETENTION: Copies of control plans, operation and maintenance records and any other documentation required by this rule shall be retained by the permittee for at least three years.

504 COMPLIANCE DETERMINATION - TEST METHODS: When more than one test method is permitted for a determination, an exceedance of the limits established in the rule determined by any of the applicable test methods constitutes a violation of this rule.

504.1 Measurements of VOC emissions subject to Section 301 and 302 of this rule shall be conducted in accordance with EPA Methods 18 and/or 25 and/or its submethods (40 CFR 60, Appendix A).

504.2 Ventilation/draft rates shall be determined by EPA Methods 2, 2a, 2c, and 2d.

Figure 1

$$\text{VOC E.F.} = .95Y_i + .195t_i - .51S - .86t_s + 1.90$$

where VOC E.F. = pounds of VOC per ton of baked bread

[4] This note is not part of Rule 343, but is included for the reader's convenience. Total ferment time ends at the time the bread enters the oven, as does spike time, also.

Y_i = initial baker's percent of yeast to the nearest tenth of a percent

t_i = total yeast action time in hours to the nearest tenth of an hour

S = final (spike) baker's percent of yeast to the nearest tenth of a percent

t_s = spiking time in hours to the nearest tenth of an hour

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REGULATION III - CONTROL OF AIR CONTAMINANTS

RULE 344
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Revised 04/03/96
Revised 04/07/99

MARICOPA COUNTY
AIR POLLUTION CONTROL REGULATIONS

REGULATION III - CONTROL OF AIR CONTAMINANTS

RULE 344
AUTOMOTIVE WINDSHIELD WASHER FLUID

SECTION 100 - GENERAL

101 PURPOSE: To limit the emission of volatile organic compounds (VOCs) into the ambient air from automotive windshield washer fluid products.

102 APPLICABILITY: This rule applies to any automotive windshield washer fluid product sold or otherwise distributed within Maricopa County.

SECTION 200 - DEFINITIONS: For the purpose of this rule, the following definitions shall apply:

201 AUTOMOTIVE WINDSHIELD WASHER FLUID (WINDSHIELD FLUID) - Any liquid designed for use in a motor vehicle windshield washer fluid system either as an anti-freeze or for the purpose of cleaning, washing, or wetting windshield(s), except any such liquid which is placed in a new motor vehicle at the time the vehicle is manufactured.

202 LABEL - Any written, printed, or graphic matter affixed to, applied to, blown into, formed, molded into, embossed on, or appearing upon any product container or package, for purposes of branding, identifying, or giving information with respect to the product or the contents of the package.

203 NON-PRECURSOR ORGANIC COMPOUND - Any of the organic compounds which have been designated by the EPA as having negligible photochemical reactivity. EPA designates such compounds as "exempt." A listing of these compounds is found in Rule 100.

204 PERCENT BY WEIGHT - The total weight of a substance expressed as a percentage of the net weight of the product exclusive of the container or package as calculated according to the following equation:

$$\text{Percent by Weight} = \frac{B \times 100}{A}$$

Where:
A = net weight of unit (excluding container and packaging).
B = weight of VOCs, as defined in Section 205 of this rule.

205 VOLATILE ORGANIC COMPOUND (VOC) - Any organic compound which participates in atmospheric photochemical reactions, except non-precursor organic compounds.

SECTION 300 - STANDARDS

301 LIMITATIONS - PERCENT VOC BY WEIGHT: No person shall sell, offer for sale, or supply in Maricopa County, Arizona any automotive windshield washer fluid product which, at the time of sale, offering, or supply, contains VOCs in excess of ten percent by weight, unless the person can demonstrate that the windshield fluid meets the exemption in Section 302, or the fluid is destined for use outside Maricopa County, as provided for by the exemption in Section 303.

302 EXEMPTION - CONCENTRATED WINDSHIELD FLUID PRODUCTS: A concentrated windshield fluid (concentrate) is exempt from Section 301 of this rule if the label provides all of the following information:

a. That the windshield washer fluid is a concentrate;

b. That the contents must be diluted prior to use;

c. Specific, clearly designated dilution directions;

d. That the freezing point of the undiluted product is not described on the label; and,

e. That the dilution ratio of the concentrate shall yield a solution that never exceeds ten percent VOC by weight.

303 EXEMPTION - OUTSIDE OF MARICOPA COUNTY: A person may demonstrate that windshield fluid sold, offered for sale or supplied within Maricopa County is destined for use outside Maricopa County by providing the following documents or information:

a. A bill of lading, or

b. A properly executed, signed transfer agreement, such as a warehouse receipt, orders for the delivery of goods, and any other documents common in such transactions which in the regular course of business or financing are treated as adequately evidencing that the person in possession of it is entitled to receive, hold and dispose of the document and the goods it covers.

SECTION 400 - ADMINISTRATIVE REQUIREMENTS (RESERVED)

SECTION 500 - MONITORING AND RECORDS

501 COMPLIANCE DETERMINATION: Compliance determination may be demonstrated by either one of the options listed below. Copies of the test method listed in subsection 501.2 and found in Appendix A are available at the Maricopa County Environmental Services Department, 1001 North Central Avenue, Phoenix, AZ, 85004-1942.

501.1 Formulation data based upon written certification from the manufacturer specifying the actual weight percentage of VOCs in the windshield washer fluid.

501.2 Test Method: Maricopa County Reference Method #100, which is entitled: "Total Organic Carbon for Windshield Washer Fluids," as found in Appendix A of this rule.

501.3 Contested Results: The Control Officer may direct the owner or operator to perform the testing method listed in subsection 501.2 if there is reason to believe that the formulation information is incorrect. If there is an inconsistency between the formulation certification and the actual test method results, the test method shall prevail as the definitive method in all cases.

APPENDIX A

Test Method #100 for Determining Total Organic Carbon for Windshield Washer Fluids:

1.0 APPLICABILITY AND PRINCIPLE

1.1 Applicability. This method is applicable for the determination of organic carbon in diluted windshield washer fluids.

1.2 Principle. Organic carbon in a sample is converted to carbon dioxide (CO_2) by catalytic combustion or wet chemical oxidation. The CO_2 formed can be measured directly by an infrared detector or converted to methane (CH_4) and measured by a flame ionization detector. The amount of CO_2 or CH_4 is directly proportional to the concentration of carbonaceous material in the sample.

2.0 SENSITIVITY AND INTERFERENCES

2.1 Sensitivity. The method is most applicable to measurement of organic carbon above 1mg/L.

2.2 Interferences. All distilled water used in making and/or diluting the samples must be acidified with concentrated phosphoric acid H_3PO_4 (1 mL of H_3PO_4/1 L of water) and purged with inert gas (He, N_2...) for at least 30 minutes. Inject this water into the Total Organic Carbon analyzer and determine the total concentration (ppm C) of the blank. This method is sufficient for removing most interferences due to inorganic carbon in the water. Do not purge the sample with an inert gas since purging may result in the loss of volatile organic substances.

3.0 APPARATUS

3.1 Blender. Waring-type or similar, for blending or homogenizing samples.

3.2 Total Organic Analyzer. An analyzer capable of measuring carbonaceous material in liquid samples. Consideration should be given to the types of samples to be analyzed, the expected concentration range, and forms of carbon to be measured.

3.3 Volumetric Flasks And Volumetric Pipets. For preparing standard solutions and the windshield washer fluid solutions.

3.4 Glass Bottles. For sample collection and storage.

4.0 REAGENTS

4.1 Water (H_2O). Distilled water used in preparation of standards and for dilution of samples should be ultra pure to reduce the carbon concentration of the blank. Carbon dioxide-free, double distilled water is recommended. Ion exchanged waters are not recommended because of the possibilities of contamination with organic materials from the resins.

4.2 Potassium Hydrogen Phthalate ($HOOCC_6H_4COOK$), Stock Solution. 1000 mg carbon/L. Dissolve 0.2128g of potassium hydrogen phthalate (Primary Standard Grade) in distilled water and dilute to 100.0 mL.

4.3 Potassium Hydrogen Phthalate, Standard Solutions. Prepare standard solutions from the stock solution by dilution with distilled water.

4.4 Blank Solution. Use the same distilled water (or similar quality water) used for the preparation of the standard solutions.

5.0 SAMPLE PREPARATION

5.1 Prepare the windshield washer fluid according to the manufacturer's directions.

5.2 Dilute the windshield washer fluids with H_2O to be within the calibrated range of the instrument before analyzing. Dilutions of 1 to 100 or greater may be necessary before windshield washer solutions can be analyzed.

6.0 PROCEDURE

6.1 Follow instrument manufacturer's instructions for calibration, procedure, and calculations.

6.2 Calibrate using at least 3 standards. The set of calibration standards should consist of one below the expected concentration, one above the expected concentration, and approximately at the expected concentration.

6.3 Calculate and report the results as mg C/g sample.

8.0 BIBLIOGRAPHY OF REFERENCE DOCUMENTS: The Control Officer will rely on the following background materials when questions arise in the review and implementation of the test method listed in subsection 501.2:

1. Annual Book of ASTM Standards, Part 31, "Water", Standard D 2574-79, p469, (1976).

2. Standard Methods for the Examination of Water and Wastewater, 14th Edition, p 532, Method 505, (1975).

3. Method 415.1, Methods for Chemical Analysis of Water and Wastes, Environmental Monitoring and Support Laboratory, USEPA, Cincinnati, OH 45268, EPA 600/4-79-020.

4. Evaluation of Method 415.1 for Off-set Lithographic Solutions, September, 1992.

REGULATION III - CONTROL OF AIR CONTAMINANTS

RULE 346
COATING WOOD MILLWORK

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MARICOPA COUNTY
AIR POLLUTION CONTROL REGULATIONS

REGULATION III - CONTROL OF AIR CONTAMINANTS

RULE 346
COATING WOOD MILLWORK

SECTION 100 - GENERAL

101 PURPOSE: To limit emissions of volatile organic compounds from the surface preparation and coating of wood millwork.

102 APPLICABILITY: The provisions of this rule apply to any facility in Maricopa County applying finishing material to millwork included under SIC code 2431 made of wood or wood-derived material. Simplified provisions of Appendix B in this rule may be used by facilities which agree to a permit limit of less than 10 tons of VOC emissions per year. Sources emitting less than 2 tons of VOC per year may be allowed exemptions pursuant to subsection 307.2c.

SECTION 200 - DEFINITIONS: For the purpose of this rule, the following definitions shall apply:

201 ADHESIVE - Any substance, usually having a fluid phase during application, used principally to bond two or more surfaces into close proximity with one another.

202 AEROSOL-SPRAY COATING - A coating which is sold in a hand-held, pressurized, non-refillable container, usually of less than 22 fluid ounces (0.66 liter) capacity, and which is expelled from the container in a finely divided form when a valve on the container is depressed.

203 AIR-ATOMIZED SPRAY (GUN) - Equipment used to apply coatings in which the chief means of atomizing the coating is via pressurized air which also mixes into the cloud of coating particles after expulsion from a spray nozzle.

204 ARCHITECTURAL COATING - Any coating applied to stationary structures and their appurtenances, to mobile homes, to pavements or to curbs.

205 BASECOAT - A coat of colored material, usually opaque, that is applied before graining inks, glazing coats, or other high-hiding finishing materials. A basecoated surface usually receives a topcoat also.

206 COATING - Any liquid, fluid, or mastic composition which is converted to a solid (or semi-solid) protective, decorative, or adherent film or deposit after application to a substrate as a thin layer.

207 CONVENTIONAL AIR-ATOMIZED SPRAY (SYSTEM) - A spray which is atomized with air in a system designed to exceed 25 psig (1.7 Bar), as measured according to subsection 502.2, and which is not used with an electrostatic transfer system.

208 CUSTOM REPLICA MILLWORK - Millwork products individually produced or repaired after an order has been received from a client specifying a particular style and period, using both the style and the methods of construction, including materials, joinery, and finishes, which are authentic to the period.

209 DAY - A period of 24 consecutive hours beginning at midnight.

210 DILUENT - For the purpose of this rule, any fluid in or added to a coating such as thinner, retarder, reducer, solvent, or drying accelerator which solubilizes, adjusts concentration, viscosity, flow, or drying rates and which evaporates as the coating film solidifies and cures.

211 ELECTROSTATIC APPLICATION - A method of applying coating by electrically charging coating droplets or particles causing their deposition onto a substrate by electrostatic attraction.

212 EMISSION CONTROL SYSTEM (ECS) - A system for reducing emissions of organic compounds, consisting of both collection and control devices which are approved in writing by the Control Officer and are designed and operated in accordance with good engineering practice.

213 FACILITY - For the purpose of this rule, all the pollutant-emitting activities belonging to SIC code 2431, which are located on one or more contiguous or adjacent properties, and under the control of the same person or persons under common control.

214 FAUX FINISH - A finish intended to simulate a surface other than wood, including, but not limited to, stone, sand, metal, fur and leather.

215 FINISHING MATERIAL - A coating other than one designed solely or principally as an adhesive, temporary maskant, and/or preservative. For millwork, finishing

materials include, but are not limited to, topcoats, sealers, primers, stains, basecoats, groundcoats, washcoats, enamels, toners, glazes, and graining inks.

216 GROUNDCOAT - A colored coating applied to wood-product substrate, which completely hides the color of the substrate in a single coat.

217 LOW PRESSURE SPRAY GUN - An air-atomized spray gun which by design functions best at tip pressures below 10 psig (0.7 bar) measured according to subsection 502.2 of this rule, and for which the manufacturer makes no claims to the public that the gun can be used effectively above 12 psig (0.8 bar).

218 NON-OPAQUE - A finish or coating which does not meet the definition of opaque as found in Section 221 of this rule. This includes coatings called "clear" by the wood-products coating industry.

219 NONPERMANENT FINAL FINISH - A material such as wax, polish, non-oxidizing oil or similar substance which retains its effect only temporarily and must be periodically reapplied to a surface to maintain or restore the material's intended effect.

220 NON-PRECURSOR ORGANIC COMPOUND - Any of the following organic compounds which have been designated by the EPA as having negligible photochemical reactivity: acetone; methane; ethane; methylene chloride (dichloromethane); 1,1,1-trichloroethane; trichlorofluoromethane (CFC-11); dichlorodifluoromethane (CFC-12); chlorodifluoromethane (HCFC-22); 1,1,2-trichloro-1,2,2-trifluoroethane (CFC-113); 1,2-dichlorotetrafluoroethane (CFC-114); chloropentafluoroethane (CFC-115); trifluoromethane (HFC-23); 2,2-dichloro-1,1,1-trifluoroethane (HCFC-123); 2-chloro-1,1,1,2-tetrafluoroethane (HCFC-124); 1,1-dichloro-1-fluoro-ethane (HCFC-141b); 1-chloro-1,1-difluoroethane (HCFC-142b); pentafluoroethane (HFC-125); 1,1,2,2-tetrafluoroethane (HFC-134); 1,1,1,2-tetrafluoroethane (HFC-134a); 1,1,1-trifluoroethane (HFC-143a); 1,1-difluoroethane (HFC-152a); parachlorobenzotrifluoride (PCBTF); perchloroethylene (tetrachloroethylene); 3,3-dichloro-1,1,1,2,2-pentafluoropropane (HCFC-225ca); 1,3-dichloro-1,1,2,2,3-pentafluoropropane (HCFC-225cb); 1,1,1,2,3,4,4,5,5,5-decafluoropentane (HFC 43-10mee); cyclic, branched or linear completely methylated siloxanes; all completely fluorinated, completely saturated: alkanes, ethers and tertiary amines; sulfur-containing perfluorocarbons with no unsaturations, no hydrogen, and with sulfur bonds only to carbon and fluorine.

221 OPAQUE COATING - Any functional film building coating which completely hides all grain, marking, shade, and color of the substrate under all lighting conditions including the brightest, direct sunlight.

222 REPAIR COATING - A coating used to recoat portions of a previously coated product to cover mechanical damage to that previous coating following normal painting operations.

223 RESTRICTED-USE GUN - Any spray gun which atomizes coating using compressed air, such that in normal use or a use advertised by the manufacturer or distributor, the tip pressure exceeds 12 psig (0.8 bar) in measurements done pursuant to subsection 502.2. Restricted-use gun also includes, but is not limited to, all conventional air-atomized spray guns.

224 SEALER, PRIMER, OR GROUNDCOAT - A film-building finishing material used to seal the pores of wood or wood-derived material before additional coats of finishing material are applied. Finishing materials used primarily to alter the appearance or color of the substrate, such as stains, washcoats, glazes, inks, and toners, are not sealers.

225 SINGLE RESIN-LAYER FINISH - A completed, consumer-ready finish, which has received only one application of resin-based coating serving as both sealer and topcoat, and having a total average dry finish thickness from the top of the finish to the surface of the wood-product substrate not exceeding 3 mils (0.076 mm) before sanding, as determined pursuant to the test method in subsection 502.3. If a washcoat is also used, the finish is not a single resin-layer finish.

226 STAIN - A coating, formulated to enhance wood grain and change wood color without concealing surface grain. Stain includes sap stain, toner, non-grain-raising (NGR) stain, equalizer stain, no wipe stain, penetrating stain, wiping stain, and glaze. Stain excludes sealers and topcoats.

227 STRIPPABLE COATING - A coating which is applied to spray booth surfaces to receive the overspray and protect the substrate, and which is designed to be readily pulled off in strips or sheets and disposed of.

228 STRIPPING OPERATION - Any operation in which organic solvent is used to remove coating from a substrate.

229 TOPCOAT - The last permanent, functional film-building finishing material applied to a manufactured wood-product. When the wood-product substrate is already sealed with sealer, any further coats that build a functional film are topcoats. Finishing materials used primarily to alter the appearance or color of the substrate, such as stains, washcoats, glazes, inks, and toners are not topcoats. A nonpermanent final finish is not a topcoat.

230 TOUCH UP COATING - A coating used to cover minor coating imperfections after the main coating operation.

231 TRANSFER EFFICIENCY - The ratio of the weight of coating solids deposited on an object to the total weight of coating solids used in a coating application step or series of such steps, expressed as a percentage.

232 VOC-BORNE COATING - A coating in which the volatile portion contains, by weight, more VOC than water.

233 VOC-SOLVENT - A solvent or diluent, used to solvate, dilute, reduce, thin, clean or strip, in which the weight-percent of VOC exceeds the weight percent of water.

234 VOLATILE ORGANIC COMPOUND (VOC) - Any organic compound which participates in atmospheric photochemical reactions, except a non-precursor organic compound.

235 WASHCOAT - A transparent special purpose coating having a solids content by mass of 12.0 percent or less, and which is used to seal wood-product surfaces for any of the following purposes: to prevent undesired staining, to control penetration of subsequent finishes, to provide a barrier when paper laminates are applied to the wood-product, to seal glazes, and to improve adhesion of a waterborne topcoat.

236 WOOD MILLWORK - All millwork made of wood-product that is included in Standard Industrial Classification (SIC) industry number 2431. This includes, but is not limited to, shutters, doors, windows and their associated woodwork.

237 WOOD-PRODUCT - Wood or wood-derived material, such as chipboard, particle board, fiberboard, pressed board, paper, and any other material derived from wood, bamboo, cane, or rattan, that retains some of the physical structure(s) of such original material(s), even if only at a microscopic level.

238 WORKING DAY - A day, or any part of a day, in which a facility is engaged in manufacturing.

SECTION 300 - STANDARDS

301 VOC CONTENT:

301.1 Coating VOC Limits: No person shall apply topcoats, sealers or opaque coatings to wood-product surfaces on millwork unless VOC content is limited to the following, less water and non-precursor organic compounds:

a. General VOC Limits of Coatings

CATEGORY	g/l	lb/gal
Non-opaque topcoat	635	5.29
Non-opaque sealer	645	5.38
Non-opaque acid-cured, alkyd amino topcoat	655	5.45
Non-opaque acid-cured, alkyd amino vinyl sealer	680	5.66
Opaque: Topcoat, Sealer, Primer, Groundcoat, Basecoat, or Stain.	610	5.10

b. VOC Tradeoff Options: (Acid-cured, alkyd amino coatings are exempt from gun tagging requirements.)

(1) Lower VOC Topcoat And Unlimited Sealer: A sealer has no VOC limit if all of its topcoat(s) have no more than 3.83 lb VOC/gal (460 g/l).

(2) Lower VOC Sealer and Higher VOC Topcoat: A sealer containing no more than 275 g VOC/liter (2.3 lb/gal) may be covered by a topcoat over 635 g/l containing up to 680 g VOC/liter (5.66 lb/gal), if the gun applying the topcoat is properly tagged. Requirements for gun tagging are in Section 403.

(3) Single Application Finish: A coating over 645 g/l which qualifies as a single resin-layer finish pursuant to Section 225 may contain up to 680 g VOC/liter (5.66 lb/gal) if the gun applying the coating is properly tagged. Requirements for gun tagging are in Section 403.

c. Coatings with no VOC limits: Non-opaque stains, washcoats, glazes, toners, inks and other non-opaque coatings not specified in subsection 301.1 have no VOC limits.

301.2 Strippable Booth Coatings: No person shall use a strippable booth coating containing more than 360 g VOC/liter (3.0 lb VOC/gal), as applied.

301.3 Emission Control System (ECS) As An Alternative Control: A facility may meet the VOC limits of either or both Subsections 301.1 and 301.2 if the owner or operator complies with all provisions in this rule's Appendix A and with the other applicable provisions of this rule.

301.4 Smaller Source Option: The owner or operator of a facility that has emitted 2 or more tons but less than 10 tons per year of VOC from all wood coating and associated operations is exempted from all provisions of Sections 300, 400, and 501 (but not Sections 100, 200, and 502) if all provisions are complied with in this rule's Appendix B. Sources emitting less than 2 tons of VOC per year may be allowed exemptions pursuant to subsection 307.2c.

302 LIMITATION OF CONVENTIONAL AIR-ATOMIZED SPRAY AND OTHER SPRAY METHODS ATOMIZING WITH HIGH-PRESSURE AIR:

302.1 Evidence of Transfer-Efficient Spray Equipment: A person shall not spray millwork with coating exceeding 4.29 lb VOC/gal (515 g VOC/liter) without providing evidence of possession and use of a low pressure spray gun or system, an electrostatic system, or a system that atomizes principally via hydraulic pressure, including air assisted airless and ultra-low-volume-air assisted technologies. Such requirement does not apply to any facility, activity, or person exempted by Section 307 of this rule nor to any specific system which is approved by the Administrator as having a transfer efficiency consistently exceeding 64%.

302.2 Limitation Of Air-Atomized Spray Other Than Low Pressure: No person shall use a conventional air-atomized spray gun or other restricted use gun, except:

a. To apply finishing materials that have a VOC content not exceeding 4.29 lb/gal (515 g/liter).

b. If VOC emissions from the finishing application station, employing such a gun, are captured and directed to an ECS complying with the provisions of Appendix A.

c. For touch-up and repair only under either of the following conditions:

(1) such application is performed after completion of the entire finishing operation; or

(2) such application is performed after applying stain, and before any further coating, by equipment having a total capacity not exceeding 2.1 gallons (8 liters).

d. To apply less than 5% of all coating, pursuant to subsection 307.2d.

303 OPERATION AND MAINTENANCE: Any person subject to this rule shall operate and maintain in proper working order all process equipment in which VOC-containing materials are used or stored.

304 CLEANUP AND CLEANING OF SUPPLY AND APPLICATION EQUIPMENT:

304.1 Booth cleaning: No person shall clean spray booth components using a solvent containing more than 8.0 percent by weight of VOC (including water and non-precursor compounds) except for conveyors, continuous coaters and their enclosures, and metal filters. If the spray booth coating is being replaced, a person shall use no more than 1.0 gallon (3.8 liters) VOC-solvent to clean the booth.

304.2 A person shall collect all solvent(s) used to clean spray guns and shall pump or drain all solvent used for line cleaning into non-leaking container(s). Such containers shall be immediately closed or covered after all the solvent has been collected, and shall remain so except when in use.

305 HANDLING AND DISPOSAL OF VOC:

305.1 Use and Storage: A person shall cover and keep covered each VOC-containing material which is not currently in use. A person shall store finishing and cleaning materials in closed or covered containers.

305.2 Disposal Of VOC And VOC-Containing Material: A person shall store all VOC-containing materials intended for disposal including, but not limited to, rags, waste coatings, waste solvents and their residues, in closed containers which are legibly labeled with their contents and which remain covered when not in use.

306 STATEMENT OF VOC CONTENT: Effective May 3, 1996, a manufacturer of wood coatings which are subject to this rule shall provide on each coating container or as an accompanying specification of each coating container a designation of VOC content in grams of VOC per liter (g/l) of coating or pounds of VOC per gallon (lb/gal) of coating, less water and non-precursor organic compounds. This requirement shall not apply to containers having a capacity of one liter (1.05 quart) or less.

307 EXEMPTIONS:

307.1 Total Exemption: The following materials are exempt from this rule: adhesives, architectural coatings, printing ink, and coatings not applied on or over a wood-product substrate.

307.2 Partial exemptions

a. Touch-up cans: Coatings in aerosol spray cans not exceeding 22 fl. oz. (0.66 liter) capacity used exclusively for touch-up and/or repairs are subject only to the recording requirements of subsections 501.a, b., and c.[1]

b. VOC and Spray Exclusions: The following shall be exempt from subsection 301.1 and Section 302 of this rule:

(1) Refinishing, Replacement, And Custom Replica Millwork Operations: Any refinishing operation necessary for preservation, to return millwork to original condition, to replace missing millwork items to produce a matching set, or to produce custom replica millwork.

(2) Limited Amounts: The use of the following coating types when the annual total use of all such types together is less than 948 liters (250 gal): prepackaged aerosol spray cans which are not used for touch-up or repair; metal leaf finishes; and faux finishes.

c. Small Source Status: A millwork coating facility which at any time demonstrates that it currently meets both of the following requirements is exempt from all provisions of this rule except for Section 303 “Operation and Maintenance” and Section 305 "Handling and Disposal of VOC". An operator of such an exempted facility shall keep on the premises current records of all coating related materials currently used, and their VOC content. For this purpose, a complete, updated set of receipts/invoices and Material Safety Data Sheets (MSDSs) will suffice if each receipt/invoice is retained on the premises at least two years.

(1) Facility records demonstrate that no more than a total of 55 gallons (209 liters) of VOC-borne wood-product coatings plus

[1] This errata note is not part of Rule 346. For the reader's convenience, the reference to "subsections 501.a., b., and c." is incomplete. The correct reference should be "subsections 501.1a., 501.1b.(2), 501.1c., 501.2b.(2), 501.2b.(5), and 501.3." The reference will be corrected for the next revison of this rule.

VOC-solvent, including wood furniture coating operations, are used in any month and that such monthly total divided by that month's number of days of coating application does not exceed 3.0 gallons (11.4 liters); and

(2) The facility emits less than 1814 kg (4000 lb) VOC, facility-wide per year from all wood-product coating operations including VOC in both solvent-borne and water-borne coatings, all VOC diluent added to coatings, all solvent cleaning and stripping, and VOC-solvent used for coating equipment cleanup.

d. Using Restricted Use Guns; Red Tag: In addition to the uses of restricted-use guns allowed under subsections 302.2 a., b., and c., a person may use a conventional air-atomized or other restricted use gun to apply coatings exceeding 4.29 lb VOC/gal (515 g/l) if all the following conditions are met:

(1) The volume of such coating applied in this way is less than 5% of the total volume of coating applied at the facility;

(2) Each gun has a red tag when spraying materials exceeding 4.29 lb VOC/gal. Requirements for gun tagging are in Section 403;

(3) A log shall be kept pursuant to subsection 501.2c. of the amount of coating used by each such gun. This shall be done daily or each time coating is added to the gun's coating reservoir; and semi-annual calculation shall be made, pursuant to subsection 501.2.

SECTION 400 - ADMINISTRATIVE REQUIREMENTS

401 COMPLIANCE SCHEDULE: The following schedule applies, with exceptions for operations using an Emission Control System provided in Appendix A.

401.1 Sources Emitting 50 TPY: Any facility which has applied for or received Title V status, has in its permit an annual VOC limit of 50 tons or more, or which has had an aggregate VOC emission to atmosphere after December 31, 1989, of 50.0 tons (45.35 Mg) or more in any calendar year or 300 pounds (136 kg) or more in any day, emitted from wood coating operations, including coating wood furniture, and from associated cleaning processes shall by May 3, 1996, be in compliance with all requirements of this rule and

have submitted a Control Plan. The Control Plan shall set forth the maximum VOC contents and provide a copy of the documentation showing how the coating-as-applied values were determined.:

401.2 Other Sources: The schedule follows for any wood millwork facility with total VOC emissions to atmosphere in each of the years 1990 through 1995 of less than 300 pounds (136 kg) in any day and 50.0 tons (45.35 MG) in any calendar year, emitted from wood coating operations, including coating wood furniture, and from associated cleaning processes:

a. A facility, for which an owner or operator chooses to meet the requirements of Section 301 by using compliant coatings, shall be in compliance with all applicable provisions of this rule, except for Section 301 and Section 302 by May 3, 1996. Such facility shall be in compliance with Section 301 and Section 302 of this rule by November 15, 1996.

b. Control Plan: A facility which has emitted more than 25 tons of VOC from coating operations in any of the years 1993 through 1995 must submit a Control Plan by August 1, 1996, setting forth the maximum VOC content and copies of the documentation showing how the coating-as-applied values were determined.

402 REGULATORY CLARIFICATION

402.1 Status With Respect To Rules 330 And 336: No wood millwork coating operation is subject to Rule 330 or to Rule 336.

402.2 Component Materials That Were Subject To Prior Regulation: The regulatory status of facilities, owners or operators is not affected by the fact that component materials, such as wood composites or paneling, may have been subject to Reasonably Available Control Technology (RACT) or other regulatory requirements in their original manufacture, before their subsequent use by a facility in Maricopa County.

402.3 Other Rules: Nothing in this rule exempts a person from complying with the NESHAP (National Emission Standards for Hazardous Air Pollutants) for coating wood furniture and fixtures or from complying with any other applicable Federal, states, and local laws or regulations.

402.4 Coating Over Wood Coating(s) The Same As Coating Onto Wood: The VOC-limits for finishing materials given in subsection 301.1 of this rule apply to such coatings whether applied directly onto any area of wood-

product substrate or on any intermediate layer(s) of coating on the wood-product substrate.

402.5 Opaque Coatings:

a. Anti-circumvention: If a completed finish is opaque but, by themselves, neither the topcoat nor the basecoat nor the primer/sealer is opaque, at least one of such coatings shall not exceed 5.1 lb VOC/gal (610 g VOC/liter) as applied.

b. Confirmation of opaqueness: In a dispute between the Control Officer and an owner or operator as to whether a coating, which visually appears opaque to the Control Officer on a particular millwork surface, is opaque and therefore shall not exceed 5.1 lb VOC/gal (610 g VOC/liter) as applied, the finish shall be judged opaque if either the coating is described as opaque by the manufacturer or the material has a contrast ratio exceeding 84% at 1 dry mil (0.025 mm) of coating thickness.

403 GUN TAGGING REQUIREMENTS

403.1 An owner or operator shall use a correctly colored 4 square-inch vivid, durable tag, sticker, or painted emblem/label visible on the gun or within 3 ft of the gun on the gun's hose to meet the tagging/labeling requirements of subsections 301.1b. and 307.2d.

403.2 Tagging Summary: Guns shall be tagged with the designated color for the following coating content or gun-type situations; (each VOC content is less water and non-precursor organic compounds):

a. A Red Tag Or Label For VOC Tradeoff Option in Subsection 301.1b. (Acid-cured, alkyd amino conversion varnishes are exempt from this subsection 403.2a.)

(1) On the gun applying topcoat above 5.29 lb VOC/gal (635 g/l) over sealer not exceeding 2.30 lb VOC/gal (275 g/l). [Reference subsection 301.1b.(2)].

(2) On the gun applying a single application finish exceeding 5.38 lb VOC/gal (645 g/l). [Reference subsection 301.1b.(3)].

b. Using a Conventional or other Restricted Use Gun: A red tag when applying coating over 4.29 lb VOC/gal (515 g/l) that is not for repair or touch-up. (Ref. subsection 307.2d.)

SECTION 500 - MONITORING AND RECORDS

501 RECORDKEEPING AND REPORTING: An owner or operator subject to this rule shall keep the following records and lists in a consistent and complete manner and shall make them available to the Control Officer without delay during normal business hours. Each record shall be maintained for a minimum of five years.

501.1 Current List:

a. VOC-containing materials: A current list of all VOC-containing materials shall be maintained which contains the name or code and the VOC content of each. Any qualified single resin-layer finish shall be identified as such.

b. How to express VOC content:

(1) Topcoats, Sealers, and Strippable Booth Coatings: Two VOC-content values must appear for each topcoat, sealer, and booth coating: both grams VOC/liter (lb VOC/gal) *including* water and non-precursor organic compounds, *and* grams/liter *less* water and non-precursor organic compounds.

(2) Other: Use grams/liter (or lb/gal) for both coatings that are not sealers, topcoats, nor booth coatings and for non-coatings such as reducers, thinners, cleaners, etc.

c. Acceptable Format: VOC-containing materials shall be listed legibly and completely. The following is an example of an acceptable method:

Example: Identify and list each VOC-containing material in the following 6 categories: 1. topcoats; 2. sealers; 3. catalyst/hardeners; 4. diluents, such as reducers, coating solvents and thinners; 5. cleaning and stripping solvents; and 6. other VOC-containing materials. Next to each, record the VOC-content found on the container, an MSDS, an invoice, or other source.

d. Mix ratios: A current list shall be maintained of the manufacturer's recommended mix ratio of components, including but not limited to adding reducers and catalyst/hardeners, except when the manufacturer has no recommendations for any additions.

501.2 Schedule For Recording Material Usage:

a. Daily Updates For Non-Compliant Material: Daily usage quantities of each topcoat, sealer or booth material that exceeds applicable VOC limits of subsection 301.1 or subsection 301.2 or subsection 304.1 shall be totaled and logged by the end of the following workday. VOC content shall be entered for each such material.

b. Monthly Update For Materials Compliant with Sections 301 and 304: By the end of the following month, an owner or operator shall update the following records for each month:

(1) Diluted Coatings: For each topcoat and sealer to which reducer or other VOC-containing diluent is added at any time after its arrival at a facility, enter its highest VOC content in lbs/gal (or g/l) less water and non-precursor organic compounds.

(2) The amount of coating, the amount of catalyst/hardener, and the amount of reducer/coating diluent used.

(3) The quantity and type of organic solvent used each month for stripping and cleaning;

(4) The quantity of organic solvent disposed of offsite.

(5) Exception: Update yearly the totals of the usage of each VOC-containing material known to be used in amounts less than 15 gallons (57 liters) per year.

c. Semi-Annual Updates of Coatings Applied with Restricted-Use Guns: Records associated with the Section 302 limitations on the use of conventional air-atomized spray guns and other restricted-use guns shall be kept. These records shall show for each semi-annual period the volume (VR) of finishing materials exceeding 515 g VOC/liter (4.29 lb VOC/gal) applied with conventional air-atomized spray guns and other restricted use guns. In addition, the total volume of all finishing material (AMV) used throughout the facility shall be determined. The total volume (VR) so applied over the previous six-months is divided by the total of all coatings used in the same period (AMV) and these calculations and the result are entered in the log.

501.3 Disposal/Recovery: An owner or operator shall keep records of disposal/recovery of all VOC-containing materials.

502 COMPLIANCE DETERMINATION - TEST METHODS: When more than one test method is permitted for a determination, an exceedance of the limits established in this rule, as determined by any of the applicable test methods, constitutes a violation of this rule.

502.1 Measurement of VOC content, pursuant to the VOC-limits of subsections 301.1, 301.2 and 304.1, shall be conducted and reported in accordance with EPA Test Method 24 (40 CFR 60, Appendix A). Acetone content shall be determined within the context of Method 24 by EPA Method 311 or other method acceptable to EPA. Multi-part coatings including those with reactive diluent(s) shall be tested by Method 24 procedures.

502.2 Measurement of air pressure at the center of the spray gun tip and air horns of a conventional air-atomized spray gun (reference Section 302 and subsection 307.2d.) shall be performed using an attachable device in proper working order supplied by the gun's manufacturer for performing such a measurement.

502.3 Determination of mil thickness for determining compliance with subsection 301.1b.(3) shall be performed by draw bar and calculations using the weight and area of the film and the density of the cured coating solids, by a Tooke Inspection Gage according to the instructions of its manufacturer, or by other means used for the purpose by a major coating manufacturer's laboratory or quality control.

502.4 Contrast ratio determinations pursuant to subsection 402.5b shall be done using American Society for Testing and Materials (ASTM) Method D-2805-80.

APPENDIX A TO RULE 346

Appendix A is the first of two appendices to Rule 346.
Appendix A includes all requirements for an Emission Control Device

a. Eligibility: A person is allowed to meet the VOC limits of either or both subsections 301.1 and 301.2, and meet the spray gun provisions of subsection 302.2 of this rule by using an ECS which reduces VOC emissions overall, including capture and processing, by at least 81 percent by weight.

b. Compliance Schedule For ECS: An owner or operator of a millwork coating facility shall have such facility in compliance per the following schedule. Total VOC emissions is the total VOC from all wood coating operations and associated cleaning processes. This includes furniture coating.

(1) **Sources Emitting 50 TPY:** Full compliance with all applicable requirements of this rule shall be by November 15, 1996, if such facility has applied for or received a Title V permit, has a permit with a VOC-emission limit of 50 tons or more, or which has had an aggregate VOC emission to atmosphere after December 31, 1989, of 50.0 tons (45.35 Mg) or more in any calendar year or 300 pounds (136 kg) or more in any day. In addition, an owner or operator shall provide the Control Officer with:

(a) Both proof of a binding contract for an ECS and a compliance plan by June 3, 1996, listing the dates of completion of increments of progress toward meeting the requirements of the subsection 301.3.

(b) An O&M Plan for the ECS by November 15, 1996.

(2) **Other Sources:** A facility shall be in compliance with the VOC limits of subsection 301.1 and 301.2 by January 15, 1997, if the facility's total VOC emission in each of the years 1990 through 1995 is less than 300 pounds (136 kg) in any day and 50.0 tons (45.35 MG) in any calendar year. In addition, the owner or operator shall provide the Control Officer with:

(a) Both proof of a binding contract for an ECS and a compliance plan by June 3,1996, listing the dates of completing the increments of progress toward meeting the requirements of subsection 301.3; and

(b) An O&M Plan for the ECS by January 2, 1997.

c. **Providing And Maintaining ECS Monitoring Devices:** Any person operating an emission control system (ECS) pursuant to subsection 301.3 of this rule shall install, maintain, and calibrate monitoring devices described in an O&M Plan submitted to the Control Officer pursuant to subsection d.(1). The monitoring devices shall measure temperatures, pressures, rates of flow, or other operating conditions necessary to determine if air pollution control equipment is functioning properly.

d. **Operation and Maintenance (O&M) Plan Required for ECS:**

(1) The owner or operator of an emission control system (ECS) used to meet the requirements of Section 301 of this rule shall provide the Control Officer with an Operation and Maintenance (O&M) Plan. This O&M Plan shall specify key system operating parameters, such as temperatures, pressures and/or flow rates, necessary to determine compliance with this rule, and describe in detail procedures and their frequency of implementation needed to maintain the ECS.

(2) The Control Officer's written approval of the O&M Plan is required. The owner or operator shall consistently implement all provisions of the O&M Plan.

(3) Changes in frequency: Changes involving reduction in the frequency or extent of procedures or parameters in a Control-Officer approved O&M Plan shall have the written consent of the Control Officer prior to being implemented.

(4) Other changes: An updated O&M Plan must be submitted to the Control Officer for review within 10 days of any changes not involving reduction in frequency or extent of procedures or parameters of an approved O&M Plan. Within five working days of a written disapproval of such changes, either the original O&M Plan shall be reinstituted or an alternative plan, negotiated with the affected facility and approved in writing by the Control Officer, shall be instituted.

e. Recordkeeping

(1) ECS Operation and Maintenance Records: On each day that an ECS is used to comply with Section 301 of this rule, an owner or operator shall make a permanent record of the operating parameters of the key systems described in the O&M Plan. For each day or period in which the O&M Plan requires that maintenance be performed, a permanent record shall be made of the maintenance actions taken, within 24 hours of maintenance completion. An explanation shall be entered for scheduled maintenance that is not performed during the period designated in the O&M Plan.

(2) Other Records Required When Complying Via ECS: An owner or operator choosing to meet the requirements of Section 301 through the use of an ECS shall maintain, in addition to the records required by subsection 501.2:

(a) Daily documentation showing the VOC content of the finishing material, as applied, in pounds VOC/gallon (g/l) when solvent or other VOC is added to the finishing material before application.

(b) Daily records showing the amount of coating, the amount of catalyst/hardener, and the amount of solvent, reducer, and/or diluent used.

f. Compliance Determination - Test Methods: When more than one test method is permitted for a determination, an exceedance of the limits established in this rule, as determined by any of the applicable test methods, constitutes a violation of this rule**.**

(1) Measurement of VOC content, pursuant to the VOC-limits of subsections 301.1, 301.2 and subsection 304.1, shall be conducted and reported in accordance with EPA Test Method 24 (40 CFR 60, Appendix A). Acetone content shall be determined within the context of Method 24 by EPA Method 311 or other method acceptable to EPA. Multi-part coatings including those with reactive diluent(s) shall be tested by Method 24 procedures.

(2) Control efficiency of an emission control device used to meet the requirements of Section 301 shall be determined according to EPA Reference Method 25 or an applicable submethod of Method 25 (Title 40, CFR Part 60, Appendix A).

(3) When an unknown quantity of non-precursor organic compound is present in the input to a control device, EPA Method 18 shall be used to meet the requirement of Section 301. The Control Officer may specify an alternative EPA test method or other method approved by EPA.

(4) Capture efficiency of an emission control device used to meet the requirements of Section 301 shall be determined by mass balance in combination with ventilation/draft rate determinations done in accordance with subsection f.(5), or according to "Guidelines for Determining Capture Efficiency" January 9, 1995, Candace Sorrell, Source Characterization Group A, Office of Air Quality Planning and Standards, US EPA. This EPA document is available at 2406 South 24 Street, Suite E-214, Phoenix, Arizona, 85034, or call (602) 506-6700 for information.

(5) Ventilation/draft rates of an emission control device used to meet the requirements of Section 301 shall be determined by EPA Methods 2, 2A, 2C, or 2D.

APPENDIX B -- 2nd of two appendices to Rule 346

A SHORT-FORM OPTION

a. Applicability: This Appendix B to Rule 346 only applies to operators of facilities which have a permit or permit modification limiting VOC emissions from all wood millwork and furniture coating to less than 10 tons, and the permit or Control Officer states in writing that this Appendix B applies. For those facilities for which this Appendix B does apply, no provisions within Sections 301 through 501, inclusive, shall be used to substitute for provisions in this Appendix B. Facilities subject to this Appendix B are also subject to all of Sections 100, 200, and 502.

b. Definitions: For the purposes of this Appendix B, the following definition shall apply:

(1) MINUS EXEMPT MATERIALS (MINUS EXEMPTS) - Means the same as “less water and non-precursor organic compounds” in specifying VOC content.

c. Two Principal VOC Limits: You must meet the limit of pounds of VOC per gallon of coating (grams VOC/liter) after all blending and reducing is completed. All VOC limits are minus exempt materials.

(1) All Non-opaque sealers, primers, & topcoats: 5.45 lb VOC/gal or 655 g/liter.

(2) All Opaque sealers, primers, basecoats & topcoats: 5.10 lb VOC/gal or 610 g/liter.

d. VOC Tradeoff Options:

(1) Low VOC topcoat with unlimited Sealer:
Low VOC topcoat: limit of 3.83 lb/gal topcoat (460 g/liter) &
Higher VOC sealer: no VOC limit for sealer under such topcoat.

(2) Low VOC sealer with higher VOC Topcoat
Low VOC sealer: limit of 2.30 lb/gal sealer (275 g/liter)
Higher VOC topcoat: Topcoat over such sealer may have up to 5.66 lb/gal (680 g/l).

(3) One-step Finish: The operation must meet 2 conditions.
Higher VOC combination sealer & topcoat: up to 5.66 lb/gal (680 g/liter)
The 2 Conditions:
I. A single wet application of either sealer or topcoat (not both).
II. Thickness of the dry finish cannot exceed 3 dry mils, as determined by the test method in subsection 502.3.

e. Spray Method Requirements:

(1) Guns with higher transfer: If you spray coating having over 4.30 lb VOC/gal (515 g/l), you must use and have in evidence for an inspector at least one of the following onsite:

- Low pressure gun with less than 12 psig at tip. Examples: solely HVLP gun; a turbine gun.
- Airless; includes air-assisted airless.
- An electrostatic system.

(2) Green Tag Option – Restriction on conventional guns and other restricted-use guns:

(a) Green Tag Requirements: A conventional air-atomized or other restricted-use gun shall have a durable and visible tag, sticker, or painted emblem, no less than 4 square inches in area on the gun or within 3 ft of the gun on the gun's hose, or the facility is in violation. *But*, such a tag is not required at a facility having and using only coatings which contain less than 4.30 lbs VOC/gal (515 g/l), as applied.

(b) Prohibition: No coating over 4.30 lb VOC/gal (515 g/liter) may be applied with a *conventional* air-atomized or other *restricted-use gun*. This

prohibition includes, but is not limited to, traditional lacquers, washcoats, and low-solids stains. ("Conventional air-atomized gun" is defined in Section 207. "Restricted-use gun" is defined in Section 223.)

(3) Exemptions From VOC and Spray-Method Limits: Prepackaged aerosol spray in cans under 22 fl. oz.; faux & metal-leaf finish are exempt from Appendix B subsections c., d., e.(1) and e.(2), as is any refinishing operation necessary for preservation, to return millwork to original condition, to replace missing millwork items to complete a matching set, or to produce custom replica millwork. But nothing exempted by the previous sentence is exempt from the annual inventory of VOC emissions or from other provisions of this Appendix B.

f. Housekeeping Functions:

(1) Keep Coatings, Cleaners, & Waste-materials Covered: Coatings and cleaners not in use, as well as waste coatings, cleaning materials including solvent-dipped rags, and solvent used to clean spray equipment must be collected into a closed container or a container which is closed immediately after receiving such material.

(2) Booth Cleaning: If booth/components other than *metal* filters are cleaned with solvent, no solvent which is more than 3.8 lb/VOC per gallon (455 g/l) shall be used. However, up to 1 gallon of solvent over 3.8 lb VOC/gal may be used for cleaning a booth as part of replacing coating on the booth.

g. Records: Keep a list of all VOC containing material with the name and amount of VOC in each. Express VOC content in pounds of VOC per gallon or grams of VOC per liter. For topcoats and sealers, use the VOC-content listed as "less 'exempt' materials" or "EPA" or "EPA Method".

(1) If you ever do your own reducing or thinning of a sealer or topcoat: Keep a list of the maximum VOC content of any material after you thin it or add additives at your facility.

(2) Keep receipts for 5 years of the amount received for each VOC-containing material and of the amount of all VOC-waste materials sent for recycling or hazardous waste collection.

(3) What To Record And How Often: Record the amount in the following 4 categories, (a) to (d), noting either the amount "used" or the amount "received" since your last records update:

(a) All coatings including topcoats, sealers, stains, etc., including all parts, catalysts, activators, additives, hardeners (*not* reducers). If you use conventional or other restricted-use guns at all, total *separately* the coatings having less than 4.3 lb VOC/gal (515 g/l);

(b) All reducers and diluents to be used for reducing or diluting coatings (not cleaning);

(c) All solvents, strippers, thinners, and VOC-containing materials used for cleaning and cleanup (not reducing); and

(d) All other VOC containing materials connected with wood coating. Omit janitorial & building maintenance.

(e) **How Often to Update Your Records:**

(1) Update the above items in (a), (b), (c), and (d) weekly if your total monthly *use* of all coatings and diluents [(a) + (b)] is 250 gallons or more. Otherwise, update monthly.

(2) You may record just once a year those types of materials you use less than 15 gallons of.
Example: I use 5 kinds of graining ink. Added all together, I use 14 gallons of all graining ink combined: I only have to update my graining inks once a year.

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FERROUS SAND CASTING

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REGULATION III - CONTROL OF AIR CONTAMINANTS

RULE 347
FERROUS SAND CASTING

SECTION 100 - GENERAL

101 PURPOSE: This rule is to limit the amount of volatile organic compounds (VOCs) emitted by organic binder materials and other organic materials used in molds made of sand or other finely divided refractory material, in which ferrous metals are cast.

102 APPLICABILITY: This rule applies to the sand-casting of ferrous metal and does not apply to investment casting.

SECTION 200 - DEFINITIONS: For the purpose of this rule, the following definitions shall apply:

201 BINDER - Any material which is used to bind molding sand or other refractory particles into a cohesive mold or part of a mold used for metal casting. The term, binder, includes any catalysts and any additives incorporated or mixed into the binding material, unless such catalyst or additive is excluded in writing by the Control Officer.

202 CERTIFIED PRODUCT DATA SHEET - A document, signed by an officer of a binder or coating-supplying operation, that states the maximum organic content or VOC content of a particular product as supplied.

203 DAY - A period of 24 consecutive hours beginning at midnight.

204 EMISSION CONTROL DEVICE - A system, approved in writing by the Control Officer, which reduces emissions of organic compounds and consists of collection and control devices which are designed and operated in accordance with good engineering practice.

205 EXEMPT COMPOUNDS - The non-VOC, evaporating portion of a formulation; this necessarily includes all non-precursor organic compounds and all volatile inorganic compounds such as water.

206 FACILITY-SPECIFIED WORKDAY - The regular starting time (and ending time) chosen by a facility operator to designate the facility's own workday of 24 consecutive hours.

207 **FERROUS METAL** - Iron, steel, or a metal alloy in which iron is the greatest constituent.

208 **INVESTMENT CASTING** - A type of metal casting otherwise know as "lost-wax process" in which a mold, later used to receive molten metal, is built up around a fusible model. When the mold attains sufficient size, the model is melted out of the mold.

209 **MOLD-WASH** - A liquid coating or surfacing agent, containing refractory particles and binding agent(s), which is applied to the heat-receiving surfaces of a mold to impart desired casting properties.

210 **NON-PRECURSOR ORGANIC COMPOUND** - Any of the organic compounds which have been designated by the EPA as having negligible photochemical reactivity and that are set forth in the definition of non-precursor organic compound in Rule 100.

211 **ORGANIC BINDER MATERIAL** - The organic-compound portion of those binders that contain more than 5% organic compound(s) by weight.

212 **ORGANIC COMPOUND** - Any compound of carbon excluding carbon monoxide, carbon dioxide, carbonic acid, metallic carbides and carbonates, and ammonium carbonate.

213 **SAND** - Granular, non-flammable, mineral material which lacks an organic component and has refractory properties.

214 **SAND CASTING** - A type of metal casting in which molten metal is poured into a mold made primarily of sand or other finely divided refractory material, bound together by binder material. For the purposes of this rule, sand casting does not include investment casting.

215 **VOC CONTENT (POUNDS OF VOC PER GALLON OF MATERIAL)** - The weight of VOC per volume of material that can be calculated by:

$$\text{Pounds of VOC per Gallon of Material} = \frac{W_s - W_{es}}{V_m}$$

Where:

W_s = weight of all volatile (evaporating) material, in pounds

W_{es} = weight of water and all other exempt components, in pounds

V_m = volume of material, in gallons.

216 **VOLATILE ORGANIC COMPOUND (VOC)** - Any organic compound which participates in atmospheric photochemical reactions, except non-precursor organic compounds.

SECTION 300 - STANDARDS

301 LIMITS: No person shall operate a ferrous sand-casting facility with an aggregate emission to atmosphere of 150 pounds (68 kg) or more of VOC in any day or 25 tons (22.7 Mg) or more of VOC in any year from ferrous sand-casting operations, unless VOC emissions from mold binders are controlled either pursuant to subsection 301.1 or pursuant to subsection 301.2.

301.1 Control Device: (An) Emission Control System(s) which through capture and control reduces the total, facility-wide VOC emissions from binder by at least 81% as determined by the test methods referred to in Section 503 of this rule. VOC emissions from binders shall include but not be limited to VOC emitted from binders during mold-making, metal casting, and offgassing from residual binder adhering to granules of mold sand.

a. Such System shall be operated whenever VOC emissions from binder can exceed 7 pounds (3.2 kg) per day, facility-wide.

b. The requirement for 81% control in subsection 301.1 does not apply to those clock hours during which the operator can demonstrate that such mold-binder VOC-emissions are less than 1 pound per hour, facility-wide.

301.2 Alternative Compliance Method: For each facility-specified workday in which molds are made, the ratio of organic binder-material in all binder used to all sand receiving binder shall not exceed 1.35 to 100, by weight, as determined by the formula in subsection 503.6 of this rule.

a. The organic material in binders that contain no more than 5% organic compound(s) by weight is excluded from inclusion in the formula.

b. Failure to obtain the sand ordinarily used for molding shall not be an excuse to exceed the binder-to-sand ratio limit pursuant to subsection 301.2, except as is provided in Rule 100, Section 501 of these rules.

301.3 Surfacing Materials: A person shall comply with the following limits when using mold-wash or other mold surfacer:

a. VOC content:

(1) Prior to 12:01 AM, January 1, 1999, neither mold wash nor other mold surfacing product shall contain more than 2.5 lb VOC/gal (300 g/l).

(2) After 12:01 AM, January 1, 1999, neither mold wash nor other mold surfacing product shall contain more than 1.0 lb VOC/gal (120 g/l).

b. Averaging option: In lieu of observing the mold-wash VOC limit in subsection 301.3a, a person may choose to average mold-wash VOC

content over each completed facility-specified workday, pursuant to all provisions in (1) and (2) as follows:

(1) For each facility-specified workday, the average is recorded within 13 hours after the start of the following facility-specified workday, using the formula in subsection 503.7 of this rule; and

(2) Such average does not exceed a VOC content of 0.90 pounds VOC per gallon.

301.4 Gassing Operations: If a binder system that includes the injection of a reactive gas, can without controls emit more than 1 pound per hour of VOCs, its emissions shall be controlled by an emission control device that attains one of the following levels of control.

a. 85% overall control (capture and processing) of such VOC.

b. 90% capture and a maximum of 3.5 pounds per hour VOC emission from the control device at any and all production levels.

302 OPERATION AND MAINTENANCE:

302.1 General Maintenance: Any person subject to this rule shall operate and maintain in proper working order all process equipment in which VOC-containing materials are used or stored.

302.2 A Systematic Program To Establish Compliance With Subsection 301.2: The owner/operator, complying with this rule pursuant to subsection 301.2 of this rule, shall have a systematic program as follows:

a. The program shall consist of devices and/or other effective means, which each day accurately indicates the amount of sand and the amount of binder, catalyst and any other additive that contains organic compound(s) and is incorporated into the molding sand.

b. Such program shall be in effect continuously during the mixing of binder with molding sand, and shall be of sufficient accuracy and consistency as to determine compliance with subsection 301.2 of this rule.

c. Any devices that are part of the program and are resettable shall be so protected as to preclude resetting by personnel not designated by the operator.

d. The systematic program shall include a complete, written description of its correct functioning, and shall be subject to the Control Officer's approval.

302.3 Operation and Maintenance (O&M) Plan Required for ECS:

a. The owner or operator of an emission control system (ECS) operated pursuant to subsection 301.1 or subsection 301.4 of this rule shall

have an Operation and Maintenance (O&M) Plan for each ECS. This O&M Plan shall specify key system operating parameters, such as temperatures, pressures and/or flow rates, necessary to determine compliance with this rule, and describe in detail procedures and their frequency of implementation needed to maintain the ECS. The owner or operator shall provide a copy of the O&M Plan, if so requested by the Control Officer.

b. The owner or operator shall implement all provisions of the O&M Plan with the frequency specified by the Plan.

c. Changes in frequency: Changes involving reduction in the frequency or extent of procedures or parameters in a Control-Officer approved O&M Plan shall have the written consent of the Control Officer prior to being implemented.

d. Other changes: An updated O&M Plan must be submitted to the Control Officer for review within 10 days of any changes not involving reduction in frequency or extent of procedures or parameters of an approved O&M Plan. Within five working days of a written disapproval of such changes, either the original O&M Plan shall be reinstituted or an alternative plan, negotiated with the affected facility and approved in writing by the Control Officer, shall be instituted.

303 STORAGE AND DISPOSAL OF BINDERS, SOLVENTS, AND OTHER VOC-CONTAINING MATERIAL:

303.1 Storage: A person shall cover and keep covered or enclosed each uncured binder material, any solvents, and any other VOC-containing material which are not in use. A person shall store binder materials and cleaning materials in closed or covered containers.

303.2 Disposal Of VOC And VOC-Containing Material: A person shall store all waste materials containing any VOC in fluid form, including but not limited to uncured binder components, rags, waste coatings, waste solvents and their residues, in closed containers. Such containers shall have labels that legibly identify their contents and shall remain covered except when contents are being added or removed.

304 EXEMPTIONS: Each calendar year an owner or operator is allowed to claim a total of 55 gallons of mold-wash that is exempt from all requirements pursuant to subsection 301.3 of this rule if all such mold-wash is separately identified, logged, and each month is cumulatively totaled for the year.

SECTION 400 - ADMINISTRATIVE REQUIREMENTS

401 COMPLIANCE SCHEDULE: This rule is effective September 1, 1998.

402 OTHER REGULATORY MATTERS:

402.1 Nothing in this rule shall relieve a person from complying with other applicable environmental statutes and rules.

402.2 Rule 331 of these rules applies to cleaning, degreasing, and stripping processes which can emit VOC. Rule 336 applies to the coating of castings.

SECTION 500 - MONITORING AND RECORDS

501 RECORDKEEPING AND REPORTING: An owner or operator subject to this rule shall keep the following records and lists in a consistent and complete manner, and shall make them available to the Control Officer upon request. Records of the previous 12 months, requested during normal business hours, shall be made available without delay. Each of the following records shall be maintained for a minimum of five years:

501.1 Current List:

a. Maintain a current list of all VOC-containing fluid materials as received by the facility such as binders and/or binder components, coatings, cleaning solvents, lubricants and any other VOC-containing substances.

b. List the name or designation of each and include next to it the VOC content of each in pounds per gallon or grams per liter.

c This requirement does not apply to materials having less than 2 percent organic content by volume as received.

501.2 Monthly Schedule: By the end of the following month, an owner or operator shall update the following records for each completed month:

a. The amount of each binder constituent used.

b. The amount of each mold-wash and surfacer used.

c. The quantity and type of VOC-containing solvent added each month as a diluent in binders, mold-wash, surfacer, or as a diluent in some other production capacity.

d. The quantity of fluid VOC or material containing any fluid VOC disposed of offsite. This includes VOC on rags, sand, and other materials.

e. Annual Exception: Yearly, update the totals of the usage of each fluid, VOC-containing material that is known to be used in amounts totaling less than 15 gallons (57 liters) per year for all that type of material.

501.3 **Frequency Of Computing The Binder-To-Sand Ratio:** The following provisions apply to a facility complying with VOC limits pursuant to subsection 301.2 of this rule:

a. **Monthly:** Computations of mass balance for the month shall be made according to the period-weighted average formula in subsection 503.6 of this rule within 7 workdays after the end of the month.

b. **Daily From Meter Readings:** Such calculations for each day, determined with the numerical output(s) of the system run pursuant to subsection 302.2 of this rule shall be completed and entered in a log by 12:01 PM of the following workday or by the middle of the first shift of the following facility-specific workday.

c. **Reduced Frequency of Determination for Ratios Below Limits:**

(1) **Earning weekly determinations:** If no daily ratios exceed 1.27 : 100 for forty consecutive workdays and no weekly ratio is above 1.25 : 100 during the same period, then weekly averaging may be instituted in place of daily calculations of the daily average, until such time as that weekly ratio is exceeded. Following such an exceedance, daily determinations shall be resumed.

(2) If there is no weekly average ratio above 1.20 : 100 for 10 consecutive weeks, then the following schedule may be followed:

(A) Determine each month's average by the middle of the first full, facility-specified workday of the following month; and

(B) In each month, determine the weekly average-ratio of a single, selected week in that month by the middle of the first full workday of the following week. The selected week shall be either the week specified in (i) or shall be the week specified by the Control Officer pursuant to (ii):

(i) Determine the weekly average ratio for the week that falls immediately after the 3rd full work-week of the month..

(ii) The Control Officer may from time to time designate to the operator a random work-week of the month for determination of that week's average organic-compound to sand ratio. The Control Officer shall notify the operator prior to the commencement of production activities for the designated work-week.

(C) Determine the weekly average ratio by the middle of the first full workday of the following week. If any monthly average ratio exceeds 1.19 :100 or if any weekly average exceeds 1.20 : 100, then weekly averaging shall be resumed, unless the daily ratio maximum in 501.3c(1) of this rule is also exceeded, in which case daily determinations shall be resumed pursuant to subsection 501.3b.

(3) The schedule of determinations pursuant to subsections 501.3c(1) and (2) is disallowed if any exceedance or violation occurs of said schedule or of subsection 301.2 requirements. In either case, the operator shall then resume each schedule in subsections 501.3a and 501.3b.

(4) **Reinstatement:** Should an operator desire to reinstate a schedule provided in subsection 501.3c, the operator shall make such a request, in writing, to the Control Officer. The request shall state changes or improvements that make meeting the schedule's requirements reasonably certain. The Control Officer shall approve or deny such a request in writing.

502 **INSTALLING AND MAINTAINING ECS MONITORING DEVICES:** Any person operating an Emission Control System (ECS) pursuant to subsection 301.1 of this rule shall install, maintain, and calibrate monitoring devices described in an O&M Plan submitted to the Control Officer pursuant to subsection 302.3. The monitoring devices shall measure temperatures, pressures, rates of flow, or other operating conditions necessary to determine if air pollution control equipment is functioning properly.

502.1 **ECS Operation and Maintenance Records:** On each day that an ECS is used to comply with Section 301 of this rule, an owner or operator shall make a record, retained for 5 years, of the operating parameters of the key systems described in the O&M Plan. For each day or period in which the O&M Plan requires that maintenance be performed, a permanent record shall be made of the maintenance actions taken, within 24 hours of maintenance completion. An explanation shall be entered for scheduled maintenance that is not performed during the period designated in the O&M Plan.

502.2 **Other Records Required When Complying Via ECS:** An owner or operator choosing to meet the requirements of Section 301 through the use of an ECS shall maintain, in addition to the monthly records required by subsection 501.2 of this rule, daily records showing the amount of binder, wash, and diluent used.

503 **COMPLIANCE DETERMINATION - TEST METHODS:** 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.

503.1 **Calibration of Metering Equipment on the Sand/Resin Mixer:**

a. Each month or as often as calibration is prescribed by the operating instructions supplied by the manufacturer , whichever is more frequent, the amount of sand delivered per minute at each different sand-supply rate for each different sand-supply equipment-configuration in current use shall be determined prior to any

adjustment, and recorded. The same shall be done for the binder at each resin ratio setting and for the catalyst flowmeter if one is used pursuant to required calculations.

b. If adjustment is made to any device of which such adjustment can affect the flow rate, a flow rate test shall be performed subsequent to completion of adjustment, and the result recorded.

503.2 VOC and Organic Content – Laboratory Methods:

a. Washes: The VOC content of mold-washes and surfacers, as applied, shall be determined by a certified product data sheet or EPA Test Method 24 of 40 CFR Part 60, Appendix A. If there is a discrepancy between the information on the certified product data sheet and the results of the Method 24 analysis, compliance status shall be based on the Method 24 results.

b. Binders: The organic-compound content of binders, as used, shall be determined by a certified product data sheet or EPA Test Method 415.1, Total Organic Carbon. If there is a discrepancy between the information on the certified product data sheet and the results of the EPA Test Method 415.1, compliance status shall be based on the Method 415.1 results.

c. Molds: The following are laboratory methods for determining the organic content of sand in a cured mold. Using these methods requires that an initial determination be made of the total organic carbon or the amount of loss on ignition (LOI) of the sand before the sand is combined with binder and formed into a mold.

(1) EPA Test Method 415.1, Total Organic Carbon, or by another Control-Officer approved, standard test-method for determining total carbon that is either an EPA-approved method or is a submethod included by an EPA test-method.

(2) When the percentage of organic compounds in a binder has been established to the satisfaction of the Control Officer, American Foundry Society Procedure 117-87-S, Loss On Ignition, may be used.

503.3 Control efficiency of an emission control device required by Section 301.1 shall be determined according to EPA Reference Method 25 or an applicable submethod of Method 25, 25A, or 25 B (Title 40, CFR Part 60, Appendix A).

503.4 Capture efficiency of an emission control device required by Section 301.1 shall be determined by mass balance in combination with ventilation/draft rate determinations referenced in subsection 503.5, or shall be done in accordance with US EPA Test Methods 204, 204a, 204b, 204c, 204d,

204e, and 204f, Appendix M, 40 CFR 51. This EPA document is incorporated by reference and is available at 1001 North Central Avenue, Phoenix, Arizona, 85004, or by calling (602) 506-6700 for information.

503.5 Ventilation/draft rates of an emission control device required by Section 301.1 shall be determined by EPA Reference Methods 2, 2A, 2C, or 2D (40 CFR Part 60, Appendix A).

503.6 Calculations Determining Compliance With Alternative Compliance Method, Subsection 301.2: Subsection 301.2 requires a determination of the facility-wide, period-weighted average-ratio of the organic mass of all the binders used as compared to the mass of sand receiving the binders during an averaging period. This shall be calculated using the following equation:

$$\text{Organics to binder-sand ratio} = \frac{M_1O_1 + M_2O_2 + \ldots\ldots\ldots + M_nO_n}{S_{D1} + S_{D2} + \ldots\ldots + S_{DL} + M_1(1-O_1) + M_2(1-O_2) + \ldots + M_n(1-O_n)}$$

O_T (Total Organic Content) = $M_1O_1 + M_2O_2 + \ldots\ldots\ldots + M_nO_n$

where:

O_T Total organic material in the binder system(s) used during the averaging period, in kilograms (or lbs).

O_1 = The organic ratio of the first binder formulation used during the averaging period, expressed in kilograms organic compounds per kg. of binder (lb/lb).

O_2 = The organic ratio of the second binder formulation used during the averaging period, expressed in kilograms organic compounds per kg. of binder (lb/lb).

O_n = The organic ratio of the very last binder formulation used during the averaging period, expressed in kilograms organic compounds per kg. of binder (lb/lb) when a total of "n" formulations were used.

M_1 = The total mass, used throughout the period, of the first binder formulation used that period, expressed in kg. or lb.

M_2 = The total mass used throughout the period, of the second binder formulation used that period, in kg. or lb.

M_n = The total mass, used throughout the period, of the very last binder formulation used that period, when a total of "n" formulations were used, expressed in kg. or lb.

S_{D1} = The mass of sand used in day one of the averaging period.

S_{D2} = The mass of sand used in day two of the averaging period.

S_{DL} = The mass of sand used on the last day of the averaging period.

503.7 Daily-Weighted Average VOC Content of Mold Washes: The daily-weighted average VOC content of all the mold-wash used facility-wide during a facility-specified workday, a quantification required in order to comply with subsection 301.3b, shall be calculated using the following equation and be expressed in grams of VOC per liter of mold-wash (or lbs./gal).

$$VOC_w = \frac{V_1C_1 + V_2C_2 + \ldots\ldots\ldots + V_nC_n + M_{va}}{V_1 + V_2 + \ldots\ldots\ldots V_n + V_{va} + V_{sa}}$$

where:

VOC_w = The daily-weighted average VOC content of all "n" mold-wash formulations ("a" through "n") used during a workday throughout the facility expressed in grams of VOC per liter of mold-wash (or lb/gal).

C_1 = The VOC content of the first mold-wash formulation used during a workday in grams per liter of mold-wash (lb/gal).

C_2 = The VOC content of the second mold-wash formulation used during a workday, in grams per liter of mold-wash (or lb/gal).

C_n = The VOC content of the very last mold-wash formulation used during a workday when a total of "n" formulations were used, and the only formulation remaining to be accounted for. It is expressed in grams VOC per liter of mold-wash-formulation "n" (or lb/gal).

M_{va} = The total mass of VOC added to any previously formulated mold-wash used during the course of this workday not otherwise accounted for in VOC-content of formulations (expressed in grams or lbs). This includes the VOC portion of added materials which also contain non-VOC components.

V_1 = The total volume used throughout the workday of the first mold-wash formulation used that day, expressed in liters (or gal).

V_2 = The total volume used throughout the workday of the second mold-wash formulation used that day, in liters (or gal).

V_n = The total volume used throughout the workday of the very last mold-wash formulation used that workday, when a total of "n" formulations were used. It is expressed in liters (or gal) of formulation "n".

V_{va} = The total volume of VOC in liters (or gal) added to any and all previously formulated mold-wash during the course of this workday for make-up, viscosity reducing, or other purpose(s), not otherwise accounted for in the VOC-content of formulations.

V_{sa} = The total volume of solids in liters (or gal) added during a workday to any already formulated mold-washes used during the workday such solids are added.

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RULE 348
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265 ROCKET MOTOR BONDING ADHESIVE
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Adopted 04/07/99

MARICOPA COUNTY
AIR POLLUTION CONTROL REGULATIONS

REGULATION III - CONTROL OF AIR CONTAMINANTS

RULE 348
AEROSPACE MANUFACTURING AND REWORK OPERATIONS

SECTION 100 - GENERAL

101 PURPOSE: To limit the emission of volatile organic compounds (VOCs) from the manufacture and rework of aerospace vehicles and their components.

102 APPLICABILITY: This rule applies to the manufacture or rework of commercial, civil, or military aerospace vehicles. This rule does not apply to research and development, quality control, laboratory testing, electronic parts and assemblies (except for cleaning and coating of completed assemblies) and to rework operations performed on antique aerospace vehicles or components or space vehicles.

SECTION 200 - DEFINITIONS:

For the purpose of this rule, the following definitions shall apply:

201 ABLATIVE COATING - A coating that chars when exposed to open flame or extreme temperatures, as would occur during the failure of an engine casing or during aerodynamic heating. The ablative char surface serves as an insulative barrier, protecting adjacent components from the heat or open flame.

202 ADHESION PROMOTER - A very thin coating applied to a substrate to promote wetting and form a chemical bond with the subsequently applied material.

203 ADHESIVE BONDING PRIMER - A primer applied in a thin film to aerospace components for the purpose of corrosion inhibition and increased adhesive bond strength by attachment. There are two categories of adhesive bonding primers, primers with a design cure at 250°F or below and primers with a design cure above 250°F.

204 AEROSOL COATING - A hand-held, pressurized, nonrefillable container that expels an adhesive or a coating in a finely divided spray when a valve on the container is depressed.

205 AEROSPACE VEHICLE OR COMPONENT - Any fabricated part, processed part, assembly of parts, or completed unit, with the exception of electronic components,

of any aircraft, including but not limited to airplanes, helicopters, missiles, rockets, and space vehicles.

206 AIRCRAFT FLUID SYSTEMS - Those systems that handle hydraulic fluids, fuel, cooling fluids, or oils.

207 AIRCRAFT TRANSPARENCY – The aircraft windshield, canopy, passenger windows, lenses and other components which are constructed of transparent materials.

208 ANTICHAFE COATING - A coating applied to areas of moving aerospace components that may rub during normal operations or installation.

209 ANTIQUE AEROSPACE VEHICLE OR COMPONENT - An antique aircraft, as defined by 14 CFR Part 45, or components thereof. An antique aerospace vehicle would not routinely be in commercial or military service in the capacity for which it was designed.

210 AQUEOUS CLEANING SOLVENT - A solvent in which water is at least 80 percent of the solvent as applied.

211 BONDING MASKANT - A temporary coating used to protect selected areas of aerospace parts from strong acid or alkaline solutions during processing for bonding.

212 CHEMICAL AGENT-RESISTANT COATING (CARC) - An exterior topcoat designed to withstand exposure to chemical warfare agents or the decontaminates used in these agents.

213 CHEMICAL MILLING MASKANT - A coating that is applied directly to aluminum components to protect surface areas when chemical milling the component with a Type I or II etchant. This does not include bonding maskants, line sealers, and critical use and seal coat maskants. Additionally, maskants that must be used on an individual part or subassembly with a combination of Type I or II etchants and any of the above types of maskants (e.g., bonding, line sealers, and critical use and seal coat) are not included. Maskants that are defined as specialty coatings are not included under this definition.

214 CLEANING OPERATION - Any operation that removes dirt or impurities from aerospace vehicles, components, or coating equipment. This may include spray gun, hand-wipe, and flush cleaning operations.

215 CLEANING SOLVENT - A liquid material used for hand-wipe, spray gun, or flush cleaning. This definition excludes solutions that contain VOCs at a concentration less than 0.1% for carcinogenic VOCs or 1.0% for noncarcinogenic VOCs, as determined from manufacturers' representations.

216 CLEAR COATING - A transparent coating usually applied over a colored opaque coating, metallic substrate, or placard to give improved gloss and protection to the color coat. In some cases, a clearcoat refers to any transparent coating without regard to substrate.

217 CLOSED-CYCLE DEPAINTING SYSTEM - A dust free, automated process that removes permanent coating in small sections at a time, and maintains a continuous vacuum around the area(s) being depainted to capture emissions.

218 COATING - A material that is applied to the surface of an aerospace vehicle or component to form a decorative or functional solid film, or the solid film itself.

219 COATING OPERATION – Using a spray booth, tank, or other enclosure or any area, such as a hangar, for applying a single type of coating (e.g., primer); using the same spray booth for applying another type of coating (e.g., topcoat) constitutes a separate coating operation for which compliance determinations are performed separately.

220 COATING UNIT - A series of one or more coating applicators and any associated drying area and/or oven wherein a coating is applied, dried, and/or cured. A coating unit ends at the point where the coating is dried or cured, or prior to any subsequent application of a different coating. It is not necessary to have an oven or flashoff area to be included in this definition.

221 COMMERCIAL EXTERIOR AERODYNAMIC STRUCTURE PRIMER - A primer used on aerodynamic components and structures that protrude from the fuselage, such as wings and attached components, control surfaces, horizontal stabilizers, vertical fins, wing-to-body fairings, antennae, and landing gear and doors, for the purpose of extended corrosion protection and enhanced adhesion.

222 COMMERCIAL INTERIOR ADHESIVE - Materials used in the bonding of passenger cabin interior components. These components must meet the FAA fireworthiness requirements.

223 COMPATIBLE SUBSTRATE PRIMER - Either compatible Epoxy Primer or Adhesive Primer. Compatible Epoxy Primer is primer that is compatible with the filled elastomeric coating and is epoxy based. The compatible substrate primer is an epoxy-polyamide primer used to promote adhesion of elastomeric coatings such as impact-resistant coatings. Adhesive Primer is a coating that (1) inhibits corrosion and serves as a primer applied to bare metal surfaces or prior to adhesive application, or (2) is applied to surfaces that can be expected to contain fuel. Fuel tank coatings are excluded from this category.

224 CONFINED SPACE - A space that (1) is large enough and so configured that an employee can bodily enter and perform assigned work; (2) is limited or restricted for entry or exit (for example, fuel tanks, fuel vessels, and other spaces that have limited entry); and (3) is not suitable for continuous employee occupancy.

225 CORROSION PREVENTION SYSTEM - A coating system that provides corrosion protection by displacing water and penetrating mating surfaces, forming a protective barrier between the metal surface and moisture. Coatings containing oils or waxes are excluded from this category.

226 CRITICAL USE AND LINE SEALER MASKANT - A temporary coating, not covered under other maskant categories, used to protect selected areas of aerospace parts from strong acid or alkaline solutions such as those used in anodizing, plating, chemical milling and processing of magnesium, titanium, or high strength steel, high precision aluminum chemical milling of deep cuts, and aluminum chemical milling of complex shapes. Materials used for repairs or to bridge gaps left by scribing operations (i.e., line sealer) are also included in this category.

227 CRYOGENIC FLEXIBLE PRIMER - A primer designed to provide corrosion resistance, flexibility, and adhesion of subsequent coating systems when exposed to loads up to and surpassing the yield point of the substrate at cryogenic temperatures (-275°F and below).

228 CRYOPROTECTIVE COATING - A coating that insulates cryogenic or subcooled surfaces to limit propellant boil-off, maintain structural integrity of metallic structures during ascent or re-entry, and prevent ice formation.

229 CYANOACRYLATE ADHESIVE - A fast-setting, single component adhesive that cures at room temperature. Also known as "super glue."

230 ELECTRIC OR RADIATION-EFFECT COATING - A coating or coating system engineered to interact, through absorption or reflection, with specific regions of the electromagnetic energy spectrum, such as the ultraviolet, visible, infrared, or microwave regions. Uses include, but are not limited to, lightning strike protection, electromagnetic pulse (EMP) protection, and radar avoidance. Coatings that have been designated "classified" by the Department of Defense are exempt.

231 ELECTROSTATIC DISCHARGE AND ELECTROMAGNETIC INTERFERENCE (EMI) COATING - A coating applied to space vehicles, missiles, aircraft radomes, and helicopter blades to disperse static energy or reduce electromagnetic interference.

232 ELEVATED TEMPERATURE SKYDROL RESISTANT COMMERCIAL PRIMER - A primer applied primarily to commercial aircraft (or commercial aircraft adapted for military use) that must withstand immersion in phosphate-ester (PE) hydraulic fluid (Skydrol 500b or equivalent) at the elevated temperature of 150°F for 1,000 hours.

233 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 of volatile organic compounds. Such system

consists of an emissions collection subsystem and an emissions processing subsystem.

234 EPOXY POLYAMIDE TOPCOAT - A coating used where harder films are required or in some areas where engraving is accomplished in camouflage colors.

235 FIRE-RESISTANT (INTERIOR) COATING - A coating applied to the interior cabin of an airplane that prevents the interior cabin from being easily ignited and from burning with extreme rapidity.

236 FLEXIBLE PRIMER - A primer that meets flexibility requirements such as those needed for adhesive bond primed fastener heads or on surfaces expected to contain fuel.

237 FLIGHT TEST COATING - A coating applied to aircraft other than missiles or single-use aircraft prior to flight testing to protect the aircraft from corrosion and to provide required marking during flight test evaluation.

238 FLUSH CLEANING – Removal of contaminants such as dirt, grease, oil, and coatings from an aerospace vehicle or component or coating equipment by passing solvent over, into, or through the item being cleaned. The solvent simply may be poured into the item being cleaned and then drained or assisted by air or hydraulic pressure or by pumping. Hand-wipe cleaning operations where wiping, scrubbing, mopping or other hand action are used are not included.

239 FUEL TANK ADHESIVE - An adhesive used to bond components exposed to fuel and must be compatible with fuel tank coatings.

240 FUEL TANK COATING - A coating applied to fuel tank components for the purpose of corrosion and/or bacterial growth inhibition and to assure sealant adhesion in extreme environmental conditions.

241 GENERAL AVIATION (GA) - The segment of civil aviation that encompasses all facets of aviation except air carriers, commuters and military. General aviation includes charter and corporate-executive transportation, instruction, rental, aerial application, aerial observation, business, pleasure and other special uses.

242 GENERAL AVIATION REWORK FACILITY - Any aerospace facility with the majority of its revenues resulting from the reconstruction, repair, maintenance, repainting, conversion, or alteration of general aviation aerospace vehicles or components.

243 GRAMS PER LITER VOC - A weight of VOC per combined volume of VOC and coating solids, less water and exempt compounds, and can be calculated by the following equation:

$$\text{grams per liter} = \frac{W_s - W_w - W_{es}}{V_s - V_w - V_{es}}$$

W_s = weight of volatile organic compounds in grams

W_w = weight of water in grams

W_{es} = weight of exempt compounds in grams

V_s = volume of material in liters

V_w = volume of water in liters

V_{es} = volume of exempt compounds in liters

244 HAND-WIPE CLEANING OPERATION - Removing contaminants such as dirt, grease, oil, and coatings from an aerospace vehicle or component by physically rubbing it with a material such as a rag, paper, or cotton swab that has been moistened with a cleaning solvent. This definition excludes the use of rags or other material used only to dry excess solvent from a part or product after removal from a vat or any other solvent bath.

245 HIGH TEMPERATURE COATING - A coating designed to withstand temperatures of more than 350°F.

246 HIGH VOLUME LOW PRESSURE (HVLP) SPRAY EQUIPMENT - Spray equipment that is used to apply coating by a spray gun that operates at 10.0 psig of atomizing air pressure or less at the air cap.

247 INSULATION COVERING - Material that is applied to foam insulation to protect the insulation from mechanical or environmental damage.

248 INTERMEDIATE RELEASE COATING - A thin coating applied beneath topcoats to assist in removing the topcoat in depainting operations and generally to allow the use of less hazardous depainting methods.

249 LACQUER - A clear or pigmented coating formulated with a nitrocellulose or synthetic resin to dry by evaporation without a chemical reaction. Lacquers are resoluble in their original solvent.

250 LEAK - A liquid that is allowed to seep or drip or to otherwise enter or escape in either of the following ways:

a. Three or more drops, including misting and clouding; or

b. A puddle greater than one square inch.

251 LIMITED ACCESS SPACE - Internal surfaces or passages of an aerospace vehicle or component that cannot be reached without the aid of an airbrush or a spray gun extension for the application of coatings.

252 METALIZED EPOXY COATING - A coating that contains relatively large quantities of metallic pigmentation for appearance and/or added protection.

253 MOLD RELEASE - A coating applied to a mold surface to prevent the molded piece from sticking to the mold as it is removed.

254 NON-PRECURSOR ORGANIC COMPOUNDS - Any of the organic compounds which have been designated by the EPA as having negligible photochemical reactivity. EPA designates such compounds as "exempt". A listing of these compounds is found in Rule 100.

255 NONSTRUCTURAL ADHESIVE - An adhesive that bonds nonload bearing aerospace components in noncritical applications and is not covered in any other specialty adhesive categories.

256 OPERATING PARAMETER VALUE - A minimum or maximum value established for a control equipment or process parameter that, if achieved by itself or in combination with one or more other operating parameter values, determines that an owner or operator has complied with an applicable emission limitation.

257 OPTICAL ANTI-REFLECTION COATING - A coating with a low reflectance in the infrared and visible wavelength ranges that is used for antireflection on or near optical and laser hardware.

258 PART MARKING COATING – Coatings or inks used to make identifying markings on materials, components, and/or assemblies. These markings may be either permanent or temporary.

259 PRETREATMENT COATING - An organic coating that contains at least 0.5 percent acids by weight and is applied directly to metal surfaces to provide surface etching, corrosion resistance, adhesion, and ease of stripping.

260 PRIMER – The first layer and any subsequent layers of identically formulated coating applied to the surface of an aerospace vehicle or component. Primers are typically used for corrosion prevention, protection from the environment, functional fluid resistance, and adhesion of subsequent coatings. Primers that are defined as specialty coatings are not included under this definition.

261 RADOME – The nonmetallic protective housing for electromagnetic transmitters and receivers (e.g., radar, electronic countermeasures, etc.).

262 RAIN EROSION-RESISTANT COATING - A coating or coating system used to protect the leading edges of parts such as flaps, stabilizers, radomes, engine inlet nacelles, etc. against erosion caused by rain impact during flight.

263 RESEARCH AND DEVELOPMENT - An operation whose primary purpose is for research and development of new processes and products and that is conducted under the close supervision of technically trained personnel and is not involved in the manufacture of final or intermediate products for commercial purposes, except in a de minimis manner.

264 RESIN SURFACE SEALER - A coating designed or intended to seal the pores of high porosity cast surfaces of aerospace components composed of magnesium, aluminum or their alloys to prevent corrosion.

265 ROCKET MOTOR BONDING ADHESIVE - An adhesive used in rocket motor bonding applications.

266 ROCKET MOTOR NOZZLE COATING - A catalyzed epoxy coating system used in elevated temperature applications on rocket motor nozzles.

267 RUBBER-BASED ADHESIVE - A quick setting contact cement that provides a strong, yet flexible bond between two mating surfaces that may be of dissimilar materials.

268 SCALE INHIBITOR - A coating that is applied to the surface of a part prior to thermal processing to inhibit the formation of scale.

269 SCREEN PRINT INK - Inks used in screen printing processes during fabrication of decorative laminates and decals.

270 SEAL COAT MASKANT - An overcoat applied over a maskant to improve abrasion and chemical resistance during production operations.

271 SEALANT - A material used to prevent the intrusion of water, fuel, air, or other liquids or solids from certain areas of aerospace vehicles or components. There are two categories of sealants: extrudable/rollable/brushable sealants and sprayable sealants.

272 SELF-PRIMING TOPCOAT - A topcoat that is applied directly to an uncoated aerospace vehicle or component for purposes of corrosion prevention, environmental protection, and functional fluid resistance. More than one layer of identical coating formulation may be applied to the vehicle or component. The coating is not subsequently topcoated with any other product formulation.

273 SEMIAQUEOUS CLEANING SOLVENT - A solvent wherein at least 60% of the solvent solution as applied must be water.

274 SILICONE INSULATION MATERIAL - An insulating material applied to exterior metal surfaces for protection from high temperatures caused by atmospheric friction or engine exhaust. These materials differ from ablative coatings in that they are not "sacrificial."

275 SOLID FILM LUBRICANT - A very thin coating consisting of a binder system containing as its chief pigment material one or more of the following: molybdenum, graphite, polytetrafluoroethylene (PTFE), or other solids that act as a dry lubricant between faying surfaces.

276 SOLIDS – The nonvolatile portion of the coating that after drying makes up the dry film.

277 SPACE VEHICLE - A man-made device, either manned or unmanned, designed for operation beyond earth's atmosphere. This definition includes integral equipment such as models, mock-ups, prototypes, molds, jigs, tooling, hardware jackets, and test coupons. Also included is auxiliary equipment associated with test, transport, and storage that through contamination can compromise the space vehicle performance.

278 SPECIALIZED FUNCTION COATING - A coating that fulfills extremely specific engineering requirements that are limited in application and are characterized by low volume usage. This category excludes coatings covered in other Specialty Coating categories.

279 SPECIALTY COATING - A coating that, even though it meets the definition of a primer, topcoat, or self-priming topcoat, has additional performance criteria beyond those of primers, topcoats, and self-priming topcoats for specific applications. These performance criteria may include, but are not limited to, temperature or fire resistance, substrate compatibility, antireflection, temporary protection or marking, sealing, adhesively joining substrates, or enhanced corrosion protection.

280 SPRAY GUN - A device that atomizes a coating or other material and projects the particulates or other material onto a substrate.

281 STRUCTURAL AUTOCLAVABLE ADHESIVE - An adhesive used to bond load carrying aerospace components that is cured by heat and pressure in an autoclave.

282 STRUCTURAL NONAUTOCLAVABLE ADHESIVE - An adhesive cured under ambient conditions that is used to bond load carrying aerospace components or other critical functions, such as nonstructural bonding in the proximity of engines.

283 SURFACE PREPARATION – The removal of contaminants from the surface of an aerospace vehicle or component or the activation or reactivation of the surface in preparation for the application of a coating.

284 TEMPORARY PROTECTIVE COATING - A coating applied to provide scratch or corrosion protection during manufacturing, storage, or transportation. Two types include peelable protective coatings and alkaline removable coatings. These materials are not intended to protect against strong acid or alkaline solutions.

Coatings that provide this type of protection from chemical processing are not included in this category.

285 THERMAL CONTROL COATING - A coating formulated with specific thermal conductive or radiative properties to permit temperature control of the substrate.

286 TOPCOAT - A coating that is applied over a primer on an aerospace vehicle or component for appearance, identification, camouflage, or protection. Topcoats that are defined as specialty coatings are not included under this definition.

287 TOUCH-UP AND/OR REPAIR OPERATIONS - That portion of the coating operation that is the incidental application of coating used to cover minor imperfections in the coating finish or to achieve complete coverage. This definition includes out-of-sequence or out-of-cycle coating.

288 VOC COMPOSITE PARTIAL VAPOR PRESSURE - The sum of the partial pressures of the compounds defined as VOC's and is determined by the following calculation:

$$PP_s = \frac{\sum_{i=1}^{n} \frac{W_i}{MW_i} \times VP_i}{\frac{W_w}{MW_w} + \frac{W_e}{MW_e} + \sum_{i=1}^{n} \frac{W_i}{MW_i}}$$

W_i = Weight of the "i"th VOC compound, grams.

W_w = Weight of water, grams.

W_e = Weight of non-HAP, non-VOC compound, grams.

MW_i = Molecular weight of the "i"th VOC compound, g/g-mole.

MW_w = Molecular weight of water, g/g-mole.

MW_e = Molecular weight of exempt compound, g/g-mole.

PP_c = VOC composite partial pressure at 20°C, mm Hg.

VP_i = Vapor pressure of the "i"th VOC compound at 20°, mm Hg.

289 VOLATILE ORGANIC COMPOUND (VOC) - Any organic compound which participates in atmospheric photochemical reactions, except non-precursor organic compounds.

290 WATERBORNE (WATER-REDUCIBLE) COATING - A coating which contains more than 5 percent water by weight as applied in its volatile fraction.

291 WET FASTENER INSTALLATION COATING - A primer or sealant applied by dipping, brushing, or daubing to fasteners that are installed before the coating is cured.

292 WING COATING - A corrosion-resistant topcoat that is resilient enough to withstand the flexing of the wings.

SECTION 300 - STANDARDS

301 LIMITATIONS - VOC EMISSIONS: No person shall apply any surface coating including any VOC-containing materials added to the original coating supplied by the manufacturer, which contain VOC in excess of the limits in Tables 1a and 1b, unless the emissions are controlled in accordance with the provisions of Section 302 of this rule.

Table 1a

PRIMER or TOPCOAT TYPE	VOC LIMITS (g/L)
All Primers (except Specialty or General Aviation Rework Facility Primers)	350 g/l
All Topcoats (except Specialty or General Aviation Rework Facility Topcoats)	420 g/l
General Aviation Rework Facility Primers	540 g/l
General Aviation Rework Facility Topcoats	540 g/l

Table 1b

Type of Specialty Coating	VOC Limits (g/L)
Ablative Coating	600
Adhesion Promoter	890
Adhesive Bonding Primers: Cured at 250°F or below	850
Adhesive Bonding Primers: Cured above 250°F	1030
Adhesives: Commercial Interior	760
Adhesives: Cyanoacrylate	1,020
Adhesives: Fuel Tank	620
Adhesives: Nonstructural	360
Adhesives: Rocket Motor Bonding	890
Adhesives: Rubber-based	850
Adhesives: Structural Autoclavable	60
Adhesives: Structural Nonautoclavable	850
Antichafe Coating	660
Bearing Coating Compounds	620
Caulking and Smoothing Compounds	850
Chemical Agent-Resistant Coating	550
Clear Coating	720
Commercial Exterior Aerodynamic Structure Primer	350
Compatible Substrate Primer	350
Corrosion Prevention Compound	710

Type of Specialty Coating	VOC Limits (g/L)
Cryogenic Flexible Primer	350
Cryoprotective Coating	600
Coatings Related To Electromagnetism And/Or Other Radiation Electric Or Radiation-Effect Coating	600
Electrostatic Discharge and Electromagnetic Interference (EMI) Coating	800
Elevated Temperature Skydrol Resistant Commercial Primer	350
Epoxy Polyamide Topcoat	420
Fire-Resistant (Interior) Coating	800
Flexible Primer	350
Flight-Test Coatings: Missile or Single Use Aircraft	420
Flight-Test Coatings: All Other	840
Fuel-Tank Coating	720
High-Temperature Coating	850
Insulation Covering	740
Intermediate Release Coating	750
Lacquer	830
Maskant: Bonding Maskant	420
Maskant: Critical Use and Line Sealer Maskant	420
Maskant: Seal Coat Maskant	420
Metallized Epoxy Coating	740
Mold Release	780
Optical Anti-Reflective Coating	750
Part Marking Coating	850
Pretreatment Coating	780
Rain Erosion-Resistant Coating	420
Resin Surface Sealer	695
Rocket Motor Nozzle Coating	660
Scale Inhibitor	880
Screen Print Ink	840
Sealants: Extrudable/Rollable/Brushable Sealant	240
Sealants: Sprayable Sealant	600
Self-priming Topcoat	420
Silicone Insulation Material	850
Solid Film Lubricant	880
Specialized Function Coating	890
Temporary Protective Coating	250
Thermal Control Coating	800
Wet Fastener Installation Coating	675
Wing Coating	420

302 EMISSION CONTROL SYSTEM: As an alternative to meeting the applicable coating VOC limits set forth in Section 301, an operator can comply with this rule by operating an Emission Control System (ECS) approved by the Control Officer, provided that the control system has a combined VOC emissions capture and control equipment efficiency of at least 81 percent by weight.

303 REQUIREMENTS FOR AIR POLLUTION CONTROL EQUIPMENT:

303.1 Operation And Maintenance (O&M) Plan Required For ECS :

a. An owner or operator shall provide and maintain (an) O&M Plan(s) 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 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.

c. An owner or operator of a facility that is required to have an O&M Plan pursuant to this subsection must fully comply with all O&M Plans that the owner or operator has submitted for approval, but which have not yet been approved, unless notified otherwise by the Control Officer in writing.

304 APPLICATION EQUIPMENT: A person shall use one or more of the following application techniques in applying any primer or topcoat to aerospace vehicles or components: flow/curtain coat; dip coat; roll coating; brush coating; cotton-tipped swab application; electrodeposition (DIP) coating; high volume low pressure (HVLP) spraying; electrostatic spray; or other coating application methods that can demonstrate and be approved by the Control Officer as having at least a 65% transfer efficiency, which is equivalent to the transfer efficiency of HVLP or electrostatic spray application methods.

305 SOLVENT CLEANING: The following requirements apply to solvent cleaning operations:

305.1 Hand-Wipe Cleaning. Cleaning solvents used in hand-wipe cleaning operations shall utilize an aqueous cleaning solvent, or have a VOC composite vapor pressure less than or equal to 45 millimeters of mercury (mm Hg) at 20°C.

305.2 Flush Cleaning. For cleaning solvents used in the flush cleaning of parts, assemblies, and coating unit components, the used cleaning solvent (except for semiaqueous cleaning solvents) must be emptied into an enclosed container or collection system that is kept closed when not in use or captured with wipers, provided they comply with the VOC handling requirements of Section 307 of this rule.

305.3 Dip Cleaning. Dip cleaning using solvents is subject to the requirements of Rule 331.

306 SPRAY GUN CLEANING: All spray guns must be cleaned by one or more of the following methods:

306.1 Enclosed spray gun cleaning system, provided that it is kept closed when not in use and leaks are repaired within 14 days from when the leak is first discovered. If the leak is not repaired by the 15th day after detection, the solvent shall be removed and the enclosed cleaner shall be shut down until the leak is repaired or its use is permanently discontinued;

306.2 Unatomized discharge of solvent into a waste container that is kept closed when not in use;

306.3 Disassembly of the spray gun and cleaning in a vat that is kept closed when not in use; or

306.4 Atomized spray into a waste container that is fitted with a device designed to capture atomized solvent emissions.

307 VOC CONTAINMENT AND DISPOSAL: All fresh and used VOC containing material, including but not limited to cleaning solvents, coatings, thinners, rags, and their residues, shall be stored in closed, leak free, legibly labeled containers when not in use. In addition, the owner or operator must implement handling and transfer procedures to minimize spills during filling and transferring the cleaning solvent to or from enclosed systems, vats, waste containers, and other cleaning operation equipment that hold or store fresh or used cleaning solvents.

308 EXEMPTIONS:

308.1 Coatings: The following coatings types are exempted from the VOC limits set forth in Tables 1a and 1b in Section 301 of this rule:

a. Touchup coatings;

b. Hand-held aerosol can operations;

c. DOD "classified" coatings;

d. Coating of space vehicles; and

e. Low usage coatings used in separate formulations in volumes of less than 50 gallons per year with a maximum exemption of 200 gallons total for such formulations applied annually.

308.2 Application Equipment: The following operations are exempt from the requirements of Section 304 of this rule:

a. Any situation that normally requires the use of an airbrush or an extension on the spray gun to properly reach limited access spaces;

b. The application of specialty coatings;

c. The application of coatings that contain fillers that adversely affect atomization with HVLP spray guns and that the permitting agency has determined cannot be applied by any of the application methods;

d. The application of coatings that normally have a dried film thickness of less than 0.0013 centimeter (0.0005 in.) and that the permitting agency has determined cannot be applied by any of the application methods;

e. The use of airbrush application methods for stenciling, lettering, and other identification markings; and

f. Touch-up and repair operations.

308.3 Solvent Cleaning Operations: The following are exempt from the requirements of Section 305 of this rule:

a. Cleaning during the manufacture, assembly, installation, maintenance, or testing of components of breathing oxygen systems that are exposed to the breathing oxygen;

b. Cleaning during the manufacture, assembly, installation, maintenance, or testing of parts, subassemblies, or assemblies that are exposed to strong oxidizers or reducers (e.g., nitrogen tetroxide, liquid oxygen, hydrazine);

c. Cleaning and surface activation prior to adhesive bonding;

d. Cleaning of electronics parts and assemblies containing electronics parts;

e. Cleaning of aircraft and ground support equipment fluid systems that are exposed to the fluid, including air-to-air heat exchangers and hydraulic fluid systems;

f. Cleaning of fuel cells, fuel tanks, and confined spaces;

g. Surface cleaning of solar cells, coated optics, and thermal control surfaces;

h. Cleaning during fabrication, assembly, installation, and maintenance of upholstery, curtains, carpet, and other textile materials used on the interior of the aircraft;

i. Cleaning of metallic and nonmetallic materials used in honeycomb cores during the manufacture or maintenance of these cores, and cleaning of the completed cores used in the manufacture of aerospace vehicles or components;

j. Cleaning of aircraft transparencies, polycarbonate, or glass substrates;

k. Cleaning and solvent usage associated with research and development, quality control, or laboratory testing;

l. Cleaning operations using nonflammable liquids conducted within 5 feet of energized electrical systems. Energized electrical systems means any AC or DC electrical circuit on an assembled aircraft once electrical power is connected, including interior passenger and cargo areas, wheel wells and tail sections; and

m. Cleaning operations identified in an Essential Use Waiver which has been reviewed and approved by the U.S. EPA and the voting parties of the International Montreal Protocol Committee [sections 604(d)(1) and (g)(2) of the Act].

308.4 General Exemptions: Cotton-tipped swabs used for very small cleaning operations and aqueous cleaning solvents are exempt from the requirements of Section 307 of this rule.

308.5 Small Sources: Sections 301 and 302 of this rule shall not apply to any one facility from which the total VOC emissions from all operations subject to this rule emit less than 15 pounds (6.8 kg) per day and less than two tons (1814 kg) per year of VOCs prior to any controls.

SECTION 400 - ADMINISTRATIVE REQUIREMENTS

401 COMPLIANCE SCHEDULE: All facilities subject to this rule shall meet all applicable provisions of this rule by October 4, 1999. The intention to use an ECS in accordance with Section 302 of this rule shall be announced to the Control Officer in writing by July 6, 1999 and be in use by April 7, 2000.

SECTION 500 - MONITORING AND RECORDS

501 RECORDKEEPING AND REPORTING: Any person subject to this rule shall comply with the following requirements. Records shall be retained for five years and shall be made available to the Control Officer upon request.

501.1 Coatings: Each owner or operator using coatings listed in Section 301 of this rule shall maintain a current list of coatings in use, VOC content as

applied and records of the monthly usage of such materials in pounds per gallon or grams per liter.

501.2 Cleaning Solvents: Each owner or operator shall:

a. Maintain a current list of all aqueous and semiaqueous hand-wipe cleaning solvents used with corresponding water contents.

b. Maintain a current list of all vapor pressure compliant hand-wipe cleaning solvents in use with their respective vapor pressures or, for blended solvents, VOC composite vapor pressures and records of the monthly usage of such cleaning solvents.

c. Maintain a current list of all hand-wipe cleaning processes using cleaning solvents with a vapor pressure greater than 45 mm Hg and records of the monthly usage of such cleaning solvents.

501.3 Enclosed Spray Gun Cleaners: Any person using an enclosed spray gun cleaner shall visually inspect the seals and all other potential sources of leaks at least once per month while the spray gun cleaner is in operation. Records of these inspections shall be kept and made available upon request by the Control Officer.

502 COMPLIANCE DETERMINATION: The test methods for those subparts of 40 CFR Part 60, Appendix A adopted as of July 1, 1998, as listed below, are adopted by reference as indicated. These adoptions by reference include no future editions or amendments. Copies of test methods referenced in subsection 502.1 are available at the Maricopa County Environmental Services Department, 1001 North Central Avenue, Phoenix, AZ, 85004-1942. When more than one test method is permitted for a determination, an exceedance of the limits established in the rule determined by any of the applicable test methods constitutes a violation of this rule.

502.1 Test Methods:

a. Coatings: The VOC content of coatings (less water and less non-precursor organic compounds) as applied shall be determined by manufacturer's supplied data or Method 24 of 40 CFR part 60, Appendix A. If there is a discrepancy between the manufacturer's formulation data and the results of the Method 24 analysis, compliance shall be based on the results from the Method 24 analysis. For waterborne (water-reducible) coatings, only manufacturer's supplied data can be used to determine the VOC content of each formulation.

b. Control Equipment: Measurements of VOC emissions from control equipment shall be conducted in accordance with EPA Methods 18, 25, and/or 25A, 40 CFR 60, Appendix A.

c. Cleaning Solvents:

1. For aqueous and semiaqueous cleaning solvents, manufacturers' supplied data shall be used to determine the water content.

2. For hand-wipe cleaning solvents, manufacturers' supplied data or standard engineering reference texts or other equivalent methods shall be used to determine the vapor pressure or VOC composite vapor pressure for blended cleaning solvents.

REGULATION III - CONTROL OF AIR CONTAMINANTS

RULE 349
PHARMACEUTICAL, COSMETIC AND VITAMIN MANUFACTURING OPERATIONS

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MARICOPA COUNTY
AIR POLLUTION CONTROL REGULATIONS

REGULATION III - CONTROL OF AIR CONTAMINANTS

RULE 349
PHARMACEUTICAL, COSMETIC AND VITAMIN MANUFACTURING OPERATIONS

SECTION 100 - GENERAL

101 PURPOSE: To limit the emission of volatile organic compounds from pharmaceutical, cosmetic and vitamin manufacturing operations.

102 APPLICABILITY: The provisions of this rule shall apply to the manufacture and/or blending of materials to make pharmaceutical, or cosmetic products or vitamins, including any process that is incidental to such operations, such as tablet coating and finishing.

SECTION 200 - DEFINITIONS:
For the purpose of this rule the following definitions shall apply:

201 COATING - A film or thin layer applied to a base material called a substrate.

202 CONDENSER - A device that cools a gas stream to a temperature which removes specific organic compounds by condensation.

203 COSMETIC PRODUCTS - Any material described by the Standard Industrial Classification (SIC) Code 284, as incorporated by reference in subsection 502.1 of this rule.

204 COSMETICS MANUFACTURING FACILITY - Any plant producing or blending chemicals for use in cosmetic products and/or manufacturing cosmetic products.

205 EMISSION CONTROL SYSTEM (ECS) - A system for reducing emissions of organic compounds, consisting of both emissions collection and processing devices which are approved in writing by the Control Officer and are designed and operated in accordance with good engineering practice.

206 EXEMPT COMPOUNDS - For the purpose of this rule, the non-VOC, non-aqueous evaporating portion of a formulation; this necessarily includes all non-precursor organic compounds in addition to inorganic liquids and gases.

207 IN-PROCESS TANK - Containers used for mixing, blending, heating, reacting, holding, crystallizing, evaporating, or cleaning operations in the manufacture of pharmaceuticals, cosmetics or vitamins.

208 NON-PRECURSOR ORGANIC COMPOUNDS - Any of the organic compounds which have been designated by the EPA as having negligible photochemical reactivity. EPA designates such compounds as “exempt.” A listing of the compounds is found in Rule 100 of these Air Pollution Control Rules and Regulations.

209 PHARMACEUTICAL MANUFACTURING FACILITY - Any plant producing or blending chemicals for use in pharmaceutical products and/or employing chemical processes in the manufacture of pharmaceutical products. This definition includes any and all associated storage tanks, wastewater management units, or components such as pumps, compressors, agitators, pressure relief devices, sampling connection systems, open-ended valves or lines, valves, connectors, and instrumentation systems that are used in the manufacturing of a pharmaceutical product.

210 PHARMACEUTICAL PRODUCTS - Any material described by the Standard Industrial Classification (SIC) Code 283, as incorporated by reference in subsection 502.1 of this rule, or any other fermentation, biological or natural extraction, or chemical synthesis product regulated by the Food and Drug Administration, including components (excluding excipients) of pharmaceutical formulations, or intermediates used in the production of a pharmaceutical product.

211 REACTOR - A device or vessel in which one or more chemicals or reactants, other than air, are combined or decomposed in such a way that their molecular structures are altered and one or more new organic compounds are formed.

212 TOTAL VOC-VAPOR PRESSURE (VOC COMPOSITE PARTIAL PRESSURE) - The sum of the partial pressures of the compounds defined as VOCs calculated according to the formula in Section 504 of this rule.

213 VOLATILE ORGANIC COMPOUND (VOC) - Any organic compound that participates in photochemical reactions, except non-precursor organic compounds.

SECTION 300 - STANDARDS

301 REACTORS, DISTILLATION COLUMNS, CRYSTALLIZERS & CENTRIFUGES: No person shall emit more than 6.8 kg (15 lbs) of VOC compounds per day from any reactor, distillation column, crystallizer or centrifuge unless such emissions are reduced by one of the following:

301.1 Surface Condensers designed to reduce VOC emissions and having the outlet gas temperature limited as follows:

TABLE 1

Vapor Pressure of VOC Compounds at 20° C (68° F)	Maximum Condenser Outlet Gas Temp. ° C (°F)
26-52 mmHg (0.5 psi to 1.0 psi)	25 (77)
52-78 mmHg (1.0 psi to 1.5 psi)	10 (50)
78-150 mmHg (1.5 psi to 2.9 psi)	0 (32)
150-300 mmHg (2.9 psi to 5.8 psi)	-15 (5)
over 300 mmHg (over 5.8 psi)	-25 (-13)

301.2 Any other emission control system which is approved in writing by the control officer as having a control efficiency greater than or equal to surface

condenser efficiency operated in accordance with subsection 301.1 of this rule.

302 IN-PROCESS TANKS: No person shall use any in-process tank(s) for material containing VOC unless it is fitted with a cover or other device provided for the tank which prevents VOC evaporation. The cover or device shall be closed or in place on the tank at all times except during loading or unloading of the tank.

303 SEPARATION OPERATIONS: No person shall emit more than 15 kg (33 lbs) or more of VOC compounds per day from any rotary vacuum filter or any other filter or separation device having an exposed liquid surface where the liquid contains organic compounds with a "Total VOC-Vapor Pressure" of 26 mm Hg (0.5 psia) or more at 20°C (68° F) unless such emissions are reduced by 90 percent on a mass basis.

304 STERILIZERS: No person shall emit 15 kg (33 lbs) or more per day of VOCs from any chemical sterilizer unless such emissions are reduced by at least 75 percent on a mass basis.

305 AIR DRYERS: No person shall emit 15 kg (33 lbs) or more of VOCs per day from any air dryer unless such emissions are reduced by at least 90 percent by weight.

306 TABLET COATING

306.1 Limitation - VOC Emissions: No person shall apply any coating to a pharmaceutical tablet with a VOC content in excess of 3.5 pounds of VOC per gallon of coating applied (420 g/l), excluding water, unless the emissions are controlled in accordance with the provision of subsection 306.2.

306.2 Emission Control System: As an alternative to meeting the coating limit in subsection 306.1, an owner or operator may comply with this rule by operating an Emissions Control System (ECS) approved by the Control Officer. The ECS shall meet the specifications of either one of the following:

a. The ECS shall have a combined VOC emissions capture and control equipment efficiency of at least 81% by weight, or

b. The ECS shall consist of a surface condenser operated with the outlet gas temperature as specified in Table 1 of subsection 301.1 of this rule.

307 BULK LOADING: A person shall not transfer volatile organic liquids having vapor pressures greater than 212 mm Hg (4.1 psia) at 20°C (68° F) from any rail car or tank truck into any storage tank with a capacity greater than 7,500 liters (2,000 gal.) unless organic compound emissions during transfer are reduced by 90 percent by weight.

308 STORAGE TANKS: All storage tanks that store volatile organic liquids with a vapor pressure greater than 78 mm Hg (1.5 psia) at 20 °C (68° F) shall be equipped with pressure/vacuum vents set at a minimum + 2 mm Hg (+ 0.03 psia).

309 OPERATING REQUIREMENTS: An operator shall repair all leaks from which volatile organic liquids can be observed to be dripping or seeping. The repair shall be

completed the first time the equipment is off-line for a period long enough to complete the repair. The nature of the repair should be recorded in the O&M Plan.

310 SURFACE PREPARATION AND CLEANUP SOLVENT:

310.1 A person shall use closed containers for the storage or disposal of cloth or paper used for solvent surface preparation and cleanup.

310.2 A person shall store fresh or spent solvent in closed containers.

311 STORAGE AND DISPOSAL OF VOC:

311.1 All storage of VOC-containing materials subject to evaporation, including the storage of waste solvent and waste solvent residues, shall at all times be in closed containers except when contents are added or removed.

311.2 Containers shall be legibly labeled with their contents.

312 REQUIREMENTS FOR AIR POLLUTION CONTROL EQUIPMENT:

312.1 Operation And Maintenance (O&M) Plan Required For ECS:

a. An owner or operator shall provide and maintain (an) O&M Plan(s) for any ECS, any other emission processing equipment, and any ECS monitoring devices that are used pursuant to this Rule 349 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.

312.2 Providing And Maintaining ECS Monitoring Devices: Any person incinerating, adsorbing, or otherwise processing VOC emissions pursuant to this rule shall provide, 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 and is properly maintained.

312.3 O&M Plan Responsibility: An owner or operator of a facility that is required to have an O&M Plan pursuant to subsection 312.1 must fully comply with all O&M Plans that the owner or operator has submitted for approval, but which have not yet been approved, unless notified otherwise by the Control Officer in writing.

313 EXEMPTIONS

313.1 Small Sources: Sections 301, 302 303, 304, 305 and 306 of this rule shall not apply to any one facility from which the total VOC emissions from all operations subject to this rule emits less than 15 pounds (6.8 kg) per day and less than two tons (1814 kg) per year of volatile organic compounds.

313.2 Condenser Temperature: If the operation of a condenser at the exit temperature specified in Table 1 of subsection 301.1 of this rule results in freezing and consequent plugging of the condenser, the allowable exit temperature may be raised to a maximum of 2°C above the freezing point of the volatile organic compound.

SECTION 400 - ADMINISTRATIVE REQUIREMENTS

401 COMPLIANCE SCHEDULE

401.1 Effective Date: Except as provided in this section, the provisions of this Rule 349 become effective on July 1, 1999. The owner or operator shall notify the Control Officer in writing by March 16, 1999 if an ECS in accordance with subsection 306.2 will be used to comply with this rule. The ECS shall be in use by December 16, 1999.

SECTION 500 - MONITORING AND RECORDS

501 RECORDKEEPING AND REPORTING: Records shall be retained for five years and shall be made available to the Control Officer upon request. Any person subject to this rule shall comply with the following requirements:

501.1 Current List

a. Solvents: Maintain a current list of solvents; state the VOC content of each in pounds per gallons or grams per liter. The VOC content of solvents and any liquids used as cleaning or degreasing agents shall be stated with exempt compounds such as water and non-precursors included.

b. Vapor Pressure: A facility subject to total VOC vapor-pressure limits shall have on site in one of the following forms the identified value of the total VOC vapor-pressure for each subject solvent being used: a manufacturer's technical data sheet, a manufacturer's safety data sheet (MSDS), or actual test results.

c. Coatings: Maintain a current list of coatings in use and the amount of VOCs applied.

501.2 Usage Records: Maintain monthly records showing the type and amount of each VOC containing material used and coatings applied except for materials arriving on-site with less than 2% VOC by weight.

502 COMPLIANCE DETERMINATION AND TEST METHODS: When more than one test method is permitted for determination, an exceedance of the limits by any of the applicable test methods constitutes a violation of this rule.

502.1 Compliance Determination: The following methods shall be used to determine compliance with this rule:

a. Measurement of VOC emissions from a control device shall be conducted in accordance with USEPA Test Method 25 or 25A (40 CFR 60, Appendix A). USEPA Test Method 18 shall be used to determine emissions of exempt compounds if the Control Officer requires that such determinations need to be made.

b. VOC content of materials having more than 10% solids by volume shall be determined using the applicable EPA Reference Method 24 or 24A (40 CFR Part 60, Appendix A). The Control Officer may use manufacturers' data sheets for routine and uncontested determination of VOC content.

c. The VOC content of solutions, dispersions, and emulsions that have no solids or less than 5% solids shall be determined by the April 15, 1992 amended Method 31 of California's Bay Area Air Quality Management District, "Determination of Volatile Organic Compounds in Paint Strippers, Solvent Cleaners, and Low Solids Coatings."

d. Solid-free solutions, in which all organic content is non-exempt and will certainly evaporate under Method 24 oven conditions, may be tested using the adaptation of EPA Method 415.1 as proposed by Sorrell, et. al. of EPA's Emission Measurement Center, Office of Air Quality Planning & Standards (OAQPS): "Total Organic Carbon for Offset Lithographic Solutions."

e. The VOC content of materials believed to have between 5 and 10% solids shall be determined by either EPA Method 24 or by Bay Area Method 31.

f. Total absolute vapor-pressure of solvents containing VOC shall be determined in accordance with ASTM Test Method D 2879-83, "Vapor Pressure-Temperature Relationship and Initial Decomposition Temperature of Liquids by Isoteniscope," 1983 edition.

g. Temperature measurements shall be done with an instrument having an accuracy and precision of no less than ± one (1) degree Celsius.

h. The U.S. Government Printing Office "Standard Industrial Classification Manual, 1987" (and no future editions) is incorporated by reference and is on file at Maricopa County Environmental Services Department, 1001 N. Central Avenue, Suite 201, Phoenix, Arizona 85004-1942.

502.2 Test Methods Adopted By Reference: The test methods for those subparts of 40 CFR Part 60, Appendix A, adopted as of July 1, 1998, as listed below, are adopted by reference. The other test methods listed in subsection 502.2 are referred to by their specific dates of adoption and are also 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 North Central Avenue, Suite 201, Phoenix, Arizona 85004-1942.

a. EPA Method 18 ("Measurement of Gaseous Organic Compound Emissions by Gas Chromatography") and its submethods (40 CFR 60, Appendix A).

b. EPA Test Method 24 ("Determination of Volatile Matter Content, Water Content, Density, Volume Solids, and Weight Solids of Surface Coatings") and its submethods (40 CFR 60, Appendix A).

c. EPA Method 25 ("Determination of Total Gaseous Nonmethane Organic Emissions as Carbon") and its submethods (40 CFR 60, Appendix A).

d. California's Bay Area Air Quality Management District (BAAQMD) Method 31 (April 15, 1992), "Determination of Volatile Organic Compounds in Paint Strippers, Solvent Cleaners, and Low Solids Coatings".

e. EPA Method 415.1 as proposed by Sorrell, et. al. of EPA's Emission Measurement Center, Office of Air Quality Planning & Standards (OAQPS): "Total Organic Carbon for Offset Lithographic Solutions," 1992.

f. ASTM Test Method D 2879-83, "Vapor Pressure-Temperature Relationship and Initial Decomposition Temperature of Liquids by Isoteniscope," 1983 edition.

503 CONDENSER TEMPERATURE: In cases where the condenser outlet gas temperature is not readily measurable due to negligible gas flow rate, the temperature of the condenser coolant may be used in lieu of condenser outlet gas temperature. In such cases, an exceedance of coolant temperature is an exceedance of the outlet gas temperature limits in Table 1, subsection 301.1 of this rule.

504 FORMULA FOR TOTAL VOC VAPOR PRESSURE: The sum of the partial pressures of the compounds defined as VOCs may be calculated by using the following formula:

$$Pp_c = \frac{\sum_{i=1}^{n} (W_j)(VP) / MW_i}{\frac{W_w}{18} + \sum_{j=1}^{m} \frac{W_{ej}}{MW_{ej}} + \sum_{i=1}^{n} \frac{W_i}{MW_i}}$$

W_i = Weight of the "i"th VOC compound in grams

W_w = Weight of water in grams

W_{ej} = Weight of the "j"th non-precursor compound in grams

MW_j = Molecular weight of the "i"th VOC compound in grams per gram mole, e.g., one gram-mole of isopropyl alcohol weighs 60 grams

MW_{ej} = Molecular weight of the "j"th non-precursor compound, e.g., 1 gram-mole of acetone weighs 58 grams

Pp_c = VOC composite partial pressure at 20°C in mm mercury (Hg)

VP = Vapor pressure of the "i"th VOC compound at 20°C in mm Hg

18 = Weight of one gram-mole of water

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REGULATION III - CONTROL OF AIR CONTAMINANTS

RULE 350
STORAGE OF ORGANIC LIQUIDS AT BULK PLANTS AND TERMINALS

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MARICOPA COUNTY
AIR POLLUTION CONTROL REGULATIONS

REGULATION III - CONTROL OF AIR CONTAMINANTS

RULE 350
STORAGE OF ORGANIC LIQUIDS AT BULK PLANTS AND TERMINALS

SECTION 100 - GENERAL

101 PURPOSE: To limit emissions of volatile organic compounds from organic liquids under actual storage conditions.

102 APPLICABILITY: This rule is applicable to the transfer and storage of any organic liquid in a bulk plant or bulk terminal stationary storage tank which is used primarily to fill delivery vessels.

SECTION 200 - DEFINITIONS:

For the purpose of this rule, the following definitions shall apply:

201 BULK PLANT - Any loading facility at which gasoline and/or other organic liquids with a true vapor pressure of 1.5 psia (77.5 mm Hg) or greater under any actual storage conditions are received from delivery vessels for storage in on-site stationary tanks, and from which such liquids also are transferred to delivery vessels.

202 BULK TERMINAL - Any primary distributing loading facility which has ever received in any consecutive 30-day period over 600,000 gallons (2,271,180 l) of gasoline and/or other organic liquids with a true vapor pressure of 1.5 psia (77.5 mm Hg) or greater under actual storage conditions; or any loading facility where delivery of such liquids to the facility is primarily by pipeline.

203 DELIVERY VESSEL - Any vehicular-mounted container such as a railroad tank car, tanker truck, tank trailer or any other mobile container used to transport organic liquids.

204 GAS TIGHT - Having no leak of gaseous organic compound(s) exceeding 10,000 ppm above background when measurements are made using EPA Method 21 with a methane calibration standard.

205 GASOLINE - Any petroleum distillate, petroleum distillate/alcohol blend, petroleum distillate/organic compound blend, or alcohol having a true vapor pressure of 1.5 psia (77.5 mm Hg) or greater under any actual conditions of storage and handling, and which is used as a fuel for internal combustion engines.

206 LOADING FACILITY - Any operation or facility such as a gasoline storage tank farm, pipeline terminal, bulk plant, loading dock or combination thereof, where organic liquids are transferred or loaded into or out of delivery vessels for future distrbution. Included are all related pollutant-emitting activities which are located on one or more contiguous or adjacent properties, and are under the control of the same person or persons under common control.

207 ORGANIC LIQUID - Any organic compound which exists as a liquid under any actual conditions of use, transport or storage.

208 STATIONARY STORAGE TANK - Any tank, reservoir or other container used to store, but not transport, organic liquids.

209 SUBMERGED FILL PIPE - Any discharge pipe or nozzle which meets the applicable specification as follows:

209.1 Top-Filled Or Bottom-Filled Tanks: The end of the discharge pipe or nozzle is totally submerged when the liquid level is six inches (15 cm) from the bottom of the tank.

209.2 Side-Filled: The end of the discharge pipe or nozzle is totally submerged when the liquid level is 18 inches (46 cm) from the bottom of the tank.

210 TRUE VAPOR PRESSURE (TVP) - Absolute vapor pressure of a liquid at its existing temperature of storage and handling.

211 VAPOR LOSS CONTROL DEVICE - Any piping, hoses, equipment, and devices which are used to collect, store and/or process organic vapors at a bulk terminal, bulk plant, service station or other operation handling gasoline and/or other organic liquids.

212 VAPOR TIGHT - A condition where no organic vapor leak reaches or exceeds 100 percent of the lower explosive limit at a distance of one inch (2.5 cm) from a leak when measured with a combustible gas detector or an organic vapor analyzer, both calibrated with propane.

SECTION 300 - STANDARDS

301 ALL STORAGE TANKS GREATER THAN 250 GALLONS (946 L): No person shall install or use a stationary storage tank with a capacity greater than 250 gallons (946 l) for storing organic liquids with a true vapor pressure of 1.5 psia (77.5 mm Hg) or more unless such a tank meets the following requirements:

301.1 The tank has a submerged fill pipe; and

Note[1]

301.2 The tank has a pressure/vacuum valve which is set within ten percent of the tank's maximum, safe working-pressure.

302 GASOLINE STORAGE TANKS BETWEEN 250 AND 40,000 GALLONS (946 -151,400 L): No person shall store gasoline in a stationary storage tank with a capacity less than 40,000 gallons (151,400 l) but greater than 250 gallons (946 l) unless the tank is equipped with a vapor recovery system which collects and returns displaced vapors to the delivery vessel using vapor-tight fittings and lines; or such tank uses at least one of the vapor loss control methods in Sections 306, 307, or 308 of this rule.

303 ORGANIC LIQUID STORAGE TANKS OF 20,000 THROUGH 39,999 GALLONS CAPACITY (75,700 - 151,396 L): No person shall store organic liquids with a true vapor pressure (TVP) of 1.5 through 11.0 psia (77.5 - 569 mm Hg) in a stationary tank with a capacity from 20,000 through 39,999 gallons (75,700 - 151,396 l) unless the tank is equipped with a vapor recovery system which collects and returns displaced vapors to the delivery vessel using vapor-tight fittings and lines; or such tank uses at least one of the vapor loss control methods specified in Sections 306, 307, or 308 of this rule.

304 STORAGE TANKS OF 40,000 GALLONS (151,400 L) OR MORE: No person shall place, store or hold in any stationary storage tank having a capacity of 40,000 gallons (151,400 L) or more, any gasoline or organic liquid having a true vapor pressure of 1.5 psia (77.5 mm Hg) or greater under actual storage conditions, unless such storage tank is equipped with at least one of the vapor loss control devices specified in Sections 306, 307, or 308 of this rule.

305 TANKS STORING LIQUIDS HAVING VAPOR PRESSURES EXCEEDING 11 PSIA: No person shall place, store, or hold in a stationary tank having a capacity over 250 gallons (946 l) organic liquid(s) with a true vapor pressure above 11.0 psia (569 mm Hg) unless such a tank is either a pressure tank maintaining working pressure sufficient at all times to prevent organic vapor/gas loss to the atmosphere or is equipped with a vapor collection/processing system specified in Section 308 of this rule.

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[1] This note is not part of Rule 350, but is provided for the reader's convenience. The requirement of subsection 301.2 for a pressure/vacuum valve is not applicable to floating roof tanks.

306 EXTERNAL FLOATING ROOF STORAGE TANKS: This vapor loss control device is an uncovered floating roof consisting of either a pontoon type or a double-deck type roof. It must rest on and be supported by the surface of the liquid contents, be equipped with a continuous primary seal to close the space between the roof eave and tank wall, except as provided in subsection 309.1 and have a continuous secondary seal which is of a design that is in accordance with accepted standards of the petroleum industry. The secondary seal shall meet the following requirements:

306.1 The secondary seal is to be installed above the primary seal so that it completely covers the space between the roof edge or primary seal and the tank wall, except as provided in subsection 306.2 of this rule. Storage tanks constructed after July 13, 1988, shall have a secondary seal that is rim-mounted. Except for tanks having metallic shoe primary seals onto which secondary seals were installed prior to July 13, 1988, by October 6, 1993 no person shall operate an external floating roof tank subject to the provisions of this rule unless a secondary seal extends from the roof to the tank shell (a rim-mounted seal) and is not attached to the primary seal.

306.2 The accumulated area of gaps between the tank wall and the secondary seal shall not exceed 1.0 square inch per foot (21.2 cm^2 per meter) of tank diameter. Determinations of gap area shall only be made at the point(s) where the gaps exceed 1/8 inch (3 mm). The width of any portion of any gap shall not exceed 1/2 inch (1.27 cm).

306.3 The owner or operator is exempted from the requirements for secondary seals and the secondary seal gap criteria when performing gap measurements or inspections of the primary seal.

307 INTERNAL FLOATING ROOF TANKS WITH FIXED COVERING: This vapor loss control device is a covered tank with an internal floating roof resting on the contained liquid. This tank and its appurtenances shall meet the applicable requirements as follows:

307.1 Bulk terminal tanks for which construction, reconstruction or modification commenced after July 23, 1984, must comply with all applicable requirements of the EPA New Source Performance Standard (NSPS), 40 CFR Part 60, Subpart Kb.

307.2 All tanks not subject to subsection 307.1 must comply with one of the following:

a. Comply with 40 CFR Part 60, Subpart Kb, notwithstanding the type of facility and the date of tank construction, reconstruction or modification; or

b. Have at least one continuous seal which completely covers the space between the roof edge and tank wall, except as provided in subsection 309.1, and meet at least one of the following requirements:

(1) Have a contact-type roof resting completely on the liquid surface.

(2) Have a liquid mounted seal.

(3) Have two seals, a primary and a secondary.

308 VAPOR COLLECTION/PROCESSING SYSTEM: This vapor loss control device consists of a vapor gathering subsystem capable of collecting the organic vapors and organic gases plus a second subsystem capable of processing such vapors and gases, preventing at least 95 percent by weight of the volatile organic compounds entering it from escaping to the atmosphere.

308.1 The vapor processing subsystem shall be gas-tight except for the designated exhaust.

308.2 Any tank gauging or sampling device on a tank, vented to such a vapor collection/processing system, shall be equipped with a gas-tight cover which shall be closed at all times except during gauging or sampling procedures.

308.3 All pressure-vacuum valves shall be constructed and maintained in a gas tight condition except when the operating pressure exceeds the valve release setting.

309 ADDITIONAL REQUIREMENTS:

309.1 Prohibition - Floating Roof Openings: Floating roof tanks subject to the provisions of Section 306 or 307 of this rule shall have no visible holes, tears or other openings in the seal or in any seal fabric. The accumulated area of gaps between a tank's wall and primary seal shall not exceed 10 square inches per foot of tank diameter (212 cm^2 per meter) and the width of any portion of any gap shall not exceed 1½ inches (3.8 cm). Where applicable, all openings except drains shall be equipped with a cover seal or lid. The cover seal or lid shall be in a closed position at all times, except when the device is in actual use. Automatic bleeder vents shall be closed at all times, except when the roof is floated off or landed on the roof leg supports. Rim vents, if provided, shall be set to open only when the roof is

being floated off the roof leg supports or at the manufacturer's recommended setting.

309.2 Tanks and all required emission control equipment shall be properly installed, properly maintained and be properly operating.

310 EXEMPTIONS:

310.1 A pressure tank maintaining working pressure sufficient at all times to prevent organic vapor or gas loss to the atmosphere is exempt from Sections 301, 302, 303, and 304 of this rule.

310.2 During the following periods a floating roof is exempt from the requirement that its roof be floating: when the tank is being drained completely and when it is being filled, as long as both processes are accomplished continuously and as rapidly as practicable.

310.3 A horizontal filling nozzle at its highest point within a floating roof tank exceeding 2,000,000 gallons (7,580,000 l) capacity may be up to 39.4 inches (1 meter) above the tank bottom if: except when the tank is emptied completely, the nozzle is kept completely submerged, including when the roof rests on its legs.

SECTION 400 - ADMINISTRATIVE REQUIREMENTS

401 ANNUAL INSPECTIONS OF EXTERNAL FLOATING ROOF TANKS: The owner or operator of any tank which uses an external floating roof to meet the vapor loss control requirements of this rule shall make the primary seal envelope and the secondary seal available for unobstructed inspection by the Control Officer on an annual basis. The primary seal envelope shall be made available for inspection at a minimum of four locations selected along its circumference at random by the Control Officer. If the Control Officer detects a violation as a result of any such inspection, the Control Officer may require such further unobstructed inspection of the seals as may be necessary to determine the seal condition for its entire circumference.

402 ANNUAL INSPECTIONS OF INTERNAL FLOATING ROOF TANKS: The owner or operator of any tank which uses an internal floating roof to meet the vapor loss control requirements of this rule shall make the entire tank including the internal floating roof available for inspection prior to filling. It shall be made available for visual inspection through the manholes or roof hatches on the fixed covering on an annual basis. Roofs which practicably can be walked on shall annually be made available for hands-on inspection.

403 FIVE-YEAR, FULL CIRCUMFERENCE INSPECTIONS: As of July 13, 1988, the owner or operator of a floating roof tank of 20,000 gallons (75,700 l) or more storing an organic liquid with a TVP of 1.5 psia (77.5 mm Hg) or greater shall make the primary seal envelope available for inspection by the Control Officer for its full length every five years. However, if prior thereto the secondary seal is removed or if the tank is drained and cleaned by the owner or operator for any reason, it shall be made available for such inspection at that time. The owner or operator shall provide notification to the Control Officer no less than seven working days prior to removal of the secondary seal. The owner or operator shall perform a complete inspection of the primary seal and floating roof, including measurement of gap area and maximum gap, whenever the tank is emptied for non-operational reasons or at least every five years, whichever is more frequent.

404 SEMI-ANNUAL INSPECTIONS BY OWNER OR OPERATOR: The owner or operator of any floating roof tank subject to this rule shall inspect the tank and seals at least once every six months to determine ongoing compliance with both the applicable standards of this rule and any permit conditions pertaining to the tank. Determinations of secondary seal gap area on external floating roofs need be made only once per year. Records of these inspections shall be maintained and shall be made available to the Control Officer upon request.

405 COMPLIANCE SCHEDULE: By October 6, 1992, any person subject to Section 300 who does not comply with all its provisions shall submit to the Control Officer for approval an emission control plan describing the method(s) to be used to achieve full compliance by October 6, 1993. This plan shall specify dates for completing increments of progress, such as the contractual arrival date of new control equipment. The Control Officer may require a person submitting such an emission control plan to submit subsequent reports on progress in achieving compliance.

SECTION 500 - MONITORING AND RECORDS

501 VAPOR PRESSURE RECORDS: A person whose tanks are subject to the provisions of this rule shall keep accurate records of liquids stored in such tanks including either the true or the Reid vapor pressure ranges of each such liquid. The temperature of the contents of each affected tank located at bulk terminals shall be recorded at least weekly and the true vapor pressure of each shall be recorded at least once each month. These records shall be kept a minimum of three years.

502 COMPLIANCE DETERMINATION - TEST METHODS: 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.

502.1 Determination Of Vapor-Tight Condition: Applicable procedures of Rule 351, Section 501.

502.2 Emission Rates And Control Device Efficiency: EPA Reference Methods 2A, 2B, 18 and 25A.

502.3 Gaseous Leak Detection And Determination Of Gas-Tight Condition: EPA Method 21.

502.4 Reid Vapor Pressure: Reid vapor pressure shall be determined by ASTM Method D323-82 or by ASTM Method D-5191.

502.5 True Vapor Pressure: True vapor pressure shall be determined by ASTM Method 2879-83 and by temperature measurement under actual conditions using an instrument accurate to within ± 1 degree Fahrenheit or ± 0.5 degree Celsius. For purposes of recording and reporting, the Reid vapor pressure and the foregoing temperature determination may be used in conjunction with the method of American Petroleum Institute Bulletin 2517, February, 1980, to determine true vapor pressure, unless the Control Officer specifies ASTM Method 2879-83.

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MARICOPA COUNTY
AIR POLLUTION CONTROL REGULATIONS

REGULATION III - CONTROL OF AIR CONTAMINANTS

RULE 351
LOADING OF ORGANIC LIQUIDS

SECTION 100 - GENERAL

101 PURPOSE: To limit emissions of volatile organic compounds from the loading of organic liquids.

102 APPLICABILITY: This rule is applicable to the transfer of organic liquids having a true vapor pressure of 1.5 psia (77.5 mm Hg) or greater under actual loading conditions. It regulates transfers at bulk terminals and bulk plants from stationary storage tanks to delivery vessels and from delivery vessels to stationary storage tanks.

SECTION 200 - DEFINITIONS:
For the purpose of this rule, the following definitions shall apply:

201 BULK PLANT - Any loading facility at which gasoline and/or other organic liquids with a true vapor pressure of 1.5 psia (77.5 mm Hg) or greater under any actual storage conditions are received from delivery vessels for storage in on-site stationary tanks, and from which such liquids also are transferred to delivery vessels.

202 BULK TANK - Any stationary storage tank serving a loading rack which loads delivery vessels with organic liquids.

203 BULK TERMINAL - Any primary distributing loading facility which has ever received in any consecutive 30-day period over 600,000 gallons (2,271,180 l) of gasoline and/or other organic liquids with a true vapor pressure of 1.5 psia (77.5 mm Hg) or greater under actual storage conditions; or any loading facility where delivery of such liquids to the facility is primarily by pipeline.

204 DELIVERY VESSEL - Any vehicular-mounted container such as a railroad tank car, tanker truck, tank trailer or any other mobile container used to transport organic liquids.

205 DISPENSING TANK - Any stationary tank which dispenses organic liquid fuel directly into the fuel tanks of motor vehicles including aircraft.

206 EXCESS ORGANIC LIQUID DRAINAGE - More than 10 milliliters (0.34 fluid ounces) per disconnect.

207 FUGITIVE LIQUID LEAK - An organic liquid leak of more than three drops per minute from any single leak source other than the disconnect operation of liquid fill line and vapor line.

208 GAS TIGHT - Having no leak of gaseous organic compound(s) exceeding 10,000 ppm above background when measurements are made using EPA Method 21 with a methane calibration standard.

209 GASOLINE - Any petroleum distillate, petroleum distillate/alcohol blend, petroleum distillate/organic compound blend, or alcohol having a true vapor pressure of 1.5 psia (77.5 mm Hg) or greater under any actual conditions of storage and handling, and which is used as a fuel for internal combustion engines.

210 GASOLINE DISPENSING OPERATION - All gasoline dispensing tanks and associated equipment located on one or more contiguous or adjacent properties under the control of the same person or persons under common control.

211 LOADING FACILITY - Any operation or facility such as a gasoline storage tank farm, pipeline terminal, bulk plant, or loading dock or combination thereof, where organic liquids are transferred or loaded into or out of delivery vessels for future distribution. Included are all related pollutant-emitting activities which are located on one or more contiguous or adjacent properties, and are under the control of the same person or persons under common control.

212 OFFSET FILL LINE - Any organic-liquid fill line (piping and fittings) which contains one or more bends.

213 ORGANIC LIQUID - Any organic compound which exists as a liquid under any actual conditions of use, transport or storage.

214 STATIONARY STORAGE TANK - Any tank, reservoir or other container used to store, but not transport, organic liquids.

215 SUBMERGED FILL PIPE - Any discharge pipe or nozzle which meets the applicable specification as follows:

215.1 **Top-Filled Or Bottom-Filled Tanks:** The end of the discharge pipe or nozzle is totally submerged when the liquid level is six inches (15 cm) from the bottom of the tank.

215.2 **Side-Filled:** The end of the discharge pipe or nozzle is totally submerged when the liquid level is 18 inches (46 cm) from the bottom of the tank.

216 **SWITCH LOADING -** Loading diesel fuel into a delivery vessel whose previous load was gasoline; or loading any organic liquid not subject to this rule into a delivery vessel whose previous load was an organic liquid subject to this rule.

217 **TRUE VAPOR PRESSURE (TVP) -** Absolute vapor pressure of a liquid at its existing temperature of storage and/or handling.

218 **VAPOR COLLECTION/PROCESSING SYSTEM -** A vapor loss control device consisting of a vapor gathering subsystem capable of collecting the organic vapors and organic gases plus a second subsystem capable of processing such vapors and gases, preventing at least 95 percent of the volatile organic compounds entering it from entering the atmosphere.

219 **VAPOR LOSS CONTROL DEVICE -** Any piping, hoses, equipment, and devices which are used to collect, store and/or process organic vapors at a bulk terminal, bulk plant, service station or other operation handling gasoline and/or other organic liquids.

220 **VAPOR TIGHT -** A condition where no organic vapor leak reaches or exceeds 100 percent of the lower explosive limit at a distance of one inch (2.5 cm) from a leak when measured with a combustible gas detector or an organic vapor analyzer, both calibrated with propane.

SECTION 300 - STANDARDS

301 **GENERAL REQUIREMENTS FOR LOADING FACILITIES:** All bulk terminals and plants must have submerged fill pipes in all tanks over 250 gallons (946 l) storing organic liquids, observe designated procedures and be equipped with applicable equipment as follows:

301.1 **Bulk Terminals:** No person shall load organic liquids having a TVP of 1.5 psia (77.5 mm Hg) or greater into any delivery vessel from a stationary storage tank at a bulk terminal unless the vessel bears a current pressure-test decal issued by the Control Officer and the terminal uses a vapor collection/processing system which reduces the emissions of volatile organic compounds to not more than .08 pounds per 1000 gallons of such liquids transferred (10 grams per 1000 liters). Switch loading shall be subject to this standard. The terminal owner or operator

and the operator of the receiving vessel shall act to ensure that the vapor line is connected before such liquids are transferred.

301.2 Bulk Plant Tanks Over 250 Gallons (>946 L):

a. Transfer To Bulk Plant Tanks: No person shall transfer gasoline from a delivery vessel into a bulk plant tank exceeding 250 gallons (946 l) capacity unless the delivery vessel bears a current county pressure-test decal and uses a vapor balance system equipped with fittings which are vapor tight; or, alternatively, a vapor loss control system is used which emits to atmosphere less than 0.6 pound of volatile organic compounds per 1000 gallons transferred (72 grams per 1000 liters).

b. Loading From Bulk Plant Tanks: No person shall transfer gasoline from a bulk plant tank exceeding 250 gallons (946 l) into a delivery vessel unless both the loading rack and delivery vessel use a vapor balance system equipped with fittings which are vapor tight; or, alternatively, a vapor loss control system is used which emits to atmosphere less than 0.6 pounds of volatile organic compounds per 1000 gallons loaded (72 grams per 1000 liters).

302 OPERATING REQUIREMENTS FOR VAPOR LOSS CONTROL DEVICES: The owner or operator of a vapor loss control device subject to this rule shall operate the device and organic liquid transfer equipment as follows:

302.1 Loading shall be accomplished in a manner that prevents gauge pressure from exceeding 18 inches of water (33.6 mm Hg) and vacuum from exceeding six inches of water (11.2 mm Hg) in the tank truck. Each owner or operator of a facility shall act to ensure that any vapor recovery system required by this Rule 351 is connected between the delivery vessel and the storage tank during all organic liquid transfers.

302.2 Loading shall be accomplished in a manner that prevents overfills, fugitive liquid leaks or excess organic liquid drainage. Owners or operators of bulk plants or operators of delivery vessels shall observe all parts of the transfer and shall discontinue transfer if any leaks are observed. Measures shall be taken to prevent liquid leaks from the loading device when it is not in use, and to complete drainage before the loading device is disconnected. During loading or unloading operations, potential leak sources shall be vapor tight as demonstrated by the test procedure described in Section 501 of this rule.

302.3 Loading operations which use vapor collection/processing equipment shall be accomplished in such a manner that the displaced vapor and air will be vented

only to the vapor collection/processing system, which shall be operated gas-tight and in a manner such that the vapor processing capacity is not exceeded. Diaphragms used in vapor storage tanks shall be maintained gas-tight.

302.4 Vapor transfer lines shall be equipped with fittings that are vapor tight and that automatically and immediately close upon disconnection. Vapor balance systems shall be designed to prevent any vapors collected at one loading rack from passing to another loading rack.

303 REPAIR AND RETESTING REQUIREMENT: Except as superseded by Division actions pursuant to the procedures of Rule 100, Section 501 ("Malfunctions"), the owner/operator of a vapor loss control device that exceeds the standards of this rule shall notify the Control Officer and observe the following time schedule in ending such exceedances:

303.1 Concentrations at or above the lower explosive limit must be brought into compliance within 24 hours of detection.

303.2 Leak concentrations exceeding 10,000 ppm but less than 50,000 ppm as methane for vapor collection/processing equipment subject to gas-tight standard shall be brought into compliance within 5 days of detection.

303.3 Except as the Control Officer otherwise specifies, a leak source subject to Sections 303.1 or 303.2 must be tested after presumed leak-correction within 15 minutes of recommencing use; if leak standards are exceeded in this test, the use of the faulty equipment shall be discontinued within 15 minutes until correction is verified by retesting.

304 EQUIPMENT MAINTENANCE AND OPERATING PRACTICES: All equipment associated with delivery and loading operations shall be maintained to be leak free, vapor tight and in good working order. Gasoline shall not be spilled, discarded in sewers, stored in open containers, or handled in any other manner that would result in evaporation to the atmosphere. Purging of gasoline vapors and of JP-4 (jet petrol) vapors is prohibited.

305 EXEMPTIONS:

305.1 Less Than 120,000 Gallons Per 30-Day Period: At bulk plants built before October 2, 1978, vapor loss control specified in Section 301.2b is not required at the outloading rack when all of the following are complied with:

a. After April 6, 1992, the bulk plant loads less than 120,000 gallons (454,800 l) of gasoline into delivery vessels in any consecutive 30-day period. Any plant that becomes subject to all of the provisions of Section 301.2b by exceeding this threshold will remain subject to these provisions even if its output later falls below the threshold.

b. Keep current records of amount of gasoline loaded and keep them readily accessible to the Division upon request for at least three (3) years.

c. Load outgoing gasoline using submerged fill only.

d. The owners or operators of the bulk plant or the owners or operators of the delivery vessel shall observe all parts of the transfer and shall discontinue the transfer if any leaks are observed.

305.2 Opening Hatches: When VOC vapors from organic liquids are present within a non-exempt delivery vessel, authorized government agents as well as owners/operators and their contractors may open vapor containment equipment while performing operations required by Division rules or by other statutory entities, but shall be restricted as follows unless approved in advance by the Control Officer:

a. Wait at least 3 minutes after onloading is complete or delivery vessel has stopped before opening hatch or other vapor seal.

b. Reclose hatch or other sealing device within 3 minutes of opening.

c. Limit windspeed at opened hatch or other opened sealing device to not more than 3 mph (1.34 m/sec).

SECTION 400 - ADMINISTRATIVE REQUIREMENTS

401 EQUIPMENT LEAKS:

401.1 The owner or operator shall also perform monthly inspections, while vapor is being transferred, for liquid and vapor leaks and for faulty equipment. In these

monthly inspections detection methods incorporating sight, sound, smell and/or touch may be used.

401.2 A log book shall be used and shall be signed by the owner or operator at the completion of each monthly inspection for equipment leaks. A section of the log shall contain a list, summary description, or diagram(s) showing the location of all equipment in gasoline service at the facility.

401.3 Leak detection tests shall be conducted annually by the owner of each bulk loading facility or by a consultant, at the expense of the owner. Testing shall be done according to procedures in Section 501, except that EPA Method 21 shall be used to test for leaks from a vapor collection/ processing unit and its associated piping outside the loading area. Equipment shall conform to the specifications of those test methods cited in Section 504.2. Prior to testing, the owner shall notify the Control Officer of the date, time and location of the testing. The Control Officer or his representatives shall at their discretion observe the tests.

402 COMPLIANCE SCHEDULE: By September 30, 1995, the owner or operator of any loading facility which requires modification subject to a requirement of Section 300 of this rule shall submit to the Control Officer for approval an emission control plan and a schedule for achieving compliance with all requirements by April 30, 1996. The plan shall specify the date of completion of each major step leading to compliance.

SECTION 500 - MONITORING AND RECORDS

501 LEAK DETECTION - TEST PROCEDURE: During loading into or unloading out of delivery vessels, the peripheries of all potential sources of leakage at the loading facility are checked with a combustible gas detector or organic vapor analyzer (OVA) as follows:

501.1 Pressure: A pressure tap shall be placed in the loading facility's vapor control system, as close as possible to the delivery vessel's tank. The pressure shall be recorded periodically during testing, at least once every minute. Instantaneous maximum pressure shall be recorded either automatically or by visual observation. A pressure measurement device capable of measuring 20 inches (50.8 cm) of water pressure with a precision of 0.1 (2.5 mm) inch of water shall be calibrated. This device shall fit the tap and shall either be permanently installed or shall be kept available at all times at the facility.

501.2 Calibration: Within 4 hours prior to monitoring the combustible gas detector or OVA shall be calibrated with 10,600 ppm propane by volume in air for a 50 percent lower explosive limit (LEL) response.

501.3 Probe Distance: The probe inlet shall be one inch (2.5 cm) or less from the potential leak source when searching for leaks. The probe inlet shall be one inch (2.5 cm) from the leak source when the highest detector reading is being determined for a discovered leak. When the probe is obstructed from moving within one inch (2.5 cm) of an actual or potential leak source, the closest practicable probe distance shall be used.

501.4 Probe Movement: The probe shall be moved slowly, not faster than 1.6 inches per second (4 centimeters per second). If there is any meter deflection at a potential or actual leak source, the probe shall be positioned to locate the point of highest meter response.

501.5 Probe Position: The probe inlet shall be positioned in the path of the vapor flow from a leak such that the central axis of the probe-tube inlet shall be positioned coaxial with the path of the most concentrated vapors.

501.6 Wind: Wind shall be blocked as much as possible from the space being monitored. The annual leak detection test required by Section 401 shall be valid only when wind speed in the space being monitored is 5 mph or less.

501.7 Data Recording: The highest detector reading and location for each incidence of leakage shall be recorded along with the date and time.

502 COMPLIANCE INSPECTIONS: The Control Officer, at any time, may monitor a delivery vessel vapor collection system, a loading rack's vapor loss control devices, a loading facility or a vapor collection/processing system for vapor leaks by the methods described in Section 501 of this rule or by applicable EPA Reference Methods specified in Section 504.

503 RECORDS RETENTION: Records and information required by this rule shall be retained for at least three years.

504 COMPLIANCE DETERMINATION - TEST METHODS: 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 Vapor Collection/Processing System: Control efficiency of a vapor collection/processing system shall be determined according to EPA Reference Method 25A or Method 25B subsequent to the Control Officer's approval of the test protocol. Leak tests to verify a gas-tight state of the equipment associated with the vapor collection/processing device, including the piping outside of the loading area, shall be conducted according to EPA Reference

Method 21. Gas volume flow rates shall be determined by Method 2B for a thermal oxidizer; otherwise, by Method 2A.

504.2 **Vapor Balance And Loading Systems:** Vapor tightness shall be determined using the method described in Section 501 of this rule.

504.3 True Vapor Pressure shall be determined by ASTM Method 2879-83 and by temperature measurement under actual conditions using an instrument accurate to within ±1 degree Fahrenheit or ±0.5 degree Celsius. For purposes of recording and reporting, the Reid vapor pressure and the foregoing temperature determination may be used in conjunction with the method of American Petroleum Institute Bulletin 2517, February, 1980, to determine true vapor pressure, unless the Control Officer specifies ASTM Method 2879-83.

504.4 Reid Vapor Pressure shall be determined by ASTM Method D 323-82 or by ASTM Method D 5191.

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MARICOPA COUNTY
AIR POLLUTION CONTROL REGULATIONS

REGULATION III - CONTROL OF AIR CONTAMINANTS

RULE 352
GASOLINE DELIVERY VESSELS

SECTION 100 - GENERAL

101 **PURPOSE:** To limit emissions of volatile organic compounds from gasoline delivery vessels.

102 **APPLICABILITY:** This rule applies to the owner or operator of any gasoline delivery vessel which is used to receive or deliver gasoline within Maricopa County.

SECTION 200 - DEFINITIONS:
For the purpose of this rule the following definitions shall apply:

201 **DELIVERY VESSEL** - Any vehicular mounted container such as a railroad tank car, tanker truck, tank trailer or any other mobile container used to transport organic liquids.

202 **GASOLINE** - Any petroleum distillate, or petroleum distillate/alcohol blend, petroleum distillate/organic compound blend, or alcohol having a true vapor pressure of 1.5 psia (77.5 mm Hg) or greater under any actual conditions of storage and handling, and which is used as a fuel for internal combustion engines.

203 **GASOLINE VAPORS** - Organic compounds in gas-phase gasoline including displaced vapors and any entrained liquid gasoline.

204 **LEAK FREE** - Having no organic liquid leak of more than three drops per minute from any single leak source other than the disconnect operation of liquid fill line and vapor line.

205 **TRUE VAPOR PRESSURE (TVP)** - Absolute vapor pressure of a liquid at its existing temperature of storage and/or handling.

206 VAPOR TIGHT - A condition where no organic vapor leak reaches or exceeds 100 percent of the lower explosive limit at a distance of one inch (2.5 cm) from a leak when measured with a combustible gas detector or an organic vapor analyzer, both calibrated with propane.

207 VOLATILE ORGANIC COMPOUND (VOC) - Any organic compound, excluding the following organic compounds which have been designated by the EPA as having negligible photochemical reactivity: methane; ethane; methylene chloride (dichloromethane); 1,1,1-trichloroethane; trichlorofluoromethane (CFC-11); dichlorodifluoromethane (CFC-12); chlorodifluoromethane (CFC-22); 1,1,2-trichlorotrifluoroethane (CFC-113); 1,2-dichlorotetrafluoroethane (CFC-114); chloropentafluoroethane (CFC-115); trifluoromethane (FC-23); 2,2-dichloro-1,1,1-trifluoroethane (HCFC-123); 2-chloro-1,1,1,2-tetrafluoroethane (HCFC-124); 1,1-dichloro-1-fluoroethane (HCFC-141b); 1-chloro-1,1-difluoroethane (HCFC-142b); pentafluoroethane (HFC-125); 1,1,2,2-tetrafluoroethane (HFC-134); 1,1,1,2-tetrafluoroethane (HFC-134a); 1,1,1-trifluoroethane (HFC-143a); 1,1-difluoroethane (HFC-152a); all completely fluorinated, completely saturated: alkanes, ethers and tertiary amines.

SECTION 300 - STANDARDS

301 VAPOR RECOVERY REQUIRED: No person shall store or transport gasoline in or otherwise use or operate any delivery vessel unless such vessel is designed and maintained to be vapor tight and leak free.

302 GASOLINE DELIVERY VESSEL LEAK TEST REQUIRED: No owner or operator shall allow a gasoline delivery vessel subject to this rule to be loaded with or contain gasoline unless the gasoline delivery vessel:

302.1 Is tested annually to verify compliance with Section 302.2 of this rule.

302.2 Is tested according to procedures in Sections 503.1 and 503.2 of this rule, and sustains pressure changes of no more than:

a. One inch (25.4 mm) of water in five minutes, when pressurized to a gauge pressure of 18 inches (45.7 cm) of water in two consecutive runs; and

b. One inch (25.4 mm) of water in five minutes, when evacuated to a gauge pressure of six inches (15.2 cm) of water in two consecutive runs; and

c. Five inches (127 mm) of water in five minutes measured in the vapor system after the vessel-compartments are first collectively pressurized

to a gauge pressure of 18 inches (45.7 cm) of water and then the vapor valves are closed.

302.3 Is repaired and retested within 15 days of testing if it does not meet all standards of Section 302.2 of this rule.

302.4 Displays a valid decal, issued pursuant to Section 401.2, near the Department of Transportation Certification Plate required by 49 CFR 178.340-10b.

303 PURGING PROHIBITED: No person shall purge gasoline vapors into the atmosphere from a delivery vessel except to prepare for a pressure test, and then only if the following conditions are met:

303.1 Purging is done in accordance with EPA Method 27.

303.2 Purging is done only after all delivery valves are opened and any VOC-liquid flow is captured in a container which is kept closed when not in use.

304 EXEMPTIONS: Delivery vessels placed in operation before July 13, 1988, which service only stationary storage tanks specifically exempted under Section 303 of Rule 353 need not be retrofitted to comply with the provisions of this rule if loaded only at a bulk plant or loading facility exempted from vapor recovery by Section 305.1 of Rule 351.

SECTION 400 - ADMINISTRATIVE REQUIREMENTS

401 TESTING: Tests required by Section 302.2a, b, and c, shall be conducted by the owner or operator of the delivery vessel, or by a consultant, at the expense of the owner or operator.

401.1 Notification: Prior to testing, the owner, operator or tester shall notify the Control Officer of the date, time and location of the testing and the Control Officer may at any time observe the tests.

401.2 Registration: Upon receipt of satisfactory test results required in Section 302.2 of this rule, a decal will be issued by the Maricopa County Division Of Air Pollution Control. A vessel which passes its test from January 1 through August 31 shall be issued a decal by the Division which expires on December 31 of the same year as the test. A vessel which passes its test between September 1 and December 31 of any year shall be issued a decal which expires December 31 of the year after the year of the test. Decals expire at 11:59 PM.

SECTION 500 - MONITORING AND RECORDS

501 RECORDKEEPING AND REPORTING REQUIREMENTS

501.1 The owner or operator of a gasoline delivery vessel subject to this rule shall maintain records of all certification, testing, and repairs. Such records must be maintained in a legible, readily available condition for at least three years after the date the testing and repair is completed. These records must be made available to the Control Officer immediately upon written or verbal request.

501.2 The records of the certification testing required by Section 302 must as a minimum contain:

a. The test title, "Pressure Test Of Gasoline Delivery Vessel Using U.S. EPA Reference Method 27", the owner's name and address.

b. At the top of each sheet, the name(s) of the vessel's operator, tank I.D. number and the date of the test.

c. For the pressure subtest, four pairs of readings: the start time with starting pressure and the finish time with finishing pressure for each of the two consecutive successful runs required by 302.2a. List any repairs which contributed to passing this subtest.

d. For the vacuum test, four pairs of readings: the start time with starting pressure and the finish time with the finishing pressure for each of the two consecutive successful runs required by 302.2b; any repairs, not already listed, which contributed to passing this subtest.

e. For the vapor-valve subtest, at least two pairs of readings: the start time with starting pressure and the finish time with the finishing pressure for the very first test before any repair of the vapor valve system. For a vessel on which repairs of the vapor valve system are subsequently made, an additional two pairs of readings must be recorded: the start time with starting pressure and the finish time with the finishing pressure for a successful run after repairs are made. List any repairs, not already listed, which contributed to passing this subtest.

f. Location of the test.

g. On each sheet both the name, signature, affiliation, and title of the person conducting the test and of any official witness(es).

502 MONITORING FOR LEAKS: The Control Officer may at any time monitor a delivery vessel, including the vapor collection system, for vapor and liquid leaks to ascertain if it is vapor tight and leak free.

503 COMPLIANCE DETERMINATION - TEST METHODS: When more than one test method is permitted for a determination, an exceedance of the limits established in the rule determined by any of the applicable test methods constitutes a violation of this rule.

503.1 Pressure And Vacuum Tests: The tests to determine compliance with Subsections 302.2a and b of this rule shall be performed according to EPA Method 27.

503.2 Test Of Internal Vapor Valves: The test to determine compliance with Subsection 302.2C shall be performed immediately after successfully passing Method 27 and before performing any maintenance or repair on the vapor valves.

a. Pressurize the delivery vessel to 18 inches (45.7 cm) of water column, using the first two procedures of the "Pressure Test" Section of Method 27.

b. Close the vessel's internal valves, including the internal vapor valves, thereby isolating the vapor system (vapor return line plus vapor manifold) from the compartments.

c. Relieve the pressure in the vapor return line (to atmospheric pressure).

d. Seal the vapor return line and after five minutes record the pressure present in the vapor system.

e. A full five minutes shall elapse before the finish pressure reading is made, except if the pressure reaches zero prior to then. Start and finish values shall be immediately recorded. If any maintenance or repairs are then performed, a final (successful) test of the vapor valves shall be conducted at the conclusion of all such maintenance and/or repairs, and start and finish values immediately recorded.

503.3 A vapor tight condition will be determined for vessels not onloading or transferring gasoline by the method in Section 501 of Rule 351 of these regulations or by the following method:

a. **Calibration:** Within four hours prior to monitoring, the combustible gas detector or organic vapor analyzer shall be calibrated with 10,600

ppm propane by volume in air for a 50 percent lower explosive limit (LEL) response.

b. **Probe Distance:** The probe inlet shall be one inch (2.5 cm) or less from the potential leak source when searching for leaks. The probe inlet shall be one inch (2.5 cm) from the leak source when the highest detector reading is being determined for a discovered leak. When the probe is obstructed from moving within one inch (2.5 cm) of an actual or potential leak source, the closest practicable probe distance shall be used.

c. **Probe Movement:** The probe shall be moved slowly, not faster than 1.6 inches per second (4 centimeters per second). If there is any meter deflection at a potential or actual leak source, the probe shall be positioned to locate the point of highest meter response.

d. **Probe Position:** The probe inlet shall be positioned in the path of the vapor flow from a leak such that the central axis of the probe-tube inlet shall be positioned coaxial with the path of the most concentrated vapors.

e. **Data Recording:** The highest detector reading and location for each incidence of leakage shall be recorded along with the date and time.

503.4 Vapor tightness shall be determined for delivery vessels that are onloading or transferring gasoline by the method in Section 501 in Rule 351 of these regulations.

503.5 True vapor pressure shall be determined by ASTM Method 2879-83 and by temperature measurement under actual conditions using an instrument accurate to within ± 1 degree Fahrenheit or ± 0.5 degree Celsius. For purposes of recording and reporting, the Reid vapor pressure and the foregoing temperature determination may be used in conjunction with the method of American Petroleum Institute Bulletin 2517, February, 1980, to determine true vapor pressure, unless the Control Officer specifies ASTM Method 2879-83.

6/29/92

REGULATION III - CONTROL OF AIR CONTAMINANTS

RULE 353
TRANSFER OF GASOLINE INTO STATIONARY STORAGE DISPENSING TANKS

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MARICOPA COUNTY
AIR POLLUTION CONTROL REGULATIONS

REGULATION III - CONTROL OF AIR CONTAMINANTS

RULE 353
TRANSFER OF GASOLINE INTO STATIONARY STORAGE DISPENSING TANKS

SECTION 100 - GENERAL

101 PURPOSE: To limit emissions of volatile organic compounds from the transfer of gasoline into stationary dispensing tanks.

102 APPLICABILITY: This rule is applicable to the transfer of gasoline from any gasoline delivery vessel into any stationary dispensing tank with a capacity of more than 250 gallons (946 l).

SECTION 200 - DEFINITIONS:
For the purpose of this rule, the following definitions shall apply:

201 APPROVED STAGE I VAPOR RECOVERY SYSTEM - Any vapor handling system which is approved in writing by the control officer at the time of installation and is capable of recovering and/or processing at least 90% of the VOC in gasoline vapors displaced from a dispensing tank during filling.

202 DELIVERY VESSEL - Any vehicular-mounted container such as a railroad tank car, tanker truck, tank trailer or any other mobile container used to transport organic liquids.

203 DISPENSING TANK - Any stationary tank which dispenses organic liquid fuel directly into the fuel tanks of motor vehicles including aircraft.

204 EXCESS ORGANIC LIQUID DRAINAGE - More than 10 milliliters (0.34 fluid ounces) per disconnect.

205 GASOLINE - Any petroleum distillate, petroleum distillate/alcohol blend, petroleum distillate/organic compound blend, or alcohol having a true vapor

pressure of 1.5 psia (77.5 mm/Hg) or greater under any actual conditions of storage and handling, and which is used as a fuel for internal combustion engines.

206 **GASOLINE DISPENSING OPERATION** - All gasoline dispensing tanks and associated equipment located on one or more contiguous or adjacent properties under the control of the same person (or persons under common control).

207 **GASOLINE VAPORS** - Organic compounds in gas-phase gasoline including displaced vapors and any entrained liquid gasoline.

208 **LEAK FREE** - Having no organic liquid leak of more than three drops per minute from any single leak source other than the disconnect operation of liquid fill line and vapor line.

209 **OFFSET FILL LINE** - Any organic-liquid fill line (piping and fittings) which contains one or more bends.

210 **SUBMERGED FILL PIPE** - Any discharge pipe or nozzle which meets the applicable specification as follows:

210.1 **TOP-FILLED OR BOTTOM-FILLED TANKS:** The end of the discharge pipe or nozzle is totally submerged when the liquid level is six inches (15 cm) from the bottom of the tank.

210.2 **SIDE-FILLED TANKS:** The end of the discharge pipe or nozzle is totally submerged when the liquid level is 18 inches (46 cm) from the bottom of the tank.

211 **TRUE VAPOR PRESSURE (TVP)** - Absolute vapor pressure of a liquid at its existing temperature of storage and/or handling.

212 **VAPOR LOSS CONTROL DEVICE** - Any piping, hoses, equipment, and devices which are used to collect, store and/or process organic vapors at a bulk terminal, bulk plant, service station or other operation handling gasoline and/or other organic liquids.

213 **VAPOR TIGHT** - A condition where no organic vapor leak equals or exceeds 100 percent of the lower explosive limit at a distance of one inch (2.5 cm) from a leak source when measured with a combustible gas detector or organic vapor analyzer, both calibrated with propane.

SECTION 300 - STANDARDS

301 VAPOR LOSS CONTROL MEASURES REQUIRED: No person shall transfer or permit the transfer of gasoline from any delivery vessel into any stationary dispensing tank located above or below ground with a capacity of more than 250 gallons (946 l) unless the following conditions are met:

301.1 Submerged Fill Pipe: Stationary dispensing tanks shall be equipped with a permanent submerged fill pipe.

301.2 Vapor Recovery System: The displaced gasoline vapors or gases shall be handled by a an Approved Stage I Vapor Recovery System.

301.3 Leakage Limits: Delivery operations shall be leak free and vapor tight. Disconnects of gasoline delivery hoses shall be done without excess organic liquid (gasoline) drainage.

302 EQUIPMENT MAINTENANCE AND USE REQUIRED: All vapor loss control equipment shall be installed as required, operated as recommended by the manufacturer and maintained leak free, vapor tight and in good working order.

302.1 Both the owner/operator of a vessel delivering gasoline to a fuel dispensing tank, equipped with vapor recovery, and the owner/operator of such a tank shall have responsibility to assure that proper vapor recovery equipment is connected during every such delivery.

302.2 The owner/operator of a non-exempt fuel dispensing tank shall refuse delivery of gasoline from a delivery vessel which does not bear a current pressure test certification decal issued by the control officer.

302.3 Both spring-loaded and fixed coaxial fill tubes shall be maintained and operated so that there is no obstruction of vapor passage from the tank to the delivery vessel.

303 EXEMPTIONS: Except as otherwise noted in this section, the provisions of Sections 301 and 302 of this rule shall not apply to the following stationary gasoline dispensing tanks:

303.1 Dispensing Tanks For Farm Operations: Any stationary gasoline dispensing tank used exclusively for the fueling of implements of normal farm operations.

303.2 Non-resale Dispensing Operation: Any stationary gasoline dispensing operation receiving less than 120,000 gallons (454,200 l) of gasoline

annually which is not for resale, provided that each gasoline dispensing tank, not exempted by Section 303.4 of this rule, is equipped with a permanent submerged fill pipe. Any operation which becomes subject to the provisions of Sections 301 and 302 of this rule by exceeding this threshold will remain subject to such provisions even if annual emissions later fall below this threshold.

303.3 **Dispensing Tanks Of 1000 Gallons Or Less:** Any stationary dispensing tank having a capacity of 1000 gallons (3785 l) or less which was installed prior to October 2, 1978, provided that such tank is equipped with a permanent submerged fill pipe.

303.4 **Dispensing Tanks With Offset Fill Lines:** Any stationary dispensing tank installed prior to October 2, 1978, where the fill line between the fill connection and tank is offset.

303.5 **Storage Tanks Serviced By Exempt Delivery Vessels:** Any gasoline dispensing tank installed prior to October 2, 1978, which is equipped with a permanent submerged fill pipe, is served only by a delivery vessel which is loaded only at a bulk plant exempted under Rule 351, Section 305.1, and such tank is included in a gasoline dispensing operation receiving less than 120,000 gallons (454,200 l) of gasoline annually.

SECTION 400 - ADMINISTRATIVE REQUIREMENTS

401 **COMPLIANCE SCHEDULE:** The owner or operator of any loading facility which requires modification subject to a requirement of the April 6, 1992 revision of this Rule 353 shall by October 6, 1992 submit to the Control Officer for approval: an emission control plan; a schedule for achieving compliance with all requirements; and, if required, an installation permit application. These modifications shall be complete by April 6, 1993.

402 **USE OF STAGE I EQUIPMENT:**

402.1 As of April 6, 1992 only Approved Stage I Vapor Recovery equipment shall be used for all new installations, all modifications and all component replacement of Stage I vapor recovery equipment.

402.2 It is the responsibility of the installer or equipment supplier to provide proof to the Control Officer that a vapor recovery system or its modifications meet the requirements of this Rule 353.

SECTION 500 - MONITORING AND RECORDS:

501 COMPLIANCE INSPECTIONS: Any dispensing tank required by this rule to be equipped with vapor loss control devices may be subject to monitoring for vapor tightness and leak tightness during any working hours. Such a tank may be opened for gauging or inspection when loading operations are not in progress, provided that such tank is not under pressure.

502 RECORDKEEPING: The owner or operator of each gasoline dispensing facility subject to this rule shall maintain records showing the quantity of all gasoline delivered to the facility. The total received each month shall be recorded. These records and any others required by this rule or by the Control Officer shall be retained for at least three years in a readily accessible location and must be made available to the control officer immediately upon verbal or written request. Copies of reports and supporting documentation required by the control officer shall be retained by the owner or operator for at least two years after the date the original is submitted.

503 BURDEN OF PROOF: The burden of proof of eligibility for exemption from this rule or from a section of this rule is on the applicant. Persons seeking such an exemption shall maintain adequate records and furnish them to the Control Officer upon request.

504 COMPLIANCE DETERMINATION - TEST METHODS: 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 Control efficiency of vapor recovery systems and vapor collection/processing systems shall be determined according to EPA Method 2A and either EPA Method 25A or 25B. EPA Method 2B also shall be used for vapor incineration devices.

504.2 Vapor tightness of loading equipment shall be determined by the method described in Rule 351, Section 501 while gasoline is being transferred from delivery vessel to fuel dispensing tank or vice versa.

504.3 True vapor pressure shall be determined by ASTM Method 2879-83 and by temperature measurement under actual conditions using an instrument accurate to within $\pm$ 1 degree fahrenheit or $\pm$ 0.5 degree celsius. For purposes of recording and reporting, the Reid vapor pressure and the foregoing temperature determination may be used in conjunction with the method of American Petroleum Institute Bulletin 2517, February, 1980, to

determine true vapor pressure, except when the Control Officer specifies ASTM Method 2879-83 be used.

504.4 Reid vapor pressure shall be determined by ASTM Method D323-82 or by ASTM Method D-5191.

RULE 358
POLYSTYRENE FOAM OPERATIONS
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Adopted 04/20/05

MARICOPA COUNTY
AIR POLLUTION CONTROL REGULATIONS
REGULATION III - CONTROL OF AIR CONTAMINANTS
RULE 358
POLYSTYRENE FOAM OPERATIONS

SECTION 100 – GENERAL

101 PURPOSE: The purpose of this rule is to limit the emissions of volatile organic compounds (VOCs) from the manufacturing of expanded-polystyrene products.

102 APPLICABILITY: This rule applies to any facility that expands, ages, or molds expandable polystyrene (EPS).

SECTION 200 – DEFINITIONS: See Rule 100 (General Provisions And Definitions) of these rules for definitions of terms that are used but not specifically defined in this rule. For the purpose of this rule, the following definitions shall apply:

201 BEAD-LOT AND BEAD-LOT IDENTIFIER – A specific selection of a specific quantity of expandable polystyrene material, all portions of which typically share similar properties. This selected material has been tested in accordance with standard quality-control procedures and is traceable to the time and date on which it was packaged. Traceability is enabled by a bead lot identifier or lot number, which is a unique numeric (or alphanumeric) string that is permanently coupled with the selected material. The lot number always appears on one or more formal transfer/receipt documents retained by both the seller and the buyer and identifies the material's plant of manufacture, as well as the date that it was packaged.

202 BLOCK (EPS FOAM BLOCK) – A block-shaped solid made of EPS foam that was molded as a unit. Typically, a block's depth and width each exceed 23 inches (0.6 m) and a length exceeding 95 inches (2.4 m).

203 BLOWING AGENT – Any substance that, alone or in conjunction with other substances, is capable of producing a cellular (foam) structure in a polymeric material by inflation.

204 CUP MOLDING – The process of making cups, bowls, and similar containers by molding expanded polystyrene globules (prepuff).

205 DAY - Any 24-hour period beginning at 12:00 am - midnight.

206 EMISSION CONTROL SYSTEM (ECS) – A system for reducing emissions of volatile organic compounds, consisting of a capture system (e.g., enclosures, hoods, and ductwork) and control device(s). An ECS may also include gas conditioning equipment such as condensers or prefilters.

207 EPS BEADS (EXPANDABLE POLYSTYRENE BEADS) – Polystyrene beads, particles, or granules, usually less than one-twelfth inch in diameter, that are formulated with a blowing agent (typically 3.5% to 7% of bead weight). When

subjected to prescribed heating in an expansion system, the beads puff up, expanding many times their original volume into low density foam globules (called "prepuff" or "puff") from which a variety of EPS foam products are molded.

208 **EPS FOAM (EXPANDED POLYSTYRENE FOAM)** – A lightweight, naturally white, foam material, made of polystyrene, from which a variety of common items are made, such as ice-chests, insulation board, protective packaging, and single-use cups.

209 **LOOSE FILL** – Small, expanded polystyrene forms produced in a variety of shapes that are used as packing material or as stuffing in furnishings. These foam products typically have a density below 6/10 of a pound per cubic foot (pcf).

210 **NONPRECURSOR ORGANIC COMPOUND** – Any of the organic compounds that have been designated by the EPA as "exempt" (having negligible photochemical reactivity). A listing of the compounds is found in Rule 100 of these rules and regulations.

211 **POLYSTYRENE** – Any grade, class, or type of thermoplastic polymer, alloy, or blend that is composed of at least 80% polymerized styrene by weight.

212 **PREPUFF OR PUFF** – Expanded polystyrene globules, prior to molding, formed from EPS beads/granules that have been processed in an expander. No grind/regrind material (i.e., expanded EPS that has been through a grinder) or material within a grinding system is considered to be prepuff.

213 **SHAPE** – An object made out of EPS that has been molded into a shape other than that of a block, cup, or bowl.

214 **SPECIALTY BLOCK PRODUCTS** – For the purposes of this rule, a specialty block product is an EPS block or block-derivative (e.g., board, architectural form, etc.) that meets either of the following criteria:

214.1 Has a density of 2.0 pounds per cubic foot or greater, as determined by ASTM Method C303; or

214.2 Has a density less than 0.8 pounds per cubic foot as determined by ASTM Method C303.

215 **VOLATILE ORGANIC COMPOUND (VOC)** – Any organic compound that participates in photochemical reactions, except nonprecursor organic compounds.

216 **VOC CONTENT OF RAW EPS** – For the purposes of this rule, there are 3 different expressions for stating the VOC content of raw EPS beads/granules. Each of these expressions must be made in terms of either the number of pounds of VOC per 100 pounds of beads or the percentage of overall weight (including the VOC weight) that the incorporated VOC constitutes. The percent value shall be expressed with a precision of no less than the nearest tenth of one

percent, which is equivalent to expressing the same number value in pounds VOC per 100 lbs. beads, to the nearest tenth of a pound. The acceptable expressions are:

216.1 Manufacturer-Certified Bead-Lot (MCBL) VOC-Content – A document such as a standard Certificate Of Analysis that numerically presents an EPS bead-lot's VOC content and must contain all of the following elements:

a. The VOC content printed or written on a paper document by the bead manufacturer, after the manufacturer has had the bead-lot tested to determine the lot's percent VOC, before shipping from the manufacturer; and

b. The manufacturer's name and the bead-lot, identified on the paper document with the appropriate bead-lot identifier; and

c. The signature of an officer of the manufacturing facility or the signature of an officer's designee, previously designated in writing by such an officer.

216.2 Post-Manufacture Laboratory-Tested (PMLT) VOC-Content: The results of a laboratory test determining the VOC content of a representative sampling of an intermediate or finished expanded polystyrene-product, or such a test of raw beads any time after their MCBL VOC content has been assigned.

216.3 ISO-Certified Maximum Bead-Model (IMBM) VOC-Content: A numerical value that represents the upper limit of a particular bead-model's VOC-content, which has been:

a. Initially stipulated by the bead-model's manufacturer in a document that gives the bead-model's unique identifier, and

b. Subsequently certified for accuracy by the International Standards Organization (ISO).

SECTION 300 – STANDARDS:

301 BLOCK MAKERS: An owner and/or operator of an EPS block-making facility shall comply with Section 301.1 and, if applicable, Section 301.2 of this rule.

301.1 Limit the sum of both the VOC that escaped to atmosphere and the residual VOC in the resulting blocks at the time they are released from the molding machine to not more than 3.0 pounds for every 100 pounds of raw beads processed.

301.2 Specialty Products Alternative Operating Scenario: When producing specialty block-products solely from raw EPS beads that exceed a VOC-content of 5.5 percent by weight, an owner and/or operator may choose the standard in Section 301.2(a) by which to comply with this rule, but only if the requirements in Sections 301.2(b) and 301.2(c) are met.

a. Limit the sum of both the VOC that escaped to atmosphere and the residual VOC in the resulting blocks at the time they are released from the molding machine to not more than 3.9 pounds for every 100 pounds of raw beads processed (3.9 lbs/100#), and

b. Taking into account the total weight of all beads processed each year, limit the portion of that weight that is processed under the 3.9 lbs/100# standard to the percent allowed each year by Table I.

TABLE I

ANNUAL PERCENTAGE LIMITS FOR SPECIALTY PRODUCTS MADE UNDER THE SECTION 301.2(a) STANDARD

Column A	Column B
Calendar Year Of Column B Limit	**Maximum Percent Of All Raw-Beads Processed Each Year That Are Allowed To Be Processed Under The 3.9 Lb/100# Standard For Specialty Products Only**
2006	10.0
2007	9.0
2008	8.0
2009	7.0
2010	6.0
2011 and continuing	5.0

c. The proportion of annual raw-material throughput that is produced under the Section 301.2(a) standard shall be calculated and recorded according to Section 502.1(d).

302 SHAPE MAKERS: An owner and/or operator of an EPS shape-making facility shall limit the sum of the VOC that escaped to atmosphere and the residual VOC in the resulting shapes to 2.7 pounds for every 100 pounds of raw beads processed.

303 CUP MAKERS: An owner and/or operator of an EPS cup-making facility shall limit the sum of the VOC that escaped to atmosphere and the residual VOC in the resulting cups to 3.2 pounds for every 100 pounds of raw beads processed.

304 LOOSE FILL MAKERS: An owner and/or operator of a facility that makes expanded polystyrene loose fill shall limit the sum of both the VOC that escaped to atmosphere plus the residual VOC in the finished loose fill (measured right after the final curing process) to not more than 2.4 pounds for every 100 pounds of raw EPS materials processed into finished loose fill.

305 PERFORMANCE OF ECS CONTROLLING VOC EMISSIONS: If an ECS is required by this rule, comply with Sections 305.1, 305.2, and 305.3 of this rule.

305.1 The control device (abatement subsystem) of such ECS shall comply with either Section 305.1(a) or Section 305.1(b) of this rule.

a. Reduce the weight of VOC-as-carbon that enters the control device by at least 94%; or

b. Maintain an hourly average outlet concentration of VOC below 20 milligrams per dry standard cubic meter. Express mass loading of VOC as milligrams of non-methane organic carbon.

305.2 Each ECS that is operated in order to comply with this rule shall be equipped with monitoring devices capable of demonstrating that the ECS is operating in a manner that assures compliance with this rule. The monitoring devices shall be installed, calibrated, maintained, and operated according to their manufacturers' instructions and the O&M Plan. Typically, such devices provide temperature, pressure, flow-rate, or other indicator(s) of proper ECS function (such as a continuous temperature recorder that monitors an oxidizer's combustion chamber or a condenser's outlet duct, or a pressure recorder that monitors the integrity of a permanent total-enclosure, etc.).

305.3 Records shall be kept according to Section 502.3 of this rule.

306 ECS OPERATION AND MAINTENANCE (O&M) PLANS:

306.1 An owner and/or operator shall provide, implement, and maintain an O&M Plan for each ECS required by this rule. The O&M Plan shall include the monitoring device(s) associated with the ECS.

306.2 The owner and/or operator shall submit to the Control Officer for approval the O&M Plan of each ECS, with its associated monitoring device(s), that is used according to Sections 301.1, 301.2, 302, 303, or 304 of this rule. Also include in such O&M Plans:

a. Procedures for collecting and recording required data and other information in a form approved by the Control Officer, which shall include data collected through the O&M Plan and through the monitoring of key system operating parameters; and

b. Procedures and schedules for preventive and corrective maintenance performed for the purpose of maintaining the emission control system in proper operating condition.

306.3 An owner and/or operator of an EPS facility must comply with all O&M Plans that the owner and/or operator has submitted for approval but which have not yet been approved, unless notified otherwise by the Control Officer in writing.

307 VOC CONTAINMENT, IDENTIFICATION, AND DISPOSAL:

307.1 Contain VOC-Emitting Material:

a. When they are not in use, store all fresh and used non-EPS VOC-containing material in closed, leak-free containers that are labeled according to Section 307.4. Such materials include but are not limited to cleaning solvents, inks, coatings, thinners, and their residues including residues on rags; and

b. Store raw EPS beads in closed, leak-free, labeled containers when not in use.

307.2 Materials addressed in Section 307.1 of this rule may be placed in an enclosure ducted solely to an ECS that is approved by the Control Officer, instead of in closed containers.

307.3 The owner and/or operator must implement procedures to minimize spills of VOC-containing materials described in Section 307.1(a) of this rule, during their handling and transfer to or from containers, vats, enclosed systems, waste receptacles, and other equipment, whether the material is fresh, used, or waste.

307.4 Identification And Labeling:

a. Containers used for initial, intermediate, or final storage of VOC-containing materials addressed in Section 307.1 of this rule shall be clearly labeled with their contents.

b. Content-labeling done according to the requirements of federal hazardous waste (RCRA) or occupational safety (OSHA) statutes and codes meets the requirements in Section 307.4(a) of this rule.

308 EXEMPTION:

308.1 Exemption From Section 301.1 Through Section 306.3: An owner and/or operator of a facility is exempt from the requirements of Section 301.1 through Section 306.3 of this rule, if the total VOC content of all

raw EPS material processed by the facility is, in each calendar year, below 50 tons (100,000 lbs) and, in each calendar month, below 12,000 pounds.

308.2 Burden Of Proof: A person claiming any exemption from this rule or from a provision of this rule shall provide adequate records to verify and maintain any exemption. These may include records of raw material used, laboratory analyses, technical data sheets, and/or performance test results.

SECTION 400 - ADMINISTRATIVE REQUIREMENTS

401 COMPLIANCE SCHEDULE: A person or owner/operator of a facility that is subject to Sections 301, 302, 303, or 304 of this rule shall comply with the following increments of progress:

401.1 By July 20, 2005, the owner and/or operator shall comply with Section 502 through Section 502.2(c) of this rule;

401.2 By August 20, 2005, the owner and/or operator either must submit an application or have been issued a revised permit that addresses the installation and operation of the equipment to be used to achieve compliance with this rule; also, comply with Section 307.1 through Section 307.4 of this rule;

401.3 By April 20, 2006, the owner and/or operator must complete the installation of all equipment required to meet the provisions of this rule and also comply with all O&M Plan requirements in Section 306 and Section 502.3 of this rule; and

401.4 By October 20, 2006, the owner and/or operator must comply with the applicable standards in Sections 301, 302, 303, 304, and 305 of this rule.

SECTION 500 - MONITORING AND RECORDS

501 RECORDS:

501.1 General: Records shall be kept complete, up-to-date, and in a consistent and legible format.

501.2 Retention: Records required by this rule shall be retained for at least 5 years.

501.3 Use Of Other Records: Records that are kept by an EPS facility for other agencies or purposes may be submitted to the Control Officer to meet the record requirements of this rule, provided such records contain the necessary information according to Section 502 of this rule.

502 RECORDKEEPING SPECIFICS:

502.1 Tracking EPS Beads: Effective July 20, 2005, a person subject to this rule shall comply with the following requirements, as applicable.

a. **Lot ID And VOC Content:** Prior to expanding any part of a bead-lot, an owner and/or operator shall obtain and retain an original or copy of the VOC-content, as defined in Section 217 of this rule, for each separate lot-number/identifier of beads received.

b. **Total Expanded By Lot And Date:** Each day that raw EPS material is expanded in a facility's expander, an owner and/or operator shall record the amount of each bead-lot expanded and its corresponding lot number/identifier.

c. **Block Makers:** Each day that blocks are made, record the approximate weight of each newly molded block, measured to the nearest 2 pounds.

d. **Specialty Products Subject To Section 301.2(a):** An EPS-block facility owner and/or operator making specialty products under Section 301.2(a) of this rule shall:

(1) Maintain a log indicating when the facility is operating under the specialty-products alternative operating scenario; and

(2) Each month calculate the percent of total EPS raw material used during the current calendar year that specialty products, made under Section 301.2(a) of this rule, constitute; enter the calculations and results in the log.

502.2 Lists Of Non-EPS VOC-Containing Materials: Non-EPS materials may include, but are not limited to, the following categories: inks, coatings, adhesives, reducers, thinners, solvents, cleaning materials, additives, spray-cans, sprayed lubricants, and any other VOC-containing materials that are not EPS.

a. An owner and/or operator shall maintain a current list of non-EPS materials, containing VOC, used at the facility. A complete and ordered assemblage of the required data meets the requirements for a list.

b. An owner and/or operator shall express VOC content of non-EPS material in one of the following three forms:

(1) Pounds VOC per gallon (or grams VOC per liter), or

(2) Fractional pounds of VOC per lb. material (or grams per kilogram), or

(3) The percent VOC by weight along with the specific gravity or density (two numbers are required for each entry).

c. By the end of the following month, an owner and/or operator shall record the amount and type of each non-EPS material, containing VOC that was used during each month.

502.3 Records Of ECS Operation And Monitoring: On a daily basis, the owner and/or operator of a facility that operates an ECS to comply with this rule shall record key system operating parameters such as temperature, flow rate, pressure, and/or VOC-concentration, etc.

503 TEST PROCEDURES: An owner and/or operator of an EPS facility will be in violation of this rule if the VOC emissions, measured by any of the referenced test methods specified in this Section 503 of this rule and listed in Section 504 of this rule, do not comply with the applicable standards included by Section 301 through Section 305 of this rule.

503.1 Each year between June 1 and August 31, an owner and/or operator shall conduct an annual performance test on each ECS used to meet a standard in this Rule 358, using the test methods designated by Section 503.2 through Section 503.7 of this rule and incorporated by reference in Section 504 of this rule.

503.2 An owner and/or operator shall perform the measurement of airflow and gas flow into and out of the ECS by performing EPA Method 2, referenced in Section 504.1 of this rule.

503.3 An owner and/or operator shall determine the concentration of methane and ethane emissions by performing EPA Method 18, referenced in Section 504.2 of this rule or Method 25 (and its submethods) referenced in Section 504.3 of this rule.

503.4 An owner and/or operator shall determine the control efficiency of the VOC control device (abatement subsystem) of an ECS by performing EPA Method 25 (and its submethods), referenced in Section 504.3 of this rule.

503.5 An owner and/or operator shall determine the efficiency of a capture system according to both EPA Method 204 (and its submethods) referenced in Section 504.4 of this rule and the EPA guidance document referenced in Section 504.7 of this rule.

503.6 An owner and/or operator shall determine the concentration of total volatile organic carbon content in polymeric materials by performing Bay Area Quality Management District (BAAQMD) Method 45 as referenced in

Section 504.5 of this rule or by performing South Coast Air Quality Management District (SCAQMD) Method 306-91, 1993 revision, as referenced in Section 504.6 of this rule.

503.7 Determination Of ECS Effectiveness: ECS effectiveness shall be determined from the results of a testing protocol based on mass balance, calculated according to the following formulas:

$$\% \text{ CAPTURE} = \frac{VOC_{ECS}}{VOC_I - VOC_P} \times 100$$

$$\% \text{ CONTROL} = \frac{VOC_{ECS} - VOC_{St}}{VOC_{ECS}} \times 100$$

$$\% \text{ EMITTED} = \frac{VOC_I + VOC_{St} - VOC_P - VOC_{ECS}}{VOC_I - VOC_P} \times 100$$

$$\% \text{ OVERALL (Capture+Control)} = \frac{VOC_{ECS}}{VOC_I - VOC_P} \times \frac{VOC_{ECS} - VOC_{St}}{VOC_{ECS}} \times 100$$

Where:
VOC_I is the VOC input in the form of the VOC content of a weighed mass of raw beads.

VOC_P is the VOC content of the products made from the weighed raw beads.

VOC_{ECS} is the VOC measured in the air entering the ECS.

VOC_{St} is the VOC remaining in the gas stream(s) emerging from the ECS during production.

503.8 Determination Of Product Density: The ASTM Method C303-02 referenced in Section 504.8 of this rule shall be used to determine the density of EPS foam blocks and block-derivatives.

503.9 Conforming Testing To Desired Production Characteristics: The owner and/or operator of an EPS facility must, through performance testing, demonstrate compliance with each alternative operating scenario chosen.

504 TEST METHODS ADOPTED BY REFERENCE: The EPA test methods as they exist in the Code of Federal Regulations (C.F.R.) on July 1, 2004, 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 North Central Avenue, Phoenix, AZ, 85004-1942. The other test methods from Bay Area Air Quality Management District and South Coast Air Quality Management District

listed herein are also adopted by reference, each having paired with it a specific date that identifies the particular version/revision of the method that is adopted by reference.

504.1 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 C.F.R. 60, Appendix A).

504.2 EPA Reference Method 18 ("Measurement Of Gaseous Organic Compound Emissions By Gas Chromatography"), (40 C.F.R. 60, Appendix A).

504.3 EPA Reference Method 25 ("Determination Of Total Gaseous Nonmethane Organic Emissions As Carbon"), (40 C.F.R. 60, Appendix A).

504.4 EPA Reference Method 204 ("Criteria for Determining Capture Efficiency"), 204A, 204B, 204C, 204D ("Volatile Organic Compounds Emissions In Uncaptured Stream From Temporary Total Enclosure"), 204E ("Volatile Organic Compounds Emissions In Un-Captured Stream From Building Enclosure"), and 204 F ("Volatile Organic Compounds Content In Liquid Input Stream {Distillation Approach}") (40 C.F.R. 51, Appendix M).

504.5 BAAQMD Method 45 ("Determination Of Butanes And Pentanes In Polymeric Materials"), (BAAQMD Manual Of Procedures, Volume III, January 19, 2000).

504.6 SCAQMD Method 306-91, February 1993 revision ("Analysis Of Pentanes In Expandable Styrene Polymers"), Applied Science & Technology Division – Laboratory Services Branch.

504.7 EPA Guidance Document, "Guidelines For Determining Capture Efficiency", January 9, 1995.

504.8 American Society Of Testing Materials, ASTM Method C303-02 (Standard Test Method For Dimensions And Density Of Preformed Block And Broad-Type Thermal Insulation), 2002.

REGULATION V - AIR QUALITY STANDARDS AND AREA CLASSIFICATION

MARICOPA COUNTY AIR QUALITY DEPARTMENT

RULE 510

AIR QUALITY STANDARDS

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MARICOPA COUNTY
AIR POLLUTION CONTROL REGULATIONS

REGULATION V - AIR QUALITY STANDARDS AND AREA CLASSIFICATION

RULE 510
AIR QUALITY STANDARDS

SECTION 100 - GENERAL

101 PURPOSE: To establish maximum limiting levels for pollutants existing in the ambient air which are necessary to protect human health and public welfare.

102 AVAILABILITY OF INFORMATION: Copies of materials referenced in Sections 310, 401.1, and 401.2 of this rule are available at 1001 North Central Avenue, Suite 400, Phoenix, AZ, 85004 or call (602) 506-6010.

SECTION 200 - DEFINITIONS: See Rule 100 (General Provisions And Definitions) of these rules for definitions of terms that are used but not specifically defined in this rule. For the purpose of this rule, the following definitions shall apply:

201 PRIMARY AMBIENT AIR QUALITY STANDARDS - The ambient air quality standards which define levels of air quality necessary, with an adequate margin of safety, to protect the public health, as determined by the Arizona Department of Environmental Quality and United States Environmental Protection Agency, and specified in this rule.

202 SECONDARY AMBIENT AIR QUALITY STANDARDS - The ambient air quality standards which define levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant, as determined by the Arizona Department of Environmental Quality and United States Environmental Protection Agency, and specified in this rule.

SECTION 300 - STANDARDS: The following are established as the primary and secondary ambient air quality standards for Maricopa County:

301 PARTICULATE MATTER - 2.5 MICRONS OR LESS ($PM_{2.5}$):

301.1 Primary and Secondary Ambient Air Quality Standards for $PM_{2.5}$ Annual Arithmetic Mean Concentration: The annual arithmetic mean concentration shall be 15 micrograms per cubic meter ($\mu g/m^3$). The standard shall be considered attained when the annual arithmetic

mean concentration, as determined in accordance with 40 CFR 50, Appendix N, is less than or equal to 15 $\mu g/m^3$.

301.2 Primary and Secondary Ambient Air Quality Standards for $PM_{2.5}$ 24-hour Average Concentration: The 24-hour average concentration shall be 65 $\mu g/m^3$. The standard shall be considered attained when the 98th percentile 24-hour concentration, as determined in accordance with 40 CFR 50, Appendix N, is less than or equal to 65 $\mu g/m^3$.

302 PARTICULATE MATTER - 10 MICRONS OR LESS (PM_{10}):

302.1 Primary and Secondary Ambient Air Quality Standards for PM_{10} Annual Arithmetic Mean Concentration: The annual arithmetic mean concentration shall be 50 $\mu g/m^3$. The standard shall be considered attained when the expected annual arithmetic mean concentration, as determined in accordance with 40 CFR 50, Appendix K, is less than or equal to 50 $\mu g/m^3$.

302.2 Primary and Secondary Ambient Air Quality Standards for PM_{10} 24-hour Average Concentration: The 24-hour average concentration shall be 150 $\mu g/m^3$. This concentration shall not be exceeded more than once per calendar year at any one location. The standard shall be considered attained when the expected number of days per calendar year with a 24-hour average concentration above 150 $\mu g/m^3$, as determined in accordance with 40 CFR 50, Appendix K, is less than or equal to 1.

303 SULFUR OXIDES (SULFUR DIOXIDE):

303.1 Primary Ambient Air Quality Standards for Sulfur Oxides (Measured as Sulfur Dioxide):

a. **Annual Arithmetic Mean Concentration:** The annual arithmetic mean concentration shall be 0.030 parts per million (ppm) (80 $\mu g/m^3$). This concentration shall not be exceeded in a calendar year. The annual arithmetic mean shall be rounded to three decimal places (fractional parts equal to or greater than 0.0005 ppm shall be rounded up).

b. **24-hour Concentration:** The maximum 24-hour concentration shall be 0.14 ppm (365 $\mu g/m^3$). This concentration shall not be exceeded more than once per calendar year at any one location. The 24-hour averages shall be determined from successive nonoverlapping 24-hour blocks starting at midnight each calendar day and shall be rounded to two decimal places (fractional parts equal to or greater than 0.005 ppm shall be rounded up).

303.2 Secondary Ambient Air Quality Standard for Sulfur Oxides (Measured as Sulfur Dioxide) 3-Hour Concentration: The maximum 3-hour concentration shall be 0.5 ppm (1300 $\mu g/m^3$). This

concentration shall not be exceeded more than once per calendar year at any one location. The 3-hour averages shall be determined from successive nonoverlapping 3-hour blocks starting at midnight each calendar day and shall be rounded to 1 decimal place (fractional parts equal to or greater than 0.05 ppm shall be rounded up).

304 OZONE:

Primary and Secondary Ambient Air Quality Standards for Ozone Eight-hour Average Concentration: The daily maximum eight-hour average concentration shall be 0.08 ppm. The standard shall be considered attained at an ambient air quality monitoring site when the average of the annual fourth-highest daily maximum eight-hour average ozone concentration, as determined in accordance with 40 CFR 50, Appendix I, is less than or equal to 0.08 ppm.

305 CARBON MONOXIDE:

305.1 Primary Ambient Air Quality Standards for Carbon Monoxide:

a. **One-hour Average Concentration:** The maximum one-hour average concentration shall be 35 ppm (40 mg/m^3). This concentration shall not be exceeded more than once per year at any one location.

b. **Eight-hour Average Concentration:** The maximum eight-hour average concentration shall be 9 ppm (10 mg/m^3). This concentration shall not be exceeded more than once per year at any one location. An eight-hour average shall be considered valid if at least 75% of the hourly averages for the eight-hour period are available. In the event that only six or seven hourly averages are available, the eight-hour average shall be computed on the basis of the hours available using 6 or 7 as the divisor.

305.2 When summarizing data for comparison with the standards, averages shall be stated to one decimal place. Comparison of the data with the levels of the standards in ppm shall be made in terms of integers with fractional parts of 0.5 or greater rounding up.

306 NITROGEN DIOXIDE:

Primary and Secondary Ambient Air Quality Standards for Nitrogen Dioxide Annual Arithmetic Mean Concentration: The annual arithmetic mean concentration shall be 0.053 ppm (100 $\mu g/m^3$). The standard shall be considered attained when the annual arithmetic mean concentration in a calendar year is less than or equal to 0.053 ppm, rounded to three decimal places, with fractional parts equal to or greater than 0.0005 ppm rounded up. To demonstrate attainment, an annual mean shall be based upon hourly data

that is at least 75% complete, or upon data derived from manual methods that is at least 75% complete for the scheduled sampling days in each calendar quarter.

307 LEAD:

Primary and Secondary Ambient Air Quality Standards for Lead Quarterly Maximum Arithmetic Mean Concentration: The maximum arithmetic mean concentration for lead and its compounds, measured as elemental lead, shall be 1.5 $\mu g/m^3$, as averaged over a calendar quarter.

308 POLLUTANT CONCENTRATION DETERMINATIONS: Pollutant concentrations shall be measured by the following methods:

308.1 Appendices to 40 CFR 50: Pollutant concentrations shall be measured by the following appendices to 40 CFR 50:

Pollutant	40 CFR 50
Particulate Matter ($PM_{2.5}$)	Appendix L
Particulate Matter (PM_{10})	Appendix J
Sulfur Oxides (Sulfur Dioxide)	Appendix A
Ozone	Appendix D
Carbon Monoxide	Appendix C
Nitrogen Dioxide	Appendix F
Lead	Appendix G

308.2 Reference or Equivalent Methods: Pollutant concentrations shall also be measured by:

a. A method of measurement that has been designated as a reference or equivalent method by the Administrator acting pursuant to 40 CFR 53; or

b. A method of measurement that, though not designated as a reference or equivalent method, has been approved for use by the Administrator acting pursuant to 40 CFR 58, Appendix C. Such method shall be subject to any restrictions placed on its use by the Administrator.

308.3 Method Withdrawal: The cancellation or supersession of designation of a reference or equivalent method by the Administrator acting pursuant to 40 CFR 53.11 or 53.16, shall also amount to a withdrawal of the authorization for use of that method for purposes of this regulation.

309 ADDITIONAL REQUIREMENTS:

309.1 Quality assurance, monitor siting, and sample probe installation procedures shall be in accordance with the procedures described in the Appendices to 40 CFR 58.

309.2 Unless otherwise specified, interpretation of all ambient air quality standards contained in this rule shall be in accordance with 40 CFR 50.

309.3 The evaluation of air quality data in terms of procedure, methodology, and concept is to be consistent with methods described in 40 CFR 50.

310 INCORPORATIONS BY REFERENCE: The CFR references listed below are incorporated by reference in Appendix G of these rules:
40 CFR 50;
40 CFR 50, Appendices A through N;
40 CFR 53;
40 CFR 58.26 and 40 CFR 58.50; and
40 CFR 58, all appendices.

SECTION 400 - ADMINISTRATIVE REQUIREMENTS

401 REPORTING OF AMBIENT AIR QUALITY MONITORING DATA:

401.1 Annual Air Quality Monitoring Report: The Control Officer shall submit to the Administrator an annual summary report that at a minimum meets the requirements of 40 CFR 58.26 and 40 CFR 58, Appendix F. The annual report will be made available to the public at the address listed in Section 102 of this rule.

401.2 Daily Air Quality Index (AQI) Report: The Control Officer shall report to the general public an AQI that at a minimum meets the requirements of 40 CFR 58.50 and 40 CFR 58, Appendix G. The AQI will also be made available to the public at the address listed in Section 102 of this rule.

SECTION 500 - MONITORING AND RECORDS (NOT APPLICABLE)

REGULATION VI - EMERGENCY EPISODES

RULE 600
EMERGENCY EPISODES

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MARICOPA COUNTY
AIR POLLUTION CONTROL REGULATIONS

REGULATION VI - EMERGENCY EPISODES

RULE 600
EMERGENCY EPISODES

SECTION 100 - GENERAL

101 PURPOSE: To establish criteria used to determine air pollution emergency episodes and the appropriate control actions. This rule describes control and advisory procedures reached at each of the three episode levels.

102 EPISODE PROCEDURES GUIDELINES: Guidelines for the procedures and communication steps to be followed during an air pollution episode are presented in Appendices D and E of the Arizona Air Pollution Control Implementation Plan.

SECTION 200 - DEFINITIONS:

For the purpose of this rule, the following definition shall apply:

201 EMERGENCY EPISODE PLAN - A system designed to reduce the levels of air contaminants which may reach or have reached the level which may be harmful to health, and to protect that portion of the population at risk.

SECTION 300 - STANDARDS

301 EPISODE LEVEL CRITERIA: An air pollution alert, warning or emergency shall be declared when the following air pollutant concentrations are exceeded at any monitoring site and when meteorological conditions indicate that there will be a recurrence of those concentrations for the same pollutant(s) during the subsequent 24-hour period:

EPISODE LEVEL CRITERIA

Pollutant	Averaging Time	Alert	Warning	Emergency
Sulfur Dioxide (ug/m^3)	24-hr	800	1,600	2,100

Pollutant	Averaging Time	Alert	Warning	Emergency

Small Particulates (PM_{10}) (ug/m^3)	24-hr	350	420	500
Total Particulates (ug/m^3)	24-hr	375	625	875
Sulfur Dioxide and Particulates Combined (ug/m^3)	24-hr	$6.5x10^4$	$26.1x10^4$	$39.3x10^4$
Ozone (ug/m^3)	1-hr	400 (0.2ppm)	800 (0.4ppm)	1,000 (0.5ppm)
Nitrogen Dioxide (ug/m^3)	1-hr 24-hr	1,130 282	2,260 565	3,000 750
Carbon Monoxide mg/m^3	8-hr	17 (15 ppm)	34 (20 ppm)	46 (40 ppm)

302 CONTROL ACTIONS: When an air pollution alert, warning or emergency has been declared, one or more of the control actions as applicable to the source emitting the pollutant of concern shall be implemented in the affected area.

302.1 Control Actions - Air Pollution Alert

a. All permits to burn shall be suspended until further notice. The forest service shall be notified to postpone slash burning in affected areas.

b. Incineration shall be limited to the hours of 12 noon to 4:00 p.m.

c. Those manufacturing facilities with prearranged emission reduction plans as noted in the State Air Pollution Control Implementation Plan shall be notified to initiate alert stage control actions. Other sources shall be notified to minimize emissions by curtailing or deferring operations not on a required schedule and by maximizing the collection efficiency of control equipment. Emissions from batch operations shall be limited to the hours of 12 noon to 4:00 p.m.

d. The public shall be requested to voluntarily eliminate all unnecessary usage of motor vehicles.

302.2 Control Actions - Air Pollution Warning

a. Burning of refuse, vegetation, trade wastes, and debris shall not be permitted by any person.

b. Use of incinerators shall be prohibited.

c. Those manufacturing facilities with prearranged emission reduction plans as noted in the Arizona Air Pollution Control Implementation Plan shall be notified to initiate warning stage control actions. Other sources shall be notified to initiate a 40 percent or greater reduction in emissions by curtailment or cessation of operations. All processing industries shall be requested to effect a maximum reduction in heat load demands.

d. If possible, power plant generating loads shall be transferred outside the affected area. Power plant production shall be reduced by purchase of available energy from neighboring utilities.

e. Highway construction and paving activities shall be halted. All soil removal or grading operations at other construction sites shall be postponed.

f. Dust producing crop preparation and cultivation activities shall be postponed. A maximum reduction in agricultural processing and handling operations shall be effected.

g. The public shall be requested to voluntarily reduce motor vehicle usage by use of carpools and other means of transportation and elimination of unnecessary operation.

302.3 Control Actions - Air Pollution Emergency

a. Those manufacturing facilities with prearranged emission reduction plans as noted in the Arizona Air Pollution Control Implementation Plan shall be notified to initiate emergency stage control actions. Other manufacturing establishments shall cease operations as directed by the Governor.

b. As directed by the Governor, all commercial, governmental, and institutional establishments, except those vital for public safety and welfare and enforcement of the emergency episode control actions, shall be closed.

c. Generating loads at power plants shall be reduced further, resulting from industrial and commercial cutbacks.

d. All construction shall be halted as directed by the Governor except that which must proceed to avoid emergent physical harm.

e. As directed by the Governor, use of motor vehicles shall be prohibited except in emergencies with approval of the local police.

SECTION 400 - ADMINISTRATIVE REQUIREMENTS

401 EPISODE TERMINATION: Once declared, any status reached by application of these criteria shall remain in effect until the criteria for that level are no longer met. At such time, the next lower status will be assumed.

402 COORDINATION WITH THE STATE DEPARTMENT OF ENVIRONMENTAL QUALITY: When the conditions justifying the proclamation of an air pollution alert, warning, or emergency are determined to exist in any place in Maricopa County, the Control Officer shall be guided by the following criteria as established by state regulation R18-2-219, and cooperate directly with the State Director, Arizona Department of Environmental Quality in all pertinent areas of control and surveillance.

402.1 If the average wind speed for 24 hours is greater than 9.0 miles per hour, the criteria levels for particulates and sulfur dioxide and particulates combined shall not apply and no source control actions shall be taken.

402.2 If, after an alert or warning episode level has been declared, and air pollution concentrations and meteorological conditions do not deteriorate further, or improve after 48 hours and control actions have been taken, the next higher episode shall be declared and its associated control actions implemented.

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MARICOPA COUNTY
AIR POLLUTION CONTROL REGULATIONS

APPENDIX C
FUGITIVE DUST TEST METHODS

1. **[RESERVED]**

2. **TEST METHODS FOR STABILIZATION**

2.1 For Unpaved Roads and Unpaved Parking Lots:

2.1.1 Opacity Test Method: The purpose of this test method is to estimate the percent opacity of fugitive dust plumes caused by vehicle movement on unpaved roads and unpaved parking lots. This method can only be conducted by an individual who has received certification as a qualified observer. Qualification and testing requirements can be found in Section 3.4 of this appendix.

a. Step 1: Stand at least 16.5 feet from the fugitive dust source in order to provide a clear view of the emissions with the sun oriented in the 140° sector to the back. Following the above requirements, make opacity observations so that the line of vision is approximately perpendicular to the dust plume and wind direction. If multiple plumes are involved, do not include more than one plume in the line of sight at one time.

b. Step 2: Record the fugitive dust source location, source type, method of control used, if any, observer's name, certification data and affiliation, and a sketch of the observer's position relative to the fugitive dust source. Also record the time, estimated distance to the fugitive dust source location, approximate wind direction, estimated wind speed, description of the sky condition (presence and color of clouds), observer's position to the fugitive dust source, and color of the plume and type of background on the visible emission observation from both when opacity readings are initiated and completed.

c. Step 3: Make opacity observations, to the extent possible, using a contrasting background that is perpendicular to the line of vision. Make opacity observations approximately 1 meter above the surface from which the plume is generated. Note that the observation is to be made at only one visual point upon generation of a plume, as opposed to visually tracking the

entire length of a dust plume as it is created along a surface. Make two observations per vehicle, beginning with the first reading at zero seconds and the second reading at five seconds. The zero-second observation should begin immediately after a plume has been created above the surface involved. Do not look continuously at the plume but, instead, observe the plume briefly at zero seconds and then again at five seconds.

d. **Step 4:** Record the opacity observations to the nearest 5% on an observational record sheet. Each momentary observation recorded represents the average opacity of emissions for a 5-second period. While it is not required by the test method, EPA recommends that the observer estimate the size of vehicles which generate dust plumes for which readings are taken (e.g. mid-size passenger car or heavy-duty truck) and the approximate speeds the vehicles are traveling when readings are taken.

e. **Step 5:** Repeat Step 3 (Section 2.1.1(c) of this appendix) and Step 4 (Section 2.1.1(d) of this appendix) until you have recorded a total of 12 consecutive opacity readings. This will occur once six vehicles have driven on the source in your line of observation for which you are able to take proper readings. The 12 consecutive readings must be taken within the same period of observation but must not exceed 1 hour. Observations immediately preceding and following interrupted observations can be considered consecutive.

f. **Step 6:** Average the 12 opacity readings together. If the average opacity reading equals 20% or lower, the source is in compliance

2.1.2 **Silt Content Test Method:** The purpose of this test method is to estimate the silt content of the trafficked parts of unpaved roads and unpaved parking lots. The higher the silt content, the more fine dust particles that are released when cars and trucks drive on unpaved roads and unpaved parking lots.

a. **Equipment:**

(1) A set of sieves with the following openings: 4 millimeters (mm), 2 mm, 1 mm, 0.5 mm and 0.25 mm (or a set of standard/commonly available sieves), a lid, and collector pan.

(2) A small whisk broom or paintbrush with stiff bristles and dustpan 1 ft. in width. (The broom/brush should preferably have one, thin row of bristles no longer than 1.5 inches in length).

(3) A spatula without holes.

(4) A small scale with half-ounce increments (e.g., postal/package scale).

(5) A shallow, lightweight container (e.g., plastic storage container).

(6) A sturdy cardboard box or other rigid object with a level surface.

(7) A basic calculator.

(8) Cloth gloves (optional for handling metal sieves on hot, sunny days).

(9) Sealable plastic bags (if sending samples to a laboratory).

(10) A pencil/pen and paper.

b. **Step 1:** Look for a routinely traveled surface, as evidenced by tire tracks. (Only collect samples from surfaces that are not damp due to precipitation or dew. This statement is not meant to be a standard in itself for dampness where watering is being used as a control measure. It is only intended to ensure that surface testing is done in a representative manner.) Use caution when taking samples to ensure personal safety with respect to passing vehicles. Gently press the edge of a dustpan (1 foot in width) into the surface four times to mark an area that is 1 square foot. Collect a sample of loose surface material using a whiskbroom or brush and slowly sweep the material into the dustpan, minimizing escape of dust particles. Use a spatula to lift heavier elements such as gravel. Only collect dirt/gravel to an approximate depth of 3/8 inch or 1 cm in the 1 square foot area. If you reach a hard, underlying subsurface that is < 3/8 inch in depth, do not continue collecting the sample by digging into the hard surface. In other words, you are only collecting a surface sample of loose material down to 1 cm. In order to confirm that samples are collected to 1 cm in depth, a wooden dowel or other similar narrow object at least one foot in length can be laid horizontally across the survey area while a metric ruler is held perpendicular to the dowel.

   At this point, you can choose to place the sample collected into a plastic bag or container and take it to an independent laboratory for silt content analysis. A reference to the procedure the laboratory is required to follow is at the end of this section.

c. **Step 2**: Place a scale on a level surface. Place a lightweight container on the scale. Zero the scale with the weight of the empty container on it. Transfer the entire sample collected in the dustpan to the container, minimizing escape of dust particles. Weigh the sample and record its weight.

d. **Step 3:** Stack a set of sieves in order according to the size openings specified above, beginning with the largest size opening (4 mm) at the top. Place a collector pan underneath the bottom (0.25 mm) sieve.

e. **Step 4:** Carefully pour the sample into the sieve stack, minimizing escape of dust particles by slowly brushing material into the stack with a whiskbroom or brush. (On windy days, use the trunk or door of a car as a wind barricade.) Cover the stack with a lid. Lift up the sieve stack and shake it vigorously up, down and sideways for at least 1 minute.

f. **Step 5**: Remove the lid from the stack and disassemble each sieve separately, beginning with the top sieve. As you remove each sieve, examine it to make sure that all of the material has been sifted to the finest sieve through which it can pass (e.g., material in each sieve [besides the top sieve that captures a range of larger elements] should look the same size). If this is not the case, re-stack the sieves and collector pan, cover the stack with the lid, and shake it again for at least 1 minute. (You only need to reassemble the sieve(s) that contain material, which requires further sifting.)

g. **Step 6**: After disassembling the sieves and collector pan, slowly sweep the material from the collector pan into the empty container originally used to collect and weigh the entire sample. Take care to minimize escape of dust particles. You do not need to do anything with material captured in the sieves; only the collector pan. Weigh the container with the material from the collector pan and record its weight.

h. **Step 7**: If the source is an unpaved road, multiply the resulting weight by 0.38. If the source is an unpaved parking lot, multiply the resulting weight by 0.55. The resulting number is the estimated silt loading. Then, divide by the total weight of the sample you recorded earlier in Step 2 (Section 2.1.2(c) of this appendix) and multiply by 100 to estimate the percent silt content.

i. **Step 8**: Select another two routinely traveled portions of the unpaved road or unpaved parking lot and repeat this test method. Once you have calculated the silt loading and percent silt content of the 3 samples collected, average your results together.

j. **Step 9:** Examine results. If the average silt loading is less than 0.33 oz/ft^2, the surface is STABLE. If the average silt loading is greater than or equal to 0.33 oz/ft^2, then proceed to examine the average percent silt content. If the source is an unpaved road and the average percent silt content is 6% or less, the surface is STABLE. If the source is an unpaved parking lot and the average percent silt content is 8% or less, the surface is STABLE. If your field test results are within 2% of the standard (for example, 4%–8% silt content on an unpaved road), it is recommended that you collect 3 additional samples from the source according to Step 1 (Section 2.1.2(b) of this appendix) and take them to an independent laboratory for silt content analysis.

k. **Independent Laboratory Analysis:** You may choose to collect 3 samples from the source, according to Step 1 (Section 2.1.2(b) of this appendix), and send them to an independent laboratory for silt content analysis rather than conduct the sieve field procedure. If so, the test method the laboratory is required to use is: U.S. Environmental Protection Agency (1995), "Procedures for Laboratory Analysis of Surface/Bulk Dust Loading Samples", (AP-42 Fifth Edition, Volume I, Appendix C.2.3 "Silt Analysis"), Office of Air Quality Planning and Standards, Research Triangle Park, North Carolina.

2.2 Stabilization Limitations for Open Areas and Vacant Lots: The test methods described in Section 2.3 through Section 2.7 of this appendix shall be used to determine whether an open area or a vacant lot has a stabilized surface. Should a disturbed open area or vacant lot contain more than one type of disturbance, soil, vegetation, or other characteristics, which are visibly distinguishable, test each representative surface separately for stability, in an area that represents a random portion of the overall disturbed conditions of the site, according to the appropriate test methods in Section 2.3 through Section 2.7 of this appendix.

2.3 Soil Crust Determination (the Drop Ball Test):

2.3.1 Drop a steel ball with a diameter of 15.9 millimeters (0.625 inches) and a mass ranging from 16-17 grams (0.56-0.60 ounce) from a distance of one foot directly above (at a 90° angle perpendicular to) the soil surface. If blowsand is present, clear the blowsand from the surfaces on which the drop ball test is conducted. Blowsand is defined as thin deposits of loose uncombined grains covering less than 50% of a vacant lot or project site that have not originated from the representative surface being tested. If material covers a visible crust, which is not blowsand, apply the test method in Section 2.4: Determination of Threshold Friction Velocity (TFV) of this appendix to the loose material to determine whether the surface is stabilized.

2.3.2 A sufficient crust is defined under the following conditions: once a ball has been dropped according to Section 2.3.1 of this appendix, the ball does not sink into the surface, so that it is partially or fully surrounded by loose grains and, upon removing the ball, the surface upon which it fell has not been pulverized, so that loose grains are visible.

2.3.3 Randomly select each representative disturbed surface for the drop ball test by using a blind "over the shoulder" toss of a throwable object (e.g., a metal weight with survey tape attached). Using the point of fall as the lower left-hand corner, measure a one-foot square area. Drop the ball three times within the one-foot by one-foot square survey area, using a consistent pattern across the survey area. The survey area shall be considered to have passed the drop ball test if at least two out of the three times that the ball was dropped, the results met the criteria in Section 2.3.2 of this appendix. Select at least two other

survey areas that represent a random portion of the overall disturbed conditions of the site, and repeat this procedure. If the results meet the criteria of Section 2.3.2 of this appendix for all of the survey areas tested, then the site shall be considered to have passed the drop ball test and shall be considered sufficiently crusted.

2.3.4 At any given site, the existence of a sufficient crust covering one portion of the site may not represent the existence or protectiveness of a crust on another portion of the site. Repeat the drop ball test as often as necessary on each portion of the overall conditions of the site using the random selection method set forth in Section 2.3.3 of this appendix for an accurate assessment.

2.4 Determination of Threshold Friction Velocity (TFV): For disturbed surface areas that are not crusted or vegetated, determine threshold friction velocity (TFV) according to the following sieving field procedure (based on a 1952 laboratory procedure published by W. S. Chepil).

2.4.1 Obtain and stack a set of sieves with the following openings: 4 millimeters (mm), 2 mm, 1 mm, 0.5 mm, and 0.25 mm or obtain and stack a set of standard/commonly available sieves. Place the sieves in order according to size openings, beginning with the largest size opening at the top. Place a collector pan underneath the bottom (0.25 mm) sieve. Collect a sample of loose surface material from an area at least 30 cm by 30 cm in size to a depth of approximately 1 cm using a brush and dustpan or other similar device. Only collect soil samples from dry surfaces (i.e., when the surface is not damp to the touch). Remove any rocks larger than 1 cm in diameter from the sample. Pour the sample into the top sieve (4-mm opening) and cover the sieve/collector pan unit with a lid. Minimize escape of particles into the air when transferring surface soil into the sieve/collector pan unit. Move the covered sieve/collector pan unit by hand using a broad, circular arm motion in the horizontal plane. Complete twenty circular arm movements, ten clockwise and ten counter-clockwise, at a speed just necessary to achieve some relative horizontal motion between the sieves and the particles. Remove the lid from the sieve/collector pan unit and disassemble each sieve separately beginning with the largest sieve. As each sieve is removed, examine it for loose particles. If loose particles have not been sifted to the finest sieve through which they can pass, reassemble and cover the sieve/collector pan unit and gently rotate it an additional ten times. After disassembling the sieve/collector pan unit, slightly tilt and gently tap each sieve and the collector pan so that material aligns along one side. In doing so, minimize escape of particles into the air. Line up the sieves and collector pan in a row and visibly inspect the relative quantities of catch in order to determine which sieve (or whether the collector pan) contains the greatest volume of material. If a visual determination of relative volumes of catch among sieves is difficult, use a graduated cylinder to measure the volume. Estimate TFV for the sieve catch with the greatest volume using Table 1 of this appendix, which provides a correlation between sieve opening size and TFV.

Table 1. Determination of Threshold Friction Velocity

Tyler Sieve No.	ASTM 11 Sieve No.	Opening (mm)	TFV(cm/s)
5	5	4	135
9	10	2	100
16	18	1	76
32	35	0.5	58
60	60	0.25	43
Collector Pan	—	—	30

2.4.2 Collect at least three soil samples which represent random portions of the overall conditions of the site, repeat the above TFV test method for each sample and average the resulting TFVs together to determine the TFV uncorrected for non-erodible elements. Non-erodible elements are distinct elements, in the random portion of the overall conditions of the site, that are larger than 1 cm in diameter, remain firmly in place during a wind episode, and inhibit soil loss by consuming part of the shear stress of the wind. Non-erodible elements include stones and bulk surface material but do not include flat or standing vegetation. For surfaces with non-erodible elements, determine corrections to the TFV by identifying the fraction of the survey area, as viewed from directly overhead, that is occupied by non-erodible elements using the following procedure. For a more detailed description of this procedure, see Section 2.7 (Test Methods for Stabilization-Rock Test Method) of this appendix. Select a survey area of 1 meter by 1 meter that represents a random portion of the overall conditions of the site. Where many non-erodible elements lie within the survey area, separate the non-erodible elements into groups according to size. For each group, calculate the overhead area for the non-erodible elements according to the following equations:

Average Length × Average Width = Average Dimensions Eq. 1

Average Dimensions × Number of Elements = Overhead Area Eq. 2

Overhead Area of Group 1 + Overhead Area of Group 2 (etc.) = Total Overhead Area Eq. 3

Total Overhead Area ÷ 2 = Total Frontal Area Eq. 4

(Total Frontal Area ÷ Survey Area) × 100 = Percent Cover of Non-Erodible Elements Eq. 5

Note: Ensure consistent units of measurement (e.g., square meters or square inches) when calculating percent cover.

Repeat this procedure on an additional two distinct survey areas that represent a random portion of the overall conditions of the site and average the results. Use Table 2 of this appendix to identify the correction factor for the percent cover of non-erodible elements. Multiply the TFV by the corresponding correction factor to calculate the TFV corrected for non-erodible elements.

Table 2. Correction Factors for Threshold Friction Velocity

Percent Cover of Non-Erodible Elements	Correction Factor
Greater than or equal to 10%	5
Greater than or equal to 5% and less than 10%	3
Less than 5% and greater than or equal to 1%	2
Less than 1%	None

2.5 Determination of Flat Vegetative Cover: Flat vegetation includes attached (rooted) vegetation or unattached vegetative debris lying on the surface with a predominant horizontal orientation that is not subject to movement by wind. Flat vegetation, which is dead but firmly attached, shall be considered equally protective as live vegetation. Stones or other aggregate larger than 1 centimeter in diameter shall be considered protective cover in the course of conducting the line transect test method. Where flat vegetation exists, conduct the following line transect test method.

2.5.1 Line Transect Test Method: Stretch a 100-foot measuring tape across a survey area that represents a random portion of the overall conditions of the site. Firmly anchor both ends of the measuring tape into the surface using a tool such as a screwdriver, with the tape stretched taut and close to the soil surface. If vegetation exists in regular rows, place the tape diagonally (at approximately a 45° angle) away from a parallel or perpendicular position to the vegetated rows. Pinpoint an area the size of a 3/32 inch diameter brazing rod or wooden dowel centered above each 1-foot interval mark along one edge of the tape. Count the number of times that flat vegetation lies directly underneath the pinpointed area at 1-foot intervals. Consistently observe the underlying surface from a 90° angle directly above each pinpoint on one side of the tape. Do not count the underlying surface as vegetated if any portion of the pinpoint extends beyond the edge of the vegetation underneath in any direction. If clumps of vegetation or vegetative debris lie underneath the pinpointed area, count the surface as vegetated, unless bare soil is visible directly below the pinpointed area. When 100 observations have been made, add together the number of times a surface was counted as vegetated. This total represents the percent of flat vegetation cover (e.g., if 35 positive counts were made, then vegetation cover is 35%). If the survey area that represents a random portion of the overall conditions of the site is too small for 100 observations, make as many observations as possible. Then multiply the count of vegetated surface areas by the appropriate conversion factor to obtain percent cover. For example, if vegetation was counted 20 times within a total of 50 observations, divide 20 by 50 and multiply by 100 to obtain a flat vegetation cover of 40%.

2.5.2 Conduct the line transect test method, as described in Section 2.5.1 of this appendix, an additional two times on areas that represent a random portion of the overall conditions of the site and average results.

2.6 Determination of Standing Vegetative Cover: Standing vegetation includes vegetation that is attached (rooted) with a predominant vertical orientation. Standing vegetation, which is dead but firmly rooted, shall be considered equally protective as live vegetation. Conduct the following standing vegetation test method to determine if 30% cover or more exists. If the resulting percent cover is less than 30% but equal to or greater than 10%, then conduct the test in Section 2.4 (Determination of Threshold Friction Velocity [TFV]) of this appendix in order to determine if the site is stabilized, such that the standing vegetation cover is equal to or greater than 10%, where threshold friction velocity, corrected for non-erodible elements, is equal to or greater than 43 cm/second.

2.6.1 For standing vegetation that consists of large, separate vegetative structures (e.g., shrubs and sagebrush), select a survey area that represents a random portion of the overall conditions of the site that is the shape of a square with sides equal to at least 10 times the average height of the vegetative structures. For smaller standing vegetation, select a survey area of three feet by three feet.

2.6.2 Count the number of standing vegetative structures within the survey area. Count vegetation, which grows in clumps as a single unit. Where different types of vegetation exist and/or vegetation of different height and width exists, separate the vegetative structures with similar dimensions into groups. Count the number of vegetative structures in each group within the survey area. Select an individual structure within each group that represents the average height and width of the vegetation in the group. If the structure is dense (e.g., when looking at it vertically from base to top there is little or zero open air space within its perimeter), calculate and record its frontal silhouette area, according to Equation 6 of this appendix. Also, use Equation 6 of this appendix to estimate the average height and width of the vegetation if the survey area is larger than nine square feet. Otherwise, use the procedure in Section 2.6.3 of this appendix to calculate the frontal silhouette area. Then calculate the percent cover of standing vegetation according to Equations 7, 8, and 9 of this appendix.

Average Height × Average Width = Frontal Silhouette Area Eq. 6

Frontal Silhouette Area of Individual Vegetative Structure ×
Number of Vegetation Structures Per Group = Frontal Silhouette Area of Group Eq. 7

Frontal Silhouette Area of Group 1 + Frontal Silhouette Area of Group 2 (etc.)
= Total Frontal Silhouette Area. Eq. 8

(Total Frontal Silhouette Area ÷ Survey Area) × 100
= Percent Cover of Standing Vegetation Eq. 9

[(Number of Circled Gridlines within the Outlined Area Counted that are not Covered by Vegetation ÷ Total Number of Gridline Intersections within the Outlined Area) × 100]
= Percent Open Space Eq. 10

100 – Percent Open Space = Percent Vegetative Density Eq. 11

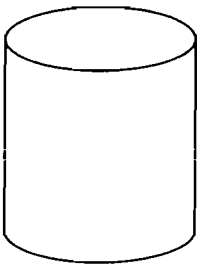
Percent Vegetative Density ÷ 100 = Vegetative Density Eq. 12

Max. Height × Max. Width × (Vegetative Density ÷ 0.4)$^{0.5}$ = Frontal Silhouette Area Eq. 13

Note: Ensure consistent units of measurement (e.g., square meters or square inches) when calculating percent cover.

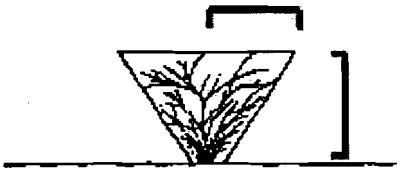
2.6.3 Vegetative Density Factor: Cut a single, representative piece of vegetation (or consolidated vegetative structure) to within 1 cm of surface soil. Using a white paper grid or transparent grid over white paper, lay the vegetation flat on top of the grid (but do not apply pressure to flatten the structure). Grid boxes of 1-inch or ½-inch squares are sufficient for most vegetation when conducting this procedure. Using a marker or pencil, outline the shape of the vegetation along its outer perimeter, according to Figure B, C, or D of this appendix, as appropriate. (Note: Figure C differs from Figure D primarily in that the width of vegetation in Figure C is narrow at its base and gradually broadens to its tallest height. In Figure D, the width of the vegetation generally becomes narrower from its midpoint to its tallest height.) Remove the vegetation, count and record the total number of gridline intersections within the outlined area, but do not count gridline intersections that connect with the outlined shape. There must be at least 10 gridline intersections within the outlined area and preferably more than 20, otherwise, use smaller grid boxes. Draw small circles (no greater than a 3/32-inch diameter) at each gridline intersection counted within the outlined area. Replace the vegetation on the grid within its outlined shape. From a distance of approximately 2 feet directly above the grid, observe each circled gridline intersection. Count and record the number of circled gridline intersections that are not covered by any piece of the vegetation. To calculate percent vegetative density, use Equations 10 and 11 of this appendix. If percent vegetative density is equal to or greater than 30, use an equation (one of the Equations 14, 15, or 16 of this appendix) that matches the outline used to trace the vegetation (Figure B, C, or D) to calculate its frontal silhouette area. If percent vegetative density is less than 30, use Equations 12 and 13 of this appendix to calculate the frontal silhouette area.

Figure B. Cylinder



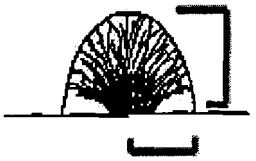
Frontal Silhouette Area = Maximum Height × Maximum Width Eq. 14

Figure C. Inverted Cone



Frontal Silhouette Area = Maximum Height × ½ Maximum Width Eq. 15

Figure D. Upper Sphere



Frontal Silhouette Area = (3.14 × Maximum Height × ½ Maximum Width) ÷ 2 Eq. 16

2.7 Rock Test Method: The Rock Test Method, which is similar to Section 2.4 (Test Methods for Stabilization-Determination of Threshold Friction Velocity [TFV]) of this appendix, examines the wind-resistance effects of rocks and other non-erodible elements on disturbed surfaces. Non-erodible elements are objects larger than 1 centimeter (cm) in diameter that remain firmly in place even on windy days. Typically, non-erodible elements include rocks, stones, glass fragments, and hard-packed clumps of soil lying on or embedded in the surface. Vegetation does not count as a non-erodible element in this method. The purpose of this test method is to estimate the percent cover of non-erodible elements on a given surface to see whether such elements take up enough space to offer protection against windblown dust. For simplification, the following test method refers to all non-erodible elements as "rocks".

2.7.1 Select a 1-meter × 1-meter survey area that represents the general rock distribution on the surface. (A 1-meter × 1-meter area is slightly greater than a 3-foot × 3-foot area). Mark off the survey area by tracing a straight, visible line in the dirt along the edge of a measuring tape or by placing short ropes, yard sticks, or other straight objects in a square around the survey area.

2.7.2 Without moving any of the rocks or other elements, examine the survey area. Since rocks > 3/8 inch (1 cm) in diameter are of interest, measure the diameter of some of the smaller rocks to a get a sense for which rocks need to be considered.

2.7.3 Mentally group the rocks > 3/8 inch (1 cm) diameter lying in the survey area into small, medium, and large size categories. Or, if the rocks are all approximately the same size, simply select a rock of average size and typical shape. Without removing any of the rocks from the ground, count the number of rocks in the survey area in each group and write down the resulting number.

2.7.4 Without removing rocks, select one or two average-size rocks in each group and measure the length and width. Use either metric units or standard units. Using a calculator, multiply the length times the width of the rocks to get the average dimensions of the rocks in each group. Write down the results for each rock group.

2.7.5 For each rock group, multiply the average dimensions (length times width) by the number of rocks counted in the group. Add the results from each rock group to get the total rock area within the survey area.

2.7.6 Divide the total rock area, calculated in Section 2.7.5 of this appendix, by two (to get frontal area). Divide the resulting number by the size of the survey area (making sure the units of measurement match), and multiply by 100 for percent rock cover. For example, the total rock area is 1,400 square centimeters, divide 1,400 by 2 to get 700. Divide 700 by 10,000 (the survey area is 1 meter by 1 meter, which is 100 centimeters by 100 centimeters or 10,000 square centimeters), and multiply by 100. The result is 7% rock cover. If rock measurements are made in inches, convert the survey area from meters to inches (1 inch = 2.54 centimeters).

2.7.7 Select and mark off two additional survey areas and repeat the procedures described in Sections 2.7.1 through 2.7.6 of this appendix. Make sure the additional survey areas also represent the general rock distribution on the site. Average the percent cover results from all three survey areas to estimate the average percent of rock cover.

2.7.8 If the average rock cover is greater than or equal to 10%, the surface is stable. If the average rock cover is less than 10%, follow the procedures in Section 2.7.9 of this appendix.

2.7.9 If the average rock cover is less than 10%, the surface may or may not be stable. Follow the procedures in Section 2.4 (Determination of Threshold Friction Velocity [TFV]) of this rule and use the results from the rock test method as a correction (i.e., multiplication) factor. If the rock cover is at least 1%, such rock cover helps to limit windblown dust. However, depending on the soil's ability to release fine dust particles into the air, the percent rock cover may or may not be sufficient enough to stabilize the surface. It is also possible that the soil itself has a high enough TFV to be stable without even accounting for rock cover.

2.7.10 After completing the procedures described in Section 2.7.9 of this appendix, use Table 2 of this appendix to identify the appropriate correction factor to the TFV, depending on the percent rock cover. Multiply the correction factor by the TFV value for a final TFV estimate that is corrected for non-erodible elements.

3. VISUAL OPACITY DETERMINATION OF EMISSIONS FROM DUST-GENERATING OPERATIONS

3.1 Applicability: This method is applicable for the determination of opacity of fugitive dust plumes from dust-generating operations.

3.2 Principle: the opacity of emissions from sources of visible emissions is determined visually by an observer qualified according to the procedures of Section 3.4 of this appendix.

3.3 Procedures: An observer qualified in accordance with Section 3.4 of this appendix, shall use the following procedures for visually determining the opacity of emissions.

3.3.1 To determine the opacity of non-continuous dust plumes caused by activities including, but not limited to, bulk material loading/unloading, non-conveyorized screening, or trenching with backhoes:

a. Position: Stand at least 25 feet from the dust-generating operation in order to provide a clear view of the emissions with the sun oriented in the 140° sector to the back. Choose a discrete portion of the operation for observation, such as the unloading point, not the whole operation. Following the above requirements, make opacity observations so that the line of vision is approximately perpendicular to the dust plume and wind direction. If multiple plumes are involved, do not include more than one plume in the line of sight at one time.

b. Initial Fallout Zone: The initial fallout zone within the plume must be identified. Record the distance from the equipment or path that is your identified initial fallout zone. The initial fallout zone is that area where the heaviest particles drop out of the entrained fugitive dust plume. Opacity readings should be taken at the maximum point of the entrained fugitive dust plume that is located outside the initial fallout zone.

c. Field Records: Note the following on an observational record sheet:

(1) Location of dust-generating operation, type of operation, type of equipment in use and activity, and method of control used, if any;

(2) Observer's name, certification data and affiliation, a sketch of the observer's position relative to the dust-generating operation, and

observer's estimated distance and direction to the location of the dust-generating operation;

(3) Time that readings begin, approximate wind direction, estimated wind speed, description of the sky condition (presence and color of clouds); and

(4) Color of the plume and type of background.

d. **Observations:** Make opacity observations, to the extent possible, using a contrasting background that is perpendicular to the line of vision. Make two observations per discrete activity, beginning with the first reading at zero seconds and the second reading at five seconds. The zero-second observation should begin immediately after a plume has been created above the surface involved. Do not look continuously at the plume but, instead, observe the plume briefly at zero seconds and then again at five seconds.

e. **Recording Observations:** Record the opacity observations to the nearest 5% on an observational record sheet. Each momentary observation recorded represents the average opacity of emissions for a five-second period. Repeat observations until you have recorded at least a total of 12 consecutive opacity readings. The 12 consecutive readings must be taken within the same period of observation but must not exceed one hour. Observations immediately preceding and following interrupted observations can be considered consecutive (e.g., vehicle traveled in front of path, plume doubled over).

f. **Data Reduction:** Average 12 consecutive opacity readings together. If the average opacity reading equals 20% or lower, the dust-generating operation is in compliance.

3.3.2 To determine the opacity of continuous dust plumes caused by equipment and activities including but not limited to graders, trenchers, paddlewheels, blades, clearing, leveling, and raking:

a. **Position:** Stand at least 25 feet from the dust-generating operation to provide a clear view of the emissions with the sun oriented in the 140° sector to your back. Following the above requirements, make opacity observations so that the line of vision is approximately perpendicular to the dust plume and wind direction.

b. **Dust Plume:** Evaluate the dust plume generation and determine if the observations will be made from a single plume or from multiple related plumes.

(1) If a single piece of equipment is observed working, then all measurements should be taken off the resultant plume as long as the equipment remains within the 140° sector to the back.

(2) If there are multiple related sources or multiple related points of emissions of dust from a particular activity, or multiple pieces of equipment operating in a confined area, opacity readings should be taken at the densest point within the discrete length of equipment travel path within the 140° sector to the back. Readings can be taken for more than one piece of equipment within the discrete length of travel path within the 140° sector to the back.

c. **Initial Fallout Zone:** The initial fallout zone within the plume must be identified. Record the distance from the equipment or path that is your identified initial fallout zone. The initial fallout zone is that area where the heaviest particles drop out of the entrained fugitive dust plume. Opacity readings should be taken at the maximum point of the entrained fugitive dust plume that is located outside the initial fallout zone.

d. **Field Records:** Note the following on an observational record sheet:

(1) Location of the dust-generating operation, type of operation, type of equipment in use and activity, and method of control used, if any;

(2) Observer's name, certification data and affiliation, a sketch of the observer's position relative to the dust-generating operation, and observer's estimated distance and direction to the location of the dust-generating operation; and

(3) Time that readings begin, approximate wind direction, estimated wind speed, description of the sky condition (presence and color of clouds).

e. **Observations:** Make opacity observations, to the extent possible, using a contrasting background that is perpendicular to the line of vision. Make opacity observations at a point beyond the fallout zone. The observations should be made at the densest point. Observations will be made every 10 seconds until at least 12 readings have been recorded. Do not look continuously at the plume, but observe the plume momentarily at 10-second intervals. If the equipment generating the plume travels outside the field of observation or if the equipment ceases to operate, mark an "X" for the 10-second reading interval. Mark an "X" when plumes are stacked or doubled, either behind or in front, or become parallel to line of sight. Opacity readings identified as "X" shall be considered interrupted readings.

f. **Recording Observations:** Record the opacity observations to the nearest 5% on an observational record sheet. Each momentary observation recorded represents the average opacity of emissions for a 10-second period.

g. **Data Reduction:** Average 12 consecutive opacity readings together. If the average opacity reading equals 20% or lower, the dust-generating operation is in compliance.

3.4 Qualification and Testing:

3.4.1 Certification Requirements: To receive certification as a qualified observer, a candidate must be tested and demonstrate the ability to assign opacity readings in 5% increments to 25 different black plumes and 25 different white plumes, with an error not to exceed 15% opacity on any one reading and an average error not to exceed 7.5% opacity in each category. Candidates shall be tested according to the procedures described in Section 3.4.2 of this appendix. Any smoke generator used pursuant to Section 3.4.2 of this appendix shall be equipped with a smoke meter which meets the requirements of Section 3.4.3 of this appendix. Certification tests that do not meet the requirements of Sections 3.4.2 and 3.4.3 of this appendix are not valid. The certification shall be valid for a period of 6 months, and after each 6-month period the qualification procedures must be repeated by an observer in order to retain certification.

3.4.2 Certification Procedure: The certification test consists of showing the candidate a complete run of 50 plumes, 25 black plumes and 25 white plumes, generated by a smoke generator. Plumes shall be presented in random order within each set of 25 black and 25 white plumes. The candidate assigns an opacity value to each plume and records the observation on a suitable form. At the completion of each run of 50 readings, the score of the candidate is determined. If a candidate fails to qualify, the complete run of 50 readings must be repeated in any retest. The smoke test may be administered as part of a smoke school or training program, and may be preceded by training or familiarization runs of the smoke generator, during which candidates are shown black and white plumes of known opacity.

3.4.3 Smoke Generator Specifications: Any smoke generator used for the purpose of Section 3.4.2 of this appendix shall be equipped with a smoke meter installed to measure opacity across the diameter of the smoke generator stack. The smoke meter output shall display in-stack opacity, based upon a path length equal to the stack exit diameter on a full 0% to 100% chart recorder scale. The smoke meter optical design and performance shall meet the specifications shown in Table 3 of this appendix. The smoke meter shall be calibrated as prescribed in Section 3.4.3(a) of this appendix prior to conducting each smoke reading test. At the completion of each test, the zero and span drift shall be checked, and if the drift exceeds plus or minus 1% opacity, the condition shall be corrected prior to conducting any subsequent test runs. The smoke meter

shall be demonstrated, at the time of installation, to meet the specifications listed in Table 3 of this appendix. This demonstration shall be repeated following any subsequent repair or replacement of the photocell or associated electronic circuitry, including the chart recorder or output meter, or every 6 months, whichever occurs first.

a. Calibration: The smoke meter is calibrated after allowing a minimum of 30 minutes warm-up by alternately producing simulated opacity of 0% and 100%. When stable response at 0% or 100% is noted, the smoke meter is adjusted to produce an output of 0% or 100%, as appropriate. This calibration shall be repeated until stable 0% and 100% readings are produced without adjustment. Simulated 0% and 100% opacity values may be produced by alternately switching the power to the light source on and off while the smoke generator is not producing smoke.

b. Smoke Meter Evaluation: The smoke meter design and performance are to be evaluated as follows:

(1) Light Source: Verify, from manufacturer's data and from voltage measurements made at the lamp, as installed, that the lamp is operated within plus or minus 5% of the nominal rated voltage.

(2) Spectral Response of Photocell: Verify from manufacturer's data that the photocell has a photopic response (i.e., the spectral sensitivity of the cell shall closely approximate the standard spectral-luminosity curve for photopic vision which is referenced in (b) of Table 3 of this appendix).

(3) Angle of View: Check construction geometry to ensure that the total angle of view of the smoke plume, as seen by the photocell, does not exceed 15°. Calculate the total angle of view (φ_v) as follows:

Total Angle of View = $2 \tan^{-1} (d/2L)$

where:
d = The photocell diameter + the diameter of the limiting aperture; and
L = The distance from the photocell to the limiting aperture. The limiting aperture is the point in the path between the photocell and the smoke plume where the angle of view is most restricted. In smoke generator smoke meters, this is normally an orifice plate.

(4) Angle of Projection: Check construction geometry to ensure that the total angle of projection of the lamp on the smoke plume does not exceed 15°. Calculate the total angle of projection (φ_p) as follows:

Total Angle of Projection = $2 \tan^{-1} (d/2L)$

where:
d = The sum of the length of the lamp filament + the diameter of the limiting aperture; and
L = The distance from the lamp to the limiting aperture.

(5) **Calibration Error:** Using neutral-density filters of known opacity, check the error between the actual response and the theoretical linear response of the smoke meter. This check is accomplished by first calibrating the smoke meter, according to Section 3.4.3(a) of this appendix, and then inserting a series of three neutral-density filters of nominal opacity of 20%, 50%, and 75% in the smoke meter path length. Use filters calibrated within plus or minus 2%. Care should be taken when inserting the filters to prevent stray light from affecting the meter. Make a total of five nonconsecutive readings for each filter. The maximum opacity error on any one reading shall be plus or minus 3%.

(6) **Zero and Span Drift:** Determine the zero and span drift by calibrating and operating the smoke generator in a normal manner over a 1-hour period. The drift is measured by checking the zero and span at the end of this period.

(7) **Response Time:** Determine the response time by producing the series of five simulated 0% and 100% opacity values and observing the time required to reach stable response. Opacity values of 0% and 100% may be simulated by alternately switching the power to the light source off and on while the smoke generator is not operating.

Table 3. Smoke Meter Design and Performance Specifications

Parameter	Specification
a. Light source	Incandescent lamp operated at nominal rated voltage.
b. Spectral response of photocell	Photopic (daylight spectral response of the human eye)
c. Angle of view	15° maximum total angle
d. Angle of projection	15° maximum total angle
e. Calibration error	Plus or minus 3% opacity, maximum
f. Zero and span drift	Plus or minus 1% opacity, 30 minutes
g. Response time	Less than or equal to 5 seconds

4. VISUAL OPACITY DETERMINATION OF EMISSIONS FROM LIVESTOCK ACTIVITIES – CORRALS, PENS, AND ARENAS

4.1 Applicability: This method is applicable for the determination of opacity of fugitive dust plumes from livestock activities (corrals, pens, and arenas).

4.2 Principle: The opacity of emissions from livestock activities (corrals, pens, and arenas) is determined visually by an observer qualified according to Section 3.4 of this appendix.

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Adopted 04/07/04

APPENDIX F
SOIL DESIGNATIONS

INDEX

SECTION 1 – SOIL DESCRIPTIONS

SECTION 2 – SOIL MAP

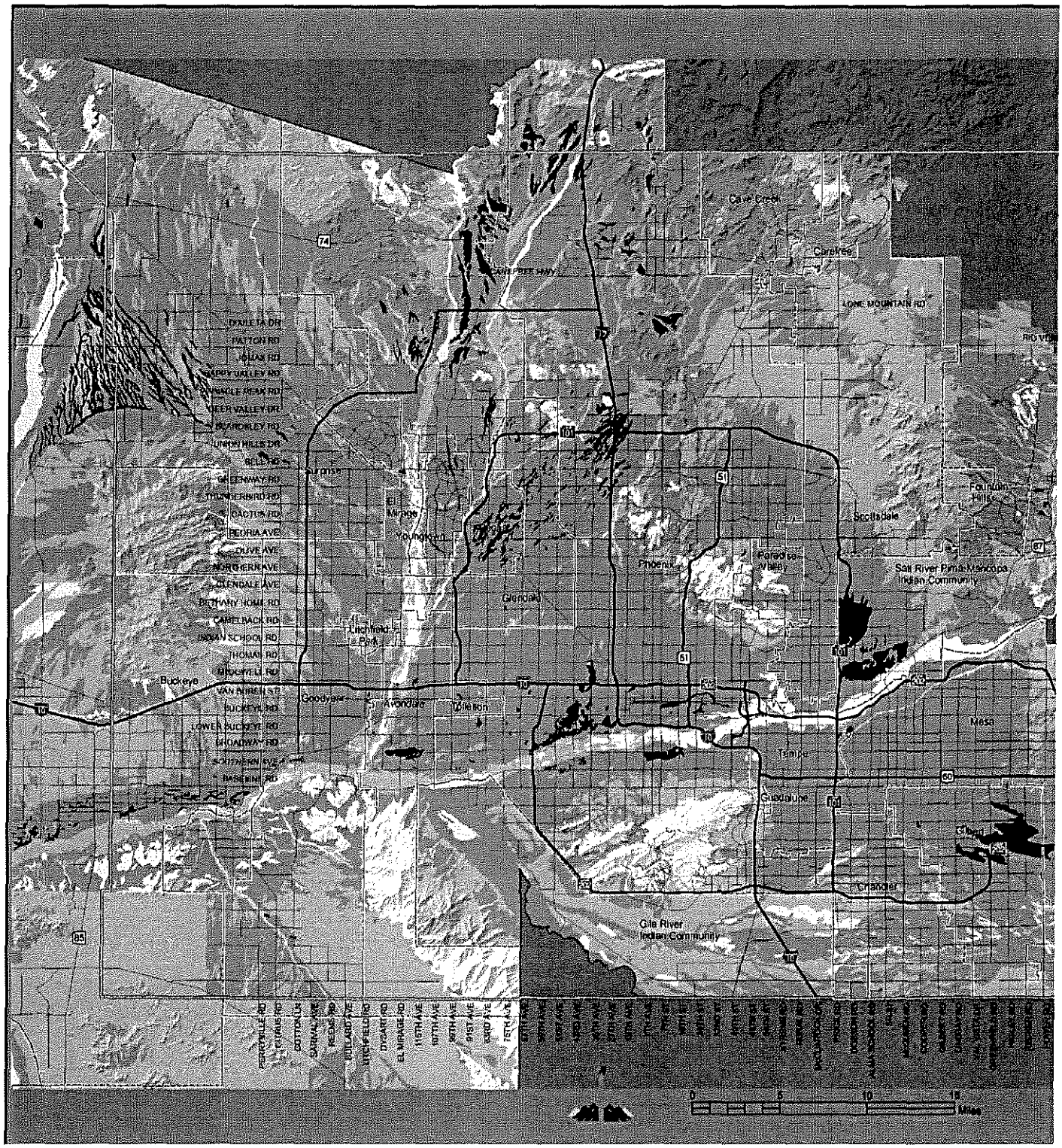
MARICOPA COUNTY
AIR POLLUTION CONTROL REGULATIONS

APPENDIX F
SOIL DESIGNATIONS

1. SOIL DESCRIPTIONS

   a. VERY SLIGHT SOIL TEXTURE – includes very fine sand, fine sand, sand, coarse sand, loamy very fine sand, loamy fine sand, loamy sand.
   b. SLIGHT SOIL TEXTURE – includes very fine sandy loam, fine sandy loam, sandy loam, course sandy loam.
   c. MODERATE SOIL TEXTURE – includes loam, silt loam, clay loam, silty clay loam, sandy clay loam.
   d. SEVERE SOIL TEXTURE – includes clay, silty clay, sandy clay.

2. SOIL MAP


Cave Creek
Carefree
CAREFREE HWY
LONE MOUNTAIN RD
DIXILETA DR
PATTON RD
ALMA RD
DEER VALLEY RD
PINNACLE PEAK RD
HAPPY VALLEY RD
UNION HILLS DR
BELL RD
GLENDALE AVE
PEORIA AVE
OLIVE AVE
NORTHERN AVE
GLENDALE AVE
CAMELBACK RD
INDIAN SCHOOL RD
THOMAS RD
MCDOWELL RD
VAN BUREN ST
BROADWAY RD
SOUTHERN AVE
BASELINE RD
Litchfield Park
Buckeye
Goodyear
Avondale
Tolleson
Youngtown
El Mirage
Peoria
Glendale
Phoenix
Paradise Valley
Scottsdale
Fountain Hills
Salt River Pima-Maricopa Indian Community
Tempe
Mesa
Guadalupe
Gilbert
Chandler
Gila River Indian Community
PERRYVILLE RD
CHANDLER BLVD
COTTONWOOD
SONORAN BLVD
PECOS RD
GUADALUPE
WARNER RD
CHANDLER BLVD
RAY RD
ELLIOT RD
GERMANN RD
ALMA SCHOOL RD
CHANDLER BLVD
RAY RD
PECOS RD
GUADALUPE
SOUTHERN AVE
BASELINE RD
0
5
10
15
Miles